PRIMATE RESEARCH CENTER GRANT
Department of Health and Human Services
National Institutes of Health

Federal Award Date: 09/18/2019

OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH

Grant Number: 5P51OD011133-21 REVISED
FAIN: P51OD011133

Principal Investigator(s):
Larry S. Schlesinger, MD

Project Title: The Southwest National Primate Research Center - Overall

JONATHAN SCUDDER
Texas Biomedical Research Institute
8715 W Military Dr.
San Antonio, TX 78227

Award e-mailed to: grants@txbiomed.org

Period Of Performance:
Budget Period: 05/01/2019 – 04/30/2020
Project Period: 06/06/1999 – 04/30/2021

Dear Business Official:

The National Institutes of Health hereby revises this award (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to TEXAS BIOMEDICAL RESEARCH INSTITUTE 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 P51OD011133. 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,

Gavin Wilkom
Grants Management Officer
OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH

Additional information follows

SECTION I – AWARD DATA – 5P51OD011133-21 REVISED

Award Calculation (U.S. Dollars)

Salaries and Wages	$2,381,004
Fringe Benefits	$709,539
Personnel Costs (Subtotal)	$3,090,543
Materials & Supplies	$312,796
Travel	$18,293
Alterations and Renovations	$133,990
Other	$742,080
Subawards/Consortium/Contractual Costs	$310,683
Federal Direct Costs	$4,608,385
Federal F&A Costs	$3,330,970
Approved Budget	$7,939,355
Total Amount of Federal Funds Obligated (Federal Share)	$7,939,355
TOTAL FEDERAL AWARD AMOUNT	$7,939,355
AMOUNT OF THIS ACTION (FEDERAL SHARE)	$0

SUMMARY TOTAL FEDERAL AWARD AMOUNT YEAR (21)	
GRANT NUMBER	**TOTAL FEDERAL AWARD AMOUNT**
5P51OD011133-21	$7,939,355
3P51OD011133-21S2	$423,597
3P51OD011133-21S3	$499,999
3P51OD011133-21S1	$499,998
TOTAL	**$9,362,949**

SUMMARY TOTALS FOR ALL YEARS		
YR	**THIS AWARD**	**CUMULATIVE TOTALS**
21	$7,939,355	$9,362,949
22	$7,939,355	$7,939,355

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

Fiscal Information:

CFDA Name:	Research Infrastructure Programs
CFDA Number:	93.351
EIN:	1741109630A1
Document Number:	POD011133E
PMS Account Type:	P (Subaccount)
Fiscal Year:	2019

IC	CAN	2019	2020
OD	8014499	$7,336,821	$7,336,821
OD	8017734	$602,534	$602,534

Recommended future year total cost support, subject to the availability of funds and satisfactory progress of the project

NIH Administrative Data:
PCC: CMP01 / **OC**: 414E / **Released** eRA Commons 09/17/2019
Award Processed: 09/18/2019 12:03:32 AM

SECTION II – PAYMENT/HOTLINE INFORMATION – 5P51OD011133-21 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 – 5P51OD011133-21 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).

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) P51OD011133. 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 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)

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:
Additional Costs

SECTION IV – OD Special Terms and Conditions – 5P51OD011133-21 REVISED

Clinical Trial Indicator: No
This award does not support any NIH-defined Clinical Trials. See the NIH Grants Policy Statement Section 1.2 for NIH definition of Clinical Trial.

REVISION
This award has been revised to revise the Chimpanzee Colony's budget and Texas Biomedical Research Institute's budget per the updated budget received September 16, 2019.

THE PREVIOUS TERMS AND CONDITIONS STATED BELOW REMAIN IN EFFECT.

RESTRICTION ON CHIMPANZEE RESEARCH
All NIH-sponsored biomedical and behavioral and social science research involving NIH-owned and -supported chimpanzees must be in accordance with the policies and procedures described in NOT-OD-16-095 (https://grants.nih.gov/grants/guide/notice-files/NOT-OD-16-095.html) Any questions in regard to the NIH policies for the use of chimpanzees in research can be sent to your NIH ORIP Program Director and/or DPCPSI@nih.gov">DPCPSI@nih.gov.

BREEDING MORATORIUM
The National Academy of Sciences Report on "Chimpanzees in Research: Strategies for the Ethical Care, Management, and Use" (July, 1997) recommended a 5 year moratorium for chimpanzee breeding activities. This is consistent with the former NCRR recommendation made for the chimpanzee colonies, and the moratorium has been extended. Currently the moratorium is in effect. Therefore, condition of this award, a moratorium on breeding activities within the NIH owned and supported chimpanzee colonies will remain in effect for the duration of the Project Period, unless notified in writing by NIH/Office of the Director staff.

SUBJECT FOA
This award is subject to the conditions set forth in NIH Guide Notice PAR-14-226, 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:
http://grants.nih.gov/grants/guide/pa-files/PAR-14-226.html

ORIP FUNDING PLAN FOR FY2019
This non-competing award reflects the NIH Fiscal Policy for Grant Awards for FY2019 (see NIH Guide Notice NOT-19-031) and the implementation of the ORIP FY2019 grants funding policy:
https://orip.nih.gov/funding/awards-funding-policy

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

Redacted by agreement

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.

DIRECT CHARGES OF F&A-TYPE COSTS
Funds requested for general office, administrative office supplies, computers and computer supplies. Therefore, the allowability of direct cost charges to this project for this/these purposes is predicated on the awardees compliance with the provisions of applicable OMB Circulars. Regarding allowability of selected items of cost, attention is called to the NIH Grants Policy Statement (2013). The Selected Items of Cost section is found at http://grants.nih.gov/grants/policy/nihgps_2013/nihgps_ch7.htm#selected_cost_items

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

SALARY CAP
None of the funds in this award shall be used to pay the salary of an individual at a rate in excess of the current salary cap. Current salary cap levels can be found at the following URL: http://grants.nih.gov/grants/policy/salcap_summary.htm.

GRADUATE STUDENT COMPENSATION
The maximum amount NIH will award for compensation of a graduate student (salary, fringe benefits and tuition remission) receiving support from a research grant is the zero-level Kirschstein-NRSA stipend in effect when NIH issues the grant award (see current levels posted in NOT-OD-19-036).

CONSORTIUM
This award includes funds awarded for subcontractual/consortium activity with UTHSC San Antonio, University of Wyoming; Wake Forest University Health Sciences; Trinity University; University of Texas HSC. Consortia are to be established and administered as described in the NIH Grants Policy Statement (NIH GPS). The referenced section of the NIH GPS, Part II Chapter 15 is available 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 https://orip.nih.gov/

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: Donna M James
Email: jamesd@mail.nih.gov **Phone**: 301-496-7484 **Fax**: 301-402-0219

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

SPREADSHEET SUMMARY
GRANT NUMBER: 5P51OD011133-21 REVISED

INSTITUTION: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Budget	Year 21	Year 22
Salaries and Wages	$2,381,004	$2,356,858
Fringe Benefits	$709,539	$681,128
Personnel Costs (Subtotal)	$3,090,543	$3,037,986
Consultant Services		$21,314
Materials & Supplies	$312,796	$568,603
Travel	$18,293	$26,278
Alterations and Renovations	$133,990	$133,990
Other	$742,080	$534,980
Subawards/Consortium/Contractual Costs	$310,683	$264,874
TOTAL FEDERAL DC	$4,608,385	$4,588,025
TOTAL FEDERAL F&A	$3,330,970	$3,351,330
TOTAL COST	$7,939,355	$7,939,355

Facilities and Administrative Costs	Year 21	Year 22
F&A Cost Rate 1	80%	80%
F&A Cost Base 1	$4,163,712	$4,189,162
F&A Costs 1	$3,330,970	$3,351,330

A. OVERALL COVER PAGE

Project Title: The Southwest National Primate Research Center - Overall	
Grant Number: 5P51OD011133-21	**Project/Grant Period:** 06/06/1999 - 04/30/2021
Reporting Period: 05/01/2018 - 04/30/2019	**Requested Budget Period:** 05/01/2019 - 04/30/2020
Report Term Frequency: Annual	**Date Submitted:** 03/01/2019
Program Director/Principal Investigator Information: LARRY S SCHLESINGER , MD **Phone number:** 210-258-9419 **Email:** lschlesinger@txbiomed.org	**Recipient Organization:** TEXAS BIOMEDICAL RESEARCH INSTITUTE TEXAS BIOMEDICAL RESEARCH INSTITUTE BOX 760549 SAN ANTONIO, TX 782450549 **DUNS:** 007936834 **EIN:** 1741109630A1 **RECIPIENT ID:**
Change of Contact PD/PI: N/A	
Administrative Official: JONATHAN SCUDDER 8715 W Military Dr. San Antonio, TX 78227 **Phone number:** 210-258-9809 **Email:** jscudder@txbiomed.org	**Signing Official:** JONATHAN SCUDDER 8715 W Military Dr. San Antonio, TX 78227 **Phone number:** 210-258-9809 **Email:** jscudder@txbiomed.org
Human Subjects: No	**Vertebrate Animals:** Yes
hESC: No	**Inventions/Patents:** No

B. OVERALL ACCOMPLISHMENTS

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

The Mission of SNPRC is to improve the health of our global community through innovative biomedical research and to serve as a national biomedical research resource to scientists in other institutions that can benefit from our expertise and nonhuman primate (NHP) colonies. In 1999, the Southwest National Primate Research Center (SNPRC) became the first new National Primate Research Center (NPRC) established since the early 1960s. The SNPRC brought a number of unique strengths to the NPRC program, stemming from a long, productive history of biomedical research and innovation using NHPs in research. Texas Biomedical Research Institute (Texas Biomed) with a biomedical research history dating to the mid 1940's is the host institution of the SNPRC. In this application, SNPRC has developed three new Scientific Units to better organize and focus our major research areas. Two of these Scientific Units represent research strengths developed over decades of primate-based research to bring greater emphasis to these areas. These Units are Infectious Diseases and Experimental Physiology and Genomics. The third new Unit builds on the established strengths of several investigators, and represents a new major area of focus for SNPRC; Regenerative Medicine and Aging. These Units perform research with multiple species of primates including macaques, baboons and marmosets and are integrated into the overarching aims of the SNPRC which include research programs involving NHP models of human disease not available at other NPRCs.
The aims are:

Specific Aim 1:--To maintain healthy and well-characterized breeding and research colonies of several NHP (NHP) species for biomedical research, and to make them available to the scientific community.

Specific Aim 2:--To provide broad services in primate research to the national research community with an emphasis on specialized technologies and capabilities many of which are unique to the SNPRC. We provide these services to enhance collaborative opportunities to both internal and external investigators. Our expertise with diverse species of NHPs allows us to contribute ideas and perspectives about how best to accomplish the goals of research projects, thereby increasing the productivity and efficiency of the research, and strengthening the value of the data derived from it.

Specific Aim 3:--To maintain and to enhance the physical and administrative infrastructure of the NPRC so that it can best serve biomedical research. SNPRC has undergone significant changes in the Administrative structure in the past year. The benefits of these changes to efficiency and productivity are already apparent.

Specific Aim 4:--To advance training of staff, students, and visitors in the care and use of NHPs in biomedical research.

Specific Aim 5:--To contribute to advances in science and translational medicine via publication of results obtained from research with NHPs and educational outreach to the public.

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: overall_b2.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
3P51OD011133-20S1	The Southwest National Primate Research Center - Supplement	Aim 1 will focus on assessing n=10 young and n=10 geriatric marmosets in the use of new touchscreen units with automated food reward to evaluate cognitive function. Individuals will be tested on simple memory acquisition tasks, reversal learning and executive function tasks. Aim 2 will focus on the expansion of MRI techniques and equipment to add to the battery of structural MRI, and resting state fMRI assessments used in marmosets to assess neural function and age-related decline.	We have purchased and are building a new touchscreen apparatus which uses a web-based application to display visual stimuli and deliver liquid reward via an arduino linked liquid pump. We have constructed a new marmoset specific coil for the 7T MRI for arterial spin labeling and will begin collecting images in the next few weeks.

		Specifically, vascular degeneration might be associated with dementia symptomology, which requires the development of arterial spin labeling (ASL) scanning protocols for the marmosets.	
3P51OD011133-20S2	The Southwest National Primate Research Center - Supplement	In Aim 1, we propose to convert one room in the baboon complex to have a flexible cage design that will decrease the stress placed on animals and research staff by providing group housing across many cages using socialization doors. In Aim 2, we will enhance the SNPRC marmoset resource using new caging designs to provide the best and safest environment for establishing new social groups, managing existing groups, allowing research in the animal's home cage, by the use of balcony extensions that can function as a platform for sample collection or behavioral testing.	For Supplement 2-marmoset equipment: we have received the Versare dividers; the Labproducts Sounbreak panel is in construction; the cages and tube restraint carts are custom builds in production to receive end of April.

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?

As part of the strategic planning process, a comprehensive succession plan for SNPRC was developed during a retreat for the SNPRC Leadership in February of 2016 (see Director's Office). Redacted by has since retired and Redacted by has taken over as the new Director (see Director's Office). Redacted by continues to function at EFFOR effort and meets weekly with Redacted by to advice Redacted by agreement continue to function at EFFOR effort and national searches are ongoing to replace both (see Directors Office). The first priority is to complete the succession.

A second priority is the renovation of the aging infrastructure to meet the needs of the future vision of SNPRC. SNPRC has accomplished substantial renovations in the past three years. NIH provided supplements to the P51 grant Redacted by and the U42 grant Redacted by to renovate facilities to bring the new marmoset and rhesus colonies to SNPRC. NIH renovated a second building for the new rhesus colony using a grant mechanism called G20 Redacted by . Through an OAR supplement to the P51 with a significant match from Private Source renovated and modernized the clinic Redacted by that cares for the rhesus colony 1. A second P51 OAR supplement in 2018 renovated of a research building Redacted by for AIDS research provided increased and modernized capacity for research with rhesus on SIV studies. This year substantial renovations were accomplished with a $3.5 million fund that the new President of Texas Biomed Redacted by agreement secured from the Private Source These funds have been used to perform long needed renovations across the SNPRC animal facilities and to begin renovation of a new building for the marmoset colony. The new marmoset building has been completed recently. Texas Biomed was site visited for AAALAC accreditation in 2017 and received continued accreditation without major findings. This was made possible by the extensive renovations that have occurred over the past 4 years, as described above. The NIH has chosen brief applications from the SNPRC to solicit full P51 supplemental applications for research in high-priority research in AIDS as well as Alzheimer's in the past and we continue to be competitive in these areas currently. Pending Support

Pending Support

Another priority is to strengthen both existing research divisions (Infectious Diseases as well as Aging/Regenerative Medicine) through strategic recruitments in the next year. A desire is to recruit an established investigator in the field of HIV cure and reservoir research for the Division of Infectious Diseases. Another desire is to recruit investigators with expertise in NHP Aging (particularly using the marmoset model), in immunometabolism (e.g., using the baboon model) and those working on novel therapeutics (e.g., using the macaque model). A final priority before the submission of the P51 renewal in 2020 is to significantly enhance core capabilities. In this regard, improvements will be made in the Immunology core specifically with respect to functions involving flow sort, cytometry and downstream transcriptomics (via the acquisition of state-of-the-art FACS Symphony, FACS Aria sorter and Chromium single cell RNAseq capability). We also desire to increase the efficiency of the Research Coordination Unit in the future and its relationship with the existing Research Support Unit led by Redacted by agreement

The Southwest National Primate Research Center has undergone a process of almost continuous strategic planning and change since 2014 when a new Director, Redacted by agreement was appointed. These changes are now coming to an end. The whole process was initiated as part of the Milestones requested by NIH in 2014, which made significant changes in both the Center and the host Institute, Texas Biomedical Research Institute (Texas Biomed). The success of the milestone application to NIH provided the opportunity to resubmit the P51 renewal in 2015, which was awarded for a full five years. A major objective of Redacted by agreement leadership in the past five years has been to build a leadership team to bring new vision and organization to the Center. The SNPRC therefore successfully recruited an Associate Director of Research Redacted by agreement Assistant Director of Veterinary Services Redacted by agreement and Assistant Director of Finance Redacted by agreement and promoted an internal candidate to Assistant Director of Research Resources Redacted by agreement However, many of these changes were short term fixes, since Redacted by agreement were all expected to retire prior to the submission of a new P51 in 2020. Redacted by agreement was recruited as the new Director, SNPRC and has taken charge effective Jan 1, 2019, the same day that Redacted by agreement retired from his administrative position. However, Redacted by agreement continues to be a part of SNPRC through 2019, to advice Redacted by agreement The SNPRC is very close to replacing Redacted by agreement with a recently identified candidate through a national search, and a similar search is ongoing to find a long-term nationally recognized scientist/administrator to replace Redacted by agreement The SNPRC transition is expected to be over in 2019 and the new team led by Redacted by agreement will lead the P51 renewal effort. Meanwhile Texas Biomed has also underwent significant transition, and now has a new long-term leadership team with President/CEO Redacted by agreement Vice-President for Research Redacted by agreement and CFO Redacted by agreement Redacted by agreement

The aims of the 2015 P51 application were to:

Specific Aim 1:-*To maintain healthy and well-characterized breeding and research colonies of several NHP (NHP) species for biomedical research, and to make them available to the scientific community.* This continues to be one of the major goals of SNPRC. The macaque and marmoset colonies continue to be expanded and are at near all-time peak levels with the Jan 2019 census of macaques at 893 and the census of marmosets at 344. The total number of marmosets is due to significantly increase as an agreement with the Private Source is about to be finalized for their colony to be housed at the SNPRC from 2019 onwards. We also continue to be the leading national resource of baboons for research, with a total population of 943 in Jan 2019. We continue to use a strategy of holding back sufficient animals to increase breeding populations, while making the maximum number of animals available to both inside and outside investigators. Marmosets are in high demand and only two Centers have breeding populations. We currently have numerous requests in the queue totaling ~650 animals, which is significantly higher than the previous year. 190 marmosets were used in research projects in 2018, again significantly higher than the previous year, and clearly demonstrating the high need for a national strategy on increasing the population of marmosets in the US. Indian-origin rhesus macaques face a similar shortage. We continue to produce ~150 Indian rhesus macaques annually. We provided 207 rhesus macaques to research programs, significantly higher than the corresponding number of 93 the previous year. In 2019, we currently have requests for ~750 rhesus macaques pending. The baboon colony has been reduced over the past 3 years to adjust to research demand and to convert most of the colony to SPF status for STLV1 and SWBV1. Two thirds of the baboon population is SPF. This colony meets a high diversity of research needs most of which are primarily driven by outside investigators. The two largest demands have been for pertussis vaccine studies and reproductive biology, including permanent contraception studies conducted in collaboration with Oregon NPRC. In 2018, ~500 baboons were used for research on site while a quarter of this number was additionally sold off-site. Over 600 requests for baboons in research remain pending. The sequencing of the genomes of the NHP colonies continues to be a major emphasis of the Genomics Core, providing over 50,000 SNPs for evaluation genetic diversity and provide genomic information for research programs. This analysis has provided information on some decline in mean heterozygosity in the macaque colony over multiple generations. This may be due to the breeding of macaques for specific MHC alleles for HIV research. Recently, we have begun to cross breed between our two macaque colonies to increase diversity. These colonies have been closed for decades and represent entirely independent origins. This will markedly increase diversity. The same approach will be used for marmosets and baboons to continue to maximize diversity at the genome level.

Specific Aim 2:-*To provide broad services in primate research to the national research community with an emphasis on specialized technologies and capabilities many of which are unique to the SNPRC.* This year we

have continued to push prior efforts to restructure portions of our support services to investigators. The Genomics Core was expanded in 2018 to include a significant number of investigators that will provide advice in Data Sciences and Bioinformatics. Most of these investigators were formerly associated with the Experimental Physiology and Genomics Scientific Unit. This Unit was dissolved in 2018 by Redacted by agreement for a number of reasons. Key investigators relocated to other institutes and the programs supported by this Unit had declined for a number of years. This Unit was not deemed to be competitive for the next renewal. However, key members of that Unit still represented the core strength of SNPRC in genomics and bioinformatics. We retained the support of these investigators. We transitioned the salary support previously dedicated to EPGSU to the Genomics Core to expand the Genomics Core and to maintain this strength in the Center. In 2018, the Core performed sequence analysis on 1,375 samples of non-human primate RNA and DNA for various investigators and in support of the primate colonies. Members of the core also performed some work on non-NHP (human) samples, to the tune of >200 samples. Thus, the expanded Genomics Core is already functioning at an optimal rate and is continuing to prove as an asset.

A second major change last year represented the creation of the Research Support Component. This represents a new component in the P51 this year. A series of factors led to the creation of this new Component. The DNA and Tissue Repository was put on hiatus status with the departure of Redacted by agreement and with the budget cuts in the P51. A reduced repository function will be sustained by the new RSC. The retirement of Redacted by agreement as Director was an additional factor. Previously Redacted by agreement laboratory performed research support for outside PIs and some of the SNPRC colony surveillance functions. These functions have been formalized into this new component. Redacted by agreement continues to lead this Component and Redacted by agreement Redacted by agreement is the Manager (27 years of experience in running NHP studies). The RSC works directly with Investigators, Research Coordination and Veterinary Services to provide research support for various programs and colony support. The Leader of RSC continues to work with Research Coordination, IACUC, and Investigators to help design the studies and the services required from SNPRC. This function is especially critical for outside investigators that need assistance in conducting their studies. Many studies require active project management, interaction with PIs, and preparation of progress reports for the data coming from RSC. If studies require laboratory analyses, the RSC will assist the PI in determining the most appropriate SNPRC resource to conduct these studies, for example the Immunology, Genomics Core, Clinical Pathology and outsourcing to other laboratories. In many instances, the RSC will perform the necessary laboratory assays if it is not clear that another laboratory is better suited for the work. The RSC continues to provide laboratory functions to studies that require PCR diagnostics, specialty diagnostic assays, large scale PBMC purification, lymphocyte isolation from spleen and bone marrow, blood processing, and tissue processing. RSC will assist studies requiring administration of a vaccine or therapeutic by preparation of the test article, delivery to the animal area, and validation of dosing using protocols developed with the PI.

Specific Aim 3:-*To maintain and to enhance the physical and administrative infrastructure of the NPRC so that it can best serve biomedical research.*

SNPRC currently continues to undergo significant changes in its administrative structure under the new leadership of Redacted by agreement The benefits of these changes to efficiency and productivity are apparent. As part of the strategic planning process, the Center had restructured management of the primate breeding colonies by appointing a Colony Manager for each of the species in the past year. This moved primary responsibility for the daily breeding and research management of the colonies from the senior SNPRC administration to a dedicated Colony Manager. This arrangement is working extremely well with the respective Colony Manager's leading their Species Committee meeting monthly. The second part of this strategic planning process involved creation of a Colony Administrator position. This position was filled in 2018 by Redacted by agreement The Colony Administrator continues to interact closely with the investigators and Colony Managers to facilitate research programs, write Colony components for the P51, and provide long term vision to the breeding of the colonies. This part of the administrative set up is functioning exactly as envisioned by Redacted by agreement

As part of the strategic planning process, a comprehensive succession plan for SNPRC was developed during a retreat for the SNPRC Leadership in February of 2016 (see Director's Office). The leadership of the Center recognized that several key members of the leadership would retire before the submission of the next P51 renewal, including the Director Redacted by agreement and the Associate Redacted by agreement and Assistant Redacted by Directors of Research. All three of the individuals planning on retirement committed to remain at EFFORT effort for at least one year to

assist during this transition period (June 2018-May 2019). Redacted by agreement has since retired and Redacted by agreement has taken over as the new Director (see Directors Office). Redacted by agreement continues to function at EFFORT effort and meets weekly with Redacted by agreement to advice. Redacted by agreement continue to function at EFFORT effort and national searches are ongoing to replace both (see Directors Office). Till date, the succession plan has been executed according to plan.

Another critical aspect of the SNPRC strategic planning process is renovation of the aging infrastructure to meet the needs of the future vision of SNPRC. SNPRC has accomplished substantial renovations in the past three years. NIH provided supplements to the P51 grant Redacted by agreement and the U42 grant Redacted by agreement to renovate facilities to bring the new marmoset and rhesus colonies to SNPRC. NIH renovated a second building for the new rhesus colony using a grant mechanism called G20 Redacted by agreement Through an OAR supplement to the P51 with a significant match from Private Source renovated and modernized the clinic Redacted by agreement that cares for the rhesus colony 1. A second P51 OAR supplement in 2018 renovated of a research building Redacted by agreement for AIDS research provided increased and modernized capacity for research with rhesus on SIV studies. This year substantial renovations were accomplished with a $3.5 million fund that the new President of Texas Biomed, Redacted by agreement secured from the Private Source These funds have been used to perform long needed renovations across the SNPRC animal facilities and to begin renovation of a new building for the marmoset colony. The new marmoset building will be completed in 2018. Texas Biomed was site visited for AAALAC accreditation in 2017 and received continued accreditation without major findings. This was made possible by the extensive renovations that have occurred over the past 4 years, as described above. The NIH has chosen brief applications from the SNPRC to solicit full P51 supplemental applications for research in high-priority research in AIDS as well as Alzheimer's.

In general, the Center is doing exceptionally well with regard to administrative organization, health and size of the colonies, and diversity and size of research programs from both inside and outside of the Center. The HIV as well as the TB research programs are enriched in the future by the arrival of Redacted by agreement the Director, who has a nationally recognized and well-funded NHP TB and TB/HIV research program that is primarily supported by the NIAID (R01AI138587, R01AI134240, R01AI123780, R01AI123047, R01AI111943, R01AI111914, U19AI111211, UH3AI122320 and several other subawards). All of the currently active grants are being transferred from Tulane to SNPRC/Texas Biomed. The HIV research program led by Redacted by agreement is exceptional in both size and impact (P01AI048240, R01AI100703, R01AI118586, R01DE023049). It is supported by other investigators like Redacted by agreement (R01AI117862, R01AI122070), etc. The Aging/Regenerative Medicine unit and the Genetics core (previously unit) includes awards for Redacted by agreement (R56AG059284).

Redacted by agreement like to strengthen both existing research divisions (Infectious Diseases as well as Aging/Regenerative Medicine) through strategic recruitments in the next year. A desire is to recruit an established investigator in the field of HIV cure and reservoir research for the Division of Infectious Diseases. Another desire is to recruit investigators with expertise in NHP Aging (particularly using the marmoset model), in immunometabolism (e.g., using the baboon model) and those working on novel therapeutics (e.g., using the macaque model) Redacted by agreement would also like to significantly enhance core capabilities. In this regard, improvements have already been ordered in the Immunology core specifically with respect to functions involving flow sort, cytometry and downstream transcriptomics (via the acquisition of state-of-the-art FACS Symphony, FACS Aria sorter and Chromium single cell RNAseq capability). Redacted by agreement also desires to increase the efficiency of the Research Coordination Unit in the future and its relationship with the existing Research Support Unit led by Redacted by agreement

Specific details on research activities are presented in section G.1.

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?

Yes

Publications Reported for this Reporting Period

Public Access Compliance	Citation
Complete	Bailey A, Eberly LE, Packer C. Does pregnancy coloration reduce female conspecific aggression in the presence of maternal kin?. Animal behaviour. 2015 October;108:199-206. PubMed PMID: 29657330; PubMed Central PMCID: PMC5897109.
Complete	Turk G, Ghiglione Y, Hormanstorfer M, Laufer N, Coloccini R, Salido J, Trifone C, Ruiz MJ, Falivene J, Holgado MP, Caruso MP, Figueroa MI, Salomón H, Giavedoni LD, Pando MLÁ, Gherardi MM, Rabinovich RD, Pury PA, Sued O. Biomarkers of Progression after HIV Acute/Early Infection: Nothing Compares to CD4 T-cell Count?. Viruses. 2018 January 13;10(1). PubMed PMID: 29342870; PubMed Central PMCID: PMC5795447.
Complete	Malherbe DC, Mendy J, Vang L, Barnette PT, Reed J, Lakhashe SK, Owuor J, Gach JS, Legasse AW, Axthelm MK, LaBranche CC, Montefiori D, Forthal DN, Park B, Wilson JM, McLinden JH, Xiang J, Stapleton JT, Sacha JB, Haynes BF, Liao HX, Ruprecht RM, Smith J, Gurwith M, Haigwood NL, Alexander J. Combination Adenovirus and Protein Vaccines Prevent Infection or Reduce Viral Burden after Heterologous Clade C Simian-Human Immunodeficiency Virus Mucosal Challenge. Journal of virology. 2018 January 15;92(2). PubMed PMID: 29093095; PubMed Central PMCID: PMC5752948.
Complete	Schlabritz-Loutsevitch N, Maher J, Sullivan R, Mari G, Schenone M, Cohen HL, Word RA, Hubbard GB, Dick EJ Jr. Parturition in baboons (PAPIO SPP.). Scientific reports. 2018 January 19;8(1):1174. PubMed PMID: 29352119; PubMed Central PMCID: PMC5775344.
Complete	Huber HF, Li C, Nathanielsz PW. 2D:4D digit ratio is not a biomarker of developmental programming in baboons (Papio hamadryas species). Journal of medical primatology. 2018 February;47(1):78-80. PubMed PMID: 29034475; PubMed Central PMCID: PMC5771970.
Complete	Jensen JT, Hanna C, Mishler E, Lim JY, Slayden OD. Effect of menstrual cycle phase and hormonal treatments on evaluation of tubal patency in baboons. Journal of medical primatology. 2018 February;47(1):40-45. PubMed PMID: 29063622; PubMed Central PMCID: PMC5771854.
Complete	Joganic JL, Willmore KE, Richtsmeier JT, Weiss KM, Mahaney MC, Rogers J, Cheverud JM. Additive genetic variation in the craniofacial skeleton of baboons (genus Papio) and its relationship to body and cranial size. American journal of physical anthropology. 2018 February;165(2):269-285. PubMed PMID: 29154459; PubMed Central PMCID: PMC5966830.
Complete	Mahaney MC, Karere GM, Rainwater DL, Voruganti VS, Dick EJ Jr, Owston MA, Rice KS, Cox LA, Comuzzie AG, VandeBerg JL. Diet-induced early-stage atherosclerosis in baboons: Lipoproteins, atherogenesis, and arterial compliance. Journal of medical primatology. 2018 February;47(1):3-17. PubMed PMID: 28620920; PubMed Central PMCID: PMC5839476.
Complete	Callendret B, Vellinga J, Wunderlich K, Rodriguez A, Steigerwald R, Dirmeier U, Cheminay C, Volkmann A, Brasel T, Carrion R, Giavedoni LD, Patterson JL, Mire CE, Geisbert TW, Hooper JW, Weijtens M, Hartkoorn-Pasma J, Custers J, Grazia Pau M, Schuitemaker H, Zahn R. A prophylactic multivalent vaccine against different filovirus species is immunogenic and provides protection from lethal infections with Ebolavirus and Marburgvirus species in non-human primates. PloS one. 2018 February 20;13(2):e0192312. PubMed PMID: 29462200; PubMed Central PMCID: PMC5819775.
Complete	Callaway DA, McGill-Vargas LL, Quinn A, Jordan JL, Winter LA, Anzueto D, Dick EJ Jr, Blanco CL. Prematurity disrupts glomeruli development, whereas prematurity and hyperglycemia lead to altered nephron maturation and increased oxidative stress in

	newborn baboons. Pediatric research. 2018 March;83(3):702-711. PubMed PMID: 29166383; PubMed Central PMCID: PMC5902650.
Complete	Lutz CK, Brown TA. Porches as Enrichment for Singly Housed Cynomolgus Macaques (<i>Macaca fascicularis</i>). Journal of the American Association for Laboratory Animal Science : JAALAS. 2018 March 1;57(2):134-137. PubMed PMID: 29555002; PubMed Central PMCID: PMC5868379.
Complete	Alfson KJ, Griffiths A. Development and Testing of a Method for Validating Chemical Inactivation of Ebola Virus. Viruses. 2018 March 13;10(3). PubMed PMID: 29533988; PubMed Central PMCID: PMC5869519.
Complete	Gandhi K, Li C, German N, Skobowiat C, Carrillo M, Kallem RR, Larumbe E, Martinez S, Chuecos M, Ventolini G, Nathanielsz P, Schlabritz-Loutsevitch N. Effect of maternal high-fat diet on key components of the placental and hepatic endocannabinoid system. American journal of physiology. Endocrinology and metabolism. 2018 April 1;314(4):E322-E333. PubMed PMID: 29138223; PubMed Central PMCID: PMC5966752.
Complete	Kuo AH, Li J, Li C, Huber HF, Nathanielsz PW, Clarke GD. Poor perinatal growth impairs baboon aortic windkessel function. Journal of developmental origins of health and disease. 2018 April;9(2):137-142. PubMed PMID: 29017630; PubMed Central PMCID: PMC5922776.
Complete	Gonzalez-Juarbe N, Bradley KM, Riegler AN, Reyes LF, Brissac T, Park SS, Restrepo MI, Orihuela CJ. Bacterial Pore-Forming Toxins Promote the Activation of Caspases in Parallel to Necroptosis to Enhance Alarmin Release and Inflammation During Pneumonia. Scientific reports. 2018 April 11;8(1):5846. PubMed PMID: 29643440; PubMed Central PMCID: PMC5895757.
Complete	Mustonen A, Gonzalez O, Mendoza E, Kumar S, Dick EJ Jr. Uremic encephalopathy in a rhesus macaque (Macaca mulatta): A case report and a brief review of the veterinary literature. Journal of medical primatology. 2018 April 25. PubMed PMID: 29693270; PubMed Central PMCID: PMC6202283.
Complete	Riesche L, Tardif SD, Ross CN, deMartelly VA, Ziegler T, Rutherford JN. The common marmoset monkey: avenues for exploring the prenatal, placental, and postnatal mechanisms in developmental programming of pediatric obesity. American journal of physiology. Regulatory, integrative and comparative physiology. 2018 May 1;314(5):R684-R692. PubMed PMID: 29412686; PubMed Central PMCID: PMC6008109.
Complete	Seferovic M, Sánchez-San Martín C, Tardif SD, Rutherford J, Castro ECC, Li T, Hodara VL, Parodi LM, Giavedoni L, Layne-Colon D, Tamhankar M, Yagi S, Martyn C, Reyes K, Suter MA, Aagaard KM, Chiu CY, Patterson JL. Experimental Zika Virus Infection in the Pregnant Common Marmoset Induces Spontaneous Fetal Loss and Neurodevelopmental Abnormalities. Scientific reports. 2018 May 1;8(1):6851. PubMed PMID: 29717225; PubMed Central PMCID: PMC5931554.
Complete	Light LEO, Bartlett TQ, Poyas A, Nijland MJ, Huber HF, Li C, Keenan K, Nathanielsz PW. Maternal activity, anxiety, and protectiveness during moderate nutrient restriction in captive baboons (Papio sp.). Journal of medical primatology. 2018 May 11. PubMed PMID: 29749628; PubMed Central PMCID: PMC6230519.
Complete	Bishop AC, Libardoni M, Choudary A, Misra B, Lange K, Bernal J, Nijland M, Li C, Olivier M, Nathanielsz PW, Cox LA. Nonhuman primate breath volatile organic compounds associate with developmental programming and cardio-metabolic status. Journal of breath research. 2018 May 14;12(3):036016. PubMed PMID: 29593130; PubMed Central PMCID: PMC6364675.
Complete	Andrew MS, Huffman DM, Rodriguez-Ayala E, Williams NN, Peterson RM, Bastarrachea RA. Mesenteric visceral lipectomy using tissue liquefaction technology reverses insulin resistance and causes weight loss in baboons. Surgery for obesity and related diseases : official journal of the American Society for Bariatric Surgery. 2018 June;14(6):833-841. PubMed PMID: 29631983; PubMed Central PMCID: PMC6391994.
Complete	Perminov E, Mangosing S, Confer A, Gonzalez O, Crawford JR, Schlabritz-Loutsevitch N, Kumar S, Dick E Jr. A case report of ovotesticular disorder of sex development (OT-DSD) in a baboon (Papio spp.) and a brief review of the non-human primate literature. Journal of medical primatology. 2018 June;47(3):192-197. PubMed PMID: 29504143;

	PubMed Central PMCID: PMC5934321.
Complete	Salmon AB, Dorigatti J, Huber HF, Li C, Nathanielsz PW. Maternal nutrient restriction in baboon programs later-life cellular growth and respiration of cultured skin fibroblasts: a potential model for the study of aging-programming interactions. GeroScience. 2018 June;40(3):269-278. PubMed PMID: 29802507; PubMed Central PMCID: PMC6060193.
Complete	Spradling-Reeves KD, Glenn JP, Lange KJ, Kuhn N, Coalson JJ, Nijland MJ, Li C, Nathanielsz PW, Cox LA. The non-human primate kidney transcriptome in fetal development. Journal of medical primatology. 2018 June;47(3):157-171. PubMed PMID: 29603257; PubMed Central PMCID: PMC5963710.
Complete	Misra BB, Bassey E, Bishop AC, Kusel DT, Cox LA, Olivier M. High Resolution GC/MS Metabolomics of Non-Human Primate Serum. Rapid communications in mass spectrometry : RCM. 2018 June 6. PubMed PMID: 29874398.
Non-Compliant	Phillips KA, Tukan AN, Rigodanzo AD, Reusch RT, Brasky KM, Meyer JS. Quantification of hair cortisol concentration in common marmosets (Callithrix jacchus) and tufted capuchins (Cebus apella). American journal of primatology. 2018 July;80(7):e22879. PubMed PMID: 29862532.
Complete	Scinto HB, Gupta S, Thorat S, Mukhtar MM, Griffiths A, Delgado J, Plake E, Vyas HK, Strickland A, Byrareddy SN, Montefiori DC, LaBranche C, Pal R, Treece J, Orndorff S, Ferrari MG, Weiss D, Chenine AL, McLinden R, Michael N, Kim JH, Robb ML, Rerks-Ngarm S, Pitisuttithum P, Nitayaphan S, Ruprecht RM. Novel Strategy To Adapt Simian-Human Immunodeficiency Virus E1 Carrying <i>env</i> from an RV144 Volunteer to Rhesus Macaques: Coreceptor Switch and Final Recovery of a Pathogenic Virus with Exclusive R5 Tropism. Journal of virology. 2018 July 15;92(14). PubMed PMID: 29743361; PubMed Central PMCID: PMC6026739.
Complete	Gong S, Tomusange K, Kulkarni V, Adeniji OS, Lakhashe SK, Hariraju D, Strickland A, Plake E, Frost PA, Ratcliffe SJ, Wang L, Lafer EM, Ruprecht RM. Anti-HIV IgM protects against mucosal SHIV transmission. AIDS (London, England). 2018 July 17;32(11):F5-F13. PubMed PMID: 29762161; PubMed Central PMCID: PMC6380498.
Complete	Dudley DM, Van Rompay KK, Coffey LL, Ardeshir A, Keesler RI, Bliss-Moreau E, Grigsby PL, Steinbach RJ, Hirsch AJ, MacAllister RP, Pecoraro HL, Colgin LM, Hodge T, Streblow DN, Tardif S, Patterson JL, Tamhankar M, Seferovic M, Aagaard KM, Martín CS, Chiu CY, Panganiban AT, Veazey RS, Wang X, Maness NJ, Gilbert MH, Bohm RP, Adams Waldorf KM, Gale M Jr, Rajagopal L, Hotchkiss CE, Mohr EL, Capuano SV 3rd, Simmons HA, Mejia A, Friedrich TC, Golos TG, O'Connor DH. Miscarriage and stillbirth following maternal Zika virus infection in nonhuman primates. Nature medicine. 2018 August;24(8):1104-1107. PubMed PMID: 29967348; PubMed Central PMCID: PMC6082723.
Complete	Choudhury GR, Daadi MM. Charting the onset of Parkinson-like motor and non-motor symptoms in nonhuman primate model of Parkinson's disease. PloS one. 2018 August 23;13(8):e0202770. PubMed PMID: 30138454; PubMed Central PMCID: PMC6107255.
N/A: Not Peer Reviewed	Folli F, La Rosa S, Finzi G, Davalli AM, Galli A, Dick EJ Jr, Perego C, Mendoza RG. Pancreatic islet of Langerhans' cytoarchitecture and ultrastructure in normal glucose tolerance and in type 2 diabetes mellitus. Diabetes, obesity & metabolism. 2018 September;20 Suppl 2:137-144. PubMed PMID: 30230173.
Complete	Mangosing S, Perminov E, Gonzalez O, Barkei EK, Corbin EM, Kumar S, Dick EJ Jr. Uterine Tumors Resembling Ovarian Sex Cord Tumors in Four Baboons (Papio spp.). Veterinary pathology. 2018 September;55(5):753-758. PubMed PMID: 29661120; PubMed Central PMCID: PMC6327850.
Complete	Yang G, Hong H, Torres A, Malloy KE, Choudhury GR, Kim J, Daadi MM. Standards for Deriving Nonhuman Primate-Induced Pluripotent Stem Cells, Neural Stem Cells and Dopaminergic Lineage. International journal of molecular sciences. 2018 September 17;19(9). PubMed PMID: 30227600; PubMed Central PMCID: PMC6164693.
Complete	Koistinen K, Mullaney L, Bell T, Zaki S, Nalca A, Frick O, Livingston V, Robinson CG, Estep JS, Batey KL, Dick EJ Jr, Owston MA. Coccidioidomycosis in Nonhuman Primates: Pathologic and Clinical Findings. Veterinary pathology. 2018 November;55(6):905-915. PubMed PMID: 30071801; PubMed Central PMCID:

	PMC6385601.
Complete	Kuo AH, Li C, Huber HF, Nathanielsz PW, Clarke GD. Ageing changes in biventricular cardiac function in male and female baboons (Papio spp.). The Journal of physiology. 2018 November;596(21):5083-5098. PubMed PMID: 30144074; PubMed Central PMCID: PMC6209749.
Complete	Obregon-Perko V, Hodara VL, Parodi LM, Giavedoni LD. Baboon CD8 T cells suppress SIVmac infection in CD4 T cells through contact-dependent production of MIP-1α, MIP-1β, and RANTES. Cytokine. 2018 November;111:408-419. PubMed PMID: 29807688; PubMed Central PMCID: PMC6261791.
Complete	Alfson KJ, Avena LE, Beadles MW, Worwa G, Amen M, Patterson JL, Carrion R Jr, Griffiths A. Intramuscular Exposure of <i>Macaca fascicularis</i> to Low Doses of Low Passage- or Cell Culture-Adapted Sudan Virus or Ebola Virus. Viruses. 2018 November 16;10(11). PubMed PMID: 30453499; PubMed Central PMCID: PMC6267154.
Complete	Pascal KE, Dudgeon D, Trefry JC, Anantpadma M, Sakurai Y, Murin CD, Turner HL, Fairhurst J, Torres M, Rafique A, Yan Y, Badithe A, Yu K, Potocky T, Bixler SL, Chance TB, Pratt WD, Rossi FD, Shamblin JD, Wollen SE, Zelko JM, Carrion R Jr, Worwa G, Staples HM, Burakov D, Babb R, Chen G, Martin J, Huang TT, Erlandson K, Willis MS, Armstrong K, Dreier TM, Ward AB, Davey RA, Pitt MLM, Lipsich L, Mason P, Olson W, Stahl N, Kyratsous CA. Development of Clinical-Stage Human Monoclonal Antibodies That Treat Advanced Ebola Virus Disease in Nonhuman Primates. The Journal of infectious diseases. 2018 November 22;218(suppl_5):S612-S626. PubMed PMID: 29860496; PubMed Central PMCID: PMC6249601.
Complete	Confer A, Owston MA, Kumar S, Dick EJ Jr. Multiple endocrine neoplasia-like syndrome in 24 baboons (Papio spp.). Journal of medical primatology. 2018 December;47(6):434-439. PubMed PMID: 30256416; PubMed Central PMCID: PMC6234079.
Complete	Huber HF, Considine MM, Jenkins S, Li C, Nathanielsz PW. Reproductive cycling in adult baboons (Papio species) that were intrauterine growth restricted at birth implies normal fertility but increased psychosocial stress. Journal of medical primatology. 2018 December;47(6):427-429. PubMed PMID: 29956833; PubMed Central PMCID: PMC6342511.
Complete	Kuo AH, Li C, Huber HF, Clarke GD, Nathanielsz PW. Intrauterine growth restriction results in persistent vascular mismatch in adulthood. The Journal of physiology. 2018 December;596(23):5777-5790. PubMed PMID: 29098705; PubMed Central PMCID: PMC6265527.
Non-Compliant	Li X, Rensing C, Taylor WL, Costelle C, Brejnrod AD, Ferry RJ Jr, Higgins PB, Folli F, Kottapalli KR, Hubbard GB, Dick EJ Jr, Yooseph S, Nelson KE, Schlabritz-Loutsevitch N. Papio spp. Colon microbiome and its link to obesity in pregnancy. Journal of medical primatology. 2018 December;47(6):393-401. PubMed PMID: 30039863.
Complete	Puppala S, Li C, Glenn JP, Saxena R, Gawrieh S, Quinn A, Palarczyk J, Dick EJ Jr, Nathanielsz PW, Cox LA. Primate fetal hepatic responses to maternal obesity: epigenetic signalling pathways and lipid accumulation. The Journal of physiology. 2018 December;596(23):5823-5837. PubMed PMID: 29516496; PubMed Central PMCID: PMC6265567.
Complete	Ziegler TE, Kapoor A, Binkley NC, Rice KS, Rogers J, Jolly CJ, Phillips-Conroy JE. Comparison of vitamin D metabolites in wild and captive baboons. American journal of primatology. 2018 December;80(12):e22935. PubMed PMID: 30537386; PubMed Central PMCID: PMC6390488.
Complete	Buechler C, Semler M, Baker DA, Newman C, Cornish JP, Chavez D, Guerra B, Lanford R, Brasky K, Kuhn JH, Johnson RF, O'Connor DH, Bailey AL. Subclinical Infection of Macaques and Baboons with A Baboon Simarterivirus. Viruses. 2018 December 10;10(12). PubMed PMID: 30544677; PubMed Central PMCID: PMC6316555.

Non-compliant Publications Previously Reported for this Project

Public Access Compliance	Citation

Non-Compliant	Li L, Barry V, Daffis S, Niu C, Huntzicker E, French DM, Mikaelian I, Lanford RE, Delaney WE 4th, Fletcher SP. Anti-HBV response to toll-like receptor 7 agonist GS-9620 is associated with intrahepatic aggregates of T cells and B cells. Journal of hepatology. 2018 May;68(5):912-921. PubMed PMID: 29247724.

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

If yes, has this information been previously provided to the PHS or to the official responsible for patent matters at the grantee organization?

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	Y	Schlesinger, Larry S.	MD	PD/PI	EFFORT						NA
	N	Redacted by agreement	PhD	Staff scientist (Doctoral level)					Admin Core-5093 (Director's Office), Core-5100 (Baboon Colony), Core-5114 (Research Support)		NA
	N		PHD	Staff scientist (Doctoral level)					Admin Core-5093 (Director's Office), Core-5114 (Research Support)		NA
	N			Staff scientist (Doctoral level)					Core-5106 (Genomics Core)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker					Core-5101 (Macaque Colony)		NA
	N			Animal Caretaker					Core-5100 (Baboon Colony)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Veterinary Research Technician Supervisor					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker					Core-5103 (Chimpanzee		NA

		Redacted by agreement			EFFORT				Colony)		
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N		PHD	Associate Professor					Other-5110 (Regenerative Medicine and …ientific Unit)		NA
	N			Animal Caretaker					Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker					Core-5101 (Macaque Colony)		NA
	N			Animal Caretaker					Core-5101 (Macaque Colony)		NA
	N			Research Coordination Scheduler					Admin Core-5096 (Research Coordination), Core-5097 (Veterinary Resources and R…earch Support), Core-5100 (Baboon Colony), Core-5101 (Macaque Colony)		NA
	N		DVM	Associate Director					Admin Core-5093 (Director's Office), Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Technical Training Manager					Core-5100 (Baboon Colony), Core-5101 (Macaque Colony)		NA
	N			Research					Core-5098		NA

		Redacted by agreement			EFFORT						
				Associate					(Behavioral Services)		
	N			Veterinary Research Technician					Core-5101 (Macaque Colony)		NA
	N			Senior Research Associate					Core-5114 (Research Support)		NA
	N			Research Assistant					Core-5098 (Behavioral Services)		NA
	N			Study Compliance Monitor					Core-5104 (Immunology Core Laboratory)		NA
	N			Veterinary Research Technician Resource Manager					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Summer Intern					Admin Core-5094 (Summer Intern Program)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker					Core-5101 (Macaque Colony)		NA
	N			Animal Caretaker					Core-5100 (Baboon Colony)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Medical Technologist					Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Animal Caretaker					Core-5102 (Marmoset Colony)		NA
	N			Research Support Manager					Core-5114 (Research Support)		NA
	N			Research Associate					Core-5106 (Genomics Core)		NA
	N			Project Coordinator					Admin Core-5096		NA

									(Research Coordination)		
	N	Redacted by agreement		Veterinary Research Technician	EFFORT				Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Care Supervisor					Core-5101 (Macaque Colony)		NA
	N			Animal Caretaker					Core-5101 (Macaque Colony)		NA
	N			Research Technician					Core-5107 (Biomaterial Services)		NA
	N			Assistant Professor					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N		PHD	Associate Professor					Core-5106 (Genomics Core)		NA
	N			Veterinary Research Technician Supervisor					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Laboratory Operations Coordinator					Core-5099 (Clinical and Anatomical Pathology)		NA
	N		DVM	Associate Professor					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker					Core-5100 (Baboon Colony), Core-5101 (Macaque Colony)		NA
	N			Summer Intern					Admin Core-5094 (Summer Intern Program)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker					Core-5100 (Baboon Colony),		NA

									Core-5101 (Macaque Colony)		
	N	Redacted by agreement		Assistant Professor	EFFORT				Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Histology Technician					Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Animal Caretaker					Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician					Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Veterinary Research Technician					Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Senior Research Associate					Core-5106 (Genomics Core)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker					Core-5101 (Macaque Colony)		NA
	N			Associate Professor					Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Animal Caretaker					Core-5102 (Marmoset Colony)		NA
	N			Research Assistant					Core-5098 (Behavioral Services)		NA
	N			Veterinary Research Technician					Core-5101 (Macaque Colony)		NA

	N	Redacted by agreement		Biocontainment Program Technician	EFFORT		Core-5101 (Macaque Colony)		NA
	N			Senior Research Associate			Core-5114 (Research Support)		NA
	N		PHD	Research Coordinator			Admin Core-5096 (Research Coordination)		NA
	N			Animal Care Supervisor			Core-5100 (Baboon Colony)		NA
	N			Central Cagewash Operator			Core-5102 (Marmoset Colony)		NA
	N			Animal Caretaker			Admin Core-5096 (Research Coordination)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Care Supervisor			Core-5098 (Behavioral Services)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			MRI engineer			Core-5105 (Research Imaging Core)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker			Core-5103 (Chimpanzee Colony)		NA
	N			Research Coordinator			Admin Core-5096 (Research Coordination)		NA
	N			Animal Caretaker			Core-5103 (Chimpanzee Colony)		NA
	N		PhD	Core Scientist			Core-5105 (Research Imaging Core)		NA

	N	Redacted by agreement		Veterinary Research Technician	EFFORT		Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Research Assistant			Core-5098 (Behavioral Services)		NA
	N			Assistant Professor			Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Breeding Colony Manager			Core-5102 (Marmoset Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Animal Care Supervisor			Core-5102 (Marmoset Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Research Assistant			Core-5098 (Behavioral Services)		NA
	N			Animal Caretaker			Core-5102 (Marmoset Colony)		NA
	N			Animal Caretaker			Core-5101 (Macaque Colony)		NA
	N			Animal Caretaker			Core-5103 (Chimpanzee Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Histology Technician			Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Animal Caretaker			Core-5103 (Chimpanzee Colony)		NA

	N	Redacted by agreement		Research Coordinator	EFFORT		Admin Core-5096 (Research Coordination)		NA
	N			Summer Intern			Admin Core-5094 (Summer Intern Program)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Research Assistant			Core-5098 (Behavioral Services)		NA
	N			Veterinary Research Technician			Core-5101 (Macaque Colony)		NA
	N			Animal Caretaker			Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Biomedical Equipment Maintenance Technician			Core-5097 (Veterinary Resources and R…earch Support), Core-5107 (Biomaterial Services)		NA
	N			Laboratory Manager			Core-5098 (Behavioral Services)		NA
	N			Senior Research Associate			Core-5106 (Genomics Core)		NA
	N			Research Technician			Core-5104 (Immunology Core Laboratory)		NA
	N			Animal Caretaker			Core-5101 (Macaque Colony)		NA

	N	Redacted by agreement		Animal Caretaker	EFFORT		Core-5100 (Baboon Colony)		NA
	N			Necropsy Technician			Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Necropsy Technician			Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Laboratory Manager			Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Veterinary Research Technician Supervisor			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker			Core-5101 (Macaque Colony)		NA
	N			Breeding Colony Manager			Core-5100 (Baboon Colony)		NA
	N			Medical Technologist			Core-5099 (Clinical and Anatomical Pathology)		NA
	N			Groundskeeper			Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker			Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA

	N	Redacted by agreement		Animal Caretaker	EFFORT		Core-5100 (Baboon Colony), Core-5103 (Chimpanzee Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N		PHD	Associate Professor			Admin Core-5093 (Director's Office), Core-5102 (Marmoset Colony), Core-5114 (Research Support), Other-5110 (Regenerative Medicine and …ientific Unit)		NA
	N			Summer Intern			Admin Core-5094 (Summer Intern Program)		NA
	N			Veterinary Research Technician Supervisor			Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony), Core-5101 (Macaque Colony)		NA
	N			Colony Administrato			Core-5100 (Baboon		NA

									Colony), Core-5101 (Macaque Colony), Core-5114 (Research Support)		
	N	Redacted by agreement		Research Coordinator Manager	EFFORT				Admin Core-5096 (Research Coordination)		NA
	N			Animal Caretaker					Core-5103 (Chimpanzee Colony)		NA
	N			Summer Intern					Admin Core-5094 (Summer Intern Program)		NA
	N			Veterinary Research Technician					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Veterinary Research Technician					Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician					Core-5101 (Macaque Colony)		NA
	N			Research Assistant					Core-5114 (Research Support)		NA
	N			Animal Resources Manager					Core-5100 (Baboon Colony), Core-5101 (Macaque Colony), Core-5102 (Marmoset Colony), Core-5103 (Chimpanzee Colony)		NA
	N			Animal Caretaker					Core-5100 (Baboon Colony)		NA
	N			Animal Caretaker					Core-5100 (Baboon Colony)		NA
	N			Veterinary Research Technician					Core-5101 (Macaque Colony)		NA

	N	Redacted by agreement		Research Coordinator	EFFORT		Admin Core-5096 (Research Coordination)		NA
	N			Veterinary Research Technician			Core-5101 (Macaque Colony)		NA
	N			Animal Caretaker			Core-5103 (Chimpanzee Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Veterinary Research Technician			Core-5101 (Macaque Colony)		NA
	N			Senior Research Associate			Core-5098 (Behavioral Services)		NA
	N			Veterinary Research Technician			Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker			Core-5100 (Baboon Colony)		NA
	N			Cost Analyst			Admin Core-5096 (Research Coordination), Core-5097 (Veterinary Resources and R…earch Support), Core-5100 (Baboon Colony), Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician			Core-5097 (Veterinary Resources and R…earch Support)		NA
	N			Animal Caretaker			Core-5103 (Chimpanzee Colony)		NA

		Redacted by agreement			EFFORT			
	N			Animal Caretaker		Core-5101 (Macaque Colony)		NA
	N			Veterinary Research Technician		Core-5101 (Macaque Colony)		NA
	N			Central Cagewash Operator		Core-5100 (Baboon Colony), Core-5101 (Macaque Colony), Core-5102 (Marmoset Colony)		NA
eRA Commons User Name	N		PHD	Core Lead		Core-5105 (Research Imaging Core)		NA
	N		PhD	Staff Scientist		Core-5098 (Behavioral Services)		NA
	N		PHD	Associate Professor		Other-5110 (Regenerative Medicine and …ientific Unit)		NA
	Y		BS,MS,PHD	Director/PI		Admin Core-5093 (Director's Office)		NA
	N		DVM	Professor		Core-5097 (Veterinary Resources and R…earch Support), Core-5099 (Clinical and Anatomical Pathology)		NA
	N		MD,BA	Core Scientist		Core-5105 (Research Imaging Core)		NA
	N		PHD	Associate Professor		Other-5109 (Infectious Diseases Scientific Unit)		NA
	N		BS,MS,PHD	Assistant Professor		Core-5106 (Genomics Core)		NA
	N		BA,OTH,PHD	Staff Scientist		Core-5106 (Genomics Core)		NA
	N		PHD	Staff Scientist		Admin Core-5094 (Summer Intern Program),		NA

									Core-5107 (Biomaterial Services)		
eRA Commons User Name	N	Redacted by agreement	PHD	Assistant Director for Research Resources	EFFORT				Admin Core-5093 (Director's Office), Admin Core-5096 (Research Coordination), Core-5100 (Baboon Colony), Core-5114 (Research Support)		NA
	N		DVM	Professor					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N		PHD	Core Scientist					Core-5106 (Genomics Core)		NA
	N		PHD	Professor					Core-5104 (Immunology Core Laboratory), Other-5109 (Infectious Diseases Scientific Unit)		NA
	N		DVM	Professor					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N		PhD	Professor					Other-5109 (Infectious Diseases Scientific Unit)		NA
	N		PHD,BS	Director/PI					Admin Core-5093 (Director's Office), Core-5101 (Macaque Colony), Core-5102 (Marmoset Colony), Other-5109 (Infectious Diseases		NA

									Scientific Unit)		
eRA Commons User Name	N	Redacted by agreement	PHD,MD, BOTH	Professor	EFFORT				Other-5109 (Infectious Diseases Scientific Unit)		NA
	N		DVM	Assistant Professor					Core-5097 (Veterinary Resources and R…earch Support)		NA
	N		PHD,BS	Professor					Admin Core-5093 (Director's Office), Core-5102 (Marmoset Colony), Core-5114 (Research Support), Other-5110 (Regenerative Medicine and …ientific Unit)		NA
	N		PhD	Staff Scientist					Core-5104 (Immunology Core Laboratory), Other-5109 (Infectious Diseases Scientific 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?

No

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? No
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? No

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:
RPPR P51OD011133-20.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)?

No

G.7 VERTEBRATE ANIMALS

Does this project involve vertebrate animals?

Yes

G.8 PROJECT/PERFORMANCE SITES

Organization Name:	DUNS	Congressional District	Address
Primary: Texas Biomedical Research Institute	007936834	TX-020	7620 NW Loop 410 San Antonio TX 782275302
University of Texas Health Science Center of San Antonio	800772162	TX-021	7703 FLOYD CURL DR San Antonio TX 782293901
University of Wyoming	069690956	WY-00	1000 E UNIVERSITY AVE LARAMIE WY 820712000

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)
3861490	Animal Sales and Research

G.12 F&A COSTS

Not Applicable

Southwest NPRC
Information Requested in P51 RPPR Instructions

1.A. Nonhuman primates (NHPs) housed at NPRC supported partially, or in whole, by the P51 grant[1].

Census Date: 2/1/2019

Genus/Species	Breeding Colony[2]				Animals Not in Breeding Colony[3]				Total Colony Census
	M	F	U[4]	Total	M	F	U[4]	Total	
Macaque fascicularus					22	23		45	45
Macaque nemestrina					17			17	17
Callithrix jacchus	94	81	3	178	76	82		158	336
Macaque mulatta (Indian)	101	348	5	454	289	137		426	880
Pan troglodytes					31	43		74	74
Papio anubis	33	246		279	390	292	8	690	969
Total	**228**	**675**	**8**	**911**	**825**	**577**	**8**	**1,410**	**2,321**

[1]This entry does not include animals supported by a U24 or U42 SPF grant.

[2]Total number of animals in breeding colony including adult breeding animals and designated juvenile replacements at time of report.

[3]Animals on protocol or otherwise not in the breeding colony at the time of report.

[4]Sex undetermined.

1.B. Nonhuman primates housed at NPRC - supported by U24 or U42 or other sources[1].

Census Date: 2/1/2019

Genus/Species	Breeding Colony[2]				Animals Not in Breeding Colony[3]				Total Colony Census
	M	F	U[4]	Total	M	F	U[4]	Total	
Cebus spp.					5	5		10	10
Saimiri boliviensis					5	2		7	7
Pan troglodytes					13	10		23	23
Total					**23**	**17**		**40**	**40**

[1]This entry does not include animals supported by a U24 or U42 SPF grant.

[2]Total number of animals in breeding colony including adult breeding animals and designated juvenile replacements at time of report.

[3]Animals on protocol or otherwise not in the breeding colony at the time of report.

[4]Sex undetermined.

1.C. Total Nonhuman primates housed at NPRC, irrespective of source of support.

Genus/Species	Total Number of Animals
Callithrix jacchus	336
Cebus spp.	10
Macaque fascicularus	45
Total	**2,361**

Genus/Species	Total Number of Animals
Macaque mulatta (Indian)	880
Macaque nemestrina	17
Pan troglodytes	97
Papio anubis	969
Saimiri boliviensis	7
Total	**2,361**

2. Tissue Distribution Program Information. It is not necessary to report samples broken down by species.

Dates covered by the report: 1/1/2018 – 12/31/2018

Sample Type	Number of Samples Distributed
Tissue	827
Total	**827**

Comments: 754 samples collected from necropsies or blood and other minimally invasive collections from live animals and 113 frozen samples distributed from the Repository.

3. Types of project. Include all projects performed in whole, or in part, during the reporting period.

Project Type	Number of Projects
Research	54
Management	1
Pilot	8
Total	**63**

4. Percentage of AIDS-related P51 grant dollars.

AIDS - related P51 %: 10

Description: As of December we had Base Grant Program Income of $2,618,026. I filtered for HIV projects and got $252,270. The percentage would be 10%. The $2,618,026 is our May 2018 – December 2018 “Actual” program income. The $252,270 number is our HIV projects for the same time period (8 months).

5. Information regarding the number of investigators by type.

Type of Investigator	Number
Core	9
Affiliate	22
Total	**31**

6. The number of peer reviewed publications directly attributed to P51 activity. Explain how this number was derived; e.g., publications that directly cite the P51 grant, or other types of citation or information.

Source	Number
Articles	43
Book Chapters	
Reviews	2
Total	**45**

7. The number of individuals trained during the reporting period by type.

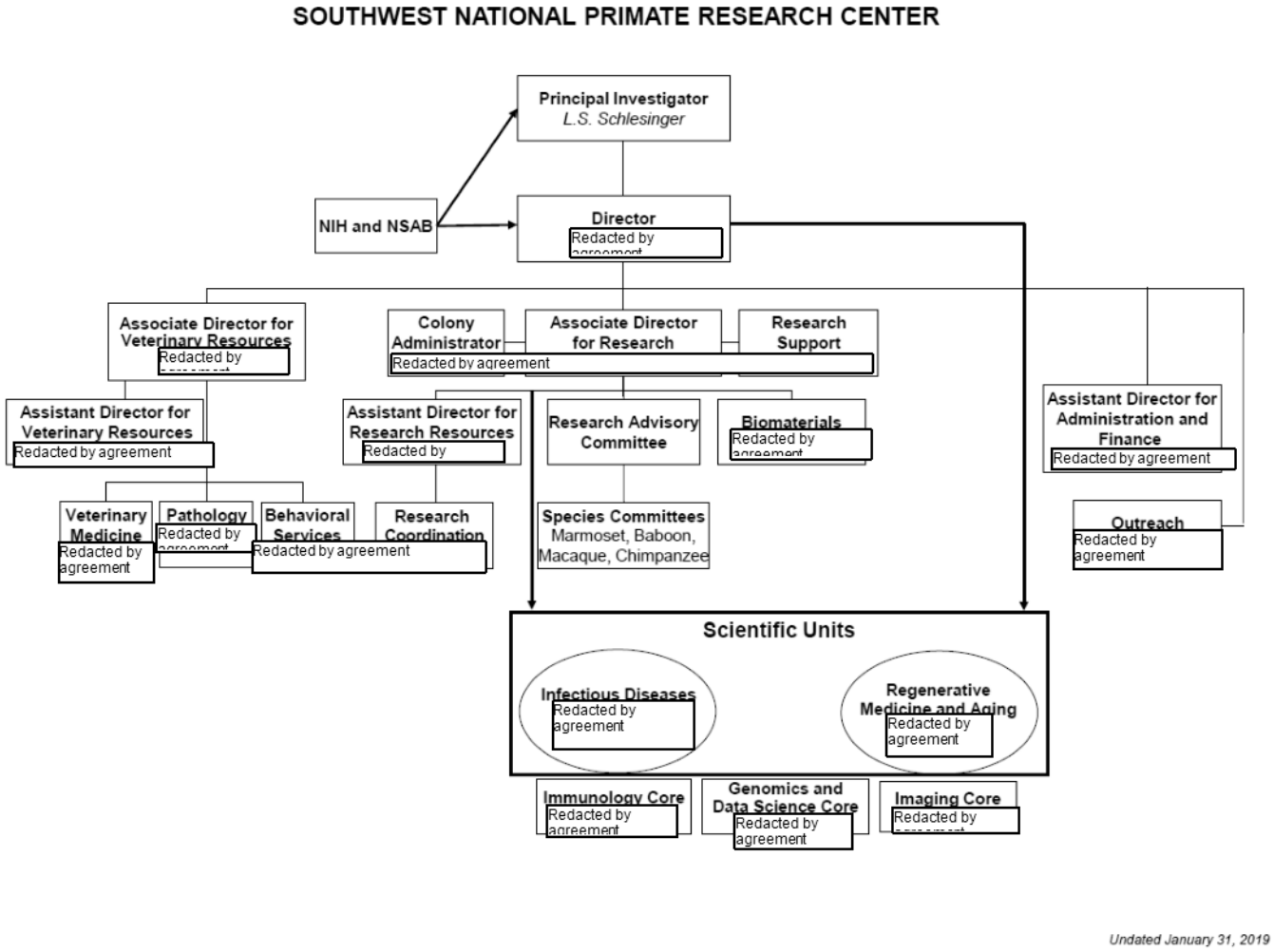
Type of Trainee	Number of Trainees
Post-doctoral	10
Graduate student	9
Undergraduate student	15
Veterinary trainee	7
Other trainee	2
Total	**43**

Description: Most trainees are graduate or undergraduate students from nearby universities. Primate Center Core Scientists hold adjunct position at many local institutions, primarily University of Texas San Antonio and UT Health, and encourage students to apply for training positions.

The Primate Center also has an active intern and extern program which is advertised on our website.

8. Organizational chart that show the relationship of the NPRC to the Institution and the major organizational divisions within the NPRC.

See Next Page



9. Individual projects performed during the reporting period.

See Next Page

Pages 36 to 163 have been removed (9. Individual projects performed).

Per agreement with requester (FOIA 52657) to exclude (11/19/19).

10. Outreach. Provide a brief statement describing outreach activities including how the research community is informed about the capabilities of the NPRC, as well as other items related to outreach (e.g., community relations).

Description: The Southwest National Primate Research Center maintains a robust outreach program with information provided to both researchers and lay persons about the work done and resources available at SNPRC. In 2018, SNPRC participated in several large community outreach efforts, including two city-wide Science Fairs, one was called RockitIntoTheFuture and one was the Hispanic Chamber of Commerce Core4STEM. During these events, our team shared photos and videos about nonhuman primates used in research. Students also had an opportunity to make goodie bags for the primates, and they learned about other research at Texas Biomed and SNPRC in high containment and virology. Texas Biomed hosted a Family Night in 2018, welcoming more than 500 family members to campus to enjoy activities that showcased a wide range of scientific work at the Institute, including animal care, animal behavior, pathology and veterinary work. This event also included tours of the primate center. Through these three events, SNPRC staff reached out to more than 1000 students and adults. Additionally, SNPRC staff attended several career day activities at area schools to showcase not only the science but the veterinary and animal care activities. In addition, Texas Biomed and SNPRC hosted and or provided community talks to more than 2100 students, visiting scientists, visiting veterinarians, media, community members and public officials during on campus for tours of the SNPRC, as well as community presentations. One such presentation includes an audience of high school science teachers that learned about CRISPR, metabolomics, Forensic Anthropology, HIV/AIDS and the life of a vet tech. We also hosted 25 k-12 science teachers on campus during the summer to tour the animal colonies and meet with researchers and animal behaviorial staff. And, this year, we hosted a special day-long event for students to learn about specific careers in research, including veterinarians, vet techs and laboratory technicians.

SNPRC is also included in Texas Biomed's Annual Report that is mailed in the summer to more than 4000 community members and scientists with information about our research programs. Additionally, the communications team maintained the SNPRC website with regular updates to SNPRCs capabilities for potential collaborators to examine. The team also maintained social media accounts on Facebook, LinkedIn (Texas Biomed platform that shares SNPRC info.) and Twitter (Texas Biomed platform that shares SNPRC info.). The team shared almost daily updates. The number of people who "like" the SNPRC Facebook page and follow our posts went up 24% in 2018 – from 783 to 978. The Average Daily total reach was 57, 773 people and the average daily total impressions was 112,249 people. Our unique views on LinkedIn also increased in 2018, from 239 in January to 350 in November (the last month for data), an increase of 46%. Twitter has been a highly successful platform for reaching people. Our Twitter mentions and retweets topped 11,000 this year, up from 200 in 2017. That's a 5,000% increase with the potential to have reached almost 50 million people. Those messages were tweeted in 121 countries. We also average a 2% engagement rate, which is well above the average of .5%.

11. Comments. Provide information showing (in dollars) how the Resource was supported during the reporting period, broken down by: 1) Direct Costs of the ORIP grant, 2) Program Income, 3) Other Sources of support, including cost sharing by the grantee Institution and contribution of F&A costs from the ORIP grant or other grants. If program income is reported, the amount in this table must be the same as the amount reported in Section G.11, "Program Income" of the RPPR. Do not include support (e.g., individual R01 grants) for the PIs or other investigators that does not contribute directly to the NPRC. Describe any limitations of this information.

Direct Costs of the ORIP Grant	Program Income	Other Sources of Support	Total Support for the Resource
$5,304,280	$3,861,490	$11,308,175	$20,473,945
This includes supplements			

12. Feedback from Users. Provide a brief statement discussing how feedback is solicited and the topics that are covered (e.g. quality of: the web site, the ordering process, service delivered, etc.). If feedback has been solicited, include a brief summary of the most significant results, lessons learned and changes made in response to feedback.

See Next Page

Category	Description
Methods for soliciting feedback	Email, meeting (Study completion email and Final Study Meeting)
Topics covered	The quality of project communication, coordination and scheduling of procedures, study conduct, management, access to study personnel, animal selection, deviations and amendments, challenges, resource analysis, budget analysis
Most significant results	Communication with the whole team is associated with successful study performance. Responding PIs think our service is exceptional.
Lessons learned	Plan ahead for every possible problem.
Changes made	Develop working instructions for problem areas. Encourage PI feedback in routine communications.

SNPRC strives to provide an efficient and effective process for project initiation, execution and completion. We ask for feedback from investigators that complete projects as well as from scientists with long term projects. We use these comments to improve the quality of our service. We also address concerns brought to the attention of any SNPRC employee. Concerns are funneled to the Research Coordination manager who then begins investigating the circumstances of the issue. A written response is provided within five working days. The response includes a plan for corrective actions to be taken. The SNPRC values the feedback from Investigators. This function has already resulted in improved communication as well as identified areas for improvement.

Comments: We completed 41 studies in 2018. PIs are emailed a simple questionnaire:
"In order for the Southwest National Primate Research Center to provide the best service to those using our facilities, could you provide me with feedback on how your project was conducted? Some areas for consideration are listed below; however, I would be interested in hearing about any areas you wish to comment on. Please include feedback on any positive or negative interactions you have had thus far.

- Communication
- Coordination and scheduling of procedures
- Study conduct (sample collection, quality)
- Management
- Access to study personnel

Thank you in advance for taking the time and effort to provide this information. We are striving to provide the best possible service and are delighted to hear your thoughts."

While we do not hear back from everyone, we do conduct a final study meeting with primate center personnel to identify issues within these areas: animal selection, procedures performed, deviations from the approved protocol, veterinary decisions, clinical issues, challenges, resource analysis, and budget analysis.

13. Infrastructure Improvements. Provide a list of major infrastructure improvements and capital equipment (as defined by the Institution) purchased during the reporting period. For NIH sources of support, report the Institute or Center from which support was derived.

Type of Improvement	Source of support
Redacted by agreement Boiler replacement and Cage Washer installation.	P51, I&M
Redacted by agreement Recoating of main animal room corridors	P51
Redacted by agreement Marmoset caging modernization	P51
Cage transport system, lift truck	Private Source
Complete endoscopic diagnostic and research support system	
Modernization of ABSL3 sterilization system for caging and hazardous waste	Donor funding
Redacted by agreement Access road improvement, road substrate and grading	
Lab Key data base management system	
Redacted by agreement Upgraded animal security lock system installed	

Composite Application Budget Summary

Categories	Budget Period
Salary, Wages and Fringe Benefits	3,090,543
Equipment	0
Travel	18,293
Participant/Trainee Support Costs	0
Other Direct Costs (excluding Consortium)	1,188,866
Consortium Costs	310,683
Direct Costs	4,608,386
Indirect Costs	3,330,970
Total Direct and Indirect Costs	7,939,355

Component Budget Summary

Components	Categories	Budget Period
5096-001 (Admin Core)	Salary, Wages and Fringe Benefits	29,956
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	1
	Consortium Costs	0
	Direct Costs	29,957
	Indirect Costs	23,965
TOTALS	Total Direct and Indirect Costs	53,922
5094-002 (Admin Core)	Salary, Wages and Fringe Benefits	51,393
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	5,000
	Consortium Costs	0
	Direct Costs	56,393
	Indirect Costs	45,114
TOTALS	Total Direct and Indirect Costs	101,507
5095-003 (Admin Core)	Salary, Wages and Fringe Benefits	0
	Equipment	0
	Travel	0

	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	133,990
	Consortium Costs	0
	Direct Costs	133,990
	Indirect Costs	0
TOTALS	Total Direct and Indirect Costs	133,990
5093-004 (Admin Core)	Salary, Wages and Fringe Benefits	486,608
	Equipment	0
	Travel	6,684
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	400,000
	Consortium Costs	0
	Direct Costs	893,292
	Indirect Costs	714,634
TOTALS	Total Direct and Indirect Costs	1,607,926
5098-001 (Core)	Salary, Wages and Fringe Benefits	308,646
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	308,646
	Indirect Costs	246,917
TOTALS	Total Direct and Indirect Costs	555,564

5099-002 (Core)	Salary, Wages and Fringe Benefits	108,525
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	178,073
	Consortium Costs	0
	Direct Costs	286,598
	Indirect Costs	229,278
TOTALS	Total Direct and Indirect Costs	515,876
5097-003 (Core)	Salary, Wages and Fringe Benefits	1,004,340
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	1,004,340
	Indirect Costs	803,472
TOTALS	Total Direct and Indirect Costs	1,807,813
5106-004 (Core)	Salary, Wages and Fringe Benefits	359,099
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	23,736
	Consortium Costs	34,167

	Direct Costs	417,002
	Indirect Costs	306,268
TOTALS	Total Direct and Indirect Costs	723,271
5107-005 (Core)	Salary, Wages and Fringe Benefits	76,148
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	1,175
	Consortium Costs	0
	Direct Costs	77,323
	Indirect Costs	61,859
TOTALS	Total Direct and Indirect Costs	139,182
5104-006 (Core)	Salary, Wages and Fringe Benefits	132,300
	Equipment	0
	Travel	1,296
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	20,928
	Consortium Costs	0
	Direct Costs	154,524
	Indirect Costs	123,619
TOTALS	Total Direct and Indirect Costs	278,143
5105-007 (Core)	Salary, Wages and Fringe Benefits	0
	Equipment	0
	Travel	0

	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	223,352
	Direct Costs	223,352
	Indirect Costs	0
TOTALS	Total Direct and Indirect Costs	223,352
5102-008 (Core)	Salary, Wages and Fringe Benefits	34,895
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	34,895
	Indirect Costs	27,916
TOTALS	Total Direct and Indirect Costs	62,810
5103-009 (Core)	Salary, Wages and Fringe Benefits	12,770
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	331,866
	Consortium Costs	0
	Direct Costs	344,636
	Indirect Costs	275,709
TOTALS	Total Direct and Indirect Costs	620,345

5100-010 (Core)	Salary, Wages and Fringe Benefits	94,484
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	58,844
	Consortium Costs	0
	Direct Costs	153,328
	Indirect Costs	122,662
TOTALS	Total Direct and Indirect Costs	275,990
5101-011 (Core)	Salary, Wages and Fringe Benefits	49,942
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	117
	Consortium Costs	0
	Direct Costs	50,059
	Indirect Costs	40,047
TOTALS	Total Direct and Indirect Costs	90,106
5114-012 (Core)	Salary, Wages and Fringe Benefits	218,823
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	35,136
	Consortium Costs	0

	Direct Costs	253,959
	Indirect Costs	203,167
TOTALS	Total Direct and Indirect Costs	457,126
5112-013 (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
5113-014 (Core)	Salary, Wages and Fringe Benefits	0
	Equipment	0
	Travel	10,313
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	10,313
	Indirect Costs	8,251
TOTALS	Total Direct and Indirect Costs	18,564
5110-001 (Other)	Salary, Wages and Fringe Benefits	31,825
	Equipment	0
	Travel	0

	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	53,164
	Direct Costs	84,989
	Indirect Costs	25,460
TOTALS	Total Direct and Indirect Costs	110,448
5109-002 (Other)	Salary, Wages and Fringe Benefits	90,789
	Equipment	0
	Travel	0
	Participant/Trainee Support Costs	0
	Other Direct Costs (excluding Consortium)	0
	Consortium Costs	0
	Direct Costs	90,789
	Indirect Costs	72,632
TOTALS	Total Direct and Indirect Costs	163,421
TOTALS		**7,939,355**

Categories Budget Summary

Categories	Components	Budget Period
R&R Budget - Senior/Key Person Funds Requested	5096-001 (Admin Core)	1,701
	5094-002 (Admin Core)	5,759
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	135,355
	5098-001 (Core)	78,116
	5099-002 (Core)	51,052
	5097-003 (Core)	181,704
	5106-004 (Core)	44,764
	5107-005 (Core)	11,519
	5104-006 (Core)	54,094
	5105-007 (Core)	0
	5102-008 (Core)	4,045
	5103-009 (Core)	0
	5100-010 (Core)	15,598
	5101-011 (Core)	0
	5114-012 (Core)	27,344
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	31,825
	5109-002 (Other)	90,789
TOTALS		733,666

R&R Budget - Other Personnel Funds Requested	5096-001 (Admin Core)	28,255
	5094-002 (Admin Core)	45,634
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	351,253
	5098-001 (Core)	230,530
	5099-002 (Core)	57,473
	5097-003 (Core)	822,636
	5106-004 (Core)	314,336
	5107-005 (Core)	64,629
	5104-006 (Core)	78,205
	5105-007 (Core)	0
	5102-008 (Core)	30,849
	5103-009 (Core)	12,770
	5100-010 (Core)	78,885
	5101-011 (Core)	49,942
	5114-012 (Core)	191,479
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		2,356,877
R&R Budget - Section A & B. Total Salary, Wages and Fringe Benefits (A+B)	5096-001 (Admin Core)	29,956
	5094-002 (Admin Core)	51,393
	5095-003 (Admin Core)	0

	5093-004 (Admin Core)	486,608
	5098-001 (Core)	308,646
	5099-002 (Core)	108,525
	5097-003 (Core)	1,004,340
	5106-004 (Core)	359,099
	5107-005 (Core)	76,148
	5104-006 (Core)	132,300
	5105-007 (Core)	0
	5102-008 (Core)	34,895
	5103-009 (Core)	12,770
	5100-010 (Core)	94,484
	5101-011 (Core)	49,942
	5114-012 (Core)	218,823
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	31,825
	5109-002 (Other)	90,789
TOTALS		3,090,543
R&R Budget - Section C. Total Equipment	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0

	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Domestic Travel	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	6,684
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0

	5104-006 (Core)	1,296
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	10,313
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		18,293
R&R Budget - Foreign Travel	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0

	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Section D. Total Travel	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	6,684
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	1,296
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0

	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	10,313
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		18,293
R&R Budget - Tuition/Fees/Health Insurance	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0

	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Stipends	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0

R&R Budget - Trainee Travel	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Subsistence	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0

	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Other Participants/Trainee Support Costs	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0

	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Section E. Total Participants/Trainee Support Costs	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0

	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Materials and Supplies	5096-001 (Admin Core)	1
	5094-002 (Admin Core)	5,000
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	129,760
	5097-003 (Core)	0
	5106-004 (Core)	23,736
	5107-005 (Core)	1,175
	5104-006 (Core)	20,000
	5105-007 (Core)	0
	5102-008 (Core)	0

	5103-009 (Core)	89,805
	5100-010 (Core)	9,419
	5101-011 (Core)	0
	5114-012 (Core)	33,900
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		312,796
R&R Budget - Publication Costs	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0

	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Consultant Services	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0

	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - ADP/Computer Services	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0

R&R Budget - Subawards/Consortium/Contractual Costs	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	34,167
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	223,352
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	53,164
	5109-002 (Other)	0
TOTALS		310,683
R&R Budget - Equipment or Facility Rental User Fees	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0

	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		0
R&R Budget - Alterations and Renovations	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	133,990
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0

	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	0
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		133,990
R&R Budget - Other Direct Cost 1	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	400,000
	5098-001 (Core)	0
	5099-002 (Core)	37,798
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0

	5104-006 (Core)	928
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	242,061
	5100-010 (Core)	29,264
	5101-011 (Core)	117
	5114-012 (Core)	1,236
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		711,404
R&R Budget - Other Direct Cost 2	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	10,515
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0

	5103-009 (Core)	0
	5100-010 (Core)	13,949
	5101-011 (Core)	0
	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		24,464
R&R Budget - Other Direct Cost 3	5096-001 (Admin Core)	0
	5094-002 (Admin Core)	0
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	0
	5098-001 (Core)	0
	5099-002 (Core)	0
	5097-003 (Core)	0
	5106-004 (Core)	0
	5107-005 (Core)	0
	5104-006 (Core)	0
	5105-007 (Core)	0
	5102-008 (Core)	0
	5103-009 (Core)	0
	5100-010 (Core)	6,212
	5101-011 (Core)	0

	5114-012 (Core)	0
	5112-013 (Core)	0
	5113-014 (Core)	0
	5110-001 (Other)	0
	5109-002 (Other)	0
TOTALS		6,212
R&R Budget - Section F. Total Other Direct Cost	5096-001 (Admin Core)	1
	5094-002 (Admin Core)	5,000
	5095-003 (Admin Core)	133,990
	5093-004 (Admin Core)	400,000
	5098-001 (Core)	0
	5099-002 (Core)	178,073
	5097-003 (Core)	0
	5106-004 (Core)	57,903
	5107-005 (Core)	1,175
	5104-006 (Core)	20,928
	5105-007 (Core)	223,352
	5102-008 (Core)	0
	5103-009 (Core)	331,866
	5100-010 (Core)	58,844
	5101-011 (Core)	117
	5114-012 (Core)	35,136
	5112-013 (Core)	0
	5113-014 (Core)	0

	5110-001 (Other)	53,164
	5109-002 (Other)	0
TOTALS		1,499,549
R&R Budget - Section G. Total Direct Cost (A thru F)	5096-001 (Admin Core)	29,957
	5094-002 (Admin Core)	56,393
	5095-003 (Admin Core)	133,990
	5093-004 (Admin Core)	893,292
	5098-001 (Core)	308,646
	5099-002 (Core)	286,598
	5097-003 (Core)	1,004,340
	5106-004 (Core)	417,002
	5107-005 (Core)	77,323
	5104-006 (Core)	154,524
	5105-007 (Core)	223,352
	5102-008 (Core)	34,895
	5103-009 (Core)	344,636
	5100-010 (Core)	153,328
	5101-011 (Core)	50,059
	5114-012 (Core)	253,959
	5112-013 (Core)	0
	5113-014 (Core)	10,313
	5110-001 (Other)	84,989
	5109-002 (Other)	90,789
TOTALS		4,608,386

R&R Budget - Section H. Indirect Costs	5096-001 (Admin Core)	23,965
	5094-002 (Admin Core)	45,114
	5095-003 (Admin Core)	0
	5093-004 (Admin Core)	714,634
	5098-001 (Core)	246,917
	5099-002 (Core)	229,278
	5097-003 (Core)	803,472
	5106-004 (Core)	306,268
	5107-005 (Core)	61,859
	5104-006 (Core)	123,619
	5105-007 (Core)	0
	5102-008 (Core)	27,916
	5103-009 (Core)	275,709
	5100-010 (Core)	122,662
	5101-011 (Core)	40,047
	5114-012 (Core)	203,167
	5112-013 (Core)	0
	5113-014 (Core)	8,251
	5110-001 (Other)	25,460
	5109-002 (Other)	72,632
TOTALS		3,330,970
R&R Budget - Section I. Total Direct and Indirect Costs (G +H)	5096-001 (Admin Core)	53,922
	5094-002 (Admin Core)	101,507
	5095-003 (Admin Core)	133,990

	5093-004 (Admin Core)	1,607,926
	5098-001 (Core)	555,564
	5099-002 (Core)	515,876
	5097-003 (Core)	1,807,813
	5106-004 (Core)	723,271
	5107-005 (Core)	139,182
	5104-006 (Core)	278,143
	5105-007 (Core)	223,352
	5102-008 (Core)	62,810
	5103-009 (Core)	620,345
	5100-010 (Core)	275,990
	5101-011 (Core)	90,106
	5114-012 (Core)	457,126
	5112-013 (Core)	0
	5113-014 (Core)	18,564
	5110-001 (Other)	110,448
	5109-002 (Other)	163,421
TOTALS		7,939,355

A. COMPONENT COVER PAGE

Project Title: Director's Office

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The Director's Office provides leadership and oversight of all aspects of the Southwest National Primate Research Center. This is accomplished through a team based approach to management and leadership, although the Director has the ultimate responsibility for the Center.

The personnel currently assigned to the Director's Office with leadership roles in the Center are the Director, the Associate Director of Research, the Associate Director for Veterinary Resources and Research Support, the Assistant Director of Research Resources, and the Assistant Director for Administrative Services. These individuals meet weekly as the Directors Advisory Team which takes an integrated team approach to providing leadership to SNPRC. The Team assists the Director in running the daily activities of the Center, but are also involved in the decision making process with regard to strategic planning, vision of the research programs, renovation of facilities, and maintaining the primate colonies.

The Aims of the Director's Office include:

Specific Aim 1:--To provide leadership and oversight of all aspects of the Center operations.

Specific Aim 2:--To serve as a conduit for interactions with NIH ORIP and the other NPRCs.

Specific Aim 3:--To serve as the liaison to the regional and national research communities, and the local public community.

Specific Aim 4:--To coordinate center activities with the administrative and service units of the host institute, Texas Biomedical Research Institute.

Specific Aim 5:--To provide the decision making process with regard to strategic planning, vision of the research programs, renovation of facilities, and maintaining the primate colonies.

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: director_office_b2.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 plans for the next reporting period are primarily defined by the strategic plans discussed under B2. A new Director Redacted by agreement PhD) has taken over the affairs of the SNPRC since Jan 1, 2019. One of the immediate goals of the new Director is to recruit an Associate Director for Research to replace Redacted by agreement and an Assistant Director for Research to replace Redacted by agreement We have made progress in both and expect these positions to be filled within the next few months. Redacted by has transitioned to EFFOR effort during 2018 and will assist the new Director and train the new Associate Director, while continuing research efforts. Redacted by agreement has also transitioned to EFFOR T and some of her activities have been transitioned to the new Colony Administrator.

Strategic Planning with Texas Biomed was recently completed. The new vision being provided by the new Texas Biomed President/CEO, Dr. Larry Schlesinger, involves a total replacement of most buildings on campus over a 5-10 year period. Among the new buildings is expected to be a new ABSL4 that expands the capacity for NHP research at the highest level of containment. Renovation of ASL3 space for expanded NHP research is currently occurring. This refurbished building provides the capacity to hold 80-100 NHPs in the BSL3 and includes the provision for an aerobiology suite, imaging suite, and an integrated waste disposal/autoclave. The vision also includes the expansion of faculty level positions by 100%. Part of this will involve cluster hires to bring sufficient critical mass to designated areas to ensure success new recruits. The Board of Trustees is highly committed to this vision of a new Texas Biomed. This is clearly a period of great opportunity for SNPRC. We have begun to identify potential recruits that would also be SNPRC core scientists. These recruits will bolster a currently strong Scientific Unit in Infectious Diseases, and strengthen the other Scientific Unit in Regenerative Medicine and Aging. In the next one year, we also expect to significantly strengthen the capabilities of the three SNPRC Research Cores.

The Director's Office is coming to the end of significant transition in the past year. Having implemented significant strategic initiatives over the last five years, Redacted by agreement retired from his administrative position on Jan 1, 2019. The initiatives launched by Redacted by agreement were required as Milestones by NIH prior to submission of a P51 renewal, and this was followed by a successful five-year renewal of the P51 in 2016. A major objective was building a leadership team to bring new vision and organization to the Center. In this time, SNPRC successfully recruited an Associate Director of Research Redacted by agreement Assistant Director of Veterinary Services Redacted by agreement, and Assistant Director of Finance (Redacted by agreement and promoted an internal candidate to Assistant Director of Research Resources Redacted by agreement Some of these changes in Leadership were short term fixes since highly qualified but very senior individuals filled key positions in the Director's Office with the knowledge that their retirement would occur before the nextP51 could be submitted. The second phase of strategic planning involved a succession plan to replace the Director first, followed by Associate and Assistant Directors for Research Resources. In 2016, SNPRC developed a succession plan for these positions. The plan was understandably placed on hold until Texas Biomed could recruit a new President/CEO. In early 2017, Larry S. Schlesinger, MD accepted the position of President of Texas Biomed. He assumed the role of PI of the P51 and with Redacted by agreement immediately developed a plan to recruit a new Director. A search firm was identified with extensive expertise in senior level recruitment in academic and scientific institutes. The firm used resources and advice from SNPRC and cast a broad net for qualified candidates. A search committee narrowed down candidates to provide a short list for face to face interviews with the committee and then the President. This generated a finalist list that had on campus meetings with key individuals and more in-depth meetings with the President. Dr. Schlesinger presented the finalist list to NIH to ensure that each of the candidates was deemed appropriate. Redacted by agreement was chosen as the new SNPRC Director, offered the position, accepted, and has since taken over the role of the Director effective Jan 1, 2019 Redacted by agreement has currently completed his on-boarding, and is involved in Institute-wide as well as Center-wide initiatives to i) stream-line processes that enhance client-services, ii) reorganize center leadership and staffing and iii) recruit faculty to both strengthen and enhance the scientific units within the SNPRC (more details below).

Before continuing to describe the rest of the changes to the Director's office at the SNPRC, it is important to understand the context and the source. In 2018, Texas Biomed led by Dr. Schlesinger hired an external consulting firm SoBran, Inc., to conduct a review of the various SNPRC processes with the aim of identifying areas which function well and processes that require further improvement. Redacted by agreement endorsed the review process and was kept informed of the interim as well as final conclusions. This review was led by Redacted by agreement Redacted by agreement with the initial aim of identifying gaps and making recommendations for improvement in the pre-study processes coordinated through the center's Research Coordinator positions. In addition, SoBran also assessed sub-level processes as needed to address the overarching goals of improving success in providing pre-study support to clients. Based on initial assessment of the Institute's processes in this arena, Research Coordination and Veterinary Support Services were considered by Texas Biomed and SNPRC staff and clients to be areas needing focused improvement.

In response to the SoBran report, Redacted by agreement is looking at introducing changes to various processes in the Director's office, particularly Research Coordination. Redacted by agreement have long wanted to retire in 2019, and active nationwide searches are ongoing to replace both leaders. The two positions have been redefined as Associate Director for Research Resources (currently Redacted by agreement to reflect consistency with other NPRCs), and Assistant Director for Research Support (currently Redacted by agreement to reflect accurately what the job entails). A committee consisting of SNPRC and Texas Biomed faculty and administrators evaluated the applicants. A preferred candidate has been identified to replace Redacted by agreement and negotiations are ongoing. This position is key because any changes to processes involving Research Coordination will go through this individual. A committee consisting of SNPRC and Texas Biomed faculty and administrators has also been constituted for the purpose of evaluating applications in response to the Associate Director position, and search will be completed in 2019. This is a key member of the leadership of the Center that assists the Director in running the Center. This will complete the long-standing SNPRC plans for a more sustainable Center with a new structure for management and administration of the three primate colonies, macaque, baboon and marmoset as well as the Research Coordination group and a new Research Support Group to support investigators in the design and implementation of the research programs including a lab-based resource not available in other components in the Center. This new leadership team, led by Redacted by agreement will likely be in place in May 2019,

one year prior to the submission of the P51 renewal, and will almost entirely focus on that aspect between May 2019 – May 2020.

The third step in the succession process initiated by Redacted by agreement was to create a structured management of the primate breeding colonies. The macaque, marmoset and baboon colonies were earlier managed directly by Redacted by agreement recruited Colony Managers for each colony that have extensive experience with that species and recruitment of a Colony Administrator to provide long term planning and oversight of all three colonies. In 2017, we filled all three Colony Manager positions. The Baboon and Marmoset Colony Mangers were filled with existing senior staff from the colony supervisors. The new Macaque Colony Manager Redacted by agreement was recruited externally to the center. In 2018 the Colony Administrator position was filled with Redacted by agreement has a background in primatology, anthropology, psychology, and primate behavior in multiple species and represents an outstanding and key member of our team. The Colony Administrator will interact closely with the investigators and will have the responsibility of writing the colony components for the base grant and the progress reports for each species. This position also moves significant responsibility from the senior SNPRC administration to a lower level administrative position. This reduces overall cost to the administration of the Center while providing sustainability. We believe that the Colony Managers and Colony Administrator positions can be recruited and trained more readily than Director level leadership. Our new recruits are likely to be in their positions for multiple P51 renewals, but sustainability implies that changes can be made with limited disruption of the Center activities.

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-5093

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			66,360.00	19,775.00	86,135.00
2						Asst. Director of Veterinary Resource					37,920.00	11,300.00	49,220.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **135,355.00**

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary ($)*	Fringe Benefits*	Funds Requested ($)*
4	Post Doctoral Associates	9.1			152,133.00	45,336.00	197,469.00
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
3	Staff Scientists	7.2			118,478.00	35,306.00	153,784.00
7	**Total Number Other Personnel**					**Total Other Personnel**	**351,253.00**
						Total Salary, Wages and Fringe Benefits (A+B)	**486,608.00**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	6,684.44
2. Foreign Travel Costs	0.00
Total Travel Cost	**6,684.44**

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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
8. Pilot Studies	400,000.00
Total Other Direct Costs	**400,000.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**893,292.44**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	893,292.44	714,633.95
		Total Indirect Costs	**714,633.95**

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)	**1,607,926.39**

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: Summer Intern Program

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

Aim 1: To provide summer research training opportunities in biomedical research and veterinary medicine with nonhuman primates to undergraduate, graduate, and veterinary students enrolled at accredited academic institutions; and

Aim 2: To develop long term mentoring relationships between mentors and mentees.

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: summer_intern_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: summer_intern_b4.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?

We will have the SNPRC Summer Intern Program for the coming summer of 2019. The selection committee of mentors will rate the applicants and offer a maximum of six awards.

AIM 1: Five interns were selected from 17 complete applications:
Redacted by agreement Undergraduate, Junior, San Diego State University, Mentor: Redacted by agreement Project Title: "A Novel Method to Improve Macaque Health Using Probiotics";
Redacted by agreement Undergraduate, Sophomore, Trinity University, Mentor: Redacted by agreement Project Title: "Molecular and Informatics Tools Applied to Viral Studies in Baboons";
Redacted by agreement Undergraduate, Junior, Rutgers University, Mentor: Redacted by agreement Project Title: "Forage Enrichment Comparison in Captive Baboons (Papio SPP.)";
Redacted by agreement Undergraduate, Senior, University of Texas San Antonio, Mentor: Redacted by agreement Project Title:" First Report of Cutaneous Epitheliotropic Lymphoma in a Non-Human Primate (baboon; Papio SPP.)";
Redacted by agreement Undergraduate, Junior, Clemson University, Mentor: Redacted by agreement Project Title: " Novel in Situ Hybridization Assay for the Diagnosis of Chagas Myocarditis and Orchitis in a Rhesus Macaque".

AIM 2: Updates from previous interns include:

2006 Intern Redacted by agreement had a post-doctoral position with MIT and is now the principle investigator with Akuos, Gene Therapy for Hearing Disorders;

2007 Intern Redacted by agreement is currently a veterinarian at Tulane National Primate Research Center;

2016 Intern Redacted by agreement has a position at Propel Laboratories in Fort Collins, CO.;

2016 Intern Redacted by agreement was accepted to the College of Veterinary Medicine, University of California Davis;

2016 Intern Redacted by agreement earned her veterinary medicine degree and is in a post graduate laboratory animal internship program at the University of Colorado Denver. She is now being considered in the match program for a laboratory animal residency position;

2018 Intern Redacted by agreement is applying for a Master's Degree Program in Forensic Medicine at the University of Maryland, Baltimore and

Submitted 2 manuscripts (1 first author, 1 co-author):

Unpublished

Unpublished

Gave 2 presentations (2 presented; one co-authored):

- Non-human Primate Research Center Consortium Pathology Working Group Virtual Slide Conference: Comorbidity identified in a Rhesus macaque (Macaca mulatta). Presenters: Carias E, DeLorenzo M, Gonzalez O, Kumar S, Dick EJ Jr

- SNPRC Internship Presentation: First report of cutaneous epitheliotropic lymphoma in a non-human primate (Baboon; Papio spp.). Presenters: Carias E, DeLorenzo M, Gonzalez OD, Kumar S, Dick EJ Jr.

-SNPRC Internship Presentation: Novel in situ hybridization assay for the diagnosis of Chagas myocarditis and orchitis in a rhesus macaque. Presenters: DeLorenzo M, Carias E, Mustonen A, Gonzalez OD, Giavedoni L, Kumar S, Dick EJ Jr.

Presented 2 posters (1 first author, 1 co-author):

- American College of Veterinary Pathologists 69th Annual Meeting. Washington, DC. First report of cutaneous epitheliotropic lymphoma in a non-human primate (Baboon; Papio spp.). Presenters: Carias E, DeLorenzo M, Gonzalez OD, Kumar S, Dick EJ Jr. Poster SP-76

- American College of Veterinary Pathologists 69th Annual Meeting. Washington, DC. Novel in situ hybridization assay for the diagnosis of Chagas myocarditis and orchitis in a rhesus macaque. Presenters: DeLorenzo M, Carias E, Mustonen A, Gonzalez OD, Giavedoni L, Kumar S, Dick EJ Jr. Poster SP-12

2018 Intern Redacted by agreement has applied as a candidate for the Doctor of Veterinary Medicine Degree and

Submitted 2 manuscripts (1 first author, 1 co-author):

Unpublished

Unpublished

Gave 2 presentations (2 presented; one co-authored):

- Non-human Primate Research Center Consortium Pathology Working Group Virtual Slide Conference: Respiratory infection in a baboon (Papio spp.). Presenters: DeLorenzo M, Carias E, Gonzalez O, Kumar S, Dick EJ Jr
-SNPRC Internship Presentation: Novel in situ hybridization assay for the diagnosis of Chagas myocarditis and orchitis in a rhesus macaque. Presenters: DeLorenzo M, Carias E, Mustonen A, Gonzalez OD, Giavedoni L, Kumar S, Dick EJ Jr.
- SNPRC Internship Presentation: First report of cutaneous epitheliotropic lymphoma in a non-human primate (Baboon; Papio spp.). Presenters: Carias E, DeLorenzo M, Gonzalez OD, Kumar S, Dick EJ Jr.

Presented 2 posters (1 first author, 1 co-author):

- American College of Veterinary Pathologists 69th Annual Meeting. Washington, DC. Novel in situ hybridization assay for the diagnosis of Chagas myocarditis and orchitis in a rhesus macaque. Presenters: DeLorenzo M, Carias E, Mustonen A, Gonzalez OD, Giavedoni L, Kumar S, Dick EJ Jr. Poster SP-12
- American College of Veterinary Pathologists 69th Annual Meeting. Washington, DC. First report of cutaneous epitheliotropic lymphoma in a non-human primate (Baboon; Papio spp.). Presenters: Carias E, DeLorenzo M, Gonzalez OD, Kumar S, Dick EJ Jr. Poster SP-76

The project has provided training for five interns.

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-5094

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			4,437.00	1,322.00	5,759.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **5,759.00**

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary ($)*	Fringe Benefits*	Funds Requested ($)*
	Post Doctoral Associates						
6	Graduate Students	12.0			35,157.00	10,477.00	45,634.00
	Undergraduate Students						
	Secretarial/Clerical						
6	**Total Number Other Personnel**					**Total Other Personnel**	**45,634.00**
						Total Salary, Wages and Fringe Benefits (A+B)	**51,393.00**

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

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

ORGANIZATIONAL DUNS*: 007936834
Budget Type*: ● Project ❍ Subaward/Consortium
Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	5,000.00
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	**5,000.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**56,393.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	56,393.00	45,114.00
		Total Indirect Costs	**45,114.00**

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)	**101,507.00**

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: Improvement and Modernization

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The goals of this unit are met through the following aims:

Goal 1: The primary goal of the Improvement and Modernization (I&M) component is to upgrade facilities assigned to the SNPRC. The scopes of work to improve the program's infrastructure include: acquisition, replacement, renovation and improvements of the SNPRC facilities.

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: I&M_b2.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?

We will continue to improve the SNPRC infrastructure through improvements and modernization of primate facilities, laboratories, and offices in order to support the efficient and safe conduct of biomedical research with nonhuman primates. We will prioritize and address the numerous infrastructure needs of the more than 73 animal housing, office and laboratory buildings assigned to the SNPRC. A number of infrastructure issues have been addressed to ensure the efficient management of nonhuman primates, highest standards of animal welfare and the effective conduct of nonhuman primate research at the Center. We detailed a 5-year plan to address the most urgent of these issues some of which have been modified to reflect the most current needs. We will continue to focus on our 5-year plan in order to modernize and improve facilities toward the goal of supporting effective study conduct of nonhuman primate research at the Center.

The objective of this component is to further develop the SNPRC infrastructure through improvements and modernization of primate facilities, laboratories and offices in order to support the efficient and safe conduct of biomedical research with nonhuman primates. This component has prioritized and addressed numerous infrastructure needs of more than 70 animal housing, office and laboratory buildings assigned to the SNPRC. Several infrastructure issues have been addressed to ensure the efficient management of nonhuman primates and the effective conduct of nonhuman primate research at the Center. We detailed a 5-year plan to address the most urgent of these issues, which has been modified to reflect the most pressing needs. The projects completed in year 20 of the grant reflect the most urgent needs for improvements to provide optimal animal resources and success for research. The following projects are planned to be completed in grant year 20.

Year 20:

1. Complete renovation of Redacted by agreement for centralization of the SNPRC marmoset breeding colony.

The focus of the I&M component efforts this year was Redacted by agreement multi-function building for marmoset production. This final build-out of Redacted by agreement included year 19 I & M funds dedicated to replace a custom designed automated cage wash. Funding for Redacted by agreement renovations and modernization has been in part provided through the I & M component in years 19 and 20 of the grant year. The focus of expending I&M funds for this project is significant considering the national demand for Marmosets utilized in biomedical research. Upon completion of Redacted by agreement the marmoset production facility will considerably enhance the resource by providing a centralized production and research facility. Additionally, we will gain efficiencies by relocating two currently housed colonies located in separate areas of the SNPRC. Completion of this project is expected to be finalized in April 2019 and relocation of the marmosets will begin shortly after completion. The priority of upgrading the HVAC system and renovation of the main surgical suite in Redacted by agreement has been deprioritized as part of a larger TX Biomed strategic plan to construct a multi-species translational research building. This strategic plan is proposed to be implemented sometime in 2020 when funding is secured.

These completed projects may be found in the table below:

Table 1. I & M Projects for Reporting Period

Area/Building	Type of Improvement	Source of Funding
Redacted by agreement	Boiler replacement and Cage Washer installation.	P51 I&M Component Budget

Additionally, there has been significant progress in improvement and modernization in the SNPRC supported by other funding. We were able to accomplish much more by utilizing these funding sources. These completed projects may be found in the table below:

Table 2. I & M Renovations Funded by Other Sources

Area/Building	Type of Improvement	Source of Funding
Redacted by agreement	Recoating of main animal room corridors	Base Brant
	Marmoset caging modernization	Base Grant
	Cage transport system, lift truck	Private Source
	Complete endoscopic diagnostic and research support system	
	Modernization of ABSL3 sterilization system for caging and hazardous waste	
	Access road improvement, road substrate and grading	
	Lab Key data base management system	
	Upgraded animal security lock system installed	

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-5095

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Project Lead	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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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	133,990.00
Total Other Direct Costs	**133,990.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**133,990.00**

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)	**133,990.00**

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: Research Coordination

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

Research Coordination is an organizational unit within the Primate Center, which fulfills a number of functional responsibilities. It is imperative that a central organizing component of a National Primate Research Center optimize use of the Center's resources by expediting project initiation and streamlining study processes. In order to better and more efficiently respond to research requests from NIH funded investigators and other scientists, this component is dedicated to guiding investigators through the process by which Center resources are accessed.

The specific aims are
(1) to provide efficient service to investigators who want to access or are accessing Center resources so that projects are initiated quickly, executed smoothly, and completed on schedule,
(2) to coordinate the efforts of investigators, veterinarians and veterinary technical staff, internal regulatory committees (e.g., IACUC), and Core Scientist collaborators in order to achieve maximal efficiency, and
(3) to monitor procedures accurately and efficiently so that charge-backs can be applied quickly to recover funds for Primate Center operations. Procedures are also monitored to compare the documentation of performed procedures against procedures approved by the IACUC.

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: res_coor_b2.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?

We continue to provide efficient service to initiate and complete research projects and purchase primates. We will continue to hold planning, pre-study, and "in-life" study meetings so that studies can proceed smoothly and finish on time. Quality control of data entry will be increased so that the error rate is reduced. This will minimize the effort required for procedure tracking for cost recovery. Research Coordinators will continue to monitor that scheduled procedures are within the approved protocol. We will continue to address concerns that are reported and use these issues to improve quality and efficiency.

During the reporting period, the Research Coordination unit received 112 requests for support of research. Most of these requests were for use of nonhuman primates available at the Primate Center (baboon, 34; macaque, 38, marmoset, 16). The remaining requests were for rodents and other animals not produced at the SNPRC. About half of the requests (n=52) are from investigators affiliated with institutions external to the SNPRC.

Budgets are developed for almost all requests since cost estimates for projects are commonly sought by investigators considering conducting research at the Center. Although most requests do not go on to become active studies, all requests are tracked from initial request to resolution. During this period, Research Coordination supported an average of 80 active studies per year. On any given day, Research Coordination staff managed approximately 40 active studies (many of which continued over multiple years).

As part of Research Coordination, we strive to provide an efficient and effective process for project initiation, execution and completion. We ask for feedback from investigators that complete projects as well as from scientists with long term projects. We use these comments to improve the quality of our service. We also address concerns brought to the attention of any SNPRC employee. Concerns are funneled to the Research Coordination manager who then begins investigating the circumstances of the issue. A written response is provided within five working days. The response includes a plan for corrective actions to be taken. The SNPRC values the feedback from Investigators. This function has already resulted in improved communication as well as identified areas for improvement. In addition, Redacted by agreement began an analysis of the roles and responsibilities of research coordinators. This process started in 2016 and has continued. Efforts have concentrated on refining duties of RC personnel and delegating some tasks to other veterinary services personnel. Recently, an external review company began an audit of the research coordination services and made recommendations for changes. These suggestions are under review by the Director.

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-5096

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			1,310.72	390.59	1,701.31

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **1,701.31**

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary ($)*	Fringe Benefits*	Funds Requested ($)*
1	Post Doctoral Associates	0.76			4,457.00	1,328.00	5,785.00
	Graduate Students						
	Undergraduate Students						
	Secretarial/Clerical						
5	Research Coordinators	3.6			17,311.00	5,158.80	22,469.80
6	**Total Number Other Personnel**					**Total Other Personnel**	**28,254.80**
						Total Salary, Wages and Fringe Benefits (A+B)	**29,956.11**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	0.89
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	**0.89**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**29,957.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	29,957.00	23,965.00
		Total Indirect Costs	**23,965.00**

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)	**53,922.00**

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: Veterinary Resources and Research Support

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The goals of this unit are met through the following aims:

Goal 1: To develop new techniques and procedures to meet the needs of investigators and research projects. We will continue to provide research support by utilizing veterinary and technical resources to meet specific study needs.

Goal 2: To develop research teams with clearly defined roles for team members in order to improve ease of project implementation. We are currently assessing research support team functions and improving the delineation of roles and responsibilities. Through this process, we are working to decrease duplication of effort and improve efficiencies in clinical and research applications.

Goal 3: To work closely with the training component to provide technical staff with specific training required in order to meet the specialized needs of the research programs at the SNPRC and to facilitate career development for the technical staff.

Goal 4: To continue to provide high quality veterinary care to the animals maintained at the SNPRC and to provide veterinary expertise required for the support of biomedical research with nonhuman primates.

Goal 5: To continue to foster the career development of veterinarians through support of training for ACLAM Board Certification, attendance at professional meetings, and other professional activities.

Goal 6: To produce career minded, highly capable, proficient, and well-rounded technicians and animal caretakers by standardizing training methods and employee advancement criteria across all SNPRC care and veterinary technical groups. As part of this aim, we will institute a self-assessment program that audits all aspects of the program. Audits would include training notebook audits, certification and AAALAS registry audits, technical procedure audits for all species and animal care audits in all species.

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: VRRS_b2.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?

Goal 1: We will continue to develop new techniques and procedures to meet the needs of investigators and research projects. We will continue to provide research support by utilizing veterinary and technical resources to meet specific study needs. We will continue to improve the quality of research and veterinary care for our research subjects.

Goal 2: We will continue to develop the roles of the research teams through the evaluation of how current defined roles for team members are effective to the research process. We will monitor how the changes actually improve the ease of project implementation. As we assess research support team functions through the delineation of roles and responsibilities, we will measure how this impacts the quality of the clinical and research effort.

Goal 3: We will continue to work closely with the training component to provide technical staff with specific training required in order to meet the specialized needs of the research programs at the SNPRC and to facilitate career development for the technical staff.

Goal 4: We will continue to provide high quality veterinary care to the animals maintained at the SNPRC and provide veterinary expertise required for the support of biomedical research with nonhuman primates by developing new techniques and procedures.

Goal 5: Continue to foster the career development of veterinarians through support of training for ACLAM Board Certification, attendance at professional meetings, participate in scientific presentations and other professional organizations. We will continue to support the development of our veterinarians by providing financial support, mentoring and time commitment for the aforementioned activities.

Goal 6: Continue to produce career minded, highly capable, proficient, and well-rounded technicians and animal caretakers by

standardizing training methods and employee advancement criteria across all the SNPRC animal care and veterinary technical groups. We will continue to utilize the self-assessment program which audits all aspects of the program. Audits will continue to include training notebook audits, certification and AAALAS registry audits, technical procedure audits for all species and animal care audits for all species.

Goal 1: We continue to develop new techniques and procedures to meet the needs of investigators and research projects. Effective procedure development has led to the successful execution of studies requiring specialized veterinary and technical methods. The following techniques and procedures were developed since the last reporting period.

Date	Procedure Developed	Purpose/Study
1-18	Breath collection to assess metabolomics	1614PC
2-18	Pharyngeal swab for *Bordetella* detection (with comparison to nasopharyngeal wash)	Research technique, *B. pertussis* studies
5-18	Baboon weaning trial for *Bordetella* prevention	*B. pertussis* studies
5-18	Refining telemetry implant surgery techniques	ABSL4 studies
6-18	Laparoscopic postoperative evaluation following fat ablation laparotomy	1435PC
7-18	Reversible anesthesia trial for containment studies	ABSL4 studies
9-18	Training video of the behavior codes	Research technique
9-18	Intra-lymphatic injections	Research technique
10-18	Propofol CRI for prolonged sedation of baboons	1640PC
10-18	Cochlear function testing in sound restricted setting	1640PC
10-18	Infant care procedures for containment studies	ABSL3 studies
11-18	Cochlear injection surgical support	1640PC
12-18	Carotid catheterization with perfusion for cochlear fixation/collection at necropsy	1640PC
12-18	Peripheral nerve injury study	1622PC

Goal 2: There has been a considerable effort to continue the development of effective and efficient research teams capable of providing expert veterinary and technical support for SNPRC studies. A continued influx of NHP studies necessitates the SNPRC to continue to look for ways to improve the effectiveness of project management and implementation. We continue to evaluate our study performance and study process. As part of an institute wide strategic effort, TX Biomed contributed significantly to this effort by supporting the use of an outside biomedical research consulting firm. This firm interacted with the various members of our research team and gained significant insight to our processes. Recommendations have been communicated to the incoming director for consideration. A key feature of our continual program development will be defining processes and delineating research team responsibilities. The research team is defined as: the Study Veterinarian, Study Research Coordinator, Technical Supervisor, and Technical Team Lead. As described in our goals, the delineation of roles and responsibility to the study processes decrease duplication of effort and improve efficiencies in clinical and research methods. The following is a summary of the research team's roles under evaluation:

Research Coordinator: Serves as the Project Manager and the administrative information hub for study integration. Manages approved study timelines and development of procedure schedule.

Study Veterinarian: Review of IACUC for acceptable animal manipulation and development of a suitable model. Provides veterinary expertise and oversight for study execution, training and critical animal care functions.

Veterinary Technical Manager: The Technical Manager of the study ensures there is adequate animal care and technical expertise, proper equipment available, proper data management, and that procedure timelines can be met.

Team Lead: Prepares the research arena for animal manipulations. This individual leads a team of technical staff to perform a multitude of techniques necessary to support professional staff and study protocol requirements.

Scheduling Research Coordinator: Manages the procedures from a host of timelines for all active SNPRC studies and places them on a master research schedule for the research team to follow.

Goal 3 – As the VRRS component provides the technical expertise required to support studies, there is a continual opportunity to provide technical staff with specific training required in order to meet the specialized needs of the research programs and to facilitate career development for the technical staff. Along with hands-on instruction which occurs routinely, the SNPRC training program provides specialized workshop style training sessions. The workshops cover such topics as equipment (various) use, suture technique, anesthesia, tattooing, surgical prep and aseptic technique, and technique refinement. Workshop sizes are small (generally 1-3 trainees) with a senior technician or veterinarian serving as the instructor. The small class size and controlled environment assures individualized attention for each trainee and provides an enhanced learning experience. Training has been provided by factory representatives for new equipment on site (e.g. radiology equipment, ECG machines, sterilizers) and additional online resources and webinars are available to supplement this training. Knowledge based/classroom style training is provided for a number of topics, including regulations, dose calculations, documentation & correction procedures, and American Association for Laboratory Animal Science (AALAS) certification courses. Novel or study specific training is provided as needed, and can include multiple methods (hands-on, virtual, lecture, research, etc.) to effectively develop procedures and train personnel. Study specific or general SOPs may result from this process.

Goal 4: There has been considerable progress in providing the development of veterinary techniques in order to improve the quality of veterinary care for the animals maintained at the SNPRC and to provide veterinary expertise required for the support of biomedical research with nonhuman primates. The following are techniques developed since the last reporting period:

Date	Procedure Developed	Purpose/Study
1-18	Surgical treatment of air sacculitis	Clinical care (278PC)
1-18	Alopecia scoring	Technique development
2-18	Pharyngeal swab for *Bordetella* detection	Technique development (multiple species)
4-18	Alternate injectable sedation options for pregnant and breeding females	Clinical care (278PC)
5-18	Baboon weaning trial (preliminary data for future exclusion of viral, bacterial, parasitic agents)	Technique development (278PC)
6-18	Fecal transplant for chronic macaque diarrhea treatment (single animal)	Clinical care (1263MF)
10-18	New vasectomy procedure	Technique development
11-18	Dental record chart created and implemented	Clinical care (278PC)

Goal 5: The career development of veterinarians and other VRRS professionals is a priority of the SNPRC training program. This includes training for ACLAM Board Certification, attendance at professional meetings and seminars, and involvement in professional activities which enrich a veterinarian's career path. We have

three of our veterinarians who are now lab animal medicine board certified (DACLAM). Professional staff in the department of the VRRS is encouraged to enroll in training conferences and seminars to advance their knowledge in the sciences. We continue to provide financial support and the time commitment required to attend a major workshop or conference in their area of interest or professional expertise. Additionally, they have successfully participated in scientific presentations and provided training for other institutions. These include National AALAS, APV, SCAW, ASP, AVMA, Biosafety and Biosecurity Training Course, San Antonio Area Foundation, Clinical, Surgical and Techniques Forum, and Grand Rounds. Each veterinarian has attended an educational conference or seminar since the last reporting period.

Goal 6: The SNPRC continues to successfully develop career minded, highly capable, proficient, and well-rounded technicians and caretakers by standardizing training methods and setting employee advancement criteria across all the SNPRC animal care and veterinary technical groups. To meet this goal, we have instituted a self-assessment program that audits all aspects of the program and takes steps to actively monitor training progress. The training staff meet with staff supervisors to ensure the program is effective and progressive. Employee advancement criteria have been standardized and training record audits are conducted both periodically and upon request to determine an employee's progress and their qualification for promotion. Workshop style training sessions and cross-training opportunities provide employees with the chance to add to their skill set and increase their skill percentages. Our AALAS training/certification program continues to have great success, and currently 75% of our Veterinary Research Technicians, and over 30% of our Animal Caretakers (55% of all Veterinary Resources Staff) are AALAS certified at some level. Notably, the Animal Caretaker/Animal Care Supervisor group certifications increased by 10% this year. Technical and animal care procedures are monitored to ensure continued staff proficiency, and any areas of concern are noted for additional training/re-training as needed. A variety of annual refresher courses are available to cover topics such as identifying and reporting alopecia, escaped animal procedures, and animal observations. Efforts to increase the skill sets of interested animal caretakers by providing them with training in technical procedures continue.

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-5097

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			15,326.00	4,567.00	19,893.00
2						Veterinarian					67,782.00	20,199.00	87,981.00
3						Veterinarian					56,880.00	16,950.00	73,830.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **181,704.00**

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						
41	Veterinarians and Vet Techs	132.66			633,772.20	188,864.12	822,636.32
41	**Total Number Other Personnel**					**Total Other Personnel**	**822,636.32**
						Total Salary, Wages and Fringe Benefits (A+B)	**1,004,340.32**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**1,004,340.32**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	1,004,340.32	803,472.26
		Total Indirect Costs	**803,472.26**

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)	**1,807,812.58**

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: Behavioral Services

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

To develop a comprehensive approach to behavioral management by the following activities:

a.Providing appropriate environmental enrichment to nonhuman primate species.
b.Conducting behavioral assessments and performing interventions targeting specific behavioral issues.
c.Assessing and evaluating the extent of alopecia in the primate populations.
d.Implementing and refining procedures for identifying potential partners and for forming compatible pairs and social groups.
e.Utilizing positive reinforcement training to increase the effectiveness of management, husbandry, and research practices
f.Conducting relevant research to increase the effectiveness of the Behavioral Services program.
g.Consulting with investigators during project formation, design, and implementation by providing a resource for behavioral data collection and animal training in order to facilitate research.
h.Educating the staff by presenting workshops and targeted classes, and performing outreach programs for the community.
i.Participating in the Behavioral Management 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: behavior_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: behavior_b4.pdf

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

Tours of the primate center are often led by Behavioral Services personnel. These tours are provided to visiting scientists, donors, and local high school and college groups. Additional examples of outreach include: A guest lecture titled “Primate management and behavior in a laboratory setting” given at Texas A&M University, participation in a half-day symposium for “San Antonio Works,” which aligns education providers with private sector demand, and a webinar titled “Environmental Enrichment: Promoting well-being in laboratory nonhuman primates” was presented to 21 primate facilities across the U.S. A webinar on how to score alopecia was also presented to four National Primate Research Centers.
Also, results have been published as follows:

Unpublished

Unpublished

Lutz CK. 2018. A cross-species comparison of abnormal behavior in three species of singly-housed Old World monkeys. Applied Animal Behaviour Science. 199:52-58.

Unpublished

Lutz CK, Brown T. 2018. Assessing porches as enrichment for singly-housed cynomolgus macaques (Macaca fascicularis). JAALAS 57:134-137.

Published Abstracts:

Lively LE, Ross SR, Leahy M, Hopper LM. 2018. Evaluating the success of the reintroduction of an infant Western lowland gorilla (Gorilla gorilla gorilla) into a zoo-housed family group. American Society of Primatologists conference proceedings.

Lutz CK, Menard MT, Meyer JS, Novak MA. 2018. Alopecia in rhesus macaques (Macaca mulatta): Association with pregnancy and stress. American Society of Primatologists conference proceedings.

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

We plan to continue providing exceptional care to the nonhuman primates housed at SNPRC and to strive to improve and refine our behavioral management procedures.

The Behavioral Services staff members provide specialty enrichment to the indoor caged monkeys and to the chimpanzees. In 2018, Behavioral Services provided all indoor caged monkeys with enrichment 4-5 days per week and foraging devices 1-2 times per month, averaging over 4,800 items provided to 265 animals per month. They also provided approximately 600 enrichment items or experiences per week to the chimpanzees. All enrichment provided by Behavioral Services is supplementary to the routine enrichment provided by the care staff. New foraging devices were developed for the monkeys and are currently being tested. In addition, two platform perches and a brachiating structure constructed from firehose were installed in chimpanzee enclosures, and novel manipulable enrichment items were added to the rotation.

Animals are observed daily by animal care, veterinary technician, and/or enrichment staffs. In addition to these daily observations, routine behavioral assessments are conducted biannually on chimpanzees and quarterly on all singly housed monkeys. In 2018, a total of 226 biannual behavioral observations were conducted on the chimpanzees as well as 228 Quality of Life assessments for 6 chimpanzees. For the singly housed monkey population, 406 Quarterly Behavioral Assessments were conducted on macaques and baboons, and 423 assessments were conducted on marmosets. To keep track of singly housed animals, a monthly Single Housing Report is provided to the AV and the IACUC for review and approval. At any time, animals exhibiting behaviors of concern are reported to the Behavioral Intervention Program (BIP) for further assessment and if necessary, intervention,. In 2018, the BIP received notifications on 174 animals with potential behavior problems. After reviewing the information in the notification, further assessments were conducted on 49 of these animals, and interventions were implemented in 13 of those cases.

To promote wellbeing by socializing the animals, 86 macaque pair introductions were conducted with an 84% success rate. Temperament testing and food aggression data were added to the macaque pairing procedures in order to better predict success. In addition, 18 chimpanzee introductions were conducted with an 89% success rate. Observations are also routinely conducted on socially-housed animals to ensure group compatibility and to address incompatibilities. A total of 431 observations were conducted on chimpanzee groups for behavioral management purposes and 1492 observations (525 cases) were conducted on baboon and macaque social groups during new releases, new introductions, and observations to assess group dynamics. A formal ethogram and quantitative assessment methods are being developed to identify predictive models for colony management success.

Animal training is an important program in both the monkey and the chimpanzee populations. For the monkeys, 61 individual training cases were conducted for behaviors such as cooperative feeding and target training, and 402 sessions were conducted in response to management requests for transferring animals to a different location. Similarly, 531 training sessions were conducted with the chimpanzees. These mainly consisted of training for voluntary sedation and training to shift inside/outside. Additional training initiatives for the chimpanzees include “creativity” sessions, where chimpanzees are rewarded for novel behaviors, training for lotion, ointments and ice pack application, laser therapy, urine collection, and trading/object retrieval.

To further improve behavioral management, a study assessing risk factors predicting alopecia was initiated in the baboon breeding colony and a study assessing toy usage in macaque monkeys is being completed. The Director of Behavioral Services also served as a consultant for three investigators and assisted with the behavioral portion of their study design.

All staff members who work with or around awake nonhuman primates are required to attend eight workshops presented by Behavioral Services which include presentations on the natural history and behavior of chimpanzees, baboons, macaques, and marmosets, and on animal training, environmental enrichment, alopecia, and abnormal behavior. In 2018, an average of 25 employees attended each class. Ten staff members completed all eight classes and received a certificate. In addition to these general classes, specific area classes have been conducted. Two classes on scoring alopecia (10 students achieved reliability in 2018), a class on animal handling procedures, and a chimpanzee escape procedures class for personnel who work with or around chimpanzees, were presented at SNPRC.

The Director of Behavioral Services is a member of the Behavioral Management Consortium (BMC). In 2018, the BMC initiated cross-center training and reliability testing on alopecia scoring. Redacted by agreement conducted webinar-based training for personnel at four NPRC’s, who then scored a consistent set of photographs. These scores were statistically analyzed based on established reference scores. To date, five NPRCs have achieved inter-facility reliability. Also in 2018, the BMC initiated the quarterly webinar series which is designed to provide information on behavioral management topics to the broader NHP research community. Redacted by agreement presented the first webinar in March titled: “Environmental Enrichment: Promoting Wellbeing in Laboratory Nonhuman Primates.” At least 54 institutions have participated in one or more of the four webinar series sessions presented in 2018.

B.2 (behavior_b2.pdf)

In 2018 we assisted with the training of two summer students and the development of their research projects. In August, we collaborated with the American Society of Primatologists' Primate Care Committee to facilitate an all-day workshop on positive reinforcement training. Behavioral Services also holds a monthly journal club to read and discuss relevant research.

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-5098

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			60,182.00	17,934.00	78,116.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **78,116.00**

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						
8	Research Assistants/Associates	43.2			177,604.33	52,926.09	230,530.42
8	**Total Number Other Personnel**					**Total Other Personnel**	**230,530.42**
						Total Salary, Wages and Fringe Benefits (A+B)	**308,646.42**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**308,646.42**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	308,646.42	246,917.14
		Total Indirect Costs	**246,917.14**

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)	**555,563.56**

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: Clinical and Anatomical Pathology

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

Specific Aim 1: To provide outstanding Anatomic Pathology Services through comprehensive anatomic pathology services, including gross examination at necropsy, supplemented by histology, cytopathology, immunopathology, cryopathology, special stains and other specialized techniques.
Specific Aim 2: To provide outstanding Clinical Pathology Services through comprehensive clinical pathology services, including analysis of blood, urine, feces, cerebrospinal fluid, and other bodily fluids by chemical, hematologic, and microbiologic methods.
Specific Aim 3: To provide outstanding Clinical and Research Support by assisting clinical veterinarians and investigators in interpreting pathologic data and recording the findings for future reference, and by organizing results of anatomic and clinical pathology assessments to improve the characterization of primates for research and possibly identify new models of human disease.
Specific Aim 4: To provide outstanding Tissue Share Services by working closely with Biomaterials Services to ensure efficient procurement of nonhuman primate tissues for investigators within and outside the SNPRC and to ensure the collection and storage of unique pathological tissues.
Specific Aim 5: To provide outstanding Teaching and Education by educating interested individuals in pathology and laboratory animal medicine, pursuing collaborative research, and publishing results in the scientific literature.

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: clin_anat_path_b2.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?

Continue to provide colony and research anatomic and clinical pathology support, tissue share support, publication preparation, and training for interns, externs, and other professional or technical personnel.

The anatomic pathology section prepared 11,677 slides, for investigators from 676 accessions. The clinical pathology section performed 28,738 total procedures in the reporting period.

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-5099

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			15,800.00	4,708.00	20,508.00
2						Associate Veterinarian					12,408.00	3,697.00	16,105.00
3						Associate Veterinarian					11,124.00	3,315.00	14,439.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **51,052.00**

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						
8	Pathology Support Staff	8.88			44,277.81	13,194.79	57,472.60
8	**Total Number Other Personnel**					**Total Other Personnel**	**57,472.60**
						Total Salary, Wages and Fringe Benefits (A+B)	**108,524.60**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	129,760.00
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. Lab Services	37,798.00
9. Freight	10,515.00
Total Other Direct Costs	**178,073.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**286,597.60**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	286,597.60	229,278.08
		Total Indirect Costs	**229,278.08**

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)	**515,875.68**

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: Baboon Colony

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

SNPRC has an active program to produce and supply baboons (Papio spp.) as a biomedical research resource. The purpose of this component is to improve the resource to better meet the needs of the US biomedical research community. In pursuit of this goal, we have continued to maintain the census in the most effective and efficient manner by reducing the colony from 1,400 to 1,000 animals over the grant cycle.

Specific Aim 1: To maintain the Baboon Colony at a steady-state of approximately 1,000 pedigreed baboons. Specific Aim 2: To maintain a program of infectious disease surveillance that includes testing for STLV-1 and endoparasites.
Specific Aim 3: To manage the genetic characterization of pedigreed baboons in a cost efficient manner and identify genetic variants of interest to investigators.
Specific Aim 4: To provide opportunities to develop the baboon as an animal model in new research areas.

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: baboon_b2.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 objectives of this component remain basically the same with modification to the census. In the coming year, we plan to continue to adjust the baboon census to balance supply to requests by reducing the number of conventional colony baboons not used in research or breeding and maximizing production in the SPF colony, especially to provide infant baboons for vaccine studies. We will continue to test for STLV-1 and SWBV and sequester the negative baboons to support the use of these animals in research. At the same time, we will focus on maintaining genetic diversity and providing genetically characterized baboons for research use.

The Colony Manager has primary responsibility for the daily breeding and research management of the baboon colony. This change in management continues to be a major success. The Colony Administrator supervises the Colony Manager and provides guidance on breeding and research management decisions. In response to requests and demand for animals, the baboon colony manager has further reduced the census to less than 1,000 animals. The number of breeding females is currently stabilized at 250. In 2018, there were 178 births. In addition, 121 baboons were sold to external investigators.

While we maintain a pedigreed colony, we have shifted our focus to converting the colony to being Specific Pathogen Free for STLV and SWBV. At this time, we have more than 600 SPF baboons. The conventional colony, which numbers about 350, is being managed for eventual phase-out by natural attrition and viral testing. The SPF colony is tested semi-annually for STLV1 and SWBV by the SNPRC Research Support Core which used PCR to screen over 1,200 baboon samples. During the past year, 7 baboons from the SPF colony converted to STLV-1 positive (1.1%). Five of these converted after 4 years of negative tests. This is to be expected in a colony recently converting to SPF (program started in 2014). Only 1 baboon tested positive for SWBV. The entire baboon colony is also on a semi-annual test and treat program for infection with internal parasites.

Genetic management has been extended to analyzing the breeding groups for relatedness. We are in progress with rearranging breeding females so that the kinship coefficients are less than 10%. In addition, genome-wide quantitative trait association analyses to identify variants associated with blood pressure and lipoprotein phenotypes are in progress.

The table below lists projects supported by the Baboon Component during 2018. We continue to increase the number of projects related to infectious diseases, specifically pertussis.

PI	Affiliation	Title	Sponsor
Redacted by agreement	Andrew Technologies	Large volume visceral fat removal to reverse insulin resistance in type 2 diabetes	R43DK112428, Commercial
	Texas A&M	Epigenetic mechanism of chronic pain in baboon model of endometriosis	SNPRC Pilot Program
	UT Health San Antonio	Lease of pregnant baboons for premature C-section	University Health System
	TxBiomed	Establishing a miRNA biomarker signature for brain structural variation in a non-human primate model	R21MH114154
	TxBiomed	Baboon model of liver cancer	Private Source
	TxBiomed	Evaluating the immune response to THEVAX hepatitis B vaccine in baboons	Commercial
	Harvard University	Cellulosic Bridges for Regeneration of Peripheral Nerve Injury	W81XWH-14-C-0064
	BlueWillow	Intranasal nanoemulsion-based mucosal vaccine for pertussis	HHSN272201300028C
	TxBiomed	Baboon natural resistance to SIV infection	Private Source
	TxBiomed	Proof of concept ZIKV infectivity study in baboons	
	TxBiomed	Pathogenesis of baboon adapted SIV	

Redacted by agreement	UTSA	Culture and Transplantation of Baboon Spermatogonial Stem Cells	Private Source
	CBER, FDA	Evaluation of Pertussis Vaccines in baboon model of pertussis using different adjuvants	CBER-NIH-IAA #AAI14017
	CBER, FDA	LP-cdGMP Adjuvant Study	CBER-NIH-IAA #AAI14017
	Univ. of Wyoming	Evaluation of Aging of the Brain and other Tissues in the Baboon	European Union Grant
	Univ. of Wyoming	Maternal Nutrient Restriction: Placental and Fetal Brain and Kidney Outcomes	P01HD021350
	Univ. of Wyoming	Biologic Sampling for Basic Health Care of all Baboons in TPLH Colony	P01HD021350
	Univ. of Wyoming	Noninvasive Behavioral Protocol for Monitoring the Health & Welfare of all Baboons in the TPLH Colony	P01HD021350
	Univ. of Wyoming	Developmental Programming: Maternal obesity and over nutrition	R24OD010916
	Univ. of Wyoming	Womb to tomb: developmental programming and aging interactions in primates	U19AG057758
	Univ. of Wyoming	Developmental Programming by Mismatch of Pre- and Postnatal Nutrition	R24OD011183
	UTSA	Transplantation of induced pluripotent stem cell derived dopaminergic neurons to restore function in MPTP treated baboons	Private Source
	Commercial Company	Evaluation of a novel adjuvant to acellular pertussis vaccine in the clinically relevant baboon infection model	Commercial
	UT Health San Antonio	Anticonvulsive Effect of Novel Stimulation Parameters in the Baboon Model of Generalized Epilepsy	Commercial
	Akouos, Inc.	Development of a baboon model for trans-canal delivery of adeno-associated virus gene therapies to the cochlea	SNPRC Pilot Program, Commercial

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-5100

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Colony Manager	Institutional Base Salary	EFFORT			7,040.00	2,098.00	9,138.00
2.						Project Lead					1,966.00	586.00	2,552.00
3.						Staff Scientist					3,011.15	897.33	3,908.48

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **15,598.48**

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						
24	Animal Care Staff	24.9			60,774.58	18,110.83	78,885.41
24	**Total Number Other Personnel**					**Total Other Personnel**	**78,885.41**
						Total Salary, Wages and Fringe Benefits (A+B)	**94,483.89**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	9,419.00
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. Freight	29,264.00
9. V&I Support	13,949.00
10. Repairs	6,212.00
Total Other Direct Costs	**58,844.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**153,327.89**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	153,327.89	122,662.31
		Total Indirect Costs	**122,662.31**

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)	**275,990.20**

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: Macaque Colony

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The need for specific pathogen free (SPF) rhesus monkeys (Macaca mulatta) of Indian-origin was recognized by the NIH when it established the SPF breeding program in 1989 and provided opportunities for the U42 grant mechanism starting in 2000. The lack of an adequate supply of these monkeys continues to be a major limitation for the national AIDS research effort, this is especially true for programs that require cohorts with highly specific MHC alleles, ages, and sexes.

The Southwest National Primate Research Center (SNPRC) is in a unique position to provide genetically characterized, SPF, Indian-origin rhesus macaques to the national AIDS research effort. Under a U42 grant, SNPRC houses two genetically and physically separate SPF rhesus macaque colonies. Colony 1 represents the original SNPRC colony supported and expanded through the previous efforts of this program (under SNPRC management since 2000), while Colony 2 is a new colony initiated with animals derived from the well characterized SPF colony from NEPRC (SPF colony initiated in 1988).

The overall goals of the P51 Macaque Colony Component are to provide Indian-origin SPF rhesus monkeys for AIDS-related research through the U42 mechanism, to acquire and provide rhesus macaques to programs that are not AIDS-related and cannot be supplied by excess animals from the U42, to acquire and provide non-rhesus macaques to programs using other macaque species not bred at SNPRC, and to manage the research projects that are conducted with macaques at the SNPRC.

The overall goals of this program are to produce pedigreed SPF Indian-origin rhesus monkeys for AIDS-related research by maintaining genetically characterized colonies with regard to SPF status, MHC-Class I alleles, Indian-origin, and pedigree status under the U42 mechanism. In addition, we will determine genetic variation in the colonies and identify >50,000 SNPS in regions of the genome that harbor single copy genes. The new genetic data will dramatically increase the value of these animals in AIDS research. SNPRC also acquires and maintains additional rhesus not available from Colony 1 or 2 to meet the demands of research programs, and acquires and maintains non-rhesus macaques for programs at SNPRC that require other species of macaques, e.g. cynomolgus and pig-tail macaques.

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: macaque_b2.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 major goals of this program remain unchanged from the original application and the plans for next year are consistent with these Aims. The current shortage of rhesus macaques from other sources has place a large demand on our colonies. We continue to provide animals to other Centers when possible. We will continue to perform serological testing twice a year on each animal of the SPF colony and we will generate whole genome sequence on a large segment of the colonies in the coming year. Bioinformatic analysis of GbS data will include annotation of the rhesus genome with the identified SNVs. We will continue to obtain high resolution sequencing for MHC class I genotyping of all rhesus macaques the colonies. We have genotype data on almost all living animals at this time, so this effort will focus on genotyping all live births next year. This is typically performed at weaning and the first TB test at 6-8 months of age. GbS and MHC alleles will be compared to the pedigree for each colony and used to identify appropriate breeding harems in the colonies to maintain specific MHC alleles while retaining genetic variation in GbS alleles within the colonies. This will be achieved in collaboration with the SNPRC SPF Oversight Committee.

The most notable accomplishment in 2018 was submission of the U42 for renewal. The grant received a priority score of Priority Score indicating that the program is performing exceptionally well regarding the needs of national AIDS research programs. The current census of rhesus macaques at SNPRC is 880. Of these, 703 are in the SPF breeding colonies (Colony 1 and 2 and genetic hybrids from these colonies), 159 are assigned to research projects, and 18 are part of the historic FH (familial hypercholesterolemia) colony. In addition, SNPRC currently maintains 17 pig-tail macaques for AIDS research and 45 cynomolgus macaques for non-AIDS research.

One of the new initiatives in the last two years was the creation of Colony Managers for each of the species at SNPRC. This moved primary responsibility for the daily breeding and research management of the colonies from the senior SNPRC administration to a dedicated Colony Manager. The Macaque Colony Manager is Redacted by agreement Redacted by agreement who has extensive experience in the management of rhesus macaque colonies. This second stage of this initiative was completed with the hire of a Colony Administrator that works with each Colony Manager. This position was filled with Redacted by agreement has a background in primatology, anthropology, psychology, and primate behavior in multiple species and represents an excellent member of our team. This transition has made a significant impact on the configurations of harems for maximum production of genetically defined animals. The Rhesus Colony Manager and Administrator also interact closely with the investigators to select animals best suited to their research needs and when appropriate, acquire suitable animals from external sources animals are not available from SNPRC. These individuals also maintain a list of well characterized animals on the Animal Locator such that other Centers can access animals from our colonies. We have maintained a list of greater than 40 rhesus macaques on the locator at different times during 2018.

Colony 1 is the long standing SPF colony at SNPRC, while Colony 2 was transferred to SNPRC from NEPRC during 2015. This year we began to cross breed animals from the two colonies in order to increase production, while also increasing genetic diversity. These are well-planned crosses, using a male from one colony with females from the other colony. The MHC, genomic and pedigree data are available to assist in selection of new breeders in order to retain the desired MCH allele frequency and genetic diversity for the colony. We currently have MHC data on 1045 animals including both living and dead animals, from both the breeding colony and animals provided to research. We currently have MHC on all animals in the breeding colony with the exception of animals that have not been weaned and are too young for a blood sample. Our MHC genotyping is performed by Redacted by agreement at the WNPRC.

The colonies are monitored for SPF status (Herpes B, SIV, STLV-1, SRV) by the SNPRC Immunology Core using Luminex technology. In a competency panel with the other NPRCs, our Luminex technology was among the most accurate of the assays. The Luminex beads are purchased from Charles River providing a consistent and highly standardized resource. We run the SPF testing twice per year, when animals are being TB tested. No animals were positive for the four SPF agents. Our campus is entirely SPF for macaques, so no source of these viruses exist on the campus, but we continue to screen the colony to provide assurances of negative status to investigators. The Luminex assay also test for measles, providing information on our vaccination program, and T cruzi. T cruzi is a minor but ongoing problem for outdoor colonies in the Southwest US. Serology for T. cruzi is performed to identify animals potentially exposed to this parasite, the causative agent for Chagas disease. Animals infected with T. cruzi are not suitable for AIDS studies that result in immunodeficiency. This year we developed PCR technology as a confirmatory assay for T cruzi serology. Colony 1 has a significant number of T cruzi positive animals. These animals are used as breeders, but are not used for research. We have determined that Colony 2 has only 1 T cruzi positive animal, indicating that transmission since 2015 when that colony arrived is very limited. We plan to increase pest control measures in the Colony 1 area to ensure that T cruzi transmission is maintained at levels as low as possible for outdoor colonies in the Southwest US.

Through the P51 Genomics Core and the U42 program, SNPRC is using high throughput sequencing methods to collect high-resolution genetic information on each animal in the breeding colony in order to maximize the genetic diversity of breeding harems and to provide genetic information to investigators using animals derived from our colonies. We have generated genomic data using the Genotype By Sequencing (GbS) technology and have generated data on 382 animals in our SPF Colony. GbS generated data for >5 million single nucleotide variants (SNVs) from the 382 animals from Colonies 1 and 2, with an average of 45,235 SNVs per

animal (an average of 41,123 unique SNV per animal). We estimate that 423,465 of the SNV have a potential functional impact on genes. We assessed the overlap of the GbS SNVs with gene regions associated with immune function and inflammation using the GO resource (Gene Ontology Consortium; http://geneontology.org/) and found 523 SNVs located in those regions. We also merged our GbS-identified SNV with the human ClinVar database (www.ncbi.nim.nih.gov/clinvar), and identified ~4,500 SNVs that were located in genes with identified human variants that result in human phenotypes with potentially clinical outcomes.

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
Protocols	The Genomics Core has refined the GbS technology for application to macaques. We have already disseminated the technology to other NPRCs via the NPRC Genetics and Genomics Working Group.

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

This program is performing exceptionally well. The only challenge in this program is producing sufficient animals to meet research demands both at our institute and other Centers. A national shortage of rhesus macaques continues to cause delays in research. In addition, this shortage makes it exceptionally difficult to source animals for non-HIV studies, since U42 animals can only be used for SIV studies. TB is the most important co-morbidity for HIV, and yet at this time, it is difficult to source rhesus macaques for these programs unless they involve co-infection between SIV and TB. Eventually, SNPRC will need to develop a colony outside of the U42 grant in order to sustain research programs outside of SIV.

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-5101

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	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						
15	Animal Care Staff	14.2			38,476.07	11,465.87	49,941.94
15	**Total Number Other Personnel**					**Total Other Personnel**	**49,941.94**
					Total Salary, Wages and Fringe Benefits (A+B)		**49,941.94**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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
8. Freight	117.00
Total Other Direct Costs	**117.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**50,058.94**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	50,058.94	40,047.15
		Total Indirect Costs	**40,047.15**

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)	**90,106.09**

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: Marmoset Colony

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The Southwest National Primate Research Center has an active and growing program to develop and supply the common marmoset (Callithrix jacchus) as a biomedical research resource. The purpose of this component is to expand the available marmoset resource to better meet the needs of the US biomedical research community, lead in the development of more standardized captive management methods, and genetically characterize this important animal resource so that we may provide investigators with more precise, science driven selection of the best animals for their research projects.
The overall aims of the marmoset colony are:
Aim 1: To continue production of marmosets for use in biomedical research, incorporating the new marmosets acquired from the New England PRC (Marmoset Colony 2) to that continued production. Marmoset Colony 2 and Colony 1 (the original SNPRC colony) will be maintained as separate populations, with Colony 2 husbandry and diet maintained as closely as possible to the colony of origin. The increased size of the total colony will greatly enhance our ability to meet the needs of NIH-funded investigators.
Aim 2: To conduct planned comparisons of factors that represent important sources underlying phenotypic variation within and among marmoset populations. These comparisons will provide a means to identify best practices as regards to husbandry and best methods for assigning subjects to studies or breeding in relation to genetic variation. This aim will be conducted in collaboration with the Wisconsin NPRC.
Aim 3: While maintaining the SNPRC and NEPRC populations as separate entities, we will design and implement plans to define the genetic diversity in the two populations. Based upon these findings, we will structure a long-term management plan to most effectively maintain the diversity present in the populations.
Aim 4: To establish a specific resource of geriatric marmosets to be used in studies of aging and chronic 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: marmoset_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: marmoset_b4.pdf

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

The leader of this component Redacted by agreement participated in a number of initiatives aimed at identifying US marmoset research resource needs and exploring mechanisms to meet those needs.
•August 23-24, 2018. Challenges in Assessing Nonhuman Primate Needs and Resources in Biomedical Research, Bethesda, MD
•September 25-26, 2018. Marmoset PI Meeting, Boulder, CO
•October 22-23, 2018. Care, Use and Welfare of Marmosets as Animal Models for Gene Editing-based Biomedical Research, ILAR Roundtable, NAS, Washington, DC

Redacted by agreement also served as one of the editors of an American College of Laboratory Animal Medicine-sponsored (“blue book”) on marmosets. This volume is likely to become the standard reference for marmoset use and management, given its ACLAM-sponsored status.
Marini, RP, Wachtman, LM, Tardif, SD. Mansfield K, Fox JG. 2018 The Common Marmoset in Captivity and Biomedical Research. Elsevier/Academic Press.

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

We plan to continue to manage the marmoset population for both SNPRC research use as well as for sales to outside investigators.
We plan to consolidate the entire colony in a newly renovated facility at the primate center. This consolidation was delayed due to delays in renovation. The renovated facility is now projected to be ready for use in April, 2019. We will finalize a Research Agreement between UT-Health San Antonio and SNPRC/Texas Biomed to establish the San Antonio Marmoset Aging Program as a collaborative effort between these institutions, with the animal activities all based at SNPRC.
If funded, we will collaborate with the Oregon NPRC to establish the Somatic Cell Genome Editing Testing Center. This effort will greatly enhance the ability of SNPRC to manage assisted reproduction studies using marmosets.
We will continue genomic sequencing on the marmoset population in the coming year – refer to the Genomics Core for more details. That information will inform plans for continued management of the SNPRC marmoset population.

Colony Production

Table 1 illustrates production over the past four years.

Table 1						
Year	**No. dams producing offspring**	**No. litters**	**Litters per dam**	**No. weaned offspring**	**Weaned per litter**	**Weaned per dam**
2015	25	41	1.64	51	1.25	2.04
2016	35	53	1.51	85	1.60	2.42
2017	32	40	1.25	53	1.32	1.66
2018	27	53	1.96	70	1.30	2.59

Production performance in 2018 rebounded from a decline in 2017. However, we had a slightly reduced breeding population, with 27 females producing offspring. An additional nine females were committed to breeding in 2018, but have not produced offspring. Of those, 3 have been removed from breeding for management or clinical reasons and will be replaced while 3 have been provided with new mates.

Projects Supported by the Marmoset Component

Table 2 lists marmoset projects being conducted during 2018. Those with an asterisk were new projects in 2018.

Table 2

Principal Investigator & Institution	**Project Title**	**Sponsor**
Redacted by agreement	Advancing autism research from mice to marmosets: behavioral and neurodevelopmental consequences of maternal immune activation	SNPRC Pilot Research
	Research to improve and standardize marmoset nutrition and dietary husbandry*	R24OD020347
	Parkinson's Disease: autologous cell therapy in the marmoset	Private Source
	Development of NHP model for Hepatitis B virus	Commercial contract
	A nonhuman primate model of nontuberculous mycobacterial (NTM) lung disease	University funds Philanthropic funds
	Energetics of common marmoset pregnancy and lactation as measured by the double-labeled water method	University funds
	Cognitive dysfunction in the marmoset EAE model	Philanthropic funds
	Development of marmoset brain imaging on a 3T scanner	Institutional funds
	Geriatric marmoset phenotyping	Private Source
	Characterization of Zika virus in marmosets	
	BMAA-induced neurodegeneration in marmosets	Institutional funds

Redacted by agreement	The impact of prior Dengue infection on maternal/fetal transfer of Zika virus in the marmoset	SNPRC Pilot Research
	Physiological determinants of insulin action in common marmosets	SNPRC Pilot Research
	Investigation rapamycin as a therapeutic to mitigate age-dependent intervertebral disc degeneration in marmosets	SNPRC x Pepper Center joint Pilot Program
	Chronic sleep insufficiency, cognitive impairment and neuropathology in aging marmosets	SNPRC x Pepper Center joint Pilot Program
	Development of resources for marmoset AD/dementia research	NIA AD supplement to P51OD011133
	Retinoid receptor antagonists as novel male contraceptives	U01HD060479
	Development of a novel accurate therapy for multiple sclerosis	R41AI141323

We have two initiatives under review that will substantially increase our internal use of marmosets in the next 4-5 years. The first of these has received a score that is likely fundable:

- Pending Support
-

We continued to retain a large queue of outside investigators who wish to purchase animals – 16 requests, totaling 158 animals. We arranged sales of 20 marmosets, spread among three NIH-funded investigators in our queue during 2018.

- Redacted by agreement University of Texas at Austin, R01EY024071, *Cortical mechanisms mediating visual function and behavior*
- Redacted by agreement Salk Institute, R24 OD023076, *Development of marmoset models of neurodegenerative disease using embryonic stem cell-based gene-editing approaches*
- Redacted by agreement University of Nebraska at Omaha, R01HD089147, *Oxytocin ligand/receptor variants and social behavior*

We are unlikely to sell additional animals in 2019 due to anticipated increased internal demand.

The marmoset genome sequencing has begun. See the Genomics Core for an update on those efforts.

One graduate student Redacted by agreement Clemson University) continued to use the resources of the breeding program as part of dissertation research, with one paper in press. That research is aimed at understanding the potential effects on female behavior and reproduction stemming from gestation with a male litter mate versus no male litter mates. Her findings may inform management decisions in the future and may also point to new research directions with this species – one of the few litter-producing 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

NOTHING TO REPORT

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

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Category	Explanation
Other	We advertise the availability of marmosets, both for sale and for SNPRC-based use, through our website and through the NIH-based NPRC website. The leader of this component remains well informed regarding developing interest in marmoset use and has reached out to many of the investigators who have requested animals, in order to learn more about their specific resource needs.

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-5102

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Core Lead	Institutional Base Salary	EFFORT			3,116.65	928.76	4,045.41

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **4,045.41**

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						
13	Animal Care Staff	10.7			23,766.78	7,082.53	30,849.31
13	**Total Number Other Personnel**					**Total Other Personnel**	**30,849.31**
						Total Salary, Wages and Fringe Benefits (A+B)	**34,894.72**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**34,894.72**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	34,894.72	27,915.78
		Total Indirect Costs	**27,915.78**

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)	**62,810.50**

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: Chimpanzee Colony

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The new primary objective of this component is to maintain the SNPRC chimpanzee colony as a non-research colony until space is available at the federal sanctuary, Chimp Haven. NIH has estimated that the transfer of all NIH-supported chimpanzees to Chimp Haven will occur by 2026.
Specific Aim 1:--To provide a high quality care, enhanced living quarters and an enriched environment to the NIH-supported chimpanzee colony.
Specific Aim 2:--To provide archived chimpanzee samples from decades of research to appropriate research programs.

Care of Chimpanzees at SNPRC: --The SNPRC has established a set of Primate Center Values which include: teamwork, respect, service, and integrity. The daily practice of these values fosters an environment where personnel have a high regard for each other and the animals in their care. All chimpanzees participate in the environmental enhancement program which provides opportunities for choice and self-determination. The SNPRC employs a dedicated behavioral services staff to manage its multifaceted environmental enrichment program. The main goal of this program is to provide an environment that encourages the expression of species-typical behaviors, such as appropriate social interactions, locomotion, manipulation and feeding in a captive setting.
Veterinary Medical Care:--SNPRC has eleven veterinarians. Two veterinarians are primarily assigned to the SNPRC chimpanzee colonies. Experienced SNPRC animal technicians are on site during off hours to monitor all animal areas and to provide any care that is needed.
Environmental Enrichment and Behavioral Services:--The environmental enrichment and behavioral services program is directed by a formally trained and experienced Ph.D. primate behaviorist. A Chimpanzee Trainer and a Chimpanzee Enrichment Specialist are the primary behavior staff involved in the chimpanzee training and enhancement program. A total of 6 of the Behavioral Group provide some care of the chimpanzees.
Veterinary Technicians and Supervisor:--This group provides clinical care for the chimpanzee colony. Within the chimpanzee technical and animal care staff there is over 200 years of combined experience, including over 100 combined years of veterinary and behavioral expertise. The personnel working with chimpanzees are a selected group that have demonstrated an aptitude for working with great apes and these personnel tend to be life time employees who have extended relationships with the chimpanzees in their 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: chimp_b2.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?

SNPRC will continue to work on creating large socially compatible groups of chimpanzees with the intent of having groups that can move together to Chimp Haven. SNPRC will work with NIH designated veterinarians to classify the NIH-supported animals that meet the criteria of categories 4 and 5 based on the new scoring system. SNPRC will prepare documents as needed for NIH and Chimp Haven including behavioral evaluations, health records for the past 5 years and other relevant historical documentation.

SNPRC maintains a population of 74 NIH-supported chimpanzees (current census). The care of these animals is heavily supplemented by Private Source committed $251,000 per year in additional support for the NIH-supported animals in the renewal of the last P51. In addition, SNPRC provides care for 23 chimpanzees that are not supported by NIH. The cost of the care of these animals is entirely supported by Private Source

The SNPRC QOL (quality of life) program for the chimpanzee colony is well established. Having robust veterinary care and animal behavior programs which monitor and quantitatively evaluate the ongoing health status of each chimpanzee is essential to instituting a quality of life program. Chimpanzee health and welfare evaluations made by the behavior and veterinary care staff are used to determine quality of life scores for each chimpanzee. The QOL committee is the oversight body responsible for the implementation and review of each chimpanzee's QOL assessment. SNPRC provisionally placed all NIH-supported animals into groups based on their ability to withstand the stress of relocation to Chimp Haven. This list is a work in progress as NIH continues to develop a standardized scoring system. This year Redacted by agreement one of the veterinarians in charge of chimpanzees, participated as a member of the NIH committee on the standardization of the health categorization system for chimpanzees in order to evaluate their ability to be safely transported to the National Chimpanzee Sanctuary.

Renovations of some of the chimpanzee housing continued this year, including completion of the renovation of Redacted by agreement This building has three large outdoor grass covered playgrounds with extensive enrichment for activity and self-choice. The renovations to Redacted by agreement included improved water pressure and drains for sanitization and lighting. The walls, ceiling and floors of each enclosure were repaired and stone hard coating applied to these surfaces. The doors segregating the animals and the animals from care staff were renovated to provide greater safety to the animals and staff. The cost for these renovations was supported by Private Source Private Source These three playgrounds can accommodate large social groups of 11 or more animals each.

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-5103

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Project Lead	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						
8	Animal Caretakers	4.26			9,838.00	2,932.00	12,770.00
8	**Total Number Other Personnel**					**Total Other Personnel**	**12,770.00**
						Total Salary, Wages and Fringe Benefits (A+B)	**12,770.00**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	89,805.00
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. Vet / Pathology	242,061.00
Total Other Direct Costs	**331,866.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**344,636.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	344,636.00	275,709.00
		Total Indirect Costs	**275,709.00**

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)	**620,345.00**

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: Immunology Core Laboratory

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The Immunology Core Laboratory (ICL) is a Core Science Service component of the Southwest National Primate Research Center. As a Core, the ICL provides services in support of nonhuman primate research to investigators at the SNPRC and Texas Biomed, and to scientists from around the country. The ICL provides services in the areas of Flow Cytometry for cell sorting and phenotyping, immunological assays based on Luminex technology, and serological surveillance for a number of microbial agents relevant for NHP colony management and research.
The specific aims of the ICL are:
Specific Aim 1.-- To provide assays based in flow cytometry for the characterization of blood cell subsets and the determination of cell mediated activity in nonhuman primate species, including cell sorting at BSL-3 level.
Specific Aim 2.-- To provide methodologies for the simultaneous determination of multiple cytokine-chemokines, hormones, and other biological modifiers in biological fluids derived from nonhuman primate species.
Specific Aim 3.-- To provide serological viral surveillance for the SNPRC SPF Indian rhesus macaque and baboon breeding colonies.
Specific Aim 3 has been expanded to include viral surveillance for baboons from the SNPRC breeding colony with the intention of identifying animals negative for STLV-1 infection. Also, detection of serological responses to Measles virus and Tryipanozoma cruzi have been added to the standard serology testing for SRV, STLV, SIV, and herpes B virus.

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: ICL_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: ICL_b4.pdf

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

Results have been published in the following journals:
•Bidokhti MRM, Dutta D, Madduri LSV, Woollard SM, Norgren R, Jr., Giavedoni L, Byrareddy SN. SIV/SHIV-Zika co-infection does not alter disease pathogenesis in adult non-pregnant rhesus macaque model. PLoS Negl Trop Dis. 2018; 12(10):e0006811. doi: 10.1371/journal.pntd.0006811. PubMed PMID: 30359380; PMCID: PMC6201872.
•Woollard SM, Olwenyi OA, Dutta D, Dave RS, Mathews S, Gorantla S, Johnson N, Giavedoni L, Norgren RB, Jr., Byrareddy SN. Preliminary Studies on Immune Response and Viral Pathogenesis of Zika Virus in Rhesus Macaques. Pathogens 2018; 7(3). doi: 10.3390/pathogens7030070. PubMed PMID: 30127237.
•Almodovar S, Swanson J, Giavedoni LD, Kanthaswamy S, Long CS, Voelkel NF, Edwards MG, Folkvord JM, Connick E, Westmoreland SV, Luciw PA, Flores SC. Lung Vascular Remodeling, Cardiac Hypertrophy, and Inflammatory Cytokines in SHIVnef-Infected Macaques. Viral Immunol. 2018; 31(3):206-22. doi: 10.1089/vim.2017.0051. PubMed PMID: 29256819; PMCID: PMC5909115.
•Obregon-Perko V, Hodara VL, Parodi LM, Giavedoni LD. Baboon CD8 T cells suppress SIVmac infection in CD4 T cells through contact-dependent production of MIP-1alpha, MIP-1beta, and RANTES. Cytokine. 2018; 111:408-19. doi: 10.1016/j.cyto.2018.05.022. PubMed PMID: 29807688; PMCID: PMC6261791.
•Seferovic M, Martin CS, Tardif SD, Rutherford J, Castro ECC, Li T, Hodara VL, Parodi LM, Giavedoni L, Layne-Colon D, Tamhankar M, Yagi S, Martyn C, Reyes K, Suter MA, Aagaard KM, Chiu CY, Patterson JL. Experimental Zika Virus Infection in the Pregnant Common Marmoset Induces Spontaneous Fetal Loss and Neurodevelopmental Abnormalities. Scientific Reports. 2018; 8(1):6851. doi: 10.1038/s41598-018-25205-1. PubMed PMID: 29717225.
•Callendret B, Vellinga J, Wunderlich K, Rodriguez A, Steigerwald R, Dirmeier U, Cheminay C, Volkmann A, Brasel T, Carrion R, Giavedoni LD, Patterson JL, Mire CE, Geisbert TW, Hooper JW, Weijtens M, Hartkoorn-Pasma J, Custers J, Grazia Pau M, Schuitemaker H, Zahn R. A prophylactic multivalent vaccine against different filovirus species is immunogenic and provides protection from lethal infections with Ebolavirus and Marburgvirus species in non-human primates. PLoS One. 2018;13(2):e0192312. doi: 10.1371/journal.pone.0192312. PubMed PMID: 29462200; PMCID: PMC5819775.
•Turk G, Ghiglione Y, Hormanstorfer M, Laufer N, Coloccini R, Salido J, Trifone C, Ruiz MJ, Falivene J, Holgado MP, Caruso MP, Figueroa MI, Salomon H, Giavedoni LD, Pando MLA, Gherardi MM, Rabinovich RD, Pury PA, Sued O. Biomarkers of Progression after HIV Acute/Early Infection: Nothing Compares to CD4(+) T-cell Count? Viruses. 2018; 10(1). doi: 10.3390/v10010034. PubMed PMID: 29342870.

New techniques were presented at the following international meeting:
•“In vitro validation of rhesus macaques and baboons as potential relevant preclinical models on the evaluation of cytokines as vaccine adjuvants”; Vida Hodara, Laura M. Parodi, Jessica Callery, and Luis D. Giavedoni. Meeting of the International Society for the Advancement of Cytometry, Prague, Czech Republic (Apr 30, 2018).

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

The ICL will continue to support research and breeding programs with the three Specific Aims stated in section B.1. We expect to perform more cell sorting of immune cells in the upcoming year, and start cytokine quantification in ABSL-4 containment. In order to provide viral screening assays for the baboon and Indian rhesus macaque breeding colonies, and for the increased use of cell sorting, we are adding and training more personnel so that this increased usage of the Core does not affect the quality and timeliness of our operations.

Specific Aim 1.—

During 2018, the ICL performed 8,247 flow cytometry assays (with one tube considered as one assay) and provided assistance to investigators from Texas Biomed, other institutions at local, national, and international locations (see Table below). The ICL also completed collaborative work with Miltenyi Biotech to identify anti-human markers commercial antibodies that recognized NHP molecules.

Specific Aim 2.—

During 2018, the ICL performed 6,768 Luminex assays (with one well of a 96-well plate considered as one assay); the number of collaborators is included below. We transferred all cytokine and hormone Luminex assays to a magnetic bead platform. This magnetic platform increased the number of detectable cytokines in Old World monkeys to 48, and in New World monkeys to 22. We also collaborated with R&D Systems and Procarta/eBiosciecnes to determine the level of cross reactivity of their anti-human and anti-NHP cytokine Luminex reagents with Old World and New World NHP molecules. Results have been posted in our website www.snprc.org/laboratory-core/immunology/luminex-technology

Specific Aim 3.—

During this reporting period (Jan 01 2018 to Dec 31 2018), the ICL performed serological screening assays for 5 viral species (Herpes B, SIV, STLV-1, SRV, and measles virus) and one parasite (*T. cruzi*) in 1,748 rhesus macaque and 50 baboon samples. The Core uses Luminex technology, which has exceptional sensitivity and sometimes results in a few low reactive samples as being above the cut off. Each virus has two antigens on different beads. If just one bead is reactive in two repeated assays, the sample is considered inconclusive or non-negative. If both beads are reactive (two antigens) in repeat assays, the sample is considered positive. During this reporting period, the screening of the Indian Rhesus Macaque breeding colony did not result in any positive call for the classic SPF pathogens (SIV, SRV, STLV, Herpes B); there were some samples that had inconclusive reactivity, but the proportion was similar to results from previous years. These inconclusive reactions are clearly cross-reactivity of certain antibodies to epitopes on a single antigen, and are unrelated to the virus. We previously sent all of the inconclusive samples out for confirmatory assays, and all were negative or inconclusive by Western blot and negative by PCR. Presumably, the epitope reactive on the Luminex bead is also recognized on a single band on the Western blot. Our campus is now 100% SPF, so there is no source for these viruses on the campus. Our colonies are closed, with no new introductions. We previously convened an Expert Panel on Infectious Disease to evaluate the SPF data and colonies, and they concluded we had no evidence of positive animals. We will continue to monitor the nature of these inconclusive reactions. Are the same animals inconclusive each year? Does the MFI (mean fluorescence intensity) of the reaction increase over years to suggest continued exposure to an environmental or auto-antigen?
In addition to the required SPF screening for the rhesus macaque breeding colonies, the Viral Testing Core performed serological testing for the presence of antibodies against Measles virus and *Trypanosoma cruzi*. The serological testing for antibodies against Measles virus is being performed to survey the results of a Measles vaccination program involving the macaque colonies. This screen has demonstrated a very high seroconversion of the population due to vaccination. Serology for *T. cruzi* is performed to identify animals potentially exposed to this parasite, the causative agent for Chagas disease. Animals infected with *T. cruzi* are not suitable for AIDS studies that will result in immunodeficiency. This assay has limitations at this time, since only one antigen is available and a positive call requires that two beads with two different antigens have reactivity. Additional testing done with the laboratory of Redacted by agreement confirmed the specificity of the Luminex-based *T. cruzi* assay. Lanford's laboratory performed ELISA and lateral flow assays with commercially available kits specific for T. cruzi and confirmed 100% correlation with the Luminex assay. Additional assays for *T. cruzi* included PCR, which showed that 2/3 of the seropositive samples were also PCR positive. We also send these samples out to a confirmatory lab, prior to the sale of any animal for AIDS research.

Researchers Assisted by the ICL

Collaborator	Affiliation	Field of study	Service
Redacted by agreement	Texas Biomed	SIV, SHIV in macaques	Flow cytometry
	Texas Biomed	TB/SIV in macaques	Flow cytometry, Luminex

Redacted by agreement	Harvard Univ.	GBV-B infection in marmosets and SIV in macaques	Luminex
	Texas Biomed	TB studies in mice	Flow cytometry, Luminex
	Texas Biomed	LPS stimulation in different NHP species	Luminex
	Univ. of Puerto Rico	ZIKV/Dengue co-infections	Flow cytometry, Luminex
	Baptist Children's Hospital	Kawasaki disease murine model	Luminex
	University of Nebraska	ZIKV/SIV vaccine development	Luminex
	Texas Biomed	TB studies in mice and humans	Flow cytometry, Luminex
	Texas Biomed	ZIKV infection in marmosets	Flow cytometry, Luminex
	UT Health San Antonio	Mycobacterium infection in marmosets	Flow cytometry, Luminex
	Texas A&M	Marmoset aging and inflammation	Flow cytometry, Luminex
	SNPRC	Marmoset aging	Flow cytometry, Luminex
	SNPRC	HBV vaccine studies in baboons	Flow cytometry, Luminex
	UT Health San Antonio	Marmoset inflammation studies	Luminex
	Univ. of Ulm, Germany	SIV infection studies in rhesus macaques	Luminex
	Univ. of Puerto Rico	TLR activation studies in rhesus macaques	Luminex

The ICL has participated in a total of 15 of EQAPOL's External Proficiency programs for Luminex testing and in 11 proficiency programs for Flow Cytometry. The EQAPOL (External Quality Assurance Oversight Laboratory) at Duke University is supported by the Division of AIDS at NIAID, and its mission is to assess factors contributing to variability in flow cytometry and multiplex human cytokine assays.

Personnel from the ICL participated in the Annual meeting of the International Society for the Advancement of Cytometry (ISAC).

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
Research Material	Activation of antigen-specific B cells. Luminex magnetic bead cocktails for detection of NHP cytokines.

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-5104

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Core Lead	Institutional Base Salary	EFFORT			13,588.00	4,049.22	17,637.22
2.						Core Co-Lead					28,087.25	8,370.00	36,457.25

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **54,094.47**

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	Research Tech	9.32			60,250.55	17,954.66	78,205.21
2	**Total Number Other Personnel**					**Total Other Personnel**	**78,205.21**
						Total Salary, Wages and Fringe Benefits (A+B)	**132,299.68**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	1,296.00
2. Foreign Travel Costs	0.00
Total Travel Cost	**1,296.00**

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	20,000.00
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
8. Freight	928.00
Total Other Direct Costs	**20,928.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**154,523.68**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	154,523.68	123,618.94
		Total Indirect Costs	**123,618.94**

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)	**278,142.62**

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: Research Imaging Core

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

Specific Aim 1: To provide additional validated, quantitative PET and MRI data acquisition methods for NHP species.
Specific Aim 2: To develop new PET radiopharmaceuticals for metabolic imaging in nonhuman primate disease models.
Specific Aim 3: To develop imaging methods for investigating more NHP species.
Specific Aim 4: To develop imaging atlases of NHP brains.

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: res_imaging_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: res_imaging_b4.pdf

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

Publications using Imaging Core resources (from most recent):
1.Kuo AH, Li C, Huber HF, Clarke GD, Nathanielsz PW. Intrauterine growth restriction results in persistent vascular mismatch in adulthood. J Physiol, 2018; 23:5777-5790. DOI:10.1113/JP275139.
2.Kuo AK, Li C, Li J, Huber HF, Nathanielsz PW, Clarke GD. Aging changes in biventricular cardiac function in male and female baboons (papio sp.) J Physiol, 2018; 21:5083-5098. DOI: 10.1113/JP276338
3.Clarke GD, Nathaielsz PW. Stiffening the sinews of the heart. J Physiol 596 (8): 2279-80, 2018.
4.Kemp M, Jobe A, Usuda H, Nathanielsz PW, Li C, Kuo AH, Huber HF, Clarke GD, Saito M, Newnham J Stock S. Efficacy and Safety of Antenatal Steroids. Am J Physiol-Reg Integr Comp Physiol. 2018, 315(4): R825-39. DOI: 10.1152/ajpregu.00193.2017
5.Yang G, Hong H, Torres A, Malloy K, Choudhury G, Kim J, Daadi M. Standards for deriving nonhuman primate-induced pluripotent stem cells, neural stem cells and dopaminergic lineage. International journal of molecular sciences. 2018 Sep;19(9):2788.
6.Huber HF, Kuo AH, Li C, Jenkins SL, Gerow KG, Clarke GD, Nathanielsz, PW. Antenatal synthetic glucocorticoid exposure at human therapeutic equivalent doses predisposes middle-age male offspring baboons to an obese phenotype that emerges with aging. Reproductive Sciences, 2018 June 5. DOI:1933719118778794.
7.Kuo AH, Li C, Mattern V, Huber HF, Comuzzie A, Cox L, Schwab M, Nathanielsz PW, Clarke GD. Sex-dimorphic acceleration of pericardial, subcutaneous, and plasma lipid increase in offspring of poorly nourished baboons. Int J Obes (Lond). 2018 (2018) 42:1092-1096.

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

Support new grants awarded with imaging components:

U19AG057758 Redacted by agreement)09/30/18 – 05/31/2023
NIH/NIA$13,897,202 (YR1: $2,403,771)
Womb to Tomb: Developmental Programming-Aging Interactions in Primates
This is an integrated multicomponent U19 project, designed to investigate the role that developmental programming plays on the aging process in nonhuman primates (NHP). It shall study the impact of aging on NHP brain, behavior, hippocampal-hypothalamo-pituitary-adrenal (HHPA) axis, cardiovascular systems (CVS), and metabolism throughout the life course of the animals. Due to the anatomical and physiological similarities in aging, the baboon will be the NHP model, MRI will be used to research the impact of different developmental programming interventions, such as modified maternal dietary intake and cortical replacement.

R56AG059284 Redacted by PI)09/15/18 – 08/31/2019
NIH/NIA $461,545
Impact of Physical Activity on Striatal Reinnervation in a Nonhuman Primate Model of Parkinson's Disease
As the Core, the goal is to measure endophenotypes of neurologic, cardiologic, oncologic and metabolic processes using positron emission tomography (PET) and magnetic resonance imaging (MRI).

P51OD011133-20S1 Redacted by agreement PI)09/01/18 – 04/30/2019
NIH/OD$251,497
The aims of this supplemental grant include developing new MRI-based tools to assess age-associated changes in marmoset brain vascular and neural function. The use of MRI functional imaging has greatly expanded our ability to assess neural activity and structure in living animals, including the ability to detect degradations in neural networks associated with human AD symptomology. In order to expand our abilities to assess NHP models of aging and cognitive decline it is necessary to develop techniques and equipment to add to

the battery of structural MRI, and resting state fMRI assessments. Specifically, there is interest in examining vascular degeneration that might be associated with dementia symptomology, which requires the development of arterial spin labeling (ASL) scanning protocols for the marmosets. We propose to use our newly developed infrastructure to compare cerebral flood flow and integrity and function of the glymphatic system in n=5 young and n=5 geriatric marmosets. The development of these assessments and resources to evaluate neurological and cognitive changes associated with age in the marmoset will greatly advance the utility of the marmoset as a model for aging and age-related disease.

2018 Research Projects:

URC 1026 (Redacted by agreement Private Source training grant) "Developmental effects on adult cognition and brain function assessed by CANTAB & MRI." Scanned 15 baboons (all MRI) in 2018. Developed cardiac MRS (Specific Aim 2)

URC 1049 (Redacted by agreement – NIH/NIAID P01AI048240) "Defense-in-depth against mucosal HIV clade C invasion – Imaging Core D"14 rhesuses; performed 6 MRI scans & 18 PET scans in 2018. Developed new methods for imaging viral migration using Cu-64 labelled retroviruses. (Specific Aim 2)

URC 1051 (Redacted by agreement - NIH/NINDS R15NS090296) "Structural and functional brain changes associated with motor learning." 4 capuchins x 3 studies/subject – MRI only. (Specific Aim 1)

URC 1069 (Redacted by agreement - NIH/NIMH R21MH114154) "Establishing a miRNA biomarker signature for brain structural variation in a nonhuman primate model". Scanned 20 baboons. Developed baboon-specific methods of processing resting state brain images. (Specific Aim 3).

2018 Development Projects:

DEV 014 (Redacted by agreement "Functional MRI Brain Imaging in the Marmoset at 7 Tesla and 3 Tesla." Developed a protocol for structural and functional MR imaging in the marmoset brain. NIH funding has recently been procured to advance these aims – *see Section B.6* (Specific Aim 1)

DEV 025 (Redacted by agreement "MRI Protocol for Baboon Model of Liver Cancer." Developed an MR imaging protocol for comprehensive evaluation of liver cancer in a baboon model. (Specific Aim 3)

Redacted by agreement a radiology resident and PhD student, completed his PhD dissertation project (See URC 1026, above) using funds from grants he obtained from the Private Source and the Private Source to perform MRI on baboon model of intrauterine growth restriction. Redacted by agreement also was named the runner-up for The Journal of Physiology's 2017 Young Investigator Award.

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
Research Material	1.Developed a process for synthesis of 18F-DOPA for use as a tracer in PET Studies of the substantia nigra in baboon and marmoset models of Parkinson's disease. 2.Developed process for labeling SIV retrovirus with 64Cu, a positron emitter, in order to image the route of propagation of the virus using PET imaging with MRI correlation in the intestinal tract of macaques.
Instruments or equipment	1. Developed animal holder with integrated TX/RX RF coil and tagging coil for arterial spin labelling MRI method for cerebral blood flow (brain perfusion) studies at 7T in marmosets. 2.Developed baby macaque holder/positioner that comfortably restrains animal in position for serial MRI and PET scanning with subsequent image fusion.

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

The MRI-compatible physiological monitor, used for MRI studies on the 3 Tesla system, is at end-of-life. We shall be purchasing a new unit using funds from U19AG057758 and P51OD011133.

The Imaging Research Core Oversight Committee is reviewing the policies and procedures for coordination of animal support in imaging studies between the Texas Biomedical Research Institute IACUC and the UT Health San Antonio IACUC. A revised set of policies is expected in Q2 of 2019.

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-5105

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	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*: 007936834
Budget Type*: ● Project ❍ Subaward/Consortium
Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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	223,352.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
Total Other Direct Costs	**223,352.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**223,352.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	0.00	0.00
		Total Indirect Costs	**0.00**

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)	**223,352.00**

J. Fee	Funds Requested ($)*
	0.00

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

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

RPPR - Core-5105

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

ORGANIZATIONAL DUNS*: 800772162

Budget Type*: ❍ Project ● Subaward/Consortium

Enter name of Organization: UNIVERSITY OF TEXAS HLTH SCIENCE CENTER

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Core Lead	Institutional Base Salary	EFFORT			22,505.00	5,851.00	28,356.00
2						Staff Scientist					6,250.00	1,625.00	7,875.00
3						Research Scientist					5,712.00	1,714.00	7,426.00
4						Co-Investigator					9,255.00	2,406.00	11,661.00
5						Co-Investigator					5,455.00	1,418.00	6,873.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **62,191.00**

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	MRI Engineer	6.0			37,500.00	11,250.00	48,750.00
1	**Total Number Other Personnel**					**Total Other Personnel**	**48,750.00**
						Total Salary, Wages and Fringe Benefits (A+B)	**110,941.00**

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

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

ORGANIZATIONAL DUNS*: 800772162
Budget Type*: ❍ Project ● Subaward/Consortium
Enter name of Organization: UNIVERSITY OF TEXAS HLTH SCIENCE CENTER

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 800772162

Budget Type*: ❍ Project ● Subaward/Consortium

Enter name of Organization: UNIVERSITY OF TEXAS HLTH SCIENCE CENTER

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	35,519.32
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	**35,519.32**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**146,460.32**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Federal MTDC	52.5	146,460.34	76,891.68
		Total Indirect Costs	**76,891.68**

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)	**223,352.00**

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: Genomics Core

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

Aim 1: To maximize genetic diversity of the pedigreed baboon colony.
Aim 2: To maximize genetic diversity of the pedigreed rhesus in Colonies 1 and 2 while maintaining sufficient numbers of animals with specific MHC class I alleles for SIV/HIV related studies.
Aim 3: To maximize genetic diversity of the pedigreed marmosets in Colonies 1 and 2.
Aim 4: To provide NHP genomic services for NIH-funded investigators on a fee-for-service basis.

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: genomics_b2.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?

Aim 1: Baboon Genotype by Sequencing: n = 240
Aim 2: Rhesus Genotype by Sequencing n = 288
Aim 3: Marmoset Genotype by Sequencing n=94 (dependent upon hair follicle collection from living animals in the colony and archived samples from dead animals higher up in the pedigree).
Aim 4: Continue to provide services as requested.

Overall, the Genomics and Data Science Core has held monthly conference calls to discuss progress and plans for genetic characterization of the SNPRC NHP colonies. We have completed genotype-by-sequencing analyses on rhesus and marmoset samples to be used for pedigree verification, to assist with colony management, and to inform the scientific community regarding the genetic makeup of these colony resources. We continue to serve as a resource in providing genomics services to the SNRC and scientific community.
Major activities and outcomes for each aim:
Aim 1: Baboon Genotype by Sequencing (GbS): genome-wide quantitative trait association analyses to identify variants associated with blood pressure and lipoprotein phenotypes are in progress.
Aim 2: Rhesus Genotype by Sequencing (GbS):

a) GbS generated data for >1.8 million variants from a total of 382 animals, with >55,000 having potential for a functional effect based on their consequences and location within coding regions. Analyses demonstrate that there has a trend towards reduced genetic diversity (based on deceasing observed, mean heterozygosity), but also a trend towards decreasing Chinese ancestry. Data will be used to inform breeding across colony 1 and 2 to increase offspring heterozygosity.
b) Another set of 344 DNA samples are being requested in order to perform GbS. Data from a) and b) will be combined for pedigree verification, MHC typing, colony management and assessment of genetic diversity of colonies 1 and 2 using this larger set of animals.

Aim 3: Marmoset Genotype by Sequencing (GbS):
a) The tissue source of marmoset DNA for use in GbS was established (hair follicle). The GbS approach was validated for use in marmosets.
b) n=4 whole genome sequencing performed as reference for Marmoset GbS. Marmoset hair follicle DNA isolated for 84 marmoset samples. GbS generated data for >270,000 variants, with ~6,700 having potential for a functional effect based on their consequences and location within coding regions. A manuscript is under development reporting the use, for the first time, of the GbS approach to genetically characterize the marmoset. In addition, it will be one of the first reports of genetic characterization of a large number of marmosets from a captive US colony.

Aim 4: Genomic services provided:

a) Completed targeted sequencing (12 gene regions) of 286 NHP DNA samples (192 rhesus, 94 marmosets) for Redacted by agreement University of Colorado, Boulder, through SNPRC pilot
b) Ongoing RNA-Seq of 57 NHP tissue samples for Redacted by agreement Wake Forest University, North Carolina.
c) Completed small RNA and RNA-Seq of 532 NHP tissue and blood samples for Redacted by agreement Texas Biomed.
d) Completed small RNA and RNA-Seq of 60 human tissue and blood samples for Redacted by agreement Texas Biomed.
e) Completed Genotype by sequencing of 10 NHP DNA samples for Redacted by agreement Wake Forest University, North Carolina.
f) Ongoing small RNA-Seq of 144 human blood samples for Redacted by agreement , Texas Biomed.
g) Ongoing RNA-Seq of 24 human cell samples for Redacted by agreement Texas Biomed.
h) Ongoing RNA-Seq of 24 NHP cell samples for Redacted by agreement Texas Biomed.

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-5106

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Core Lead	Institutional Base Salary	EFFORT			34,486.57	10,277.00	44,763.57

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **44,763.57**

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	Research Associates	48.42			242,169.34	72,166.46	314,335.80
7	**Total Number Other Personnel**					**Total Other Personnel**	**314,335.80**
						Total Salary, Wages and Fringe Benefits (A+B)	**359,099.37**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	23,736.00
2. Publication Costs	0.00
3. Consultant Services	0.00
4. ADP/Computer Services	0.00
5. Subawards/Consortium/Contractual Costs	34,167.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
Total Other Direct Costs	**57,903.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**417,002.37**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	382,835.37	306,268.30
		Total Indirect Costs	**306,268.30**

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)	**723,270.67**

J. Fee	Funds Requested ($)*
	0.00

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

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

RPPR - Core-5106

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

ORGANIZATIONAL DUNS*: 937727907

Budget Type*: ❍ Project ● Subaward/Consortium

Enter name of Organization: WAKE FOREST UNIVERSITY HEALTH SCIENCES

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Co-Investigator	Institutional Base Salary	EFFORT			16,982.00	5,061.00	22,043.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **22,043.00**

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)	**22,043.00**

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

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

ORGANIZATIONAL DUNS*: 937727907

Budget Type*: ❍ Project ● Subaward/Consortium

Enter name of Organization: WAKE FOREST UNIVERSITY HEALTH SCIENCES

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 937727907

Budget Type*: ❍ Project ● Subaward/Consortium

Enter name of Organization: WAKE FOREST UNIVERSITY HEALTH SCIENCES

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**22,043.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Federal MTDC	55.0	22,043.00	12,124.00
		Total Indirect Costs	**12,124.00**

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)	**34,167.00**

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: Biomaterial Services

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

AIM 1: To collect and distribute tissues per qualified investigator's request from the Repository, experimental and diagnostic necropsies, and from animals sedated for other purposes.
AIM 2: To maintain a database of requests and final distribution of tissues through Biomaterials Services.
AIM 3: To continue a specialized collection of noninfectious chimpanzee tissues collected at necropsy.

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: biomaterials_b2.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?

Prepare a catalog of current archived tissues for the National Primate Research Centers website.

A total of 867 samples were distributed per qualified investigator's request (754 samples collected from necropsies or blood and other minimally invasive collections from live animals and 113 frozen samples distributed from the Repository.)

Biomaterials staff continue to unify freezer inventories from various parts of the SNPRC into one database in Freezerworks inventory management software. A catalog of recently archived tissues some of which have annotated genetics data or were collected for future RNA analysis is being prepared for the National Primate Research Centers website so that investigators will have improved access to these specimens. Freezerworks inventory management software is easily integrated in an overall query software, LABKEY, for investigator searches which is an ongoing development at the SNPRC.

Due to changes in Federal regulations regarding chimpanzees, we will not expand the collection of tissues taken at necropsy. We continue to collect the tissue set required by our pathology group to ascertain cause of death. We bank serum when possible for future surveillance issues. We also evaluate requests from investigators on a case by case basis for collection of specialized tissues taken after Death. SNPRC cannot perform cost recovery on these requests, thus they will be evaluated on contribution to science and the Center will absorb the cost if we believe the contribution is significant.

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-5107

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Core Lead	Institutional Base Salary	EFFORT			8,874.26	2,644.53	11,518.79

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **11,518.79**

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	Bio-materials support staff	12.0			49,791.54	14,837.88	64,629.42
1	**Total Number Other Personnel**					**Total Other Personnel**	**64,629.42**
						Total Salary, Wages and Fringe Benefits (A+B)	**76,148.21**

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

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

ORGANIZATIONAL DUNS*: 007936834
Budget Type*: ● Project ❍ Subaward/Consortium
Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	1,175.00
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	**1,175.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**77,323.21**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	77,323.21	61,858.57
		Total Indirect Costs	**61,858.57**

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)	**139,181.78**

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: Infectious Diseases Scientific Unit

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The major goals of the IDU are listed below. Redacted by agreement serves as the Leader and Redacted by agreement as Co-leader.

Specific Aim 1:To facilitate and advise Affiliate Scientists/Collaborating Investigators – both within and outside the parent institution, Texas Biomed – to develop and implement NHP studies involving infectious diseases.

Specific Aim 2:To provide expertise in primate models of infectious diseases, including immunological and molecular tools, reagents, and technologies required to characterize infectious agents in NHP models. We will also perform total genome analysis for all members of our rhesus monkey, baboon, and marmoset colonies to enhance our understanding of host-pathogen interactions.

Specific Aim 3:To train the next generation of investigators using NHPs in infectious disease research (undergrad/grad students, summer interns, postdoctoral fellows, junior faculty and visiting scientists).

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: ID_SU_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: ID_SU_b4.pdf

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

IDU scientists were active participants in community outreach programs and scientific meetings.

Redacted by

•Invited Guest Speaker, 2018 Palm Springs Symposium on HIV/AIDS, Palm Springs, California. “HIV Disease: New Insights into Pathogenesis, Prevention and Therapy.” March 1-4, 2018.
•Invited Guest Speaker, Humabs BioMed SA, Bellinzona, Switzerland. “Defense-in-depth against Mucosal HIV Clade C Invasion.” April 23, 2018.
•Invited Guest Speaker, Department of Microbiology, Immunology & Molecular Genetics, University of Texas Health Science Center at San Antonio, Texas. “Recombinant Monoclonal Antibody Technology: a Weapon against HIV/AIDS.” September 20, 2018.
•Invited Participant, NIH Expert Panel Discussion, Bethesda, Maryland. “Challenges in Assessing Nonhuman Primate (NHP) Needs and Resources for Biomedical Research.” August 23-24, 2018.
•Invited Guest Speaker, NCI Vaccine Working Group Seminar, Bethesda, Maryland. “Defending the Mucosal Frontline against HIV.” August 24, 2018.
•Invited Keynote Speaker, 4th International Conference on Vaccines Research & Development, Baltimore, MD. “Anti-HIV IgM: the Unsung Hero” November 13-15, 2018.

Redacted by agreement

•University of Texas at San Antonio, Skype presentation, “Maximum Containment Research.” Feb. 26, 2018.
•Bavarian Nordic, “MVA vectored vaccines against Ebolavirus and Marburgvirus.” April 17, 2018.
•Janssen, “Adeno vectored vaccines against Ebolavirus and Marburgvirus.” August 14, 2018.
•University of Texas at San Antonio, Skype presentation, “Countermeasure for Ebolavirus.” October 4, 2018.

Redacted by agreement

•International Liver Congress 2018, Paris, France. “Developing a new world monkey model of chronic HBV infection in the post-chimpanzee era.” April 11-15, 2018.
•2018 International HBV Meeting, Toarmina, Italy. “Developing a new world monkey model of chronic HBV infection in the post-chimpanzee era.” October 3-6, 2018.
•Invited Speaker, 2018. Founder’s Council Dining and Discourse, San Antonio, TX. “CRISPR: The Swiss Army Knife of Translational Medicine.” March 26, 2018.
•Invited Speaker. Medical Library Association. San Antonio TX. “Nonhuman Primate Research and the Cure for HCV.” October 10, 2018.

Redacted by agreement

•Invited Speaker, The South Texas Center for Emerging Infectious Diseases (STCEID) Seminar Series; UTSA, San Antonio, Texas; “Efficacy of novel stem cell-based HIV vaccine to induce mucosal immune responses and protect against SIV challenge in macaques.” January 26, 2018.
•Invited Speaker, The Stem Cell Research & Regenerative Medicine - 4th annual Conference, San Antonio, TX; “Engineering of macaques CD4+ T cells and CD34+ hematopoietic Stem Cells resistant to in vitro SIV infection using Zinc Finger Nucleases.” February 15-16, 2018
•Invited Speaker, Nonhuman Primate Model for AIDS Symposium, Seattle, WA. “Efficacy of Epithelial Stem Cell Vaccine to Induce Mucosal Immune Responses Offering Protection against Challenge.”10/2-5/18

•Invited Speaker, Vaccine 2018 R&D, Washington, D.C. “Efficacy of Novel Epithelial Stem Cell-based AIDS Vaccine to Induce Mucosal Immune Responses and Protect against Challenge.” November 12-15, 2018.
•South Texas Center for Emerging Infectious Disease, UTSA, SATX.” Podcast: Micro Talk.” October 2018.
Redacted by agreement
•International Conference in Infectious Diseases, Buenos Aires, Argentina. “The baboon as a NHP model of natural ZIKV infection.” March 2, 2018.
•NIH/NIAID workshop on HIV Proviral Excision and Host Gene Editing to Eliminate the HIV Reservoir, Rockville, MD. “Inactivation of SIV proviral DNA by different forms of the Cas9 protein.” Apr 18, 2018.
•Meeting of the International Society for the Advancement of Cytometry, Prague, Czech Republic. “In vitro validation of rhesus macaques and baboons as potential relevant preclinical models on the evaluation of cytokines as vaccine adjuvants.” April 30, 2018.
•ZIKA working group meeting, NIAID/NIH, Rockville, MD. August 28, 2018.
Redacted by
•6th Pan-American Dengue Research Network Meeting, Galveston, Texas. “Zika immunity modulates Dengue-elicited immune response kinetics in rhesus macaques.” April 9-12, 2018.
•Meeting of the International Society for the Advancement of Cytometry, Prague, Czech Republic. “In vitro validation of rhesus macaques and baboons as potential relevant preclinical models on the evaluation of cytokines as vaccine adjuvants.” April 30, 2018.
•7th Annual Symposium of RCM-UCC Title V Cooperative Project and Scientific Day of the Puerto Rico Clinical and Translational Research Consortium (PRCTRC), Jaime Benítez Rexach Amphiteather, University of Puerto Rico, Medical Sciences Campus, San Juan, Puerto Rico. “Zika immunity modulates Dengue-elicited immune response kinetics in rhesus macaques”. May 9-11, 2018.
•2018 Negative Strand Virus, Verona, Italy. “Assays for the preclinical evaluation of filovirus vaccines in nonhuman primates.” June 17-22 2018.

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

IDU members will address the Specific Aims, including providing support and NHP expertise to outside investigators. Internal projects for the SNPRC Core Scientists will continue according to the aims of the respective studies.

Redacted by agreement Lead and colleagues will continue work on the different NHP projects. For the HIVRAD P01, Project 1 together with Cores B (Virology & Immunology), C (Primate Studies), and D (Imaging, Research Imaging Institute (RII)/University of Texas Health at San Antonio (UTHSA)) will delineate the mechanisms of mucosally delivered dimeric IgA and systemically delivered IgG1 antibodies against mucosal SHIV transmission. Project 2 anticipated in last year’s RPPR that SNPRC’s insufficient numbers of available, RMs for the passive immunization studies would require a new subcontract with the New Iberia Research Center (NIRC); please see also section F2. Project 2 will build on the discovery that anti-HIV IgM delivered mucosally protected a significant fraction of RMs against mucosal SHIV challenge; follow-up studies will test mucosally delivered IgM versus IgG using equimolar amounts of mAbs, as opposed to equal mg amounts (the latter corrects for the different valency of the pentameric IgM and the monomeric IgG). Project 2 together with Core D has imaged virus-positive cells in animals that became elite controllers (ECs) of SHIV infection or that were partially protected by vaccination; bioinformatics analyses of the PET/MRI scans continue. In addition, monkeys vaccinated and completely or partially protected against mucosal SHIV challenges several years ago are now undergoing rechallenge to test for persistence of vaccine-induced responses. Lastly, Project 3 has just completed a side-by-side comparison of novel adjuvants and is now seeking to assess RNA replicons as vaccine delivery system for optimal induction of mucosal immune responses.
Studies under the R01, which is focused on functional AIDS virus cure via therapeutic vaccination with live attenuated rubella virus (rub) vectors in macaques, are testing the immunogenicity and influence of new rub vectors on virus reservoirs in EC macaques; such vectors encode sequences of HIV tat, gp41, or gag.
Redacted by agreement Co-Lead. Using small particle aerosols generator Redacted by will characterize Marburgvirus in cynomolgus macaques for the government’s Joint Vaccine Acquisition Program. This model will be used in the future to support licensure of Marburgvirus vaccines via the FDA animal rule. Additionally, with Redacted by new BARDA funding, the efficacy of a monoclonal antibody therapy (Zmapp) will be tested in a rhesus macaque Ebolavirus model as well as a small molecule inhibitor (Gilead) in a cynomolgus macaque model of Sudanvirus.
Redacted by agreement SNPRC Director and IDU Core Scientist Redacted by agreement For the U19 HCV vaccine studies with Redacted by at Scripps, the second RM cohort will complete the vaccinations and the third cohort will be enrolled. For the RO1 and UFOVAX HIV studies on novel vaccines involving prefusion trimer nanoparticles, we will continue to examine new vaccines using different nanoparticle configurations. The DARPA program on the role of LPS during sepsis will progress to testing candidate therapeutics in vitro and in vivo. The baboon model for liver cancer will continue to evaluate new genes and strategies to knock out critical tumor suppressor genes using CRISPR technology. In addition, transposon technology will be used to randomly induce mutations into immortalized baboon hepatocytes. This should allow determination of a large set of genes capable of participating in the final steps of oncogenesis in liver cancer. Data on the HBV therapeutic vaccine (THEVAX) will be submitted for publication.
Redacted by agreement IDU Core Scientist. She will continue exploring the immune responses in vaccinated macaques immunized with her novel trans-complementing papilloma virus HIV vaccine and challenge with homologous SIV strain; and continue optimizing her recombinant papillomavirus-based HIV vaccine targeting genital mucosa. She will also finalize CD8-depletion experiments of vaccinated SIV-challenged RM male controllers, which received the Epithelial Stem Cell-based AIDS Vaccine (EPIVAC), were challenged with SIVmac239 24 weeks post vaccine, and controlled viremia to undetectable for over 2 years post-infection. In parallel, Redacted by will continue working on her Pediatric TB vaccine project by exploring the early immune responses in newborn macaques vaccinated with wt-BCG versus TLR-BCG vaccines compared to natural Mtb infection. She will investigate the correlate of protection against aerosol-induced Mtb infection in neonate RM vaccinated either with TLR-BCG or wt-BCG.
Redacted by agreement IDU Core Scientist. Redacted by agreement internal projects will proceed as planned, while the laboratory will continue to provide expertise in NHP immunology to other investigators.
Redacted by agreement IDU Core Scientist will continue to provide expertise in NHP immunology and flow cytometry to Core users.

Redacted by agreement **IDU Lead.** i. Defense-in-depth against mucosal HIV clade C (HIV-C) invasion. This HIV Research & Design (HIVRAD) P01 Redacted by agreement PI, Project 2 and Core A Lead), seeks to induce immune defenses at multiple levels and acting by different mechanisms, including mucosal antibodies (Abs). Project 1 Redacted by agreement Northwestern University) and Core D (Imaging; Redacted by agreement Co-Leads, UTHSA) have examined uptake of ^{64}Cu-labeled Abs, virions, or complexes of the two, making striking new discoveries regarding uptake/distribution following mucosal administration. Project 1 also collaborates with the New Iberia Research Center (NIRC; Redacted by agreement where PET/CT imaging is available. Animals exposed to the R5 clade C simian-human immunodeficiency virus (SHIV-C) during passive immunization, which had completely prevented viremia (Project 2, last year), have been re-enrolled into imaging studies, a cost-effective use of scarce resources. Project 2 identified a new defender at mucosal frontlines: anti-HIV Env IgM. This work, supported jointly by the HIVRAD and an R01 (see under ii) showed for the first time that anti-HIV Env IgM is protective in vivo in the SHIV/RM model. Project 3 Redacted by agreement MIT) has performed an immunogenicity study using novel adjuvants together with the immunogen HIV clade A SOSIP BG505. The results are currently being analyzed. Cores B (Virology & Immunology) and C (Primate Studies) are performing a multiple low-dose titration of a large SHIV-C stock (strain SHIV-1157ipd3N4) through the intrarectal (i.r.) route. ii. Humoral correlates of protection against HIV (R01). Recombinant monoclonal anti-HIV Env IgM produced under this R01 was tested by passive immunization via the i.r. route; a high degree of protection was seen against subsequent i.r. SHIV-C challenge. Animals with long-term SHIV infection and/or prior anti-SHIV vaccination are also being followed for development of neutralizing antibodies (nAbs) against heterologous tier 2 viruses. iii. Functional cure/virus eradication by early highly active anti-retroviral therapy (HAART) + vaccination with live attenuated rubella virus (rub) vectors in RM infants (R01). Therapeutic vaccination with rub vectors expressing SIV Gag (rub-gag) or mimotopes of HIV Tat or gp41 are currently undergoing testing for immunogenicity SHIV-infected RMs. The live attenuated rub vaccine strain has been tested in pig-tailed macaques (PMs) and found to be replication competent, indicating that recombinant rub vectors expressing HIV antigens can now be evaluated in PMs. Such immunogenicity studies are ongoing in PMs chronically infected with a minimally modified HIV-C that is being adapted to PMs. At NIRC, infant RMs inoculated with SHIV-C and started on HAART 48 h later are currently undergoing therapeutic vaccination with rub vectors expressing different SHIV antigens in an attempt to lower the virus reservoirs. iv. The role of early maternal Abs in oral HIV transmission (R01). Work performed previously using photoactivatable virions and PCR has given intriguing data regarding portals of entry after oral virus challenge in neonatal RMs. The labor-intensive analysis of tissue blocks is nearing completion. In addition, we have obtained statistically significant data that early anti-HIV Env Abs enhance SHIV acquisition. This work was performed with non-neutralizing polyclonal IgG from RMs in the early stages of SHIV infection. A manuscript is being prepared. v. Development of protease inhibitors that penetrate the CNS (International Collaboration). Together with Redacted by agreement (Kumamoto University, Japan, and NCI, USA), Redacted by agreement group has evaluated the pharmacokinetics, safety and efficacy of a novel, highly potent anti-HIV drug in the SIV/RM model.

Redacted by agreement **IDU Co-Lead.** i. Characterization of NHP models for hemorrhagic fever viruses. These studies, funded by BARDA, were conducted according to a quality agreement to ensure data are appropriate for submission to FDA for use in support of vaccine/therapeutic licensure via the FDA animal rule. Parameters under study include virology, virus genotype changes, clinical chemistry, hematology, and histopathology. *Ebolavirus (EBOV) in RMs:* EBOV-induced disease was evaluated in RMs after intramuscular (i.m.) inoculation with 1,000 plaque-forming units (PFU). A parallel study seeks to characterize EBOV-induced disease in cynomolgus macaques (CMs) inoculated i.m. with <10 PFUs. *Sudan Virus (SUDV) and Marburg Virus (MARV) in CMs:* these projects seek to characterize SUDV- or MARV-induced disease in CMs inoculated i.m. with 1,000 PFU of the respective virus. ii). Development of therapeutics and vaccines against filoviruses. *Longevity of adeno (Ad)-vectored EBOV vaccines*. The goal of this project is to evaluate the long-term efficacy of Ad-based EBOV vaccines. CMs were vaccinated 1 year prior to receiving a 1,000 PFU of EBOV i.m.; animals were observed daily for clinical signs of disease and by laboratory tests as above. *Evaluation of therapeutic monoclonal Abs (mAbs) for treatment of EBOV-induced disease in RMs*. This project's goal is to evaluate novel mAb cocktails for efficacy against EBOV disease. RMs were exposed to 1,000 PFU of EBOV i.m. and five days later, dosed with the mAbs that rescued EBOV-infected RMs from lethal disease.

Redacted by agreement **SNPRC Director and IDU Core Scientist** Redacted by agreement **Core Scientist**. i). U19 Hepatitis C Center Redacted by agreement Scripps (PI); Redacted by agreement SNPRC Co-Investigator. RMs are used to test immunogenicity of vaccine candidates to characterize broadly neutralizing Abs (bnAbs) by cloning the entire B-

cell repertoire and to define how bnAbs bind antigen at the crystal structure level. Data from the 1st trial are being prepared for publication. ii). R01 and UFOVAX Commercial HIV vaccine studies. Redacted by agreement Scripps (PI); Redacted by agreement SNPRC Co-Investigators. These grants evaluate vaccines displaying uncleaved prefusion-optimized trimers on nanoparticles for the generation of bnAbs. Both studies were initiated this year. iii). DARPA Redacted by agreement (PI); Redacted by agreement SNPRC Co-Investigator. The role of LPS during sepsis and inter-species variations in tolerance to lipopolysaccharide (LPS) are being evaluated to develop new therapeutics for sepsis. iv). SNPRC Pilot. Baboon model for liver cancer. This program involves genetic engineering of primary baboon hepatocytes followed by autologous transplantation into the liver of immunocompetent baboons. This year, both CRISPR and transposon technology were used to modify oncogenes. The studies circumvent the multistep process and decades required to induce cancer. v). Novel HBV therapeutic vaccine Redacted by agreement (PI) Redacted by agreement SNPRC Co-Investigators. This new program involves using baboons to evaluate an HBV vaccine that has novel mechanisms to trigger a T-cell response to the HBV X protein.

Redacted by agreement **IDU Core Scientist**. i). Epithelial stem cell-based HIV vaccine. Redacted by agreement developed an epithelial stem cell-based vaccine to induce SIV-specific mucosal responses. Repeated low-dose SIV challenges revealed significant delay and lower viremia (reduction of 2-3 log at peak, 4-5 log at set-point, and undetectable by week 16 in vaccinated females). Mucosal and systemic T-cell responses correlated with control of viremia; there was an inverse association between viremia and levels of vaginal IgA and IgG post-SIV. Administration of cM-T807 yielded a rise in viremia in all animals (peaks 10^4-10^5 copies eq/ml) by day 10, which rapidly declined to undetectable by day 28 coinciding with NK/CD8+ recovery and systemic IgG. ii). Recombinant papillomavirus-based HIV vaccine targeting genital mucosa (R21). Redacted by agreement has developed a recombinant papillomavirus-based vector expressing SIV-specific T-cell epitopes SIVgag/tat/env (RhPV-SIVEp). The vaccine was inoculated at a high dose vaginally to female RM. Only low-level of SIV antigen expression was detected indicating insufficient antigenic stimulation. Those experiments are ongoing. iii). Trans-complementing papilloma-HIV vaccine (R01). Redacted by agreement generated vaccine constructs based on the 2 viral genomes: a replication competent wild-type RhPV and replication-competent trans-complementing RhPV expressing SIV antigens. Maximal vaccine doses were given vaginally. Experiments are ongoing. iv). A neonatal primate model for tuberculosis vaccines (R01). A recombinant BCG expressing a peptide stimulating TLR-2 (TLR-BCG) was used to immunize newborn macaques and evaluate TH1 immune responses compared to BCG and unvaccinated Mtb-infected infants. Results suggested a trend toward an increased frequency of Ag85A-specific and PPD-specific IFN-γ-producing cells in TLR-BCG-vaccinated animals compared to BCG-vaccinated and unvaccinated animals. Experiments are ongoing.

Redacted by agreement **IDU Core Scientist**. i) Antiviral therapy: using the SIVmac model, the laboratory of Dr. Redacted by agreement has developed a series of guiding RNA (gRNAs) that target the CRISPR/Cas9 nuclease and nickase to three conserved sequences in the SIVmac genome. The lab made single plasmids co-expressing 3 gRNAs with Cas9 nuclease or 6 gRNAs with Cas9 nickase. These plasmids were tested is cell lines chronically infected with SIV and resulted in more than 95% viral inhibition. Work is being done to prepare targeted liposomes to deliver these plasmids into CD4 cells latently infected with SIV. ii) Viral restriction: baboons are a widely distributed African species that harbor no natural SIV; however, in vitro infection of baboon PBMC with SIV from RM (SIVmac) results in productive infection, and baboon CD4 cells are as permissive as RM CD4 cells for SIVmac replication. SIVmac was adapted to grow in baboon PBMC (SIVbn). Seven baboons were divided into two groups of 3 and 4 animals each. Animals in Group 1 were challenged i.v. with 10,000 $TCID_{50}$ of SIVmac and animals in Group 2 with 10,000 TCID50 of SIVbn. Post-challenge virological and immunological assays demonstrated that all animals challenged with SIVmac became infected, whereas animals challenged with the baboon-adapted SIVbn did not. SIVmac infection was transient, and resulted in early (6 days post-infection) peaks of CCR5-binding chemokines; Ab and cell-mediated immune responses were easily detected. Redacted by agreement lab analyzes tissue samples from all the animals to identify viral reservoirs. iii) Zika virus (ZIKV) pathogenesis: Redacted by agreement (SNPRC) and Redacted by agreement (UCSF) tested ZIKV pathogenesis in male and female marmosets. Together with Redacted by agreement (Caribbean Primate Center; University of Puerto Rico), Redacted by agreement assessed potentially enhancing activity of anti-ZIKV Abs when challenged with Dengue virus. iv) Reagent testing: When evaluating commercial Luminex cytokine kits sold as specific for NHP, some Ab pairs do not seem to work well with NHP species, such as macaques, baboons and marmosets (please see under the Immunology Core Laboratory (ICL)).

Redacted by agreement **IDU Core Scientist.** Redacted by agreement continues to collaborate with Redacted by agreement in work summarized above. She also plays an important role in the ICL, thereby supporting IDU projects. She has increased the number of flow cytometry reagents that investigators can use in their studies.

During this reporting period, a number of individuals from Texas, the US, and abroad have received training in the use of NHP model for research in infectious diseases. Scientists at different educational levels received training, as given below:

IDU Scientist	Name (Last, First)	Post-doc. Fellow	Grad. Student	Undergrad Student	Visiting Scientist	Other (specify)
Redacted by agreement			**X** PhD thesis work			
			X PhD student rotation			
			X PhD thesis work			
						X Sr. Research Assistant
			X PhD thesis work			
						X Staff Scientist
		X				
				X (2nd visit: BS thesis)		**X** European student from University of Veterinary Medicine, Vienna, Austria
		X				
		X				
				X		
						X Staff Scientist
						X Veterinarian, Scientific Writer
			X MS student			
				X		
					X CNRS, Sophia Antipolis University, France	
						X Staff Scientist
						Summer Intern
			X		**X**	
			X			PhD student
				X		Summer Intern
			X			PhD student
			X			PhD student

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
Other	Redacted by agreement Vaccine Patent 1: Awarded November 2017: Nucleic Acid Compositions and Methods of Eliciting an Immune Response Against Viral Antigens for Vaccine Development;" Inventors Redacted by agreement "Assignee: The Texas Biomedical Research Institute. 074714.000038 U.S. Application Nos. 61/632,431 & 61/793,658
Other	Redacted by agreement Vaccine Patent 2, in progress: Provisional (December 2018, pending)
Protocols	Techniques developed by the laboratory of Redacted by agreement are described in Progress Report for the Immunology Core Laboratory.
Other	Redacted by agreement Patent: "HIV-1 V3 Mimotopes Capable of Inducing Cross-Clade Neutralizing Antibodies", Inventors: Redacted by agreement Applicant: The Texas Biomedical Research Institute. U.S. Patent 110,125,173; issued Nov. 13, 2018.
Other	Redacted by agreement Patent: "IgM Compositions and Methods of Mucosal Delivery of These Compositions", Inventors: Redacted by agreement Applicant: The Texas Biomedical Research Institute. Provisional Application No.: 62/667,213; filed May 4, 2018.

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

Redacted by agreement have not reported any challenges. In contrast, Redacted by (IDU Lead and PI of the HIVRAD P01) has experienced delays in some of the funded projects. These delays were governed by the nation-wide shortage of RMs suitable for AIDS research. This is especially the case for RMs negative for the favorable alleles B*008 and B*017. Colony management at SNPRC has confirmed that not enough animals are available within the criteria for the HIVRAD P01, for which the above alleles should be avoided. Because of the shortage of such RMs, and the inability to purchase such RMs from outside vendors, we will explore other solutions, including either procuring these animals from outside of the SNPRC colony (a solution preferred by the SNPRC), or subcontracting the work to an outside location (a solution not preferred by the SNPRC). The next HIVRAD passive immunization study (Experiment P2-2) is an experiment involving 42-RMs and is about to be launched at SNPRC as the prescreening has been completed.

The same issue of insufficient numbers of available Indian-origin RMs negative for the B*008 and B*017 also affected the R01 focused on HIV eradication and cure in virus-exposed infant RMs post-exposure vaccination with live attenuated recombinant rubella vectors. Two of the studies listed in the original R01 application needed to be performed at NIRC, where the studies are progressing well. A R01 funded by NIDCR focused on oral transmission and how it may be influenced by anti-HIV Env non-neutralizing antibodies also suffered delays for the reasons stated above. In discussions with the Texas Biomed Administration, approval for performing the studies on the neonatal RMs at NIRC has been given, and work on budgets/subcontracts is ongoing.

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-5109

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Core Lead	Institutional Base Salary	EFFORT			24,332.00	7,251.00	31,583.00
2.						Core Co-Lead					18,328.00	5,462.00	23,790.00
3.						Scientist					6,794.00	2,025.00	8,819.00
4.						Associate Scientist					14,874.00	4,432.00	19,306.00
5.						Staff Scientist					5,617.45	1,674.00	7,291.45

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **90,789.45**

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)	**90,789.45**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**90,789.45**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	90,789.45	72,631.56
		Total Indirect Costs	**72,631.56**

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)	**163,421.01**

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: Regenerative Medicine and Aging Scientific Unit

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

Specific Aim 1: To facilitate and advise collaborative investigators, Affiliate Scientists and outside scientists to develop and implement NHP studies involving stem cells, regenerative medicine and aging.
Specific Aim 2: To provide expertise in primate models of regenerative medicine including stem cell in vitro 3D organoid models, induced degenerative disease models, stem cell delivery methods, imaging, and ex vivo assessment.
a.Develop technologies for in vitro 3D organoids models using pluripotent stem cells derived from different species.
b.Develop disease models with well defined outcome measures that will facilitate basic and translational research
c.Establish standards for deriving NHP induced pluripotent stem cells (iPSCs), a repository of well-characterized iPSCs from various species and a system for their distribution.
d.Develop and offer new imaging modalities for NHP
e.Image-guided delivery of therapeutics to enhance safety and efficacy.
Specific Aim 3: To target development of the SNPRC primates as models for studies in regenerative medicine in the context of aging through:
a.Targeted advertisement to the research aging community, of the availability of the SNPRC geriatric marmoset and baboon populations for aging studies. This advertisement will take place through the SNPRC, Barshop Institute, San Antonio Nathan Shock Center and the San Antonio Claude D. Pepper Older Americans Independence Center websites. We will also give presentations on the value of these resources at the AGE meeting, the meeting of the Gerontological Society of America, and the World Stem Cell Summit;
b.Administer a targeted, joint pilot grant annual funding opportunity for marmoset aging projects. A single grant to be awarded collaboratively through the pilot grant programs of the SNPRC, the San Antonio Nathan Shock Center and the San Antonio Pepper Center, with national advertisement of this opportunity. An external review panel will be convened to assess the applications.
Specific Aim 4: To provide training for the next generation of investigators using NHP in aging and regenerative medicine i.e., undergraduate volunteers, summer interns, graduate students, postdoctoral fellows, young investigators. For this purpose, we can take advantage of the active graduate and post-doctoral training program in aging research at the UTHSCSA, which includes an NIA training grant.

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: RMA_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: RMA_b4.pdf

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

We have been providing updates and news about our progress, initiatives and new programs through our website and newsletters. We have also been engaging the public through organized tours to the SNPRC and by giving talks and seminars. One example [Redacted by agreement] was a Key Note Speaker for a Parkinson's Disease Symposium organized by the faculty and students of the Alamo Colleges in San Antonio, TX.
The Regenerative Medicine and Aging Unit is represented by a webpage (http://snprc.org/scientific-units/regenerative-medicine-aging/) providing information about the Scientific Unit. The Regenerative Medicine and Aging unit is also in the process of listing the 2 marmoset iPSC lines (CJ01 and CJ02) available on the SBPRC Biological Materials Request online (http://snprc.org/primates-2/biological-materials-request-form/) and multiple nationwide requests have been received.
[Redacted by agreement] participated in two meetings aimed at identifying US marmoset research resource needs and exploring mechanisms to meet those needs. In each [Redacted by] presented on the marmoset as an aging model.
•September 25-26, 2018. Marmoset PI Meeting, Boulder, CO
•October 22-23, 2018. Care, Use and Welfare of Marmosets as Animal Models for Gene Editing-based Biomedical Research, ILAR Roundtable, NAS, Washington, DC
[Redacted by] wrote a comprehensive review of the marmoset as an aging model for the ACLAM-sponsored ("blue book") volume on The Marmoset in Captivity and Biomedical Research, published by Elsevier.
[Redacted by] presented a platform oral presentation at the Society For Neuroscience meeting in San Diego November 3-7th on the nonhuman primate model of Parkinson's disease emulating motor and non-motor symptoms of this complex disease.
[Redacted by agreement] was invited to the following institutions to present work on stem cells and nonhuman primates models of neurodegenerative diseases and the novel upcoming therapeutic approaches in development. These talks also described our recent work using the Cambridge Neuropsychological Test Automated Battery (CANTAB) for the characterization of aged baboons as a model of dementia and early cognitive decline
•The University of New Mexico, Albuquerque (2018)
•University of California Irvine, Irvine (2018)
•Texas Medical Center, Department Neurosurgery, UT Houston (2018)

•Parkinson's Disease Center of Excellence, UT Health San Antonio (2018)
Redacted by participated in the "Stem Cell Therapies as an Emerging Paradigm for Stroke" (STEPS) at the Department of Neurology, University of Texas Houston. The STEPS is an NIH supported round table committee meeting. The International panel of experts got together and developed the international guidelines and recommendations for stroke cell therapy, Published in the Journal "Stroke".

The results are also disseminated through publications:
Choudhury G.R., Daadi* M.M. (2018). Charting the onset of Parkinson-like motor and non-motor symptoms in nonhuman primate model of Parkinson's disease. PLoS One. 2018 Aug 23; 13(8): e0202770.
Yang G., Hong H., Torres A., Malloy K.E., Choudhury G.R., Kim J., Daadi* M.M. (2018) Standards for Deriving Nonhuman Primate-Induced Pluripotent Stem Cells, Neural Stem Cells and Dopaminergic Lineage. (2018). Int J Mol Sci. 2018 Sep 17; 19(9).

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

We anticipate the consolidation of the SNPRC and UT-Health (Barshop Institute) marmoset populations into one population maintained at SNPRC as the San Antonio Marmoset Aging Program.
We will submit another AD supplement to the P51 grant to characterize gait and ambulatory phenotypes as potential markers of cognitive decline in the aging marmoset model.
We anticipate a request for applications from NIA to be released in early 2019. This RFA is expected to request applications that further characterize the marmoset as an aging model. We anticipate submitting 1-3 applications in response.
We are seeking funding to expand on our collection of iPSC lines resources from various NHP species, ages and sex as biological variables and grow our catalogue for these iPSCs available through our online biological request form.
We will continue developing and optimizing animal models, behavioral testing, interventional tools and multimodal imaging approaches. These animal models, tools and technologies are opening many doors for collaborations and enabling various basic science and translational programs nationally.
Our NHP stem cell program is expanding into new frontiers in regenerative medicine and aging through developing in vitro organoid systems for modeling developing organs, aging and disease and for exploring intra and inter-species chimera to understand tissue histogenesis and organ development.

Specific Aim 1: To facilitate and advise collaborative investigators, Affiliate Scientists and outside scientists to develop and implement NHP studies involving stem cells, regenerative medicine and aging.

- As a new scientific unit, the Regenerative Medicine and Aging Unit is steadily growing through the development of resources and collaborative relationships.
- Redacted by agreement became an associate professor at Texas Biomed and a Core Scientist of SNPRC. Dr. Redacted by agreement brings significant expertise in the development of the marmoset aging model and will be an important resource to our affiliate scientists.
- We have developed standards for isolating, growing and differentiating high quality NHP induced pluripotent stem cells (iPSCs) from marmosets, CJ01 and CJ02. These resources have been made available to the scientific communities through 3 publications and we received numerous requests to use these NHP iPSCs. There were also requests for iPSC lines from other species, including baboons and macaques. We submitted a R24 resource grant to provide this service.
- We proposed last year the establishment of an advisory board to guide the development of this scientific unit. However, we have delayed the development of the board due to change in SNPRC leadership. As of January 2019, we have a new SNPRC Director who will be assessing the role of this scientific unit as part of his broader vision of the SNPRC. Redacted by agreement plans to convene a newly formed national scientific advisory board that will include the expertise required to fully explore the best possible future direction for this scientific unit.
- A multi-institutional collaborative initiative is underway to establish unique NHP iPSC resources for the generation of functional tissues and transgenic models and for basic and translational research. This endeavor involves leaders in the fields of primatology, transgenesis, interspecies chimeras, germ stem cells and translational stem cell research from the University of Texas Southwestern Medical Center, Oregon National Primate Research Center and the Oregon Health Science University. Pending Support Pending Support Pending Support We are planning to offer our NHP iPSC lines through an online ordering system and we are seeking funds to expand this program. Based on the high demand and interest within our scientific community, we expect this resource will help to generate unique models to address a broad range of questions about human biology, using the same cell line interchangeably between in vitro cellular assays and in vivo experimentation. As we grow, our NHP-iPSC-based species–specific cell types will open the door to test transformative developmental, regenerative and evolutionary hypotheses in a field of inquiry currently hampered by the limited availability of validated high-quality cell lines.
- The SNPRC joined forces with the Oregon National Primate Research Center to apply for the Nonhuman Primate Somatic Cell Genome Editing Testing Center (U42 OD027091, *Large Animal Testing Centers for Evaluation of Somatic Cell Genome Editing Tools*). The SNPRC will be responsible for providing 5-10 marmosets for use in Years 1-3 while committing breeding effort during those years leading to a population of up to 50 animals available for testing, per year, in years 4-5. We will be developing genomic and gene editing tools for use in the marmoset as well as the ability to collect and bank embryonic and germ line tissue. We expect a decision on funding for this center in February, 2019.
- We continue to work closely with the Barshop Institute for Longevity & Aging Studies at the University of Texas Health Science Center at San Antonio. We are finalizing a research agreement that will establish the San Antonio Marmoset Aging Program as a formal, joint program of SNPRC and the Barshop Institute. We remain an integral part of the Preclinical Core of the NIA-funded Pepper Center Redacted by agreement is the out-going leader of this core and Redacted by agreement in the in-coming leader of this core). The Pepper Center Preclinical Core staff has collaborated on numerous aging pilot projects on subjects ranging from development of cognitive testing, defining markers of frailty and resilience, pharmacokinetics of drugs found to have promise through the NIA mouse intervention testing program (metformin and acarbose), and age effects on the gut microbiota and the potential for gut microbiota transplant therapy.
- Texas Biomed, the SNPRC host institution, invested in a major building renovation specifically for the improved management and expansion of the marmoset aging program. The newly renovated building will be ready to occupy in April 2019.
- Redacted by agreement collaborated with Redacted by agreement at the Institute of EthnoMedicine, to examine the potential neurodegenerative effects of the cyanobacteria-produced toxin, BMAA in aged marmosets. Preliminary results suggests that chronic exposure to BMAA affects executive function.
- Requests for consultations on NHP models of neurodegenerative diseases and aging, particularly for translational research, are increasing through direct requests and the SNPRC pilot grant program. In 2018,

we supported the efforts of three affiliate scientists in submission of NIH grant applications to use the marmoset model in studies of Parkinson's disease, effects of age-related-calbindin change on cognitive function, and development of treatments for multiple sclerosis.

Specific Aim 2: To provide expertise in primate models of regenerative medicine including stem cell *in vitro* 3D organoid models, induced degenerative disease models, stem cell delivery methods, imaging, and ex vivo assessment.

- We developed the marmoset as an effective model for non-motor and motor symptoms of Parkinson's disease. This work was published in PloS One journal and was featured in local, national and international news channels. We reported novel approaches to monitor not only motor problems but also cognitive, sleep and circadian rhythm disturbances, which are not often taken into consideration as outcome measures in translational research for Parkinson's disease.
- In September 2018 we received NIH funding to study the impact of physical activity on the re-innervation of the basal ganglia using iPSCs and the current gold standard NHP MPTP model of Parkinson's disease.
- The collaborative programs we are establishing promote the development of relevant NHP models to advance basic and translational research on Parkinson's disease, aging, stroke, multiple sclerosis, epilepsy, cardiovascular diseases, diabetes, age-related macular degeneration, muscular dystrophy and other areas. We continue to develop and offer the use of various imaging modalities in NHP to monitor structure and function of the brain and other organs and to track cells or other therapeutics in vivo.
- We have established and published standards for efficient derivation of highly purified pluripotent NHP iPSCs from various species. This work was published in the International Journal of Molecular Sciences.
- We have developed a standard operating procedure to consistently synthesize 18F-dihydroxyphenylalanine (F-DOPA) and performed F-DOPA PET and MRI scans on NHPs. The PET scans demonstratethe normal level of dopamine in the basal ganglia. We have approached by an academic lab interested in using this animal model with this PET imaging modality.
- We analyzed resting state functional MRI of the NHP to study in the neural network nodes disrupted in Parkinson's disease.
- We developed a PET scanning procedure to enable quantitative analysis of the levels of dopamine in different brain regions using the influx constant (Ki) for FDOPA uptake as an outcome measure.
- We have developed an MRI-guided approach to accurately and safely deliver drugs and biologics to the brain. This study has been published in the Journal of Stem cell Translational Medicine (2017). We have been approached by various academic laboratories and biotech companies interested in using this delivery approach in their preclinical development studies.
- We developed the object retrieval task with a barrier-detour (ORTBD) for assessing motor cognitive performances in marmosets and in baboons.
- We developed the Parkinson's disease neurological rating scale (PDRS) for marmosets and for baboons.
- We developed the Cambridge Neuropsychological Test Automated Battery (CANTAB) for assessing cognitive abilities in baboons.
- We submitted a successful application for a P51 grant supplement for development of new tools to evaluate age-associated cognitive decline in marmosets and new MRI-based tools to assess age-associated changes in marmoset brain vascular and neural function
- We have developed a non-invasive technique using an accelerometer device, the Mini-Actiwatch to measure the general activity of NHP and sleep patterns.
- We have identified novel ways to measure motor and non-motor symptoms in NHP models. Based on these studies, we have currently manuscripts in preparation for publication.
- Redacted by agreement affiliate of SNPRC and the Barshop Institute) organized a symposium on the marmoset as an aging model at the annual meeting of the American Society of Primatologists, held in Washington DC in August, 2017 and Redacted by agreement participated in the symposium. The symposium was supported by the NIA and offered an opportunity for program officers from NIA and ORIP to learn more about the potential of this model. The proceedings of the symposium will be published in a special addition of the American Journal of Primatology.
- The marmoset health-span study was published and is available on-line at the American Journal of Primatology. The results from this study will enhance the value of the marmoset as an aging model by providing empirical support for the presence of an aging effect on phenotypes relevant to human aging, such as blood pressure, activity, cognition, metabolic rate, and immune function.

- Redacted by agreement submitted a successful large multi-project grant application to NIA entitled “Womb to tomb: mechanisms of aging in a translational nonhuman primate model.” This project is designed to explore the effects of prenatal environment on late life phenotypes using baboons that underwent prenatal perturbations as part of Redacted by agreement long-term research program into prenatal effects on adult physiology.

Specific Aim 3: To target development of the SNPRC primates as models for studies in regenerative medicine in the context of aging through:

- Targeted advertisement, to the research aging community, of the availability of the SNPRC geriatric marmoset and baboon populations for aging studies. This advertisement will take place through the SNPRC, Barshop Institute, San Antonio Nathan Shock Center and the San Antonio Claude D. Pepper Older Americans Independence Center websites. We will also give presentations on the value of these resources at the AGE meeting, the meeting of the Gerontological Society of America, and the World Stem Cell Summit;
- The SNPRC now supports a joint pilot research award with the San Antonio Claude Pepper Older Americans Independence Center (OAIC). The second award went to Redacted by agreement University of Massachusetts, for a study entitled, *Chronic sleep insufficiency, cognitive impairment and neuropathology in aging marmosets*
- A multi-institutional collaborative initiative is underway to establish unique NHP iPSC resources for the generation of functional tissues and transgenic models and for basic and translational regenerative medicine. This endeavor involved leaders in the fields of primatology, transgenesis, interspecies chimeras, germ stem cells and translational stem cell research from the University of Texas Southwestern Medical Center, Oregon National Primate Center and the Oregon Health Science University.

Specific Aim 4: To provide training for the next generation of investigators using NHP in aging and regenerative medicine i.e., undergraduate volunteers, summer interns, graduate students, postdoctoral fellows, young investigators. For this purpose, we can take advantage of the active graduate and post-doctoral training program in aging research at the UTHSCSA, which includes an NIA training grant.
(See response below to B.4)

We have hosted a number of rotation, undergraduate and graduate students, medical school students and visiting scientists:

Redacted by agreement Graduate Student, TBRI-UTHSCSA
Redacted by agreement Visiting Scientist, TBRI
Redacted by agreement Graduate Student, TBRI-UTHSCSA
Graduate Student, TBRI-UTHSCSA
Redacted by agreement undergraduate student, University of the Incarnate Word
Redacted by agreement Summer student, UTSA.

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
Interventions (e.g., clinical or educational)	•We have developed an intervention using MRI-guided technique to deliver drugs, genes and stem cells into the brain which can be applied to other parts of the body. This technique revealed a novel way the stem cells disperse in the tissue through a pulsatile mode. We also identified the optimal injection rate leading to maximal cell survival in the grafts. •We have developed a non-invasive intervention technique using an accelerometer device, the Mini-Actiwatch to measure the general activity of NHP and sleep patterns.
Protocols	•We developed a protocol for using the Cambridge Neuropsychological Test Automated Battery (CANTAB) in assessing cognitive abilities in baboons and we will expand it to the other species •We developed a protocol for using the object retrieval task with a barrier-detour for assessing motor cognitive performances in marmosets and in baboons, and we will expand it to the other species. •We developed a protocol for evaluating the Parkinson's disease neurological rating scale for marmosets and for baboon models of Parkinson's disease. •We developed a protocol for quantitative F-DOPA PET imaging approach •We developed a fast and efficient protocol to isolate and characterize the pluripotency of NHP iPSCs.
Research Material	•We developed research material consisting of nonhuman primate iPSCs.

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

Not Applicable

C.5 OTHER PRODUCTS AND RESOURCE SHARING

Category	Explanation
Other	We are providing our unique equipment, such as the Smart-Frame, an MRI-compatible frame and software for imaging NHP head. In addition, the techniques, animal models and research material, (i.e. cell lines) developed are offered to scientists nationwide as outlined on the NIH Sharing Policies and Related Guidance.

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?

The iPSC lines, interventional technologies, multimodal imaging approaches, animal models and behavioral analyses are unique enabling technologies that contribute to the development of new intellectual property within academic institutions and serve as a basis for contracts with industry to develop therapeutics to reach clinical trials.

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

We are planning to offer our NHP iPSC lines through an online ordering system and we are in need of additional funding to expand this program and meet the demand. We have submitted two R24 applications to offer these resources nationwide.
As a newly formed unit, we are establishing the foundations required to develop reliable and accessible resources and exploring effective ways to bring investigators together and find synergistic opportunities.

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-5110

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			14,996.00	4,469.00	19,465.00
2.						Scientist					6,546.00	1,951.00	8,497.00
3.						Associate Scientist					2,975.80	886.80	3,862.60

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **31,824.60**

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)	**31,824.60**

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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	53,164.00
6. Equipment or Facility Rental/User Fees	0.00
7. Alterations and Renovations	0.00
Total Other Direct Costs	**53,164.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**84,988.60**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	31,824.60	25,459.68
		Total Indirect Costs	**25,459.68**

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)	**110,448.28**

J. Fee	Funds Requested ($)*
	0.00

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

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

RPPR - Other-5110

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

ORGANIZATIONAL DUNS*: 800772162

Budget Type*: ❍ Project ● Subaward/Consortium

Enter name of Organization: UNIVERSITY OF TEXAS HLTH SCIENCE CENTER

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Sub-award Lead	Institutional Base Salary	EFFORT			8,215.00	2,448.00	10,663.00
2.						Scientist					15,649.00	4,663.00	20,312.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **30,975.00**

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)	**30,975.00**

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

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

ORGANIZATIONAL DUNS*: 800772162
Budget Type*: ❍ Project ● Subaward/Consortium
Enter name of Organization: UNIVERSITY OF TEXAS HLTH SCIENCE CENTER

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 800772162
Budget Type*: ❍ Project ● Subaward/Consortium
Enter name of Organization: UNIVERSITY OF TEXAS HLTH SCIENCE CENTER

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**30,975.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Federal MTDC	26.0	30,975.00	8,054.00
		Total Indirect Costs	**8,054.00**

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)	**39,029.00**

J. Fee	Funds Requested ($)*
	0.00

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

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

RESEARCH & RELATED BUDGET - SECTION A & B FINAL

ORGANIZATIONAL DUNS*: 008133456

Budget Type*: ❍ Project ● Subaward/Consortium

Enter name of Organization: TRINITY UNIVERSITY

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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.		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			6,722.00	2,003.00	8,725.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **8,725.00**

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)	**8,725.00**

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

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

ORGANIZATIONAL DUNS*: 008133456
Budget Type*: ❍ Project ● Subaward/Consortium
Enter name of Organization: TRINITY UNIVERSITY

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 008133456
Budget Type*: ❍ Project ● Subaward/Consortium
Enter name of Organization: TRINITY UNIVERSITY

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**8,725.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Other	62.0	8,725.00	5,410.00
		Total Indirect Costs	**5,410.00**

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)	**14,135.00**

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: Pilot Grant Program

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The Pilot Studies component is critical to establishing new avenues of research with nonhuman primates, new technologies that open up novel approaches in existing areas of research, and new primate models of human diseases and of normal physiological processes. The SNPRC Pilot Grant Program provides awards of up to $100,000. These awards fund projects that are capable of generating sufficient pilot data to support subsequent, successful grant applications as well as publications.
The overarching goal of the program is to support pilot studies that advance biomedical research through the use of nonhuman primates and that are likely to be leveraged into major programs and funding consistent with the mission of the NIH. We propose to continue to meet this aim through the following on-going and new activities:
Aim 1: We will promote the pilot studies program to outside investigators through website, mailings and advertisements.
Aim 2: We will provide clear application processes and be available to answer questions from potential applicants during the entire process.
Aim 3: We will provide a thorough and fair evaluation of all applications. We will include both primate center and external reviewers in the review of each application and provide all applicants with feedback.
Aim 4: We will evaluate the success of the program through regular contact with all pilot grant awardees regarding publications, grant applications and funded grants stemming from their pilot studies.
Aim 5: We will target selected research areas. One planned targeted area is regenerative medicine and aging, taking advantage of the joint presence of the SNPRC pilot grant program, the San Antonio Nathan Shock Center pilot grant program and the San Antonio Claude Pepper Center pilot grant program. The SNPRC Director will consult with the NSAB and the Research Advisory Committee in the coming year for additional input into promising areas to target for pilot funding.

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: pilot_b2.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?

In 2019, SNPRC will continue the expanded pilot program to offer more opportunities to investigators with limited, but time-sensitive needs and to offer a source of support for those (e.g. veterinarians, veterinary technicians, behavioral services) conducting resource-enhancement research studies.

The SNPRC Pilot Research Program will consist of the following opportunities, all of which will have a review process that meets NIH requirements:

1.SNPRC Full-Support Pilot Research Projects – this is our traditional competitive process. We will continue to broadly advertise the pilot research program. We will be changing the review process. We will no longer convene an outside panel but will, instead, have the Research Advisory Committee be responsible for reviewing the pilot applications, with outside expertise being sought at the discretion of the director.
2.SNPRC Cost-Sharing Pilot Research Projects – these will be projects for which the PI has some funds (generally departmental or foundation funds) that can defray some but not all of the costs of a pilot project. In many of these cases, the PI would prefer to move more rapidly on a pilot project, rather than wait for the yearly Full-Support Pilot competition. In these cases, SNPRC will entertain proposals from a PI for a cost-sharing project. These projects will be reviewed by the Research Advisory Committee and the SNPRC Director will make the final decision as to whether to support a given project.
3.SNPRC Resource-Enhancement Pilot Research Projects – these will be projects designed specifically to develop, improve or enhance SNPRC research resources. These projects are reviewed by the SNPRC directors (SNPRC director, associate and assistant directors).

The program will be funded through the funds designated for the SNPRC Pilot Research Program component. The total funds expended in all three areas, combined, cannot exceed the budget for that component. The director can choose in any given year to alter the balance of expenditures among the three areas, based upon what is perceived as the best investment for the center.

SNPRC Full-Support Pilot Research Projects –
We continued to have strong interest in our program, with 17 Letters of Intent submitted for our 2018 funding cycle of the pilot research program. We convened a review panel from our Research Advisory Committee to review the LOIs and based upon those, 10 applicants were invited to submit applications. Of the 10 applications, 1 was from an investigator within the host institution, 2 were from investigators at other research institutions in San Antonio and 7 were from investigators at research institutions outside of San Antonio. All applications were reviewed by at least three reviewers. One reviewer was chosen as a subject matter expert and provided a written review. Two additional reviewers were chosen from the local panel populated with scientists from the host institution, the University of Texas Health Sciences Center at San Antonio, the University of Texas at San Antonio, and Trinity University. The NIH review template was used for the reviews. Scores and an overall ranking was provided to the center director to guide his decision regarding what projects to fund.

Table 1 provides a list of those investigators with pilot projects that were funded for the 2018 funding cycle. Both of the funded projects were from external investigators outside of San Antonio.

Table 1

PI	Institution	Animal Resource	Title
Redacted by agreement	Texas A&M University	Baboon	Epigenetic mechanism of chronic pain in baboon model of endometriosis
	Akouos, Inc., Boston, MA	Baboon	Development of a baboon model for trans-canal delivery of adeno-associated virus (AAV) gene therapies to the cochlea

One award went to a full professor (Redacted by agreement) and one went to an early-career scientist (Redacted by agreement)

We again held a joint pilot research competition with the Claude D. Pepper Older American Independence Centers, located at the Barshop Institute of UT-Health San Antonio. We received eight excellent applications for this initial competition – 1 from San Antonio (Texas Biomed or UT-Health San Antonio) and 7 from institutions outside of San Antonio. The review process was similar to that used for the regular SNPRC pilot research program, including outside subject matter experts. The project chosen for funding was:

Redacted by agreement University of Massachusetts, *Chronic sleep insufficiency, cognitive impairment and neuropathology in aging marmosets*

The following articles based on previously funded pilot work have been published since the last competitive renewal:
Buechler C, Semler M, Baker DA, Newman C, Cornish JP, Chavez D, Guerra B, Lanford R, Brasky K, Kuhn JH, Johnson RF, O'Connor DH, Bailey AL. Subclinical Infection of Macaques and Baboons with A Baboon Simarterivirus. Viruses. 2018 Dec 10;10(12). pii: E701. doi: 10.3390/v10120701.PMID:30544677

Cornish JP, Moore IN, Perry DL, Lara A, Minai M, Promeneur D, Hagen KR, Virtaneva K, Paneru M, Buechler CR, O'Connor DH, Bailey AL, Cooper K, Mazur S, Bernbaum JG, Pettitt J, Jahrling PB, Kuhn JH, Johnson RF Clinical Characterization of Host Response to Simian Hemorrhagic Fever Virus Infection in Permissive and Refractory Hosts: A Model for Determining Mechanisms of VHF Pathogenesis. Viruses. 2019 Jan 15;11(1). pii: E67. doi: 10.3390/v11010067. PMID: 30650570

Gonzalez-Juarbe N, Bradley KM, Riegler AN, Reyes LF, Brissac T, Park SS, Restrepo MI, Orihuela CJ. Bacterial Pore-Forming Toxins Promote the Activation of Caspases in Parallel to Necroptosis to Enhance Alarmin Release and Inflammation During Pneumonia. Sci Rep. 2018;8(1):5846. PMCID: PMC5895757

A previously funded pilot to Sara Sawyer has resulted in two successful grant applications:

NIH NIDA Avant Garde (DP1 Pioneer) Award
03/01/2018 – 01/31/2023
PI: Redacted by agreement
Project Total: $3,850,000

NIH NIAID R01
01/10/2018 – 12/31/2022
PI: Redacted by agreement
Project Total: $2,060,783

SNPRC Cost-sharing pilot projects: Redacted by agreement from the Scripps Institute received a Cost-sharing pilot award. The data from this pilot supported two new active grants. Both grants involve Redacted by agreement new vaccine technology - Optimized Uncleaved Prefusion Trimer for HIV that can presumably be used for other viruses. His pilot supported successful competition for both a commercial grant and an NIH grant - R01AI140844, Uncleaved Prefusion-optimized trimers on nanoparticles as HIV vaccines.

SNPRC Resource-Enhancement Pilot Research Projects
We had our inaugural competition for SNPRC Resource Enhancement pilot projects. We received 10 applications. The applications were reviewed by the SNPRC directors (SNPRC director and associate and assistant directors for research and veterinary services). We funded two, $30,000 awards:

- Redacted by agreement SNPRC Veterinary Technician, *Testing cooling practices for outdoor baboon enclosures*
- Redacted by agreement SNPRC Colony Supervisor, *Effects if positively reinforced habituation on capture and restraint in the marmoset*

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-5112

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

B. Other Personnel

Number of Personnel*	Project Role*	Calendar Months	Academic Months	Summer Months	Requested Salary ($)*	Fringe Benefits*	Funds Requested ($)*
	Total Number Other Personnel					**Total Other Personnel**	
						Total Salary, Wages and Fringe Benefits (A+B)	

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

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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	
Total Equipment	

Additional Equipment: File Name:

D. Travel	**Funds Requested ($)***
1. Domestic Travel Costs (Incl. Canada, Mexico, and U.S. Possessions)	
2. Foreign Travel Costs	
Total Travel Cost	

E. Participant/Trainee Support Costs	**Funds Requested ($)***
1. Tuition/Fees/Health Insurance	
2. Stipends	
3. Travel	
4. Subsistence	
5. Other:	
Number of Participants/Trainees **Total Participant Trainee Support Costs**	

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

RESEARCH & RELATED BUDGET - SECTIONS F-K

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
Total Other Direct Costs	

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

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)	

J. Fee	Funds Requested ($)*

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

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

A. COMPONENT COVER PAGE

Project Title: NPRC Consortium
Component Project Lead Information: Schlesinger, Larry S.

B. COMPONENT ACCOMPLISHMENTS

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

This component describes the activities of the Southwest National Primate Research Center in NPRC-wide consortium activities. Consortium activities are important for exchanging information among the different NPRCS, expanding access to capabilities and resources, and leveraging the unique strengths of each of the Centers. The Southwest National Primate Research Center is an active participant in a variety of consortium activities. Scientists, veterinarians, and support service directors participate in a variety of Working Groups. The SNPRC has representatives serving on the Breeding Colony Management Consortium, the Genetics and Genomics Working Group,the Behavioral Management Consortium, the Outreach Working Group, the Pathology Working Group, the Zika Working Group, the Phenotype Mining and New Model Development Working Group,and the Rigor and Reproducibility Working Group.

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: Consortium_b2.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 Consortium groups and Working Groups will continue to meet and discuss topics to achieve their goals.

BREEDING COLONY MANAGEMENT CONSORTIUM

SNPRC representative: Redacted by agreement

The mission of the Breeding Colony Management Consortium (BCMC) is to strengthen existing communication between individual NPRC NHP breeding colony management teams in order to collectively improve management and maximize the use of the resource. In 2018 the BCMC continued progress on a number of high priority action items as well as collaborative projects with the Behavioral Management Consortium (BMC) and Primate Pathogen Working Group (PPWG).

In conjunction with the BMC, a number of priorities and action items were established for ongoing projects over the next year or more including: identifying optimal social management practices for breeding groups, developing innovative housing, quantifying risk factors for alopecia, establishing standards for social housing in quarantine, and using positive reinforcement for management and environmental enhancement purposes.

Collaboration and communication with the PPWG has included the reporting of novel tests for detecting TB and Chagas Disease, and methods used to identify, contain and treat San Joaquin Valley Fever, a fungal disease.

Ongoing efforts within the BCMC include colony health benchmarks—aimed at collecting management and health data to decrease breeding colony morbidities, sanitation practices for outdoor enclosures and associated fixtures, infection control in NHP procedure rooms and hospitals, animal supply and demand—with the aim of developing strategies to meet future NHP resource needs, analysis of limb fractures across centers to identify means of prevention, comparisons of wound scoring rubrics and population modeling techniques, and the sharing of resources between NPRCs via, among other means, an electronic animal locator.

GENETICS AND GENOMICS WORKING GROUP

SNPRC Representative: Redacted by agreement

The goals of this Working Group are to develop new tools that facilitate the genetic analysis of nonhuman primates, and exchange information and expertise regarding primate genetics among staff and researchers at NPRCs. SNPRC attended and participated in the following activities in 2018:

1. Web conferences were held to introduce the ONPRC's mGaP online rhesus macaque database and data sharing tool.
2. NPRCs were also encouraged to utilize the Genetic Variant Database (GVD) for sharing new macaque SNP data, and consider ways in which macaque data can be shared by NPRCs, and what new resources could be added to the GVD, including additional species information.
3. Discussed experience with and evaluated novel approaches to genetic management, including but not limited to genotyping-by-sequencing
4. Discussed several issues related to the discovery, evaluation, characterization and prioritization of new primate models of human disease, based on either the identification of novel, interesting or extreme phenotypes or the discovery of genetic mutations predicted to influence disease-related phenotypes. This discussion overlapped with the Specialized Breeding Working Group (SBWG) and the Phenotype Mining and New Model Development Working Group (PMNMD), both in topic and contributing members from across NPRCs.
5. Encouraged more discussion related to species other than rhesus macaques, e.g. marmosets and pigtailed macaques.
6. Discussed the enhancement of the ONPRC-developed genetics metrics software (NPRCmanager) made by Dr. Redacted by agreement an independent consultant, and about incorporating key priorities addressing genetic management at the NPRCs.
7. Began planning a new survey of bioinformatics tools used by geneticists and colony managers at the NPRCs and other NIH-funded primate centers.

BEHAVIORAL MANAGEMENT CONSORTIUM

SNPRC representative: Redacted by agreement

Mission Statement: The BMC aims to strengthen NPRC behavioral management programs through resource sharing, standardization of terminology and assessment tools, and scientific collaboration with a goal of identifying and implementing behavioral management best practices.

Major activities and accomplishments

- Progressed with the New Model Development initiative (cross-center project). This project aims to identify animals with extreme levels of behavioral inhibition/anxiety. We have begun piloting the procedure and are modifying the protocol as a result of these pilot tests. We have developed an instructional video of the procedure, a vital element for obtaining inter-facility reliability.

- Alopecia scoring: In the past year, we conducted inter-observer reliability testing on alopecia scoring within and between NPRCs. Redacted by agreement conducted webinar-based training for personnel at each facility, who then scored a consistent set of photographs. These scores were statistically analyzed based on established reference scores. To date, five NPRCs have achieved inter-facility reliability.

- The NPRC Behavioral Management Technician Forum. This forum expands to technicians the cross-facility communication developed by the heads of the behavioral management programs. The Forum saw a high level of activity in 2018, including over 45 distinct discussion topics. Forum posts are monitored by BMC members to ensure appropriate use of the forum.

- Collaborative outreach to primate research community: BMC's NHP Webinar Series: In 2018, the BMC initiated the quarterly webinar series and conducted 4 sessions. The webinar series is designed to provide information on behavioral management topics to the broader NHP research community. At least 54 institutions have participated i one or more of the webinar series sessions. Redacted by agreement presented the first webinar in March titled "Environmenta Enrichment: Promoting Wellbeing in Laboratory Nonhuman Primates."

EDUCATION OUTREACH WORKING GROUP

SNPRC representatives: Redacted by agreement

Texas Biomed has several individuals who participate monthly on the Outreach Working Group calls. Redacted by agreement Redacted by agreement all participate in a variety of outreach programs for Texas Biomed, including facility tours, science fairs, career fairs, K-12 teachers conferences, and general science talks. SNPRC established an outreach volunteer committee in 2018 to extend our outreach efforts by sending more of our scientists, veterinarians and animal care staff into the community. Redacted by agreement all join the call or rotate being on monthly Outreach Group calls, where we share updates on our outreach strategies, information we are providing the community and solicit counsel from the other centers. We did not have an OWG face to face meeting this year due to budget constraints. We communicate regularly with colleagues at the other centers about our activities and continue to share resources.

Redacted by agreement also sits on the PR Working group, which reviews and approves collateral material being produced by Redacted by agreement including news stories and posts for the website. She reviewed several blog posts this year, provided photography for the website and contributed to the tweet calendar for NPRC's twitter account.

PRIMATE PATHOLOGY WORKING GROUP

SNPRC representatives: Redacted by agreement Redacted by agreement

Redacted by agreement attended and guided two SNPRC Summer Interns who presented 2 cases at the monthly online virtual slide conferences of the Primate Pathology Working Group. Redacted by agreement attended and presented a case at the Primate Pathology Workshop in November at Washington, DC (held in conjunction with the American College of Veterinary Pathologist's Annual Meeting). Pathology provided gross and microscopic images, and consulted on a case presentation for the NPC Consortium, Primate Grand Rounds.

Date	Meeting
06/2018	Non-human Primate Research Center Consortium Pathology Working Group Virtual Slide Conference Title: *Comorbidity identified in a Rhesus macaque (Macaca mulatta)* Presenters: Redacted by agreement

06/2018 Non-human Primate Research Center Consortium Pathology Working Group Virtual Slide Conference
Title: *Respiratory infection in a baboon (Papio spp.)*
Presenters: Redacted by agreement

11/2018 2018 Primate Pathology Workshop, Washington DC
Title: *Myeloid tumor in the mandible of a Baboon (Papio spp.)*.
Presenter: Redacted by agreement

11/2018 National Primate Research Centers Consortium, Virtual Grand Rounds
Title: *Planning for the Unexpected*.
Presenters: Redacted by agreement (Supported by Pathology)

ZIKA WORKING GROUP

SNPRC representatives: Redacted by agreement (working group chair), Redacted by agreement

The Zika working group is chaired by Redacted by agreement and has representatives from each of the primate centers. It also includes the Caribbean Primate Center and Sheri Hild (NIH). We continue to add and include collaborators of any of the primate centers who wish to participate. Redacted by agreement is the coordinator.

- Teleconferences were held the last Thursday of every month at 1:00 CST. The topics varied but always included center-by-center updates. Updates included data sharing with some formal presentations
  - Redacted by agreement presented on the joint manuscript at these teleconferences. This was an extremely difficult ar complicated manuscript to put together given the varied animal models, number of investigators and overall importance of the subject. Ultimately it resulted in Dudley et al., 2018 https://www.ncbi.nlm.nih.gov/pubmed/29967348
  - Work was presented on vaccine development by CNPRC, the rhesus macaque pregnancy model by CNPTRC, TNPRC, WNPRC, the pig-tail macaque by WaNPRC and the marmoset pregnancy model by SNPRC.
  - A Face to Face meeting was held on Aug. 28, 2018 in Bethesda. The agenda included a keynote talk by Dr Redacted by agreement of YNPRC on "Postnatal Zika virus Infection in Infants". There was a session on Pre and Post-natal infections and a second session on Immune Response and Persistence of Zika Virus. A copy of the complete agenda is included in Exhibit A.
  - The face to face meeting not only provided a framework for discussing current issues on Zika experimentation in NHPs but also allowed more NIH, BARDA and FDA investigators to become aware of th group and the availabilities of NHP models.
  - NHP models of Zika are becoming more valuable as there are no current outbreaks, or good predictions of where the next one will occur, with which to examine the efficacy of vaccines or treatments. NIH has been very clear that while they are starting some vaccine clinical trials, without naturally occurring infections, thes trials may not provide the efficacy data needed to proceed with treatment and vaccines and further trials ma not be allowed. The NHP models may prove as important as for other pathogens where it is either not cost effective or ethical to examine treatment or vaccines in humans and therefore a reliance on the so called Tw Animal Rule of the FDA. There to have a Two Animal Rule type of information available may provide the necessary information to proceed with further clinical trials as has happened with Ebola virus countermeasures.

NEW MODEL DEVELOPMENT (PREVIOUSLY PHENOTYPE MINING AND NEW MODEL DEVELOPMENT (PMNMD)) GROUP

SNPRC representative: Redacted by agreement (co-chair of working group); Redacted by agreement

The mission of this working group is to advance NHP model development by coordinating the discussion and comparison of common NHP traits documented at the NPRCs.

Redacted by agreement rotated off of this group during 2018. She participated in discussions with the co-chair Redacted by agreement Redacted by agreement regarding a restructuring of the group and a reassessment of its purpose. Based upon those discussions, at the impending retirement of Redacted by agreement we added Redacted by agreement to this workin group, with Redacted by agreement responsible for outreach regarding phenotypes worthy of pursuit as collaborative efforts and Dr. Redacted by representing our Genomics Core. Both have participated in conference calls of the group and Redacted by agreement has begun polling relevant SNPRC staff regarding noteworthy phenotypes.

RIGOR AND REPRODUCIBILITY WORKING GROUP

SNPRC representatives: Redacted by agreement

This working group has been given a new direction by NIH. They are planning a workshop and working on a “white paper”.

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-5113

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	10,313.00
2. Foreign Travel Costs	0.00
Total Travel Cost	**10,313.00**

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*: 007936834
Budget Type*: ● Project ❍ Subaward/Consortium
Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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)	**10,313.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	10,313.00	8,251.00
		Total Indirect Costs	**8,251.00**

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)	**18,564.00**

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: Research Support

Component Project Lead Information:

Redacted by agreement

B. COMPONENT ACCOMPLISHMENTS

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

The Research Support Component represents a new component in the P51 this year. A series of factors led to the creation of this new Component. SNPRC recognized a need to centralize specific functions to create efficiency and to create an enhanced ability to support investigators Redacted by agreement is the Leader of this new Component and Redacted by agreement is the Manager of the Laboratory. Three Senior Research Associates and a Research Assistant perform the duties of the RSC. The RSC is under the Associate Director for Research in the organizational chart. Five SNPRC Core Scientist provide expertise to the RSC in advising investigators on design and performance of their studies: Redacted by agreement SNPRC anticipates that this Component will add new strengths and efficiencies to the Center and will facilitate the studies of many PIs. The RSC works directly with Investigators, Research Coordination and Veterinary Services to provide research support for various programs and colony support.
Specific Aims.
1.To provide advice to investigators on design of NHP studies. This component includes several Core Scientist that function as advisors to scientist with regard to the most effective design to accomplish their goals. The current advisors include the Leader of the Research Support Component (RSC) and the Director, Associate and Assistant Directors of Research, the Colony Administrator, an expert in metabolic disease, and an expert in marmosets. The advisors represent a diverse scientific expertise within SNPRC and will often become the Sponsor for new programs for external investigators. If one of the Advisors to the RSC is not an appropriate sponsor, the Associate Director of Research will determine a suitable Sponsor from the members of RAC.
2.To provide laboratory support to investigators. RSC will determine the most effective resource to provide laboratory support needed to accomplish studies. The advisors will determine if the needs of the investigator are best accomplished by one of the existing SNPRC functions: Immunology Core, Clinical Pathology or within the Research Support Lab that is a part of this component. In some cases, RSC will develop new assays or capacities to support an investigators or will determine if the investigator is best served by finding an outside lab to outsource specific assays, including other NPRC labs, clinical laboratories and commercial resources.
3.To perform infectious disease surveillance of the SNPRC colonies. This component screens the SPF baboon colony for STLV1 and SWBV1 using PCR assays twice per year to maintain SPF status. The component processes blood from the rhesus macaque colonies and provides plasma for the Immunology Core to perform Luminex screening for the SPF agents. This component screens the colonies for other agents on a need basis. Current screens in the baboon colony include Bordetella bronchiseptica to support the large B. pertussis vaccine programs.
4.To serve as a repository to bank samples from the primate colonies. These functions were previously assigned to the Repository Component. RSC will bank plasma from each baboon and macaque once per year, when samples are being processed for infectious disease surveillance. The RSC will bank PBMC DNA from each new macaque, baboon and marmoset for the repository, so these samples can be used by the genomics Core for genotype by sequencing and MHC allele determination. This DNA will be available to investigators through the Biomaterials Component and will ensure that the colonies have banked DNA representative of the entire 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: res_support_b2.pdf

B.3 COMPETITIVE REVISIONS/ADMINISTRATIVE SUPPLEMENTS

Not Applicable

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

File uploaded: res_support_b4.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?

Since the majority of the RSC sponsored projects are long-term, most are still on-going and some are funded but have not yet begun. During the upcoming year, the RSC will have completed several projects and sponsors should be credited in the associated publications. The SNPRC has just transitioned to a new Director and has had a thorough external review of current practices. There are some forthcoming plans to streamline processes and decrease turnaround times. Once these new policies are put into place, the website will be updated to provide clear explanation of the services provided by the RSC and the standard processes for sponsored project development and execution.

To provide advice to investigators on design of NHP studies. In its first full year, the RSC supported a variety of research projects. In total, there were 47 projects from outside investigators that were serviced by the RSC. Four projects were completed. Thirteen additional projects are ongoing, and nine projects have been funded but not yet started. The rest of the projects are either in preparation or awaiting funding.
The projects include NIH grants and contracts, SNPRC pilot studies, domestic and international commercial contracts, military collaborations, and state-sponsored initiatives. Sponsors were actively engaged with outside investigators in study design. Starting points for this role were varied as some researchers had no preliminary study design while others had pre-determined plans. Assistance included determining the appropriate species for testing, determining animal numbers to be used, adjusting study design to the budget, confirming feasibility of novel techniques with the veterinary staff, explaining existing disease models and available assays, and determining frequency and volumes of sample collection. Sponsors provided assistance to outside investigators in submitting Veterinary Services requests when needed, then worked with Research Coordination to finalize a Pre-Study Design Document including veterinary services budget and animal work timeline. In addition, the RSC sponsors worked with Redacted by agreement (RSC Research Support Lab) and Research Cores to finalize budgets for lab work, immunology, clinical pathology, and imaging portions of the study. Next, RSC sponsors worked with the Office of Sponsored Programs to get an overall budget, provide a statement of work, and generate any additional documents required for grant submission or contract approval. After grants were funded or contracts were finalized, RSC sponsors guided outside investigators through IACUC approval, organized pre-study meetings, worked with the veterinary scheduler, and oversaw execution of the study. During this time they provided results and reports to external sponsors. To provide laboratory support to investigators. Several studies required RSC Research Laboratory assistance. Services provided include test article preparation, test article and sample transport to and from the animal area, blood processing, DNA and RNA purification, primary cell isolation, real-time PCR, sample shipping, bronchiseptica testing, and generation of reports. Of note, new standard procedures were put into place to improve validation of sample/tube labeling and animal verification. For procedures offered by other Core laboratories, outside investigators were directed to the Clinical Pathology Lab, Immunology Core, and Imaging Core.
To perform infectious disease surveillance of the SNPRC colonies. The SPF baboon colony was screened for STLV1 and SWBV1 using PCR assays. We have increased the sample volume assayed for PCR to increase the sensitivity of our assay. In 2018, a total of 1255 baboon serum samples were tested for STLV1 and SWBV by Taqman assay. Rhesus macaque bleeds were processed for serum and sent to the Immunology Core for Luminex testing for STLV, SIV, SRV, measles, and T. cruzi. A subset of serum samples were also sent to the Primate Assay Laboratory at the California National Primate Research Center and VRL for confirmatory testing for SRV and T. cruzi respectively. A total of 1471 samples were tested. Baboon colony weanlings were tested for Bordetella bronchiseptica to support the large B. pertussis vaccine programs. In developing the Bordetella bronchiseptica screen, nasal pharyngeal washes were compared to throat swabs for sensitivity of detection. The more sensitive swabs are streaked onto two types of agar plates and inspected visually. Suspect colonies undergo colony PCR for confirmation.
To serve as a repository to bank samples from the primate colonies. RSC banked plasma from each baboon and macaque over the course of the year using samples taken during for infectious disease surveillance. The RSC also banked PBMC DNA from each new macaque, baboon, and marmoset for the repository. These samples were used by the Genomics Core for genomic sequencing or sent to WNPRC for macaque MHC allele determination. This DNA will be available to investigators through the Biomaterials Component and will ensure that the colonies have banked DNA representative to the entire colony. In 2018, 71 tissue samples from the Biorepository were distributed.

Through their integral role in study design and implementation, RSC Sponsors have frequently become collaborators and co-investigators on the studies that they are supporting. This can provide salary support, publications, and prompt future collaborations. For those sponsors who are not yet independent scientists, these benefits provide a means to bolster their academic profile and make professional advancement easier. For the Research Support Lab and Veterinary Services, development of new methods expands the scope of available services and strengthens the skillset of the technical staff.

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-5114

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

ORGANIZATIONAL DUNS*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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		Redacted by agreement				Project Lead	Institutional Base Salary	EFFORT			21,066.00	6,278.00	27,344.00

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

Additional Senior Key Persons: File Name:

Total Senior/Key Person **27,344.00**

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						
4	Research Support Staff	30.12			147,518.00	43,961.00	191,479.00
4	**Total Number Other Personnel**					**Total Other Personnel**	**191,479.00**
						Total Salary, Wages and Fringe Benefits (A+B)	**218,823.00**

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

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

ORGANIZATIONAL DUNS*: 007936834
Budget Type*: ● Project ❍ Subaward/Consortium
Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

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*: 007936834

Budget Type*: ● Project ❍ Subaward/Consortium

Enter name of Organization: TEXAS BIOMEDICAL RESEARCH INSTITUTE

Start Date*: 05-01-2019 **End Date*:** 04-30-2020

F. Other Direct Costs	Funds Requested ($)*
1. Materials and Supplies	33,900.00
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. Freight	1,236.00
Total Other Direct Costs	**35,136.00**

G. Direct Costs	Funds Requested ($)*
Total Direct Costs (A thru F)	**253,959.00**

H. Indirect Costs

Indirect Cost Type	Indirect Cost Rate (%)	Indirect Cost Base ($)	Funds Requested ($)*
1. Institute Federal Rate	80.0	253,959.00	203,167.00
		Total Indirect Costs	**203,167.00**

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)	**457,126.00**

J. Fee	Funds Requested ($)*
	0.00

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

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