DEPARTMENT OF HEALTH & HUMAN SERVICES

PUBLIC HEALTH SERVICE
NATIONAL INSTITUTES OF HEALTH

FOR US POSTAL SERVICE DELIVERY:
Office of Laboratory Animal Welfare
6700B Rockledge Drive, Suite 2500, MSC 6910
Bethesda, Maryland 20892-6910
Home Page: http://grants.nih.gov/grants/olaw/olaw.htm

FOR EXPRESS MAIL:
Office of Laboratory Animal Welfare
6700B Rockledge Drive, Suite 2500
Bethesda, Maryland 20817
Telephone: (301) 496-7163
Facsimile: (301) 402-7065

October 10, 2018

Re: Animal Welfare Assurance
#A3244-01 (OLAW Case L)

Dr. Jane Schuh
Vice President for Research and
Creative Activity
North Dakota State University
1735 NDSU Research Park Drive
Fargo, ND 58105

Dear Dr. Schuh,

The Office of Laboratory Animal Welfare (OLAW) acknowledges receipt of your letter dated August 18, 2018, reporting noncompliance with the PHS Policy on Humane Care and Use of Laboratory Animals at North Dakota State University. According to the information provided, OLAW understands that on May 19, 2018 a mouse was found dead in its box that did not contain a water bottle. Records indicated that the animals had been observed the previous afternoon and all boxes had a water bottle. An email was sent to all animal facility users reminding them they are not to interfere with animals outside of their own research projects and the group was also reminded to notify facility personnel if they observe any abnormalities within the facility. It is understood that this mouse was assigned to an activity supported with PHS funds.

Based on the information provided, OLAW is satisfied that appropriate actions have been taken by North Dakota State University to provide corrective measures and prevent recurrence of this noncompliance. We appreciate your cooperation in this matter and find no cause for further action by this office.

Sincerely,

(b) (6)

Brent C. Morse, DVM
Director
Division of Compliance Oversight
Office of Laboratory Animal Welfare

cc: IACUC Contact

DEPARTMENT OF HEALTH & HUMAN SERVICES

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October 10, 2018

Michael A. Budkie, A.H.T.
Executive Director
SAEN
1081-B St., Route 28 PMB 280
Milford, Ohio 45150

Re: North Dakota State University

Dear Mr. Budkie,

The Office of Laboratory Animal Welfare (OLAW) has completed its investigation regarding the allegations by Stop Animal Exploitation Now! concerning North Dakota State University as contained in your August 5, 2018 document to our Office. Background information was reviewed and interviews conducted. OLAW has determined that one incident on May 19, 2018 involving one mouse, assigned to a PHS-funded activity, found dead in its cage without a water bottle met the criteria for reporting to our Office. OLAW agreed with the corrective and preventive actions implemented at the time of the occurrence. The institution now understands the requirement for the reporting of such incidents to OLAW. The investigation did not confirm that any additional allegations contained in your August 5, 2018 document met the criteria for reporting to our Office.
OLAW shares your concern for the welfare of laboratory animals. We find no cause for further action by this office at this time.

Sincerely,

(b) (6)

Brent C. Morse, DVM
Director
Division of Compliance Oversight
Office of Laboratory Animal Welfare

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A3244-L

Morse, Brent (NIH/OD) [E]

From: Michael Budkie <saen@saenonline.org>
Sent: Sunday, August 05, 2018 3:33 PM
To: Brown, Patricia [OLAW] (NIH/OD) [E]; Morse, Brent (NIH/OD) [E]
Cc: collins@nih.gov
Subject: Official Request for Investigation

SAEN
Stop Animal Exploitation NOW!

8/5/18

Dr. Patricia A. Brown VMD, Director,
Director,
Office of Laboratory Animal Welfare (OLAW)
National Institutes of Health
Institutes of Health,
RKL 1, Suite 360, MSC 7982
Rockville Pike
6705 Rockledge Drive
Bethesda, Maryland 20892
Bethesda, MD 20892-7982
francis.collins@nih.gov
Via Email: brownp@od.nih.gov

Dr. Francis Collins,
Office of the Director,
National
9000
Via Email:

Dr. Brent Morse, Director
Division of Compliance Oversight.
Office of Laboratory Animal Welfare
RKL1 BG RM 3615
6705 Rockledge DR
BETHESDA, MD 20817
Via Email: brent.morse@nih.gov

Dr. Collins, Dr. Brown, Dr. Morse,

I am writing to you today relevant to the North Dakota State University (NDSU). There are several issues which are relevant to the humane care and use of animals, relevant to PHS policy, reporting of non-compliances, etc. which must be addressed.

As you know, PHS Policy, IV.F.3, requires that:

"The IACUC, through the Institutional Official, shall promptly provide OLAW with a full explanation of the circumstances and actions taken with respect to:
a) any serious or continuing noncompliance with this Policy;

b) any serious deviation from the provisions of the Guide [for the Care and Use of Laboratory Animals] ; or c) any suspension of an activity by the IACUC."

These reporting requirements are further elucidated in this text from the Office of Laboratory Animal Welfare website:

Examples of reportable situations:

- ***conditions that jeopardize the health or well-being of animals, including natural disasters, accidents, and mechanical failures, resulting in actual harm or death to animals;***
- ***conduct of animal-related activities without appropriate IACUC review and approval;***
- ***failure to adhere to IACUC-approved protocols;***
- ***implementation of any significant change to IACUC-approved protocols without prior IACUC approval as required by IV.B.7.;***
- ***conduct of animal-related activities beyond the expiration date established by the IACUC (note that a complete review under IV.C is required at least once every three years);***
- ***chronic failure to provide space for animals in accordance with recommendations of the Guide unless the IACUC has approved a protocol-specific deviation from the Guide based on written scientific justification;***
- ***participation in animal-related activities by individuals who have not been determined by the IACUC to be appropriately qualified and trained as required by IV.C.1.f;***
- ***failure to monitor animals post-procedurally as necessary to ensure well-being (e.g., during recovery from anesthesia or during recuperation from invasive or debilitating procedures);***
- ***failure to maintain appropriate animal-related records (e.g., identification, medical, husbandry);***
- ***failure to ensure death of animals after euthanasia procedures (e.g., failed euthanasia with CO 2);***
- ***failure of animal care and use personnel to carry out veterinary orders (e.g., treatments);***

The OLAW website also provides guidance regarding the timeframe for reporting:

Time Frame for Reporting

Institutions should notify OLAW of matters falling under IV.F.3 promptly, i.e., without delay. Since IV.F.3 requires a full explanation of circumstances and actions taken and the time required to fully investigate and devise corrective actions may be lengthy, OLAW recommends that an authorized institutional representative provide a preliminary report to OLAW as soon as possible and follow-up with a thorough report once action has been taken. Preliminary reports may be in the form of a fax, email, or phone call. Reports should be submitted as situations occur, and not collected and submitted in groups or with the annual report to OLAW.

It is clear that the North Dakota State University, should potentially be reporting on a wide range of non-compliance issues because according to the NIH website, this facility has over $4 million in active NIH grants. This is particularly relevant to NDSU because over the 2017 - 2018 period the facility apparently received NIH

funding relevant to animal experiments which reported compliance issues to their own Institutional Animal Care and Use Committee. Therefore NDSU should definitely be reporting non-compliances to the NIH's Office of Laboratory Animal Welfare.

As you may know, SAEN consistently files FOIA requests with OLAW to obtain **ALL** correspondence in which U.S. labs report failures to comply with PHS policy on animal care & use, the requirements for this reporting are listed above. SAEN has consistently been filing FOIA requests for documents relevant to NDSU since March of 2014. Therefore we should have a large file of non-compliance reports filed by NDSU with OLAW, however we have received a total of seven reports. Of these reports only three are relevant to incidents for 2017 or newer. Our FOIA requests to NIH/OLAW for which we have received documents cover a period up through 2/15/18.

SAEN has filed a public records request with NDSU, and we have obtained multiple non-compliance reports. These reports include six which occurred during 2017, and three which occurred during 2018. While the 2018 reports occurred later than the period covered by our last FOIA request, it is clear that potentially all of the 2017 reports should have been covered.

Of the 2017 Internal NDSU reports, three are relevant to a project for which the Principal Investigator (PI) is Amanda Brooks, while at the same time, the NIH website shows funding for a PI at North Dakota State University with the name Amanda Brooks. The NIH website also shows funding for a PI at NDSU named Estelle Leclerc and this name also appears on the NDSU non-compliance reports which we have obtained. In several cases the reports themselves discuss NIH funding (i.e. for PIs Katie Reindl and Jane Schuh). So it is fairly clear that at least some of the incidents listed in the NDSU non-compliance reports which we have obtained should have been (should be) reported to the OLAW office at NIH due to both the nature of the compliance issues (deaths following convulsions, death following oral gavage, anesthetic deaths, death due to dehydration, death following surgery, etc.) and the potential connection to NIH funded projects.

If we operate under the assumption that all, or at least the majority of these incidents, should have been reported to OLAW, and it appears that these reports were not made, there can only be two possibilities. Either the NIH has violated the requirements of Freedom of Information Act, or North Dakota State University has failed to make even a single report during that period relevant to the non-compliances listed in these reports. My experience with the National Institutes of Health's FOIA system has always been a positive one. The NIH FOIA staff is highly professional and extremely proficient at their work. Overall, my experience in working with them has been extremely positive, I have no complaints.

If there had been only one incident of non-compliance, it might be possible to assume that it was simply overlooked. However, since NDSU has had enough non-compliances to result in nine internal non-compliance reports, the only conclusion that can be reached is that NDSU has engaged in a consistent and deliberate pattern of non-reporting. This is nothing short of an intentional cover-up by North Dakota State University.

In light of the clear and irrefutable information which we have provided, I am hereby officially calling on your offices to initiate an investigation into the failure of the North Dakota State University, to report these incidents to the Office of Laboratory Animal Welfare. And, since it is clear that this institution has failed utterly to fulfill the responsibilities which are required to maintain an Animal Welfare Assurance, I hereby also call upon your offices to immediately terminate the Animal Welfare Assurance of North Dakota State University, thereby also terminating all NIH funding for animal based research projects at this institution.

I have attached the relevant NDSU non-compliance reports from North Dakota State University, and I will look forward to the resolution of these matters by OLAW.

I look forward to hearing from you in the near future about this matter.

Sincerely,

(b) (6)

Michael A. Budkie, A.H.T.,

Executive

Director, SAEN

Attachments: 9 Files containing internal North Dakota State University non-compliance reports

1081-B State Route 28 #280 Milford, OH 45150 (b) (6) www.SAENonline.org

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managed and corrected:	interest of the mice and we discontinued the procedure for the remaining mice. We also took the two mice to the vet diagnostic lab as the deaths were suspicious.
Provide a description of the preventative actions taken to ensure that this type of event or problem does not occur in the future:	We suspended our bleeding protocol and will not resume until it can be determined the cause of this adverse event.
Report submitted by:	Dr. Amanda Brooks

Adverse event

From:	CMS Notification
To:	[redacted] (b) (6)
Subject:	Adverse Event Report
Date:	Wednesday, July 19, 2017 9:19:46 AM

Date of Event/Problem:	7/12/17
Principal Investigator:	Dr. Amanda Brooks
Department:	Pharmaceutical Sciences
Protocol Number and Title:	A16022 - "Investigation of the Role of Gut Microbiota in Weight Loss Following Gastric Bypass Surgery Using a Humanized Mouse Model"
Date Identified:	7/12/17
Species of Animal	Mouse
Number of Animals involved:	1
Location	Sudro Hall [redacted] (b) (4)
Fatal	Fatal-12
Yes	Was_a_veterinarian_consulted-15
If yes, list veterinarian name and date of consultation.	Dr. Neil Dyer
Is this event related to a research protocol?	Related
If funded, list the sponsors of this project:	Sanford
Provide a detailed description of the adverse event or problem:	Mouse had been undergoing oral gavage procedure. It has received antibiotics 11 times via oral gavage before night of death. [redacted]. graduate student, injected the gavage tube with no struggle from the mouse. Noticed the syringe wouldn't eject the solution. She pulled the tube out and saw a piece of undissolved antibiotics stuck in tube. The mouse was then set down in cage to fix the problem. As soon as the mouse was put into the cage, it started convulsing and seizing. After about 30 seconds of this the mouse fell on its side and died. The mouse was checked for any breathing or heart beating and there was nothing found.
Provide a description of how this event or problem was managed and corrected:	Right after the incident occurred [redacted] contacted me, Dr. Amanda Brooks and explained the situation. I gave her instructions to put mouse in fridge so necropsy could be done and also to e-mail Dr. Neil Dyer. He instructed her to bring mouse to diagnostic lab the next day and he completed the necropsy. Dr. Dyer found nothing significant in necropsy to indicate it was a handling or procedural issue.
Provide a description of the preventative actions taken to ensure that this type of event or problem does not occur in the future:	Based on literature reports recently found linking this species with seizures, we are trying a variety of modified enrichments to decrease the stress of handling and procedures. Specifically, we have added additional bedding to the cage to provide more nesting material. We have also added irradiated enrichment to the cages 6 mice that are nervous but not actively on the recolonization part of our protocol. Finally, we have gotten some long reach tweezers designed for mouse handling to

facilitate catching the mice and decrease their stress prior to any procedure.

Report submitted by: Dr. Amanda Brooks

From:	CMS Notification
To:	[redacted] (b) (6)
Subject:	Adverse Event Report
Date:	Thursday, July 27, 2017 9:30:24 AM

Date of Event/Problem:	7/19/17 and 7/24/17
Principal Investigator:	Dr. Amanda Brooks
Department:	Pharmaceutical Sciences
Protocol Number and Title:	A16022 - "Investigation of the Role of Gut Microbtiota in Weight Loss Following Gastric Bypass Surgery Using a Humanized Mouse Model"
Date Identified:	7/19/17 and 7/24/17
Species of Animal	C57/BL6
Number of Animals involved:	2
Location	Sudro Hall [redacted]
Fatal	Fatal-12
Yes	Was_a_veterinarian_consulted-15
If yes, list veterinarian name and date of consultation.	Dr. Neil Dyer
Is this event related to a research protocol?	Related
If funded, list the sponsors of this project:	Sanford
Provide a detailed description of the adverse event or problem:	7/19/17 incident with M35 – Mouse had been undergoing oral gavage procedure. It had received antibiotics 26 times via oral gavage before death. [redacted], graduate student, gavaged the mouse the night of the 18th with no issues. M35 was monitored post gavage for 30 minutes and mouse was doing well. After finishing the rest of the mice, [redacted] completed a fecal collection on other mice that took around an hour. When finished with that she checked on the mice that had been gavaged before leaving facility and all the mice including M35 were still alive and doing well. This was around 9:00 pm 7/18. Upon arrival to the facility on 7/19 about 6:30 am, [redacted] found M35 dead in the cage. Mouse was immediately brought to D-lab for necropsy and Dr. Neil Dyer was contacted. 7/24/17 incident with M13 – Mouse had previous received oral gavage 49 times successfully during study. On 7/24/17 mouse was undergoing facial bleeding. Collection of blood went smoothly and around 200 ul of blood was collected. [redacted] returned mouse back to cage and the mouse didn't move but was still breathing. [redacted] then gave 200 ul normal saline subcutaneously to M13. When mouse was returned to cage after saline injected, it started seizing/convulsing then laid on side but was still breathing. Moments after it started seizing again and then stopped breathing and died. Mouse was brought to D-lab for necropsy and Dr. Neil Dyer was contacted.
Provide a description of how	[redacted] contacted me. Dr. Amanda Brooks, as soon as

this event or problem was managed and corrected:	possible with both incidents. I gave her instructions to bring mouse to D-lab for necropsy and to contact Dr. Neil Dyer about the events. Necropsy was completed on both mice. Results showed M35 had injury to the esophagus likely due to oral gavage procedure. M13 necropsy showed a thymic hemorrhage as a result of the facial bleeding.
Provide a description of the preventative actions taken to ensure that this type of event or problem does not occur in the future:	[redacted] is aware of results of the necropsy and is taking necessary precautions while performing oral gavage procedure. She will be getting help from Dr. Neil Dyer and others on techniques that allow less struggle from the mouse. Bleeding on this protocol has been suspended and no more facial bleeds will be performed.
Report submitted by:	Dr. Amanda Brooks

From:	CMS Notification
To:	(b) (6)
Subject:	Adverse Event Report
Date:	Thursday, November 2, 2017 4:44:36 PM

Date of Event/Problem:	15-25 August 2017
Principal Investigator:	Page Klug
Department:	Biological Sciences
Protocol Number and Title:	A17032 Feeding Behavior of Red-Winged Blackbirds on Sunflower with Varying Levels of Repellent Coverage
Date Identified:	25 August 2017
Species of Animal	Red-winged Blackbird
Number of Animals involved:	11
Location	Individual Feeding Cages
Fatal	Fatal-12
No	Was_a_veterinarian_consulted-16
If yes, list veterinarian name and date of consultation.	NA
Is this event related to a research protocol?	Possibly Related
If funded, list the sponsors of this project:	USDA-APHIS-WS NWRC
Provide a detailed description of the adverse event or problem:	The normal expected mortality for captive red-winged blackbirds was 30% over the course of the study. We only had 18% mortality overall. Over the course of two weeks we experienced higher mortality than usual. The unexpected fatalities occurred while the birds were in the individual feeding cages as described in the protocol.
Provide a description of how this event or problem was managed and corrected:	We corrected the problem by adding additional perch space within the individual feeding cages and providing 30 grams of the maintenance diet overnight. The maintenance diet was the same as described in the protocol.
Provide a description of the preventative actions taken to ensure that this type of event or problem does not occur in the future:	For the seven remaining weeks of the studies using the modified individual feeding cages and maintenance diet we only had one fatality. The preventative action of adding sufficient perch space will ensure the problem does not occur in the future. The birds did not consume the maintenance diet thus the additional of the maintenance diet did not help the problem.
Report submitted by:	Page Klug

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From:	CMS Notification
To:	Hayden, Jodie
Subject:	Adverse Event Report
Date:	Monday, May 7, 2018 1:09:26 PM

Date of Event/Problem:	05/07/2018
Principal Investigator:	Leclerc
Department:	Pharmaceutical Sciences
Protocol Number and Title:	A18032
Date Identified:	05/07/2018
Species of Animal	mice
Number of Animals involved:	5
Location	SUDRO Animal Facility
Treated Recovered	Outcome-10
Fatal	Fatal-12
Yes	Was_a_veterinarian_consulted-15
If yes, list veterinarian name and date of consultation.	Neil Dyer 5/07/2018
Is this event related to a research protocol?	Related
If funded, list the sponsors of this project:	NIH COBRE
Provide a detailed description of the adverse event or problem:	One mouse from the group of mice (N=12) who had pancreatic surgery on May 2, died on May 6. From the same group of surgery, two mice, who appeared fine until May 5, showed some signs of sickness (less mobile, fur more rough) on May 6. These two mice were treated with buprenorphine and hydrogel and look fine on May 7. Two mice from the group of May 3rd surgery appeared sick on May 7. These mice will be treated today with buprenorphine and hydrogel
Provide a description of how this event or problem was managed and corrected:	The sick mice received buprenorphine, as well as an hydrogel nutrient to enhance hydration. We plan on treating these mice with an antibiotic (Baytril).
Provide a description of the preventative actions taken to ensure that this type of event or problem does not occur in the future:	We currently do not know how this event occurred. Dr. Dyer will perform an autopsy on the dead mouse today.
Report submitted by:	05/07/2018

From:	CMS Notification
To:	(b) (6)
Subject:	Adverse Event Report
Date:	Tuesday, May 8, 2018 1:51:09 PM

Date of Event/Problem:	05/08/2018
Principal Investigator:	Leclerc
Department:	Pharmaceutical Sciences
Protocol Number and Title:	#A18032
Date Identified:	05/08/2018
Species of Animal	mouse
Number of Animals involved:	one
Location	SUDRO Animal Facility
Fatal	Fatal-12
Yes	Was_a_veterinarian_consulted-15
If yes, list veterinarian name and date of consultation.	Neil Dyer 05/08/2018
Is this event related to a research protocol?	Related
If funded, list the sponsors of this project:	COBRE
Provide a detailed description of the adverse event or problem:	On 05/07/2018, we reported that two mice, from May 3 surgery, were looking sick. These mice were teated with buprenorphine, hydrogel and, as recommended by Dr. Neil, with 8% Baytril in drinking water. One of these two mice was found dead on 05/08/18. The other mouse is looking better.
Provide a description of how this event or problem was managed and corrected:	The mouse who looked sick on 05/07/2018 will be closely monitored and will continue to receive Baytril. The dead mouse will be necropsied by Dr. Neil Dyer
Provide a description of the preventative actions taken to ensure that this type of event or problem does not occur in the future:	Upon determination of the cause of death of these two animals, we will be able to take action. No additional mouse from the surgery groups was looking sick today.
Report submitted by:	Estelle Leclerc

From:	CMS Notification
To:	(b) (6)
Subject:	Adverse Event Report
Date:	Friday, June 9, 2017 1:19:01 PM

Date of Event/Problem:	06-06-17
Principal Investigator:	Jane Schuh
Department:	Microbiological Sciences
Protocol Number and Title:	A15049 2015-2018 Fungus-Induced Pulmonary Response: A Murine Model of Human Lung Disease
Date Identified:	06-06-17
Species of Animal	Mus musculus, VAPC2 K● on C57BL/6 background
Number of Animals involved:	4
Location	Van Es Hall, [redacted]
Fatal	Fatal-12
No	Was_a_veterinarian_consulted-16
If yes, list veterinarian name and date of consultation.	
Is this event related to a research protocol?	Related
If funded, list the sponsors of this project:	NIH

1/1/2017
Not funded at time of

Provide a detailed description of the adverse event or problem:

11 mice were anesthetized with a cocktail of ketamine (100 mg/kg) and xylazine (25 mg/kg) intraperitoneally for the instillation of fungal conidia into their tracheas. This was the second time that these particular animals had received this dose of anesthetic. This is the first experiment in which we have used VPAC2 KO mice for some time and the first time in which this strain has undergone ketamine/xylazine anesthesia more than one time. We have noted that C57BL/6 mice (the background strain for the KO) take longer to wake up after this combination than do BALB/c mice. Four of the mice did not wake up after anesthesia, with one expiring before any procedure was done to it

Provide a description of how this event or problem was managed and corrected:

The operator contacted the PI to report the deaths. The operator, technician, and PI walked through the likely causes of the adverse event. One of the mice expired before anything was done to it. This, added to the fact that C57BL/6 mice recovery from anesthesia more slowly than other strains, strongly suggests to us that the anesthesia may be the culprit. We checked the calculations on the cocktail that was used to ensure that the dosing was correct. It was. We then checked the recommendations of several well-respected institutions for ketamine/xylazine doing in mouse and found the following information: --K● animals may respond differently than WT animals. --Although our dose of ketamine/xylazine was recommended to us at the time of our first protocol and has worked well in many experiments over more than a decade, the typical range for ketamine/xylazine doses is 100-2●0

	mg/kg ketamine and 5-16 mg/kg xylazine, with the most commonly reported dose being 100/10 for ketamine/xylazine, respectively (more xylazine can be added to the mix if longer sedation is required). We are considerably higher than recommended for xylazine.
Provide a description of the preventative actions taken to ensure that this type of event or problem does not occur in the future:	We will change our protocol to reflect a 100 mg/kg dose of ketamine and a 16 mg/kg xylazine dose that is recommended by the Cold Spring Harbor Protocols website (http://cshprotocols.cshlp.org/content/2006/1/pdb.rec702.full?text_only=true, accessed June 9, 2017).
Report submitted by:	[redacted]

NDSU NORTH DAKOTA STATE UNIVERSITY
RESEARCH AND CREATIVE ACTIVITY

Sanford Health - NDSU Research Seed Grant

In 2014, Sanford Health and North Dakota State University (NDSU) partnered together to conduct collaborative research on human nutrition, weight management and other dietary-related areas as part of a seed-grant initiative developed between the two organizations. The research will address key objectives of the Profile by Sanford® program.

Profile is a weight-management program that uses customized meal plans, health coaches and real-time technology. It was developed by Sanford physicians and researchers.

NDSU researchers will have opportunities to collaborate with investigators from Sanford Research on topics including metabolism, food choices and consumption, prenatal nutrition, genetics, development of sensors that monitor wellness factors and food manufacturing and nutritional interactions with the human microbiome. Research findings relevant to Profile will be considered as the program evolves and expands.

Programmatic Themes

NDSU faculty are invited to submit proposals that identify issues, advance scientific understanding and make progress toward solving critical problems in human nutrition and related problems.

Priority activities include, but are not limited to, the following:

- Human nutrition and metabolism (may include use of appropriate animal models)
- Human behavior related to food choices and consumption
- Study of the human microbiome (may include use of appropriate animal models)
- Epigenetics, with specific interest in prenatal nutrition
- Genetics, nutrigenomics, and metabolomics
- Development of sensors that monitor wellness factors
- Analytics of large and dynamic data sets resulting from wellness sensors
- Processing and manufacturing improvements of the Profile protein supplement

Connecting with Sanford Researchers

To facilitate collaborations between NDSU and Sanford Health personnel, please provide a short document (no more than one (1) page) that outlines a possible Sanford Health NDSU Collaborative project. These requests will be distributed to Sanford Health researchers or clinical personnel for review. The additional deadline is intended to facilitate further collaboration between Sanford Health and NDSU by providing:

1. additional time early in the process to identify potential collaborators and
2. a longer time for the development of a joint project.

As always, collaboration with a Sanford Research investigator is encouraged, but not required. However, proposals including such collaborations will be considered favorably by reviewers of proposals.

Collaboration Requests are to be submitted by 5:00 pm on January 29, 2018 to NDSU.BusinessDev@NDSU.edu.

Program Details

Further information about this program including eligibility, deadlines, and application requirements are available in the Sanford Health NDSU Collaborative Research Seed Grant Program Request for Application.

Sanford Health NDSU Collaborative Research Seed Grant Program should be submitted to NDSU Business Development using the Sanford Health NDSU Collaborative Research Seed Grant Program Cover Sheet.

Summary of Timeline and Funding Information

Collaboration Request Deadline	January 29, 2018 no later than 5:00PM Central Time

Application Deadline March 19, 2018 no later than 5:00PM Central Time

Submit proposals electronically to NDSU.BusinessDev@ndsu.edu.
Applications must be submitted in PDF format.
Completed cover sheets may be submitted via hard copy to (b) (6) (R1A, (b) (4)) or electronically to NDSU.BusinessDev@ndsu.edu

Notifications about whether or not an application/proposal has been approved for an award will be sent out by Dec. 1st.

Budgets up to $100,000 per proposal/application will be considered.

Grant budgets may be adjusted as part of the award process in order to not exceed the total $250,000 annual limit.

Recovery of indirect costs is NOT allowed.

Administrative costs available due to prime sponsor requirements.

2017 Award Recipients

PI	Department	Title	Amount
(b) (6)	Electrical and Computer Engineering	Low Cost Acetone Sensor for Early Stage Diabetes Diagnosis and Daily Monitoring	$87,500

2016 Award Recipients

PI	Department	Title	Amount
(b) (6)	Plant Sciences	Colon Cancer Reduction and the Gut Microflora: Effect of Flavonoids from Red Wheat	$100,000
(b) (6)	Health, Nutrition & Exercise Sciences	Protein Intake and Muscular Health with Aging: Effects of Increased Intake and Distributed Dietary Delivery of Arginine for Acute Muscle Protein Synthesis	$86,900
(b) (6)	Food Science and Nutrition	Bioactive Wound Healing	$76,000
(b) (6)	Pharmaceutical Sciences	Downregulation of DSD to Exploit Anti-cancer Effects of Omega-6 Diet Supplementation for Colon Cancer Treatment	$87,000
(b) (6)	Health, Nutrition & Exercise Sciences	The Effect of Nutrient Intake and Probiotic Administration on Weight and Glucoregulation Before and After Bariatric Surgery	$87,000
(b) (6)	Psychology	Temporal Dynamics of Sleep and Energy Consumption and Expenditure	$77,636
(b) (6)	Biological Sciences	Dietary Flaxseed to Prevent Inflammation and Oxidative Stress in American Indian Smokers	$93,987

2015 Award Recipients

PI	Department	Title	Amount
(b) (6)	Pharmaceutical Sciences	Downregulation of DSD to Exploit Anti-cancer Effects of Omega-6 Diet Supplementation for Colon Cancer Treatment	$87,000
(b) (6)	Health, Nutrition & Exercise Sciences	The Effect of Nutrient Intake and Probiotic Administration on Weight and Glucoregulation Before and After Bariatric Surgery	$87,000
(b) (6)	Psychology	Temporal Dynamics of Sleep and Energy Consumption and Expenditure	$77,636
(b) (6)	Biological Sciences	Dietary Flaxseed to Prevent Inflammation and Oxidative Stress in American Indian Smokers	$93,987

All publications and presentations related to funded projects must be submitted to Sanford thirty (30) calendar days prior to the first such proposed publication or presentation to a journal, editor, or third party. Sanford will have twenty (20) calendar days after the receipt of the publication or presentation to review it and proved comments, including any claim that the proposed publication contains Sanford Confidential Information. This is not a publication restriction but a standard review for confidential/proprietary data and review for intellectual property that may need protection prior to publication.

All publications and presentations must make the following acknowledgement in an appropriate location: *"Support for this project was provided by the Sanford Health – North Dakota State University Collaborative Research Seed Grant program."* If a grant number is required, this can be provided by the Sanford Research Grants Office.

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