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2. Induction of pluripotent stem cells by defined factors is greatly improved by small-molecule compounds–Huangfu et al., Nature Biotechnology 26, 795–797 (22 June 2008)
NEW OPPORTUNITIES
across the Mathematical and Biological Sciences at
the University of Tennessee, Knoxville

NIMBioS—National Institute for Mathematical and Biological Synthesis
SCALE-IT—Scalable Computing and Leading Edge Innovative Technologies
STAIR—Sustainable Technology through Advanced Interdisciplinary Research

NIMBioS is a major initiative to foster interdisciplinary research at the interface between the mathematical and biological sciences. The Institute will address fundamental science and applied problems and will develop a cadre of diverse researchers capable of conceiving and engaging in research at this interface. NIMBioS is sponsored by the National Science Foundation, the US Department of Homeland Security and the US Department of Agriculture. Industry partners are IBM and ESRI, and the Great Smoky Mountains National Park is a collaborative partner. In addition to existing graduate programs across the mathematical and biological sciences and engineering, the University of Tennessee, Knoxville will provide interdisciplinary graduate education opportunities through SCALE-IT and STAIR, two new NSF-funded Integrative Graduate Education and Research Traineeship (IGERT) programs.

NIMBioS Opportunities

NIMBioS is sponsoring an array of activities starting January 2009 to foster research and education at the interface between mathematics and biology. The initial round of proposals are due November 10, 2008, for activities to be held starting January 2009. Details about the application process for activities are posted at http://NIMBioS.org and include:

- Proposals for Working Groups to investigate novel, focused research questions requiring an interdisciplinary perspective. These involve 10-15 researchers who visit NIMBioS for up to a week at a time over one to two years.

- Proposals for Investigative Workshops to foster a broader perspective of an area of fundamental or applied interest at the mathematics/biology interface. These involve 30-40 researchers and students visiting NIMBioS for 3-4 days and are expected to identify areas for possible future Working Groups.

- Proposals for post-doctoral fellowships based at NIMBioS for periods of one to two years. Applications are particularly encouraged from those who already have some experience in research at the mathematics/biology interface, but applications are welcome from all individuals who wish to expand their interdisciplinary background through opportunities at NIMBioS.

- Proposals for visiting positions of variable length for short-term visits of less than a month for students and researchers or longer-term sabbatical visits.

NIMBioS will host a Research Experience for Undergraduates program during Summer 2009, with applications due February 16, 2009.

Graduate Student Opportunities through SCALE-IT and STAIR IGERT Programs

The University of Tennessee, Knoxville has outstanding opportunities for highly motivated students with interest in interdisciplinary science and engineering Ph.D. programs.

SCALE-IT is an NSF-funded IGERT program at UTK and Oak Ridge National Lab. Students can address biological problems at all scales, ranging from atomic level molecular dynamics simulations of proteins to large bioinformatics and statistical problems related to populations and ecosystems. Unique resources are available for research in these areas, with UTK as a leading contributor to Tera-Grid computing, the National Institute of Computational Science at UTK leading the way with the Track II Supercomputer, and the opening of new frontiers in biology with the Spallation Neutron Source at Oak Ridge National Lab. Interested students should contact Dr. Cynthia Peterson (cbpeters@utk.edu), or visit http://web.utk.edu/~scaleit.

STAIR is also an NSF-funded IGERT program at UTK. The STAIR program provides an opportunity to earn a Ph.D. in one of three areas in sustainable energy: production of hydrogen through biological pathways, discovery of nanoporous materials for hydrogen storage, and identification of structure/property relationships in hydrogen-based fuel cells. Through an integrated curriculum, participants become knowledgeable in the broad range of biomolecular and materials research challenges, as well as social constraints, surrounding sustainable energy. Interested students should contact Dr. David Keffer (dkeffer@utk.edu), or visit http://clausius.engr.utk.edu/stair.

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Phosphorylation of Intracellular Kinases in Hydrogen Peroxide-treated Jurkat Cells. A. Human Jurkat cells (acute T cell leukemia) were either untreated or treated with H\(_2\)O\(_2\). The relative levels of phosphorylation of multiple intracellular kinases were simultaneously assessed in cell lysates using the Proteome Profiler Human Phospho-Kinase Antibody Array Kit (Catalog #ARY003). RS = reference spots. B. Histogram profiles for select analytes were generated by quantifying the mean spot pixel densities from the Phospho-Kinase Array Kit using image analysis software.

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