

February 24, 2020

John Wilkinson

February 2020 RCA Researcher of the Month

John Wilkinson first became curious about just how cells work at a young age. He remembers learning about how mitochondria powers the functions of cells from a character in Madeleine L'Engle's book *A Wind in the Door* and meeting the author when he was 13 really solidified this passion. The associate professor of biochemistry at NDSU remembers that it was at this time he became really curious not only about how cells work, but how they don't work and what happens when they break down.

John's curiosity led him to biology and science classes in high school but after graduation he changed his plans and decided to study law. However, the lack of a pre-law program at Florida State University turned him in yet another direction so he took his advisor's advice that an undergraduate degree in life sciences would be a good foundation for law school. It was during his first biochemistry class



that John found he was still passionate about cell functions so he decided to follow that path.

After completing his BS in biochemistry, he received a PhD in molecular biology from Vanderbilt University. Following postdoctoral training at the University of Michigan, he started his faculty career at Wake Forest before coming to NDSU.

“I like the environment at NDSU and how I get to interact with a number of both graduate and undergraduate students in the lab,” he commented. “In addition, the opportunities to collaborate with other researchers is key to my work.”

John studies cancer. “While there are thousands of different types in just the categories of prostate and pancreatic cancer, all forms of cancer share the feature of uncontrolled growth patterns and this growth requires individual cancer cells to use energy differently than healthy cells,” he said. “The proliferation of tumorous tissue also creates different types of biological stress on a body and when such conditions of low oxygen or blood flow exist, the resulting stress can cause the tumors to become aggressive.”

“We all know someone affected by cancer so everyone gets the ‘why’ behind my research,” John continued. “However, how cancerous tissues create and use energy is what really interests me.” Harkening back to his early interest in mitochondria’s role in cells, John began looking at the proteins that impact and promote its function in the cell. “At Wake Forest, I became really interested in one protein, called apoptosis inducing factor (AIF), that promotes prostate cancer progression by regulating mitochondrial energy production.”

[Read more about Dr. Wilkinson's research >>](#)

NDSU EXPLORE

UNDERGRADUATE EXCELLENCE IN RESEARCH AND CREATIVE ACTIVITY

APRIL 22, 2020

Registration is open for the 2020 NDSU EXPLORE Showcase of Undergraduate Research and Creative Activity. Encourage your undergraduate students to present their research or creative work at this annual showcase event.

NDSU EXPLORE Annual Showcase

Wednesday, April 22 | 9-11:15am | NDSU Memorial Union

Learn more:

www.ndsu.edu/research/EXPLORE

Research Integrity and Compliance Update

A university-wide Conflict of Interest Committee (COIC) met for the first time last month. This fourth compliance committee was recently formed by Policy 151.1 and will meet monthly to review potential conflicts. The committee will be instituting new university-wide procedures and protocols related to reporting potential conflicts and will work with NDSU researchers to ensure they have adequately met all requirements. More information will be coming soon about the COIC.

February Issue: Research Development & Grant Writing News

The February issue of [*Research Development and Grant Writing News*](#) is now available to view. Use your NDSU login information to access this resource. Various topics are covered, including:

- Overview of the New NSF CAREER Solicitation
- Calling All Published Poets: Funding for Individuals from NEA
- Humanities and Arts Funding Opportunities and News
- The Communications Component of the Research Management Plan
- Writing the Innovation Section of Research and Education Proposals
- DOE's \$97 Million FOA for Bioenergy Technologies

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American Psychological Foundation: Visionary Grants

The [American Psychological Foundation](#) is inviting applications for its [2020 Visionary Grants](#).

The APF Visionary Grants program seeks to seed innovation in the field through supporting research, education, and intervention projects and programs that use psychology to solve social problems in the following priority areas: applying psychology to vulnerable, at-risk populations (e.g., serious mental illness, returning military, those who are incarcerated or economically disadvantaged); preventing violence; understanding the connection between behavior and health (e.g., wellness, diabetes, obesity); and understanding and eliminating stigma and prejudice (e.g., race, gender, sexual orientation, religion, age, disability and socioeconomic status).

Grants of up to \$20,000 will be awarded through the program.

Preference will be given to pilot projects that, if successful, would be strong candidates for support from major federal and foundation funding agencies and

"demonstration" projects that promise to generalize broadly to similar settings in other geographical areas and/or to other settings.

To be eligible, applicants must be a graduate student or early-career researcher (no more than ten years postdoctoral) and be affiliated with a nonprofit charitable, educational, or scientific institution or a governmental entity operating exclusively for charitable and educational purposes.

Deadline: April 1, 2020

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DoD: Defense University Research Instrumentation Program

The Department of Defense (DoD) announced the Fiscal Year 2021 Defense University Research Instrumentation Program (DURIP). DURIP is designed to improve the capabilities of accredited United States (U.S.) institutions of higher education to conduct research and to educate scientists and engineers in areas important to national defense, by providing funds for the acquisition of research equipment or instrumentation. The Air Force Office of Scientific Research (AFOSR), the Army Research Office (ARO), and the Office of Naval Research (ONR) all participate in this Program:

- [AFOSR: FOA-AFRL-AFOSR-2020-0001](#)
- [ARO: W911NF-20-S-0006](#)
- [ONR: N00014-20-S-F004](#)

Inquiries and Questions Deadline: April 24, 2020

Application Deadline: May 15, 2020

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NASA: Research Opportunities in Space and Earth Sciences

The National Aeronautics and Space Administration (NASA) Science Mission Directorate (SMD) has released its annual NASA Research Announcement (NRA),

[Research Opportunities in Space and Earth Sciences \(ROSES\) – 2020](#). ROSES is an omnibus NRA, with many individual program elements, each with its own due dates and topics. Topics include:

- [Land Cover / Land Use Change](#)
- [Emerging Worlds](#)
- [Biodiversity](#)
- [Earth Surface and Interior](#)
- [Ecological Forecasting](#)
- [Modeling Analysis and Prediction](#)
- [Early Career Investigator Program](#)

[View a complete list of topics >>](#)

Application deadlines vary by program.

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NEA: Research Labs and Research Grants in the Arts

These National Endowment for the Arts (NEA) grants provide an opportunity to engage with NEA's [five-year agenda for 2017-2021](#). The research agenda offers guidance on the types of study questions and topics that to appeal to the agency's long-term research goals.

[Research Grants in the Arts](#) support research that investigates the value and/or impact of the arts, either as individual components of the U.S. arts ecology or as they interact with each other and/or with other domains of American life. We are interested in research that identifies and examines:

- Factors that enhance or inhibit arts participation or arts/cultural assets;
- Detailed characteristics of arts participation or arts/cultural assets, and their interrelationships;
- Individual-level outcomes of arts participation, specifically outcomes corresponding with the following domains:
 - social and emotional well-being
 - creativity, cognition, and learning
 - physiological processes of health and healing; and
- Societal or community-level outcomes of arts/cultural assets, specifically outcomes corresponding with the following domains:

- civic and corporate innovation
- attraction for neighborhoods and businesses
- national and/or state-level economic growth

The [NEA Research Labs program](#) intends to cultivate a series of transdisciplinary research partnerships, grounded in the social and behavioral sciences, to produce and report empirical insights about the arts for the benefit of arts and also for non-arts sectors such as healthcare, education, and business or management. NEA Research Labs will define their own related agendas, conduct project activities to implement that agenda, and prepare reports that will contribute substantively to a wider understanding of one of three areas of special interest to the Arts Endowment:

- The Arts, Health, and Social/Emotional Well-Being
 - Therapeutic Approaches and Benefits
 - Non-Therapeutic Approaches and Benefits
- The Arts, Creativity, Cognition, and Learning
- The Arts, Entrepreneurship, and Innovation

Deadline: March 30, 2020

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NIH: Instrumentation Grants

The National Institutes of Health (NIH) has released several funding opportunity announcements (FOA) for instrumentation programs:

Shared Instrumentation for Animal Research (SIFAR) Grant Program [\[PAR-20-112\]](#)

SIFAR encourages applications from groups of NIH-funded investigators to purchase or upgrade scientific instruments necessary to carry out animal experiments in all areas of biomedical research supported by the NIH. Applicants may request clusters of commercially available instruments configured as specialized integrated systems or as series of instruments to support a thematic well-defined area of research using animals or related materials. Priority will be given to uniquely configured systems to support innovative and potentially transformative investigations.

This FOA supports requests for state-of-the art commercially available technologies needed for NIH-funded research using any vertebrate and invertebrate animal species. This FOA does not support requests for single instruments. At least one item of the requested instrumentation must cost at least \$50,000, after all applicable discounts. No instrument in a cluster can cost less than \$20,000, after all applicable discounts. There is no maximum price requirement; however, the maximum award is \$750,000.

Shared Instrumentation Grant (SIG) Program [\[PAR-20-113\]](#)

SIG encourages applications from groups of NIH-supported investigators to purchase or upgrade a single item of expensive, specialized, commercially available instruments or integrated systems. The minimum award is \$50,000 of direct costs. There is no maximum price limit for the instrument; however, the maximum award is \$600,000 of direct costs. Types of instruments supported include, but are not limited to: X-ray diffractometers, mass spectrometers, nuclear magnetic resonance, spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, and biomedical imagers.

High-End Instrumentation (HEI) Grant Program [\[PAR-20-114\]](#)

HEI encourages applications from groups of NIH-supported investigators to purchase or upgrade a single item of high-end, specialized, commercially available instruments or integrated systems. The minimum award is \$600,001. There is no maximum price limit for the instrument; however, the maximum award is \$2,000,000. Types of instruments supported include, but are not limited to: X-ray diffractometers, mass spectrometers, nuclear magnetic resonance (NMR) spectrometers, DNA and protein sequencers, biosensors, electron and light microscopes, cell sorters, high throughput robotic screening systems, and biomedical imagers.

Deadline: June 1, 2020

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NSF DCL: IMAGiNE 2020 - Organisms in a Dynamic Environment

With this [Dear Colleague Letter \(DCL\)](#), the Division of Integrative Organismal Systems (IOS) in the Directorate for Biological Sciences (BIO) of the National Science Foundation (NSF) encourages submission of proposals to its core

programs focused on **IMAGiNE: Integrating Mechanisms of Adaptation with Genes in Networks** and across **Environments**. This DCL encourages integrated studies that will investigate how genomes, phenomes, and the environment interact to influence the development, expression and evolution of complex traits.

IOS encourages submission of the following types of proposals:

- **Research proposals** to support fundamental research relevant to the core programs in IOS that investigates how genomes, phenomes, and the environment interact to influence the development, expression, and evolution of complex traits. The environment in this context is meant to encompass either abiotic or biotic factors, or a combination of both factors.
- **Conference proposals** that would bring together teams of scientists to address key challenges to advancing the goals of IMAGiNE.
- **Research Coordination Network (RCN) proposals** to build collaborative networks of scientists in diverse disciplines to coordinate and expand avenues of research addressing the goals of IMAGiNE.

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NSF DCL: Plant Synthetic Biology

This [Dear Colleague Letter \(DCL\)](#) highlights existing programs in the Directorate for Biological Sciences (BIO) and the Directorate for Engineering (ENG) offering support for proposals that advance the growing field of plant synthetic biology, including support for basic research, tool development, and applications; and proposals that emphasize the potential outcomes with benefits to society. Proposal titles should be prefaced with "PlantSynBio:" and submitted to the program most closely related to the proposed research.

- The Plant Genome Research Program ([NSF 18-579](#)) in the Division of Integrative Organismal Systems.
- The Systems and Synthetic Biology Cluster in the Division of Molecular and Cellular Biosciences ([NSF18-585](#)).
- The Cellular and Biochemical Engineering Program in the Division of Chemical, Bioengineering, Environmental and Transport Systems (NSF [PD 20-1491](#)).

This DCL is not intended to announce a special competition nor a new program, but simply highlight NSF's interest in an area of research that is funded through existing programs. The three relevant programs all accept proposals without deadline.



USDA-NIFA: Food Safety Outreach Program

The [Food Safety Outreach Program](#) will complement and expand the national infrastructure of the National Food Safety Training, Education, Extension, Outreach, and Technical Assistance Competitive Grants Program. The Food Safety Outreach Program will build upon that national infrastructure, with a sustained focus on delivery of customized training to members of the target audiences. Awardees will develop and implement food safety training, education, extension, outreach and technical assistance projects that address the needs of owners and operators of small to mid-sized farms, beginning farmers, socially-disadvantaged farmers, small processors, or small fresh fruit and vegetable merchant wholesalers. Grant applications will be solicited directly from those in local communities to include those from community-based organizations, non-governmental organizations, food hubs, farm cooperatives, extension, and other local groups.

Eligible applicants include:

1. The Cooperative Extension Service for a U.S. state or territory;
2. Non-government organizations and/or community based organizations representing owners and operators of farms, small food processors, or small fruit and vegetable merchant wholesalers that has a commitment to public health and expertise in administering programs that contribute to food safety;
3. Federal, State, local, or tribal agencies;
4. An institution of higher education or a foundation maintained by an institution of higher education;
5. A collaboration of two or more eligible entities.

Proposal Deadline: April 7, 2020



Proposal Development Program

The purpose of the Proposal Development Program is to provide a professional development opportunity for NDSU faculty new to proposal writing or those seeking a refresher to hone proposal writing skills and knowledge in funding agency opportunities.

The Proposal Development Program will cover topics ranging from tips for writing proposals to specific agencies to peer review and developing collaborations. The NSF CAREER Program will also be part of the programming.

An experienced grant consultant, faculty, and research support staff will lead the sessions. [Register](#) soon to reserve your spot!

Spring 2020 Sessions

Memorial Union Badlands Room | 12:30pm-1:30pm

- February 25 - NSF Broader Impacts and Intellectual Merit
- March 10 - Meeting Expectations of Funding Agencies: Foundations and NIH
- March 31 - Meeting Expectations of Funding Agencies: USDA
- April 14 - Developing Collaborations

[Register to Participate >>](#)

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NDSU Core Biology Facility

The [NDSU Core Biology Facility \(CBF\)](#) assists researchers by providing equipment and resources that might not otherwise be accessible in the standard laboratory. CBF is equipped with BD Accuri C6 flow cytometers, BD FACSJazz cell sorter, Agilent 2100 Bioanalyzer, BioTek Synergy H1 microplate reader, iBright FL 1500 imaging system, Thermo Nanodrop 2000c, and more. In addition, CBF contains the equipment and resources to perform tissue/cell culture. CBF is a reasonable fee structure-based facility with the goal of assisting and promoting research. If interested in touring the facility and/or discussing how the facility may assist your research, please contact the CBF Manager, Dr. Amber Chevalier Plambeck (amber.chevalier@ndsu.edu, 701-231-5334).

During February, the CBF is offering a free training session per laboratory on the iBright FL1500. The iBright FL1500 is used to image, document, and quantify/analyze samples on gels and blots. This free training time will benefit laboratories that are interested in using the instrument. Contact Dr. Chevalier Plambeck (amber.chevalier@ndsu.edu, 701-231-5334) if you are interested in this training.



Have questions, ideas, or suggestions for the RCA Update?

[Contact Us](#)



The Office of Research and Creative Activity (RCA) sends weekly emails to NDSU faculty and staff to provide current information on various topics including funding opportunities, grant program changes, research resources, deadlines, notices, and training.

You are receiving this notification through the NDSU official employee listserv or sub-list. The official listserv refreshes after each pay period.

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