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NCI Launches New Integrative Cancer Biology Program

The National Cancer Institute (**NCI**), part of the National Institutes of Health (**NIH**), announced \$14.9 million in funding for a new Integrative Cancer Biology Program (**ICBP**). The ICBP is a unique initiative designed to gain new insights into the development and progression of cancer through a systems-wide approach. **An integrative and multi-disciplinary effort among all fields of cancer research will be applied, incorporating a spectrum of new technologies such as genomics, proteomics, and molecular imaging, to generate computer and mathematical models that could predict the cancer process.**

The ICBP initiative highlights **nine** integrative biology centers. These centers will provide the nucleus for the design and validation of computational and mathematical cancer models. The models will simulate complex cancer processes, and will be used to address all stages of cancer, from the basic cellular processes through tumor growth and metastasis. "The key aspect that sets the ICBP effort apart from others," said Daniel Gallahan, Ph.D., Associate Director, Division of Cancer Biology, NCI, "is the focus on building predictive cancer models, and not just analyzing data."

The ICBP centers also will serve as training and outreach programs, enabling developing technologies to be communicated to other scientists in the cancer

research community. This outreach effort adds another level of integration, and also provides the means for other scientists to validate the usefulness of these models.

The new ICBP centers represent a broad spectrum of cancer research. The centers and the principal investigators are:

- Thomas Deisboeck, M.D., Massachusetts General Hospital, Boston, Mass.
"Development of a Virtual Tumor"
- Todd Golub, M.D., Dana-Farber Cancer Institute, Boston, Mass.
"Signatures of Kinase Activation in Cancer"
- Joe W. Gray, Ph.D., Lawrence Berkeley National Laboratory, Berkeley, Calif.
"Systems-Based Predictions of Response to Cancer Therapy"
- Tim H-M Huang, Ph.D., Ohio State University, Columbus, Ohio.
"Interrogating Epigenetic Changes in Cancer Genomes"
- Richard Hynes, Ph.D., Massachusetts Institute of Technology, Boston, Mass.
"Regulatory Networks in Cancer Initiation and Progression"
- Timothy Kinsella, M.D., University Hospital of Cleveland, Cleveland, Ohio.
"Complex Systems and Control of MMR-Deficient Cells"
- Joseph Nevins, Ph.D., Duke University, Durham, N.C.
"Integration of Oncogenic Networks in Cancer Phenotypes"
- Sylvia Plevritis, Ph.D., Stanford University School of Medicine, Stanford, Calif.
"Computational Modeling of Cancer Biology"
- Vito Quaranta, M.D., Vanderbilt University Medical Center, Nashville, Tenn.
"Multiscale Mathematical Modeling of Cancer Invasion"

The ICBP centers also will interact and collaborate with other NCI programs and

external groups. NCI's Cancer Biomedical Information Grid (caBIG) program will coordinate all the bioinformatics software needed by the ICBP as part of caBIG's ongoing effort to simplify and integrate the sharing and usage of data by providing access to NCI's cancer research communities.

For more information about the cancer Biomedical Information Grid, visit the caBIG web site at <http://cabig.nci.nih.gov/>

For more information about cancer, visit the NCI Web site at <http://www.cancer.gov> or call NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237).



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