OFFICE OF THE VICE PROVOST FOR RESEARCH

Awards: Faculty Research Support Program 2016-17

Seed Round 1

Imaging Network-wide Neuronal Activity in the Worm Caenorhabditis Elegans
John Beggs, Department of Physics
The tiny roundworm *C. elegans* is an ideal model organism for studies of neuronal network activity because it has only 302 neurons and a wide repertoire of interesting behaviors, including conditioned preference for alcohol. Understanding alcohol preference in this simplified nervous system may contribute toward insights into human alcohol preference and addiction. Here we will develop a new platform that will allow us to visualize network-wide activity in this worm as alcohol and other solutions are presented to it through a microfluidic device. We have already made substantial progress in developing this platform, and we expect to be competitive soon for external NIH funding.

Muscular Endurance and Solid Tumor Progression Rates - a Range Finding Pilot Study
Amit Hagar, History and Philosophy of Science and Medicine
The hypothesis that aerobic exercise slows solid tumor growth has been receiving a lot of attention lately. Following an IRB approved clinical study led by the PI, here we shall test this hypothesis in mice, using a novel endurance exercise protocol with a forced wheel to induce systemic effects on the tumor's microenvironment via the host's immune response and the tumor's bio-energetic profile. The purpose of this pilot study is to determine an exercise protocol which is sufficient to induce an observable systemic dose-response effect. The study is the first step towards establishing muscular endurance as a novel bio-marker for solid tumor progression rates that can personalize the frequency of routine breast mammogram screening.

The College Experiences of Students on the Autism Spectrum
Jane McLeod, Department of Sociology
This research involves a web survey of college students with autism spectrum disorders and their neurotypical peers on 20 Indiana public college and university campuses. The research focuses on racial, socioeconomic, and gender differences in the college experience for students on the spectrum, encompassing academic engagement, social relationships, and academic, social, and health outcomes. The survey serves as a pilot for a prospective, longitudinal study of college success for students on the spectrum.