### Funding Opportunities in the

### MATHEMATICAL, NATURAL, & PHYSICAL SCIENCES

### Office of Research & Sponsored Programs

**MAY**

Please [let ORSP know](mailto:edwardss@wfu.edu) if you plan to submit a proposal to an external sponsor in the next 3 months. Even a subcontract with the Medical School or any other institution must be submitted through ORSP. Thanks!

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**UPCOMING DEADLINES**

**INTERNAL**

**Open**

**Interdisciplinary Performance and the Liberal Arts Center (IPLACe), Creative Partnerships** <http://iplace.wfu.edu>

**EXTERNAL**

**May 25**

**Department of Energy (DOE), Renewable Energy to Fuels Through Utilization of Energy-Dense Liquids (REFUEL)** <https://arpa-e-foa.energy.gov/#FoaId1f46538f-5fae-45c0-a12d-59cbe2e6992e> – supports (1) the synthesis of carbon-neutral liquid fuels (CNLFs) using intermittent renewable energy sources, water, and air (N2 and CO2) as the only chemical input streams; and (2) the conversion of CNLFs delivered to the end point to another form of energy (e.g. hydrogen or electricity)

**May 26**

**National Cancer Institute (NCI), Innovative Molecular and Cellular Analysis Technologies for Basic and Clinical Cancer Research (R21)** <http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-16-001.html> - supports the development of novel capabilities involving a high degree of technical innovation for targeting, probing, or assessing molecular and cellular features of cancer biology

**May 29**

**NCI, Research Answers to NCI's Provocative Questions (R21)** <http://grants1.nih.gov/grants/guide/rfa-files/RFA-CA-15-009.html> - to stimulate research in areas that are understudied, neglected, paradoxical, and/or have been difficult to address; 1. For tumors that arise from a premalignant field, what properties of cells in this field can be used to design strategies to inhibit the development of future tumors? 2. What molecular mechanisms influence disease penetrance in individuals who inherit a cancer susceptibility gene? 3. How do variations in tumor-associated immune responses contribute to differences in cancer risk, incidence, or progression? 4. Why do some closely related tissues exhibit dramatically different cancer incidence? 5. How does mitochondrial heterogeneity influence tumorigenesis or progression? 6. What molecular mechanisms are responsible for the functional differences between benign proliferative diseases and premalignant states? 7. What in vivo imaging methods can be developed to determine and record the identity, quantity, and location of each of the different cell types that contribute to the heterogeneity of a tumor and its microenvironment? 8. What cancer models or other approaches can be developed to study clinically stable disease and the subsequent transition to progressive disease? 9. What molecular and/or cellular mechanisms underlie the development of cancer therapy-induced severe adverse sequelae? 10. How do microbiota affect the response to cancer therapies? 11. What mechanisms of action of standard-of-care cytotoxic, radiologic, or targeted therapies affect the efficacy of immunotherapy? 12. What methods and approaches induce physicians and health systems to abandon ineffective interventions or discourage adoption of unproven interventions?

**June 1**

**Epidermal and Sensory Research and Investigation Center of CHANEL, CERIES Research Award** <http://research-technology.chanel.com/research-awards> - $45,538.08 for research on the physiology or biology of healthy skin and/or its reactions to environmental factors

**Whitehall Foundation, Inc., Research Grants** <http://www.whitehall.org/grants/> - awards ranging from $30K-$75K annually for basic research in Invertebrate and vertebrate (excluding clinical) neurobiology, specifically investigations of neural mechanisms involved in sensory, motor, and other complex functions of the whole organism as these relate to behavior with the goal of elucidating behavioral output or brain mechanisms of behavior.

**June 24**

**National Science Foundation (NSF), Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science (NSF INCLUDES)** <http://www.nsf.gov/pubs/2016/nsf16544/nsf16544.htm> - up to $300K for up to 2 years for Design and Development Launch Pilots, bold, innovative ways to solve a broadening participation (BP) challenge in STEM, delivering models or prototypes for collective efforts at the local, regional, or national level or by disciplinary focus; must identify a specific goal and measurable objectives and include all the necessary partners; in FY 2017, NSF will invite proposals to form up to 5 NSF INCLUDES Alliances at up to $2.5M/ year for 5 years; a critical component of the collective approach is the Backbone Organization, which establishes: (a) vision and strategy; (b) alignment of activities; (c) shared measurement practices; (d) methods to build public will, advance policy, and mobilize funding

**June 30**

**Diabetes Research and Wellness Foundation (US), Research Grants** <http://www.diabeteswellness.net/grant-guidelines> - up to $50,000 per year for up to two years for research on islet cell transplantation, macrovascular disease, and neuropathy

**July 1**

**American Diabetes Association, Inc., Pathway Program, Initiator Award (see other mechanisms for other career stages)** <http://professional.diabetes.org/meetings/pathway-stop-diabetes%C2%AE> - to support exceptionally talented and promising early career researchers focusing on innovative ideas and transformational approaches that will lead to groundbreaking discoveries in diabetes prevention, treatment, and cures; to attract a broad range of expertise to the field of diabetes from fields including medicine, biology, chemistry, engineering, mathematics, and physics

**ASPIRE, Cardiovascular Competitive Research Grants** <https://www.aspireresearch.org/cardiovascular/index.html> - supports basic/preclinical/clinical or outcomes/epidemiological research on the pathophysiology of nondiabetic or diabetic dyslipidemia and atherosclerotic vascular disease, including genetic, metabolomic, proteomic, and clinical aspects; lipoprotein particles, cellular lipoprotein receptors, and lipid homeostasis; role of PCSK9 in lipoprotein metabolism, tumorigenesis, immune system, infectious diseases, and vascular biology; pathophysiology of cardiovascular diseases other than atherosclerosis (e.g., vein graft failure, thrombosis); nonlipid/lipoprotein effects of PCSK9 (e.g., role of PCSK9 in the central nervous system, intestine, pancreas, adrenals, adipose tissue); biochemistry of PCSK9 (structural biology and mechanistic implications); PCSK9 and infectious disease; identification of the unmet needs and/or residual risk in high-risk secondary/primary prevention patients that may be addressed by PCSK9 inhibitors (i.e., retrospective database analyses, cohort studies using existing populations)

**July 9**

**National Institute of Arthritis & Musculoskeletal & Skin Diseases, Mechanistic Ancillary Studies to Ongoing Interventional Clinical Trials (R01)** <http://grants.nih.gov/grants/guide/rfa-files/RFA-AR-17-003.html> - to conduct time-sensitive mechanistic studies ancillary to privately or publicly funded, ongoing interventional clinical trials; e.g., novel cellular, molecular, genetic and/or epigenetic mechanisms of disease; novel cellular and/or molecular fingerprints of disease onset and/or progression; novel pathogenic signaling pathways; novel cellular and molecular disease/drug target identification; underlying mechanism of action of a drug or intervention; underlying environmental, behavior or other risk factors that are responsible for differences in disease onset and progression; mechanisms that explain disease comorbidity or functional impairment and pathophysiology of the disease; underlying etiology of subsets of a disease; biomarkers and outcome measure studies that relate to the mechanism of action, toxicity, and activity of the therapeutic agent and its effects; biomarkers that reflect disease activity or structural/functional tissue changes; mechanism of sex differences in disease onset and progression; mechanisms of pain or pain perception in diseases

**July 20, BIO, CISE, EHR; July 22, GEO, MPS, SBE**

**NSF, Faculty Early Career Development (CAREER) Program** [www.nsf.gov/pubs/2015/nsf15555/nsf15555.htm](http://www.nsf.gov/pubs/2015/nsf15555/nsf15555.htm) - to support of junior faculty who exemplify the role of teacher-scholars through outstanding research, education, and their integration within the mission of the organizations

**August 1**

**Air Force Office of Scientific Research, Multidisciplinary Research Program of the University Research Initiative (MURI)** <http://www.grants.gov/custom/viewOppDetails.jsp?oppId=283045> - white papers and full proposals addressing the following topics: interactive protocols for quantum computation and communications; bioinspired low-energy information processing; autonomous research systems for materials development; beam/wave dynamics in geometrically complex systems with emitting boundaries; atmospheric disturbances at high altitudes; revolutionary advances in computational quantum many body physics; melanin: unique biopolymers for functional precision nanoscale materials; and adaptive oxides for biomimetic synapse design via modulation of internal states

**August 1**

**Fulbright Scholars Abroad** (see <http://catalog.cies.org/>)

**August 2**

**NSF, Long-Term Research in Environmental Biology (LTREB)** <http://www.nsf.gov/pubs/2016/nsf16500/nsf16500.htm> - supports extended research addressing important questions in evolutionary biology, ecology, and ecosystem science

**September 30**

**DOE, Innovative Development in Energy-Related Applied Science (IDEAS)** <https://arpa-e-foa.energy.gov/#FoaId45210635-66d2-4e12-a9ee-fb39dca1d01b> - ARPA-E (Advanced Research Projects Agency - Energy) seeks transformative ideas to enable the most efficient, economical, sustainable, and environmentally benign conversion of energy while minimizing energy destruction; concepts of particular interest have the potential to achieve percentage-level reductions in US energy consumption, energy-related imports, or greenhouse gas emissions; areas of Interest selected from the 6 forms of energy involved in the conversion or interaction of energy: mechanical, thermal, chemical, electrical, radiant, and nuclear

Contact [Stephen Williams](mailto:williasl@wfu.edu) for more specific sponsor search or go to infoedglobal.com to explore SPINPlus.



Aaron Hantgan, *Contradiction*