



OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH

Grant Number: 5P51OD011107-56
FAIN: P51OD011107

Principal Investigator(s):
Cameron S. Carter, MD

Project Title: California National Primate Research Center

Karen Wood
University of California, Davis
1850 Research Park Drive
Suite 300
Davis, CA 956186153

Award e-mailed to: awards@ucdavis.edu

Period Of Performance:

Budget Period: 05/01/2017 – 04/30/2018

Project Period: 05/01/1997 – 04/30/2018

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$10,732,789 (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to Regents of the University of California in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the Office Of The Director, National Institutes Of Health of the National Institutes of Health under Award Number P51OD011107. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/coi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

JENELLE D. WIGGINS
Grants Management Officer
OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH

Additional information follows

SECTION I – AWARD DATA – 5P51OD011107-56**Award Calculation (U.S. Dollars)**

Salaries and Wages	\$2,470,414
Fringe Benefits	\$1,073,834
Personnel Costs (Subtotal)	\$3,544,248
Consultant Services	\$486,392
Equipment	\$495,468
Materials & Supplies	\$3,718,680
Travel	\$48,063
Alterations and Renovations	\$77,941
Other	\$409,549
Publication Costs	\$33,595
ADP/Computer Services	\$17,729
Equipment or Facility Rental/User Fees	\$21,597

Federal Direct Costs	\$8,853,262
Federal F&A Costs	\$1,879,527
Approved Budget	\$10,732,789
Total Amount of Federal Funds Obligated (Federal Share)	\$10,732,789
TOTAL FEDERAL AWARD AMOUNT	\$10,732,789

AMOUNT OF THIS ACTION (FEDERAL SHARE) **\$10,732,789**

SUMMARY TOTALS FOR ALL YEARS		
YR	THIS AWARD	CUMULATIVE TOTALS
56	\$10,732,789	\$10,732,789

Fiscal Information:

CFDA Name: Research Infrastructure Programs
CFDA Number: 93.351
EIN: 1946036494A1
Document Number: POD011107J
PMS Account Type: P (Subaccount)
Fiscal Year: 2017

IC	CAN	2017
OD	8014499	\$10,622,502
AG	8470701	\$110,287

NIH Administrative Data:

PCC: CMP01 / **OC:** 414E / **Released:** eRA Commons
User Name 06/28/2017
Award Processed: 07/03/2017 10:47:54 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 5P51OD011107-56

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 5P51OD011107-56

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.
- c. 45 CFR Part 75.

- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

This institution is a signatory to the Federal Demonstration Partnership (FDP) Phase VI Agreement which requires active institutional participation in new or ongoing FDP demonstrations and pilots.

Carry over of an unobligated balance into the next budget period requires Grants Management Officer prior approval.

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) P51OD011107. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

This award is not subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

This award represents the final year of the competitive segment for this grant. See the NIH Grants Policy Statement Section 8.6 Closeout for complete closeout requirements at: <http://grants.nih.gov/grants/policy/policy.htm#gps>.

A final expenditure Federal Financial Report (FFR) (SF 425) must be submitted through the eRA Commons (Commons) within 120 days of the period of performance end date; see the NIH Grants Policy Statement Section 8.6.1 Financial Reports, <http://grants.nih.gov/grants/policy/policy.htm#gps>, for additional information on this submission requirement. The final FFR must indicate the exact balance of unobligated funds and may not reflect any unliquidated obligations. There must be no discrepancies between the final FFR expenditure data and the Payment Management System's (PMS) quarterly cash transaction data. A final quarterly federal cash transaction report is not required for awards in PMS B subaccounts (i.e., awards to foreign entities and to Federal agencies). NIH will close the awards using the last recorded cash drawdown level in PMS for awards that do not require a final FFR on expenditures or quarterly federal cash transaction reporting. It is important to note that for financial closeout, if a grantee fails to submit a required final expenditure FFR, NIH will close the grant using the last

recorded cash drawdown level. If the grantee submits a final expenditure FFR but does not reconcile any discrepancies between expenditures reported on the final expenditure FFR and the last cash report to PMS, NIH will close the award at the lower amount. This could be considered a debt or result in disallowed costs.

A Final Invention Statement and Certification form (HHS 568), (not applicable to training, construction, conference or cancer education grants) must be submitted within 120 days of the expiration date. The HHS 568 form may be downloaded at: <http://grants.nih.gov/grants/forms.htm>. This paragraph does not apply to Training grants, Fellowships, and certain other programs—i.e., activity codes C06, D42, D43, D71, DP7, G07, G08, G11, K12, K16, K30, P09, P40, P41, P51, R13, R25, R28, R30, R90, RL5, RL9, S10, S14, S15, U13, U14, U41, U42, U45, UC6, UC7, UR2, X01, X02.

Unless an application for competitive renewal is submitted, a Final Research Performance Progress Report (Final RPPR) must also be submitted within 120 days of the period of performance end date. If a competitive renewal application is submitted prior to that date, then an Interim RPPR must be submitted by that date as well. Instructions for preparing an Interim or Final RPPR are at: https://grants.nih.gov/grants/rppr/rppr_instruction_guide.pdf. Any other specific requirements set forth in the terms and conditions of the award must also be addressed in the Interim or Final RPPR. *Note that data reported within Section I of the Interim and Final RPPR forms will be made public and should be written for a lay person audience.*

NIH strongly encourages electronic submission of the final invention statement through the Closeout feature in the Commons, but will accept an email or hard copy submission as indicated below.

Email: The final invention statement may be e-mailed as PDF attachments to:
NIHCloseoutCenter@mail.nih.gov.

Hard copy: Paper submissions of the final invention statement may be faxed to the NIH Division of Central Grants Processing, Grants Closeout Center, at 301-480-2304, or mailed to:

National Institutes of Health
Office of Extramural Research
Division of Central Grants Processing
Grants Closeout Center
6705 Rockledge Drive
Suite 5016, MSC 7986
Bethesda, MD 20892-7986 (for regular or U.S. Postal Service Express mail)
Bethesda, MD 20817 (for other courier/express deliveries only)

NOTE: If this is the final year of a competitive segment due to the transfer of the grant to another institution, then a Final RPPR is not required. However, a final expenditure FFR is required and should be submitted electronically as noted above. If not already submitted, the Final Invention Statement is required and should be sent directly to the assigned Grants Management Specialist.

This award is funded by the following list of institutes. Any papers published under the auspices of this award must cite the funding support of all institutes.

Office Of The Director, National Institutes Of Health (OD) National Institute On Aging (NIA)

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

Treatment of Program Income:

SECTION IV – OD Special Terms and Conditions – 5P51OD011107-56

SUBJECT FOA

This award is subject to the conditions set forth in PAR14-226, "Limited Competition: National Primate Research Centers (P51)," which are hereby incorporated by reference as special terms and conditions of this award. Copies of this Funding Opportunity Announcement can be found at the following link: <https://grants.nih.gov/grants/guide/pa-files/PAR-14-226.html>

FY 2017 FUNDING PLAN

This award is being issued at 95% of the ORIP amount and 100% of the NIA amount committed for FY2017 in the previous Notice of Award.

CO-FUNDING

This award reflects support from NIA in the amount of \$110,287 total costs.

KEY PERSONNEL

In addition to the PI, the following individuals are named as key personnel (individuals who have effort that ORIP staff is tracking):

- Excluded by Requester

Written prior approval is required if any of the individual(s) named above withdraws from the project entirely, is absent from the project during any continuous period of 3 months or more, or reduces time devoted to the project by 25 percent or more from the level that was approved at the time of award.

PRIOR APPROVAL REQUEST

Any prior approval request (e.g., changes to key personnel as noted on the award, changes in human and animal subjects requiring prior approval, carryover requests) must be submitted to the assigned Grants Management Specialist and Programmatic Official. Please refer to Part II Chapter 8 the NIH Grants Policy Statement for the activities and/or expenditures that require NIH approval at <http://grants.nih.gov/grants/policy/nihgps/nihgps.pdf>

NON-COMPETING RENEWAL (NON-SNAP)

The NIH requires the use of the Research Performance Progress Report (RPPR) for all Type 5 progress reports. The RPPR and other documents applicable to this Non-SNAP grant are due the first of the month preceding the month in which the budget period ends (e.g., if the budget period ends 11/30, the due date is 10/1). Please see <http://grants.nih.gov/grants/rppr/index.htm> for additional information on the RPPR.

COMMUNICATIONS/PRESS RELEASE

If the grantee plans to issue a press release concerning the outcome of ORIP grant-supported research, it should notify Ms. Patricia Newman, ORIP Communications at 301-435-0744, in advance to allow for coordination.

The ORIP WWW home page is at <http://dpcpsi.nih.gov/orip/>

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Julia Shriner

Email: julia.shriner@nih.gov **Phone:** 301-435-0853

Program Official: Sheri Ann Hild

Email: hildsa@mail.nih.gov **Phone:** 301-435-8382 **Fax:** 301-402-4104

SPREADSHEET SUMMARY**GRANT NUMBER:** 5P51OD011107-56**INSTITUTION:** Regents of the University of California

Budget	Year 56
Salaries and Wages	\$2,470,414
Fringe Benefits	\$1,073,834
Personnel Costs (Subtotal)	\$3,544,248
Consultant Services	\$486,392
Equipment	\$495,468
Materials & Supplies	\$3,718,680
Travel	\$48,063
Alterations and Renovations	\$77,941
Other	\$409,549
Publication Costs	\$33,595
ADP/Computer Services	\$17,729
Equipment or Facility Rental/User Fees	\$21,597
TOTAL FEDERAL DC	\$8,853,262
TOTAL FEDERAL F&A	\$1,879,527
TOTAL COST	\$10,732,789

Facilities and Administrative Costs	Year 56
F&A Cost Rate 1	22.7%
F&A Cost Base 1	\$8,279,853
F&A Costs 1	\$1,879,527



OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH

Grant Number: 5P51OD011107-56 REVISED
FAIN: P51OD011107

Principal Investigator(s):
Cameron S. Carter, MD

Project Title: California National Primate Research Center

Karen Wood
University of California, Davis
1850 Research Park Drive
Suite 300
Davis, CA 956186153

Award e-mailed to: awards@ucdavis.edu

Period Of Performance:

Budget Period: 05/01/2017 – 04/30/2018

Project Period: 05/01/1997 – 04/30/2018

Dear Business Official:

The National Institutes of Health hereby revises this award to reflect a decrease in the amount of \$104,773 (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to Regents of the University of California in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and of other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the Office Of The Director, National Institutes Of Health of the National Institutes of Health under Award Number P51OD011107. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/policy/foi/> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

JENELLE D. WIGGINS
Grants Management Officer
OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH

Additional information follows

SECTION I – AWARD DATA – 5P51OD011107-56 REVISED**Award Calculation (U.S. Dollars)**

Salaries and Wages	\$2,446,299
Fringe Benefits	\$1,063,354
Personnel Costs (Subtotal)	\$3,509,653
Consultant Services	\$481,644
Equipment	\$490,631
Materials & Supplies	\$3,682,377
Travel	\$47,595
Alterations and Renovations	\$77,180
Other	\$405,551
Publication Costs	\$33,264
ADP/Computer Services	\$17,556
Equipment or Facility Rental/User Fees	\$21,386

Federal Direct Costs	\$8,766,837
Federal F&A Costs	\$1,861,179
Approved Budget	\$10,628,016
Total Amount of Federal Funds Obligated (Federal Share)	\$10,628,016
TOTAL FEDERAL AWARD AMOUNT	\$10,628,016

AMOUNT OF THIS ACTION (FEDERAL SHARE) (\$-104,773)

SUMMARY TOTALS FOR ALL YEARS		
YR	THIS AWARD	CUMULATIVE TOTALS
56	\$10,628,016	\$10,628,016

Fiscal Information:

CFDA Name: Research Infrastructure Programs
CFDA Number: 93.351
EIN: 1946036494A1
Document Number: POD011107J
PMS Account Type: P (Subaccount)
Fiscal Year: 2017

IC	CAN	2017
OD	8014499	\$10,517,729
AG	8470701	\$110,287

NIH Administrative Data:

PCC: CMP01 / **OC:** 414E / **Released:** eRA Commons
User Name 07/14/2017
Award Processed: 07/17/2017 12:12:20 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 5P51OD011107-56 REVISED

For payment and HHS Office of Inspector General Hotline information, see the NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm>

SECTION III – TERMS AND CONDITIONS – 5P51OD011107-56 REVISED

This award is based on the application submitted to, and as approved by, NIH on the above-titled project and is subject to the terms and conditions incorporated either directly or by reference in the following:

- a. The grant program legislation and program regulation cited in this Notice of Award.
- b. Conditions on activities and expenditure of funds in other statutory requirements, such as those included in appropriations acts.
- c. 45 CFR Part 75.

- d. National Policy Requirements and all other requirements described in the NIH Grants Policy Statement, including addenda in effect as of the beginning date of the budget period.
- e. Federal Award Performance Goals: As required by the periodic report in the RPPR or in the final progress report when applicable.
- f. This award notice, INCLUDING THE TERMS AND CONDITIONS CITED BELOW.

(See NIH Home Page at <http://grants.nih.gov/grants/policy/awardconditions.htm> for certain references cited above.)

Research and Development (R&D): All awards issued by the National Institutes of Health (NIH) meet the definition of "Research and Development" at 45 CFR Part§ 75.2. As such, auditees should identify NIH awards as part of the R&D cluster on the Schedule of Expenditures of Federal Awards (SEFA). The auditor should test NIH awards for compliance as instructed in Part V, Clusters of Programs. NIH recognizes that some awards may have another classification for purposes of indirect costs. The auditor is not required to report the disconnect (i.e., the award is classified as R&D for Federal Audit Requirement purposes but non-research for indirect cost rate purposes), unless the auditee is charging indirect costs at a rate other than the rate(s) specified in the award document(s).

This institution is a signatory to the Federal Demonstration Partnership (FDP) Phase VI Agreement which requires active institutional participation in new or ongoing FDP demonstrations and pilots.

Carry over of an unobligated balance into the next budget period requires Grants Management Officer prior approval.

This award is subject to the requirements of 2 CFR Part 25 for institutions to receive a Dun & Bradstreet Universal Numbering System (DUNS) number and maintain an active registration in the System for Award Management (SAM). Should a consortium/subaward be issued under this award, a DUNS requirement must be included. See <http://grants.nih.gov/grants/policy/awardconditions.htm> for the full NIH award term implementing this requirement and other additional information.

This award has been assigned the Federal Award Identification Number (FAIN) P51OD011107. Recipients must document the assigned FAIN on each consortium/subaward issued under this award.

This award is not subject to the Transparency Act subaward and executive compensation reporting requirement of 2 CFR Part 170.

In accordance with P.L. 110-161, compliance with the NIH Public Access Policy is now mandatory. For more information, see NOT-OD-08-033 and the Public Access website: <http://publicaccess.nih.gov/>.

This award represents the final year of the competitive segment for this grant. See the NIH Grants Policy Statement Section 8.6 Closeout for complete closeout requirements at: <http://grants.nih.gov/grants/policy/policy.htm#gps>.

A final expenditure Federal Financial Report (FFR) (SF 425) must be submitted through the eRA Commons (Commons) within 120 days of the period of performance end date; see the NIH Grants Policy Statement Section 8.6.1 Financial Reports, <http://grants.nih.gov/grants/policy/policy.htm#gps>, for additional information on this submission requirement. The final FFR must indicate the exact balance of unobligated funds and may not reflect any unliquidated obligations. There must be no discrepancies between the final FFR expenditure data and the Payment Management System's (PMS) quarterly cash transaction data. A final quarterly federal cash transaction report is not required for awards in PMS B subaccounts (i.e., awards to foreign entities and to Federal agencies). NIH will close the awards using the last recorded cash drawdown level in PMS for awards that do not require a final FFR on expenditures or quarterly federal cash transaction reporting. It is important to note that for financial closeout, if a grantee fails to submit a required final expenditure FFR, NIH will close the grant using the last

recorded cash drawdown level. If the grantee submits a final expenditure FFR but does not reconcile any discrepancies between expenditures reported on the final expenditure FFR and the last cash report to PMS, NIH will close the award at the lower amount. This could be considered a debt or result in disallowed costs.

A Final Invention Statement and Certification form (HHS 568), (not applicable to training, construction, conference or cancer education grants) must be submitted within 120 days of the expiration date. The HHS 568 form may be downloaded at: <http://grants.nih.gov/grants/forms.htm>. This paragraph does not apply to Training grants, Fellowships, and certain other programs—i.e., activity codes C06, D42, D43, D71, DP7, G07, G08, G11, K12, K16, K30, P09, P40, P41, P51, R13, R25, R28, R30, R90, RL5, RL9, S10, S14, S15, U13, U14, U41, U42, U45, UC6, UC7, UR2, X01, X02.

Unless an application for competitive renewal is submitted, a Final Research Performance Progress Report (Final RPPR) must also be submitted within 120 days of the period of performance end date. If a competitive renewal application is submitted prior to that date, then an Interim RPPR must be submitted by that date as well. Instructions for preparing an Interim or Final RPPR are at: https://grants.nih.gov/grants/rppr/rppr_instruction_guide.pdf. Any other specific requirements set forth in the terms and conditions of the award must also be addressed in the Interim or Final RPPR. *Note that data reported within Section I of the Interim and Final RPPR forms will be made public and should be written for a lay person audience.*

NIH strongly encourages electronic submission of the final invention statement through the Closeout feature in the Commons, but will accept an email or hard copy submission as indicated below.

Email: The final invention statement may be e-mailed as PDF attachments to:
NIHCloseoutCenter@mail.nih.gov.

Hard copy: Paper submissions of the final invention statement may be faxed to the NIH Division of Central Grants Processing, Grants Closeout Center, at 301-480-2304, or mailed to:

National Institutes of Health
Office of Extramural Research
Division of Central Grants Processing
Grants Closeout Center
6705 Rockledge Drive
Suite 5016, MSC 7986
Bethesda, MD 20892-7986 (for regular or U.S. Postal Service Express mail)
Bethesda, MD 20817 (for other courier/express deliveries only)

NOTE: If this is the final year of a competitive segment due to the transfer of the grant to another institution, then a Final RPPR is not required. However, a final expenditure FFR is required and should be submitted electronically as noted above. If not already submitted, the Final Invention Statement is required and should be sent directly to the assigned Grants Management Specialist.

This award is funded by the following list of institutes. Any papers published under the auspices of this award must cite the funding support of all institutes.

Office Of The Director, National Institutes Of Health (OD) National Institute On Aging (NIA)

In accordance with the regulatory requirements provided at 45 CFR 75.113 and Appendix XII to 45 CFR Part 75, recipients that have currently active Federal grants, cooperative agreements, and procurement contracts with cumulative total value greater than \$10,000,000 must report and maintain information in the System for Award Management (SAM) about civil, criminal, and administrative proceedings in connection with the award or performance of a Federal award that reached final disposition within the most recent five-year period. The recipient must also make semiannual disclosures regarding such proceedings. Proceedings information will be made publicly available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)). Full reporting requirements and procedures are found in Appendix XII to 45 CFR Part 75. This term does not apply to NIH fellowships.

Treatment of Program Income:

SECTION IV – OD Special Terms and Conditions – 5P51OD011107-56 REVISED**REVISION 1****REVISED FUNDING LEVEL**

This award is revised to reflect a correction in the FY 2017 Funding Plan implementation.

All previous terms and conditions remain in effect.

SUBJECT FOA

This award is subject to the conditions set forth in PAR14-226, "Limited Competition: National Primate Research Centers (P51)," which are hereby incorporated by reference as special terms and conditions of this award. Copies of this Funding Opportunity Announcement can be found at the following [link:https://grants.nih.gov/grants/guide/pa-files/PAR-14-226.html](https://grants.nih.gov/grants/guide/pa-files/PAR-14-226.html)

FY 2017 FUNDING PLAN

This award is being issued at 95% of the ORIP amount and 100% of the NIA amount committed for FY2017 in the previous Notice of Award.

CO-FUNDING

This award reflects support from NIA in the amount of \$110,287 total costs.

KEY PERSONNEL

In addition to the PI, the following individuals are named as key personnel (individuals who have effort that ORIP staff is tracking):

Excluded by Requester

Written prior approval is required if any of the individual(s) named above withdraws from the project entirely, is absent from the project during any continuous period of 3 months or more, or reduces time devoted to the project by 25 percent or more from the level that was approved at the time of award.

PRIOR APPROVAL REQUEST

Any prior approval request (e.g., changes to key personnel as noted on the award, changes in human and animal subjects requiring prior approval, carryover requests) must be submitted to the assigned Grants Management Specialist and Programmatic Official. Please refer to Part II Chapter 8 the NIH Grants Policy Statement for the activities and/or expenditures that require NIH approval at <http://grants.nih.gov/grants/policy/nihgps/nihgps.pdf>

NON-COMPETING RENEWAL (NON-SNAP)

The NIH requires the use of the Research Performance Progress Report (RPPR) for all Type 5 progress reports. The RPPR and other documents applicable to this Non-SNAP grant are due the first of the month preceding the month in which the budget period ends (e.g., if the budget period ends 11/30, the due date is 10/1). Please see <http://grants.nih.gov/grants/rppr/index.htm> for additional information on the RPPR.

COMMUNICATIONS/PRESS RELEASE

If the grantee plans to issue a press release concerning the outcome of ORIP grant-supported research, it should notify Ms. Patricia Newman, ORIP Communications at 301-435-0744, in advance to allow for coordination.

The ORIP WWW home page is at <http://dpcpsi.nih.gov/orip/>

STAFF CONTACTS

The Grants Management Specialist is responsible for the negotiation, award and administration of this project and for interpretation of Grants Administration policies and provisions. The Program Official is responsible for the scientific, programmatic and technical aspects of this project. These individuals work together in overall project administration. Prior approval requests (signed by an

Authorized Organizational Representative) should be submitted in writing to the Grants Management Specialist. Requests may be made via e-mail.

Grants Management Specialist: Julia Shriner
Email: julia.shriner@nih.gov **Phone:** 301-435-0853

Program Official: Sheri Ann Hild
Email: hildsa@mail.nih.gov **Phone:** 301-435-8382 **Fax:** 301-402-4104

SPREADSHEET SUMMARY

GRANT NUMBER: 5P51OD011107-56 REVISED

INSTITUTION: Regents of the University of California

Budget	Year 56
Salaries and Wages	\$2,446,299
Fringe Benefits	\$1,063,354
Personnel Costs (Subtotal)	\$3,509,653
Consultant Services	\$481,644
Equipment	\$490,631
Materials & Supplies	\$3,682,377
Travel	\$47,595
Alterations and Renovations	\$77,180
Other	\$405,551
Publication Costs	\$33,264
ADP/Computer Services	\$17,556
Equipment or Facility Rental/User Fees	\$21,386
TOTAL FEDERAL DC	\$8,766,837
TOTAL FEDERAL F&A	\$1,861,179
TOTAL COST	\$10,628,016

Facilities and Administrative Costs	Year 56
F&A Cost Rate 1	22.7%
F&A Cost Base 1	\$8,199,026
F&A Costs 1	\$1,861,179

A. OVERALL COVER PAGE

Project Title: California National Primate Research Center	
Grant Number: 5P51OD011107-56	Project/Grant Period: 05/01/1997 - 04/30/2018
Reporting Period: 05/01/2016 - 04/30/2017	Requested Budget Period: 05/01/2017 - 04/30/2018
Report Term Frequency: Annual	Date Submitted: 02/28/2017
Program Director/Principal Investigator Information: CAMERON S CARTER , MD Phone number: 916-734-3230 Email: cameron.carter@ucdmc.ucdavis.edu	Recipient Organization: UNIVERSITY OF CALIFORNIA AT DAVIS UNIVERSITY OF CALIFORNIA DAVIS OFFICE OF RESEARCH - SPONSORED PROGRAMS 1850 RESEARCH PARK DR, STE 300 DAVIS, CA 956186153 DUNS: 047120084 EIN: 1946036494A1 RECIPIENT ID:
Change of Contact PD/PI: N/A	
Administrative Official: KAREN L WOOD 1850 Research Park Drive Suite 300 Davis, CA 95618 Phone number: 530-754-8112 Email: klwood@ucdavis.edu	Signing Official: KAREN L WOOD 1850 Research Park Drive Suite 300 Davis, CA 95618 Phone number: 530-754-8112 Email: klwood@ucdavis.edu
Human Subjects: No	Vertebrate Animals: Yes
hESC: Yes	Inventions/Patents: No

B. OVERALL ACCOMPLISHMENTS

B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?

The California National Primate Research Center (CNPRC), located at the University of California, Davis, requests funds to renew the base operating grant #P51-OD011107 for the next five year period (May 1, 2015 through April 30, 2020). The CNPRC renewal reflects a strategic emphasis on multidisciplinary research teams that focus on the development and use of nonhuman primate models of human health and disease. Currently in the 53rd year of operation, the CNPRC serves a range of NIH-supported investigators nationwide. From inception through the current year, the CNPRC has been highly responsive to the research community by providing high quality animals, facilities, tools, and services driven by the intellectual infrastructure of the Core Scientists that guide and conduct basic and translational research with nonhuman primates. The goals for the next funding period are reflected in the following Specific Aims: (1) Conduct state-of-the-art research and scientifically contribute to the understanding and treatment of human disease with nonhuman primate models across the age spectrum, (2) Provide exceptional nonhuman primate expertise and services to investigators at the local, regional, and national levels to advance NIH-supported research excellence, (3) Mentor and train the next generation of translational investigators with nonhuman primate expertise, and (4) Ensure the highest standards of responsible conduct of research and animal care. Plans for the next funding period build upon expertise, productivity, and innovation; strong ties with the host institution and national programs; and maximizing resources for NIH-funded research. Support is requested for Administrative Services (Director's Office, Administration and Operations Services, Information Technology Services, Facilities Improvement), Primate Services (Colony Management and Research Services, National Institute on Aging Colony, Primate Medicine Services, Anatomic and Clinical Pathology Services, Behavior Management Services, Genetics Management Services), Service Cores (Behavior Research, Endocrine, Immunology and Pathogen Detection, Inhalation Exposure, Multimodal Imaging), Scientific Research Units (Brain, Mind, and Behavior, Infectious Diseases, Reproductive Sciences and Regenerative Medicine, Respiratory Diseases), and for Outreach, the Pilot Research Program, and NPRC Consortium activities. Through targeted opportunities and University of California initiatives, the CNPRC will actively promote the recruitment of faculty to the program, and continue to build infrastructure, expertise, and essential services to meet the growing needs of investigators and trainees.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Overview Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

For this reporting period, is there one or more Revision/Supplement associated with this award for which reporting is required?

Yes

Revision/ Supplements #	Revision/ Supplements Title	Specific Aims	Accomplishments
3P51OD011107-55S2	Specific Animal Location Renovation	Specific Animal Location Specific Animal Location which was functionally replaced by the addition of our new Specific Animal Location in 2015, renovate half the existing structure as a self-contained infectious Research Wing to support the CNPRC AIDS research program.	The project has been created in UCD Design, Construction and Management (DCM), the department responsible for major construction and renovation projects. The funds have been transferred to the DCM account and the consultant/contractor has been authorized to proceed with design documents. The consultant/contractor and the mechanical sub-consultant/contractor have toured the space, gathered existing documents and information and are scheduled to deliver 75% construction drawings to the University on 3/8/17.
3P51OD011107-55S1	Administrative Supplement for Research on Dietary Supplements	This supplemental award provides \$100,000 for the Administrative Supplement for Research on Dietary	Twenty subjects have been tested for the therapeutic effects of sodium butyrate. Animals have undergone two

		Supplements in accordance with the grantee's request dated 02/02/2016. Investigate the therapeutic role of sodium butyrate in alleviating some of the adverse health effects of stress in a highly transitional animal model.	relocations, a series of blood draws, behavioral observations, and oral treatment with sodium butyrate or vehicle. The remaining subjects will complete testing on 1/17/2017. Remaining to be completed are assays for histone acetylation, plasma cytokine assays, data analysis and publication. This project will be 100% complete by 4/30/2017.
--	--	---	---

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

See individual components.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Excluded by Requester vision for the California National Primate Research Center is to focus in the areas where the primate model is "a unique and powerful model". With that in mind, he is directing the CNPRC to focus on the following key areas of research:

- Respiratory Health
- Aging
- Microbiome
- Cardiovascular Health
- BioBehavioral Assessment
- Immunology and Inflammation
- Infectious Disease
- Vaccines
- Diabetes
- Vision Sciences

The CNPRC investigators have developed sophisticated animals models in each of these areas with vision sciences and cardiovascular health being the newest additions. These new models were presented at a recent JP Morgan Event in San Francisco. Excluded by and Excluded along with Excluded by Requester met with over thirteen potential industry partners to discuss opportunities to work with the CNPRC. The meetings were very successful and several follow up tours and visits are scheduled.

In addition to the increased effort with the Office of Corporate Relations, the Center has also focused on additional ways to increase revenue through increased use of technology. The CNPRC is in agreement with Proprietary Inc. to purchase and install a new electronic health record and billing system. The Proprietary system is currently in three national primate centers with California being the fourth installation. The system will provide a flexible platform to manage all aspects of the primate colony including demographics, breeding and health. In addition, the system has a robust billing system which will allow for point of sale billing for all of the four Core Services as well as the Clinical Lab and Pathology Services. The Proprietary project is currently underway and expected to complete in 2018.

CNPRC Program Highlights:

[Excluded by Requester] was appointed to membership of the Academy of Medicine. This is in recognition of his research excellence and the high level of his contribution to development in neuroscience. He has brought this rigor and expertise to the overall management of research operations at the CNPRC.

[Excluded by Requester] has been very active in pursuing recruitments at all levels. The CNPRC is in late stage negotiations for two Professor Recruitments in Infectious Disease. In addition, the CNPRC is in the middle of a Full Professor recruitment in Neuroscience. The CNPRC have added two Junior Investigators, in conjunction with the Department of Psychology, who are working in the areas of neuroscience and developmental psychology. Additional recruitments in Respiratory diseases and Engineering are also in the beginning stages.

As mentioned previously, the CNPRC recruited two new Junior Investigators in the areas of neuroscience and developmental psychology. The CNPRC provided meaningful support in each recruit's recruitment package and have provided mentorship in getting their research programs operational.

HIV Vaccine Developed Through Primate Centers Collaboration

Over the past 6 years, [Excluded by Requester] California National Primate Research Center (CNPRC) at UC Davis, have been collaborating with [Excluded by Requester] at Oregon Health Science University (OHSU)—Oregon NPRC to develop and test a vaccine and potential cure for HIV. OHSU is now recruiting volunteers to be part of the first human trials for this exciting new development in the prevention and treatment of HIV.

This unique vaccine uses the genetic backbone of cytomegalovirus (CMV), a common virus in humans, to express a small, non-disease causing portion of the HIV virus. CMV is a common strain of Herpes virus that infects up 50-70 percent of adult Americans, but which rarely causes disease symptoms in individuals with a functional immune system.

[Excluded by Requester] CNPRC Core Scientist and director of the Center of Comparative Medicine (CCM) at UC Davis, is a world-renowned expert in the natural history of the rhesus macaque-specific cytomegalovirus, rhesus CMV (RhCMV). Assistant Researcher [Excluded by Requester], in [Excluded by Requester] laboratory, molecularly engineered the genetic backbone of RhCMV to enable rapid and efficient insertion of non-RhCMV genes that could be expressed as proteins during the course of RhCMV infection. [Excluded by Requester] began his collaboration with [Excluded by Requester] by supplying him with the engineered RhCMV. [Excluded by Requester] further manipulated the RhCMV genetic backbone into a vaccine vector.

In particular, [Excluded by Requester] was interested in developing a safe HIV vaccine that would generate strong immune responses against HIV infection and disease for the lifetime of the vaccinated individual. Particular attributes of human CMV infection in humans led him to consider human CMV as a novel viral vaccine vector to immunize humans against major infectious disease threats including HIV, tuberculosis, and malaria.

To test his concept, [Excluded by Requester] used the rhesus macaque model of HIV to determine whether such a CMV-based vaccine vector could protect immunized rhesus macaques against virulent simian

immunodeficiency virus (SIV) infection, which led to the successful partnership to use [Excluded by Requester] and [Excluded by Requester] modified version of RhCMV.

Scientific Research Highlights:

Below are highlights from the 4 different research units at the CNPRC.

Respiratory Diseases Research Unit

Since 2011, the CNPRC has been a regularly scheduled springtime destination for a group of investigators from Cincinnati Children's Hospital and Medical Center (CCHMC). This over five-year collaboration between the two institutions originated in 2010, when a serendipitous meeting between [Excluded by Requester] Unit Leader for Respiratory Diseases and immunologist [Excluded by Requester] of CCHMC sparked a series of discussions on development of immunity in the fetus and ultimately a successful CNPRC pilot program submission along with [Excluded by Requester] Unit Leader for Reproductive Sciences and Regenerative Medicine. From the initial pilot funding mechanism, [Excluded by Requester] and her colleagues from CCHMC have been awarded over \$3 million in funding from NIH, [Private Source] and [Private Source] to continue their work at the CNPRC. Several publications have resulted from these collaborative projects, including a 2015 study that was recognized by the Faculty of 1000, an organization of over 5,000 world-wide faculty experts who identify important articles in biology and medical research publications.

A major of emphasis of research conducted by CCHMC investigators is to understand the immune-mediated mechanisms of pre-term labor, which is a common human condition that is very difficult to study in traditional rodent models due to significant differences in how the placenta develops. In order to study mechanisms of pre-term labor in an animal model that is relevant to the human condition, the CCHMC investigators developed several rhesus monkey models of chorioamnionitis while working at the CNPRC. In addition to [Excluded by Requester] members of the CCHMC team include neonatologists [Excluded by Requester] and [Excluded by Requester] as well as postdoctoral fellow [Excluded by Requester]. Other CCHMC investigators have made the yearly trek to the CNPRC, including neonatologist [Excluded by Requester] who was awarded a CNPRC pilot project for 2015- 2016. The initial collaboration between [Excluded by Requester] has been expanded to grant applications with other CNPRC scientists, including [Excluded by Requester].

Recently, the CCHMC-CNPRC collaborative team has reported the identification of a unique fetal T lymphocyte population that appears to respond to maternal intrauterine inflammation. Using a rhesus monkey model of infection-induced chorioamnionitis, they found that a population of fetal immunosuppressive lymphocytes appeared to be converted into an inflammatory lymphocyte. While the function of this cell population in the human fetus is not known, the secreted proteins by the identified lymphocyte suggest that it may contribute to the chorioamnionitis, which may ultimately promote pre-term labor. Importantly, the CCHMC team may have identified a critical cell marker that may be applied as a biomarker for pre-term birth susceptibility. As a follow up to this published research, the CCHMC team are now investigating the role of common lower urinary tract/reproductive tract pathogens such as Ureaplasma in pre-term birth, with the goal of identifying susceptible human populations for targeted treatment modalities.

Infectious Diseases Research Unit

It was 1991 when [Excluded by Requester] first waged war on HIV. In that same year Los Angeles Lakers' great Earvin "Magic" Johnson announced that he had HIV, Queen's Freddy Mercury died from bronchial pneumonia resulting from AIDS and the red ribbon became the international symbol of AIDS awareness. [Excluded by Requester] fought his battle against HIV within the laboratories of the CNPRC with his first project – studying the effects of AZT, a powerful antiretroviral medication that he used to block the transmission of HIV in rhesus monkeys. It was through his subsequent research that clinical trials began on Tenofovir, a drug that is widely-used throughout the world to prevent mothers from transmitting HIV to their babies.

Fast forward to January 2016 and [Excluded by Requester] is sitting in a Starbucks in downtown Sacramento waiting for mechanics to repair his car. He is feeling wired after drinking a cup of coffee and the rush of caffeine has put his brain in gear. In between reading e-mails from colleagues on his laptop, most pertaining to one of his many other research projects, he comes across stories about the Zika virus epidemic in Brazil. His curiosity sends him to Google, where he finds the background on the disease that's dominating headlines. "I was curious and asked 'What is being done to study that in animal models?' and so I Googled and did a search to see if anyone used rhesus monkeys and the only efforts I could find were some papers in the 1950s," [Excluded by Requester] said. "I was kind of surprised." Caffeine-fueled web clicks led to phone calls and e-mails to his colleagues at the Centers for Disease Control and Prevention and eventually to [Excluded by Requester] an expert on mosquito-borne disease such as Zika virus. The makings of a team were put into play.

Zika virus has caused widespread birth defects in babies throughout Latin America and is the focus of a large-scale public health effort dedicated to finding a vaccine for the disease. Unraveling Zika virus would take a team of interdisciplinary scientists, researchers and veterinarians. [Excluded by Requester] and [Excluded by Requester] sought out and recruited [Excluded by Requester] from CNPRC and [Excluded by Requester] from UC San Francisco & Blood Systems Research Institute (BSRI) to form the CNPRC team that would take on Zika.

The mission is clear – find the traits that Zika shares with other viruses, especially ones in which the virus causes a direct infection of the fetus and subsequent brain damage.

The study

The CNPRC's project is just one of the studies being conducted on Zika virus at primate centers throughout the country. Recently, researchers led by [Excluded by Requester] at the University of Wisconsin established a primate model for studying Zika infection. The monkeys in the Wisconsin study became immune to re-infection of Zika virus. "The initial infection can act as a vaccine," [Excluded by Requester] said. "This give me hope." But the study at the CNPRC is slightly different. As [Excluded by Requester] puts it, the two researchers don't want to duplicate each other's efforts. The focus of the CNPRC's project is to find out how the virus is transmitted from mother to child. Researchers have linked Zika virus to a rare birth defect called microcephaly, a condition in which a baby is born with an underdeveloped brain and a smaller than normal head. Zika has also been linked with Guillain-Barré syndrome, an autoimmune disease that can lead to total paralysis and develops as a result of the immune system attacking a host's nervous system.

"My hope is that we will be able to come up with a drug or vaccine fast (for Zika)," he said.

The science

In 1947, scientists conducting yellow fever surveillance in the Zika forest in Uganda first discovered Zika virus in samples taken from a sentinel rhesus monkey. The virus was subsequently discovered in Aedes mosquitoes that were native to the area and the first reported human case of Zika was recorded in 1952. Since its discovery, Zika remained a relatively rare infection until March 2015, when reports began coming into the World Health Organization from Brazil telling of an illness characterized by skin rash and fever. To date the virus continues to circulate in Brazil and other Latin American countries.

To understand the disease the CNPRC team acquired a Zika sample from a patient in Brazil, an adult who had contracted the virus during a blood transfusion. Zika virus typically spreads from the bite of an infected mosquito. It also spreads through sexual contact and through blood transfusions. With the help of a CNPRC Pilot Grant, the CNPRC team began the first phase of its Zika project. During the first phase the scientists infected two non-pregnant animals to see if the recent strain of the virus that has affected Brazil could infect a nonhuman primate. “We saw the virus in the blood for the first five days,” he said.

With the success of the first phase, the team then began the second phase – studying the virus in pregnant rhesus macaques. The team infected four animals at different times of gestation directly through amniotic fluid. “We saw that the virus continues to replicate in the fetus,” Excluded by Requester said. “We find virus even weeks later in the amniotic fluid.” In the pregnant monkeys, the scientists noted that the virus replicated two weeks to a month after inoculation, but in the fetus it seemed to persist longer, Excluded by Requester said. “We measured viral replications and tried to correlate that with what’s happening with the development,” he said. “We collected many samples for many other analysis. We want to measure the immune response and determine if the virus mutates.”

Excluded by Requester and his team hope to establish a nonhuman primate model that would allow them to find out how the virus causes microcephaly and determine at what point in the gestation period does the virus cause the birth defect. It would also allow the researchers, should the virus also track with abnormal fetal development, to test vaccines and drugs that could prevent microcephaly. “We want to have animal model that will then allow us to retest in a much more controlled environment,” he said. So far, early findings have shown that the virus can replicate in fetal tissue and the placenta. But since the study is ongoing, Excluded by Requester says it’s too early to come up with conclusions.

According to the Centers for Disease Control and Prevention, there have been over 1,600 Zika virus cases reported in the United States and the District of Columbia. The most common way to become infected with Zika is through the bite of an infected mosquito. People have also contracted Zika through sexual contact.

Reproductive Sciences and Regenerative Medicine

Core and Affiliate Scientists in the Reproductive Sciences and Regenerative Medicine (RSRM) Unit are building the world’s first total-body positron emission tomography (PET) scanner — one that could fundamentally change the way cancers and other diseases are diagnosed and treated, and with a reduced radiation dose that is roughly equivalent to the dose received on a round-trip flight between San Francisco and London. Excluded by Requester along with a national collaborative team, have been developing EXPLORER, the world’s first total-body scanner for humans that allows all the tissues and organs to be imaged simultaneously and at one time. This highly innovative research is

now supported by a 5-year, \$15.5 million NIH Transformative R01 led by the EXPLORER team, which includes researchers at the University of Pennsylvania and Lawrence Berkeley National Laboratory. The team is building a prototype for human studies that will place UC Davis at the leading edge of translational molecular imaging research.

PET is the most sensitive method for imaging and assessing molecular interactions in the human body. Current PET systems scan a small anatomical area which results in relatively high injected radioactivity and radiation dose, extended scan times to obtain the necessary information, and includes a limited field-of-view which prevents the study of pharmacodynamics of molecularly targeted imaging agents across the whole body. The strength of PET is sensitivity, which permits imaging radiotracers in the sub-nanomolar concentration range. However, for imaging the entire body, less than 1% of the available signal is captured because only a small axial segment of the body (typically 15-20 cm) is imaged at any one time. Extending the field-of-view to cover the entire body is fundamental to realizing the full potential of this new technology. This results in a 40-fold gain in effective signal detection to maximize scan sensitivity. Total-body detection will provide the means to acquire kinetic radiotracer imaging data in all organs simultaneously, which is not feasible with current technology. The scanner will also be able to perform total-body studies at 1/40th the current radiation dose, allowing scans to be performed at fractions of the annual radiation dose humans receive from natural background sources. These capabilities will revolutionize the scope of PET applications to, for example, longitudinal studies for patients with chronic diseases and wider applications of PET in special populations such as pediatric and geriatric patients.

The first demonstrations of use of this new PET technology will be performed using a small-scale working prototype designed for total-body imaging in nonhuman primates by RSRM Unit Core and Affiliate Scientists and in the Multimodal Imaging Core at the Primate Center. Excluded by Requester

Excluded by Requester will be designing and performing proof-of-concept studies that will demonstrate the advantages of total-body PET imaging and develop protocols and methodology for a range of planned human studies. Applications span a broad range of systemic and multi-organ diseases, and this new technology is envisioned to be a key enabler for total-body pharmacokinetics of new therapies. These critical investigational studies will pave the way for total-body PET imaging in humans across the lifespan and contribute crucial knowledge through the study of nonhuman primate models of health and disease.

NHLBI 14th Annual Gene Therapy Symposium for Heart, Lung, and Blood Diseases

The National Heart, Lung, and Blood Institute (NHLBI) 14th Annual Gene Therapy Symposium, affiliated with the Center for Fetal Gene Transfer for Heart, Lung, and Blood Diseases Excluded by Requester (PI), was held November 18-20, 2015 in Sonoma, CA. The intent of these annual scientific symposia is to provide a novel setting for the dissemination and exchange of new ideas and research findings by bringing together trainees and investigators at all career stages that do not typically interact at other meetings. Presentations focus on unpublished works-in-progress, cutting edge technologies, and key thematic issues. The focus topic was Genetic Disease Applications.

The Keynote Speaker, Excluded by Requester (UCLA), presented "Gene Therapy for Blood Cell Diseases with Autologous Hematopoietic Stem Cells", and highlighted the current state of the field. A session on viral and non-viral vectors included presentations by Excluded by Requester (City of Hope, "RNA-Based Approach to Eliminate Persistent HIV-1 Infection and Latency"), Excluded by Requester (University of

Iowa, “Cell - Targeted RNA Therapies for Cardiovascular Disease”), and [Excluded by Requester] (UC Berkeley, “Directed Evolution of New Viruses for Therapeutic Gene Delivery”). A “Practical Strategies” session on Clinical Trials for Pompe Disease was presented by [Excluded by Requester] (University of Florida), and a mini-workshop on Cell and Gene-Based Therapy was presented by [Excluded by Requester] (University of Washington). Other sessions included presentations by [Excluded by Requester] (University of Florida), [Excluded by Requester] (University of North Carolina at Chapel Hill), [Excluded by Requester] (University of Pennsylvania), and [Excluded by Requester] (Ottawa Hospital Research Institute) on topics such as gene therapy applications for Friedreich’s Ataxia, Lysosomal Storage Disorders, and neonatal lung diseases.

Students and fellows presented their research in a special trainee session consisting of a brief oral presentation and poster session each day. Additional information about the symposium can be found at www.GTS.ucdavis.edu.

Neuroscience and Behavior Unit

Humans live in societies full of rich and complex relationships that influence our physical and mental health and well-being. In both human and nonhuman primates, social life, and its interaction with factors such as personality, influence our health in complex ways. In order to treat and prevent illness and improve human health, we need a detailed understanding of the interplay between biological systems and social contexts that contribute to disease processes.

[Excluded by Requester] Core Scientist with CNPRC Neuroscience and Behavior Unit and Professor with the Department of Population Health and Reproduction, School of Veterinary Medicine (PHR), heads up a research program to uncover these complex relationships. [Excluded by Requester] collaboration with co-investigators at the CNPRC, School of Veterinary Medicine, and College of Letters and Sciences, is conducting a series of social network studies to understand the mechanisms by which social systems influence physical and mental health in rhesus macaques (*Macaca mulatta*), a nonhuman primate species that shares a close evolutionary history and behavioral biology with humans. They outline, in a new invited perspective paper published in *Frontiers: Psychology* entitled “Connections matter: social networks and lifespan health in primate translational models”, the novel computational approach they are using to treat and understand health and well-being as a “complex system”.

Investigating the interplay among biological systems (for example the immune and neuroendocrine systems) and social systems across the lifespan, the research team is demonstrating that nonhuman primate systems are of sufficiently similar complexity to humans to serve as a model for the development and refinement of both analytical and theoretical frameworks linking social life to health.

A new approach

Maintaining optimal health is influenced by a wide range of factors, some specific to the individual (for example personality, genetic predispositions, or ancestry) and some specific to the social environment (for example kinship, group composition, and social stressors such as one’s social role or overall group stability).

The research team represents a cross-disciplinary collaborative effort between the School of Veterinary [Excluded by Requester] Assistant Project Scientists [Excluded by Requester] [Excluded by Requester], the College of Letters and Sciences’ Department of Psychology [Excluded by Requester] the CNPRC (Postdoctoral researchers [Excluded by Requester] and the Department of

Statistics Excluded by Requester The team is applying this new social systems science approach to rhesus macaque groups at the CNPRC to realistically model individual, family, and group health across the lifespan in human populations. The Excluded by Lab's computational systems science approaches overcome prior limitations in experimental design and data analysis. Scientists had to date been unable to effectively model the extraordinarily complex dynamic nature of the social environment in concert with a full picture of what it means for an individual to "be healthy."

Decades of research have documented the effect of social context on physical and mental health in humans and nonhuman primates. In humans, characteristics of the social environment such as socio-economic status influence diverse health outcomes ranging from cardiovascular disease to mood disorders such as depression. Also in humans, it is well known that deleterious social relationships, such as those that occur in the context of abuse, have similar negative outcomes on physical health and mental health.

Mirroring the effect in humans, research from the CNPRC and others are demonstrating that a nonhuman primate's absolute social rank (akin to human class), the certainty of that social rank (akin to predictably/unpredictably in relationships), and the individual's level of sociality are key factors influencing individual-level health outcomes. Recent advances in this knowledge, such as the impact of relationship predictability, have come from advanced analytical approaches such as the computational network methods developed by the Excluded by
Requester Lab.

In contrast to these negative effects is the growing evidence that both humans and nonhuman primates that have many social connections, which include those that are direct such as "friends" but also indirect such as "friends of friends", are buffered against stressful experiences, experience less loneliness, recover more fully from acute episodes of depression, experience less disease, and live longer.

Social life in human and nonhuman primates is multi-layered and always changing—individual relationships differ in number, quality and type that are embedded within multiple broader social contexts of family, social class, and community. Also, individuals can belong to multiple groups simultaneously which may exert differential influence on the individual at different times or in different contexts. Factors like these shape an individual's "social role" as well as "social experience", which is known to relate to both physical and mental health. Yet while known, these social factors are incredibly challenging to model in humans. The investigators present a solution to these issues by using a nonhuman primate model of human social-life and health in concert with sophisticated novel computational network approaches.

Future biomedical research can address this issue directly by using socially and environmentally relevant subjects whenever possible. Indeed, with newer, more advanced and less invasive methods for collecting and analyzing biological samples in the field, wild populations of nonhuman primates may provide additional translational opportunities. Field-based biomedical research on genetically, socially, and behaviorally well-characterized nonhuman primate populations could transform our understanding of threshold, collective, and emergent effects of the social environment on health outcomes.

C. OVERALL PRODUCTS

C.1 PUBLICATIONS

Are there publications or manuscripts accepted for publication in a journal or other publication (e.g., book, one-time publication, monograph) during the reporting period resulting directly from this award?

No

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Nothing to report

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Have inventions, patent applications and/or licenses resulted from the award during the reporting period?

No

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. OVERALL PARTICIPANTS

D.1 WHAT INDIVIDUALS HAVE WORKED ON THE PROJECT?

Commons ID	S/K	Name	Degree(s)	Role	Cal	Aca	Sum	Foreign Org	Component(s)	Country	SS
eRA Commons User Name	N	Excluded by Requester		Postdoctoral Scholar, Fellow, or Other Postdoctoral Position	Excluded by Requester				Other-8355 (Primate Medicine Services)		NA
	N			Postdoctoral Scholar, Fellow, or Other Postdoctoral Position					Other-8356 (Anatomic and Clinical Pathology Services)		NA
	N		AB,DVM	Postdoctoral Scholar, Fellow, or Other Postdoctoral Position					Other-8356 (Anatomic and Clinical Pathology Services)		NA
	N			Postdoctoral Scholar, Fellow, or Other Postdoctoral Position					Other-8355 (Primate Medicine Services)		NA
	N		BS,DVM	Postdoctoral Scholar, Fellow, or Other Postdoctoral Position					Other-8356 (Anatomic and Clinical Pathology Services)		NA
	N		PHD,OTH, MS	Postdoctoral Scholar, Fellow, or Other Postdoctoral Position					Other-8356 (Anatomic and Clinical Pathology Services)		NA
	N			IT Systems Administrator					Admin Core-8346 (Information Technology Services)		NA
	N			Staff Research Associate					Project-8362 (Infectious Diseases Research Unit)		NA
	N			Clinical Laboratory Technician					Other-8356 (Anatomic and Clinical Pathology Services)		NA
	N			Business Office Manager					Admin Core-8345 (Administration and		NA

									Operations Services)		
	N	Excluded by Requester		Affiliate Scientist, Associate Professor of Clinical Medicine	EFFORT				Core-8350 (Inhalation Exposure Core)		NA
	N			Technical Support					Core-8351 (Multimodal Imaging Core), Project-8363 (Reproductive Sciences and ...Research Unit)		NA
	N			Human Resources Representative					Admin Core-8345 (Administration and Operations Services)		NA
	N			Staff Research Associate					Core-8351 (Multimodal Imaging Core)		NA
	N			Staff Research Associate					Core-8351 (Multimodal Imaging Core)		NA
	N			Purchasing Manager					Admin Core-8345 (Administration and Operations Services)		NA
	N			Technical Support					Core-8349 (Immunology and Pathogen De...resources Core)		NA
	N			Quality Assurance Specialist					Other-8353 (Colony Management and Research Services)		NA
	N			Facilities Manager					Other-8353 (Colony Management and Research Services)		NA
	N			Information Technology Manager					Admin Core-8346 (Information Technology Services)		NA
	N			Staff Research Associate, Colony and					Other-8353 (Colony Management and Research		NA

				Research Services Mgr					Services)		
	N	Excluded by Requester		IT Desktop Support	EFFORT				Admin Core-8346 (Information Technology Services)		NA
	N			Grants and Contracts Analyst					Admin Core-8345 (Administration and Operations Services)		NA
	N			Unit Administrative Assistant					Other-8353 (Colony Management and Research Services)		NA
	N			IT Systems Developer					Admin Core-8346 (Information Technology Services)		NA
	N			Staff Research Associate					Core-8351 (Multimodal Imaging Core)		NA
	N			Staff Research Associate, Core Manager					Core-8348 (Endocrine Core)		NA
	N			Affiliate Scientist					Other-8353 (Colony Management and Research Services)		NA
	N			Contracts & Grants Analyst					Admin Core-8345 (Administration and Operations Services)		NA
	N			Business Analyst					Admin Core-8345 (Administration and Operations Services)		NA
	N			Staff Research Associate, Training Coordinator					Other-8353 (Colony Management and Research Services)		NA
	N			Safety and Compliance Officer					Admin Core-8344 (Director's Office)		NA
	N			Purchasing					Admin Core-		NA

		Excluded by Requester		Assistant	EFFORT		8345 (Administration and Operations Services)		
	N			Clinical Laboratory Technician			Other-8356 (Anatomic and Clinical Pathology Services)		NA
	N			Genetic Manager, Associate Professor			Other-8358 (Genetics Management Services), Other-8359 (NPRC Consortium Activities)		NA
	N			Core Scientist			Admin Core-8343 (Administrative Overview), Project-8361 (Neuroscience and Behavior Research Unit)		NA
	N			Staff Research Associate, Radiochemistry Technical Support			Core-8351 (Multimodal Imaging Core)		NA
	N			Project Support, Assistant Adjunct Professor			Core-8351 (Multimodal Imaging Core)		NA
	N			T Systems Developer			Admin Core-8346 (Information Technology Services)		NA
	N			Administrative Specialist, Assistant to the Director			Admin Core-8344 (Director's Office)		NA
	N			Staff Research Associate, Lab Manager			Core-8351 (Multimodal Imaging Core), Project-8363 (Reproductive Sciences and ...Research Unit)		NA
	N			Staff Research Associate (Supplement			Admin Core-8343 (Administrative Overview)		NA

	Excluded by Requester	#1)	EFFORT				
	N	Staff Research Associate			Core-8351 (Multimodal Imaging Core)		NA
	N	Training Manager			Other-8353 (Colony Management and Research Services)		NA
	N	Assistant Human Resources Manager			Admin Core-8345 (Administration and Operations Services)		NA
	N	Human Resources Manager			Admin Core-8345 (Administration and Operations Services)		NA
	N	Purchasing Assistant			Admin Core-8345 (Administration and Operations Services)		NA
	N	Staff Research Associate, Core Manager			Other-8353 (Colony Management and Research Services)		NA
	N	Administrative Assistant, Receptionist, Purchasing Assistant			Admin Core-8345 (Administration and Operations Services)		NA
	N	Inhalation Exposure Core Manager			Core-8350 (Inhalation Exposure Core)		NA
	N	IT Systems Administrator			Admin Core-8346 (Information Technology Services)		NA
	N	Assistant Director for Colony Management & Research Svcs			Other-8353 (Colony Management and Research Services)		NA
	N	Inhalation Exposure Operations Manager			Core-8350 (Inhalation Exposure Core)		NA
	N	Lab Manager			Other-8356		NA

		Excluded by Requester			EFFORT		(Anatomic and Clinical Pathology Services)		
	N			Administrative Assistant, Research Services Coordinator			Other-8353 (Colony Management and Research Services)		NA
	N			Service Technician			Other-8358 (Genetics Management Services)		NA
	N			Staff Research Associate, Microscopy Manager			Core-8351 (Multimodal Imaging Core)		NA
	N			Public Information Officer			Admin Core-8344 (Director's Office), Other-8360 (Outreach Program)		NA
	N			Contracts & Grants Lead Analyst			Admin Core-8345 (Administration and Operations Services)		NA
	N			Finance Analyst			Admin Core-8345 (Administration and Operations Services)		NA
	N			Lab Technician			Other-8356 (Anatomic and Clinical Pathology Services)		NA
	N			Public Information Officer			Admin Core-8344 (Director's Office), Other-8360 (Outreach Program)		NA
	N			Lab Manager			Core-8349 (Immunology and Pathogen De...resources Core)		NA
leRA Commons User Name	Y		CPA, MPA	Associate Director for Administration and			Admin Core-8344 (Director's Office),		NA

eRA Commons User Name			Operations	EFFORT		Admin Core-8345 (Administration and Operations Services)		
		Excluded by Requester						
Y			PHD	Core Leader, Core Scientist		Core-8351 (Multimodal Imaging Core), Project-8363 (Reproductive Sciences and ...Research Unit)		NA
Y			PHD,BS	Core Scientist, Unit Leader		Project-8361 (Neuroscience and Behavior Research Unit)		NA
Y			PHD	Co-Core Leader, Core Scientist, Professor Emeritus		Core-8348 (Endocrine Core), Project-8363 (Reproductive Sciences and ...Research Unit)		NA
Y			PHD	Core Scientist, Professor Emeritus		Other-8353 (Colony Management and Research Services), Project-8364 (Respiratory Diseases Research Unit)		NA
Y			DVM,PHD	Core Scientist, Professor of Comparative Pathology		Project-8362 (Infectious Diseases Research Unit)		NA
Y			DVM	Senior Veterinarian		Other-8355 (Primate Medicine Services)		NA
Y	Carter, Cameron S.	MD	PI/PD			Admin Core-8343 (Administrative Overview)		NA
Y	Excluded by Requester	PHD	Core Scientist, Distinguished Professor of Neuroscience			Project-8361 (Neuroscience and Behavior Research Unit)		NA
Y		BS,MD,PHD	Core Scientist, Assistant Professor of			Core-8349 (Immunology and Pathogen De...esources		NA

eRA Commons User Name	Excluded by Requester		Microbiology and Immu	EFFORT		Core), Project-8362 (Infectious Diseases Research Unit), Project-8363 (Reproductive Sciences and ...Research Unit)		
Y		PHD	Core Scientist			Project-8361 (Neuroscience and Behavior Research Unit)		NA
N		BS	Finance Analyst			Admin Core- 8345 (Administration and Operations Services)		NA
Y		PHD,BS, MA	Core Scientist, Associate Professor of Physiology and Enviro			Core-8350 (Inhalation Exposure Core), Project-8364 (Respiratory Diseases Research Unit)		NA
Y		BA,PHD	Core Scientist			Project-8361 (Neuroscience and Behavior Research Unit)		NA
Y		MPH,BS, DVM	Senior Veterinarian			Other-8355 (Primate Medicine Services)		NA
Y		DVM	Associate Director for Primate Services, Clinical Director			Admin Core- 8344 (Director's Office), Core-8349 (Immunology and Pathogen De...esources Core), Other-8353 (Colony Management and Research Services), Other-8354 (National Institute of Aging Colony), Other-8355 (Primate		NA

eRA Commons User Name	Excluded by Requester			EFFORT		Medicine Services)		
Y		PHD	Director, Core Scientist			Admin Core-8344 (Director's Office)		NA
Y		PHD,BS, MA	Core Leader, Core Scientist			Project-8361 (Neuroscience and Behavior Research Unit)		NA
Y		MD,PHD, BA	Core Scientist, Professor of Medicine and Microbiology & Imm			Project-8362 (Infectious Diseases Research Unit)		NA
Y		PHD,BS, MS	Core Scientist, Professor of Pathology			Core-8350 (Inhalation Exposure Core), Project-8364 (Respiratory Diseases Research Unit)		NA
Y			Pathology Associate Veterinarian			Other-8355 (Primate Medicine Services)		NA
Y		DVM,PHD	Core Leader, Core Scientist			Core-8349 (Immunology and Pathogen De...esources Core), Project-8362 (Infectious Diseases Research Unit)		NA
Y		PHD,MA, BA	Core Scientist			Project-8361 (Neuroscience and Behavior Research Unit)		NA
Y		DVM,BS	Senior Veterinarian			Other-8355 (Primate Medicine Services)		NA
Y		PHD,BS	Associate Director for Research, Core Leader, Unit Leader			Admin Core-8344 (Director's Office), Project-8364 (Respiratory Diseases Research Unit)		NA
Y			Senior Veterinarian			Other-8355 (Primate Medicine Services)		NA

eRA Commons User Name	Y	Excluded by Requester	DVM	Senior Veterinarian	EFFORT		Other-8355 (Primate Medicine Services)		NA
	Y		AB,PHD	Unit Leader, Core Scientist, Professor of Microbiology			Project-8362 (Infectious Diseases Research Unit)		NA
	Y		PHD,BA	Core Scientist			Project-8362 (Infectious Diseases Research Unit)		NA
	Y			Pathology Senior Veterinarian			Other-8356 (Anatomic and Clinical Pathology Services)		NA
	Y		DVM,BS	Senior Veterinarian			Other-8355 (Primate Medicine Services)		NA
	Y			Pathology Senior Veterinarian			Other-8356 (Anatomic and Clinical Pathology Services)		NA
	Y		Senior Veterinary Manager	Pathology Senior Veterinary Manager			Other-8356 (Anatomic and Clinical Pathology Services)		NA
	Y		PHD	Co-Core Leader, Core Scientist, Prof. Biomedical Engineering			Core-8351 (Multimodal Imaging Core), Project-8363 (Reproductive Sciences and ...Research Unit)		NA
	Y		MS,PHD, BS	Core Scientist, Professor of Microbiology			Project-8362 (Infectious Diseases Research Unit)		NA

Glossary of acronyms:

S/K - Senior/Key
 DOB - Date of Birth
 Cal - Person Months (Calendar)
 Aca - Person Months (Academic)
 Sum - Person Months (Summer)

Foreign Org - Foreign Organization Affiliation

SS - Supplement Support
 RE - Reentry Supplement
 DI - Diversity Supplement
 OT - Other
 NA - Not Applicable

D.2 PERSONNEL UPDATES**D.2.a Level of Effort**

Will there be, in the next budget period, either (1) a reduction of 25% or more in the level of effort from what was approved by the agency for the PD/PI(s) or other senior/key personnel designated in the Notice of Award, or (2) a reduction in the level of effort below the minimum amount of effort required by the Notice of Award?

No

D.2.b New Senior/Key Personnel

Are there, or will there be, new senior/key personnel?

Yes

File uploaded: Biosketch Excluded by Requester pdf

D.2.c Changes in Other Support

Has there been a change in the active other support of senior/key personnel since the last reporting period?

Yes

File uploaded: D2c OtherSupport Key Senior Personnel CNPRC.pdf

D.2.d New Other Significant Contributors

Are there, or will there be, new other significant contributors?

No

D.2.e Multi-PI (MPI) Leadership Plan

Will there be a change in the MPI Leadership Plan for the next budget period?

NA

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

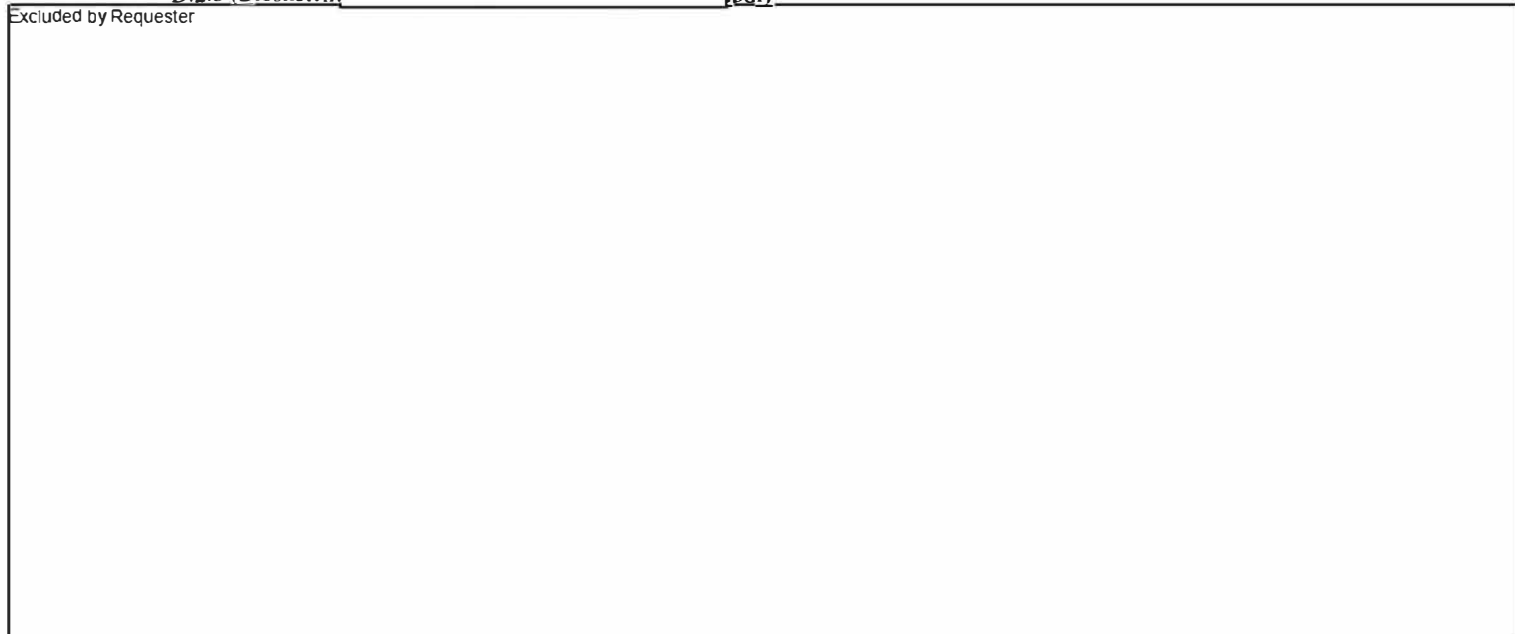
Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester



1

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Carter, Cameron S.

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

BIOGRAPHICAL SKETCH

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

BIOGRAPHICAL SKETCH

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Program Director/Principal Investigator: Cameron S. Carter

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

E. OVERALL IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

NOTHING TO REPORT

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

Not Applicable

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

NOTHING TO REPORT

F. OVERALL CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. OVERALL SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

File(s) uploaded:

G7 Training Opportunities.pdf
 G5 Number of Investigators Table.pdf
 G2 Tissue distribution.pdf
 G9 SPIDs Project Reports.pdf
 G1 Colony Statistics Table.pdf
 G6 CNPRC Publications (PMCID).pdf
 G3 Number of Projects Table.pdf
 G8 Org Chart.pdf
 G4 AIDS funding.pdf

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Does this project include one or more applicable clinical trials that must be registered in ClinicalTrials.gov under FDAAA?

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Are there personnel on this project who are newly involved in the design or conduct of human subjects research?

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

Yes

hESC Registration number(s) from the NIH Registry:
 0062

The explanation of a change in the use of hESCs

G.7 VERTEBRATE ANIMALS

Does this project involve vertebrate animals?

Yes

G.8 PROJECT/PERFORMANCE SITES

Organization Name:	DUNS	Congressional	Address
--------------------	------	---------------	---------

		District	
Primary: University of California Davis	047120084	CA-003	One Shields Ave Davis CA 956165270
UNIVERSITY OF CALIFORNIA DAVIS	047120084		UNIVERSITY OF CALIFORNIA DAVIS OFFICE OF RESEARCH - SPONSORED PROGRAMS DAVIS CA 956186153
University of California Davis	047120084	CA-003	One Shields Ave Davis CA 956165270

G.9 FOREIGN COMPONENT

No foreign component

G.10 ESTIMATED UNOBLIGATED BALANCE

G.10.a Is it anticipated that an estimated unobligated balance (including prior year carryover) will be greater than 25% of the current year's total approved budget?

No

G.11 PROGRAM INCOME

Is program income anticipated during the next budget period?

Yes

Anticipated Amount	Source(s)
19810895	ANIMAL SALES AND SERVICES INCOME

G.12 F&A COSTS

Not Applicable

G.7 Training Opportunities Table

Investigators	Endo	Imm?PDL	Inhalation	IT	Pilot	Prim Med	Path	BMB	ID	RSRM	Res.Dis.
Postdoctoral	1		1			2	7	8	13	9	2
Graduate Students			4		2			24	8	5	6
Undergrad Students		7	1			32		8	9	9	5
Other	1	2	2	13				1	4		2
Faculty		3	1		2						
Total Training	2	12	9	13	4	34	7	41	34	23	15

Training
43
49
71
25
6
194

G.5. Table**Number of Investigators (97):**

Core Scientists	Affiliate Scientists	Visiting Scientists
20	67	10

Include information regarding the tissue distribution program in Section C.5.a, “Other Products” of the PPR. It is not necessary to report samples broken down by species.

Reporting Period: May 1, 2016 thru Jan 13, 2017

Sample Type	Number of Samples
Biological Tissue (various)	934

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0136**Project Title:** BIOBEHAVIORAL CHARACTERIZATION OF INFANT RHESUS MONKEYS**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	Ph.D.	Psychology, UCD	Core
-----------------------	-------	-----------------	------

Principal Core Scientist associated with the project

Excluded by Requester	Ph.D.	Psychology, UCD	Core
-----------------------	-------	-----------------	------

Other affiliate scientists with institutional affiliation (doctoral level only)

Project Description: The objective of this project is to implement a colony-wide assessment program that will identify animals differing in biobehavioral organization, and to provide this information to (a) colony managers to aid in decision-making in the areas of health, reproduction, and enrichment, and (b) investigators for use in scientific studies.

Project Progress: A total of 234 colony animals were tested in 2016. Sixteen data sets were provided to 14 different investigators. In addition, DNA was provided to two collaborators, and serum was provided to a third collaborator.

Funding Sources: R24-OD010962**Publications:**

Excluded by Requester

Excluded by Requester

ANNUAL PROGRESS REPORT 2015 – 2016**SPID:** 0218**Project Title:** Prevention of Primary HCMV Infection by Vaccinating against HCMV-Encoded IL-10**Unit:** Infectious Diseases**Type of Project:** Research**AIDS?:** No**PI. with institutional affiliation**

Excluded by Requester	Ph.D.	Med: Path	Core
-----------------------	-------	-----------	------

Principal Core Scientist associated with the project

Excluded by Requester	Ph.D.	Med: Path	Core
-----------------------	-------	-----------	------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	Ph. D.	University of Alabama, Birmingham
-----------------------	--------	-----------------------------------

Project Description: The objective of this project is to (a) characterize the roles of the RhCMV interleukin-10 and US28 proteins in the RhCMV replication cycle, and (b) develop novel vaccine designs against human cytomegalovirus by constructing RhCMV variants containing deletions in the viral interleukin-10 and US28 genes.

Project Progress: We have demonstrated that RhCMV exploits the IL-10 signaling pathway at all stages of the viral life cycle. This includes reliance on the RhCMV-encoded viral IL-10 (rhcmvIL-10) during the acute stage of infection to modulate innate effector cells to slow the development of protective adaptive immune responses while the virus disseminates throughout the body. Thereafter, RhCMV stimulates both antigen-independent and antigen-dependent increases in cellular IL-10 to maintain persistence within an immune host. We have also now demonstrated for the first time a model for RhCMV reinfection. We have now shown that resistance with RhCMV reinfection is directly associated with the magnitude of the host anti-rhcmvIL-10 immune responses. This model open new avenues of investigation into strategies that reduce the clinically relevant threat of human cytomegalovirus reinfection.

Three manuscripts are being prepared for submission.

Funding Sources: R01-AI049342

ANNUAL PROGRESS REPORT 2016 – 2017

SPID: 0295

Project Title: Neurobehavioral Relations in Senescent Hippocampus

Unit: BMB

Type of Project (Research, Management, Pilot or Other): Research

Percent P51 dollars

Aids? (No, Yes): No

PI, with institutional affiliation

Excluded by Requester	Ph.D. University of Arizona; CNPRC/UC Davis Affiliate Faculty
-----------------------	---

Principal Core Scientist associated with the project

Excluded by Denier	PhD Psychology Core
--------------------	---------------------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	Ph.D. CNPRC/UC Davis Affiliate Faculty
-----------------------	--

Project Description: The objective of this research program is to understand the basis of memory impairments that result from normal aging. Over the past 30 years of this grant we have discovered links between spatial memory deficits and age-related changes in hippocampal connectivity and plasticity at the cellular and network levels. While empirical focus on the hippocampus is justified because of this structure's critical role in memory, the extent to which changes in upstream cortico-hippocampal inputs contribute to these age-related behavioral deficits is unknown. The perirhinal cortex is at the highest level of the ventral visual processing stream. It carries polymodal sensory information to the hippocampus, is extensively reciprocally connected with it, and is critical for memory in its own right. Whether it transmits degraded information to the aged hippocampus, resulting in deficits in visual perception or stimulus associations is thus a major question addressed in the present grant. A complementary question is whether the breakdown during aging in the connectivity and plasticity mechanisms of hippocampal circuits leads to defective associative binding among neocortical areas, and hence less robust stabilization of episodic memories. Understanding how the bidirectional interactions between these structures are altered by the aging process, and how such failures in network communication may contribute to behavioral deficits, could provide insights into the neural mechanisms of memory at all ages.

Project Progress: We continue to collect behavioral and neurophysiological recordings from both aged and adult rhesus macaques. We have collected significant amounts of telemetered recording data – the first recordings that have been done in a primate that is completely free to move. Additionally, we have finished a series of PET experiments on our young and aged monkeys that involve locomotion in a long track, chair-restrained movement along the same track, treadmill walking, and a cage-only control to examine activation across brain regions and across ages and behavioral conditions. These data have just been published (Excluded by Requester 2016). Additionally, we have a manuscript now in press that (In Press)

In Press

In Press In Press

In Press

In Press

We have also obtained structural MRI scans of all

monkeys who have entered this project in preceding cycles of this award, and as the experiment comes to an end, all animals' brains have been serial sectioned (at 30µm) and Nissl stained (one in four series). With these histological sections we have traced hippocampal subregions, and from this we created a probabilistic MRI atlas where Nissl-stained hippocampal sections informed MRI subfield labeling. The present population of nonhuman primates offers the rare opportunity to perform imaging both *in vivo* and then detailed histological comparisons post-mortem. We are developing a novel methodological approach of demarcating subfields histologically and then projecting these boundaries in MRI scans that will allow us to compare temporal lobe subregions of young and aged cognitively characterized monkeys. We will finish this project within the next year (Excluded by Requester).

Publications:

Excluded by Requester

Funding Sources (include name of the source and the grant number):

R01-AG003376

Honors, Award and Special Recognition:

Nothing to report

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0394**Project Title:** Primate Embryo Gene Expression Resource**Type of Project:** Research**Unit:** RSRM**AIDS?** no**PI, with institutional affiliation**

Excluded by Requester

Developmental Biology, Cell Biology, Molecular Biology,

Michigan State Univ

Principal Core Scientist associated with the project

Excluded by Requester

Department of Obstetrics and Gynecology, School of Medicine

Project Description (one paragraph): The Primate Embryo Gene Expression Resource permits the rapid and cost-effective study of gene expression in primate oocytes and preimplantation embryos using the rhesus monkey as the primary model organism. PREGER contains over 160 informative samples representing GV-stage oocytes, MII stage oocytes, and embryos at the 1-cell through hatched blastocyst stages, obtained using different combinations of *in vitro* or *in vivo* maturation, fertilization, and culture. This extensive and valuable sample set permits analyses of gene expression related to understanding basic primate embryology, as well as potential effects of clinical procedures on embryo quality using a primate model. This will facilitate basic research, and may support novel clinical approaches, e.g., in the evaluation of embryo quality. The current activities maintain and expand the resource, produce new and fundamental basic information about primate embryos, and produce novel molecular approaches that may be useful in clinical practice.

Project Progress (one paragraph): In October 2016, the parent grant was resubmitted for competitive renewal. In the past year several sample sets were completed and published, including differences between breeding season and summer oocytes and follicle cells. We also sent sample sets from various sizes of follicles to determine the differences in gene expression in follicles as they grow and development on their way from primary follicles to ovulation. Trophoblast and embryonic stem cells were exposed to various toxicants and sent for gene expression analysis. Additionally, we have produced blastocyst stage embryos for labeling of various proteins. Various stages of oocytes and early embryos are being collected for a analysis by RNAseq. Of great interest is that we received a supplement for the production of CRISPR embryos, which has been successful and this technology should be the basis for several NIH applications in the coming year. A manuscript is in the final stage of preparation that

In Preparation

Excluded by Requester

Funding Sources: R24-RR015253

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0423**Project Title:** Behavioral Management of Deleterious Aggression in Rhesus Macaques**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI with institutional affiliation**

Excluded by Requester

PhD

VM: PHR

Core

Principal Core Scientist associated with the project

Excluded by Requester

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

DVM, MPVM, PhD

VM: PHR

Affiliated

PhD

Psychology

Core

PhD

Affiliated

Project Description: In the NIH/NCRR sponsored breeding programs of the NPRCs, rhesus macaques are housed in multimale-multifemale social groups in large outdoor corrals which simulates the natural social and environmental features characteristic of the species, enhancing their reproductive performance as well as their psychological well-being. Despite the importance of this naturalistic social housing, one of the most difficult problems in socially-housed macaques is their propensity for spontaneous bouts of deleterious aggression. The long-term goal of this project is to reduce the rates of deleterious aggression in captive breeding colonies of rhesus macaques. The objective of this particular application is to enhance current behavioral management techniques by developing a set of predictive models of the within-group social and group-level management factors that lead to deleterious aggression and aggression-based morbidity and mortality in group-housed rhesus macaques. Development of beneficial management practices that reduce aggression-based morbidity and mortality in rhesus breeding groups will contribute to public health by enhancing the health and welfare of rhesus macaques in breeding colonies that provide the animal resources critical for conducting biomedical research on nonhuman primates.

Project Progress: Our research to date indicates that the use of social network theory has allowed us to uncover hidden patterns in relationships that can be used to both detect and predict social instability in rhesus social groups. Frequencies and rates of behaviors have failed to provide us with such predictive power. Indeed, both the structure of direct and, more importantly, indirect relationships across aggression, grooming, alliance, and status networks are important to social group stability in rhesus; yet, the real key to understanding the architecture of stable social networks is through a detailed understanding of the interconnected pathways underlying the status signaling networks, which are also related to other important networks such as dominance certainty, aggression, and grooming in significant and complex ways. In addition, the joint modeling of status and aggression networks can be used to determine when a tipping point occurs in groups heading toward instability by identifying the point of decoupling of status and aggression networks. We have experimentally shown that this status signaling network provides the backbone of rhesus society and can be used, if monitored on a systematic and focused basis, to detect and predict social collapse in rhesus social groups. In addition, manipulation of social groups such as matriline defragmentation and the removal of high ranking males challenging this status network can proactively prevent social instability and collapse in rhesus social groups.

Funding Sources: R24OD011136

Publications (fulllist)

Excluded by Requester

#OD011107

REPORTING PERIOD: 05/01/2016 – 04/30/2017

Excluded by Requester

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0520**Project Title:** Rhesus Monkey Oocyte Resources**Unit:** RSRM**Type of Project (Research, Management, Pilot or Other):** Research**AIDS?:** No**PI, with institutional affiliation**

Excluded by Requester

Department of Obstetrics and Gynecology, School of Medicine

Principal Core Scientist associated with the project

Excluded by Requester

Department of Obstetrics and Gynecology, School of Medicine

Project Description:

Because human and nonhuman primates share many unique characteristics of reproduction, especially in regard to follicle selection and function, oocyte maturation and early embryo growth, the rhesus model is especially critical for research in reproduction that can have direct applications to humans, especially in research to determine fetal origins of adult disease. This resource would be a source of oocytes and follicle cells, as well as protocols and training, for investigators that currently utilize or that want to expand their studies into a primate model to facilitate translation to human applications. The long-term goal will be to provide a bank of oocytes and accessory cells as well as ovarian tissue and cell lysates that can be accessed by NIH funded investigators. The specific aims of the project will be 1) Provide current protocols and training for *in vitro* maturation and cryopreservation of rhesus monkey oocytes; 2) Develop a bank of oocytes and somatic accessory cells (cumulus and granulosa) for distribution as cryopreserved material, fixed material, and lysates for molecular analyses. Fresh oocytes and somatic accessory cells will also be available for shipment; and 3) Address the urgent need in both human and nonhuman reproductive biology to enhance oocyte cryopreservation and IVM methods.

Project Progress:

This project has cryopreserved oocytes and accessory follicular cells for future use. Cryopreservation protocols are being updated for ovarian tissue and new protocols are being investigated for mature oocytes. We have found that the most successful oocyte freezing protocol has been that used by human IVF clinics, however this protocol is still not optimum and the majority of oocytes do not result in cleaving embryos that can reach the blastocyst stage of development even after ICSI. Almost all ovarian samples from animals that go to necropsy at CNPRC are now being cryopreserved and banked. Several publications that have utilized this resource are now published. This grant ended in April 2016, but samples are continuing to be banked.

Funding Sources: R24-OD010967

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0538**Project Title:** SOCIAL REGULATION OF GENE EXPRESSION**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

AFFILIATED UNIV OF CHICAGO IL , USA

Principal Core Scientist associated with the project

Excluded by Requester

Unit Leader, Neuroscience and Behavior, CNPRC

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

AFFILIATED

UCLA

AFFILIATED

UNIV OF CHICAGO, IL

Project Description: Research has repeatedly shown that a lack of social ties increases risk for poor health. Recent research has demonstrated that poor mental and physical health outcomes are distally associated with social isolation, are more proximally associated with perceived social isolation (PSI), and are not explicable in terms of differences in health behaviors. Recent studies have identified alterations in hypothalamic-pituitary-adrenal (HPA) axis regulation of inflammatory biology in leukocytes as a potential mechanism of isolation-related health risks. Individuals reporting chronically high levels of subjective social isolation have shown a heightened rise in morning cortisol levels, and alterations in genome-wide transcription of glucocorticoid target genes and NF- κ B target genes. These isolation-related alterations in leukocyte biology might stem from a functional desensitization of the glucocorticoid receptor (GR) in isolated people, which in turn, is reciprocally related to NF- κ B expression, a key factor in regulation of cellular responses to infection, cancer, and inflammation. Impaired transcription of glucocorticoid response genes and increased activity of pro-inflammatory transcription control pathways provide a functional genomic explanation for elevated risk of inflammatory disease in individuals who experience chronically high levels of perceived social isolation.

In the second five-year period for the monkey component of this project, we are leveraging our earlier findings that a) established a monkey model of naturally occurring PSI, and b) demonstrated evidence of a transcriptional response in these animals that involved reduced antiviral and humoral immune gene expression and upregulation of inflammation compared to controls. Specifically, we will determine whether the presence of a non-threatening conspecific can alleviate some of the biological consequences of PSI. In particular, we propose that PSI is associated with heightened perceptions of social threat that results in elevated sympathetic nervous system activity, and consequent alteration in immune cell development in lymphoid tissue. We will examine cellular components of primary and secondary lymphoid tissue to test our hypotheses of differences between PSI and control animals, and differences in the effects of a companion on lymphoid tissue cell dynamics.

Project Progress: We completed all data collection on both the first and second cohorts of animals for this study. This comprises n=10 of the total of 21 animals to be selected for the project.

Funding Sources: R37-AG033590**Publications:** None.

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0540**Project Title:** Attenuated RhCMV delta 10 SIV Oral Vaccine Vectors Encoding TLR5 Ligand Sequences**Unit:** ID**Type of Project (Research, Management, Pilot or Other):** Research**AIDS?:** Yes**PI, with institutional affiliation**

Excluded by Requester

Principal Core Scientist associated with the project

Excluded by Requester

Ph.D.

Med: Path

Core

Project Description:

These studies will provide a first investigation of a novel HIV-1 vaccine approach that incorporates a new viral vaccine vector, attenuated RhCMV Δ IL10 that incorporates bacterial flagellin, a TLR5 agonist, as an adjuvant by generation and delivery of chimeric vaccine immunogens encoding flagellin sequences. Importantly, these studies will examine and develop a novel vaccine approach that is not previously tested in the SIVmac vaccine model, and carries the potential to significantly impact HIV vaccine design.

Project Progress:

We have demonstrated that a RhCMV vector expressing a fusion construct consisting of the SIV gag gene with flagellin expresses high levels of flagellin that activate TLR 5 signaling pathways. Animals were vaccinated with this vector and challenged with SIV.

In Preparation

Funding Sources: R01-DE021273

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0542**Project Title:** SCI Consortium Study**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

DVM

Primate Services

Principal Core Scientist associated with the project**Other affiliate scientists with institutional affiliation (doctoral level only)**

Excluded by Requester

UCSD

Project Description:

This is the continuation at the CNRPC of the VA Gordon Mansfield Spinal Cord Injury (SCI) Consortium non-human primate (NHP) contract. In this project, the NHP model of SCI will be used to address several key issues prior to the translation of the cell therapy to humans, including efficacy and safety, transition to the contusion model of SCI, and use of rehabilitation to optimize functional outcome. This avenue of study is necessary to elucidate efficacy in the NHP model. Many cell therapies have undergone clinical testing in humans and none have demonstrated clinically meaningful motor or sensory functional recovery. Thus, rigorous testing of hNPCs must be conducted to demonstrate efficacy in a clinically relevant model of SCI. Funding from the Veterans Administration Rehabilitation Research and Development (RR&D) Service in the Office of Research and Development will support both the continued development of this model and the testing of multiple therapies simultaneously.

The goal of this study is to test the efficacy of hNPC and NHP induced pluripotent stem cell (iPSC) for the treatment of acute and chronic SCI in NHPs, emphasizing return of function to the upper limbs.

This study will test a therapy comprised of the following three components:

- 1) A cell graft of human neuroprogenitor or NHP induced pluripotent stem cells into the lesion site.
- 2) A matrix consisting of fibrin and thrombin.
- 3) Growth factors.

Project Progress:

We refined a broad range of behavioral testing procedures, including treadmill, chair, and exercise cage testing. We implemented a series of in-cage testing devices and are in the process of developing an automated in-cage testing apparatus that will enable animals to continue their rehabilitation on their own in their home cages. Grafted animals have gone out several months with survival of stem cell grafts.

Funding Sources: VA San Diego Healthcare System

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0553**Project Title:** Vaccine-Mediated Targeting of IL10 To Control HCMV Shedding and Reinfection**Unit:** Infectious Diseases**Type of Project:** Research**AIDS?:** No**PI, with institutional affiliation**

Excluded by Requester

Ph.D.

Med: Path

Core

Principal Core Scientist associated with the project

Excluded by Requester

Ph.D.

Med: Path

Core

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

Ph.D.

University of Alabama at Birmingham

Project Description: This proposal hypothesizes that there is a key nexus linking virus-host interactions, persistence, and reinfection that is susceptible to vaccine-mediated intervention. Specifically, HCMV modulation of host immunity through the functionality of the HCMV-encoded interleukin-10 protein (cmvIL10), enables both viral reactivation and systemic spread of virions beyond sites of reinfection. **HYPOTHESIS:** post-exposure increases of neutralizing antibody (NAb) titers to cmvIL10 in HCMV-infected individuals will (1) reduce HCMV shedding and (2) increase resistance to reinfection. This study extends our work on the *in vitro* functionality of cmvIL10 and the *in vivo* modulation of host immunity by rhesus CMV (RhCMV)-encoded IL-10 (rhcmvIL10).

Project Progress: We have demonstrated the extent to which RhCMV exploits the IL-10 signaling pathway during the establishment and maintenance of a persistent infection in immune competent hosts. RhCMV uses the RhCMV-encoded virus IL-10 during the initial phase of infection to modulate host immune responses and shape the nature of adaptive antiviral immune responses. By 6-8 weeks post RhCMV infection, RhCMV infection stimulates an antigen-independent production of cellular IL-10 (cIL-10) from PBMC. Thereafter, maintenance of persistence appears to be mediated by RhCMV antigen-dependent stimulation of cIL-10 during long-term infection. These results suggest that interruption of the IL-10 signaling pathway could be useful for disrupting either the establishment of maintenance of a persistent RhCMV infection. The results offer a paradigm for manipulating the IL-10 signaling pathway as a vaccine adjuvant.

Funding Sources: R01-AI097629

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0559**Project Title:** Development of an Effector-Memory T Cell AIDS Vaccine (Core B)**Unit:** Infectious Diseases**Type of Project:** Research**AIDS?:** yes**PI, with institutional affiliation**

Excluded by Requester

PhD

Affiliated

Oregon Health & Science Univ, OR, USA

Principal Core Scientist associated with the project

Excluded by Requester

Ph.D.

Med: Path

Core

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

Ph.D.

Project Description: Two nonhuman primate efficacy studies have convincingly demonstrated that CMV/SIV vectors can: 1) re-infect CMV+ rhesus macaques (RM), 2) during re-infection, elicit potent and persistent SIV-specific CD4+ and CD8+ T cell responses with a strong "effector memory" (TEM) bias, and 3) completely protect ~50% of vaccinated RM from progressive SIV infection after limiting dose rectal challenge with the highly pathogenic SIVmac239 virus. In this Program, we seek to: 1) increase the potency of CMV/SIV vectors so as to achieve rates of protection closer to 100% of vaccines, 2) reduce the pathogenic and shedding potential of CMV vectors, while retaining immunogenicity, so as to achieve an effective vaccine that is safe enough for use in a general human population, and 3) determine immunologic correlates of protection to guide further development of the TEM vaccine concept.

Project Progress: The safety profile of modified RhCMV-based vaccine vectors have been extensively evaluated in macaque pathogenesis model by analyzing for pathogenic potential of the modified vectors *in vivo*. Multiple vectors have been tested *in vivo*, and there are now several candidates that (1) induce protective efficacy against SIV challenge (work done at Oregon Health and Science University) and (2) exhibit significantly reduced pathogenic potential in rhesus macaques. The modified vectors tested in rhesus macaques provide a template for the construction of human CMV-based vectors for use in human clinical trials.

A manuscript is being prepared for submission.

Funding Sources: P01-AI094417

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0561**Project Title:** Expanding the Utility of Social Network Analysis for Multilevel Health Outcomes**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

PhD

VM: PHR

Core

Principal Core Scientist associated with the project

Excluded by Requester

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

DVM, MPVM, PhD

VM: PHR

Affiliated

PhD

Psychology

Core

PhD

Statistics

Affiliated

PhD

VM:PHR

Affiliated

Project Description: This study will advance our understanding of how social networks and their analysis influence social and health outcomes using nonhuman primate social groups as a model system. We are addressing fundamental questions about the types of individual and family attributes that interact with environmental modulators to significantly influence network structure and how such network structures in turn influence health outcomes. Through experimental manipulation of our large, captive, social groups of rhesus macaques, we examine how the fundamental characteristics of the individual agents interact with changes in environmental and social contexts to understand how individual network roles and family and group network architecture influence physical, physiological, and social health outcomes.

Project Progress: Major results, outcomes and accomplishments for this reporting period are showing the complexity with which social life influences health outcomes. Specifically, we have shown that (1) predictability of status predict individual health, (2) quality of social relationships influence individual health, and (3) stability of the social environment affects group health. Altogether our results highlight the importance of more complex representations of social status, relationships and stability for understanding its impact on health as well as the value in exploring multiple physiological processes at the individual and group levels. For example, our data show that the effect of social status on health is much better understood by accounting for status certainty. While low dominance certainty was associated with increased risk for diarrhea (from all causes) and inflammation for high status animals, high dominance certainty is associated with greater inflammation in low status animals, increased risk of infection with bacterial pathogens, and greater SNS activity. Our work suggests that expanding the examination of the certainty (as opposed to direct status) and quality (as opposed to number) of social relationships may be a critical step toward understanding social effects on health outcomes. As such, the innovative methods leading to this more complex conceptualization of status and relationship quality promises to significantly enhance our ability to detect more effectively who may experience health related costs in society. Continued research on more complex interactions at multiple spatial and temporal scales between these and other defining attributes and social relationships will deepen our knowledge on how and why the social environment is so critical to healthy living across the lifespan.

Funding Sources: R01-HD068335

Publications

Excluded by Requester

Abstracts

Excluded by Requester

#OD011107

REPORTING PERIOD: 05/01/2016 – 04/30/2017

Excluded by Requester

ANNUAL PROGRESS REPORT 2016-2017**SPID:** 0564**Project Title:** Optimizing Oral Pediatric HIV Vaccines to Prevent Breast Milk Transmission**Unit:** Infectious Diseases**Type of Project:** Research**Aids? (No, Yes):** Yes**PI, with institutional affiliation**

Excluded by Requester	PhD	M & I	Affiliated	UNC
-----------------------	-----	-------	------------	-----

Principal Core Scientist associated with the project

name	degree(s)	dept/affiliation	Affiliated or Core	University
Excluded by Requester		CNPRC	Core	UCD

Other affiliate scientists with institutional affiliation (doctoral level only)

name	dept/affiliation	Affiliate	University
Excluded by Requester	Microbiology, Immunology & Parasitology,	Affiliate	LSUHSC (New Orleans)
	Microbiology, Immunology & Parasitology,	Affiliate	LSUHSC (New Orleans)

Project Description:

The goal of the project is to optimize an oral pediatric HIV vaccine that can protect breast-feeding human infants against HIV infection. Using the SIV-macaque model, we will test different vaccine routes, vaccine adjuvants, and different vaccine combinations to determine the most effective strategy to induce long-lasting immune responses. In addition, we will try to determine the anatomical sites of viral entry and initial replication in infant macaques following oral SIV exposure, because such knowledge will guide the development of antiviral vaccines that target such sites.

Project Progress:

Groups of juvenile macaques have been immunized with different SIV vaccines by different routes for comparison of local and systemic immune responses. In addition, infant macaques have been inoculated orally with SIV and euthanized at defined times within the first days after inoculation to determine the sites of viral entry. Immunological and virological analysis of all samples is currently ongoing.

We completed an infant oral SIV challenge study comparing an IM immunization regimen to a combined IM/sublingual (SL) regimen. The data show that infant macaques vaccinated by the IM/SL route required significantly more oral SIV exposures than the IM only vaccinated infants. IM/SL vaccinated macaques also had lower peak viremia compared to IM vaccinated infants. Control of viremia was associated with SIV Env-specific IgG antibody responses in fecal extracts.

Data from both studies are currently prepared for publication.

Funding Sources: R01-DE022287

Publications: None

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0569**Project Title:** Effects of Chronic Intranasal Oxytocin**Unit:** BMB**Type of Project (Research, Management, Pilot or Other):** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	PhD	Psychology	Core
-----------------------	-----	------------	------

Principal Core Scientist associated with the project

Excluded by Requester	PhD	Psychology	Core
-----------------------	-----	------------	------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	MD/PhD	Univ of Minnesota	Affiliate
	PhD	Psychology	Core
	PhD	MIND Institute	Affiliate
	PhD	Population Biology and Epidemiology	Affiliate
	PhD	Animal Science	Affiliate

Project Description:

Autism is a common, impairing neurodevelopmental disorder affecting 1 in 68 individuals. Oxytocin (OT) is a nine amino acid peptide produced in the hypothalamus and stored in the posterior pituitary. In animal models, it has been shown to be closely involved in the formation of close social bonds which are selective for a particular individual (“**selective social behavior**”). In addition, in humans intranasal OT has been shown to affect numerous social processes including trust, the processing of positive and negative emotional information, and empathy. It has also been proposed as a treatment for various developmental psychopathologies, including autism. The overarching goal of this research is to examine the long-term developmental effects of chronic exposure to intranasal OT in a **translational** fashion in three different animal models, prairie voles, BTBR mice, and titi monkeys.

Project Progress: We are in Year 5 of this project and have completed data collection on all of our developmental projects with ~~rodents~~. ~~Whereas~~ chronic intranasal oxytocin caused detrimental effects on pair-bonding in male prairie voles, ~~Excluded by Requester~~ there were no effects on social or anxiety behavior in either BTBR or C57 mice. ~~Excluded by Requester~~ Investigations of the role of age and context of administration in voles are in the process of being written for publication. All titi monkey subjects have been enrolled and are at different stages of the project, with 21 having completed the project entirely. Data from this project were presented in several venues, including a workshop on intranasal oxytocin convened by NICHD. A competitive supplement was awarded to study effects of the intranasal OT treatment on the reproductive system in titi monkeys.

Publications:

Excluded by Requester

#OD011107

REPORTING PERIOD: 05/01/2016 – 04/30/2017

Excluded by Requester

Funding Sources: R01-HD071998 and R01-HD071998S1

Honors: Excluded by Requester received a 2013 Social Sciences Dean's Innovation Award for this project.

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0576**Project Title:** HCMV Vaccine produced from BAC-MVA that blocks Epithelial and Fibroblast Entry**Unit:** Infectious Diseases**Type of Project:** Research**AIDS?:** No**PI, with institutional affiliation**

Excluded by Requester	Beckman Research Institute of the City of Hope
-----------------------	--

Principal Core Scientist associated with the project

Excluded by Requester	Ph.D.	Med: Path	Core
-----------------------	-------	-----------	------

Project Description: Our understanding of human cytomegalovirus (HCMV) infection has been enhanced by discovery of a 2nd pathway of virus entry into epithelial-endothelial cells (Epi/EC) mediated by a pentameric virion glycoprotein complex. The culmination of many years of study on the original Fibroblast (Fibro) pathway of HCMV entry was a clinical trial in which a formulated gB vaccine was repeatedly administered to HCMV-negative women and 50% protection against primary infection was found. We have reproduced this success using Rhesus CMV (RhCMV)-negative rhesus macaques (RM) by demonstrating 50% protection against a virulent RhCMV challenge, using a modified vaccinia Ankara (MVA) vaccine composed of RhgB and the tegument protein Rhpp65. We hypothesize that to further improve vaccine success; efficient inhibition of CMV entry into Epi/EC will be required. Utilizing a revolutionary approach of manipulation of a bacterial artificial chromosome (BAC) derived MVA, we serially cloned each of 5 subunit proteins constituting the RhCMV UL128C (RhUL128C) in separate MVA insertion sites in a BAC plasmid. The immunogenicity of these constructs will be evaluated in rhesus macaques prior to clinical trials in humans. The anticipated result of these studies will be an HCMV-based subunit vaccine ready for clinical development.

Project Progress: The immunogenicity of the MVA-based vector for HCMV antigens has been tested in rhesus macaques. The results clearly demonstrate that this vaccine vector is capable of inducing robust and long-lasting immune responses in rhesus macaques that are clinically relevant in relation to the level of immunity generated in humans infected with HCMV. Our conclusion is that the results in macaques warrant expansion to clinical trials in humans. Further, we have published findings that provide insights into a continuous pentamer complex-specific neutralizing epitope, which could be an important target for a vaccine formulation to interfere with congenital HCMV infection.

Funding Sources: R01-AI103960

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0580**Project Title:** Rhesus Model for Proinflammatory Influences on Depression**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

Ph.D.

Wright State University

Principal Core Scientist associated with the project

Excluded by Requester

Ph.D.

Psychology

Core

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

PH.D.

PSYCHOLOGY

CORE DOCTORAL STAFF

Project Description: The disruption of social relationships is a major risk factor for the development of depressive illness. The mechanisms underlying this effect, as well as why individuals vary widely in vulnerability to this influence, are the focus of much current research, but are still poorly understood. The establishment of a simple, practical, nonhuman primate model would greatly facilitate this effort. Preliminary observations at the California National Primate Research Center indicate that male rhesus macaques often display a depressive-like behavioral response soon after being moved from large outdoor social groups to individual indoor housing, that susceptibility varies among individuals in a predictable fashion, and that the frequency with which this reaction occurs has been underestimated or overlooked in the past due to the tendency of male rhesus to become attentive or alert in the presence of a human observer. Other observations suggest that an increase in systemic proinflammatory activity contributes to this depressive outcome. Therefore, two specific aims will explore the suitability of rehousing males rhesus monkeys individually as a practical model for studying the link between social stress and depression, as well as the possible role of proinflammatory factors in mediating this effect. The first aim will systematically examine the frequency with which sexually mature male rhesus macaques display a depressive-like behavioral reaction when removed from a social group and placed in individual indoor housing, the association of the behavioral reaction with measures of proinflammatory activity, and the relation of these effects to stable biobehavioral characteristics of the males. The second aim will examine the ability of a cyclooxygenase inhibitor to reduce the depressive-like response to individual housing. This aim will provide a direct test of a proinflammatory mechanism suggested to mediate depressive-like behavioral reactions. The experiment will also provide an initial test of a simple prophylactic measure to counter effects of social isolation in a monkey model.

Project Progress: Both experiments have been completed. Overall, single housing led to a hunched posture, and this was remediated by co-housing with a familiar partner. Inflammatory cytokine concentrations and their resistance to glucocorticoids were also elevated during indoor housing, and concentrations were correlated with amount of hunched posture seen.

Funding Sources: R21-MH099361**Publication:** Excluded by Requester

Excluded by Requester

#OD011107

REPORTING PERIOD: 05/01/2016 – 04/30/2017

Excluded by Requester

#OD011107

REPORTING PERIOD: 05/01/2016 – 04/30/2017

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0583**Project Title:** Construction of

Specific Animal Location

Unit: Center**Type of Project:** Management**AIDS?** yes**PI, with institutional affiliation**

Excluded by Requester

DVM

DEPT: Primate Services

Principal Core Scientist associated with the project

Excluded by Requester

DMV

DEPT: Primate Services

Project Description: This application from California National Primate Research Center (CNPRC) located on the University of California (UC), Davis campus seeks to obtain federal funding in the amount of \$895,800 through the Limited Competition: Extramural Research Facilities Improvement Program (C06) to construct

Specific Animal Location

Specific Animal Location

approximately 150 animals. These animals are a long-term breeding resource and serve as a national resource for infants, juveniles, adults, and aged animals for use in biomedical research by investigators from throughout the United States.

Specific Animal Location

at the CNPRC already have

Specific Animal Location

Project Progress: Although principle construction is complete and the enclosures have been occupied a recent Change of Scope to supplement the original design was approved. Documents are being finalized and it will go out to bid shortly. Upon completion we expect to close out the project.

Funding Sources: C06-OD011900

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 0584**Project Title:** AIDS Clean Cage Storage Facility**Unit:** Center**Type of Project (Research, Management, Pilot or Other):** Management**AIDS?:** yes**PI. with institutional affiliation**

Specific Animal Location

DVM

DEPT: Primate Services

Principal Core Scientist associated with the project

Specific Animal Location

DVM

DEPT: Primate Services

Other affiliate scientists with institutional affiliation (doctoral level only)

Project Description: This application from the California National Primate Research Center (CNPRC) located at the University of California, Davis (UCD), seeks to obtain federal funding in the amount of \$597,454 through the Limited Competition: Extramural Research Facilities Improvement Program (C06) for the AIDS Clean Cage Storage Facility Project. This request seeks to fund the addition of clean cage storage space necessary to support two new modular animal buildings and existing modular buildings in which AIDS-related and infectious disease research is conducted. This will ensure compliance with the *Guide for the Care and Use of Laboratory Animals*, eighth edition (The Guide) in its directive for clean cage storage to ensure reliable and predictable nonhuman primate (NHP) models for the development of effective HIV vaccines and therapies. The proposed clean cage storage facility is part of a larger plan to segment the CNPRC's indoor animal housing areas into infectious disease and non-infectious disease zones in order to improve occupational safety by eliminating the transportation of caging across major traffic corridors, and improve operational efficiencies. Each zone will have its own indoor animal housing space, cage wash, and clean cage storage facility. The clean cage storage facility is the final component to accomplishing this plan and is integral to the effective and efficient operation of AIDS-related research with the additional capacity of 144 NHPs being provided by the two modular buildings. The goal of this proposal is to increase the infrastructure capacity necessary to provide cage storage to facilitate growth in AIDS-related research and to improve operational efficiencies that decrease the physical risk and monetary cost of delivering those cages to research.

Project Progress: Clean Cage Storage - Although principle construction is complete and the building has been occupied a recent Change of Scope to supplement the original design was approved. Documents are being finalized and it will go out to bid shortly. Upon completion we expect to close out the project.

Funding Sources: C06-OD018242

ANNUAL PROGRESS REPORT 2016-2017**SPID:** 0591**Project Title:** Modeling Inflammation in HIV Transmission**Unit:** ID**Type of Project:** Research**Percent P51 dollars****AIDS? (No, Yes):** yes**PI, with institutional affiliation**

Excluded by Requester

Principal Core Scientist associated with the project:

Excluded by Requester

Project Description:

HIV-1 acquisition is increased in women with sexually transmitted infections (STIs), especially herpes simplex virus type 2 (HSV2). Genital inflammation may decrease the dose of HIV required to infect an individual and that, in turn, can alter the ability of a vaccine or microbicide to prevent HIV transmission. This project will use a nonhuman primate (NHP) model to provide a detailed understanding of the mechanism by which HSV2 induced inflammation enhances vaginal HIV transmission and develop novel strategies to minimize the effects of HSV2.

Project Progress: in progress**Funding Sources:** R01-AI098488

ANNUAL PROGRESS REPORT 2016-2017**SPID:** 0594**Project Title:** Maternal Temperament, Stress, and Inflammation in Preterm Birth**Unit:** BMB**Type of Project:** Research**AIDS? (No, Yes):** No**PI. with institutional affiliation**

Excluded by Requester

Ph.D., M.D.	Cincinnati Children's Medical Center
Ph.D.	Cincinnati Children's Medical Center

Principal Core Scientist associated with the project

Excluded by Requester

Ph.D.	Psychology	Core
-------	------------	------

Project Description: Preterm birth is a major public health burden that remains the leading cause of neonatal morbidity and mortality worldwide. Our long-term goal is to determine the mechanisms that disrupt the normal timing for parturition and lead to preterm birth. Numerous factors influence the likelihood of preterm birth, such as bacterial infection/colonization, maternal stress, and genetic predisposition. While these factors increase the frequency of preterm birth, the majority of women with these factors in isolation deliver at term. In this proposal, we will test a new hypothesis - similar to insights that have been established in cancer biology - that to manifest a preterm delivery, multiple detrimental "hits" acting together are required. Proving that this is the case is not possible with observational studies in humans, with many uncontrollable variables confounding causal relationships. We will use a nonhuman primate (rhesus) model system, with pregnancy characteristics more similar to humans than typical non-primate systems, to determine whether stress and infection interact to promote early labor and delivery. We propose that individual temperament, inflammation, and stress will each provide an additive "hit", of which two or more will be required to end pregnancy prematurely. We will test the specific hypotheses that: (1) maternal stress and inflammation synergize to induce preterm birth; (2) the individual susceptibility to psychological stressors plays a key role in the induction of preterm birth; and (3) maternal peripheral blood or amniotic fluid hormones and inflammatory responses will differ prior to and following IL-1 α administration during pregnancy depending on underlying temperament and exposure to chronic stress. To test these hypotheses, our Specific Aims will determine: (1) The interactions between maternal stress, inflammation, and the influence of individual susceptibility due to anxious temperament, in preterm birth in rhesus macaques. (2) The interactions of maternal temperament and stress on maternal immunity and hormones before and after an inflammatory challenge. (3) The effects of maternal temperament and chronic stress on amniotic fluid cytokines, prostaglandins and microbial community structure before and after an inflammatory challenge. Our trans-disciplinary team will integrate expertise in the physiology of pregnancy, immunology/inflammation, primate behavior/psychology, the neurobiology of stress, biostatistics and the microbiome to more comprehensively investigate the heterogeneous pathways increasing preterm birth risk and yield important new insights into causal mechanisms and avenues for prematurity prevention.

Project Progress: We have identified a satisfactory inflammatory signal to deliver to the pregnant females. A new cohort of animals was selected based on behavioral data, and animals are currently being bred to obtain 24 pregnancies.

Funding Sources: R01-HD07812

ANNUAL PROGRESS REPORT 2016 – 2017**SPID: 623****Project Title:** Characterization of oxytocin receptors in autism spectrum disorder**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	PhD	Psychology	Core
-----------------------	-----	------------	------

Principal Core Scientist associated with the project

Excluded by Requester	PhD	Psychology	Core
-----------------------	-----	------------	------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	PhD	CNPRC	Core
-----------------------	-----	-------	------

Project Description: Oxytocin (OT) is a hormone produced in the brain that modulates a variety of complex social behaviors in animals as well as humans. As a result, the OT system has been highly implicated in the biology and treatment of autism spectrum disorder (ASD), a common and impairing condition that is characterized in part by deficits in sociality. This proposal would characterize the distribution of oxytocin receptors in the human brain and determine whether there are differences in oxytocin receptor expression in the brains of individuals with ASD.

Project Progress: We completed the two aims of the grant: 1) to map oxytocin receptors throughout the neurotypical human brain, and 2) to compare oxytocin receptor density in two brain regions between specimens from typically developing humans and those from individuals who had ASD. We have presented the results of these two studies at an international conference, as well as at a domestic conference, and we are now writing up the results for publication. We have also obtained additional specimens from the NIH Neurobiobank in order to conduct a follow-up study to aim 2 in which we extend our investigations in three additional regions of the brain. We are currently processing these new specimens and will be performing the final experiments of this grant in the next few months.

ANNUAL PROGRESS REPORT 2016-2017

SPID 624

Project Title: Pre-clinical evaluation of oxytocin for ASD treatment discovery**Unit:** BMB**Type of Project:** Research**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	PhD	Psychiatry	BMB	UC Davis
-----------------------	-----	------------	-----	----------

Principal Core Scientist associated with the project**Other affiliate scientists with institutional affiliation (doctoral level only)****Project Description:**

Although there are currently no validated nonhuman primate models of ASD, we believe that natural variation in sociability of juvenile rhesus monkeys can be used to evaluate pharmacological treatments designed to improve social and communication deficits. Our established protocols will be used to quantify changes in sociability and communication and directly compare those outcome measures with both mouse models (i.e., high-throughput assays of sociability) and ASD clinical populations (i.e., non-invasive eye tracking). This novel, nonhuman primate model is poised to provide a valuable test bed for evaluating pharmacological treatments targeting the core social deficits of ASD. We propose to first utilize this model to evaluate one of the most promising avenues of ASD treatment research – the oxytocin (OT) system. Although preliminary studies have reported improved social functioning in adult ASD patients treated with OT, we know very little about the mechanism underlying these results, and we know even less about the effects OT administration may have in younger patients. Here we propose to utilize yearling macaque monkeys (roughly equivalent to a 4-year-old child) to systematically evaluate the effects of OT administration on primate sociability.

Project Progress:

We have designed an intranasal OT delivery system modeled after Parr et al, but modified for use in younger animals. Design of this novel delivery system required approximately 4 months (Feb-May 2015) and required several prototypes. We selected four juvenile macaques (2 males and 2 females) from the California National Primate Research Center (CNPRC) in June of 2015 and relocated the animals indoors. Positive reinforcement training was used to acclimate the animals to the OT delivery system. After 6 months of training three of four animals are consistently reaching the criterion (in contact with the OT delivery mask for 4 of 10 minutes).

Publications: none**Other publications:** none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 631**Project Title:** Maternal and infant immunization to eliminate breast milk transmission of HIV-1**Unit:** ID**Type of Project:** Research**AIDS?:** Yes**PI, with institutional affiliation**

Excluded by Requester	M.D., PhD.	Duke University Human Vaccine Institute	Duke University
-----------------------	------------	---	-----------------

Principal Core Scientist associated with the project

name	degree(s)	dept/affiliation	Affiliated or Core	University
Excluded by Requester	DVM, PhD	CNPRC	Core	UCD

Other affiliate scientists with institutional affiliation (doctoral level only)

Name	degree(s)	dept/affiliation	University
Excluded by Requester	PhD	University of North Caroline, Chapel Hill	

Project Description: To develop maternal and/or infant vaccination strategies to prevent postnatal HIV transmission requires preclinical testing to establish proof-of-concept of safety and efficacy in an appropriate animal model. For studies of HIV-1, the best animal model is SIV/SHIV infection of macaques. Indeed, this model is particularly well-suited for our proposed studies because pediatric models of postnatal transmission have previously been developed. Due to the changing nature of the discovery science and the unique challenges with breeding dams this protocol entails, some specifics are not available, however this protocol will address the specific parameters in respect to the welfare of the rhesus macaques. These studies will be performed in nonhuman primates at the California National Primate Research Center.

Project Progress: We tested several infant vaccine strategies in neonatal monkeys & assessed their induction of functional HIV Env-specific antibodies. Results from these studies will be used to decide the vaccine regimen that will be applied as pediatric vaccine in the combined maternal-infant vaccine studies to be tested for efficacy in years 3-5. To test a maternal vaccine, we immunized pregnant dams during pregnancy and shortly after delivery, and then exposed their infants, starting at 6 weeks of age, to repeated low-dose SHIV-C exposures by the oral route. Data analysis is currently ongoing.

Publications none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 632**Project Title:** Delivering therapeutics to residual active HIV reservoirs**Unit:** ID**Type of Project:** Research**AIDS?** Yes**PI, with institutional affiliation**

Excluded by Requester	PhD	Dept. of Pharmacology	Affiliated	University of North Carolina
-----------------------	-----	-----------------------	------------	------------------------------

Principal Core Scientist associated with the project

Excluded by Requester	PhD	Core Scientist
-----------------------	-----	----------------

Project Description:

Methods to accurately evaluate antiretroviral drug distribution within tissues are needed to design effective eradication strategies for treating HIV infection and AIDS. We are characterizing the spatial distribution of emtricitabine (FTC), tenofovir (TFV), raltegravir (RAL), and other antiretroviral drugs within the upper and lower intestine (ileum and colorectum) and evaluating differences between accumulation of these drugs in animal models for HIV infection using mass spectrometry imaging (MSI). Iliac (IL) and colorectal (CR) tissue was obtained at necropsy from uninfected rhesus macaques treated with these antiretroviral drugs. All drugs were observed to penetrate macaque intestinal tissues. Relative to plasma, tissue concentrations were higher and heterogeneous drug exposure was observed by MSI.

Project Progress:

This study is the first to map the biodistribution of multiple antiretroviral drugs across intestinal tissue from animal models. Observed differences in tissue concentrations cannot be extrapolated solely from plasma. By differentiating and quantifying drug exposure within and across compartments, the MSI approach can provide key information to evaluate drug penetration into putative viral reservoir tissues and guide selection of optimal therapy.

Publications none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 637

*

Project Title: How did a vaccine enhance HIV acquisition**Unit:** ID**Type of Project:** Research**AIDS?** Yes**PI, with institutional affiliation**

Excluded by Requester

DVM, PhD

Core

School of Veterinary Medicine

Project Description: In the STEP trial of an Ad5 vectored HIV vaccine, more people receiving the vaccine than the placebo became HIV-infected. The proposed studies will determine how this occurred. We will use a monkey model of AIDS for these studies where increased virus acquisition in animals getting the same vaccine has been shown. Understanding how a vaccine increased HIV infections will allow us to avoid testing a harmful HIV vaccine in people.

Project Progress: in progress**Publications** nothing to report**Other publications:** nothing to report

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 638**Project Title:** A monkey model of naturally occurring social impairments**Unit:** BMB**Type of Project:** Research**AIDS?** No**PI, with institutional affiliation:**

Excluded by Requester	Dept. of Psychiatry	Stanford University
-----------------------	---------------------	---------------------

Principal Core Scientist associated with the project:

Excluded by Requester	PhD	Core	Psychology UCD
-----------------------	-----	------	----------------

Project Description: Autism spectrum disorder (ASD) is characterized by social impairments and affects 1 in 68 US children, but remains poorly understood. Few biomarkers of ASD have been identified, hindering the understanding of its basic biology; nor are there any medications that treat the social deficits of ASD. Progress has been impeded by 1) the difficulty of obtaining relevant tissue samples from patients and matched controls, and 2) in mouse models, the discordance between complex human behavior and laboratory-based mouse behavior, even with shared genetic etiologies. These two limitations underscore the tremendous value in developing an animal model of social deficits with more reliable behavioral and biological correlates to the human disease. Rhesus monkeys are an ideal model organism. At the behavioral extremes, low-social compared to high-social male rhesus monkeys initiate fewer affiliative interactions and display more inappropriate social behavior, suggesting both lower social motivation and poorer social skills. Naturally occurring low-social behavior in male rhesus monkeys therefore presents an exceptional opportunity to study the biology of social impairments.

On the basis of promising pilot data, we will collect quantitative social behavior data in a larger validation cohort of 1-5 year old male monkeys. We will also test: whether our candidate biomarkers of social functioning (e.g., oxytocin and arginine-vasopressin; kinase signaling) correctly classify monkeys as low-social vs. high-social and whether the degree of biomarker dysregulation co-varies with the degree of social deficits. We will also test, for the first time, whether the same or different biomarkers predict social deficits in low-social females. Finally, we will create the first standardized primate social behavior test battery to better characterize the impairments of low-social monkeys with direct relevance to core autism symptoms (e.g., deficits in joint attention, face recognition, social learning, social competence, theory of mind, peer social preferences).

Project Progress: Staff have been hired for this project, and more than 100 animals were observed in their field cages, and identified as low, intermediate, or high in sociality. The high and low social animals are currently being tested in the social test battery.

Funding: NIH R01HD087048**Publications:**

Excluded by Requester

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 641**Project Title:** Detecting and treating social impairments in a monkey model**Unit:** BMB**Type of Project:** Research**AIDS?** no**PI, with institutional affiliation:** [Excluded by Requester] Dept. of Psychiatry Stanford University**Principal Core Scientist associated with the project:** [Excluded by Requester] Core Psychology UCD

Project Description: Autism spectrum disorder (ASD), which is characterized by core social impairments, remains poorly understood. Few biomarkers (molecules that indicate a disease state) have been identified, and there are no effective medications. A better understanding of ASD has been hindered by the inability to study relevant tissues directly in patients, and animal models such as mice simply do not possess the complex social abilities found in humans and other primates. These two limitations underscore the tremendous value in developing the first monkey model of social impairments with reliable biological and behavioral correlates to the human disease, to accelerate discovery of ASD biomarkers and streamline development of effective therapeutics. Rhesus monkeys are an ideal model for this long-term objective, as, like humans, they are a highly social species which displays stable and pronounced individual differences in social behavior. Research by our group at the California National Primate Research Center has shown that, at the behavioral extremes, low social vs. high social male monkeys initiate fewer affiliative interactions and display more inappropriate social behavior in their home corrals. With previous funding from [Private Source] our group developed a powerful behavioral screening tool to rapidly identify low social monkeys in this large population. We have also demonstrated in two independent cohorts that low social monkeys exhibit biomarker irregularities previously implicated in ASD patients, and that the degree of these biological irregularities is related to the degree of observed social deficits. In the current project, [Excluded by Requester] and her team will develop objective and sensitive primate social behavior tests to better characterize the range and severity of impairments in low social monkeys and identify which biomarkers predict test performance. [Excluded by Requester] and her team will also begin biomarker-informed therapeutic testing in low social monkeys with the ultimate goal of improving social functioning in people with ASD.

Project Progress: Animals were observed in their field cages over the summer and identified as low or high social. Samples of blood and cerebrospinal fluid were collected from each animal. The social behavior test battery has been developed, and animals are currently being tested.

Funding: [Private Source]**Publications** None yet.**Other publications:** N/A

ANNUAL PROGRESS REPORT 2016 – 2017**SPID: 642****Project Title:** The effect of binding of fH to meningococcal fHbp vaccine on antibody protection**Unit:** ID**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	MD,	Center for Immunobiology and Vaccine Development, UCSF Benioff Children's Hospital Oakland Research Institute (CHORI), Oakland CA	Affiliate
-----------------------	-----	---	-----------

Excluded by Requester	PhD	Center for Immunobiology and Vaccine Development, UCSF Benioff Children's Hospital Oakland Research Institute (CHORI), Oakland CA	Affiliate
-----------------------	-----	---	-----------

Principal Core Scientist associated with the project

Excluded by Requester	DVM, PhD	CNPRC Affiliated	UC Davis
-----------------------	----------	------------------	----------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	PhD, CHORI
-----------------------	------------

Project Description: Meningococci are bacteria that can invade the blood stream and cause sepsis (blood poisoning) and meningitis (a serious infection of the membranes covering the brain). There are different strains of the bacteria. Until recently, there was no vaccine available for prevention of disease caused by serogroup B strains, which account for about 30% of all cases. Two new serogroup B vaccines contain a bacterial protein called Factor H binding protein (FHbp). The protein binds to a host protein called Factor H (FH), which is essential for the ability of the bacteria to cause invasive disease. Our hypothesis is that binding of the vaccine to the host protein interferes with the host immune response, which results in less than optimum protection after vaccination. To test this hypothesis we are immunizing two groups of infant rhesus macaques with one of two recombinant FHbp vaccines, one that binds FH, and the other is a mutant with very low binding to FH. Blood samples are obtained before and after immunization to measure protective antibody responses of the two groups.

Project Progress: To date, 26 macaques have been enrolled and immunized. The serum antibody responses to the mutant FHbp vaccine were more protective than the responses to the control FHbp vaccine that binds FH. We currently are assessing the antibody responses to dose 3.

Publications

Excluded by Requester

#OD011107

REPORTING PERIOD: 05/01/2016 – 04/30/2017

Excluded by Requester

Other publications: none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 643**Project Title:** Functional Plasticity in the *Helicobacter Pylori* Type IV Secretion System**Unit:** ID**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

MD, PhD

Dept of Medicine, SOM; CCM

Project Description: *Helicobacter pylori* causes clinical disease primarily in those individuals infected with a strain that carries the cytotoxin associated gene pathogenicity island (*cagPAI*). The *cagPAI* encodes a type IV secretion system (T4SS) that is required for injection of the CagA oncoprotein into epithelial cells and induction of the pro-inflammatory cytokine, interleukin-8 (IL-8). CagY is an essential component of the *H. pylori* T4SS that has an unusual sequence structure, in which an extraordinary number of direct DNA repeats is predicted to cause rearrangements that invariably predict in-frame insertions or deletions. We have demonstrated in murine and non-human primate models that immune-driven host selection of rearrangements in CagY is sufficient to cause gain or loss of function in the *H. pylori* T4SS. We **hypothesize** that CagY functions as a sort of molecular rheostat that alters the function of the T4SS and “tunes” the host inflammatory response so as to maximize persistent infection. We propose three specific aims to test this hypothesis. In **Aim 1** we will determine the mechanism by which recombination in CagY alters the function of the *H. pylori* T4SS. In **Aim 2** we will characterize the role of host immunity in selection for CagY-mediated modulation of function in the *H. pylori* T4SS using knockout and transgenic mouse models. The goal of **Aim 3** is to better understand the physiological role of CagY and T4SS function using the highly relevant rhesus macaque model and strains from chronically infected patients. Completion of these experiments will characterize a novel strategy by which a bacterial secretion system alters the host immune response, and identify the mechanisms where the T4SS and host immunity intersect. These experiments will also enhance our understanding of the relationship between the PAI and the clinical outcome of infection, and lead to a broader understanding of the relationship between chronic infection and inflammation.

Project Progress: We previously showed that after experimental infection in adult macaques, the TFSS is down regulated by recombination in CagY, one of the essential proteins for *H. pylori* T4SS [1]. Yet in chronically infected macaques, the TFSS is active. We hypothesize that, since loss of T4SS function is immune driven [1], it may be retained in newborn monkeys because at this time the immune system is relatively tolerant. To test this hypothesis, we challenged 10 newborn rhesus monkeys with WT *H. pylori* J166 within the first 2 weeks of life. Because of cost, they were then housed in the field cages until they were ~ 6 months of age, the time at which it is technically possible to perform endoscopy with a pediatric bronchoscope. All monkeys were infected. However, when we analyzed by DNA fingerprinting the strains we recovered, none of them matched the challenge strain, suggesting that they were infected naturally by endogenous rhesus *H. pylori* that is present in the colony. This was unfortunate, as it meant that we could not compare T4SS function in newborn monkeys to that in adults.

Publications:

Excluded by Requester

#OD011107

REPORTING PERIOD: 05/01/2016 – 04/30/2017

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 644**Project Title:** iPSC-derived Alveolar Epithelial Cells for Intrapulmonary Therapies**Unit:** RSRM**Type of Project:** Research**AIDS?** No**PI, with institutional affiliation**

Excluded by Requester

MED: Peds and Cell Bio Hum Anat

Core UC Davis

Principal Core Scientist associated with the project

Excluded by Requester

MED: Peds and Cell Bio Hum Anat

Core UC Davis

Project Description: These studies assess the use of pluripotent stem cells to treat the abnormalities associated with inherited surfactant deficiencies, which account for approximately 10% of all childhood interstitial lung diseases. Surfactant protein deficiencies typically present in full-term newborns shortly after birth. Without a lung transplant the disease is lethal within the first year of life, thus there is a compelling need for new cell-based therapies to treat these and related diseases.

Project Progress: We have shown increased efficiency in the differentiation of human induced pluripotent stem cells (hiPSC) towards early stages of lung differentiation in 3D cultures. These studies have also developed methods that will enable obtaining the quantity of cells needed for transplantation.

Funding Sources: NIH R21-HD086493

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 647**Project Title:** Tissue Engineered Recellularized Laryngotracheal Implants**Unit:** RSRM**Type of Project:** Research**AIDS?:** No**PIs, with institutional affiliation**

Excluded by Requester	MED: Otolaryngology	Affiliate	UC Davis
	MED: Peds and Cell Bio	Core	UC Davis

Principal Core Scientist associated with the project

Excluded by Requester	MED: Peds and Cell Bio	Core	UC Davis
-----------------------	------------------------	------	----------

Other affiliate scientists with institutional affiliation (doctoral level only)

Project Description: Patients with congenital or acquired severe airway stenosis have few treatment options and a severely impaired quality of life. Current treatments include the need for multiple surgeries, which in most cases will not correct the problem.

Project Progress: To advance preclinical investigations, new techniques and methods were developed and refined for cellular products and airway decellularization and recellularization for a tailored precision medicine approach. Studies are currently in progress to determine the safety and efficiency of new tailored constructs designed to meet the needs of individual patients with this and similar disorders.

Funding Sources: California Institute for Regenerative Medicine DR3-07281

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 649**Project Title:** Evaluation of carbohydrate binding agents for anti-SIV activity**Unit:** ID**Type of Project:** Research**AIDS? (No, Yes):** YES**PI, with institutional affiliation**

Excluded by Requester	DVM, PhD	CNPRC	Affiliate	UC-Davis
-----------------------	----------	-------	-----------	----------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	PhD	Rega Institute; Katholieke Universiteit Leuven (Belgium)
-----------------------	-----	--

Project Description: Pradimicin-S is a compound that inhibits HIV-1 and SIV replication *in vitro* by binding to the carbohydrate-rich regions of the viral envelope protein. However, it is unclear whether it is also effective *in vivo*. SIV (Simian Immunodeficiency Virus) infection of macaques is a useful animal model of HIV infection. The project is aimed at testing the pharmacokinetics, safety and efficacy of Pradimicin-S.

Project Progress: A pharmacokinetic study of Pradimicin-S was performed to identify the correct dose of Pradimicin-S. This dose was used to perform a 12-week safety study, in which uninfected animals were dosed daily and monitored closely. No adverse effects were observed. Recently we started an experiment to test the efficacy of Pradimicin-S against SIV infection in macaques.

Publications (during this report period. Only those with a PMCID can be used.)

None

Other publications: books, magazines, online, other

None

FUNDING: Private Source

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 650**Project Title:** Immunogenicity of HIV envelope vaccines in infant macaques**Unit:** ID**Type of Project:** RESEARCH**AIDS?:** YES**PI, with institutional affiliation**

Excluded by Requester	MD	Affiliated	Duke University School of Medicine
-----------------------	----	------------	------------------------------------

Principal Core Scientist associated with the project

name	degree(s)	dept/affiliation	Affiliated or Core	University
Excluded by Requester	DVM, PhD	CNPRC	Core	UCD

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	PhD	University of North Caroline, Chapel Hill
-----------------------	-----	---

Project Description: Neonatal rhesus macaques will be immunized with HIV proteins to answer the question: Will immunization of neonatal rhesus give more broadly neutralizing antibody (bnAb) types in the blood memory B cell repertoire than is seen in adult rhesus with this same regimen? Will there be greater progression of bnAb lineages than seen in adult rhesus immunized with the same regimen?

Project Progress: Four neonates immunized with CH505 sequential Envs show comparable magnitude of antibody responses to CH505 gp120 recombinant protein with those of the adults. The plasma from all neonates neutralize MW965 (tier 1 virus). One neonate shows plasma neutralization against CH505 w4.3 (tier 1b), 6644.v2.c33 and DJ263.8 as well. Single-cell isolation of the blood memory B cells decorated with CH505 gp120 Env are currently performed to clone monoclonal antibodies (mAbs) and characterize the binding and neutralization profile of these Abs. The quantity and quality of the mAbs will be compared between immunized neonates and adults.

Publications

None

Other publications:

None

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 653**Project Title:** Adolescent and adult outcomes of early life lactocrine exposure**Unit:** BMB**Type of Project:** Research**AIDS?** no**PI, with institutional affiliation**

Excluded by Requester

PhD

School of Human
Evolution & Social Change

Affiliated

Arizona State Univ

Principal Core Scientist associated with the project

Excluded by Requester

PhD

Psychology

Core

UCD

Other affiliate scientists with institutional affiliation (doctoral level only)

Project Description. Who we are – our behavior, physiology, and health throughout our lives – is strongly influenced by our early life. Decades of experimental research in animal taxa and epidemiological studies of humans have demonstrated that nutrition in the womb and behavioral care after birth are instrumental for the developing young. Mother's milk sustains infant growth, development, and behavioral activity, but little is known about the effects of milk on offspring brain and behavior, especially after weaning during adolescence and adulthood. This project will investigate how mother's milk ingested in infancy influences neurobiology and social behavior in adolescence and adulthood by programming behavior during early life. Longitudinal, interdisciplinary research on how mother's milk shapes offspring, not only addresses key theoretical questions in animal behavior, but has important implications for infant nutrition, clinical recommendations, and human well-being. Such knowledge will inform maternal decisions about breast-feeding initiation and duration, improve replacement and supplemental formula compositions, influence clinical interventions during early life, and can shape institutional policy (e.g. parental leave).

Project Progress: In summer and fall 2015, the initial subject selection, adolescent behavioral observations and neuroimaging on N=35 individuals has been completed. Co-registration of neuroimaging is ongoing and will allow for data analysis, interpretation, and publication in academic year 2016-2017. Females on this project allowed to breed in fall 2016 will deliver infants during the breeding season in 2017 and will undergo behavioral observations.

Funding: National Science Foundation, IOS1456174.**Publications:** None yet.**Other publications:** None yet.

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 654**Project Title:** Estrogen and the Aging Brain (Project 4)**Unit:** Neuroscience and Behavior**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	PhD	Neuroscience	Affiliated	University Icahn School of Medicine at Mount Sinai
-----------------------	-----	--------------	------------	--

Principal Core Scientist associated with the project

Excluded by Requester	PhD
-----------------------	-----

Other affiliate scientists with institutional affiliation (doctoral level only)

Project Description: This project is testing the "window of opportunity" hypothesis of the effectiveness of postmenopausal hormone therapy in a rhesus monkey model. This posits that hormone therapy for symptoms of menopause becomes less effective at longer times after the menopausal transition. Although this hypothesis is consistent with much data from humans as well as some preclinical data, the mechanisms are not understood. By examining the relationship between time after loss of ovarian hormones with the effect of hormone therapy on brain and behavior, we will be able to better understand how these factors interact in women.

Project Progress: In progress.**Publications:** none**Other publications:** None**Funding:** NIA P01-AG016765-15

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 656**Project Title:** Detecting the transfer of maternal antibodies into the fetal rhesus monkey brain**Unit:** BMB**Type of Project:** Research**AIDS?** no**PI, with institutional affiliation**

Excluded by Requester

PhD

Psychiatry, School of Medicine; MIND Institute

Principal Core Scientist associated with the project

Excluded by Requester

PhD

Core

Psychiatry, School of Medicine; MIND Institute

Project Description: Despite increasing evidence that circulating maternal antibodies can produce disease in the fetus and that anti- brain antibodies are associated with an ever-expanding number of neurological and psychiatric disorders, there is little information concerning when and how antibodies enter the brain, particularly of the fetus during pregnancy. We have previously proposed that gestational exposure to maternal antibodies is associated with the development of autism spectrum disorder (ASD) in human offspring. To support this contention, we exposed pregnant rhesus monkeys to purified IgG obtained from mothers who harbor anti-fetal brain antibodies and have given birth to children with ASD. The rhesus offspring demonstrated behavioral and brain growth alterations that are consistent with ASD. Nonetheless, substantial skepticism remains with the notion that unusual maternal antibodies are pathogenic for ASD. This is due, in part, to the fact that there is so little evidence concerning the entry of antibodies into the fetal brain and the mechanisms by which they might alter brain development leading to ASD. To investigate this issue, we have recruited a team of investigators with expertise in neuroscience, immunology, fetal development of the nonhuman primate, and positron emission tomography (PET) to carry out studies with the overarching goal of providing evidence for transplacental transfer of maternal antibodies and entry into the fetal brain. While there are several potential strategies for carrying out these studies, we have focused on PET imaging with the hope that this will establish expertise and a protocol for noninvasively evaluating antibody entry into the central nervous system of the nonhuman primate at various ages. The studies described here are a first step towards developing a nonhuman primate model of antibody-induced psychiatric illness and establishing the mechanisms through which anti-brain antibodies might influence brain development, brain function and behavior.

Project Progress: During 2015-2016, we have completed 9 experiments. 9 fetus and 9 dams have been used in these experiments to establish the transfer of radiolabeled antibodies from the mother across the placenta to the fetus. We have not yet been able to show the transfer of radiolabeled antibodies across the blood brain barrier (BBB) and into the fetal brain under our present experimental conditions. For the next 6 experiments, we will increase the amount of time for anti-bodies to cross the BBB and look at an earlier time point in fetal development for antibody transfer.

Publications: none available**Other publications:** none available

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 656**Project Title:** Gluconeogenesis and Energy Substrates: Shifting Paradigms in the Primate Ovary**Unit:** RSRM**Type of Project:** Research**AIDS?** No**PI, with institutional affiliation**

Excluded by Requester

Obstetrics, Gynecology and Reproductive Sciences, Univ of Maryland, School of Maryland

Principal Core Scientist associated with the project

Excluded by Requester

Department of Obstetrics and Gynecology, School of Medicine

Other affiliate scientists with institutional affiliation (doctoral level only)

Project Description: The oocyte requires glucose in order to prepare for fertilization. When glucose concentrations inside the ovarian follicle are outside of a narrow range (too high or too low), profoundly negative effects on the oocyte and the resulting embryo occur, including poor fertilization rates, abnormal gene expression profiles in the embryo and potential birth defects. Because of the importance of oocyte health to the species, it seems unlikely that primates evolved a system in which the oocyte is dependent upon dietary sources of glucose. We hypothesize here that the granulosa cells within the ovarian follicle synthesize glucose in preparation in response to an ovulatory stimulus as a means to provide the oocyte with a controlled amount of energy substrate. As part of this process, we expect that granulosa cells shift their own energy use from glucose to stored lipids. The breakdown of these lipids would provide both energy to the granulosa cells and also provide glycerol for use as the precursor of glucose synthesis. We will test the hypothesis that granulosa cells produce glucose in response to an ovulatory stimulus with three key experiments. First, we will confirm the reduction in glucose uptake by mural granulosa cells. Second, we will determine the mechanisms regulating the shift in energy use from carbohydrates to lipids in response to an ovulatory stimulus. Third, we will demonstrate gluconeogenesis by mural granulosa cells. These experiments are critical precursors to understanding the milieu in which the oocyte develops, and how this environment can be perturbed by diet, stress, obesity, and diabetes.

Project Progress: We have to date determined that gene expression is altered by an ovulatory stimulus in a manner consistent with a shift from glucose uptake/metabolism to lipid oxidation. Specifically, pyruvate dehydrogenase kinase (PDK) 1-4 increase within 3 hr of an ovulatory hCG bolus given to monkeys undergoing controlled ovarian stimulation. At the same time, the expression of pyruvate dehydrogenase phosphatase (PDP) 1,2 decrease, strongly suggesting that the glycolytic pathway is shut down in response to an ovulatory stimulus. We have verified both the phosphorylation status and activity of the pyruvate dehydrogenase complex (PDC).

Publications none available**Other publications:** none available

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 657**Project Title:** Mechanisms of Adult Lung Alveologenesi**Unit:** RD**Type of Project:** Research**AIDS?:** No**PI, with institutional affiliation**

Excluded by Requester	PhD	University of California, San Francisco
-----------------------	-----	---

Principal Core Scientist associated with the project

Excluded by Requester	PhD	UC Davis School of Veterinary Medicine
-----------------------	-----	--

Project Description: To determine whether post-pneumonectomy alveologenesi occurs in primates and to identify the epithelial stem cells that mediate this process.

Project Progress: Studies are completed and analysis is underway.

Publications None

Other publications: NA

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 658**Project Title:** Asthma studies**Unit:** RD**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

 PhD Baylor Institute of Immunology**Principal Core Scientist associated with the project**

Excluded by Requester

 PhD UC Davis School of Veterinary Medicine

Project Description: The overall goal of this study is to determine if signaling through the Dectin 1 lectin-like receptor on dendritic cells can inhibit the development of allergy. Nonhuman primates will be sensitized to house dust mite allergen and treated with an agonist antibody for human Dectin 1 that is conjugated with Pam3 (a toll like receptor 2 ligand). Peripheral blood samples will be evaluated for allergic cytokines and IgE synthesis. Skin biopsy samples will be assessed for allergic cytokines and IgE synthesis. This study is continuation of a previously funded R21 grant and is intended to expand upon our initial observations.

Project Progress:

Studies are completed and analysis is underway.

Publications None**Other publications:** NA

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 659**Project Title:** Efficacy of 5-OXO-ETE antagonist in skin allergy**Unit:** RD**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Project Description: The overall objective of this project is to assess the efficacy of a proprietary compound developed to inhibit 5-oxo-ETE function in pre-clinical animal models of allergic inflammation. The proprietary compound to be tested (S-48) has a similar chemical structure to 5-oxo-ETE and inhibits inflammation by binding to the cellular receptor for 5-oxo-ETE on neutrophils and eosinophils.

Project Progress: Studies are completed and analysis is underway.

Publications None**Other publications:**NA

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 660**Project Title:** Epigenetic programming of innate immunity in pediatric airway epithelium**Unit:** RD**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Principal Core Scientist associated with the project

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Project Description: The overall goal of this study is to understand the molecular mechanisms that program innate immune function in airway epithelial cells of the postnatal lung. We will assess whether epigenetic modulation of airways in vivo can serve as an adjuvant by enhancing immunogenicity of a mucosal vaccine. In this study we will use a live attenuated intranasal vaccine for influenza a (H1N1). Infant and adult monkeys will be treated with a histone deacetylase inhibitor in conjunction with nasal influenza vaccination; immunogenicity will be quantified by measurement of H1N1 antibody titers.

Project Progress: In vivo studies have not yet been completed. Transcriptomics from in vitro studies have been recently completed and a new manuscript is in preparation.

Publications

Excluded by Requester

Other publications: books, magazines, online, other

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 661**Project Title:** Antenatal steroid treatment strategies for low resource countries**Unit:** RD**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

MD

Cincinnati Children's Hospital Medical Center

Principal Core Scientist associated with the project

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Project Description: Although antenatal steroids (ANS) are standard of care for women at risk of preterm delivery, they are minimally used in low resource environments. Further steroid type, dose and dosing interval have not been adequately tested. These primate studies are part of Private Source using fetal sheep and primate models to improve ANS dosing strategies for safety and ease of use in low resource environments worldwide.

Project Progress: Studies are currently in progress.**Publications:** None**Other publications:**

NA

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 662**Project Title:** Asthma, anxiety and GR abnormalities in non-human primates**Unit:** RD**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

MD PhD

UC Davis School of Medicine

Principal Core Scientist associated with the project

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Project Description: Psychosocial stress has severe impact on the course of chronic asthma but the mechanisms are poorly defined. We previously found that asthma exacerbation in stressed mice was related to glucocorticoid insensitivity. Here we propose that stress alters the function and expression of the glucocorticoid receptor (GR) through transcriptional, post-translational and epigenetic modifications. We aim to validate the importance of GR function in altered glucocorticoid responsiveness by immune cells in a well characterized cohort of non-human primates and to elucidate the molecular pathways leading to impaired glucocorticoid receptor expression due to chronic stress.

Project Progress: Nonhuman primate studies have been recently completed and analysis is underway.

Publications

None

Other publications:

NA

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 664**Project Title:** Host-Microbe Cross-Talk and Pregnancy Outcomes**Unit:** RD**Type of Project:** Research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

PhD

Cincinnati Children's Hospital Medical Center

Principal Core Scientist associated with the project

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

MD

Cincinnati Children's Hospital Medical Center

Project Description:

The overall goal of the project is to define the temporal and spatial progression of the inflammatory response resulting from intra-amniotic *Ureaplasma parvum* (UP) infection, particularly focusing on changes in decidual leukocyte populations and their activation. A second objective is to characterize inflammatory responses in UP-exposed fetuses.

Project Progress:

To date, we have conducted a time course of inflammatory responses to UP infection, evaluating the maternal immune response and impact on fetal tissues. New exposure studies are ongoing.

Publications

Excluded by Requester

Other publications:

NA

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 665**Project Title:** Washington National Primate Research Center SRV Supplement**Type of Project:** Colony Management**Unit:** PDL Core**AIDS?** no**PI, with institutional affiliation**

Excluded by Requester	DVM	Vet Med Epidemiology / CNPRC	Core	Univ California, Davis
-----------------------	-----	------------------------------	------	------------------------

Principal Core Scientist associated with the project

Excluded by Requester	DVM, PhD	CNPRC	Affiliate	Univ California, Davis
-----------------------	----------	-------	-----------	------------------------

Project Description: The primary objective of this proposal is to develop improved diagnostic tests to detect known and perhaps novel simian betatrovirus (SRV) and to also increase consistency of diagnostic results between the Washington National Primate Research Center (WaNPRC) and California National Primate Research Center (CNPRC), as well as the NHP community at large. This will contribute to a better-defined viral profile for both breeding colony and research animals.

Project Progress:

The PDL at the CNPRC has obtained IACUC approval for a transmission study using whole blood from suspect SRV animals to naïve rhesus macaques cleared by assays at both the WaNPRC and the CNPRC. Donors were identified and tested; and recipient animals were identified, immunosuppressed, transfused, and monitored for 8 weeks monitoring by for antibody and DNA (PCR). Data is currently being analyzed and prepared for publication.

Funding Sources: R24-RR015253

Publications: None

ANNUAL PROGRESS REPORT 2016 – 2017

SPID 666

Project Title: 33rd Annual Symposium on NHP Models of AIDS**Unit:** ID Unit**Type of Project:** R13 NIH Conference grant**AIDS?:** Yes**PI. with institutional affiliation**

Excluded by Requester

PhD

Medical Microbiology & Immunology Dept./SOM

ID Unit

UC Davis

Principal Core Scientist associated with the project

Excluded by Requester

PhD

CCM/SOM

ID Unit

UC Davis

Other affiliate scientists with institutional affiliation (doctoral level only)

name	degree(s)	dept/affiliation	University
------	-----------	------------------	------------

Project Description: HIV continues to be a major global challenge for HIV-infected patients, their families, and healthcare systems, and for the >35 million HIV-infected individuals worldwide, there is an urgent need for an HIV vaccine that confers long-term protective efficacy against new infections. The goal of this R13 grant was to partially support the costs for planning, organizing, publicizing, and hosting the 33rd Annual Symposium on Nonhuman Primate Models for AIDS. This annual symposium would support and initiate exchange of information and foster collaborations for the development of innovative HIV vaccines, therapies and HIV cure, with particular emphasis on discussions between clinicians and researchers to identify ways to optimize animal modeling in ways that most impact clinical care.

Project Progress: The Symposium was hosted by the California National Primate Research Center (CNPRC), University of California, Davis (UC Davis), and was held on October 14-16, 2015, at the Portola Hotel, Monterey, California. The symposium was attended by >200 scientists from national and international academic institutions and private industry. The Scientific Program Committee and the conference organizing committee participated in the planning and organization of the conference. Excluded by Requester presented introductory and keynote presentations. The most recent findings in viral pathogenesis, immunology, virology, vaccines, therapeutics, genomics and HIV cure were presented in a combination of platform presentations and poster sessions. Organized Discussion sessions provided forums for dialog between clinicians and researchers to facilitate translation of HIV prevention, treatment, and cure findings from the animal models to HIV patients.

To Appear

To Appear

Excluded by Requester

as guest

editors).

Publications**Other publications:**

1.

Excluded by Requester

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 668**Project Title:** Impact of chronic viral infections and altered microbiota on HIV vaccine efficacy**Unit:** ID Unit**Type of Project:** Research R56 grant**AIDS?:** yes**PI, with institutional affiliation**

Excluded by Requester

PhD

Medical Microbiology & Immunology Dept./SOM

ID Unit

UC Davis

Principal Core Scientist associated with the project

Excluded by Requester

PhD

CCM/SOM

ID Unit

UC Davis

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

DVM, PhD

Medicine & Epidemiology Dept. /SOVM

UC Davis

Project Description: Imbalance in gut microbiota is found during chronic inflammatory non-infectious and infectious diseases including chronic HIV infection. Altered microbiota may influence host immune responses to pathogens, vaccines or environmental stimuli and may contribute to the variable immune responses to vaccines and pathogens observed among different people. However, the influence of the baseline gut microbiome on the host immune responses to vaccines and pathogens is not known. The main objective of this project is to use a nonhuman primate model to interrogate the role of the microbiome in modulating vaccine-mediated responses. Using the level-2 specific pathogen free (SPF) and conventionally raised (nonSPF) rhesus macaques, we propose to investigate differences in the gut microbiota and immune status in these animals. Secondly, we propose to investigate the impact of distinct gut microbiome composition and diversity in SPF and non-SPF animals on the induction of innate immunity as well as vaccine-specific immune responses following immunizations with influenza and an RhCMV-SIV vaccine. We tested the hypothesis that the pre-existing chronic viral infections and potentially altered gut microbiome might introduce variability in host immune responses to vaccines.

Project Progress: Initially, we determined the diversity and complexity of gut microbiota in SPF and nonSPF animals in the context of immune activation and TLR expression. We found that SPF and nonSPF rhesus macaques showed strikingly distinct gut microbial communities that correlate with phenotypically and functionally diverse T and B cell subsets. SPF animals are raised free of commonly found chronic viral infections including rhesus cytomegalovirus (RhCMV), B virus, rhadinovirus, simian foamy virus, simian type D retrovirus, SIV, and STLV. In contrast, non-SPF animals are naturally exposed to chronic viral infections from other animals and typically positive for multiple herpes viruses including RhCMV, RRV, and B virus, but are uninfected with SRV, SIV, and STLV. Our findings suggest that the subclinical viral infections in nonSPF animals drive immune activation and changes in the gut microbiota.

Secondly, we investigated the impact of distinct gut microbiome composition and diversity of SPF and nonSPF animals on the induction of innate immunity as well as vaccine-specific immune responses following immunizations with influenza vaccine. These experiments have been completed, and data analyses are nearing completion.

Two manuscripts are being prepared based on the findings from these studies.

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 671**Project Title:** Effective lethal agents for CCR5-expressing memory T cells**Unit:** ID and RSRM**Type of Project:** research**AIDS?:** yes**PI, with institutional affiliation**

Excluded by Requester

MD, PhD

Core

Department of Medical Microbiology and Immunology

Project Description: The human immunodeficiency virus targets CCR5-expressing cells in early infection. We suggest that HIV infection can be cured if treated early by elimination of these CCR5+ cells. We propose to deplete these cells by use of three specific medicines thought to be able to target the cells.

Project Progress: Two medicines for CCR5 depletion have been developed and a third is in progress. One medicine has been tested for efficacy in depleting the cells of interest.

Publications**Other publications:****Funding:** NIH R21-AI116230

ANNUAL PROGRESS REPORT 2015 – 2016**SPID:** 672**Project Title:** Development of a non-human primate model as a tool to evaluate stem cell derived replacement therapies.**Unit:** Primate Medicine**Type of Project:** other**AIDS?** no**PI, with institutional affiliation**

Excluded by Requester	MD, PhD	Anatomy & Neurobiology, UC Irvine School of Med	Affiliate
-----------------------	---------	---	-----------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	DVM	Primate Medicine CNPRC
-----------------------	-----	------------------------

Project Description: Studies of a unilateral L6-S3 ventral root avulsion injury, surgical root replantation using a peripheral nerve bridging graft, and injection of human stem cell-derived motor neurons into the L6-S1 spinal cord segment. The unilateral L6-S3 ventral roots will be avulsed in all animals. The avulsed L6-S1 ventral roots will be surgically replanted into the spinal cord using an intercostal nerve segment harvested from the T11 intercostal nerve. Human stem cell-derived motor neurons will be injected into the L6-S1 spinal cord segments. The animals will be immuno-suppressed pharmacologically. At 2 or 7 months post-operatively, animals will be euthanized and spinal cord tissues preserved for morphological studies to determine the survival and differentiation of transplanted cells in the spinal cord. Studies of treadmill locomotion, urodynamic function, pain behavior, magnetic resonance imaging, and electromyography (EMG) of the external anal sphincter will be performed to assess effects of ventral root injury, repair and cell transplantation on neurological functions associated with the lumbosacral spinal cord.

Project Progress: We have not started this project yet.**Publications:** None thus far**Other publications:** None thus far

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 673**Project Title:** Nerve specific effects of long-term denervation**Unit:** Primate Medicine**Type of Project:** other**AIDS?** no**PI, with institutional affiliation**

Excluded by Requester	MD, PhD	Anatomy & Neurobiology, UC Irvine School of Med	Affiliate
-----------------------	---------	---	-----------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	DVM	Primate Medicine CNPRC
-----------------------	-----	------------------------

Project Description: This new protocol includes 12 studies of ventral root avulsion injury and root replantation. The unilateral L6-S3 ventral roots will be avulsed in all animals. In a subset of animals, avulsed ventral roots will be replanted into the spinal cord for repair purposes. Studies of treadmill locomotion, urodynamic studies, magnetic resonance imaging, and EMG will be performed to assess additional effects of ventral root injury and repair. In addition, gene expression and anatomical studies will be performed on ventral roots and select peripheral nerves carrying motor, sensory, and autonomic fibers. Subjects are evaluated out to the 18 month post-surgery time point, then euthanized for tissue collection.

Project Progress: Eight of our 12 animals have completed the study and the tissues are currently being analyzed. However, four of our animals are scheduled for their last procedure time point in late March (EMG and urodynamic study) after which their necropsy will be schedule and tissues will be analyzed.

Publications:

Excluded by Requester

Other publications:

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 674**Project Title:** Determining the dynamic influence of social networks on development and health trajectories**Unit:** BMB**Type of Project:** research**AIDS? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

PhD

VM: PHR

Core

Principal Core Scientist associated with the project

Excluded by Requester

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

PhD

Statistics

Affiliated

PhD

Psychology

Affiliated

PhD

Affiliated

PhD

VM:PHR

Affiliated

Project Description: The ability to treat and prevent illness and improve human health requires not only a detailed understanding of the complex interplay of biological systems contributing to disease processes but also the mechanisms underlying the influence of social complexity on biological systems. A developmental systems science approach provides methods uniquely suited to elucidate the mechanisms by which social systems influence health by investigating their effects on modulating the interplay among biological systems during development. The proposed research adopts this approach by modeling multi-level networked systems over time in a well-established nonhuman primate model. We predict that the coordination and regulation of biological systems within individuals are critical to shaping health trajectories and are dynamically modulated by the complex network structure of individuals' social relationships.

Project Progress: Data collection is ongoing. This project includes following 2 cohorts of animals for 3 years. We are completing the first year of study for the first cohort of animals and preparing to enroll a second cohort of animals in the study.

Publications

NA

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 675**Project Title:** Addition of a method of sterilization in adult male rhesus macaques**Unit:** (BMB, ID, RSRM, RD) RSRM in collaboration with Primate Medicine veterinary staff**Type of Project (Research, Management, Pilot or Other):****Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

Department of Obstetrics and Gynecology

Core

UC Davis

Principal Core Scientist associated with the project

N/A

Other affiliate scientists with institutional affiliation (doctoral level only)

N/A

Project Description: This project will test a product, Vasalgel, that will be injected into the vas deferens and then evaluated as to the effect on fertility. This product has the potential to improve vasectomy because it has the potential to be reversible.

Project Progress:

Adult male monkeys were given this alternative procedure and monitored in an outdoor group housing unit with fertile females. The Vasalgel group was found to have similar side effects to vasectomy and remained infertile over at least one breeding season. We continue to monitor a few males and the next step may be to determine reversibility.

Publications N/A**Other publications:** N/A

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 676**Project Title:** Neurobehavioral relations in senescent hippocampus**Unit:** BMB**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	Ph.D.	University of Arizona; CNPRC/UC Davis Affiliate Faculty
-----------------------	-------	---

Principal Core Scientist associated with the project

Excluded by Requester	PhD	Psychology	Core
-----------------------	-----	------------	------

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	Ph.D.	Psychology	Center for Neuroscience
-----------------------	-------	------------	-------------------------

Project Description: The objective of this research program is to understand how hippocampal representations are altered in aging, with the goal of understanding how the hippocampus in healthy humans is affected by age. While other important questions about circuit dysfunction in aging remain to be addressed in rodent models of aging, recent advances in wireless recording technologies enable new experimental designs for primates that have the potential to test directly assumptions that our discoveries in the rat will find an analogue in the aging human brain. Free locomotion is an important missing link between the behavioral conditions employed to study place cells in rodents, and more constrained conditions under which human studies must be conducted. The experiments conducted here will implement the behavior and electrophysiological tools that allow us to determine the neural impact that aging and level of restraint has on the function of hippocampal networks in primates. Our hypotheses are that old monkeys will show faulty retrieval of hippocampal network patterns (similar to map retrieval failures in old rats) and that the global network activity state will be altered in both age groups when the animals are restrained, compared to when completely unrestrained and free to move. Taking advantage of new behavior and recording approaches in rodents and primates, we believe significant advances will be made in our understanding of the aging brain that will contribute substantively to the development of therapeutic or preventative treatments for cognitive decline in the elderly.

Project Progress: We continue to collect behavioral and neurophysiological recordings from both aged and adult rhesus macaques. We have collected significant amounts of telemetered recording data – the first recordings that have been done in a primate that is completely free to move. Additionally, we have finished a series of PET experiments on our young and aged monkeys that involve locomotion in a long track, chair-restrained movement along the same track, treadmill walking, and a cage-only control to examine activation across brain regions and across ages and behavioral conditions. These data have just been published (Engle et al., 2016). Additionally, we

In Press	
In Press	
In Press	

We have also obtained structural MRI scans of all monkeys who have entered this project in preceding cycles of this award, and as the experiment comes to an end, all animals' brains have been serial sectioned (at 30µm) and Nissl stained (one in four series). With these histological sections we have traced hippocampal subregions, and from this we created a probabilistic MRI atlas where Nissl-stained hippocampal sections informed MRI subfield labeling. The present population of nonhuman

primates offers the rare opportunity to perform imaging both *in vivo* and then detailed histological comparisons post-mortem. We are developing a novel methodological approach of demarcating subfields histologically and then projecting these boundaries in MRI scans that will allow us to compare temporal lobe subregions of young and aged cognitively characterized monkeys. We will finish this project within the next year.

Excluded by
Requester

Publications

Excluded by Requester

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 677**Project Title:** INDIVIDUAL DIFFERENCES IN EARLY AUTONOMIC NERVOUS SYSTEM ACTIVITY**Unit:** (NB, ID, RSRM, RD) Neuroscience and Behavior**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):****PI, with institutional affiliation**

Excluded by Requester

PhD

Department of Psychology

Core Scientist/UC Davis

Principal Core Scientist associated with the project

Excluded by Requester

PhD

Department of Psychology

Unit Leader

UC Davis

Other affiliate scientists with institutional affiliation (doctoral level only)

NA

Project Description: The goal of the proposed research is to investigate variation in infants in one system that is important for emotional life-the autonomic nervous system. To that end, we will quantify spontaneous variation in activity of the two branches of the autonomic nervous system (ANS)-the parasympathetic nervous system (PNS) and the sympathetic nervous system (SNS).

Project Progress: N/A**Publications** N/A**Other publications:** N/A

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 678**Project Title:** Development of a rapid diagnostic test to monitor a microbiome-targeted therapeutic MucoCept-CVN**Unit:** ID**Type of Project:** Research**Percent P51 dollars:** None**Aids? (No, Yes):** Yes**PI, with institutional affiliation**

Excluded by Requester	PhD	VM:CCM	ID: Post Doc	UC Davis
-----------------------	-----	--------	--------------	----------

Principal Core Scientist associated with the project

Excluded by Requester	DVM, PhD	VM: PMI	ID Core Scientist	UC Davis
-----------------------	----------	---------	-------------------	----------

Other affiliate scientists with institutional affiliation (doctoral level only)

N/A

Project Description: The overall goal of this project is to develop a rapid and simple point of care diagnostic test for modified cyanovirin-N (mCV-N), a potent antiviral protein produced by the recombinant vaginal *Lactobacillus* strain, *L. jensenii* 1153-1666 (Lj 1666). Lj1666 is the active ingredient of MucoCept-CVN, a live biotherapeutic product being developed by Osel, Inc. as a novel live microbicide to prevent HIV infection in women.

Project Progress: Completed**Publications:** None yet**Other publications:** No

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 679**Project Title:** Epithelial stem cells as repair agents in diffuse alveolar damage**Unit:** (BMB, ID, RSRM, RD) RD**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):****PI, with institutional affiliation**

Excluded by Requester

PhD

Principal Core Scientist associated with the project

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Project Description: The overall goal of this application is to develop a compelling rationale and workable methodology for the treatment of diffuse alveolar damage with transplanted human **epithelial** stem/progenitor **cells** capable of long term engraftment and improved organ function. Stem/progenitor replacement therapy is envisioned as a meaningful therapeutic adjunct in several clinical situations dominated by diffuse alveolar damage with epithelial loss: severe, acute **Lung** injury, e.g. due to influenza or other causes of ARDS, as well as acute exacerbations of chronic fibrotic **Lung** disease. Recent studies discussed in the application indicate effective alveolar regeneration, and thus improved **Lung** function, requires both a first phase of expansion and migration of stem/progenitor **cells** to re-establish alveolar barriers followed by a second phase of differentiation of new barrier **cells** into mature type II (AEC2s) and type I alveolar **cells**. To develop a translational program for alveolar regeneration by transplantation of healthy **Lung epithelial** stem/progenitor **cells**, three basic objectives are advanced: (1) Further delineation of the **Signaling** programs by which endogenous human distal lung epithelial **stem cells** can be activated following major injury to establish new alveolar barriers and then differentiate to AEC2s. (2) In vitro development of pools of human distal (small airway and alveolar) epithelial stem **cells**, both endogenous and iPSC-derived, suitable for transplantation and directed differentiation in mice. Distal basal-like **cells** from human **iPS cells** using gene edited **cells** reporting surfactant protein C, cytokeratin 17 (Krt17), and NKX2.1 will be used to develop a workable protocol for directed differentiation after transplant. (3) Employ models of **Lung** repair/regeneration approachable by transplantation as tools to assess the regenerative potential of human **epithelial** stem/progenitor **cells**. Macaque **iPS cells** suitable for transplantation into influenza-infected monkeys will be used as a primate model for therapy. It is anticipated that functional improvement in gas exchange and alveolar histology can be achieved in primates, providing both a rationale and methodology for stem/progenitor **cells** as adjunctive therapy after severe acute **Lung** injury in humans.

Project Progress: Studies are currently in the planning stages.**Publications** None yet**Other publications:** None yet

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 680**Project Title:** Innovative models for preterm labor – Perinatal infection and inflammation collaborative**Unit:** (BMB, ID, RSRM, RD) RD**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):****PI, with institutional affiliation**

☐ Excluded by Requester Department of Pediatrics, Division of Immunobiology, Cincinnati Children's Hospital
Research Foundation, University of Cincinnati College of Medicine, Cincinnati, Ohio.

Principal Core Scientist associated with the project

☐ Excluded by Requester PhD UC Davis School of Veterinary Medicine

Project Description:

The overall goal of this project is to extend our previous findings during the perinatal period into the neonate. Additional collaborators from Cincinnati Children's Hospital are participating in the study.

Project Progress: Studies are currently in the planning stages.**Publications** none yet**Other publications:** none yet

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 681**Project Title:** The interplay of oral vaccines, oral immunity and the oral microbiome in infants**Unit:** (BMB, ID, RSRM, RD): ID**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** yes**PI, with institutional affiliation**

Excluded by Requester	Dept. of Microbiology and Immunology	Affiliated Scientist UNC School of Medicine
-----------------------	--------------------------------------	---

Principal Core Scientist associated with the project

Excluded by Requester	Core Scientist	UC Davis
-----------------------	----------------	----------

Project Description: HIV-1 is primarily mucosally transmitted. The human HIV-1 vaccine trials have taught us important lessons about vaccine vectors, immunogen design, and immune responses important for protective efficacy. Yet, none of the human HIV-1 vaccine trials tested whether a mucosal route of immunization could contribute to protection against HIV-1 acquisition at the portals of entry. Despite some unique challenges that mucosal vaccines present, several oral vaccines against infectious diseases have been successfully developed and licensed. The success of oral vaccines is based on the rich regional lymphatic network of the Waldeyer's Ring that provides an easily accessible portal for oral vaccine uptake, and, as an intrinsic part of the systemic lymphatic network, enables the induction of local and systemic protective immune responses. An oral HIV-1 vaccine would be particularly relevant for the prevention of mother-to-child-transmission of HIV-1. As part of these studies, we will also study the interplay of oral immune responses and the oral microbiome.

Project Progress: Studies are being planned to start Spring 2017.

Publications: None

Other publications: None

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 682**Project Title:** Short and long-term effects of infant microbiota on (RhCMV) SIV Vaccine efficacy**Unit:** ID and RSRM**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** Yes**PI, with institutional affiliation**

Excluded by Requester

MD, PhD, Dept. of Medical Microbiology and Immunology Core Scientist UC Davis

Principal Core Scientist associated with the project

N/A

Other affiliate scientists with institutional affiliation (doctoral level only)

N/A

Project Description: We recently demonstrated that different bacterial communities established in the intestine by breast vs. bottle feeding are associated with different trajectories of immunologic development. Furthermore, the immunologic characteristics found to distinguish breast- and bottle-fed individuals are those thought to be important for protection against HIV transmission and disease progression. Such differences may also explain the variable protective efficacy of candidate HIV/SIV vaccines. Scientists investigating another vaccine, trivalent influenza vaccine, demonstrated the importance to vaccine responses of TLR signaling from intestinal bacteria. We hypothesize that intestinal bacteria have two separate effects on vaccine responses of infants: (i) an effect on the magnitude of the elicited response, which is determined at the time of vaccination by a signal delivered by intestinal bacteria to the host, and (ii) an effect on the shape of the host immune system that has implications for the "race" between host and virus in the earliest stages of disease, i.e., for the ability of the elicited response to be protective.

Project Progress: N/A**Publications** N/A**Other publications:** N/A

ANNUAL PROGRESS REPORT 2016 – 2017**SPID: 683****Project Title:** Evaluation of a BMS antibody in the fructose-fed rhesus monkey model of dyslipidemia**Unit:** CNPRC Affiliate Scientist**Type of Project (Research, Management, Pilot or Other):** Research (Pharmaceutical Industry Collaboration with

Private Source)

Percent P51 dollars**Aids? (No, Yes):** No**PI. with institutional affiliation**

Excluded by Requester

PhD, DVM, Professor

Department of Molecular Biosciences, School of Veterinary Medicine

Department of Nutrition

University of California, Davis

Principal Core Scientist associated with the project

Excluded by Requester

DVM, Associate Director, CNPRC

Other affiliate scientists with institutional affiliation (doctoral level only)

NA

Project Description: Be brief and remember this is accessible by the public. Write as for a lay audience.

The purpose of this project is to evaluate the effects of a novel proprietary antibody formulated by BMS to lower circulating (plasma) triglyceride (TG) concentration in adult rhesus monkeys with high triglycerides resulting from consumption of moderate fat diet accompanied by high sugar (fructose) beverages sweetened with high fructose corn syrup (HFCS). This diet-induced nonhuman model of dyslipidemia was developed by Excluded by Requester laboratory at the California National Primate Research Center, in part with funding from the National Institutes of Health and

Private Source

Project Progress:

We conducted a pilot study in 10 adult male rhesus monkeys to determine magnitude of the effects of a moderate fat typical American diet (TAD) that we had had specifically formulated for the study along with 500 ml/day of HFCS to raise plasma TG levels during a 4 week intervention period. Eighty percent (8 of 10) animals consumed the diet readily and in these animals we measured substantial increases of plasma concentrations of TG and apolipoprotein-C3. Therefore, this diet regimen is appropriate for inducing hypertriglyceridemia in animal that will be used for the main study. We are waiting for BMS to produce sufficient quantities of the candidate antibody so that we can begin enrolling animals into the main study protocol during Q2 of 2017.

Publications No publications at this time.**Other publications:** books, magazines, online, other: None

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 684**Project Title:** Neutrophils and mechanisms of preterm labor**Unit:** (BMB, ID, RSRM, RD) RD**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):****PI, with institutional affiliation**

Excluded by Requester

MD

Cincinnati Children's Hospital Medical Center

Principal Core Scientist associated with the project

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Project Description:

The overall goal of this project is to examine the contribution of neutrophils to the development of chorioamnionitis and related outcomes.

Project Progress: Initial study was recently published and new studies are ongoing.**Publications**

Excluded by Requester

Other publications: none yet

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 685**Project Title:** Silk-based formulation for microbicide delivery**Unit:** (BMB, ID, RSRM, RD)**Type of Project (Research, Management, Pilot or Other):****Percent P51 dollars****Aids? (No, Yes):** YES**PI, with institutional affiliation**

Excluded by Requester

PhD

Dept/affiliation

Molecular Cell Biology, UC Merced

Principal Core Scientist associated with the project

NA

Other affiliate scientists with institutional affiliation (doctoral level only)

NA

Project Description: The goal of this project is to study topical HIV microbicides in silk- based film forms that will provide both stability and sustained release of the inhibitors. We will build on our strong preliminary findings that include the stabilization of therapeutics in silk materials, the development of proteins as potent and highly specific viral inhibitors, and the formulation of these proteins with silk.

Project Progress:

Topical microbicides have the potential to provide effective protection against sexual transmission of HIV. Challenges in developing microbicides include their application in resource-poor settings with high temperatures and a lack of refrigeration, and where there has been demonstrated low user adherence to a rigorous daily regimen. Several protein-based HIV inhibitors show great promise as microbicides, being highly specific and not expected to lead to viral mutations that would affect the efficacy of current antiretroviral treatments.

We show that four potent protein HIV inhibitors, 5P12-RANTES, 5P12-RANTES-L-C37, Grft, and Grft-L-C37 can be formulated into silk films and remain functional for 14 months at 25, 37, and 50 °C. These silk-encapsulated proteins show excellent inhibition properties in PBMC and in human colorectal and cervical explant tissues, and do not induce inflammatory cytokine secretion in the tissues tested. Finally, a formulation was developed to allow sustained release of functional Grft for 4 weeks at levels sufficient to inhibit HIV transmission. This work establishes the suitability of silk-encapsulated protein inhibitors as topical HIV microbicides that can be further developed to allow easy insertion for extended protection.

Publications

Submitted

Other publications: N/A

ANNUAL PROGRESS REPORT 2016 – 2017**SPID: 686****Project Title: A NHP Model for vaginal Zika virus transmission****Unit: (BMB, ID, RSRM, RD) ID****Type of Project (Research, Management, Pilot or Other): R21****Percent P51 dollars****Aids? (No): NO****PI, with institutional affiliation**

Excluded by Requester	DVM, PhD Dept. of Pathology, Microbiology, & Immunology Core Scientist UC Davis
-----------------------	---

Principal Core Scientist associated with the project

N/A

Other affiliate scientists with institutional affiliation (doctoral level only)

N/A

Project Description: The goal of this R21 is to develop a NHP model of vaginal ZIKV transmission. We will conduct initial studies to determine the efficiency of vaginal ZIKV transmission and characterize the virology of the infection. Further, we will characterize and compare innate and adaptive immune responses to ZIKV in the genital tract and systemic compartment.

Project Progress: Five of 6 the female rhesus macaques vaginally inoculated with Zika virus have become infected. We are currently characterizing the tissue distribution of the virus and the nature of the antiviral immune response.

Publications N/A**Other publications: N/A**

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 687**Project Title:** Are adverse health effects from air pollution exposure passed from mother to child?**Unit:** (BMB, ID, RSRM, RD) RD**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):****PI, with institutional affiliation**

Excluded by Requester

PhD

UC Davis School of Veterinary Medicine

Principal Core Scientist associated with the project

N/A

Project Description:

A previously funded California Air Resources Board study of nonhuman primates exposed to wildfire smoke at infancy found persistent changes in lung function and cytokine markers of immune function compared to animals of the same age which had not been exposed to wildfire smoke. The finding of a persistent phenotypic long after wildfire smoke exposure suggested epigenetic changes took place in study animals. This current proposal will extend our original investigation and evaluate both wildfire smoke-exposed female animals and their offspring for immune and lung function parameters. We hypothesize that the immune and lung phenotype imposed by wildfire smoke exposure at infancy can be transmitted into subsequent generations, and that the epigenetic effects may be detected in the form of histone modification profiles. To address this hypothesis, we will complete the following Specific Aims: **Specific Aim 1:** Determine if the peripheral blood response to Toll-like receptor ligands have been persistently modulated with wildfire smoke exposure in a transgenerational fashion; **Specific Aim 2:** Determine if parameters of lung health (volume, density, obstruction) have been persistently compromised with wildfire smoke exposure in a transgenerational fashion; **Specific Aim 3:** Determine if wildfire smoke exposure can elicit peripheral blood epigenetic changes in the form of histone modifications in a transgenerational fashion; **Specific Aim 4:** Determine if tetanus toxoid antibody titers are persistently modulated with wildfire smoke exposure in a transgenerational fashion.

Project Progress:

Project is ongoing and data are currently being analyzed

Publications (during this report period. Only those with a PMCID can be used.)**Other publications:** books, magazines, online, other

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 688**Project Title:** Glutamate receptors in aging cortical circuits**Unit:** Neuroscience and Behavior**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars:** Not sure what to put here**Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	Neuroscience and Behavior Unit, UC Davis
-----------------------	--

Principal Core Scientist associated with the project

Excluded by Requester

Other affiliate scientists with institutional affiliation (doctoral level only)

NA

Project Description: Our overarching hypothesis is that selective synaptic alterations in cortical glutamatergic systems occur with aging, compromising both synapse number and the molecular and morphologic components of plasticity required for learning and memory, thereby contributing to age-related cognitive impairment. The current Specific Aims are: 1) To determine the age-related morphologic and molecular alterations in pyramidal cells and axospinous synapses in area 46 of dorsolateral prefrontal cortex (dlPFC) in rhesus monkey and their contribution to cognitive aging; 2) To determine the age-related synaptic alterations in rhesus monkey hippocampus and the degree to which they predict decrements in the medial temporal lobe memory system; and 3) To identify changes in synaptic GluR profiles induced by LTP in young and aged rats, how they are altered in aging, and how such age-related alterations relate to memory performance mediated by hippocampus.

Project Progress: We have made progress along three fronts, three of which resulted in publications. First, we have optimized the use of Array Tomography for the analysis of molecular profiles of vulnerable vs resilient synapse categories and have now initiated such studies. Second, we completed an analysis of the synaptic distribution of GPER1, a G-protein coupled estrogen receptor on prefrontal cortex (PFC) of young and aged rhesus monkeys (Crimins et al, 2016). In addition, we demonstrated the importance to cognitive performance, vulnerability, and responsiveness to estrogen of multi-synaptic boutons in PFC (Hara et al, 2016).

Publications (during this report period. Only those with a PMCID can be used.)

Excluded by Requester

Other publications: none yet

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 689**Project Title:** Effects of Different Foods on dietary patters in nonhuman primates**Unit:** (BMB, ID, RSRM, RD) BMB**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

PhD

Biological Sciences

Affiliated

Stanford University

Principal Core Scientist associated with the project

Excluded by Requester

PhD.

Neuroscience and Behavior

Core Scientist UC Davis

Other affiliate scientists with institutional affiliation (doctoral level only)

NA

Project Description: Knowledge of dietary patterns in living primate species allow us to make inferences about the diet of fossil primates and hominids. This project uses feeding videos collected from 23 non-human primate species, including coppery titi monkeys, to inform the analyses.

Project Progress: Video data were collected from titi monkeys at the CNPRC, including 10 males and 10 females eating five food of varying hardness. Videos were sent to the collaborator who is in the process of analysis.

Publications None**Other publications** none yet

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 690**Project Title:** CHNF Partnership with Dept. of VA: Gordon Mansfield Spinal Cord Injury Consortium with UC Davis**Unit:** Neuroscience and Behavior Unit**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

 DVM CNPRC**Principal Core Scientist associated with the project****Other affiliate scientists with institutional affiliation (doctoral level only)**

Excluded by Requester

 MD PhD UCSD

Project Description: This project seeks to develop a stem cell-based therapy to repair the chronically injured non-human primate (NHP) spinal cord and to maximize functional recovery, using cell-based therapy combined with innovative rehabilitation strategies to maximize functional outcomes.

The proposal focuses on the transplantation of multipotent neural progenitor cells derived from approved embryonic stem cell lines, in a chronic (3-6 month delay) hemicontusion spinal cord injury NHP model. The emphasis will be on recovery of hand function in the affected limb. The work proposed is a needed transitional step between initial results obtained from rodent studies to clinical trials in humans.

Project Progress: Studies are progressing with lesioned animals in the chronic phase of the study.

Publications none

Other publications: none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 691**Project Title:** Production of Pedigreed SPF rhesus macaques**Unit:** Primate Services**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** Yes**PI. with institutional affiliation**Excluded by Requester ☐ DVM**Principal Core Scientist associated with the project**Excluded by ☐ Ph.D. Med: Path Core**Other affiliate scientists with institutional affiliation (doctoral level only)**Excluded by Requester ☐ Ph.D. UCD College of Biological Sciences

Project Description: The CNPRC has maintained a pedigreed colony of Indian origin rhesus macaques for over 15 years. This Indian origin rhesus population has an extensive pedigree and is self-sustaining with no additional animal recruitment necessary. This application proposes to expand both the number and quality of Indian origin SPF rhesus provided to AIDS funded investigators. This expansion and improvement in animal numbers and quality will be achieved in the following way.

1. Expand production of SPF Level 2 animals by using smaller corn-cribs for smaller, more flexible breeding groups. This will provide greater control over animal production to meet investigator needs.
2. Transfer the current colony database on the CNPRC Vitals computer program to a new ☐ Proprietary Info platform that includes electronic medical records as well as a user friendly search function.
3. Develop improved and expanded screening and confirmatory tests for detection of SPF agents.
4. Transition the colony pedigree analysis from the current microsatellite platform to the SNP panel being developed by the Genetics and Genomics Working Group (GGWC) Consortium of the CNPRC.
5. Expand our characterization of the microbiome and immune phenotype of both levels of SPF animals and provide a unique biorepository of fecal and lymphocyte samples which will facilitate future research projects investigating the interaction of HIV with the host microbiome and immune system.

The inclusion of the Biorepository Core is in response to research that suggests that knowledge of an individual animal's microbiome may be as important as understanding its MHC haplotype in studying both vaccine response and therapeutic intervention in AIDS related studies.

Project Progress: The pedigreed SPF colony has expanded to 435 animals and samples are being collected for the biorepository collection. Demand for the SPF animals continued with 60 animals being sold to investigators this past year.

Publications (during this report period. Only those with a PMCID can be used.)

Excluded by Requester

Other publications: books, magazines, online, other

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 692**Project Title:** VA IPA AgreementExcluded by
Requester**Unit:** Neuroscience and Behavior**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

DVM

Principal Core Scientist associated with the project

NA

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester

MD PhD UCSD

Project Description: This is the continuation at the CNRPC of the VA Gordon Mansfield Spinal Cord Injury (SCI) Consortium non- human primate (NHP) contract. In this project, the NHP model of SCI will be used to address several key issues prior to the translation of the cell therapy to humans, including efficacy and safety, transition to the contusion model of SCI, and use of rehabilitation to optimize functional outcome. This avenue of study is necessary to elucidate efficacy in the NHP model. Many cell therapies have undergone clinical testing in humans and none have demonstrated clinically meaningful motor or sensory functional recovery. Thus, rigorous testing of hNPCs must be conducted to demonstrate efficacy in a clinically relevant model of SCI. Funding from the Veterans Administration Rehabilitation Research and Development (RR&D) Service in the Office of Research and Development will support both the continued development of this model and the testing of multiple therapies simultaneously.

The goal of this study is to test the efficacy of hNPC and NHP induced pluripotent stem cell (iPSC) for the treatment of acute and chronic SCI in NHPs, emphasizing return of function to the upper limbs.

Project Progress: We refined a broad range of behavioral testing procedures, including treadmill, chair, and exercise cage testing. We implemented a series of in-cage testing devices and are in the process of developing an automated in-cage testing apparatus that will enable animals to continue their rehabilitation on their own in their home cages. Grafted animals have gone out several months with survival of stem cell grafts.

Publications none**Other publications:** none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 693**Project Title:** VA IPA Agreement – Excluded by Requester**Unit:** Neuroscience and Behavior**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester DVM

Principal Core Scientist associated with the project

NA

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester MD PhD UCSD

Project Description:

This is the continuation at the CNRPC of the VA Gordon Mansfield Spinal Cord Injury (SCI) Consortium non-human primate (NHP) contract. In this project, the NHP model of SCI will be used to address several key issues prior to the translation of the cell therapy to humans, including efficacy and safety, transition to the contusion model of SCI, and use of rehabilitation to optimize functional outcome. This avenue of study is necessary to elucidate efficacy in the NHP model. Many cell therapies have undergone clinical testing in humans and none have demonstrated clinically meaningful motor or sensory functional recovery. Thus, rigorous testing of hNPCs must be conducted to demonstrate efficacy in a clinically relevant model of SCI. Funding from the Veterans Administration Rehabilitation Research and Development (RR&D) Service in the Office of Research and Development will support both the continued development of this model and the testing of multiple therapies simultaneously.

The goal of this study is to test the efficacy of hNPC and NHP induced pluripotent stem cell (iPSC) for the treatment of acute and chronic SCI in NHPs, emphasizing return of function to the upper limbs.

Project Progress: We refined a broad range of behavioral testing procedures, including treadmill, chair, and exercise cage testing. We implemented a series of in-cage testing devices and are in the process of developing an automated in-cage testing apparatus that will enable animals to continue their rehabilitation on their own in their home cages. Grafted animals have gone out several months with survival of stem cell grafts.

Publications N/A**Other publications:** N/A

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 694**Project Title:** VA IPA Agreement – Excluded by Requester**Unit:** Neuroscience and Behavior**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**Excluded by Requester DVM**Principal Core Scientist associated with the project****Other affiliate scientists with institutional affiliation (doctoral level only)**Excluded by Requester MD PhD UCSD

Project Description: This is the continuation at the CNRPC of the VA Gordon Mansfield Spinal Cord Injury (SCI) Consortium non-human primate (NHP) contract. In this project, the NHP model of SCI will be used to address several key issues prior to the translation of the cell therapy to humans, including efficacy and safety, transition to the contusion model of SCI, and use of rehabilitation to optimize functional outcome. This avenue of study is necessary to elucidate efficacy in the NHP model. Many cell therapies have undergone clinical testing in humans and none have demonstrated clinically meaningful motor or sensory functional recovery. Thus, rigorous testing of hNPCs must be conducted to demonstrate efficacy in a clinically relevant model of SCI. Funding from the Veterans Administration Rehabilitation Research and Development (RR&D) Service in the Office of Research and Development will support both the continued development of this model and the testing of multiple therapies simultaneously.

The goal of this study is to test the efficacy of hNPC and NHP induced pluripotent stem cell (iPSC) for the treatment of acute and chronic SCI in NHPs, emphasizing return of function to the upper limbs.

Project Progress: We refined a broad range of behavioral testing procedures, including treadmill, chair, and exercise cage testing. We implemented a series of in-cage testing devices and are in the process of developing an automated in-cage testing apparatus that will enable animals to continue their rehabilitation on their own in their home cages. Grafted animals have gone out several months with survival of stem cell grafts.

Publications none**Other publications:** none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 695**Project Title:** VA IPA Agreement – Stephanie Hawbecker**Unit:** Neuroscience and Behavior**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	DVM
-----------------------	-----

Principal Core Scientist associated with the project

NA

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	MD PhD UCSD
-----------------------	-------------

Project Description: This is the continuation at the CNRPC of the VA Gordon Mansfield Spinal Cord Injury (SCI) Consortium non- human primate (NHP) contract. In this project, the NHP model of SCI will be used to address several key issues prior to the translation of the cell therapy to humans, including efficacy and safety, transition to the contusion model of SCI, and use of rehabilitation to optimize functional outcome. This avenue of study is necessary to elucidate efficacy in the NHP model. Many cell therapies have undergone clinical testing in humans and none have demonstrated clinically meaningful motor or sensory functional recovery. Thus, rigorous testing of hNPCs must be conducted to demonstrate efficacy in a clinically relevant model of SCI. Funding from the Veterans Administration Rehabilitation Research and Development (RR&D) Service in the Office of Research and Development will support both the continued development of this model and the testing of multiple therapies simultaneously.

The goal of this study is to test the efficacy of hNPC and NHP induced pluripotent stem cell (iPSC) for the treatment of acute and chronic SCI in NHPs, emphasizing return of function to the upper limbs.

Project Progress: We refined a broad range of behavioral testing procedures, including treadmill, chair, and exercise cage testing. We implemented a series of in-cage testing devices and are in the process of developing an automated in-cage testing apparatus that will enable animals to continue their rehabilitation on their own in their home cages. Grafted animals have gone out several months with survival of stem cell grafts.

Publications none**Other publications:** none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 696**Project Title:** Pharmacokinetics of a novel long-acting transdermal fentanyl solution in rhesus macaques**Unit:** Primate Medicine**Type of Project (Research, Management, Pilot or Other):** Research (Colony Management gave me funding for part of this, though)**Percent P51 dollars****Aids? (No, Yes): ?****PI, with institutional affiliation**

Excluded by Requester

DVM, MPH, DACLAM

Principal Core Scientist associated with the project: N/A**Other affiliate scientists with institutional affiliation (doctoral level only):** N/A**Project Description:** To establish pharmacokinetic parameters of two doses of a novel, long-acting, transdermal fentanyl solution for use in rhesus macaques and to compare those data to each other and to establish parameters in beagles.**Project Progress:** Ends March 31, 2017. Submitted for publication currently.**Publications**

Excluded by Requester

Other publications: none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 697**Project Title:** Development of a NHP model of environmental enteric disease**Unit:** Primate Medicine**Type of Project (Research, Management, Pilot or Other):** Pilot, research**Percent P51 dollars****Aids? (No, Yes):****PI, with institutional affiliation**

Excluded by Requester	PhD; ONPRC
--------------------------	------------

Principal Core Scientist associated with the project

Excluded by Requester	MS, DVM, DACLAM; CNPRC
--------------------------	------------------------

Other affiliate scientists with institutional affiliation (doctoral level only)

Project Description: The overall goal of this project is to examine the underlying mechanisms and clinical outcomes associated with naturally occurring environmental enteric disease and diarrheal disease among outdoor-housed rhesus macaques. Interventional studies will not be performed at this stage but the objective will be to establish this as an NHP model for future testing of preventive and therapeutic strategies to reduce the burden of enteric disease among children worldwide.

Project Progress: All animals in the cohort (40) have undergone their 1, 3, 6, and 8 month time point sample collection and morphometric measurements. Four of nine necropsies have been completed.

Publications none**Other publications:** none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 698**Project Title:** Maternal Obesity and weight change in rhesus monkey neurobehavioral development**Unit:** (BMB, ID, RSRM, RD) RSRM**Type of Project (Research, Management, Pilot or Other):****Percent P51 dollars Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester

PhD

Principal Core Scientist associated with the project

Excluded by Requester

PhD

Department of Obstetrics and Gynecology, School of Medicine

Other affiliate scientists with institutional affiliation (doctoral level only)

N/A

Project Description: The proposed research plan will explore physiological characteristics of maternal obesity that may be involved in neurodevelopmental compromise in a non-human primate model. We will compare inflammatory and metabolic changes to the gestational milieu in obese and normal-weighted mothers, as well as histologic and epigenetic modifications to the placenta and infant brain. Additionally, we will evaluate the effectiveness of two maternal intervention strategies, gestational weight maintenance and daily administration of the pharmacologic agent pravastatin through pregnancy, in reversing the effects of maternal obesity on the maternal and placental environments. Weight management has been recommended by both the Institute of Medicine and the American Congress of Obstetricians and Gynecologists for management of obesity in pregnancy, and the pharmacological properties of pravastatin provide biological plausibility for its use in preventing the systemic, placental and fetal consequences of maternal obesity. This proposal strives to utilize fully the unique resources inherent in the third trimester rhesus monkey model to address this serious clinical problem with substantial public health impact. Our interdisciplinary team weaves the expertise of investigators with extensive collaborative experience in maternal health and fetal development, reproductive physiology, nutrition, immunology, epigenetics, metabolomics, lipomics, biostatistics and neurodevelopment in both humans and non-human primates. The specific aims of the project will: 1) explore the physiologic effects of maternal obesity that underlie neurodevelopmental impairment and 2) determine whether two interventional strategies will prevent the effects of maternal obesity. The outcome of these studies will have direct translational value by informing women and their health providers of the risks of maternal obesity to the developing brain and will provide information on preventive options to help obese women and their health care providers lessen risk for their babies.

Project Progress: We have begun to assign pregnancies to treatment groups. We have also improved the method to determine fetal sex selection and it is now being offered through the Pathogen Detection Core. We are also working with CNPRC vets to improve capacity to conduct placental and fetal sampling. We anticipate having half of the pregnancies required for this study done this year.

Publications none**Other publications:** none

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 699**Project Title:** GI-ARS NHP Model assessment with RX100**Unit:** (BMB, ID, RSRM, RD): ID**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	University of Tennessee/Memphis
-----------------------	---------------------------------

Principal Core Scientist associated with the project

Excluded by Requester	DVM, PhD	CNPRC	Core	UCD
-----------------------	----------	-------	------	-----

Other affiliate scientists with institutional affiliation (doctoral level only)

N/A

Project Description: Be brief and remember this is accessible by the public. Write as for a lay audience.

There is a large threat for a nuclear attack by terrorists or a nuclear war instigated by incompetent governments, both domestically as well as internationally. There is currently no good strategy to mitigate the gastrointestinal acute radiation syndrome (GI-ARS). The goal of the study is to test the efficacy of Rx100 as medical countermeasure in a nonhuman primate model of the gastrointestinal acute radiation syndrome (GI-ARS). These studies are performed as part of a series of experiments to fulfill the animal rule as part of a future application to obtain FDA approval for Rx100.

Project Progress: We observed that Rx100 treatment, when initiated 24 hours after radiation, has a beneficial effect on the survival. Analysis of tissues, particularly those of the gastro-intestinal tract, are in progress.

Publications none**Other publications:** None

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 700**Project Title:** Development of a nonhuman primate model of fetal zika virus infection and disease.**Unit:** (BMB, ID, RSRM, RD) ID**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	DVM, PhD	UCD
-----------------------	----------	-----

Principal Core Scientist associated with the project

Excluded by Requester	DVM, PhD	CNPRC	Core	UCD
-----------------------	----------	-------	------	-----

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	Pathology, Microbiology and Immunology	UCD
	CNPRC	UCD

Project Description: Zika virus (ZIKV) infection of pregnant women is associated with the development of microcephaly and other neurological problems in their newborns. The project is aimed at developing a nonhuman primate model of maternal and fetal Zika virus infection. Such a model is critical to develop better tools to monitor infection and to develop safe and effective treatments and vaccines.

Project Progress: We have titrated virus stocks to be used in the upcoming studies.

Publications: None**Other publications:** None

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 701**Project Title:** Recipient epidemiology and donor evaluation study III (REDS-III) – Characterization of blood transfusion-transmission of ZIKA virus**Unit:** (BMB, ID, RSRM, RD) ID**Type of Project (Research, Management, Pilot or Other):** Research**Percent P51 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	PhD	Blood Systems Research Institute (BSRI)/ UCSF
-----------------------	-----	---

Principal Core Scientist associated with the project

Excluded by Requester	DVM, PhD	CNPRC	Core	UCD
-----------------------	----------	-------	------	-----

Other affiliate scientists with institutional affiliation (doctoral level only)

Excluded by Requester	PhD	Pathology, Microbiology and Immunology, UCD
-----------------------	-----	---

Project Description: Zika virus can be transmitted via blood transfusions. There is an urgent need to better understand the risks associated with blood transfusion, and whether current diagnostics are sufficient to consider a blood product safe. In addition, there is a need to pathogen reduction technologies to reduce the potential. The study will develop a nonhuman primate model to mimic transmission through blood transfusion, including the minimal infectious dose, the effect of antibodies, and the efficacy of pathogen reduction technologies.

Project Progress:

Preparations for the animal studies are in progress.

Publications: None**Other publications:** None

#OD011107

REPORTING PERIOD: 05/01/2017 – 04/30/2017

ANNUAL PROGRESS REPORT 2016 – 2017**SPID:** 702**Project Title:** Leveraging Established Fetal Primate Models to Expedite ZIKV Investigations**Unit:** RSRM**Type of Project:** Research**Percent PS1 dollars****Aids? (No, Yes):** No**PI, with institutional affiliation**

Excluded by Requester	PhD	MED: Peds and Cell Bio	Core	UC Davis
-----------------------	-----	------------------------	------	----------

Principal Core Scientist associated with the project

Excluded by Requester	PhD	MED: Peds and Cell Bio	Core	UC Davis
Excluded by Requester	PhD	MED: Path Lab Med	Core	UC Davis
	MD, PhD	MED: Med Micro Immunol	Core	UC Davis

Other affiliate scientists with institutional affiliation (doctoral level only)

Noctor, Stephen	PhD	MED: Psych Behav Sci	Affiliate	UC Davis
-----------------	-----	----------------------	-----------	----------

Project Description: These studies address the relationship between Zika virus (ZIKV) infection and fetal development/teratogenesis using an established primate model as a template. This model recapitulates the clinical aspects of human congenital disease, and has facilitated the investigation of new vaccines and therapeutic interventions. The objective of the proposed studies is to address this major public health concern rapidly and effectively, and to provide new information that will ensure an accelerated path to interventions that will protect the fetus from the devastating consequences of congenital Zika syndrome.

Project Progress: Studies have recently been initiated.**Publications:** none

Base Colony Only

Genus Species	Breeding Colony				Experimental Aids				Experimental Non-Aids				Transferred		Total Colony Census
	M	F	U	Total	M	F	U	Total	M	F	U	Total	In	Out	
CALLICEBUS MOLOCH	45	43	3	91	0	0	0	0	0	0	0	0	0	17	91
MACACA FASCICULARIS	0	3	0	3	0	0	0	0	0	0	0	0	0	0	3
MACACA MULATTA	1,013	1,830	19	2,862	0	0	0	0	0	0	0	0	6	504	2,862
Total:	1,058	1,876	22	2,956	0	0	0	0	0	0	0	0	6	521	2,956

Non-Base Colony Only

Genus Species	Breeding Colony				Experimental Aids				Experimental Non-Aids				Transferred		Total Colony Census
	M	F	U	Total	M	F	U	Total	M	F	U	Total	In	Out	
CALLICEBUS MOLOCH	0	0	0	0	0	0	0	0	5	5	0	10	0	0	10
MACACA FASCICULARIS	0	0	0	0	0	0	0	0	1	2	0	3	0	0	3
MACACA MULATTA	182	236	2	420	41	35	0	76	144	165	2	311	0	0	807
Total:	182	236	2	420	41	35	0	76	150	172	2	324	0	0	820

Colony Total:	1,240	2,112	24	3,376	41	35	0	76	150	172	2	324	6	521	3,776
----------------------	--------------	--------------	-----------	--------------	-----------	-----------	----------	-----------	------------	------------	----------	------------	----------	------------	--------------

* Non-base colony breeding colony animals are those supported by the PDG and SPF Grants: BZ18

* Colony statistics are for the current day.

* Transferred animals included animals acquired or sold in the past year.

CNPRC Publications (May 1, 2016 to May 1, 2017)

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

Excluded by Requester

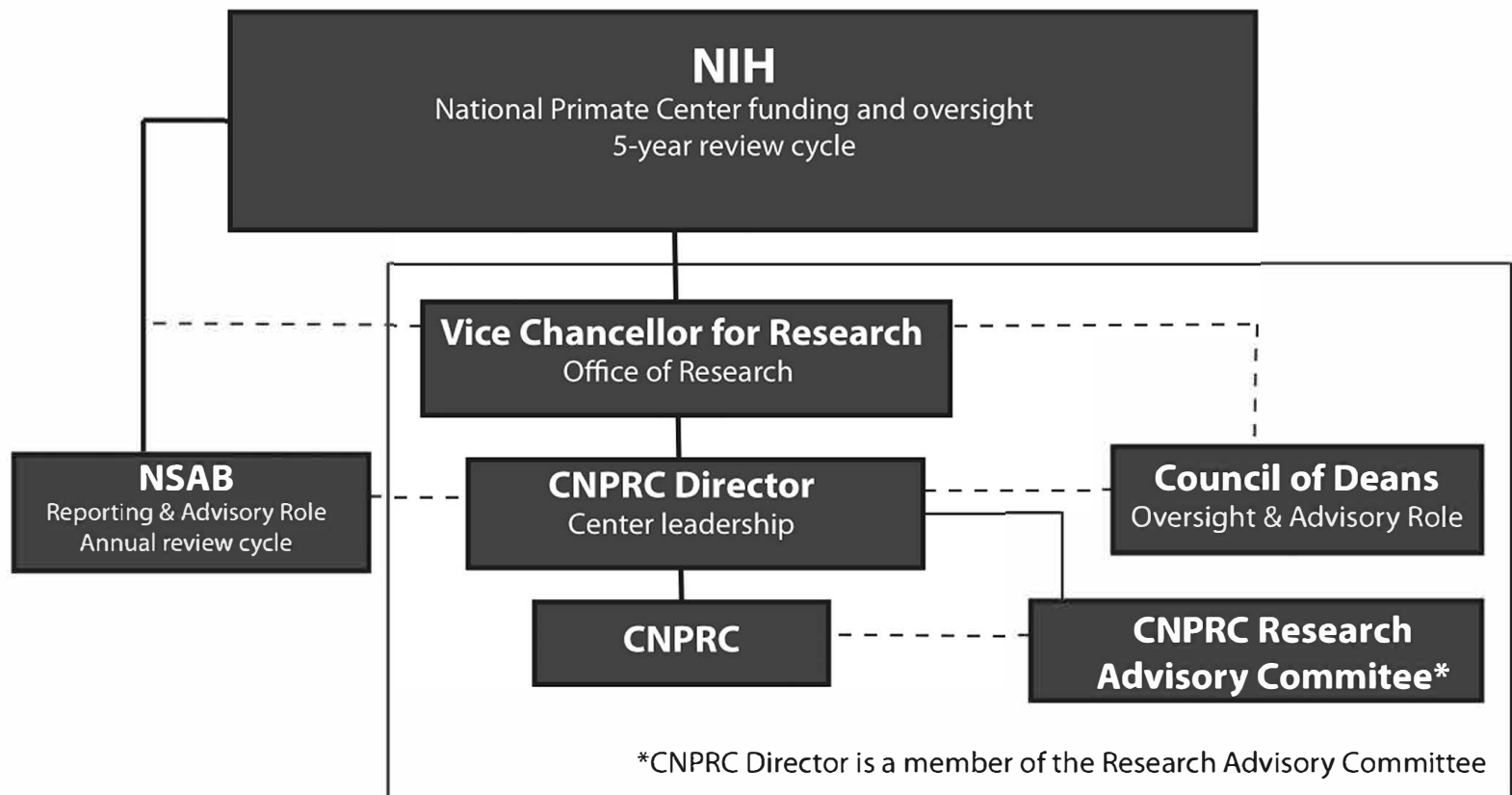
Excluded by Requester

Excluded by Requester

G.3. Table

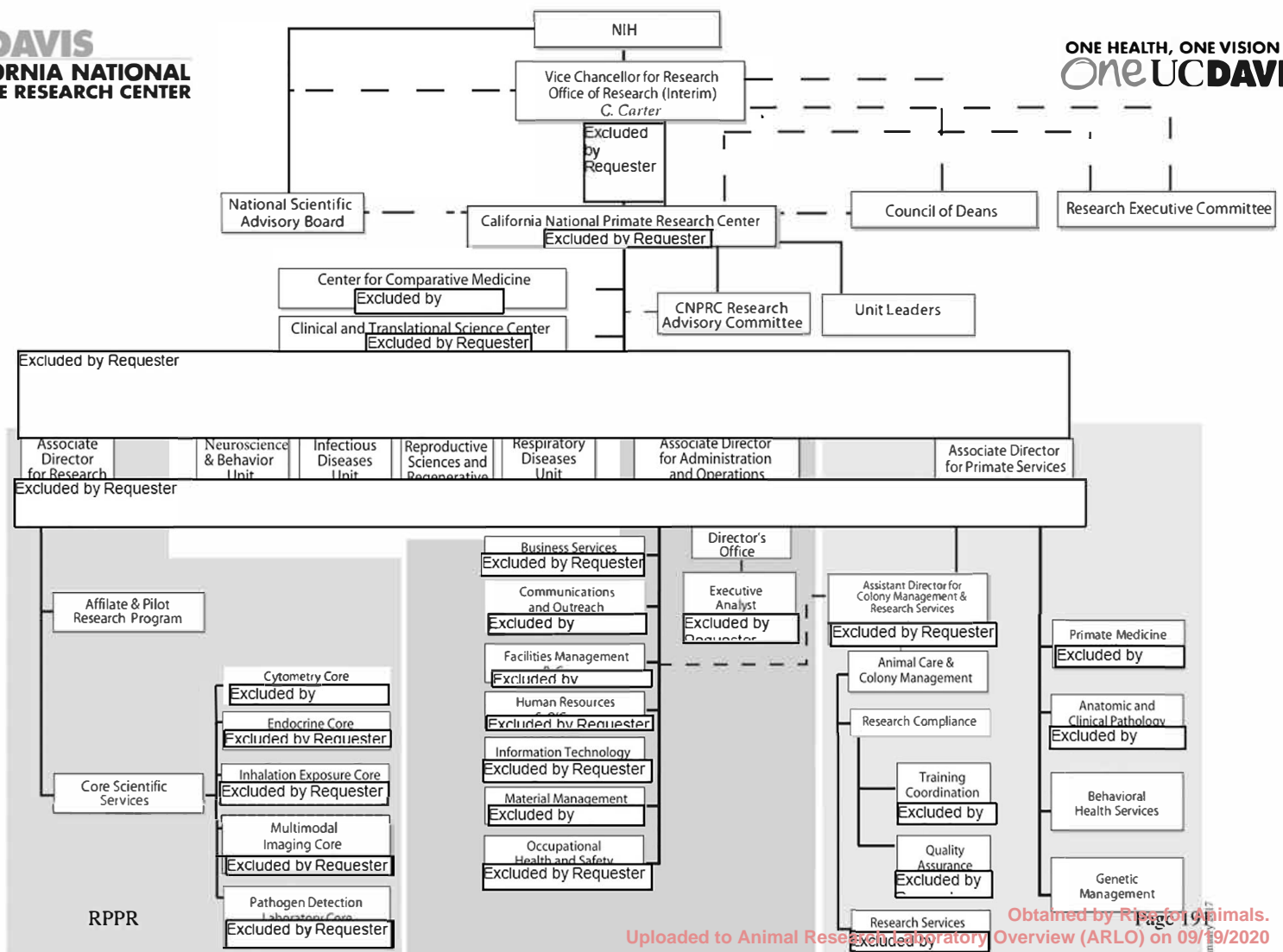
Number of Projects (120):

Management	Research	Pilot	Other
2	108	5	5



UC DAVIS
CALIFORNIA NATIONAL
PRIMATE RESEARCH CENTER

ONE HEALTH, ONE VISION
One UC DAVIS



**Statement regarding amount of research funding that is AIDS related, Section G.4
“Other Products” of the PPR.**

Reporting Period: May 1, 2016 thru Jan 13, 2017

Award Type	Dollar Amount
All Grants at CNPRC	\$33,692,247
AIDS related Grants at CNPRC	\$7,164,325
Percentage of AIDS related research funding	21.3%

Composite Application Budget Summary

Categories	Budget Period
Salary, Wages and Fringe Benefits	3,692,453
Equipment	516,186
Travel	50,074
Participant/Trainee Support Costs	300,000
Other Direct Costs (excluding Consortium)	4,664,749
Consortium Costs	0
Direct Costs	9,223,462
Indirect Costs	1,958,119
Total Direct and Indirect Costs	11,181,581

Component Budget Summary

Components	Categories	Budget Period
8347-001 (Admin Core)	Salary, Wages and Fringe Benefits	0
	Equipment	516,186
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	81,200
	Consortium Costs	0
	Direct Costs	597,386
	Indirect Costs	0
TOTALS	Total Direct and Indirect Costs	597,386
8346-002 (Admin Core)	Salary, Wages and Fringe Benefits	415,780
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	48,480
	Consortium Costs	0
	Direct Costs	464,260
	Indirect Costs	105,387
TOTALS	Total Direct and Indirect Costs	569,647
8345-003 (Admin Core)	Salary, Wages and Fringe Benefits	568,192
	Equipment	0
	Travel	0

	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	13,000
	Consortium Costs	0
	Direct Costs	581,192
	Indirect Costs	131,931
TOTALS	Total Direct and Indirect Costs	713,123
8344-004 (Admin Core)	Salary, Wages and Fringe Benefits	489,006
	Equipment	0
	Travel	35,694
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	67,000
	Consortium Costs	0
	Direct Costs	591,700
	Indirect Costs	134,316
TOTALS	Total Direct and Indirect Costs	726,016
8343-005 (Admin Core)	Salary, Wages and Fringe Benefits	0
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	0
	Indirect Costs	0
TOTALS	Total Direct and Indirect Costs	0

8351-001 (Core)	Salary, Wages and Fringe Benefits	192,686
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	16,500
	Consortium Costs	0
	Direct Costs	209,186
	Indirect Costs	47,485
TOTALS	Total Direct and Indirect Costs	256,671
8350-002 (Core)	Salary, Wages and Fringe Benefits	109,913
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	18,500
	Consortium Costs	0
	Direct Costs	128,413
	Indirect Costs	29,150
TOTALS	Total Direct and Indirect Costs	157,563
8349-003 (Core)	Salary, Wages and Fringe Benefits	128,820
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	31,000
	Consortium Costs	0

	Direct Costs	159,820
	Indirect Costs	36,279
TOTALS	Total Direct and Indirect Costs	196,099
8348-004 (Core)	Salary, Wages and Fringe Benefits	54,424
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	6,000
	Consortium Costs	0
	Direct Costs	60,424
	Indirect Costs	13,716
TOTALS	Total Direct and Indirect Costs	74,140
6916-005 (Core)	Salary, Wages and Fringe Benefits	40,139
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	40,139
	Indirect Costs	9,112
TOTALS	Total Direct and Indirect Costs	49,251
8356-001 (Other)	Salary, Wages and Fringe Benefits	305,477
	Equipment	0
	Travel	0

	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	31,500
	Consortium Costs	0
	Direct Costs	336,977
	Indirect Costs	76,494
TOTALS	Total Direct and Indirect Costs	413,471
8355-002 (Other)	Salary, Wages and Fringe Benefits	247,491
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	24,000
	Consortium Costs	0
	Direct Costs	271,491
	Indirect Costs	61,628
TOTALS	Total Direct and Indirect Costs	333,119
8354-003 (Other)	Salary, Wages and Fringe Benefits	7,663
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	94,724
	Consortium Costs	0
	Direct Costs	102,387
	Indirect Costs	23,242
TOTALS	Total Direct and Indirect Costs	125,629

8353-004 (Other)	Salary, Wages and Fringe Benefits	337,889
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	3,698,615
	Consortium Costs	0
	Direct Costs	4,036,504
	Indirect Costs	916,286
TOTALS	Total Direct and Indirect Costs	4,952,790
8360-005 (Other)	Salary, Wages and Fringe Benefits	63,969
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	11,500
	Consortium Costs	0
	Direct Costs	75,469
	Indirect Costs	17,131
TOTALS	Total Direct and Indirect Costs	92,600
8359-006 (Other)	Salary, Wages and Fringe Benefits	0
	Equipment	0
	Travel	10,380
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	456,730
	Consortium Costs	0

	Direct Costs	467,110
	Indirect Costs	106,034
TOTALS	Total Direct and Indirect Costs	573,144
8358-007 (Other)	Salary, Wages and Fringe Benefits	66,769
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	11,500
	Consortium Costs	0
	Direct Costs	78,269
	Indirect Costs	17,767
TOTALS	Total Direct and Indirect Costs	96,036
8357-008 (Other)	Salary, Wages and Fringe Benefits	102,737
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	18,000
	Consortium Costs	0
	Direct Costs	120,737
	Indirect Costs	27,407
TOTALS	Total Direct and Indirect Costs	148,144
8352-001 (Project)	Salary, Wages and Fringe Benefits	0
	Equipment	0
	Travel	0

	Participant/Trainee Support Costs	300,000
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	300,000
	Indirect Costs	68,100
TOTALS	Total Direct and Indirect Costs	368,100
8364-002 (Project)	Salary, Wages and Fringe Benefits	106,779
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	9,000
	Consortium Costs	0
	Direct Costs	115,779
	Indirect Costs	26,282
TOTALS	Total Direct and Indirect Costs	142,061
8363-003 (Project)	Salary, Wages and Fringe Benefits	99,391
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	9,000
	Consortium Costs	0
	Direct Costs	108,391
	Indirect Costs	24,605
TOTALS	Total Direct and Indirect Costs	132,996

8362-004 (Project)	Salary, Wages and Fringe Benefits	182,237
	Equipment	0
	Travel	4,000
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	8,000
	Consortium Costs	0
	Direct Costs	194,237
	Indirect Costs	44,092
TOTALS	Total Direct and Indirect Costs	238,329
8361-005 (Project)	Salary, Wages and Fringe Benefits	173,091
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	10,500
	Consortium Costs	0
	Direct Costs	183,591
	Indirect Costs	41,675
TOTALS	Total Direct and Indirect Costs	225,266
TOTALS		11,181,581

Categories Budget Summary

Categories	Components	Budget Period
R&R Budget - Senior/Key Person Funds Requested	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	63,813
	8344-004 (Admin Core)	398,128
	8343-005 (Admin Core)	0
	8351-001 (Core)	34,429
	8350-002 (Core)	0
	8349-003 (Core)	21,640
	8348-004 (Core)	16,105
	6916-005 (Core)	20,987
	8356-001 (Other)	152,129
	8355-002 (Other)	166,431
	8354-003 (Other)	7,663
	8353-004 (Other)	5,109
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	12,051
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	86,779
	8363-003 (Project)	79,351

	8362-004 (Project)	152,237
	8361-005 (Project)	143,091
TOTALS		1,359,943
R&R Budget - Other Personnel Funds Requested	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	415,780
	8345-003 (Admin Core)	504,379
	8344-004 (Admin Core)	90,878
	8343-005 (Admin Core)	0
	8351-001 (Core)	158,257
	8350-002 (Core)	109,913
	8349-003 (Core)	107,180
	8348-004 (Core)	38,319
	6916-005 (Core)	19,152
	8356-001 (Other)	153,348
	8355-002 (Other)	81,060
	8354-003 (Other)	0
	8353-004 (Other)	332,780
	8360-005 (Other)	63,969
	8359-006 (Other)	0
	8358-007 (Other)	54,718
	8357-008 (Other)	102,737
	8352-001 (Project)	0
	8364-002 (Project)	20,000
	8363-003 (Project)	20,040

	8362-004 (Project)	30,000
	8361-005 (Project)	30,000
TOTALS		2,332,510
R&R Budget - Section A & B. Total Salary, Wages and Fringe Benefits (A+B)	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	415,780
	8345-003 (Admin Core)	568,192
	8344-004 (Admin Core)	489,006
	8343-005 (Admin Core)	0
	8351-001 (Core)	192,686
	8350-002 (Core)	109,913
	8349-003 (Core)	128,820
	8348-004 (Core)	54,424
	6916-005 (Core)	40,139
	8356-001 (Other)	305,477
	8355-002 (Other)	247,491
	8354-003 (Other)	7,663
	8353-004 (Other)	337,889
	8360-005 (Other)	63,969
	8359-006 (Other)	0
	8358-007 (Other)	66,769
	8357-008 (Other)	102,737
	8352-001 (Project)	0
	8364-002 (Project)	106,779
	8363-003 (Project)	99,391

	8362-004 (Project)	182,237
	8361-005 (Project)	173,091
TOTALS		3,692,453
R&R Budget - Section C. Total Equipment	8347-001 (Admin Core)	516,186
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		516,186
R&R Budget - Domestic Travel	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	35,694
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	10,380
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	4,000
	8361-005 (Project)	0
TOTALS		50,074
R&R Budget - Foreign Travel	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Section D. Total Travel	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	35,694
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	10,380
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	4,000
	8361-005 (Project)	0
TOTALS		50,074
R&R Budget - Tuition/Fees/Health Insurance	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Stipends	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Trainee Travel	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Subsistence	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Other Participants/Trainee Support Costs	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	300,000
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		300,000
R&R Budget - Section E. Total Participants/Trainee Support Costs	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	300,000
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		300,000
R&R Budget - Materials and Supplies	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	30,010
	8345-003 (Admin Core)	13,000
	8344-004 (Admin Core)	10,000
	8343-005 (Admin Core)	0
	8351-001 (Core)	13,000
	8350-002 (Core)	17,500
	8349-003 (Core)	30,000
	8348-004 (Core)	6,000
	6916-005 (Core)	0
	8356-001 (Other)	10,500
	8355-002 (Other)	23,000
	8354-003 (Other)	94,724
	8353-004 (Other)	3,576,940
	8360-005 (Other)	5,500
	8359-006 (Other)	2,000
	8358-007 (Other)	10,500
	8357-008 (Other)	18,000
	8352-001 (Project)	0
	8364-002 (Project)	3,000
	8363-003 (Project)	3,000

	8362-004 (Project)	4,000
	8361-005 (Project)	3,500
TOTALS		3,874,174
R&R Budget - Publication Costs	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	1,000
	8350-002 (Core)	1,000
	8349-003 (Core)	1,000
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	1,000
	8355-002 (Other)	1,000
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	6,000
	8359-006 (Other)	0
	8358-007 (Other)	1,000
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	6,000
	8363-003 (Project)	6,000

	8362-004 (Project)	4,000
	8361-005 (Project)	7,000
TOTALS		35,000
R&R Budget - Consultant Services	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	52,000
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	454,730
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		506,730
R&R Budget - ADP/Computer Services	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	18,470
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		18,470
R&R Budget - Subawards/Consortium/Contractual Costs	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Equipment or Facility Rental User Fees	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	2,500
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	20,000
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		22,500
R&R Budget - Alterations and Renovations	8347-001 (Admin Core)	81,200
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		81,200
R&R Budget - Other Direct Cost 1	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	5,000
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	121,675
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		126,675
R&R Budget - Other Direct Cost 2	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Other Direct Cost 3	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	0
	8345-003 (Admin Core)	0
	8344-004 (Admin Core)	0
	8343-005 (Admin Core)	0
	8351-001 (Core)	0
	8350-002 (Core)	0
	8349-003 (Core)	0
	8348-004 (Core)	0
	6916-005 (Core)	0
	8356-001 (Other)	0
	8355-002 (Other)	0
	8354-003 (Other)	0
	8353-004 (Other)	0
	8360-005 (Other)	0
	8359-006 (Other)	0
	8358-007 (Other)	0
	8357-008 (Other)	0
	8352-001 (Project)	0
	8364-002 (Project)	0
	8363-003 (Project)	0

	8362-004 (Project)	0
	8361-005 (Project)	0
TOTALS		0
R&R Budget - Section F. Total Other Direct Cost	8347-001 (Admin Core)	81,200
	8346-002 (Admin Core)	48,480
	8345-003 (Admin Core)	13,000
	8344-004 (Admin Core)	67,000
	8343-005 (Admin Core)	0
	8351-001 (Core)	16,500
	8350-002 (Core)	18,500
	8349-003 (Core)	31,000
	8348-004 (Core)	6,000
	6916-005 (Core)	0
	8356-001 (Other)	31,500
	8355-002 (Other)	24,000
	8354-003 (Other)	94,724
	8353-004 (Other)	3,698,615
	8360-005 (Other)	11,500
	8359-006 (Other)	456,730
	8358-007 (Other)	11,500
	8357-008 (Other)	18,000
	8352-001 (Project)	0
	8364-002 (Project)	9,000
	8363-003 (Project)	9,000

	8362-004 (Project)	8,000
	8361-005 (Project)	10,500
TOTALS		4,664,749
R&R Budget - Section G. Total Direct Cost (A thru F)	8347-001 (Admin Core)	597,386
	8346-002 (Admin Core)	464,260
	8345-003 (Admin Core)	581,192
	8344-004 (Admin Core)	591,700
	8343-005 (Admin Core)	0
	8351-001 (Core)	209,186
	8350-002 (Core)	128,413
	8349-003 (Core)	159,820
	8348-004 (Core)	60,424
	6916-005 (Core)	40,139
	8356-001 (Other)	336,977
	8355-002 (Other)	271,491
	8354-003 (Other)	102,387
	8353-004 (Other)	4,036,504
	8360-005 (Other)	75,469
	8359-006 (Other)	467,110
	8358-007 (Other)	78,269
	8357-008 (Other)	120,737
	8352-001 (Project)	300,000
	8364-002 (Project)	115,779
	8363-003 (Project)	108,391

	8362-004 (Project)	194,237
	8361-005 (Project)	183,591
TOTALS		9,223,462
R&R Budget - Section H. Indirect Costs	8347-001 (Admin Core)	0
	8346-002 (Admin Core)	105,387
	8345-003 (Admin Core)	131,931
	8344-004 (Admin Core)	134,316
	8343-005 (Admin Core)	0
	8351-001 (Core)	47,485
	8350-002 (Core)	29,150
	8349-003 (Core)	36,279
	8348-004 (Core)	13,716
	6916-005 (Core)	9,112
	8356-001 (Other)	76,494
	8355-002 (Other)	61,628
	8354-003 (Other)	23,242
	8353-004 (Other)	916,286
	8360-005 (Other)	17,131
	8359-006 (Other)	106,034
	8358-007 (Other)	17,767
	8357-008 (Other)	27,407
	8352-001 (Project)	68,100
	8364-002 (Project)	26,282
	8363-003 (Project)	24,605

	8362-004 (Project)	44,092
	8361-005 (Project)	41,675
TOTALS		1,958,119
R&R Budget - Section I. Total Direct and Indirect Costs (G +H)	8347-001 (Admin Core)	597,386
	8346-002 (Admin Core)	569,647
	8345-003 (Admin Core)	713,123
	8344-004 (Admin Core)	726,016
	8343-005 (Admin Core)	0
	8351-001 (Core)	256,671
	8350-002 (Core)	157,563
	8349-003 (Core)	196,099
	8348-004 (Core)	74,140
	6916-005 (Core)	49,251
	8356-001 (Other)	413,471
	8355-002 (Other)	333,119
	8354-003 (Other)	125,629
	8353-004 (Other)	4,952,790
	8360-005 (Other)	92,600
	8359-006 (Other)	573,144
	8358-007 (Other)	96,036
	8357-008 (Other)	148,144
	8352-001 (Project)	368,100
	8364-002 (Project)	142,061
	8363-003 (Project)	132,996

	8362-004 (Project)	238,329
	8361-005 (Project)	225,266
TOTALS		11,181,581

A. COMPONENT COVER PAGE

Project Title: Administrative Overview

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS

B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?

The Administrative Services of the California National Primate Research Center (CNPRC) provide administrative and business services across the entire program including those related to animal resources (Primate Services), Core Services, and Scientific Research Units, as well as the Pilot Research Program, Outreach, and NRC Consortium activities. The CNPRC is an Organized Research Unit placed administratively under the UC Davis Vice Chancellor for Research, who also serves as Principal Investigator for the P51 base grant. The Vice Chancellor for Research is ultimately responsible for the CNPRC as a national resource, and the CNPRC Director is responsible for administrative functions including day-to-day management and scientific direction. The CNPRC Director is assisted in this role by Associate Directors (Administration and Operations, Primate Services, Research), Assistant Directors (Colony Management and Research Services, Information Technology Services), and the Research Unit Leaders (Neuroscience and Behavior Research Unit, Infectious Diseases Research Unit, Reproductive Sciences and Regenerative Medicine Research Unit, Respiratory Diseases Research Unit). The CNPRC is governed by two standing oversight committees, the National Scientific Advisory Board and the CNPRC Research Advisory Committee. Each provide a balanced perspective on external advice and review, and aid in more fully informing internal executive management and decision-making. Other CNPRC standing committees are responsible for the overall function and mission, and to address critical areas related to daily management and regulatory compliance. Several UC Davis centrally administered offices, including the Office of the Vice Chancellor for Research, provide key services to the CNPRC. The CNPRC facilities and administrative A-B-C rate structure is unique, and applies only to National Primate Research Centers. Services provided by UC Davis to support the CNPRC are included in the A-rate and income generated from A-rate recovery is returned to UC Davis with a portion shared with the CNPRC per UC policy. Income generated from the B- and C-rate is returned in its entirety to the CNPRC by the UC Davis administration.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Overview Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Business Office (Finance and Grants Management):

1. Implementation of [Proprietary] One of our key goals for the coming year is the implementation of [Proprietary] the new electronic medical record and billing system. Our current process relies on a "home grown" system has been in place for decades. Although, the system still works, it lacks the efficiencies and connectivity [Proprietary] would provide. With [Proprietary] we intend to have a more streamlined process and better access to information that can be tied together across the center.

2. Development of Unit Level Financial Metrics: The management of the base grant in conjunction with recharge activity is a critical one and a process which relies heavily on knowing how each area is performing. It is the charge of the Business Office in the next Base Grant cycle to develop service unit level financial reports which show each service unit manager the productivity of their staff in terms of recharge activities. This is critical in terms of management of personnel and assists when making decisions in regards to whether to add new positions.

Office of Human Resources:

3. Improve the CNPRC onboarding program. In the past HR's onboard program was limited to hiring employees and completing pre employment processes, which the remaining components were the responsibilities of the supervisors. The HR Office has taken the lead to revamp the onboarding process to interconnect new hires to other CNPRC components and service areas assuring that all work related activities that are necessary for employees to have are completed in order to begin work on day one of hire. The new onboarding process requires supervisors and employees to follow and complete a checklist of necessary actions; and requires signature approval of important and critical areas such as obtaining a sign off by Health & Safety Officer and Colony Management Training Manager.

4. Recruitment Program for Academic and Staff, with an emphasis of sourcing local talent and on a national level filling difficult-to-fill positions supporting complex research. This will be achieved through effective marketing and employment branding of the CNPRC as an "Employer of Choice". In addition, providing HR/Academic Personnel consultation and advice on recruitment and selection and leave administration.

Purchasing Agent:

5. Streamline Inventory control for the Primate Center Medical supply needs. Develop Procedures and logistics for each area that

requires supplies and inventory control. Monitor expiration dates and order supplies as needed trying to limit waste and reduce overstocking. Implement realtime, web based detailed visibility into medical inventory including stock detail, inventory trends, expiration dates, stock on order, and supplier on-time performance. The main objective is to save money by reducing waste with greater control and decrease the amount of time spent on inventory control for the Primate Medicine veterinary staff.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

Below is a summary of some of the things accomplished in the administrative areas:

Business Office (Finance and Grants Management)

- Enhanced Financial Reporting to better meet the needs of the principal investigators and to streamline the process. With continuous improvement in mind, we solicited feedback from PI's and supervisors to see what was working well with the financial reporting and what could be improved. Based on feedback, we reorganized our reporting to meet our customer needs. This resulted in a more efficient, automated process, as well as the additional of a new monthly operational income statement. These statements provide a more complete picture of the financial health of the Primate Center and allow for better decision making by supervisors and upper management.
- Streamline the B/C rate return process, in cooperation with BIA staff (on campus), we have streamlined the process of the B/C rate return to the CNPRC. This reconciliation process historically took 6 months and now takes about 3 months. We work closely with the campus to help them recognize what the CNPRC return should be for both administered and non-administered grants and this new relationship has reduced the turnaround time on this critical funding by half.

Office of Human Resources

- New Badge System for the CNPRC: Reviewed and assessment of one year implementation of centralized controlled facilities access procedure for individuals to gain access to CNPRC facility and resources. The CNPRC will be implementing a new photo badge ID system in coordination with IT and Colony Management.
- Ongoing efforts to assure effective HR services (recruitment, compensation, and employee relations) that are in compliance with NIH P51, UC policy and UC Davis procedures. Includes maintaining compliance and cooperative relations with Employee Labor Relations, union representatives, and represented employees.

Purchasing Agent

- Integration and management of Primate Medicine's inventory of pharmaceutical and surgical supplies. On a bi-weekly basis inventory and re-supply each surgery suite and reorder supplies as needed. Developed new programs and supply databases to allow for tracking of date sensitive supplies. Generate reports to track expiration dates and monthly/yearly usages.
- Negotiated new supply contracts that will allow us to realize savings on the full range of veterinary supplies. Developed new relationship with medical supply company to provide competitive pricing.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Admin Core-8343

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person													
Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Cameron	S	Carter		Project Lead, Executive Associate Vice Chancellor for Research Administration	0.00				0.00	0.00	0.00	
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons: File Name:											Total Senior/Key Person		0.00

B. Other Personnel							
Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
0	Total Number Other Personnel					Total Other Personnel	0.00
						Total Salary, Wages and Fringe Benefits (A+B)	0.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	0.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
Total Other Direct Costs	0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	0.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
Total Indirect Costs			
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	0.00

J. Fee	Funds Requested (\$)*
	0.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Director's Office

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

Through the Principal Investigator, Vice Chancellor for Research Cameron Carter, the California National Primate Research Center (CNPRC) Director is responsible to the National Institutes of Health and the University of California for the overall administration of the P51 base grant including fiscal management, quality control of performance in all areas, and the development and implementation of short and long range plans. The CNPRC Director has the responsibility for the day-to-day management, scientific direction, and overall strategic planning for the programs and supporting facilities and resources. The Director also has primary responsibility for high quality veterinary care and research conducted; this oversight is enhanced through campus compliance activities, the UC Davis Institutional Animal Care and Use Committee, and on-site committees such as the Research Advisory Committee. The Scientific Aims for the Director's Office are: (1) Provide direction and leadership for research excellence, (2) Ensure the successful operation of the CNPRC, (3) Mentor and train the next generation of investigators with nonhuman primate expertise, and (4) Ensure the highest standards of responsible conduct of research and animal care.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Director's Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

There are several goals that the Director's Office will pursue in the next Base Grant period:

1. Become the official Primate Center for the UC System. Through a variety of initiatives, develop additional collaborations with investigators throughout the UC System. Continue To expand our Research Pilot Program to target investigators who may want to pursue translational research in non-human primates.
2. Develop a readiness in Infectious Disease to respond to the next emerging pathogen (such as Zika Virus).
3. Complete the Faculty recruitment and effectively onboard the new faculty and integrate into the CNPRC.
4. Engage Government Officials, PR firm and media to raise the profile of the CNPRC in context of Translational Biomedical Research.
5. Build new programs in Vision Sciences, Aging, Genomics and naturally occurring disorders that match human disease occurrence and progression.
6. Work with UC Davis Corporate Relations to build Translational Research Program with Pharma and Biotech.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

The major accomplishment of the Director's Office over the last year has been the stabilization of the finances of the Primate Center, moving from a substantial deficit over each of the previous two years to a modest surplus in the current fiscal year. The next year will be marked by growth of the research enterprise that will further enhance grant and program income.

Excluded by Requester was appointed to membership of the Academy of Medicine. This is in recognition of his research excellence and the high level of his contribution to development in neuroscience. He has brought this rigor and expertise to the overall management of research operations at the CNPRC.

Excluded by Requester has been very active in pursuing recruitments at all levels. The CNPRC are in late stage negotiations for two Professor recruitments in Infectious Disease. In addition, the CNPRC is in the middle of a Full Professor recruitment in Neuroscience. The CNPRC have added two Junior Investigators, in conjunction with the Department of Psychology, who are working in the areas of neuroscience and development psychology. Additional recruitments in Respiratory diseases and Engineering are also in the beginning stages.

The CNPRC recruited two new Junior Investigators in the areas of neuroscience and developmental psychology. The CNPRC provided meaningful support in each recruit's recruitment package and have provided mentorship in getting their research programs operational.

The R21 program and out Pilot program has been very successful. These outcomes will be discussed specifically in the pilot program section.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Admin Core-8344

RESEARCH & RELATED BUDGET - SECTION A & B **FINAL**

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person													
Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Camerson		Carter		Executive Vice Chancellor of Research Administration	Institutional Base Salary	EFFORT			0.00	0.00	0.00	
2.	Excluded by Requester					Director				07,913.00	21,583.00	129,496.00	
3.						Associate Director of Operations and Administration				73,986.00	28,115.00	102,101.00	
4.						Associate Director of Research				46,635.00	17,721.00	64,356.00	
5.						Associate Director Primate Services				74,040.00	28,135.00	102,175.00	
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons: File Name:											Total Senior/Key Person		398,128.00

B. Other Personnel							
Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
1	Secretarial/Clerical	12.0			59,788.00	31,090.00	90,878.00
1	Total Number Other Personnel					Total Other Personnel	90,878.00
Total Salary, Wages and Fringe Benefits (A+B)							489,006.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	35,694.00
2. Foreign Travel Costs	0.00
Total Travel Cost	35,694.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	10,000.00
2. Publication Costs	0.00
3. Consultant Services	52,000.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8. Symposium	5,000.00
Total Other Direct Costs	67,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	591,700.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	134,316.00
Total Indirect Costs			134,316.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	726,016.00

J. Fee	Funds Requested (\$)*
	726,016.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Administration and Operations Services

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The California National Primate Research Center (CNPRC) Administration and Operations Services functions in coordination with the UC Davis campus administration and maintains administrative and operational responsibility for the CNPRC in the areas of business office services, human resources, purchasing and stores, facilities operations, emergency response, and support for the Director's Office. The Specific Aims for Administration and Operations Services include: (1) Ensure effective and efficient operation of the CNPRC infrastructure to optimize the conduct of nonhuman primate research, (2) Work with Core Scientists, the UC Davis campus, and the NIH to evaluate infrastructure needs and facilitate research, and (3) Share best practices across the NPRC Consortium.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Admin & OPS Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Ongoing development of servicing the Primate Center Medical supply needs. Develop procedures and logistics for each area that requires supplies and inventory control. Monitor expiration dates and order supplies as needed trying to limit waste and reduce overstocking. Implement real-time, web based detailed visibility into medical inventory including stock detail, inventory trends, expiration dates, stock on order, and supplier on-time performance. The main objective is to save money by reducing waste with greater control and decrease the amount of time spent on inventory control for the Primate Medicine veterinary staff.

Work on implementing Proprietary in the Business Office and Purchasing to further streamline business processes and create a more efficient center.

Recruitment Program for Academic and Staff, with an emphasis of sourcing local talent and on a national level filling difficult-to-fill positions supporting complex research. This will be achieved through effective marketing and employment branding of the CNPRC as an "Employer of Choice". In addition, providing HR/Academic Personnel consultation and advice on recruitment and selection and leave administration.

Employee Engagement strategies to improve Center's operational performance management. Provide training to CNPRC supervisors, faculty and employees with the aim of improving center-wide performance and building a community of collaboration and cooperation. Training and Development activities and sessions will focus on employee engagement strategies that build cooperative learning, foster teamwork and build positive community relations.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?**Accomplishments**

Integration and management of Primate Medicine's inventory of pharmaceutical and surgical supplies. On a bi-weekly basis inventory and re-supply each surgery suite and reorder supplies as needed. Developed new programs and supply databases to allow for tracking of date sensitive supplies. Generate reports to track expiration dates and monthly/yearly usages.

Developed new relationship with medical supply company to provide competitive pricing. Negotiated new supply contracts that will allow us to realize savings on the full range of veterinary supplies.

Discontinued contract with laundry service provider due to vendors lack of resources to provide the Primate Center with weekly deliveries of uniforms, lab coats, and scrubs which are essential to the daily operation and safety of each staff member. Work with campus and UCOP to draw up new contracts, identify new vendor, and install new garment inventory without impacting day to day operations.

In response to meeting the CNPRC budget imbalance, a position control management process was put into place to track funded positions. After completing a review of all active and inactive positions, a list of positions that were identified as nonessential or non-critical positions were eliminated through layoffs and attrition. A manual process was created to track and maintain all active funded positions and to assure position management is in alignment with current year budget. The process includes personnel forecasting and implementing staff planning from a Center Investment perspective, which is currently being developed and implemented.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Admin Core-8345

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Associate Director of Operations and Administration	Institutional Base Salary	EFFORT			46,241.00	17,572.00	63,813.00

Total Funds Requested for all Senior Key Persons in the attached file

Additional Senior Key Persons:

File Name:

Total Senior/Key Person

63,813.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
15	Technical Support	54.6			329,832.00	174,547.00	504,379.00
15	Total Number Other Personnel					Total Other Personnel	504,379.00
					Total Salary, Wages and Fringe Benefits (A+B)		568,192.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		13,000.00
2. Publication Costs		0.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		13,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	581,192.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	131,931.00
Total Indirect Costs			131,931.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	713,123.00

J. Fee	Funds Requested (\$)*
	713,123.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Information Technology Services
Component Project Lead Information:
Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The mission of the Information Technology (IT) Services Unit is to establish, maintain and support an innovative, cost-effective, agile, scalable and secure IT infrastructure including hardware, software, personnel and IT service delivery processes, which will provide support to all programs within the California National Primate Center (CNPRC).

The CNPRC IT Service Unit responsibilities can be broadly classified into two categories; Operational and Project.

The Operational category includes maintaining CNPRC's technology infrastructure; Service Desk, Desktop, Server and Storage, Network, and Security. These environments require constant updates to keep current with software and security releases. In addition, these environments must be implemented in a way that is able to meet the future technology requirements of CNPRC.

The Project category includes managing and producing innovative systems which will meet the research compute needs for CNPRC; Project Management, Application Development, Systems Design and Systems Architecture. These environments require collaboration and integration with the Operational category to attain the goals set for each project.

The goals of the IT Services Unit is to provide research computing to all researchers, investigators, faculty and staff to meet the needs of the CNPRC mission. Resource computing consists of infrastructure, applications, expert staff, and policies to support data-intensive activities related to the ongoing research at the CNPRC. Offering research compute as a service helps CNPRC researchers, investigators, faculty and staff spend more time on critical research without worrying about Information Technology systems and solutions, such as; programming, analysis, systems administration, security, networking, and data storage and management.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 IT Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 IT training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

CNPRC anticipates the following areas of emphasis for the IT Services area:

Research and Business Technologies Implementation

- Objective #1: Implementation of **Proprietary** for Primate Centers. Allowing scientists to integrate, analyze and share research data by providing a secure data repository allowing querying, reporting and collaborating across a range of data sources.
- Objective #2: Establish and deploy standard Operating Systems and software to the desktop and laptop computers including, Windows 7, Office 2013, etc.

Information Security

- Objective #1: The analysis, design, development and implementation of a CNPRC Information Security program that is compliant with the security standards and policies of the University California, Davis and The National Institute of Health.
- Objective #2: Develop and implement the process, schedule and governance structure for CNPRC's Information Technology Security program.
- Objective #3: Development and implementation of a CNPRC Information Security technology environment that includes the tools and infrastructure required.

IT Infrastructure Organizational Development

- Objective #1: Establish and maintain standards, processes and procedures to deliver consistent quality IT services to CNPRC Faculty, Staff and Students.
- Objective #2: Develop and implement processes and procedures for incident management, asset management, change management, and release management for technology infrastructure systems, components and services.

IT Infrastructure Technologies Implementation

- Objective #1: Virtualization of CNPRC's Data Center allowing research teams to have their own desired IT environment without increasing costs for a dedicated physical system. As well, reducing costs on facilities, power, cooling and hardware, simplifying

administration and maintenance and giving CNPRC a greener profile.

- Objective #2: Implementation of a yearly workstation refresh cycle, ensuring systems are up to date and meet the needs of basic and advanced research computing.

- Objective #3: Implement an Endpoint Client Management solution to enable staff to standardize software configurations on desktop and laptop computers, automate processes for deploying software, patches and updates and collect inventory information.

- Objective #4: Implement an Enterprise Backup System to ensure proper backup, retention and archival of critical research data.

- Objective #5: Design and implement a secure and robust remote access solution giving Researchers, Faculty and Staff the ability to access CNPRC compute resources, data and network devices from remote locations.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

The following major accomplishments of the Information Technology unit over the last year has been:

- Migrated all CNPRC users to the Microsoft Office 365 suite.
- Implemented SharePoint Team Sites to coordinate team activities with document collaboration and storage.
- Upgraded MedDispense Inventory Control and Management System workstations.
- Implemented a robust Uninterruptible Power Supply (UPS) backup system for all of the CNPRC servers and storage systems ensuring critical systems remain powered during power loss.
- Implemented ServiceNow, an IT Service Management system (ITSM) which allows the Information Technology Team to provide better customer service for CNPRC faculty and staff.
- Implemented multiple Information Kiosks, bringing CNPRC information directly to staff.
- Implemented Server and Network Monitoring Tools, enabling the Information Technology Team to identify and resolve infrastructure problems before they affect critical research processes.
- Implemented SharePoint Calendars allowing external, and internal, users to schedule usage of CNPRC research equipment.
- Implemented Video Conferencing allowing CNPRC to collaborate with other facilities, researchers and colleagues over the internet.
- Implemented a cloud-based team collaboration tool with Campus IET, allowing both CNPRC IT and Campus IT to communicate in real time.
- Implemented Hardware & Software Standards allowing CNPRC's Information Technology team to improve service levels, improve cost effectiveness, reduce life cycle costs, increase system availability, improve scalability, and improve security.
- Consolidated server resources cutting licensing and warranty costs and reducing the energy consumption needed to maintain CNPRC's data center.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

CNPRC has provided accredited technical training to the IT Services Unit staff, including:

- Advanced Operating Systems Delivery and Support Training for the Desktop Support Team
- Advanced Technical Server Administration Training for the Systems Administration Team
- Advanced Virtualization Training for the Systems Administration Team
- Advanced Technical Programming Language Training for the Development Team
- Technical collaboration web conferences with IT professionals within UC Davis and other NPRC facilities.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Admin Core-8346

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Associate Director of Operations and Administration	Institutional Base Salary	EFFORT			0.00	0.00	0.00

Total Funds Requested for all Senior Key Persons in the attached file

Additional Senior Key Persons: File Name: Total Senior/Key Person 0.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
7	technical Support	35.16			273,539.00	142,241.00	415,780.00
7	Total Number Other Personnel					Total Other Personnel	415,780.00
					Total Salary, Wages and Fringe Benefits (A+B)		415,780.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		30,010.00
2. Publication Costs		0.00
3. Consultant Services		0.00
4. ADP/Computer Services		18,470.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		48,480.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	464,260.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	105,387.00
Total Indirect Costs			105,387.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	569,647.00

J. Fee	Funds Requested (\$)*
	569,647.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Facilities Improvement

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

Facilities Improvement includes overall infrastructure improvements that support the research enterprise. These funds are used to upgrade the facility and to replace obsolete equipment to ensure sustainability and the overall mission of the California National Primate Research Center (CNPRC). Facilities Improvement funds are permitted up to a maximum of \$600,000 annually per the funding opportunity announcement (FOA). The proposed use of these funds include addressing facility and equipment needs integral to colony management (e.g., replacement of cages, cage repairs), to replace outdated or nonfunctional equipment necessary to provide uninterrupted services to NIH-funded investigators in Primate Services and Service Cores (e.g., anesthesia machines, cryostat, centrifuges), and to improve Information Technology systems such as those critical to maintain the colony database. The Specific Aims for Facilities Improvement include: (1) Identify and prioritize requests for the improvement and modernization of the CNPRC, and (2) Ensure timely implementation of approved facilities improvement requests. The CNPRC Research Advisory Committee continuously evaluates and assesses needs to ensure optimal operation of the CNPRC. The Research Advisory Committee regularly identifies the most pressing needs, develops a foundation for proposed improvements, and provides a proactive approach to ensure that standards of excellence are maintained. The CNPRC interacts with UC Davis campus administration for the timely resolution of infrastructure and equipment needs based on best practices through standing committees with key UC Davis administrative personnel, and by expeditious integration of campus facilities staff with on-site CNPRC staff.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Facilities Improvement Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Research Advisory Committee and the CNPRC management will again consider all requests. It is anticipated that the CNPRC will fully utilize these funds to the greatest benefit of the Center and provide long lasting benefit to the Center, the non-human primate investigators and their research.

- Replacement rolling racks for primate caging (\$159,582)
- Replacement Kawasaki mule (\$11,793)
- Replacement steam pressure washer (2 x \$11,396)
- Replacement cryostat used in computational imaging core (\$38,921)
- Upgrade database back of file servers (\$19,747)
- Replacement Data Acquisition System for Inhalation Exposure Facility Core (\$33,328)
- Purchase Centaur OPP Immunoassay System for Analytical and Resources Core (\$90,000)

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

The Research Advisory Committee, along with CNPRC management reviewed and prioritized the requests that come in for use of the improvement and maintenance funding.

The funds were prioritized by the Center's highest needs and the administrative unit works to ensure that the money is spent effectively and the improvements/equipment are completed quickly and brought online as soon as is possible.

In year 55, the CNPRC utilized the improvement and maintenance funds to accomplish several very important equipment and improvement goals for the CNPRC:

- Thermo Fisher Incubator HERA 160I Dual CU
- Fisher Scientific-TSX600D -80 Freezers
- Fisher Scientific-Table top centrifuge
- Ditkof Enterprises (J&S equipment)
- Real-time PCR Thermocycler
- 7 crib wind trap replacements
- Water Softener/Booster pump/Filter · New Cage Wash Facility
- Old Cage wash room renovations to repair aging floor and drains
- Administrative Remodel to increase personnel capacity
- Quarantine Autoclave Retrofit
- Servers/VMWare/Networking
- Backup software, hardware & disaster recovery
- BioNquest· LS 6500
- Ultrasound Unit

These purchases spanned all areas of the CNPRC. Funds were spent wisely and have provided tremendous benefit.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Admin Core-8347

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Associate Director of Operations and Administration	Institutional Base Salary	EFFORT			0.00	0.00	0.00

Total Funds Requested for all Senior Key Persons in the attached file

Additional Senior Key Persons:

File Name:

Total Senior/Key Person

0.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
1	Technical Support	0.01			0.00	0.00	0.00
1	Total Number Other Personnel					Total Other Personnel	0.00
					Total Salary, Wages and Fringe Benefits (A+B)		0.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
1. Racks, Kawasaki, pressure washer, Cryostat, database, Centaur	516,186.00
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	516,186.00

Additional Equipment: File Name:

D. Travel**Funds Requested (\$)***

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs**Funds Requested (\$)***

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	0.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	81,200.00
Total Other Direct Costs	81,200.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	597,386.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
Total Indirect Costs			
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	597,386.00

J. Fee	Funds Requested (\$)*
	597,386.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Endocrine Core

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The Endocrine Core at the California National Primate Research Center (CNPRC) will continue to provide endocrine services to a wide variety of clients that request analysis of biological specimens. The primary goal is to service the CNPRC's mission, by assisting core scientists, staff, and graduate students. Essentially, Endocrine Core provides a backstop for laboratories that need to outsource endocrine services and technology.

Specific Aim 1. Provide the necessary research tools and advanced scientific methods to permit endocrine investigations at the highest level of competence, and to contribute to a deeper understanding of physiology and pathology of humans using the nonhuman primate model.

Plan. The primary goal is to facilitate research and ensure a supportive environment for the investigation of endocrine function and disorders, such as those related to reproduction, metabolism, growth, and development. Data from the Core provides important opportunities for collaborative research, dissemination of new information, training, as well as pilot projects to support new NIH grant submissions.

Specific Aim 2. Ensure exceptional expertise in nonhuman primate research and services are provided to investigators using nonhuman primates at the regional and national levels to advance NIH-supported research excellence.

Plan. Assays are continuously updated and reference standards renewed to ensure accurate results. While the primary focus has traditionally been placed on reproductive endocrinology, there is increased focus on metabolic hormones. The Endocrine Core works closely with the CNPRC Clinical Pathology Laboratory in Anatomic and Clinical Pathology Services to ensure that all needs of the colony are recognized and met in-house where possible. All major equipment is maintained with service contracts and computers, with software updated on a three-year basis. A website is maintained to inform the research community of the services available. Both Excluded by and Excluded by are available on a daily basis by electronic mail and to meet face-to-face with investigators, staff, and/or students in a timely manner.

Specific Aim 3. Mentor and train the next generation of translational nonhuman primate investigators.

Plan. The mentoring and training of new investigators in need of additional expertise in endocrinology at any career stage is an important responsibility of the Endocrine Core. All requests for training and access to critical reagents are pursued when possible. Graduate student projects where the major advisors are CNPRC Core or Affiliate Scientists are prioritized, but courtesy services are broadly provided to graduate students if their requests are within the scope of the Core and the student has expressed an interest in endocrine training. Postdoctoral fellows pursue projects in the Endocrine Core under the supervision of the Core manager.

Specific Aim 4. Ensure the highest standards of responsible conduct of research and animal care.

Plan. The Endocrine Core will continue to support all aspects of colony care including veterinary care, colony management, and research projects. The Core has recently expanded this role by promoting specific clinical inquiries and guiding junior veterinary clinicians in the development of research projects emanating from and depending on endocrine expertise. The Endocrine Core brings specialized expertise in nonhuman primate reproduction and female healthy aging to enhance the breeding program and the aging colony.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Endo Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

The Endocrine Core publishes a number of papers through collaborations with other Core Faculty, more importantly the publications then belong to the client.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The Endocrine Core will continue to offer endocrine services, including analysis of biological specimens from vertebrate animals within and outside of the center, as well as human specimens from other clients. It is our plan to expand upon those services as needed.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

Endocrine Core accomplishments:

- *Provide endocrine services to CNPRC, and obviates the need for multiple laboratory facilities.
- *Provide relevant clients with endocrine services in terms of analyzing biological specimens and reporting back the results.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

RPPR - Core-8348

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle	Last Name*	Suffix	Project Role*	Base	Calendar	Academic	Summer	Requested	Fringe	Funds Requested (\$)*
			Name			Salary (\$)	Months	Months	Months	Salary (\$)*	Benefits (\$)*	
1.	Excluded by Requester				Co-Core Leader	Institutional Base Salary	EFFORT			15,636.00	469.00	16,105.00
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons:		File Name:								Total Senior/Key Person		16,105.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
2	Technical Support	15.4			25,210.00	13,109.00	38,319.00
2	Total Number Other Personnel					Total Other Personnel	38,319.00
Total Salary, Wages and Fringe Benefits (A+B)							54,424.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00

Additional Equipment: File Name:

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		6,000.00
2. Publication Costs		0.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		6,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	60,424.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	13,716.00
Total Indirect Costs			13,716.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	74,140.00

J. Fee	Funds Requested (\$)*
	74,140.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Immunology and Pathogen Detection Resources Core

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS

B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?

The Pathogen Detection Laboratory Core plays a critical role in nonhuman primate research and colony management at the California National Primate Research Center (CNPRC). The Core provides routine and specialized laboratory assays for research and colony management that address pathogen detection and other laboratory needs. The Core provides support from start to end, for research studies that use the nonhuman primate as a model for the human disease. This work includes experimental design, execution, and data analysis/interpretation. The Core has particular interest and expertise in evaluation of infectious and other agents throughout the primate lifespan, from gestation to old age. The Pathogen Detection Laboratory continues to be the leading reference laboratory for nonhuman primate infectious disease testing while fulfilling the mission to improve the nonhuman primate resource. The Core will remain at the forefront of scientific discovery relevant to pathogens and immune responses as well as advancements in reagents and technology leading to the development of new methods through the following Specific Aims: (1) Provide state-of-the-art research assays relevant to nonhuman primate models of human disease and nonhuman primate colony health, (2) Provide exceptional expertise and services to researchers at the regional, national, and international levels, and (3) Mentor and train the next generation of translational nonhuman primate investigators.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 PDL Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 PDL training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

PDL maintains an e-mail newsletter to update its subscribers (currently 112 subscribers as of 2016) on assay development, validation and optimization. Updates have been sent out quarterly (Summer 2015, Winter 2016).

In addition, the core manager Excluded by Requester made in person, on-site visits to 5 of the other NPRC programs that PDL lab testing supports.

The senior staff has published 11 papers and made presentations at many scientific workshops and symposia. Highlights include (1) Ms.

Excluded by Requester review article on Excluded by Requester

Excluded by Requester presentation at Primatology

Symposia in Russia; and (3) Excluded by Requester numerous presentations on emerging Zika virus studies for both scientific and lay public audiences.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The Pathogen Detection Laboratory (PDL) will continue to provide routine and custom laboratory testing to detect and monitor biomarkers of infection for both nonhuman primate research and colony management at the California National Primate Research Center (CNPRC). In addition, the core will continue to provide highly skilled laboratory personnel and advanced instrumentation to provide technical expertise, training, and capacity to assist other investigators whose studies employ them for different applications.

PDL continues to provide both formal and informal training in the understanding and importance of laboratory testing for infectious agents in nonhuman primates. This is done through individual consultations as well as scientific meeting presentations and published papers. As in the past, we will continue to provide repeat testing, data review, protocols, controls, and reagents to assist colleagues (especially those who are new to the field or in the initial stages of establishing their program) with proficiency testing, troubleshooting, and difficult to interpret cases.

As new pathogens, colony management issues, and research questions emerge, PDL continues to develop, validate, implement, and interpret data generated by new diagnostic tools. Current pathogen detection work includes assays for tuberculosis, new world adenoviruses, adeno-associated virus and a panel of respiratory pathogens. Multiplex antibody and antigen capture immunoassays and endpoint and real-time PCR assays are being developed. Discussions with collaborators for specific pathogen free surveillance programs in Thailand and in vitro tuberculosis testing in East Africa and Indonesia have been initiated. PDL has also received requests from investigators and is exploring how to best apply our expertise, reagents, and assay platforms to provide laboratory support for studies requiring neuropeptides, cardiac markers, and fetal genetics biomarkers. This shared use of personnel, equipment, reagents, protocols, samples and data for multiple applications across various disciplines is closely tied to the concept of convergence and will allow PDL to advance its own and the CNPRC's vision and mission to continue to improve the nonhuman primate as a vital resource for

biomedical research. To better clarify and promote this expanding role a name change from Pathogen Detection Laboratory (PDL) to Primate Assay Development Laboratory (PADL) is being considered.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?**Accomplishments**

IMMUNOLOGY AND PATHOGEN DETECTION RESOURCES CORE (PDL) has performed 4,288 assays on samples from 18 institutions (in many cases multiple investigators per institution); in addition the core has provided virus stocks, reagents, controls and samples to investigators upon their request.

Several new assays have been formatted, validated, and implemented to meet various colony management and research needs.

- An example is the recent completion and of assays for serum/plasma antibody immunoassays (microbead immunoassay and Western blot) and blood and saliva PCR for Rhesus Cytomegalovirus.
- Another example was the rapid validation and implementation of Zika virus antibody assays, which were expedited by past experience working with SIV, dengue, west nile, and chikungunya virus projects. Zika virus PCR will also be implemented soon.

In addition to the standard test menu, PDL has provided custom testing and technical assistance for 13 projects.

Core personnel have played key roles in sample processing, assay development, and necropsy assistance for SIV therapeutic and vaccine studies and Zika virus pathogenesis studies for Infectious Disease (ID) unit investigators.

Reaching out beyond the ID unit, PDL also assisted in the design and provided the laboratory support for a measles vaccine titration study which allowed the center to reduce the cost of vaccination by 50%.

The core also provided sample processing, tissue culture, PCR assays, and quantitative cytokine / chemokine assays to support a number of studies led by investigators in the Brain, Mind & Behavior, Reproductive Biology, and Respiratory Disease units.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

The PDL core regularly provides training and monitors proficiency for new and continuing users of shared laboratory equipment. In addition, training in the correct assay selection, data analysis, and application results is also provided to study investigators. The depth and breadth of this training can vary from a simple telephone or email conversation to multi-day ongoing hands on laboratory training and / or data review and analysis. Examples of the more basic training include real-time PCR and multiplex microbead equipment training to the staff and graduate students from 3 CNPRC investigators [Excluded by Requester]. More in-depth training and collaboration was initiated by the laboratory manager and director visiting the Washington National Primate Center for mutually beneficial training and review of laboratory methods and data for simian betaretrovirus detection which has led to an ongoing collaboration. Visits to the 4 other NPRC testing laboratories were also completed.

More formal academic and hands on training was provided to 7 undergraduate students

Student Names

Student Names

Student Names

All the undergraduates received basic laboratory training; in addition, [Student Names] is pursuing a guided independent research project monitoring serologic responses for a measles vaccine dose trials, and [Student Names] studied hematological and other effects of SIV vaccines and drugs. Training was also provided to two visiting scientists. During the past year the manager and director have also made presentations at and attended conferences (including the Association of Primate Veterinarians Workshop, Charlotte, NC and the 34th Annual Symposium on NHP models of AIDS, New Orleans, LA); and contributed to publications that provide professional training to colleagues.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

RPPR - Core-8349

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Core Leader	Institutional Base Salary	EFFORT			11,979.00	4,552.00	16,531.00
2.					Clinical Director					3,702.00	1,407.00	5,109.00
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons:			File Name:							Total Senior/Key Person		21,640.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
2	Technical Support	8.4			70,513.00	36,667.00	107,180.00
2	Total Number Other Personnel					Total Other Personnel	107,180.00
Total Salary, Wages and Fringe Benefits (A+B)							128,820.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		30,000.00
2. Publication Costs		1,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		31,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	159,820.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	36,279.00
Total Indirect Costs			36,279.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	196,099.00

J. Fee	Funds Requested (\$)*
	196,099.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Inhalation Exposure Core

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The primary mission of the Inhalation Exposure Core is to serve as a state-of-the-art facility and educational resource for the design, completion, analysis, and interpretation of studies involving health effects of airborne materials. The Inhalation Exposure Core provides short- and long-term generation, delivery, and analysis of precisely controlled atmospheres to investigate human health effects of environmental challenges using both in vitro and in vivo laboratory animal models. In coordination with Primate Medicine Services, the Inhalation Exposure Core is to serve as a state-of-the-art facility and educational resource for the design, completion, analysis, and interpretation of studies involving health effects of airborne materials. The Inhalation Exposure Core provides short- and long-term generation, delivery, and analysis of precisely controlled atmospheres to investigate human health effects of environmental challenges using both in vitro and in vivo laboratory animal models. In coordination with Primate Medicine Services, the Inhalation Exposure Core also provides pulmonary function testing and bronchoscopy as outcome measures for health effects as a result of exposures in nonhuman primates. With an emphasis on pulmonary toxicology and animal models of chronic respiratory disease, Inhalation Exposure Core scientists and staff provide critical intellectual expertise and technical support for investigators to conduct research projects that require evaluation of biological responses to atmospheric exposures. The Inhalation Exposure Core provides consultation for the Human Exposure Facilities housed in the UC Davis Human Performance Laboratory, and works directly with investigators in the UC Davis Air Quality Research Center. By partnerships across campus, the Inhalation Exposure Core contributes to broad programs in pulmonary medicine involving the UC Davis Schools of Medicine and Veterinary Medicine and Colleges of Biological Sciences and Engineering. The scope of these programs on the UC Davis campus is to examine the health risks associated with exposure to outdoor and indoor airborne irritants, allergens, and toxins by conducting comparative studies across multiple animal species. Embedded in this rich environment, the Inhalation Exposure Core is ideally placed to support research in acute and chronic human disease by guiding experimental design, developing methodology, executing studies, providing data analysis, and interpretation. The Inhalation Exposure Core is the only such Core facility for inhalation exposure housed within a National Primate Research Center. Through the unique infrastructure, capabilities, and expertise offered by the Inhalation Exposure Core, the California National Primate Research Center provides an innovative resource to local, regional, and national investigators conducting studies in pulmonary toxicology and animal models of respiratory disease.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Inhalation Exposure Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Inhalation Exposure training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

Results of the Inhalation Exposure Core are disseminated to communities of interest using the following strategies:

Publications. A primary strategy by which findings from the Inhalation Exposure Core are disseminated to the broad scientific community as well as the general public is via publication in peer-reviewed journals. Publications are often led by Core Scientists within the Respiratory Diseases Unit.

Speaking Engagements. An additional strategy used by the Inhalation Exposure Core to disseminate information is to present findings in the form of brief oral presentations at national meetings as well as invited seminars. Core Scientists who have leadership roles within the Inhalation Exposure Core have been actively engaged in this area, with numerous invited presentations as well as report of findings through poster sessions at national meetings.

Media. The Inhalation Exposure Core utilizes the CNPRC and UC Davis Office of Research web page to highlight availability of resources and research activities. The Core is also actively promoted for the CNPRC Pilot Program application process.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Specific Aim 1. Support state-of-the-art research by providing stable, well-characterized exposures to air pollutants, allergens, therapeutic agents, aerosols, and other test atmospheres.

In the next funding year, we will continue to expand our outreach efforts to increase usage of the Inhalation Exposure Core by UC Davis investigators, as well as investigators from other national institutions. An important goal is to enhance visibility at the national level by publication of core use in peer-reviewed journals.

Specific Aim 2. Provide nonhuman primate services for investigators to evaluate health effects of atmospheric exposures.

In the next funding year, we will continue to provide support toward research projects that involved atmospheric exposures. An important goal is to develop high through-put strategies for pulmonary function measures as well as diversify types of atmospheric exposures offered to investigators.

Specific Aim 3. Provide training in inhalation exposure technology for the next generation of nonhuman primate investigators. In the next funding year, we will continue to conduct outreach efforts to increase our local and national visibility, through attendance at national meetings and identification as a campus core facility. CNPRC Pilot Program applicants are an important pool of investigators who request training of postdoctoral fellows, graduate students research assistants.

The accomplishments of the Inhalation Exposure Core can be summarized by the following specific aims:

Specific Aim 1. Support state-of-the-art research by providing stable, well-characterized exposures to air pollutants, allergens, therapeutic agents, aerosols, and other test atmospheres.

The Inhalation Exposure Core has developed unique systems for in vivo inhalation exposure and in vitro atmospheric exposure with an emphasis on nonhuman primates as a translational animal model. This effort has included testing and optimization of new Inhalation Exposure Core facilities housed in the Respiratory Diseases Center.

Specific Aim 2. Provide nonhuman primate services for investigators to evaluate health effects of atmospheric exposures.

In conjunction with atmospheric exposures, the Inhalation Exposure Core has provided pulmonary function testing services and bronchoscopy expertise. Leveraging the CNPRC resource, the Core has worked with the Multimodal Imaging Core and Primate Medicine Services to enhance capabilities in lung function measures.

Specific Aim 3. Provide training in inhalation exposure technology for the next generation of nonhuman primate investigators.

The Inhalation Exposure Core has trained graduate and veterinary students, postdoctoral fellows, and faculty in the science of atmosphere exposure and analysis technologies. Training in lung function testing parameters and other biological response measures has also been provided.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

Trainees of the Inhalation Exposure Core include the following:

Type of trainee	Number of trainees
Postdoctoral Fellow	1
Graduate and Veterinary Students	4
Undergraduate Students	1
Other Type (1)/ faculty	2
Other Type (2)/research associate	1
Total	9

Trainees within the Inhalation Exposure Core are supervised by Core Scientists and associated staff. Training experiences include use of chamber exposure systems, mask exposure, and pulmonary function testing. Faculty and veterinary students have undergone additional training in the use of bronchoscopy for nonhuman primates.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Category	Explanation
Models	<p>Inhalation Exposure Core developed the following techniques which are currently being utilized by external investigators:</p> <p>Large scale second hand (environmental) tobacco smoke exposures. As described in our P51 submission, the construction of the C06 funded Respiratory Disease Center provided a mechanism to develop an innovative strategy for large scale exposure of nonhuman primates to tobacco smoke or biomass materials (wood, animal products) in a specially designed exposure room that is designed to house 24 adult rhesus monkeys. For this funding period we have implemented our new smoke exposure room in a study of environmental tobacco smoke effects in nonhuman primates.</p> <p>In collaboration with physician scientists from the UC Davis School of Medicine we have developed methods for controlled ventilation during inhalational dose administration of preclinical therapeutics in nonhuman primates. Previous methods yielded variable results and the current methodology provides for more consistent dose administration across study subjects while reducing the quantity of preclinical therapeutic required for a given dose level.</p>

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

RPPR - Core-8350

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle	Last Name*	Suffix	Project Role*	Base	Calendar	Academic	Summer	Requested	Fringe	Funds Requested (\$)*
		Name				Salary (\$)	Months	Months	Months	Salary (\$)*	Benefits (\$)*	
1.	Excluded by Requester				Core Leader	Institutional Base Salary	EFFORT			0.00	0.00	0.00
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons:			File Name:								Total Senior/Key Person	0.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
2	Technical Support	10.8			72,324.00	37,589.00	109,913.00
2	Total Number Other Personnel					Total Other Personnel	109,913.00
Total Salary, Wages and Fringe Benefits (A+B)							109,913.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		17,500.00
2. Publication Costs		1,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		18,500.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	128,413.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	29,150.00
Total Indirect Costs			29,150.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	157,563.00

J. Fee	Funds Requested (\$)*
	157,563.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Multimodal Imaging Core

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The Multimodal Imaging Core (formerly the Computational Imaging Core) provides services to investigators locally, regionally, and nationally, encompassing scales that range from cellular to whole-animal imaging. The change in the Core name reflects the spectrum of services, imaging modalities, and continued growth of the in vivo imaging program within the Core. The goal of the Core is to support the research of investigators and trainees in qualitative and quantitative imaging applications and to assist with study design, data interpretation, grant submissions, and to conduct preclinical and IND-enabling studies. The Core has two distinct yet integrated components. The first component provides extensive microscopy/pathology-based services including whole slide scans, confocal microscopy, stereology training, methods development, and analysis. The Core also assists with the production of publication quality images, and provides consultation on experimental approaches for all imaging modalities. The Core is engaged in digitizing archived film images from various sources, including those created by the Anatomic and Clinical Pathology Services in Primate Services at the California National Primate Research Center (CNPRC). Microscopy instruments housed in the Core are available to trained users. The second component consists of in vivo imaging services provided by Core faculty and trained professionals and includes ultrasound imaging, optical imaging, positron emission tomography/computed tomography (PET/CT), and microPET, in addition to radiochemistry and pharmacokinetic analyses of new radiopharmaceuticals. Core faculty work in an integrated manner to implement the imaging goals of the program, and to ensure investigators have the depth and breadth of innovative imaging opportunities to conduct their research and to submit NIH grant applications. Dedicated faculty and staff are responsible for imaging services, radiotracer synthesis, administrative support, day-to-day operational management, computer support, preventive and routine maintenance, and quality assurance. CNPRC Information Technology staff provides networking for the imaging systems, install firewalls, integrate imaging systems with database systems, and perform daily backup operations.

Specific Aim 1. Provide expertise and a range of imaging services across different spatial scales to ensure cutting-edge imaging technologies are available to the research community for studies with nonhuman primate models of human health and disease.

Specific Aim 2. Acquire new technologies/instruments and replace instrumentation as needed through NIH and related equipment grant applications.

Specific Aim 3. Provide integrated assays, techniques, and tools to enhance the nonhuman primate resource for research, training, and colony management needs, and align with the broader translational imaging program at UC Davis.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Multimodal Imaging Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Multimodal Imaging training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

Through established websites (e.g., Primate Center, Clinical and Translational Science Center, and UC Davis Office of Research campus cores websites), meetings with individuals and groups, faculty meetings, special symposia and conferences.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The Core will continue to maintain high quality imaging services and expand the range of imaging assays performed in nonhuman primates by introducing new protocols, new contrast agents, and new data analytical methods. The Core will also continue to ensure data integrity/security, archival/retrieval, and QA/QC. Core faculty have shown a very strong record of achievement in obtaining instrumentation grants for imaging and related equipment. They will continue to identify sources of support to ensure the Core is equipped with state-of-the-art instrumentation and methods for investigators, and expand the imaging tools dedicated for use with nonhuman primates. Expansion of services and opportunities for preclinical testing and commercialization of novel radiopharmaceuticals will be accomplished in collaboration with UC Davis infrastructure focused on translational imaging.

Core and Affiliate Scientists, along with a national collaborative team, have been developing EXPLORER, the world's first total-body scanner for humans that allows all the tissues and organs to be imaged simultaneously. This innovative instrumentation is now supported by an NIH Transformative R01 funded in 2016. The first demonstrations of use of this new PET technology will be performed using a small-scale working prototype designed for total-body imaging in nonhuman primates in the Core.

The Multimodal Imaging Core provides services to investigators locally, regionally, and nationally, encompassing scales that range from cellular to whole-animal imaging. The goal and overall mission of the Core is to support the research of investigators and trainees in qualitative and quantitative imaging applications, and to assist with study design, data interpretation, extramural grant submissions, and to conduct preclinical and investigational new drug (IND)-enabling studies. The Core provides microscopy services (e.g., sectioning, staining, slide scans) and in vivo imaging services through Core faculty and trained professionals including ultrasound imaging, optical imaging, positron emission tomography/computed tomography (PET/CT), and microPET. In addition, radionuclide production, radiochemistry, and pharmacokinetic analyses of new radiopharmaceuticals are provided through a partnership with the Center for Molecular and Genomic Imaging (CMGI) and related Affiliate Scientists. Core faculty work in an integrated manner to implement the imaging goals of the program, and to ensure investigators have the depth and breadth of innovative imaging opportunities to conduct their research and to submit NIH grants and pre-IND applications. They provide a range of imaging services (e.g., protocol development and optimization, operating imaging systems, image processing, quantitative analysis) including radionuclide production, radiotracer synthesis, day-to-day operational management, preventive and routine maintenance, and quality assurance/quality control (QA/QC).

The Core functions within an organized structure and with a high level of expertise for imaging and interpretation. The program has provided a means for investigators across research domains to incorporate imaging modalities in their research programs including ultrasound-related techniques and procedures and ultrasound-guided methods. A major focus has been on developmental hypotheses, a particular Core strength, and primate models of congenital and acquired diseases and new treatment strategies. Optical imaging is incorporated for a variety of cell and gene transfer protocols and has been used in innovative ways. From a colony management perspective, the Core has established fetal growth charts that are routinely used to confirm gestational age in time-mated animals and to predict gestational age in outdoor-housed animals where the time of conception is not known. The Core routinely works with investigators to identify cohorts of animals for projects and assess developmental parameters during gestation, and provides assays and imaging information to balance sex ratios. Projects have also been performed with industry partners for the study of drug biodistribution and pharmacokinetics.

A range of protocols have been developed and refined to meet research needs. A few examples include: ultrasound imaging focused on assessing organ-based changes in response to vaccination; optical imaging of induced pluripotent stem cells (iPSC) differentiated for tissue engineering and fetal transplantation; protocols focused on radiolabeled maternal antibodies and trafficking into the fetal brain; developmental assessments for new NIH funded studies using combined ultrasound and CT imaging protocols; CT scans for management and monitoring animals implanted with tissue engineered constructs; biodistribution of iodinated materials; and new antibodies under development for detection of the capability to cross the blood-brain barrier. Funding through an NIH S10 grant has also been obtained for a Brain Biosciences Pi-PET scanner as a replacement for the current microPET P4 scanner.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

Many studies include a range of trainees (undergraduate to graduate students and postdoctoral fellows) and include the opportunity for research rotations, and to gain exposure to a variety of imaging modalities.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle	Last Name*	Suffix	Project Role*	Base	Calendar	Academic	Summer	Requested	Fringe	Funds Requested (\$)*	
	Name					Salary (\$)	Months	Months	Months	Salary (\$)*	Benefits (\$)*		
1.	Excluded by Requester					Institutional Base Salary	Excluded by Requester			18,510.00	3,702.00	22,212.00	
2.						Co-Core Leader				9,255.00	2,962.00	12,217.00	
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons:			File Name:									Total Senior/Key Person	34,429.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
7	Technical Support	18.0			105,159.00	53,098.00	158,257.00
7	Total Number Other Personnel					Total Other Personnel	158,257.00
Total Salary, Wages and Fringe Benefits (A+B)							192,686.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		13,000.00
2. Publication Costs		1,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		2,500.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		16,500.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	209,186.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	47,485.00
Total Indirect Costs			47,485.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	256,671.00

J. Fee	Funds Requested (\$)*
	256,671.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Pilot Research Program

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The objective of the California National Primate Research Center (CNPRC) Pilot Research Program is to spark innovative research by facilitating robust new research concepts and teams through partnerships with CNPRC Core Scientists. The CNPRC Pilot Research Program provides a mechanism for investigators new to nonhuman primate research to obtain the necessary preliminary data for NIH and related extramural grant submissions. In the next funding period, the CNPRC proposes a new approach that is based on the highly successful UC Davis Clinical and Translational Science Center (CTSC) Pilot Translational and Clinical Studies Program that was developed and thoroughly tested over 9 years of NIH funding, and has shown a high rate of return on investment. A similar format was successfully adapted to the NIH West Coast Metabolomics Center, thus the objective is to similarly enhance the CNPRC program by leveraging of funds, promoting mentoring and training of investigators and trainees, and engaging a reporting structure to capture outcomes and enhance project success. The Specific Aims for the CNPRC Pilot Research Program are to: (1) Promote partnerships and team science through a pilot program mechanism that supports innovative state-of-the-art translational research with nonhuman primates, (2) Mentor and train the next generation of investigators to ensure a pipeline of knowledgeable researchers with expertise in the use of nonhuman primate models for the study of human health and disease, and (3) Facilitate and enable cutting edge, translational pilot research studies to ensure high impact publications and successful NIH funding.

SPECIFIC AIMS

The overall intent of the California National Primate Research Center (CNPRC) Pilot Research Program is to provide integrated scientific, educational, administrative, and financial support for pilot projects that support the CNPRC mission. The CNPRC facilitates robust new research concepts and teams through partnerships with CNPRC Core Scientists that have a range of scientific expertise and participate in Service Cores that support studies with nonhuman primates. The CNPRC Pilot Research Program provides a mechanism for investigators new to nonhuman primate research to obtain research experiences with nonhuman primates, and to gather the necessary preliminary data to submit competitive NIH grant applications. In the next funding period, the CNPRC proposes a new approach that is based on the highly successful UC Davis Clinical and Translational Science Center (CTSC) Pilot Translational and Clinical Studies Program that was developed and thoroughly tested over 9 years of NIH funding, and has shown a high rate of return on investment. Central features of the program include leveraging funds, promoting mentoring and training, and the inclusion of an efficient reporting structure that captures outcomes. In an effort to closely monitor the success of the pilot projects, quarterly progress reports and a final report are requested which are highly effective in providing information on progress in relation to the original goals, need for additional resources, and development of new tools. This approach also ensures the appropriate documentation of presentations and publications, and new extramural grants submitted and funded. Basic concepts in this evolved structure will include a requirement for submissions to include trainees and to ensure exposure of these trainees to nonhuman primate research; active solicitation of partnerships and leveraging of funds from other UC Davis pilot programs; and linking program announcements to other translational outreach opportunities. The overriding objective is to enable cutting edge translational pilot research studies that result in high impact publications and competitive NIH grant submissions. Thus, the Specific Aims for the Pilot Research Program are as follows:

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Pilot Research Program Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Pilot Research Program training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

Results of the Pilot Research Program are disseminated to communities of interest using the following strategies:

Publications. A primary strategy by which findings from the Pilot Research Program are disseminated to the broad scientific community as well as the general public is via publication in peer-reviewed journals. Publications are by funded investigators include collaborating Core Scientists.

Speaking Engagements. An additional strategy used by the Pilot Research Program to disseminate information is to present findings in the form of brief oral presentations at national meetings as well as invited seminars.

Media. The Pilot Research Program uses the CNPRC and UC Davis Office of Research web page to advertise the annual call for letters of intent, highlight availability of resources and research activities. Cores are actively promoted for the CNPRC Pilot Program application process.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

During the next reporting period, the Pilot Research Program will continue to make progress toward our original specific aims:

Specific Aim 1. Promote partnerships and team science through a pilot program mechanism that supports innovative state-of-the-art translational research with nonhuman primates. In the next funding period, an important goal is to continue broad outreach of Pilot Research Program opportunities. Pilot Research Program letters of intent have increased from approximately 20 submissions historically to 30-50 submissions from a wide range of institutions in California and nationally.

Specific Aim 2. Mentor and train the next generation of investigators to ensure a pipeline of knowledgeable researchers with expertise in the use of nonhuman primate models for the study of human health and disease. In the most recent funding period, at least 50% of Pilot Research Program investigators have been new to nonhuman primate research and either an Assistant/Associate Professor. We will continue to target junior investigators who are most likely to continue development of an established research program using nonhuman primates.

Specific Aim 3. Facilitate and enable cutting edge, translational pilot research studies to ensure high impact publications and successful NIH funding. In the next funding period, an important strategy by which high impact publications and new NIH funding will be generated is to target exceptional investigators with strong potential for extramural support. Increasing high quality junior investigator applicants for national universities is the most efficient method to achieve this aim, and is attainable with active outreach by the Associate Director of Research and members of individual Scientific Units.

The accomplishments of the Pilot Research Program during the current funding year can be summarized by the following specific aims:

Specific Aim 1. Promote partnerships and team science through a pilot program mechanism that supports innovative state-of-the-art translational research with nonhuman primates. The CNPRC Pilot Research Program has provided essential infrastructure for the completion of high-risk/high-reward studies that are limited in scope, with the goal of expanding the current pool of extramurally funded research using the nonhuman primate as the animal model of choice. To achieve this goal, CNPRC Core Scientists have actively engaged in national outreach efforts, casting a wide net and ensuring applicants have access to the necessary expertise, resources, tools, and Core services for translational nonhuman primate research. Pilot project calls have been utilized to advance research in thematic areas that compliment available expertise with CNPRC Scientific Units. In the 2016 Call for Letter of Intent, the CNPRC received 31 letters of intent, which resulted in 11 proposals, and 5 funded applications.

Specific Aim 2. Mentor and train the next generation of investigators to ensure a pipeline of knowledgeable researchers with expertise in the use of nonhuman primate models for the study of human health and disease. The CNPRC Pilot Research Program has focused on investigators new to nonhuman primate research at all career stages. While not an exclusive requirement for funding, inclusion of trainees (postdoctoral fellows, graduate students, undergraduate students) in pilot project submission for the current progress report further builds a competent workforce and pipeline of investigators that will conduct nonhuman primate research at the highest quality level, taking full advantage of the wealth of mentoring and training opportunities provided through the CNPRC. While it is imperative that junior investigators new to nonhuman primate research are preferentially encouraged to apply, senior investigators also have contributed to this Aim by inclusion of trainees in Pilot Research proposals. In the 2016 CNPRC Pilot Research Program, a total of 2 trainees participated in the completion of proposed projects.

Specific Aim 3. Facilitate and enable cutting edge, translational pilot research studies to ensure high impact publications and successful NIH funding. The CNPRC Pilot Research Program has promoted research facilitation while remaining flexible and forward thinking in the support of new investigative teams with clear paths to innovation. Through collaboration with CNPRC Core Scientists and use of CNPRC Cores, successfully funded investigators have translated their findings into expanded NIH grant applications as well as other funding agencies in an expeditious fashion. For the 2016 CNPRC Pilot Research Program, an NIH R21 grant was awarded to

Excluded by Requester

based upon their project.

Excluded by Requester

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

Trainees of the 2016 Pilot Research Program included the following:

Type of trainee	Number of trainees
Postdoctoral Fellow	
Graduate Student	2
Undergraduate Student	
Other Type (1)/ faculty	2
Other Type (2)/research associate	
Total	4

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT

E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017 End Date*: 04-30-2018

A. Senior/Key Person												
Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons: File Name:											Total Senior/Key Person	

B. Other Personnel							
Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
0	Total Number Other Personnel					Total Other Personnel	0.00
						Total Salary, Wages and Fringe Benefits (A+B)	0.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other: Pilot Research Awards	300,000.00
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	300,000.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		0.00
2. Publication Costs		0.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	300,000.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	68,100.00
Total Indirect Costs			68,100.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	368,100.00

J. Fee	Funds Requested (\$)*
	368,100.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Colony Management and Research Services

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The primary goal of Primate Services is to ensure the highest quality animal care and husbandry for the California National Primate Research Center (CNPRC) nonhuman primate colonies. Primate Services encompasses Colony Management and Research Services, the National Institute on Aging Colony, Primate Medicine Services, Anatomic and Clinical Pathology Services, Behavior Management Services, and Genetics Management Services. The Colony Management and Research Services component addresses animal care and research service including environmental enrichment, staff training, and quality assurance to meet the needs of colony animals and investigators. The Colony Management and Research Services team aids in providing oversight for the animals at the CNPRC, which includes three species: rhesus macaques (*Macaca mulatta*), a small colony of long-tailed macaques (*Macaca fascicularis*), and titi monkeys (*Callicebus cupreus*). These nonhuman primate colonies and the support provided by the Colony Management and Research Services team ensure that a wealth of opportunities are available to meet the needs of investigators locally, regionally, and nationally for studies across the lifespan, and through the following Specific Aims: (1) Provide outstanding colony management and infrastructure support to maintain and utilize a national resource of nonhuman primates for translational research, (2) Ensure high quality training in all areas of animal care and colony management, and (3) Promote and support responsible conduct of research and animal care.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Colony Management Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

Colony Management and Research Services Staff will 1) Continue to work toward providing a well-managed colony, and a well trained workforce to support this national resource 2) Ensure a high quality of staff training in all areas of daily animal care and 3) Continue to evaluate and review procedures, guidelines and standard operating procedures and practices to ensure standards of excellence.

Interaction with the Primate Center consortium members will continue to enhance the sharing of best practices and resources.

The colony has continued to produce and provide healthy and well characterized non-human primates for assignment to current research programs, the breeding colony and for external animals sales. The emphasis for future colony planning has been to move toward a higher percentage of the colony being SPF and Full Indian origin breeding corrals. The colony has been able to provide the required number of animals for current and planned funded projects, while keeping a low inventory of surplus animals assigned to the base grant.

Training goals have been accomplished with an increase in the number of Animal Care Technicians that have completed the AAALAC technician series resulting in certification.

Research Services SRA staff have continued to provide technical support to new research areas such as Zika virus, Vision services and upcoming Pilot projects.

Colony Management Accomplishments:

- Completion and occupancy of newly constructed oversize cagewash
- Replacement of aged storage containers for produce cold storage and chow
- Consolidation of the New World colony into one area
- Technical support to complex research programs in indoor, outdoor, infectious and nursery projects

Research Services Accomplishments:

- Provide extensive nursing care and project support to Neuroscience projects
- Project support for new projects in Vision Science
- Project support for CNPRC pilot program, Colony Management projects, campus EH&S P30 Pilot projects, as well as new faculty and collaborators
- 480 animals screened and prepared for sale and shipped to offsite facilities
- Establishment and growth of a North Colony Management committee to enhance the scheduling and planning for users of the North Colony field corrals
- Manage a colony reduction of approx 25%

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

RPPR - Other-8353

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Associate Director of Research	Institutional Base Salary	EFFORT			3,702.00	1,407.00	5,109.00
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons:		File Name:								Total Senior/Key Person		5,109.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
1	Secretarial/Clerical	3.0			13,033.00	6,777.00	19,810.00
6	Technical Support	27.4			213,727.00	99,243.00	312,970.00
7	Total Number Other Personnel					Total Other Personnel	332,780.00
Total Salary, Wages and Fringe Benefits (A+B)							337,889.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	3,576,940.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
8. Other Fees	121,675.00
Total Other Direct Costs	3,698,615.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	4,036,504.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	916,286.00
Total Indirect Costs			916,286.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	4,952,790.00

J. Fee	Funds Requested (\$)*
	4,952,790.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: National Institute of Aging Colony

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The primary goal of Primate Services is to ensure the highest quality animal care and husbandry for the California National Primate Research Center (CNPRC) nonhuman primate colonies. Primate Services encompasses Colony Management and Research Services, the National Institute on Aging Colony, Primate Medicine Services, Anatomic and Clinical Pathology Services, Behavior Management Services, and Genetics Management Services. Animal care and research service is provided by a highly trained staff of veterinarians, Core Scientists, technicians, and administrators to meet the needs of the animals as well as investigators using the CNPRC resource. The major goals for the NIA Set Aside colony is maintain a population of aged (>19 years) rhesus macaques for use in research. These animals receive annual physical exams to ensure optimal health for their use in geriatric research. This program also identifies potential recruitment animals in the 15 -18 year old age range that can be brought into the aged colony.

Specific Aim 1. Support and maintain NIA rhesus monkeys for investigators nationwide that are conducting aging-related research. Plan. The goal is to proactively manage the NIA Colony in order to maximize the number of healthy, surgery-naïve geriatric rhesus monkeys for aging research. The Primate Services team work closely together with investigators to support translational rhesus monkey models of human aging.

Specific Aim 2. Provide high quality expertise and services to investigators at the local, regional, and national levels. Plan. Through established protocols, guidelines, and expertise, the goal is to ensure investigators are provided sufficient healthy, well-characterized aged animals and correlative services and infrastructure to support aging and lifespan health research objectives.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 NIA Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

During the next reporting period we plan to increase the overall aged rhesus census at the CNPRC by acquiring aged rhesus from other breeding colonies. We also have several pending research proposals which will require the use of aged animals on these research projects.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

The interest in the aging colony has continued to increase over the last year and effort has been focused to expand the characterization of the aged animals. The entire Primate Services team works closely together with investigators to support translational rhesus monkey models of human aging.

The focus in this area is to proactively manage the NIA colony in order to preserve and manage the number of healthy geriatric rhesus monkeys for aging research.

This specialized group of aged animals receive semiannual physical exam workups in order to monitor and manage age related health complications. This includes a physical exam and may include clinical pathology diagnostic samples, imaging, and/or expanded workups as deemed important by the veterinary staff. All the animals have had complete health exams including ophthalmology and cardiac exams.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Other-8354

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Excluded by Requester					Associate Director Primate Services	Institutional Base Salary	EFFORT			5,553.00	2,110.00	7,663.00
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons:			File Name:								Total Senior/Key Person	7,663.00	

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
0	Total Number Other Personnel					Total Other Personnel	0.00
Total Salary, Wages and Fringe Benefits (A+B)							7,663.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		94,724.00
2. Publication Costs		0.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		94,724.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	102,387.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	23,242.00
Total Indirect Costs			23,242.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	125,629.00

J. Fee	Funds Requested (\$)*
	125,629.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Primate Medicine Services

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

Primate Medicine Service continues to ensure the physical health and well-being of all members of our nonhuman primate colony, offering medical expertise for protocol and procedure development, providing clinical, surgical, and anesthetic support for investigators, balancing animal welfare with scientific needs, as well as mentor and train the next generation of nonhuman primate veterinarians. Its primary focus is to provide optimal clinical care. Our program of medical care starts in utero with routine pregnancy evaluations and continues through geriatric ages with thorough screening to prevent, identify, and treat naturally-occurring diseases throughout the life span. Our veterinarians work collaboratively with one another, as well as clinicians from the UCD Veterinary Medicine Teaching Hospital, the UCD Sacramento Medical Center, and other NPRCs to stay abreast of the latest treatments and procedure refinements. Additionally, the Primate Medicine Service works to maintain efficiency and efficacy by developing, reviewing, and refining treatment algorithms. Moreover, we work closely with the pathology service to review different disease conditions such as trauma, diarrhea, emesis, dermatitis, etc. to determine which diagnostics are most informative and treatments are most effective at addressing these conditions.

We continue to review and update our treatment algorithms for diarrheal disease, trauma, and reproductive management in the macaque colony, incorporating new diagnostic capability and new therapeutic agents as they become available. Through our collaboration with faculty at the veterinary medical teaching hospital, we can be assured that we are keeping up with the most recent advances in veterinary medicine. Based on data collected by multiple investigators at CNPRC, we realize the longterm impact of antimicrobial therapy on multiple aspects of overall health, and we continue to work to reduce the use of antimicrobials and implement alternative treatment strategies whenever possible. The primary emphasis is on utilizing dietary therapy to restore the normal microbiome in the gastrointestinal system. The Primate Medicine staff have also developed a standardized nutritional supplement for animals requiring additional caloric or protein intake. This has reduced staff labor and ensured greater consistency in treatment regimes.

Specific Aim 1. Provide high quality care for nonhuman primates at the CNPRC to support research.

Plan. Well-trained experienced veterinarians in medical primatology and Animal Health Technicians (AHTs) trained to the level of physician assistants provide preventive health care, medical care, and input into the CNPRC management programs. Preventive health includes a Center for Disease Control (CDC) approved quarantine program, biannual tuberculin (TB) testing, routine physical examinations, serum banking, and a vaccination program. Medical care addresses the spectrum of diagnostics to treatment in general medicine, dentistry, emergency medicine, intensive care, project-related clinical findings, and specialized surgical procedures.

Specific Aim 2. Provide expertise and research support to investigators locally, regionally, and nationally.

Plan. The veterinarian's role is to provide the necessary support and expertise to ensure successful project outcomes. The veterinarians work in a close partnership with Core and Affiliate Scientists and the entire Primate Services team that is built on mutual respect and a common vision focused on improving human health-related problems, while concurrently ensuring nonhuman primate well-being. As a part of the centralized services, the veterinary staff members keep pace with technology to support research and aid in refining research protocols.

Specific Aim 3. Mentor and train the next generation of veterinarians with nonhuman primate expertise.

Plan. Primate Medicine is committed to mentor and train the next generation of veterinarians in collaboration with Core Scientists. Primate Medicine provides a spectrum of learning opportunities for veterinarians (including the Mountain Gorilla Project), residents, veterinary students from institutions worldwide, animal technicians, and new investigators in order to support their career goals.

Specific Aim 4. Ensure the highest standards of responsible conduct of research and animal care.

Plan. CNPRC veterinarians have been trained in American College of Laboratory Animal Medicine (ACLAM) approved residency programs and are ACLAM boarded which adds significantly to the quality of animal care and research standards. Primate Medicine works with the Primate Services team and Core Scientists that have specialized expertise in infectious diseases, genetics, behavior, reproduction, respiratory illnesses, and pathology in order to provide optimal colony management and psychological well-being. Metrics obtained support policies, SOPs, guidelines, and strategic plans; these experiences are also shared with various oversight committees and regulatory agencies.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Primate Medicine Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Primate Medicine training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

The Primate Medicine team (PM) strives to share our expertise via a variety of venues.

We routinely attend and speak at local, national, and international conventions and conferences (SVAALAS, APV, AALAS, EPV, BCMC, and SVAALAS).

Our staff are represented as Board members and committee members for the Association of Primate Veterinarians and play key roles in the development of nationally-recognized policies and position statements.

PM participates in two different monthly primate center consortium webinars (Virtual Grand Rounds Training and Clinical and Surgical Techniques Training) and present 1-3 times per year for each group.

In addition, we routinely collaborate with veterinarians at other primate centers on an informal basis.

PM veterinarians serve as instructors in three different courses in the UC Davis School of Veterinary Medicine.

PM employs 12 veterinary students as assistants in our clinical medicine & training program.

PM clinicians are often invited speakers for clubs and other interest groups through the veterinary school.

PM has published a number of articles in Laboratory Animal Medicine Veterinary journals as well as in scientific journals in collaboration with CNPRC investigators.

PM routinely facilitates tours of the CNPRC by various outside groups including school groups, clubs, and community groups.

PM attends internal management meetings and meet regularly with the Core Scientists to ensure excellent communication of changes in practice or standards of care to the animal user group.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The Primate Medicine staff will continue to:

- (1) Provide high quality care for nonhuman primates at the CNPRC to support research,
- (2) Provide expertise and research support to investigators locally, regionally, and nationally,
- (3) Mentor and train the next generation of veterinarians with nonhuman primate expertise, and
- (4) Ensure the highest standards of responsible conduct of research and animal care.

Accomplishments:

- Identification and initial development of a nonhuman primate model of Left Ventricular Hypertrophy in collaboration with the School of Veterinary Medicine.
- Conducted a clinical trial of a vaccine against Campylobacter, Shigella, and Yersinia sp.
- Conducted a study on the optimal measles vaccination schedule.
- Developed methods of oocyte retrieval using ultrasound guided collection.
- Established a veterinary student employment program to provide practical clinical experience for freshman and sophomore veterinary students.
- Performed a clinical trial of Zeuterin agent for chemical male sterilization
- Evaluated the efficacy of the antibiotic Ceftiofur on trauma
- Performed a pharmacokinetic evaluation of the long acting analgesic, Recuvra
- Performed a feeding trial of high fiber diet to evaluate impact on clinical diarrhea and growth
- Evaluated the impact of maxillary canine manipulation (pulpotomies and/or blunting) on social group dynamics and dental health
- Refinement a nonhuman primate model of Left Ventricular Hypertrophy and identification of pre-mortem diagnostic indicators for disease; collaboration with the School of Veterinary Medicine.
- Expanded and improved a veterinary student employment program to provide practical clinical experience for freshman, sophomore and junior veterinary students.
- Clinical evaluation of a long acting analgesic, Recuvra, for efficacy
- Evaluation of a high fiber diet and its relationship to diarrhea in outdoor housed animals
- Further investigation into the impact of maxillary canine tooth manipulation (pulpotomies and/or blunting) long-term dental health.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

During the past year the Primate Medicine staff has trained 20 senior veterinary students (a total of 28 weeks with an average 2 weeks/rotation). The Primate Medicine Service has also trained six residents: four in traditional Laboratory Animal Medicine, two in Anesthesia, and one in Zoomed. We continuously mentor and train our Laboratory Animal Residents with a focus in nonhuman primates. We invited a surgeon from the ONPRC to train our veterinary staff in laproscopy and help us to learn how to troubleshoot the equipment.

Type of trainee	Number of trainees
Postdoctoral Fellow	
Graduate Student	
Undergraduate Student	
Other Type (1) Resident	6
Other Type (2) Veterinary Students	32
Total	38

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Other-8355

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Associate Director Primate Services	Institutional Base Salary	EFFORT			3,702.00	1,407.00	5,109.00
2.					Senior Veterinarian					32,299.00	12,274.00	44,573.00
3.					Senior Veterinarian					28,457.00	10,814.00	39,271.00
4.					Senior Veterinarian					11,941.00	4,538.00	16,479.00
5.					Senior Veterinarian					11,974.00	4,550.00	16,524.00
6.					Senior Veterinarian					11,294.00	4,292.00	15,586.00
7.					Senior Veterinarian					11,294.00	4,292.00	15,586.00
8.	* TBN		Senior Veterinarian		Senior Veterinarian	96,400.00	1.2			9,640.00	3,663.00	13,303.00
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons:											Total Senior/Key Person	
File Name:											166,431.00	

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
2	Post Doctoral Associates	16.8			58,739.00	22,321.00	81,060.00
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
2	Total Number Other Personnel					Total Other Personnel	
							81,060.00
					Total Salary, Wages and Fringe Benefits (A+B)		247,491.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		23,000.00
2. Publication Costs		1,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		24,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	271,491.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	61,628.00
Total Indirect Costs			61,628.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	333,119.00

J. Fee	Funds Requested (\$)*
	333,119.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Anatomic and Clinical Pathology Services

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The primary goal of Primate Services is to ensure the highest quality animal care and husbandry for the California National Primate Research Center (CNPRC) nonhuman primate colonies. Primate Services encompasses Colony Management and Research Services, the National Institute on Aging Colony, Primate Medicine Services, Anatomic and Clinical Pathology Services, Behavior Management Services, and Genetics Management Services. Animal care and research service is provided by a highly trained staff of veterinarians, Core Scientists, technicians, and administrators to meet the needs of the animals as well as the investigators using the CNPRC resource. Anatomic and Clinical Pathology Services is aligned with the strategic focus of the CNPRC to support multidisciplinary research that optimizes the development and use of nonhuman primate models of human health and disease. Extensive expertise in clinical, gross, and microscopic diagnostic pathology is utilized to promote colony health and disease surveillance to ensure that high quality animals are available for biomedical research, and to provide research support for projects requiring pathology expertise, either collaboratively or on a recharge basis. The Specific Aims for Anatomic and Clinical Pathology Services are to: (1) Provide pathology expertise for state-of-art research and scientifically contribute to the understanding and treatment of human disease with nonhuman primate models, (2) Provide exceptional nonhuman primate resources and pathology services to investigators at the regional and national levels to advance NIH-supported research excellence, (3) Mentor and train the next generation of nonhuman primate pathologists and translational investigators, and (4) Maintain the production of high quality, healthy animals for research.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Pathology Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Pathology training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The Anatomic and Clinical Pathology Service will continue to 1. Provide pathology expertise at the CNPRC to support research 2. Provide pathology expertise and resources to investigators locally regionally and nationally to support research 3. Train and mentor the next generation of veterinary pathologists with non-human primate expertise 4. Provide pathology diagnostic services to maintain colony health and a high quality non-human primate population.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?**Anatomic and Clinical Pathology Service Accomplishments**

During the past year primate anatomic and clinical pathology has continued to provide an outstanding service for experimental pathology and diagnostic pathology services for disease surveillance and maintenance of colony health. The pathology service currently has 3 full time pathologists [Excluded by Requester]

while the vacancy created 2 years ago by the departure of [Excluded by Requester] has not been filled. During the reporting period we have conducted 512 necropsies supporting experimental research protocols. Additionally we carried out 321 colony necropsies on animals that died or were euthanized for health reasons. The clinical pathology laboratory is headed by [Excluded by Requester] and continues to provide support for clinical diagnostics, colony management and experimental projects. During the award period they have processed a large number of submissions as detailed in the table below.

Clinical Pathology Tests	Colony Health	Experimental Protocols	Total
Hematology	1039	7504	8543
Clinical Chemistry	1841	5126	6967
Parasitology	63	331	394
Microbiology	1677	2028	3705
Flow Cytometry	0	2454	2454

Additional Accomplishments:

A total of 1246 biospecimens have been distributed to 39 investigators at the CNPRC and UCD campus as well as outside institutions in other areas of the country.

Currently there are 3 laboratory animal pathology residents in the 3 year training program (one each year) and these resident receive one on one training as they rotate through the CNPRC.

Pathologists have provided training and teaching to two laboratory animal medicine residents through month long pathology rotations and have conducted several seminars for both veterinary pathology and medicine residents on a variety of topics. All the pathologists are active in bi-weekly lab animal pathology rounds.

Quarterly morbidity and mortality rounds have continued during the past funding period.

Pathologists at the CNPRC contribute to the understanding of disease pathogenesis through collaborations with other scientists and clinical veterinarians. Ongoing projects investigating naturally occurring disease include the characterization of spontaneously occurring left ventricular cardiac hypertrophy, characterization of a spontaneous chronic dermatitis model within the colony, the genetic analysis of campylobacter species within the colony and correlation with chronic enterocolitis, environmental enteric dysfunction, the microbiome of the placenta and several unique case reports. Recently initiated projects supporting experimentally induced disease include development of a non-human primate model of reproductive tract chlamydial infection and cytomegalovirus vaccination and the development of a model of fetal Zika virus infection.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

B.4. What opportunities for training and professional development has the project provided?

Year of program	Laboratory Animal Pathology Resident
1st	Excluded by Requester
2nd	
3rd	
Graduated july 2016	

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Other-8356

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Pathology Service Manager	Institutional Base Salary	EFFORT			62,528.00	23,761.00	86,289.00
2.					Senior Veterinarian Pathology					17,449.00	6,631.00	24,080.00
3.					Senior Veterinarian Pathology					17,661.00	6,711.00	24,372.00
4.					Senior Veterinarian Pathology					12,600.00	4,788.00	17,388.00

Total Funds Requested for all Senior Key Persons in the attached file

Additional Senior Key Persons:

File Name:

Total Senior/Key Person

152,129.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
3	Post Doctoral Associates	12.24			45,756.00	17,387.00	63,143.00
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
4	Technical Support	6.6			59,345.00	30,860.00	90,205.00
7	Total Number Other Personnel					Total Other Personnel	153,348.00
						Total Salary, Wages and Fringe Benefits (A+B)	305,477.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		10,500.00
2. Publication Costs		1,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		20,000.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		31,500.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	336,977.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	76,494.00
Total Indirect Costs			76,494.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	413,471.00

J. Fee	Funds Requested (\$)*
	413,471.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget (F-K) (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Population and Behavioral Health Services

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The primary goal of Primate Services is to ensure the highest quality animal care and husbandry for the California National Primate Research Center (CNPRC) nonhuman primate colonies. Primate Services encompasses Colony Management and Research Services, the National Institute on Aging Colony, Primate Medicine Services, Anatomic and Clinical Pathology Services, Behavior Management Services, and Genetics Management Services. Animal care and research service is provided by a highly trained staff of veterinarians, Core Scientists, technicians, and administrators to meet the needs for the animals as well as investigators using the CNPRC resource. Population and Behavior Health Services (PBHS) is the section of Primate Services that implements the CNPRC Primate Wellbeing Plan. PBHS monitors the behavior of the entire colony, manages and implements the enrichment and socialization program and works with other areas of Primate Services in overall colony management. PBHS also develops proactive strategies to reduce the development of behavioral problems and has developed a cooperative training program that emphasizes the use of positive reinforcement techniques for both colony management purposes and research applications. The goals of PBHS are to (1) Develop and implement the best strategies to characterize behavioral phenotypes and provide research support to investigators studying the behavior of nonhuman primates, (2) Scientifically assess the efficacy of current and new enrichment procedure to develop and maintain behavioral and physiological phenotypes of research interest, and (3) Enhance and expand the use of cooperative training with the CNPRC colony and research program.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Behavior Management Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The CNPRC is currently conducting a national recruitment for a new Manager for PBHS to assume the expanded role for this service in managing the behavioral health of the nonhuman primate colony. This will include expanded observation of outdoor housed animals as well as the development of indoor group housing for the rhesus macaque colony.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

Previously Behavioral Management and Enrichment and Socialization were in separate areas of Primate Services. These two areas have been combined into Population Health and Behavioral Services (PBHS) which has improved coordination and efficiency of the Service. We have been successful at maintaining a high level of over 90% for the entire animal colony and we have expanded our research support to numerous research projects. The PBHS staff have a close working relationship with both Colony Management and Research Services as well as Primate Medicine. There has been an expansion of enrichment support and increased use of non-nutritive enrichment

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Other-8357

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle	Last Name*	Suffix	Project Role*	Base	Calendar	Academic	Summer	Requested	Fringe	Funds Requested (\$)*
						Salary (\$)	Months	Months	Months	Salary (\$)*	Benefits (\$)*	
1.	Excluded by Requester				Associate	Institutional Base	EFFORT			0.00	0.00	0.00
					Director Primate	Salary						
					Services							
Total Funds Requested for all Senior Key Persons in the attached file												
Additional Senior Key Persons: File Name:											Total Senior/Key Person	0.00

B. Other Personnel

Number of	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
Personnel*							
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
1	Technical Support	6.0			67,590.00	35,147.00	102,737.00
1	Total Number Other Personnel					Total Other Personnel	102,737.00
Total Salary, Wages and Fringe Benefits (A+B)							102,737.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		18,000.00
2. Publication Costs		0.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		18,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	120,737.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	27,407.00
Total Indirect Costs			27,407.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	148,144.00

J. Fee	Funds Requested (\$)*
	148,144.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Genetics Management Services

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The primary goal of Primate Services is to ensure the highest quality animal care and husbandry for the California National Primate Research Center (CNPRC) nonhuman primate colonies. Primate Services encompasses Colony Management and Research Services, the National Institute on Aging Colony, Primate Medicine Services, Anatomic and Clinical Pathology Services, Behavior Management Services, and Genetics Management Services. Animal care and research service is provided by a highly trained staff of veterinarians, Core Scientists, technicians, and administrators to meet the needs of the animals as well as investigators using the CNPRC resource. Genetic Management Services is a critical component of the Primate Services Unit as it ensures colony genetic health without compromising overall production goals. Genetic management strategies are aimed at preserving maximum variability among colony animals by integrating several fundamental population genetic approaches. As few aspects of biomedical science are more important than the genetic background of the research model, retaining genetic variability within the NHP colonies and characterizing this variability at the colony level are principal goals of captive genetic management of NHPs.

Specific goals of the CNPRC Genetic Management Services include: (1) Genetic management of the animal colonies at the CNPRC, (2) Provide genetic resources to investigators, and (3) Manage the CNPRC DNA Bank and (4) Participate in the National Primate Research Centers (NPRC) Consortium. The service has identified several thousands of high quality Single-Nucleotide Polymorphism (SNP) markers in rhesus (*Macaca mulatta*) and long-tailed (*M. fascicularis*) macaques from which it has developed SNP panels for genetic managements as well as ancestry testing. The CNPRC's DNA Bank, which is part of the National Nonhuman Primate DNA Bank network in the NPRC Consortium, serves as a repository for all biological samples including DNA from CNPRC colony animals. With approximately 30,000, bio-material samples, the DNA bank is one of the largest archives of biological specimens for NHP research in the US. . The DNA bank continues to collect blood and tissue samples from all necropsies as well as CNPRC newborns (~500 individuals per year).

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Genetics Managment Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

Excluded by Requester

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

We will continue to work with the Genetics and Genomics Consortium to transition to the SNP platform. We are also continuing to work with the Phenotype Mining and New Model Development Working Group to identify new animal models of heritable disease.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

In collaboration with the NIH NHP Genetics and Genomics Consortium, we have performed a series of integrated analyses across several NPRCs to test, evaluate and validate the transfer of the existing SNP assay for pedigree testing in macaques from the discontinued Illumina testing platform to the new robust Fluidigm testing platform. Preliminary results show that the transition to the SNP Fluidigm assay has been successful. Cross center validation tests are currently underway to ensure that the parentage resolutions based on the new panel are accurate, reliable and reproducible. The transfer of the rhesus macaque ancestry SNP assay from the Illumina to Fluidigm platforms is being validated by the CNPRC. In conjunction with the other NPRCs, we plan to complete across-NPRC comparisons and evaluations of the Fluidigm SNP assay for rhesus macaque parentage and ancestry testing. This will include comparing the performance of SNPs and STRs for ancestry and parentage determination.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Other-8358

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Excluded by Requester					Genetics Manager	Institutional Base Salary	EFFORT			11,700.00	351.00	12,051.00
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons:		File Name:								Total Senior/Key Person		12,051.00	

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*	
	Post Doctoral Associates							
	Graduate Students							
	Undergraduate Students							
	Secretarial/Clerical							
1	Technical Support	6.0			35,999.00	18,719.00	54,718.00	
1	Total Number Other Personnel					Total Other Personnel		54,718.00
Total Salary, Wages and Fringe Benefits (A+B)							66,769.00	

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		10,500.00
2. Publication Costs		1,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		11,500.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	78,269.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	17,767.00
Total Indirect Costs			17,767.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	96,036.00

J. Fee	Funds Requested (\$)*
	96,036.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: NPRC Consortium Activities

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The mission of the National Primate Research Center (NPRC) Consortium is to strengthen communications, leverage system-wide resources, and facilitate sharing of information and best practices. Established in part to address NIH directives for increased collaboration, the NPRC Consortium Working Groups, comprised of experts from major disciplines within each NPRC, collaborate to apply their combined expertise to priority issues, and to challenges identified within their respective domains. The Specific Aims for the NPRC Consortium are to: (1) Provide increased support for nonhuman primate research through the NPRC Director leadership and prioritization of Working Group goals and tasks, (2) Creation of ad hoc Working Groups to drive specific improvements in nonhuman primate expertise and services, and (3) Continued support for sharing of information and best practices to mentor and train NPRC members throughout the Consortium and inform external stakeholders as appropriate.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Consortium Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Consortium training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

The annual Working Group progress reports highlight the results of the education forums in terms of reach and topics. The reports are forwarded to the NPRC Directors and ORIP/DCM.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

NPRC Consortium – Plans for the upcoming grant year (5/1/17 - 4/30/18)

Behavioral Management Consortium (BMC) – Establish a webinar series for external BM professionals, Pilot test the Behavioral Inhibition/Anxiety screening tool, Strengthen collaboration with the BCMC, Develop a BMC section on the NPRCresearch.org website containing common tools & methods, Participate in the 2017 NHP Management webinar, Continue collaborative BMC activities.

Breeding Colony Management Consortium (BCMC) – Organize a 2017 NHP Management webinar, Initiate the 4th proficiency testing round for SPF diagnostic labs, Restart the Colony Health Benchmarks (CHB) project, Serve as a lead organization for development of a National NHP plan, Enhance the existing population modeling tools, rollout to additional NPRCs (collaboration with CMRG), Continue the SRV subgroup, Conduct a 2017 Face-to-Face (F2F) meeting with the BMC.

Clinical And Surgical Techniques Working Group (CAST) - Continue the monthly CAST webinars, Expand participation to include a minimum of 3 additional external institutions, Implement an online CAST discussion forum for communication outside of the monthly webinars.

Computational Methods and Resources Group (CMRG) – Reassess and restart the data acquisition and reporting portions of the CHB project, Support the population modeling tool implementation at the YNPRC, Deploy an enhanced procedure-monitoring application at the TNPRC, Promote adoption of CMRG tools at other NPRC locations, Develop a workflow intervention prototype.

Genetics and Genomics Working Group (GGWG) – Train the colony management staff on the use of the ONPRC genetics metrics software, Convene a GGWG F2F meeting, possibly a joint session with the BMC and/or BCMC, Complete the evaluations of the Fluidigm SNP assay, Provide data files and GGWG documents for the secure Genetics Portal, Develop a GGWG section on NPRCresearch.org, Review the National NHP DNA Bank for updating and/or expansion, Pursue discussions concerning genotyping-by-sequencing, and marker-based methods for calculating population and pedigree statistics.

Integrity/Compliance Group - Continue quarterly web conferences to address priority I/C issues.

Occupational Health and Safety (OHS) - Develop a document describing common TB testing and immunization requirements for NIH site visitors, Work to reconvene the B-virus working group to update the 2002 recommendations, conduct a F2F meeting to address common priority topics.

Outreach Working Group (OWG) – Represent the NPRCs at outreach events including the 2017 SfN conference and other conferences TBD, Produce new outreach materials reflecting the new NPRC branding and messaging, conduct an Outreach F2F meeting to share

methods and information, and address common priority topics, Continue to provide materials for the NPRCresearch.org website.

Pathology Working Group (PWG) – Continue the Virtual Slide Conferences, Continue expansion of the Primate Pathology Image Database (PPID), Expand the PPID user base through promotion within professional organizations, Continue engagement of the PPID user base through regular email communications, Complete data collection for the LVH screening at necropsy project, Support the rollout and expansion of the Biomaterials Query System (BQS).

Phenotype Mining and New Model Development (PMNMD) – Continue with monthly PMNMD meetings and subgroup meetings as needed, to review progress and advance goals, Continue to pursue the three current pilot phenotypes; Behavioral Inhibition/Anxiety, Left Ventricular Hypertrophy (LVH), and SIV Elite Controllers, focusing on cross center data collection and analysis.

Project Management and Informatics Group (PMIG) - Continue providing meeting coordination and support for all working groups, Continue providing informatics development and support to the BMC, BCMC, GGWG, PWG and CMRG, Enhance and expand the NPRCresearch.org website, Expand the BQS with content from other NPRCs, provide access to all centers and vetted external users, Provide survey support for all working groups, Support the Consortium website/data-sharing infrastructure.

Training Consortium - Continue the monthly Virtual Grand Rounds webinars, Expand participation to include a minimum of 3 additional external institutions.

Zika Working Group (ZWG) – Continue the monthly ZWG web conferences, maintaining the center-by-center update format, Convene a ZWG face-to-face meeting to enable more extensive discussions about how the NHP models compare to human disease, Develop methods for sharing samples.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?**NPRC Consortium - Past Year's Accomplishments – 010617**

Behavioral Management Consortium (BMC) – Completed a book chapter outlining 7 common tools developed by the BMC, Co-authored 6 publications, 4 workshops, Expanded collaboration with the BCMC to synchronize goals, Presented at an NHP Management webinar to 60+ external participants.

Breeding Colony Management Consortium (BCMC) – Continued progress on a number of collaborative projects with the BMC, GGWG, and CMRG, Conducted a 4-hour NHP Management webinar addressing topics in behavioral management, husbandry, and SPF management, Developed 4 surveys to analyze information related to best practices from member institutions, including Zika surveillance of breeding colonies, maximizing breeding colony production, nursery rearing practices, and regulatory inspections, Conducted a joint meeting with the BMC to improve interaction and communication, and to synchronize goals and activities.

Clinical And Surgical Techniques Working Group (CAST) - Provided monthly webinars attended by multiple representatives from each of the NPRCs and 15 external institutions, added 5 this year.

Computational Methods and Resources Group (CMRG) – Developed a population modeling tool in use at 2 centers, with a 3rd underway, Implemented upgrades in post-approval monitoring tools, increased efforts to extend tools to additional NPRCs, 2 presentations accepted at AALAS 2016.

Genetics and Genomics Working Group (GGWG) – Expanded interactions with the BCMC regarding best practices for genetic management of research colonies, Evaluated and validated transfer of the existing SNP assay for pedigree testing to the new Fluidigm platform, Made presentations to the BCMC explaining the rationale for the Fluidigm SNP assay, Provided an overview of ONPRC genetics metrics software for calculation and monitoring of genetics metrics, planned for rollout of the software to each NPRC, Directed the PMNMD genetics-related activities.

Integrity/Compliance Working Group (I/C) - Conducted 2 web conferences to discuss relevant topics such as protocol audits and incident prevention, and specificity of pre-approved SOPs.

Occupational Health and Safety (OHS) – Drafted a request to reconvene the B-virus working group, Conducted bimonthly web-sessions and an in-person meeting to address priority topics.

Outreach Working Group (OWG) – Represented the NPRCs at 2 national events, Educated the public, students and scientists about the use of NHPs, Reached more 40,208 people through onsite visits, offsite talks, community science events, classroom visits and social media, Shared materials.

Pathology Working Group (PWG) – Conducted 10 Virtual Slide Conferences, Increased engagement of Primate Pathology Image Database (PPID) users through monthly emails, Increased the number of registered PPID users to 427 (60% increase), includes 107 external institutions, Began data collection for the PMNMD - LVH screening project, Continued expansion of PPID content.

Phenotype Mining and New Model Development (PMNMD) – Pursued 3 pilot phenotypes, Behavioral Inhibition/Anxiety, Left Ventricular Hypertrophy (LVH), and SIV Elite Controllers, Conducted monthly full group meetings and subgroup sessions as needed to advance goals.

Project Management and Informatics Group (PMIG) - Provided meeting coordination and support for 12 Consortium working groups, At the request of the NPRC Directors, established the new Zika working group, Provided informatics development and support for the BMC, BCMC, GGWG, PWG and CMRG (numerous applications), Expanded and enhanced the NPRCresearch.org website (now includes 3384 NPRC publications), Developed a Biomaterials Query System with the TNPRC to provide access to 16,653 NEPRC archival samples, Conducted 8 web-based surveys supporting multiple groups, Maintained the secure Consortium website and data-sharing infrastructure.

Training Consortium - Provided monthly webinars attended by multiple representatives from each of the NPRCs and 14 external organizations, total of approximately 90 attendees per session.

Zika Working Group (ZWG) – Established bi-weekly web conference sessions to enable NPRC Zika researchers to review developments and share information pertinent to Zika research, Discussed topics such as approaches to data sharing, biohazard concerns, technology transfer, virus stocks, species used, and animal supply, Transitioned to a monthly format of 5-7 minute center updates.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

The Consortium includes three Working Group education forums, i.e., Pathology - Virtual Slide Conferences, Training - Virtual Grand Rounds, and the Clinical and Surgical Techniques web conferences. These monthly sessions are important channels to share expertise and best practices across the NPRCs and with the external nonhuman primate research community. Over 20 external institutions participate in one or more of the Consortium's education forums.

Seeing that these are informal sessions conducted via web conference, the exact number and classification of the participants is unknown.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Other-8359

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Excluded by Requester					Associate Director of Operations and Administration	Institutional Base Salary	EFFORT			0.00	0.00	0.00
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons:			File Name:			Total Senior/Key Person					0.00		

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
0	Total Number Other Personnel					Total Other Personnel	0.00
Total Salary, Wages and Fringe Benefits (A+B)							0.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	10,380.00
2. Foreign Travel Costs	0.00
Total Travel Cost	10,380.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		2,000.00
2. Publication Costs		0.00
3. Consultant Services		454,730.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		456,730.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	467,110.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	106,034.00
Total Indirect Costs			106,034.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	573,144.00

J. Fee	Funds Requested (\$)*
	573,144.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Outreach Program

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The California National Primate Research Center (CNPRC) is focused on advancing community awareness on the scientific achievements that the monkey model has contributed to the understanding of human health and disease using three primary Outreach sources: a broad portfolio of communications, the Education Outreach Program, and the National Primate Research Center (NPRC) Consortium. The goals of these efforts are to build on the well established communication programs currently in place, enhance the accessibility of information, raise awareness about the value of CNPRC scientific achievements, and to educate trainees, investigators, and the public about the importance of nonhuman primate research through the following Specific Aims: (1) Advance awareness of CNPRC scientific contributions through effective communications to the media and lay community, (2) Ensure that investigators at the local, regional, and national levels have ready access to CNPRC nonhuman primate expertise and resources, and (3) Efficiently communicate information to the next generation of translational nonhuman primate investigators on the spectrum of research and training opportunities at the CNPRC.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Outreach Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

NOTHING TO REPORT

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

NOTHING TO REPORT

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The Outreach efforts at the CNPRC will continue to increase. Our onsite and offsite outreach efforts will increase as well as our outreach to industry partners. The goal is to increase visibility of the California National Primate Research Center with academic settings but also industry settings as well.

To achieve this goal, CNPRC's Public Information Officer will develop a robust social media presence, increase production of videos for promotional and outreach purposes, develop a Word Press- based intranet site to improve internal communication, continue to offer tours of the center to stakeholders, and implement various technologies to continue to promote the vision of the CNPRC.

The CNPRC's social media sites include Facebook, Twitter and YouTube. For the next base grant period, the CNPRC plans to open up Instagram, Snap Chat and Pinterest sites to further expand its social media presence and stay relevant in an age of constantly changing technology. The PIO plans to host Facebook live streams, Facebook 360, Twitter vines, Google hangouts and various other emerging platforms to promote the work of the Center.

Video is a great way of telling a story, and a major goal of the unit is to produce videos to promote the Center. Convergence plays a major role in the video strategy of the unit as the PIO will need to collaborate with researchers, scientists, veterinarians, animal care staff, campus officials and many other individuals to produce the content for the videos. The goal is to produce at least one video a month that highlights the work being done at the CNPRC.

Another major goal of the Public Information Unit is to develop a Word Press-based intranet site to replace the previous intranet site. In doing so, the unit will better be equipped to inform the staff of news and events that pertain to the Center. In order to achieve this, the PIO will need to collaborate with many types of staff and faculty at the Center and on campus to fill the site with its content.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

The CNPRC engaged in a variety of Outreach efforts, here is a sampling of the various types of activities:

- From May 2016 to April 2017, the center published 12 news releases and disseminated them to the media, which generated hundreds of articles in regional and national publications covering everything from our work on Zika virus to the Role of NHPs in Scientific and Medical Research.
- In June 2016, the center began dramatically growing its social media audience on Facebook, Twitter and Youtube by posting more frequently, providing fresh content on both its website and social media channels such as Youtube videos, and engaging audiences in a manner not previously done before the arrival of the center's new PIO, Carlos Villatoro.
- In October 2016, CNPRC launched a podcast titled "Monkey Talk." The format of the podcast includes guest interviews in featuring CNPRC scientists, researchers, affiliates and many other center-related personnel. CNPRC will use its podcast to promote the work of the center to the scientific community and to give lay audiences an understanding of the type of projects we do at CNPRC.
- From May 2016 to April 2017, CNPRC averaged four tours a month of the center.

A sampling of the groups that toured the center include:

- Tour groups included Vet Aide Club at UC Davis (Students on campus who are interested in Vet Med but have not yet chosen this as a major)
- Folsom Lake College Anthropology Class
- Sunburst Summer Camp (camp for high schoolers living with HIV)
- UC Davis students who are studying vet med
- Media members (Sacramento Bee, Fox 40, Davis Enterprise)
- Members of California State Assembly (Bill Dodd)
- UC Davis Office of Research
- Visiting Scientists from as far away as Germany
- UC Davis Medical Center admins
- Primatology Club at UC Davis
- Calico (Google-funded biomedical research group)

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Other-8360

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Excluded by Requester					Associate Director of Operations and Administration	Institutional Base Salary	EFFORT			0.00	0.00	0.00
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons:		File Name:								Total Senior/Key Person		0.00	

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
2	Undergraduate Students	6.0			10,440.00	2,402.00	12,842.00
	Secretarial/Clerical						
1	Technical Support	6.0			33,814.00	17,313.00	51,127.00
3	Total Number Other Personnel					Total Other Personnel	63,969.00
Total Salary, Wages and Fringe Benefits (A+B)							63,969.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		5,500.00
2. Publication Costs		6,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		11,500.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	75,469.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	17,131.00
Total Indirect Costs			17,131.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	92,600.00

J. Fee	Funds Requested (\$)*
	92,600.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Neuroscience and Behavior Research Unit

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS

B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?

The Neuroscience and Behavior Research Unit (formerly the Brain, Mind, and Behavior Research Unit) specializes in research on sociality, temperament, and development, with a true lifespan approach – utilizing measures from prenatal life to aged animals, including multiple time points in many studies. Increasingly, research is translational in nature with the development of many new primate models of human psychiatric disease and a focus on interventions. Research by Core Scientists includes foci on developmental models for psychiatric disease, individual differences throughout the lifespan, and social network analysis. These research agendas contribute to the training of a large number of undergraduates, graduate students, postdoctoral trainees, visiting students, and visiting scientists of many different levels. Core Scientists participate in multiple graduate programs, outreach, and summer programs for undergraduates. Unit Core Scientists also contribute significant service to the California National Primate Research Center (CNPRC) through administrative positions and committee memberships, facilitate significant research programs by external investigators, and ensure the Unit is a truly national resource. These investigators include large, well-funded groups working in behavioral neuroscience with aged monkeys, and those working in spinal cord regeneration. Core Scientists also facilitate investigators interested in the study of field cage monkeys, and those interested in working with the titi monkey colony. Pilot projects are facilitated which have been successful in attracting larger extramural funds and developing new investigators. Other contributions to colony management include enhancement of the animal colonies through evidence-based behavioral research. In summary, the Neuroscience and Behavior Research Unit pursues research excellence and serves as a national resource while contributing to primatological training and enhancement of animal resources at the CNPRC.

Specific Aim 1. Advance the CNPRC resource through scientific contributions directed at understanding normal and abnormal function, and at developing interventions to remediate abnormal function, at the levels of brain, mind, and behavior (both individual and social behavior).

Plan. In pursuit of this Specific Aim, we will conduct mechanistic and interventional studies using the nonhuman primate as a laboratory animal model for human neural systems, psychopathologies, and behavioral abnormalities; contribute towards the understanding of lifespan health by investigating the role of chronologic age in the structure and function of brain, mind, and behavior; develop nonhuman primate models of neurological and psychiatric disorders such as autism and schizophrenia with the goal of more rapidly advancing therapeutic interventions for human patients; continue to explore the role of brain, mind, and behavior on other physiological systems within the organism; and advance next generation technologies for molecular modification of the functioning primate brain.

Specific Aim 2. Contribute unique expertise and service towards utilization of the CNPRC resources at both regional and national levels.

Plan. The Unit will provide technological and collaborative expertise for the investigation of structure and function of brain, mind, and behavior through collaborations and support of affiliate research; through development of methodologies using the nonhuman primate as a laboratory animal model; and through serving as a biological specimen repository for catalogued nonhuman primate samples (behavioral and tissue) obtained through NIH funded studies in brain, mind, and behavior.

Specific Aim 3. Train and mentor the next generation of nonhuman primate scientists in research focusing on the brain, mind, and behavior.

Plan. The Unit will provide training and mentoring opportunities for undergraduates, graduate students, postdoctoral fellows, visiting students, and junior investigators through a variety of opportunities. These include involvement of students receiving research credit in cutting-edge research on brain, mind, and behavior including social network theory, biobehavioral assessments, and work with the outdoor rhesus and titi monkey colonies. We will also continue a formal internship program with Brigham Young University students as well as opportunities for visiting students and scientists.

Specific Aim 4. Enhancement of CNPRC colony resources.

Plan. The Unit will provide expertise on rhesus and titi monkey behavior and physiology to enhance their well-being, behavioral management, and continued colony success. Core Scientists will continue to enhance the CNPRC rhesus monkey colony resource by obtaining and making available new data on naturally occurring variation in social roles in a marker of inflammation.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Neuroscience Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Neuroscience training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

In addition to the usual scientific outlets, involving publications in peer-reviewed journals, book chapters, and presentations at scientific meetings (these lists appear elsewhere in this progress report), NB Unit Core and on-site Affiliate Scientists have made numerous

contributions to broader dissemination of our own scientific research in general, as well as the value of animals (and particularly nonhuman primates) in research in particular.

-- Several Core and Affiliate scientists are regular contributors to the Education Outreach program run by staff at CNPRC. Activities involve giving brief talks about the research conducted at CNPRC, one-on-one conversations between students and scientists, and tours of the facility.

-- [Excluded by Requester] which frequently covers studies conducted with nonhuman primates.

-- [Excluded by] was Chair of the Committee on Animal Research Ethics (CARE) of the American Psychological Association. This committee has been influential in bringing the message of the importance of animal research to Congress, via congressional visits (including a visit with Congressman [Excluded by] during 2016), as well as by serving in a coordinating capacity with multiple professional societies to draft letters of support for primate researchers that have been attacked in the past year by animal rights extremists.

-- A video and a podcast are currently being created by [Excluded by Requester] in conjunction with CNPRC's Public Information Officer, to promote the titi monkey colony.

-- [Excluded by] organized the Undergraduate Research Day events for the Psychology department and several of the NB Unit graduate students gave talks during it.

-- Multiple press releases for important papers published by Unit scientists were made. These include the first nonhuman primate paper (from [Excluded by] laboratory) that utilized a new technology called Designer Receptors Exclusively Activated by Designer Drugs (DREADDs) to temporarily inactivate the amygdala.

-- Multiple stories were written for CNPRC's website and Facebook page featuring research conducted in the Unit. See <http://www.cnprc.ucdavis.edu/our-science/neuroscience-and-behavior>.

-- [Excluded by] wrote an article for the Psychology Student Network newsletter on the topic of animal research in Psychology. This newsletter is published by the American Psychological Association, and reaches approximately 7000 high school and undergraduate Psychology students. He will also hold a workshop at the Terman Teaching Conference in April, 2017, on the same topic.

-- [Excluded by] graduate student [Student] participated in a podcast, a youtube video, and an article about monkey mating ~~season/mating~~ networks for dissemination to the general public. She is also one of the content editors of the animal behavior graduate group's blog 'The Ethogram' which posts articles about animal behavior research for a general audience.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The Core and Affiliate scientists in the Unit will continue to conduct their own research programs, foster collaborations with outside scientists, contribute to the CNPRC resources, and train individuals at all levels in research with nonhuman primates. In particular, the two newly hired Core Scientists ([Excluded by Requester]) will expand the research programs, collaborative opportunities, and training potential of the Unit.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

Accomplishments:

Research in the Neuroscience and Behavior Research Unit focuses on questions pertaining to sociality, temperament, development, and central and peripheral nervous system function, with a true lifespan approach – measuring these phenomena from the prenatal period into old age. The following accomplishments were made during the current funding period:

-- Core Scientists in the Unit continued to maintain active and internationally-recognized research programs in the areas of social behavior, temperament, neuroscience, and health, as evidenced by the acquisition of multiple new funded grants and a lengthy publication list (both of which are listed elsewhere in this progress report);

-- A successful search for new faculty in the Psychology Department resulted in the hiring of Excluded by Requester Excluded by Requester both of whom were appointed as Core Scientists in the Unit;

-- Collaborative relationships continued to be developed via grant proposals that include NB Core scientists with others (other CNPRC scientists, and scientists at other institutions nationwide, including Stanford, University of Chicago, UC-San Francisco, and Notre Dame), as well as via CNPRC pilot program proposals;

-- Core and Affiliate scientists in the Unit made significant contributions to the goals of colony management via important publications a) on the role of temperament in social pairing success; b) demonstrating that relocation with a pair-mate can buffer the adverse behavioral and immune effects of relocation from outdoor to indoor housing; c) showing that experience of a matrileal overthrow and subsequent relocation as a fetus has different biobehavioral consequences depending on whether the events occur during the first or second trimester; d) suggesting that gestational environment (indoors or outdoors) can impact rates of diarrhea; e) demonstrating that monkeys that are more reactive to humans were more difficult to chair-train; f) reviewing the literature on the effects of social pairing and un-pairing on biomedical research outcomes; g) demonstrating that human management events affect rates of aggression; and h) showing that *certainty* about one's rank is as important as rank itself on health status in our colony animals.

-- Novel models developed in the BMB Unit were developed and further elaborated:

-- A model of Zika virus infection in rhesus monkeys, to better understand the neurological consequences, was developed in conjunction with scientists in the Infectious Disease Unit;

-- A completed project in collaboration with an affiliate scientist in the Respiratory Diseases Unit confirmed the role played by inhibited temperament in the airways response, and is leading to better understanding of glucocorticoid and immune contributions to this respiratory phenotype;

-- A new model was developed indicating that social information processing, assessed in infancy, predicts, with 100% accuracy, which animals will become low- versus high-sociable years later.

-- Unit scientists contributed substantial service to the CNPRC, including managing the titi monkey colony; serving on the search committee that ultimately resulted in the hiring of Excluded by Requester Excluded by Requester serving on a search committee for a new Neurology hire; serving on the Center's Academic Personnel Committee; serving on the search committee for the new manager of Population and Behavioral Health Services; serving as the CNPRC representatives on NPRC-wide consortium committees and workgroups focused on Zika virus and Phenotype Mining.

-- Unit scientists continued to be involved in training activities at all levels, including undergraduate, graduate, and postdoctoral levels, as described below.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

Scientists in the Neuroscience and Behavior Unit continue to perform substantial service in training the next generation of primate researchers.

-- Faculty in the Unit are members of the following graduate groups: Animal Behavior; Psychology; Ecology; Anthropology; Animal Biology; Neuroscience; Graduate Group of Preventive Veterinary Medicine.

-- [Excluded by Requester] are participants in the annual Primate Behavioral Management Conference, held at the MD Anderson Cancer Center in Bastrop, TX. This conference focuses on science-based information that can be used to improve the captive management of nonhuman primates, and attendees are from primate facilities around the world.

-- Training was provided at multiple levels:

-- One visiting scientist, [Excluded by Requester] from University of South Wales, Australia, resided in the Unit during the current review period;

-- A total of 8 postdoctoral students were trained in the Unit, including [Excluded by Requester]
[Excluded by Requester]

-- A total of 9 graduate students received training by Unit faculty: [Student Names]
[Student Names]
[Student Names] In addition, seven international graduate students conducted research within the Unit: [Student Names]
[Student Names]

-- [Excluded by Requester] obtained a Diversity Supplement to a grant to provide post-baccalaureate training for [Student Names]

-- A total of 41 undergraduates obtained research experience at CNPRC. This number includes the 8 undergraduates from Brigham Young University from Summer, 2016, who are part of the NB Unit-sponsored undergraduate summer internship program. This program, administered by [Excluded by Requester] at BYU, is in its sixth year, and has resulted in numerous presentations at professional meetings by the students, as well as several participants being admitted to graduate school.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Category	Explanation
Models	United States Patent Application Pub. No.: US 2016/0264629 A1, published 9.15.2016. Inventors were Charles Chiu, Eunice Chen, Nicholas Lerche, and Karen Bales. This is titled "Novel adenovirus isolated from titi monkeys", and is described as follows: Provided is a Titi Monkey Adenovirus (TMAdV) that can infect both human and non-human primates. Further provided are nucleic acid sequences, proteins, expression vectors and host cells, anti-TMAdV antibodies, vaccines, compositions, methods of detecting TMAdV, methods for assaying for antiTMAdV compounds, and methods for treating or preventing a TMAdV infection.
Models	The McCowan Lab continues to develop, refine and share models for assessing social group stability with numerous managers of captive nonhuman primates (these models include Percolation and Conductance [software available], Joint Modeling, Data Cloud Geometry and Data Mechanics). We have developed protocols for efficacious management of large groups of macaques which we have shared with CNPRC and other primate facilities through book chapters, workshops and conference presentations and proceedings.

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Project-8361

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Unit Leader, Core Scientist	Institutional Base Salary				34,112.00	17,738.00	51,850.00
2.					Core Scientist					18,510.00	3,702.00	22,212.00
3.					Core Scientist					15,456.00	5,873.00	21,329.00
4.					Core Scientist					9,151.00	3,477.00	12,628.00
5.					Core Scientist					8,759.00	3,328.00	12,087.00
6.					Core Scientist					0.00	0.00	0.00
7.					Core Scientist					16,656.00	6,329.00	22,985.00

Total Funds Requested for all Senior Key Persons in the attached file

Additional Senior Key Persons:

File Name:

Total Senior/Key Person

143,091.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
1	Secretarial/Clerical	3.15			20,000.00	10,000.00	30,000.00
1	Total Number Other Personnel					Total Other Personnel	30,000.00
						Total Salary, Wages and Fringe Benefits (A+B)	173,091.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		3,500.00
2. Publication Costs		7,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		10,500.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	183,591.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	41,675.00
Total Indirect Costs			41,675.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	225,266.00

J. Fee	Funds Requested (\$)*
	225,266.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Infectious Diseases Research Unit

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The mission of the Infectious Diseases Research Unit is to develop nonhuman primate models for investigating host-pathogen interactions and thereby build a foundation for intervening against a wide range of infectious diseases. The Research Unit is composed of six Core scientists drawn from the Schools of Medicine and Veterinary Medicine who maintain a high level of extramural grant funding for nonhuman primate research and conduct studies on a broad range of infectious pathogens, including bacteria and viruses causing acute or chronic/persistent infections. The Unit is well-integrated into the prominent theme of comparative medicine at UC Davis, and each of its members maintain robust extramural collaborations on projects involving infectious disease research in macaques. Basic and translational research efforts in the Infectious Diseases Research Unit focus on mechanisms of infectious agent transmission and pathogenesis, protective immunity and vaccinology, and testing and development of therapeutic approaches. The Infectious Diseases Research Unit is leading investigations on the role of the host microbiome in health and disease in nonhuman primates. In addition, members of the Unit directly contribute to the major theme of lifespan health at the California National Primate Research Center through studies spanning fetal to aged rhesus macaques. Outcomes of such studies will aid in understanding mechanisms of inflammatory diseases and promote the development of novel countermeasures that maintain and/or restore healthy immune function throughout life.

Specific Aim 1: Advance the CNPRC resource through scientific contributions to understanding host-pathogen interactions and treatment of infectious diseases across the age spectrum.

Plan. The ID Unit will advance the CNPRC resource through scientific contributions towards the understanding of host-pathogen interactions and treatment of infectious diseases. Accordingly, Unit members fulfill several functions: (1) conduct mechanistic and interventional studies using the nonhuman primate as a laboratory animal model for infectious diseases, (2) contribute towards the understanding of lifespan health by investigating immune ontogeny and aging, particularly in relation to host responses to pathogen infection, the role of persistent infections on immune function, and age-related changes in vaccine responses, and (3) provide scientific expertise to advance the development of novel rhesus macaque microbiome resources.

Specific Aim 2: Provide nonhuman primate expertise and services to investigators at the regional and national levels to advance NIH-supported research excellence.

Plan. The ID Unit provides unique expertise and service towards enhancement of the CNPRC resources, as related to infectious diseases, at both a regional and national level. This includes development of methodologies and reagents using the nonhuman primate as a laboratory animal model.

Specific Aim 3: Mentor and train the next generation of translational nonhuman primate investigators.

Plan. A central mission is to mentor and train new investigators at all career stages in the development of expertise in primatology, the design and study of nonhuman primate models of human health and disease, team science, and the conduct of multidisciplinary translational investigations.

Specific Aim 4. Ensure the highest standards of research and animal care for the CNPRC resource.

Plan. ID Unit Core Scientists will continue to play an active role in maintaining the health of CNPRC colony animals through participation in the Colony Management Committee, Infection Control Committee, and other key infrastructure and administrative functions related to immunology and infectious diseases.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Infectious Diseases Research Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Infectious Diseases Research training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

ID Unit members publish their nonhuman primate research studies in peer-reviewed, open access scientific journals.

In addition ID Unit members and their laboratory personnel give oral and poster presentations at national scientific conferences.

The CNPRC, UC Davis was the host for the 33rd Annual Symposium on Nonhuman Primate Models for AIDS. The Symposium, sponsored by NIH, was held on October 14-16, 2015, Monterey, California and provided an outstanding venue for sharing, presenting and exchanging the most recent advances in AIDS research utilizing nonhuman primate models of AIDS. Researchers from national and international academic institutions and private industry presented new findings in AIDS research based primarily on studies in nonhuman primates. The symposium provided forums for discussions between clinicians and researchers on best utilization of nonhuman primate models of HIV infection and pathogenesis to enhance translation of prevention, treatment, and cure findings to HIV patients.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

1. Microbiome studies: The impact of altered gut microbiota and subclinical latent viral infections on host immune response to SIV vaccines will continue to be examined in SPF and non-SPF macaques.
2. Gut inflammation during early SIV infection: This study will examine signaling pathways of gut inflammation that may support early viral infection and dissemination in the gut mucosa using the SIV model.
3. Stem cell therapy for repair of the inflamed gut during chronic SIV infection: The capacity of MSCs to facilitate gut mucosal renewal during chronic inflammatory diseases of infectious etiology has not been well explored. The potential of MSC for enhancing mucosal tissue repair/renewal in SIV-induced chronic inflammatory disease will be explored.
4. HIV Cure research: A new project will test the use monoclonal antibodies to dramatically reduce the lifespan of CD4+ T cells in ART-treated infant rhesus macaques so that the size of the SIV reservoir is reduced and functional cure is facilitated. Additional HIV cure studies in the macaque model of SIV/SHIV infection will test novel latency reversing agents based on protein kinase C agonist compounds that have been shown to activate latent virus in cell culture models.
5. In vivo distribution of antiretroviral drugs: The tissue penetration of antiretroviral drugs will be studied in SHIV infected macaques. The novel mass spectrometry imaging (MSI) method is being used in conjunction with conventional biochemical analysis. By differentiating and quantifying drug exposure within and across compartments, the MSI approach can provide key information to evaluate drug penetration into putative viral reservoir tissues and guide selection of optimal therapy.
6. HIV vaccine research in the SIV macaque model: In the HIV vaccine STEP trial of an Ad5 vectored HIV vaccine, more people receiving the vaccine than the placebo became HIV-infected. Studies in the SIV macaque model will determine how this occurred. These new studies will determine whether increased virus acquisition occurs in animals getting the same vaccine. Understanding how a vaccine increased HIV infections will allow us to avoid testing a potentially harmful HIV vaccine in people.
7. Viral immunomodulation: This project will directly evaluate whether manipulation of IL-10 signaling pathways can be used as a vaccine adjuvant to shape vaccine-mediated immune outcomes, and to therapeutically alter the virus-host balance in a persistently infected animal such that there are significant reductions in viral parameters of persistence. Additional studies will be conducted to assess age-related changes in vaccine-mediated immunity to determine whether age-related declines in vaccine efficacy are due to inherent changes within the host, such as thymic involution, and/or whether changes in the microbiome due to persistent RhCMV conspire with an aging immune system to result in less potent vaccine responses. Additional studies are planned to further optimize the genetic backbone for RhCMV-based vaccine vectors that could form the basis for HCMV-based vaccines in humans. Finally, the power of the rhesus macaque model will be used to critically evaluate the efficacy of antibody therapies currently in clinical trials to prevent congenital infection with human CMV.
8. Helicobacter pylori infection: New studies will be performed to assess T4SS function in newborn macaques experimentally inoculated with H. pylori. At approximately 6 mos of age, when endoscopy first becomes technically possible, we will re-biopsy the infants and assess colonization density and T4SS function of the output strains.
9. Viral infection and genital inflammation: Previous studies at CNPRC have shown that HSV-2 infection of rhesus macaques models many of the key features of HSV-2 infection women; thus, this animal model will be useful to understand how HSV-2 increases HIV acquisition. Ongoing studies will determine the extent to which HSV-2 induced genital inflammation increases susceptibility to SIV infection and shortens the time period from infection to peak virus levels in blood which would directly affect the ability of vaccine-induced immune responses to prevent HIV transmission. Strategies will be developed to test combined antimicrobial therapy and topical anti-inflammatory agents to reduce the effect of HSV-2 induced genital inflammation on transmission. HSV-2 infection is associated with a much higher risk of acquiring HIV infection, for half of new HIV infections. We have now shown that HSV-2 infection of rhesus macaques models many of the key features of HSV-2 infection women, and this animal model will be useful to understand how HSV-2 increases HIV acquisition.

B.2. Accomplishments

Microbiome and SIV pathogenesis: Using the SIV/rhesus infection model of AIDS pathogenesis, ID Unit scientists found a robust increase in pattern recognition receptors (PRRs) and inflammatory cytokine gene expression during acute infection in both peripheral blood and gut mucosa, coinciding with viral replication. PRR expression remained elevated in peripheral blood following the transition to chronic SIV infection. In contrast, massive dampening of PRR expression was detected in the gut mucosa, despite the presence of detectable viral loads. Early antiretroviral therapy led to viral suppression but only partial maintenance of gut PRRs and cytokine gene expression. These findings show that SIV infection dampens mucosal innate immunity through PRR dysregulation and may promote immune activation, gut microbiota changes, and ineffective viral clearance.

Microbiome and vaccine responses: The nonhuman primate model is being used to interrogate the role of the microbiome in modulating vaccine-mediated responses. A unique resource at the CNPRC for these studies are the level-2 specific pathogen free (SPF) and conventionally raised (non-SPF) rhesus macaques. Preliminary data indicate that SPF and non-SPF macaques show profoundly distinct gut microbial communities that correlate with phenotypically and functionally diverse T and B cell subsets. Immunization of SPF and non-SPF animals with an influenza virus vaccine elicited diverse vaccine responses. Additional studies that gut microbiota associated with subclinical viral infections typical to many human populations (such as CMV) may impact the magnitude and diversity of the immune responses to vaccines

Helicobacter pylori infection: In experimental infection of adult macaques with *H. pylori*, the type 4 secretion system (TFSS) is down regulated by recombination in CagY, one of the essential proteins for *H. pylori* TFSS. Yet in chronically infected macaques, the TFSS is active. Since loss of TFSS function is immune driven, it may be retained in naturally infected monkeys because they are typically colonized in the first few months of life when the immune system is relatively tolerant. To test this hypothesis, two adult macaques were infected with *H. pylori* J166, and measured for colonization (CFU/g) and TFSS function, indicated by the capacity of output strains to induce IL-8 in vitro in gastric epithelial cells. TFSS function decreased among output colonies in both monkeys, but more so in 42845 than in 42677. Notably, monkey 42845 also showed progressively increased colonization, while colonization decreased in monkey 42677. This observation is consistent with the known effect of the T4SS to stimulate Th1 immunity, with subsequent reduction of bacterial load.

Nutritional effects on the developing immune system: In studies at CNPRC, the diet was shown to profoundly shape the non-human primate immune system. Breast-fed and bottle-fed infant macaques develop markedly different immune systems, which remain different 6 months after weaning when the animals begin receiving identical diets. This work was extended beyond the first year and into juvenile life. Juveniles breast-fed in infancy maintained immunologic differences into the fifth year of life, principally in CD8+ memory T cell activation. Additionally, long-term correlation

networks showed that breast-fed animals maintained persistent relationships between immune subsets that are not detected in formula-fed animals. These findings showed that infant feeding practices have continued influence on immunity for up to 3 to 5 y after birth and also revealed potential mechanisms for microbial modulation of immune system development.

Anti-latency therapy for HIV and AIDS: HIV-1 in humans persists within long-lived cellular reservoirs despite treatment with highly active antiretroviral therapy. Novel pharmacologic approaches for inducing (reactivating) virus from latent cell reservoirs are being tested in the SHIV/macaque model. The pharmacokinetics and pharmacodynamics of latency reversing agents (LRAs) were determined. This includes the histone deacetylase drug panobinostat.

In vivo distribution of antiretroviral drugs: Methods to accurately evaluate antiretroviral drug distribution within tissues are needed to design effective eradication strategies for treating HIV infection and AIDS. The spatial distribution of emtricitabine (FTC), tenofovir (TFV), and raltegravir (RAL) have been characterized within the upper and lower intestine (ileum and colorectum) and differences have been evaluated between accumulations of these drugs in animal models for HIV infection using mass spectrometry imaging (MSI). Iliac and colorectal tissue was obtained at necropsy from uninfected rhesus macaques treated with these antiretroviral drugs. All drugs were observed to penetrate macaque intestinal tissues. Relative to plasma, tissue concentrations were higher and heterogeneous drug exposure was observed by MSI. This study is the first to map the biodistribution of multiple antiretroviral drugs across intestinal tissue from animal models.

Transmission of SIV: A reliable model of penile HIV transmission was recently developed using SIV inoculation of mature male rhesus macaques to recapitulates the key virologic and epidemiologic features of HIV transmission in men. The virus dissemination pathway follows the same lymphatic route to systemic circulation as metastatic penile tumor cells. Thus SIV spreads from the penis to draining lymph nodes and then to regional lymph nodes. After the SIV is amplified in the T cell rich environment of these lymph nodes, virus disseminates through the pelvic, abdominal and thoracic lymphatic vessels to the blood stream and, from there, to all lymphoid tissues. Additional studies investigated the outcomes in rhesus macaques following penile inoculation of SIVmac251 with or without non-neutralizing, polyclonal anti-SIV IgG given directly with the virus inoculum so as to form immune complexes. SIV particles coated with non-neutralizing antibodies are less efficiently transmitted by penile inoculation than are uncoated virions, suggesting that non-neutralizing IgG in the infected partner, or elicited by vaccination in the uninfected partner, can reduce transmission.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?**B.4. Training**

ID Unit investigators mentor and train graduate students, post-doctoral fellows, and undergraduate students. Each mentor meets on a regular basis with each trainee to discuss project goals and research progress.

Postdoctoral fellow	13
Graduate student	8
Undergraduate student	9
Other	4
Total	34

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Unit Leader, Core Scientist	Institutional Base Salary	EFFORT			27,527.00	5,505.00	33,032.00
2.					Core Scientist					18,510.00	3,702.00	22,212.00
3.					Core Scientist					18,510.00	3,702.00	22,212.00
4.					Core Scientist					8,745.00	1,749.00	10,494.00
5.					Core Scientist					18,510.00	7,034.00	25,544.00
6.					Core Scientist					18,510.00	3,702.00	22,212.00
7.					Core Scientist					11,979.00	4,552.00	16,531.00

Total Funds Requested for all Senior Key Persons in the attached file

Additional Senior Key Persons: File Name: Total Senior/Key Person **152,237.00**

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
1	Technical Support	3.0			20,000.00	10,000.00	30,000.00
1	Total Number Other Personnel					Total Other Personnel	30,000.00
Total Salary, Wages and Fringe Benefits (A+B)							182,237.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	4,000.00
2. Foreign Travel Costs	0.00
Total Travel Cost	4,000.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		4,000.00
2. Publication Costs		4,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		8,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	194,237.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	44,092.00
Total Indirect Costs			44,092.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	238,329.00

J. Fee	Funds Requested (\$)*
	238,329.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Reproductive Sciences and Regenerative Medicine Research Unit

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

Core Scientists in the Reproductive Sciences and Regenerative Medicine Research Unit contribute to the California National Primate Research Center (CNPRC) mission through research projects supported by the NIH and other extramural sources (~\$41.5 million) and by data-sharing through peer-reviewed publications (~110); by contributing expertise to the reproductive management of the CNPRC colonies; through a range of services to the greater research community (e.g., CNPRC Cores, consultations, NIH-supported Centers and outreach programs); and by mentoring and training undergraduate and graduate students, postdoctoral/clinical fellows, and faculty at all levels. Unit Core Scientists have an outstanding track record in the formation of multidisciplinary partnerships and teams as evident by grants, publications, and integration with UC Davis NIH-supported Centers including the Clinical and Translational Science Center (CTSC), West Coast Metabolomics Center, and Comprehensive Cancer Center; the UC Davis Stem Cell Program, Institute for Regenerative Cures, and Good Manufacturing Practices (GMP) Facility; the Radiochemistry Research and Training Facility; and the Center for Health and the Environment. Unit Core Scientists are committed to conducting translational research with nonhuman primates, and mentoring the next generation of investigators with expertise in primatology and the use of the monkey as a model for human health and disease. Unit Core Scientists will continue to bring their unique expertise and strong track record to collaborative multidisciplinary partnerships and teams in gamete biology and reproductive toxicology, regenerative medicine and gene therapy, the application of in vivo imaging tools and technologies for translational research, and the conduct of preclinical and investigational new drug (IND)-enabling studies for clinical translation. The depth and breadth of expertise of the Unit Core Scientists contributes substantially to the CNPRC mission, enhances the resource, and ensures that investigators nationwide can conduct state-of-the-art research with nonhuman primates at the highest quality level.

SPECIFIC AIMS

Specific Aim 1. Advance the CNPRC resource through scientific achievements and research excellence in reproduction and development, regenerative medicine, gene therapy, and in vivo imaging.

Specific Aim 2. Contribute unique expertise and services to enhance the nonhuman primate resource at the local, regional, and national levels.

Specific Aim 3. Mentor and train the next generation of translational nonhuman primate investigators.

Specific Aim 4. Promote high standards of research and animal care.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 RSRM Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 RSRM training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

Through established websites (e.g., Primate Center, Clinical and Translational Science Center, and UC Davis Office of Research campus cores websites), meetings with individuals and groups, faculty meetings, special symposia and conferences.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

A priority is Precision Health with a focus on the prenatal onset of disease, early life genomics, regenerative medicine/gene therapy, environmental exposures and healthy aging, and translational in vivo imaging; developing and validating precision primate models of human disease; recruiting and grooming new faculty that complement the program; and designing new biomarkers and tools. Core Scientists will continue to build and sustain partnerships and multidisciplinary collaborative opportunities, and in response to NIH strategic priorities. Examples include:

- Investigations that contribute to the understanding of the underpinnings of health and chronic disease (e.g., maternal/placental/fetal interface, environmental exposures, redefining the concept of estrogen deficiency in mid-aged women, demonstrating the role of LH in dementia), and using new biomarkers, diagnostic tools, and cell populations across age groups.
- Investigations that focus on overcoming roadblocks to human clinical trials.
- Further growth of translational imaging to complement the program including quantitative imaging science.
- Ensure that trainees at all career stages obtain expertise and mentoring in the design, development, and study of nonhuman primate models of human disease; team science; and the conduct of multidisciplinary translational investigations and partnerships.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

Core Scientists in the Reproductive Sciences and Regenerative Medicine Unit contribute to the CNPRC mission through NIH-supported research programs and peer-reviewed publications; services to the greater research community in CNPRC Cores, NIH-supported Centers, and outreach programs; by enhancing the nonhuman primate resource with new assay and model development, innovative *in vivo* imaging paradigms, and participating in the management of the reproductive colony; and by mentoring the next generation of investigators in the use of the monkey as a model for human health and disease. Unit Core Scientists have outstanding track records in the formation of multidisciplinary partnerships and teams as evident by grants, publications, and leadership positions in UC Davis Centers and programs. These include the NIH-supported Clinical and Translational Science Center (CTSC), West Coast Metabolomics Center (WCMC), and Comprehensive Cancer Center; the UC Davis Stem Cell Program, Institute for Regenerative Cures, and Good Manufacturing Practices (GMP) Facility; the Center for Molecular and Genomic Imaging (CMGI) and Radiochemistry Research and Training Facility; and the Center for Health and the Environment. Unit Core Scientists bring their unique expertise and strong track record to collaborative multidisciplinary partnerships and teams in gamete biology and reproductive toxicology; regenerative medicine, stem cell transplantation, tissue engineering, and gene therapy; lifespan health—from the earliest developmental stages to aging populations; *in vivo* imaging tools, technologies, and protocols for translational multidisciplinary research; and the conduct of pre-clinical and investigational new drug (IND)-enabling studies for clinical translation. The depth and breadth of expertise, accomplishments, and services of the Core Scientists contributes substantially to the CNPRC mission, significantly enhances the resource, and ensures that investigators nationwide can conduct innovative state-of-the-art investigations with nonhuman primates at the highest quality level.

Some examples include:

- Studies in nonhuman primates that addressed environmental exposure to endocrine-disrupting chemicals and effects of binge alcohol consumption, the effects of Bisphenol A on metabolism with a particular emphasis on the ovary, and personal care products (e.g., trichlorcarban), as well as pre-conception exposure to dietary sugar.
- Investigations included research activities within the NIH Studies of Women's Health Across the Nation (SWAN), which led to a new theory involving the rise of adrenal steroids in most women during the menopausal transition. Unit members and collaborators have demonstrated the utility of the nonhuman primate model in aging studies by investigating extra-gonadal luteinizing hormone (LH) receptors in the adrenal cortex.
- The fetal proof-of-concept model has been utilized for a range of applications including assessing the role of tolerance, safety of new vaccines, and genetic treatments for congenital and acquired diseases. Prenatal transplant of human cells has established xenograft models for testing stem/progenitor cells in the rhesus host and new *in vivo* imaging protocols.
- New NIH-funded research on Zika virus leverages established developmental expertise and long-standing collaborative partnerships focused on congenital cytomegalovirus (CMV) infection, neuroteratogenesis, and immune ontogeny.

- The NHLBI Center for Fetal Monkey Gene Transfer for Heart, Lung, and Blood Diseases, established in 2001, continues to serve as a unique resource that addresses essential questions in gene delivery and provides NHLBI-funded investigators collaborative opportunities to test new vector constructs that advance the field. Preclinical studies have addressed long-term safety (up to ~15 years post-fetal gene delivery) with lentiviral and adeno-associated virus (AAV) vectors, and have led to new clinical trials (e.g., Pompe disease).
- Essential in the translation of cell-based therapies to the clinics is establishing safety, and nonhuman primates provide the essential bridge between rodents and human clinical trials. Tissue engineering strategies have included a focus on obstructive renal disease, and new partnerships on tracheal replacements for airway stenosis that meet FDA requirements for human use. New patented biodegradable scaffolds for 3D organoid culture have further expanded the *in vitro* design and *in vivo* testing of regenerative strategies tailored to age and disease status. Innovative cell labeling and tracking techniques have been developed and applied to assess cell fate and transplant outcomes.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

Many trainees have participated in research conducted in the unit, from undergraduate and graduate students to postdoctoral and clinical fellows, and junior faculty. In addition, technical staff have been trained.

Many studies conducted in the Unit include a range of trainees (undergraduate to graduate and medical students and postdoctoral fellows) through research rotations.

In addition, junior faculty members and others such as clinical residents and fellows participate in projects funded by other sources within the Unit.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS

G.4.a Does the project involve human subjects?

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

--

RPPR - Project-8363

RESEARCH & RELATED BUDGET - SECTION A & B **FINAL**

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Excluded by Requester					Unit Leader, Core Scientist	Institutional Base Salary	EFFORT			37,020.00	7,404.00	44,424.00
2.						Core Scientist					18,510.00	5,923.00	24,433.00
3.						Core Scientist					8,745.00	1,749.00	10,494.00
4.						Core Scientist, Emeritus					0.00	0.00	0.00
5.						Core Scientist, Emeritus					0.00	0.00	0.00
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons:			File Name:			Total Senior/Key Person						79,351.00	

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
2	Technical Support	2.37			13,000.00	7,040.00	20,040.00
2	Total Number Other Personnel					Total Other Personnel	20,040.00
Total Salary, Wages and Fringe Benefits (A+B)							99,391.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs	Funds Requested (\$)*
1. Materials and Supplies	3,000.00
2. Publication Costs	6,000.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	0.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
Total Other Direct Costs	9,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	108,391.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	24,605.00
Total Indirect Costs			24,605.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	132,996.00

J. Fee	Funds Requested (\$)*
	132,996.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Respiratory Diseases Research Unit

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The mission of the Respiratory Diseases Research Unit is to define the cellular and molecular mechanisms for diseases of the respiratory system as a foundation to develop therapeutic strategies. Core and Affiliate Scientists within the Research Unit utilize the nonhuman primate as an important translational animal model for understanding the pathogenesis of respiratory diseases that affect humans. Research programs within the Research Unit are multidisciplinary and synergistic, integrating the fields of inhalation toxicology, mucosal immunology, and neurophysiology in a comprehensive fashion to address critical scientific problems in pulmonary medicine. Moreover, each Unit Core Scientist serves as a resource to the California National Primate Research Center (CNPRC) by contributing unique expertise towards service cores and management. Major scientific focus areas within the Unit are to characterize the development of the respiratory system during early life, to understand the pathways by which lung development is regulated, and to investigate the long-term health impacts of environmental exposures. Unit Core and Affiliate Scientists have a long history of collaborative investigations on air pollution using rodent and nonhuman primate models to extrapolate the health effects of exposures on the human lung across the lifespan. A significant accomplishment during this funding period has been the construction of a new Respiratory Diseases Center at the CNPRC, with dedicated laboratory space for pulmonary research and a state-of-the-art Inhalation Exposure Facility. Completion of the proposed Specific Aims in this P51 renewal will strengthen the Respiratory Diseases Unit as a CNPRC resource by expanding research in emerging areas such as infectious disease, by increasing opportunities for investigators to conduct translational studies in a comparative fashion, and by mentoring junior investigators to develop into future nonhuman primate respiratory scientists.

Specific Aim 1. Advance the California National Primate Research Center (CNPRC) resource through state-of-the art research that contributes towards understanding and treatment of respiratory disorders across the age spectrum.

Plan. Core Scientists will conduct mechanistic and interventional studies in a multidisciplinary collaborative environment using the nonhuman primate as a translational animal model for human respiratory disease. The CNPRC resource will be utilized by investigating the impact of chronologic age on respiratory immunity, lung structure, and airway physiology in the context of lifespan health. In coordination with other CNPRC Scientific Research Units and Affiliate Scientists, the Unit will assemble investigative teams poised to respond to large-scale integrative strategic initiatives.

Specific Aim 2. Contribute unique expertise and service towards enhancement of the CNPRC resource at both a regional and national level.

Plan. Core Scientists will promote the CNPRC resource by serving as experts in the field of nonhuman primate respiratory disease and facilitating research conducted by external investigators. Recent construction of the Respiratory Diseases Center on-site will provide expanded inhalation exposure capabilities and opportunities for investigation of human respiratory disease using the nonhuman primate as a laboratory animal model. The Unit will continue to serve as a specialized biological specimen repository for catalogued nonhuman primate samples obtained through NIH funded studies in respiratory disorders such as asthma.

Specific Aim 3. Train and mentor the next generation of nonhuman primate scientists in respiratory diseases.

Plan. Core Scientists will support the development of new nonhuman primate investigators who will direct the future of the CNPRC resource. Training will emphasize nonhuman primate models of human respiratory disease and graduate/postdoctoral trainees will be recruited from ongoing campus fellowship programs and nationally. We will also use the CNPRC Pilot Research Program to encourage junior faculty to address translational research questions in respiratory disease using the nonhuman primate models developed by Core and Affiliate Scientists.

Specific Aim 4. Ensure the highest standards of responsible conduct of research and animal care for the CNPRC resource.

Plan. Respiratory Diseases Research Unit Core Scientists will play an active role in maintaining the health of CNPRC colony animals through key leadership positions in service cores and management. From a clinical perspective, Core Scientists will work directly with Primate Services to share specialized expertise in human lung-related procedures and respiratory conditions.

B.1.a Have the major goals changed since the initial competing award or previous report?

No

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Respiratory Diseases Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Respiratory Diseases training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

Results of the Respiratory Diseases Unit are disseminated to communities of interest using the following strategies:

Publications. A primary strategy by which findings from the RDU are disseminated to the broad scientific community as well as the general public is via publication in peer-reviewed journals.

Speaking Engagements. An additional strategy used by the RDU to disseminate information is to present findings in the form of brief oral presentations at national meetings as well as invited seminars. RDU Core Scientists have been actively engaged in this area, with numerous invited presentations as well as report of findings through poster sessions at national meetings.

Media. The RDU utilizes the CNPRC web page to highlight various research activities as well as participate on national committees that provide oversight on air quality.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

During the next reporting period, the Respiratory Diseases Unit will continue to make progress toward our original specific aims:

Specific Aim 1. Advance the California National Primate Research Center (CNPRC) resource through state-of-the art research that contributes towards understanding and treatment of respiratory disorders across the age spectrum.

In the next funding year, we will continue to seek out new funding initiatives and generate research publications using the nonhuman primate as the laboratory model of choice for respiratory diseases.

Specific Aim 2. Contribute unique expertise and service towards enhancement of the CNPRC resource at both a regional and national level.

In the next funding year, we will continue to support respiratory research projects conducted by CNPRC Core and Affiliate Scientists, as well as other external investigators including Pilot Program participants.

Specific Aim 3. Train and mentor the next generation of nonhuman primate scientists in respiratory diseases.

In the next funding year, we will continue to conduct outreach efforts to increase our local and national visibility, with the goal of recruiting new junior investigators in the use of nonhuman primates as the laboratory model of choice for respiratory diseases.

Specific Aim 4. Ensure the highest standards of responsible conduct of research and animal care for the CNPRC resource.

In the next funding year, we will continue to provide our expertise and support toward the CNPRC resource by service on colony management committees and leadership roles.

Specific Aim 1. Advance the California National Primate Research Center (CNPRC) resource through state-of-the art research that contributes towards understanding and treatment of respiratory disorders across the age spectrum. Core Scientists have conducted mechanistic and interventional studies in a multidisciplinary collaborative environment using the nonhuman primate as a translational animal model for human respiratory disease. The CNPRC resource has been utilized to investigate the impact of chronologic age on respiratory immunity, lung structure, and airway physiology in the context of lifespan health. In coordination with other CNPRC Scientific Research Units and Affiliate Scientists, the Unit has assembled investigative teams poised to respond to large scale integrative strategic initiatives.

Specific Aim 2. Contribute unique expertise and service towards enhancement of the CNPRC resource at both a regional and national level.

Core Scientists have promoted the CNPRC resource by serving as experts in the field of nonhuman primate respiratory disease and facilitating research conducted by external investigators. Recent construction of the Respiratory Diseases Center on-site has provided expanded inhalation exposure capabilities and opportunities for investigation of human respiratory disease using the nonhuman primate as a laboratory animal model. The Unit will continue to serve as a specialized biological specimen repository for catalogued nonhuman primate samples obtained through NIH funded studies in respiratory disorders such as asthma.

Specific Aim 3. Train and mentor the next generation of nonhuman primate scientists in respiratory diseases. Core Scientists have supported the development of new nonhuman primate investigators who will direct the future of the CNPRC resource. Training has emphasized nonhuman primate models of human respiratory disease and graduate/postdoctoral trainees have been recruited from ongoing campus fellowship programs and nationally. We have also used the CNPRC Pilot Research Program to encourage junior faculty to address translational research questions in respiratory disease using the nonhuman primate models developed by Core and Affiliate Scientists.

Specific Aim 4. Ensure the highest standards of responsible conduct of research and animal care for the CNPRC resource. Respiratory Diseases Research Unit Core Scientists have played an active role in maintaining the health of CNPRC colony animals through key leadership positions in service cores and management. From a clinical perspective, Core Scientists have worked directly with Primate Services to share specialized expertise in human lung-related procedures and respiratory conditions.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

Postdoctoral Fellows and Graduate Students on the UC Davis Campus can take advantage of multiple career development opportunities, including an NIH supported FUTURE program which encourages career exploration for biomedical graduate students and postdoctoral scholars. In addition, there are campus wide symposia specifically targeted for postdoctoral fellows, graduate students and undergraduates; all RDU trainees are encouraged to attend. RDU Postdoctoral Fellows and Graduate Students attend national scientific meetings such as the American Thoracic Society and participate in a T32 training grant program for Lung Biology as well as the annual UC Davis Lung Research Day.

Trainees of the Respiratory Diseases Unit include the following:

Type of trainee	Number of trainees
Postdoctoral Fellow	2
Graduate Student	6
Undergraduate Student	5
Other Type (1)/post-baccalaureate	2
Other Type (2)	
Total	15

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

NOTHING TO REPORT

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES

F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS
Not Applicable
G.2 RESPONSIBLE CONDUCT OF RESEARCH
Not Applicable
G.3 MENTOR'S REPORT OR SPONSOR COMMENTS
Not Applicable
G.4 HUMAN SUBJECTS
G.4.a Does the project involve human subjects?
No
G.4.b Inclusion Enrollment Data
Not Applicable
G.4.c ClinicalTrials.gov
Not Applicable
G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT
Not Applicable
G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)
Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?
No
G.7 VERTEBRATE ANIMALS
Not Applicable
G.8 PROJECT/PERFORMANCE SITES
Not Applicable
G.9 FOREIGN COMPONENT
Not Applicable
G.10 ESTIMATED UNOBLIGATED BALANCE
Not Applicable
G.11 PROGRAM INCOME
Not Applicable
G.12 F&A COSTS
Not Applicable

--

RPPR - Project-8364

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*
1.	Excluded by Requester				Unit Leader	Institutional Base Salary	EFFORT			31,090.00	11,814.00	42,904.00
2.					Core Scientist					18,510.00	2,036.00	20,546.00
3.					Core Scientist					16,905.00	6,424.00	23,329.00

Total Funds Requested for all Senior Key Persons in the attached file

Additional Senior Key Persons:

File Name:

Total Senior/Key Person

86,779.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
1	Secretarial/Clerical	3.15			13,000.00	7,000.00	20,000.00
1	Total Number Other Personnel					Total Other Personnel	20,000.00
					Total Salary, Wages and Fringe Benefits (A+B)		106,779.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		3,000.00
2. Publication Costs		6,000.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		9,000.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	115,779.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	26,282.00
Total Indirect Costs			26,282.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	142,061.00

J. Fee	Funds Requested (\$)*
	142,061.00

K. Budget Justification*	File Name:
	(Only attach one file.)

RESEARCH & RELATED Budget {F-K} (Funds Requested)

A. COMPONENT COVER PAGE

Project Title: Flow Cytometry Core

Component Project Lead Information:

Excluded by Requester

B. COMPONENT ACCOMPLISHMENTS**B.1 WHAT ARE THE MAJOR GOALS OF THE PROJECT?**

The Flow Cytometry Core (FCC) was established in November 2015 in order to maintain critical instruments under heavy use, to allow planning for the future, and to achieve our goals for training and improvement of the CNPRC resource. Most of the decisions taken in these months therefore constitute recent changes in approach. One important addition to the Core is a Faculty Advisory Board, which provides feedback on FCC effectiveness.

The Cytometry Core provides instrumentation, expertise, and assistance in experiments involving multiparameter flow cytometry. The goal of the FCC is to provide world-class support for cytometry experiments conducted by investigators and trainees at the California National Primate Research Center (CNPRC). The FCC was newly established in November 2015 to consolidate flow cytometry instruments formerly housed in other CNPRC cores and provide faculty leadership for future acquisition of additional capacity. Cytometric analysis of samples from non-human primates (NHPs) requires detailed working knowledge of NHP cell surface phenotypes, which often differ slightly from their human counterparts, and familiarity with cross-reactive antibody clones. The FCC also supports the colony through use of its instruments in assays offered by the Clinical Laboratory, including routine four-color analysis of circulating lymphocytes. One dedicated Core Scientist and two staff are responsible for instrument support, administrative support, day-to-day operational management, preventive and routine maintenance, and quality assurance/quality control (QA/QC). In addition, the FCC is supported by a Faculty Advisory Board (FAB), which provides feedback on Core service quality and assists in planning for future instrument acquisition.

The primary goal of the Flow Cytometry Core eliminates the need for investigators to purchase costly equipment and pay for staff needed to maintain that equipment, providing efficiency and economy of scale. Furthermore, information gathered in the FCC is commonly combined with other high-content data-sets (microbiome, metabolomics, or genomic data) to support convergent analysis that maximizes scientific information obtained from colony animals.

B.1.a Have the major goals changed since the initial competing award or previous report?

Yes

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

File uploaded: B2 Overview Accomplishments.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

File uploaded: B4 Cytometry training opportunities.pdf

B.5 HOW HAVE THE RESULTS BEEN DISSEMINATED TO COMMUNITIES OF INTEREST?

The Core's results are disseminated on its web page (part of the CNPRC web site). In addition, the Core's users disseminate their results via publications and as preliminary data in grant applications.

B.6 WHAT DO YOU PLAN TO DO DURING THE NEXT REPORTING PERIOD TO ACCOMPLISH THE GOALS?

The FCC will stimulate new approaches for research and facilitates interactions among researchers using cytometry and single cell genomics techniques. Most importantly, in the next base grant period we wish to offer new instrumentation (e.g., Beckman Cytoflex) and techniques (e.g., digital droplet PCR). In addition we plan to expand our operator-assisted capacity for sorting single cells for use in single-cell genomics approaches.

B.2 WHAT WAS ACCOMPLISHED UNDER THESE GOALS?

The Core was very recently established. However, in previous years and under auspices of the CNPRC Clinical Laboratory, the three cytometers provided ~225 hours per month of service to CNPRC and CCM investigators. Our Fortessa machine in particular is in nearly constant use, averaging 140 hours per month.

Flow cytometry was used by neuroscience and translational research to look at GFP expression in stem cells used for neuro surgery and stem cell transplants. It was also used in support of spinal cord injury research: individual cell populations were sorted to assess RNA changes over the course of recovery from the initial injury and stem cell graft. Flow cytometry has also been used in support of behavioral research. Multicolor flow panels were researched and developed to look at key activation markers on lymphocytes found in the peripheral blood and bone marrow in response to stress and loneliness. Numerous multicolor panels were researched and developed to track activation of lymphocytes in response to infectious disease research including SIV, CMV, Adenovirus, and influenza.

B.4 WHAT OPPORTUNITIES FOR TRAINING AND PROFESSIONAL DEVELOPMENT HAS THE PROJECT PROVIDED?

Cytometry is a core competency for all immunologists and infectious disease specialists. Development of graduate students, postdoctoral fellows, and junior faculty in these areas requires training in flow cytometry and use of the instruments.

The Core trains all new users in instrument use and data analysis. In addition, we consult on grant applications including mentored awards, a key step in professional development.

C. COMPONENT PRODUCTS

C.1 PUBLICATIONS

Not Applicable

C.2 WEBSITE(S) OR OTHER INTERNET SITE(S)

Not Applicable

C.3 TECHNOLOGIES OR TECHNIQUES

Nothing to report

C.4 INVENTIONS, PATENT APPLICATIONS, AND/OR LICENSES

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Nothing to report

D. COMPONENT PARTICIPANTS

Not Applicable

E. COMPONENT IMPACT**E.1 WHAT IS THE IMPACT ON THE DEVELOPMENT OF HUMAN RESOURCES?**

Not Applicable

E.2 WHAT IS THE IMPACT ON PHYSICAL, INSTITUTIONAL, OR INFORMATION RESOURCES THAT FORM INFRASTRUCTURE?

Not Applicable

E.3 WHAT IS THE IMPACT ON TECHNOLOGY TRANSFER?

Cytometry is a core competency for all immunologists and infectious disease specialists. Development of graduate students, postdoctoral fellows, and junior faculty in these areas requires training in flow cytometry and use of the instruments. The FCC maintains instruments that form a key part of the CNPRC infrastructure. Data from FCC instruments may be used by investigators seeking to protect their new technology.

E.4 WHAT DOLLAR AMOUNT OF THE AWARD'S BUDGET IS BEING SPENT IN FOREIGN COUNTRY(IES)?

Not Applicable

F. COMPONENT CHANGES**F.1 CHANGES IN APPROACH AND REASONS FOR CHANGE**

Not Applicable

F.2 ACTUAL OR ANTICIPATED CHALLENGES OR DELAYS AND ACTIONS OR PLANS TO RESOLVE THEM

NOTHING TO REPORT

F.3 SIGNIFICANT CHANGES TO HUMAN SUBJECTS, VERTEBRATE ANIMALS, BIOHAZARDS, AND/OR SELECT AGENTS**F.3.a Human Subjects**

No Change

F.3.b Vertebrate Animals

No Change

F.3.c Biohazards

No Change

F.3.d Select Agents

No Change

G. COMPONENT SPECIAL REPORTING REQUIREMENTS

G.1 SPECIAL NOTICE OF AWARD TERMS AND FUNDING OPPORTUNITIES ANNOUNCEMENT REPORTING REQUIREMENTS

Not Applicable

G.2 RESPONSIBLE CONDUCT OF RESEARCH

Not Applicable

G.3 MENTOR'S REPORT OR SPONSOR COMMENTS

Not Applicable

G.4 HUMAN SUBJECTS**G.4.a Does the project involve human subjects?**

No

G.4.b Inclusion Enrollment Data

Not Applicable

G.4.c ClinicalTrials.gov

Not Applicable

G.5 HUMAN SUBJECTS EDUCATION REQUIREMENT

Not Applicable

G.6 HUMAN EMBRYONIC STEM CELLS (HESCS)

Does this project involve human embryonic stem cells (only hESC lines listed as approved in the NIH Registry may be used in NIH funded research)?

No

G.7 VERTEBRATE ANIMALS

Not Applicable

G.8 PROJECT/PERFORMANCE SITES

Not Applicable

G.9 FOREIGN COMPONENT

Not Applicable

G.10 ESTIMATED UNOBLIGATED BALANCE

Not Applicable

G.11 PROGRAM INCOME

Not Applicable

G.12 F&A COSTS

Not Applicable

RPPR - Core-6916

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

A. Senior/Key Person

Prefix	First Name*	Middle Name	Last Name*	Suffix	Project Role*	Base Salary (\$)	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits (\$)*	Funds Requested (\$)*	
1.	Excluded by Requester					Core Scientist	Institutional Base Salary	EFFORT			17,489.00	3,498.00	20,987.00
Total Funds Requested for all Senior Key Persons in the attached file													
Additional Senior Key Persons:			File Name:									Total Senior/Key Person	20,987.00

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary (\$)*	Fringe Benefits*	Funds Requested (\$)*
	Post Doctoral Associates						
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
1	Technical Support	3.6			12,600.00	6,552.00	19,152.00
1	Total Number Other Personnel					Total Other Personnel	19,152.00
Total Salary, Wages and Fringe Benefits (A+B)							40,139.00

RESEARCH & RELATED Budget {A-B} (Funds Requested)

RESEARCH & RELATED BUDGET - SECTION C, D, & E

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

C. Equipment Description

List items and dollar amount for each item exceeding \$5,000

Equipment Item	Funds Requested (\$)*
Total funds requested for all equipment listed in the attached file	0.00
Total Equipment	0.00
Additional Equipment: File Name:	

D. Travel

Funds Requested (\$)*

1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	0.00
2. Foreign Travel Costs	0.00
Total Travel Cost	0.00

E. Participant/Trainee Support Costs

Funds Requested (\$)*

1. Tuition/Fees/Health Insurance	0.00
2. Stipends	0.00
3. Travel	0.00
4. Subsistence	0.00
5. Other:	
0 Number of Participants/Trainees	Total Participant Trainee Support Costs
	0.00

RESEARCH & RELATED Budget (C-E) (Funds Requested)

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 047120084

Budget Type*: ☒ Project ☐ Subaward/Consortium

Enter name of Organization: UNIVERSITY OF CALIFORNIA AT DAVIS

Start Date*: 05-01-2017

End Date*: 04-30-2018

F. Other Direct Costs		Funds Requested (\$)*
1. Materials and Supplies		0.00
2. Publication Costs		0.00
3. Consultant Services		0.00
4. ADP/Computer Services		0.00
5. Subawards/Consortium/Contractual Costs		0.00
6. Equipment or Facility Rental/User Fees		0.00
7. Alterations and Renovations		0.00
Total Other Direct Costs		0.00

G. Direct Costs	Funds Requested (\$)*
Total Direct Costs (A thru F)	40,139.00

H. Indirect Costs			
Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)*
1. MTDC Primate Center Rate	22.7	0.00	9,112.00
Total Indirect Costs			9,112.00
Cognizant Federal Agency			
(Agency Name, POC Name, and POC Phone Number)			

I. Total Direct and Indirect Costs	Funds Requested (\$)*
Total Direct and Indirect Institutional Costs (G + H)	49,251.00

J. Fee	Funds Requested (\$)*
	49,251.00

K. Budget Justification*	File Name: H.(K). Flow Cytometry Budget Justification.pdf (Only attach one file.)
--------------------------	--

RESEARCH & RELATED Budget {F-K} (Funds Requested)

FLOW CYTOMETRY CORE

BUDGET JUSTIFICATION

All funds requested in the Core are for developmental and administrative activities only. Services provided to users are fully charged to those activities based upon approved rates.

PERSONNEL

Flow Cytometry Core						
			Percent FTE devoted to CNPRC base functions			
			Source of funding			
Name and Degree		Title and Role in NPRC	P51 Base Grant	Program Income	Other Sources	Total
			% Effort			
Excluded by Requester	MD, PhD*	Core Scientist, Assistant Professor of Microbiology and Im				
TBN		Staff Research Associate	30%	70%	0%	100%

Names with asterisks indicate an individual who receive P51 funds from more than one component.

TBN = to be named

Excluded by Requester **MD, PhD, Core Scientist and Lead** (EFFORT) % Effort Excluded by Requester
 Excluded by is Assistant Professor in the Department of Medical Microbiology and Immunology, School of Medicine. He is an expert in immune responses to agents of chronic infection, including SIV, HIV, and HCV, especially on encounter with the developing immune system. As Core Leader, Excluded by Requester will be responsible for the overall direction of the Core and for coordination of all activities. He will provide oversight of day-to-day work in the Core, chairing the Faculty Advisory Board, setting user policies, directing developmental activities, interfacing with clients, overseeing staff, and reviewing data before release.

Vacant, Staff Research Associate (Technician) (3.6 calendar months – 30%). This individual will provide technical and other support for the FCC, including weekly instrument maintenance, service calls under our maintenance contract, purchasing supplies, user training, billing, and attendance at Faculty Advisory Board meetings.

FACILITIES AND ADMINISTRATIVE COSTS (INDIRECT COSTS)

Indirect Costs are budgeted in accordance with the UC Davis rate agreement dated August 19, 2013 at 22.7%, which is the negotiated rate for the CNPRC Base Grant. Per the UC Davis' rate agreement, this indirect cost rate is applied on a Modified Total Direct Cost basis, which includes all salaries and wages, fringe benefits, materials and supplies, services, travel, and the first \$25,000 of each sub-grant and subcontract. Excluded from the modified total direct costs are equipment; capital expenditures; charges for tuition remission; rental costs; scholarships and fellowships; as well as the portion of each sub-grant and subcontract in excess of \$25,000.