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NIH Launches Interdisciplinary Research Consortia

The National Institutes of Health (NIH) Roadmap for Medical Research will fund nine interdisciplinary research consortia as a means of integrating aspects of different disciplines to address health challenges that have been resistant to traditional research approaches. The funding of these consortia represents a fundamental change in both the culture within which biomedical and behavioral research is conducted and the culture within the NIH where research projects are normally managed by an individual Institute or Center (IC).

“The Interdisciplinary Research programs within the Roadmap embody a central goal of the Roadmap--to help transform the way research is conducted,” said NIH Director Dr. Elias A. Zerhouni. “These programs are designed to encourage and enable change in academic research culture to make interdisciplinary research easier to conduct for scientists who wish to collaborate in unconventional ways.”

As opposed to multidisciplinary research, which involves teams of scientists approaching a problem from their own discipline, interdisciplinary research integrates elements of a wide range of disciplines, often including basic research, clinical research, behavioral biology, and social sciences so that all of the scientists approach the problem in a new way. The members of interdisciplinary teams learn from each other to produce new approaches to a problem that would not be possible through any of the single disciplines. Typically, this process begins with team members first learning the language of each other’s discipline, as well as the assumptions, limits, and valid uses of those disciplines’ theoretical and experimental approaches. Experiments are then designed in ways that cut across disciplines, with, for example, an experiment based in one discipline producing data that can be correlated - or otherwise connected to - data generated in experiments based in another discipline. The common understanding by the team of the disciplines involved assures that this tight linkage across the disciplines is valid.

These consortia will not only develop new ways to think about challenging biomedical problems, but will provide a stimulus for academic research culture change such that

interdisciplinary research becomes the norm. The consortia address directly several current barriers to interdisciplinary research. The strategies for accomplishing this include: (1) dissolving departmental boundaries within institutions; (2) providing recognition of team leadership within the projects; (3) cross-training students in multiple disciplines; and, importantly, (4) changing the NIH approach to interdisciplinary research administration.

“The Roadmap is a learning laboratory both scientifically and administratively. Forging inter-disciplines is a new enterprise. These consortia will focus on a variety of different areas, bringing individuals of diverse backgrounds together to tackle complex problems. These consortia also represent a new paradigm for NIH administration that will manage interdisciplinary programs through multiple NIH ICs in a truly trans-NIH manner,” said Dr. Alan Krensky, the newly appointed Director of the Office of Portfolio Analysis and Strategic Initiatives (OPASI), which funds the NIH Director's Roadmap initiatives. Management of the interdisciplinary research consortia will allow the NIH to act as a single entity rather than a collection of 27 individual ICs.

The consortia consist of multiple research projects with multiple principal investigators, core research support facilities, training, career development, and education components. These components will be divided among several ICs for programmatic oversight. To maintain the interdisciplinary research program as a whole, the grants will remain linked electronically through unique identifiers, and the National Center for Research Resources (NCRR) and OPASI will oversee the entire program.

The missions of the consortia range broadly from deciphering the basis of neuropsychiatric disorders, to developing new approaches to drug discovery and targeted gene therapy, to preserving fertility in women with cancer, to understanding the fundamentals of the aging process, to a coordinated and systematic approach to regenerative medicine and obesity, to probing the relationship between self-control and addictive behavior, and to developing targeted molecular therapies for neurodegenerative disorders. The interdisciplinary consortia will integrate numerous disciplines including the basic biological sciences, genomics, proteomics, bioinformatics, biostatistics, biophysics, chemistry, gene therapy, stem cell biology, mechanical and tissue engineering, reproductive endocrinology, neurology, behavioral research, and the social sciences.

“Many future scientific advances will be made at the interface of traditional disciplines. The Roadmap Interdisciplinary Research Consortia have been designed to enable the conduct of the biomedical and behavioral research of the future - multiple NIH Institutes and Centers supporting multiple investigators with different scientific backgrounds, often from different institutions - all of whom are coming together to perform research on complex, real-life problems,” said Dr. Larry Tabak, the Director of the National Institute of Dental and Craniofacial Research, who co-chaired a working group that helped identify the best interdisciplinary science that should be funded. “The Roadmap Interdisciplinary Research Team continues to define the barriers to interdisciplinary

research and persists in refining the best solutions to overcome these barriers. The consortia represent a very important step forward along this learning curve.”

The consortia will be funded at a level of \$210 million over 5 years. Each consortium has an overall principal investigator that is responsible for coordinating the efforts of the individual grant components. The interdisciplinary consortia, overall principal investigator, and their institution are as follows:

Consortium for Neuropsychiatric Phenomics-Coordinating Center

Dr. Robert Bilder, Professor, University of California, Los Angeles

Interdisciplinary Research Consortium in Geroscience

Dr. Dale Bredesen, Director and CEO, The Buck Institute for Age Research, Novato, California

Neurotherapeutics Research Consortium

Dr. Paul Hagerman, Professor, University of California, Davis

Taskforce for Obesity Research at Southwestern (TORS)

Dr. Jay Horton, Associate Professor, University of Texas Southwestern Medical Center, Dallas, Texas

SysCODE: Systems-Based Consortium for Organ Design and Engineering

Dr. Richard Maas, Professor of Medicine, Brigham and Women’s Hospital, Boston, Massachusetts

Northwest Genome Engineering Consortium

Dr. Andrew Scharenberg, Associate Professor, Children’s Hospital and Regional Medical Center, Seattle, Washington

Genomic Based Drug Discovery

Dr. Edward Scolnick, Director, Psychiatric Initiative, Broad Institute of MIT and Harvard University, Cambridge, Massachusetts

Interdisciplinary Research Consortium on Stress, Self-Control, and Addiction

Dr. Rajita Sinha, Professor, Yale University, New Haven, Connecticut

The Oncofertility Consortium: Fertility Preservation for Women

Dr. Teresa Woodruff, Professor, Northwestern University, Chicago, Illinois

For complete descriptions please visit: <http://www.ncrr.nih.gov>.

The NIH Roadmap for Medical Research is a series of far-reaching initiatives designed to transform the Nation's medical research capabilities and speed the movement of scientific discoveries from the bench to the bedside. It provides a framework of the

priorities the NIH must address in order to optimize its entire research portfolio and lays out a vision for a more efficient and productive system of medical research. Additional information about the Roadmap can be found at <http://nihroadmap.nih.gov>.

NCRR provides laboratory scientists and clinical researchers with the environments and tools they need to understand, detect, treat, and prevent a wide range of diseases. With this support, scientists make biomedical discoveries, translate these findings to animal-based studies, and then apply them to patient oriented research. Ultimately, these advances result in cures and treatments for both common and rare diseases. Through collaborations and networks, NCRR connects researchers with one another and with patients and communities across the nation. These connections bring together innovative research teams and the power of shared resources, multiplying the opportunities to improve human health. For more information, visit www.ncrr.gov.

The National Institutes of Health (NIH) - The Nation's Medical Research Agency- includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.

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