

Fact Sheet

New Efforts for FY 2007

NIH wants to enable drastic improvements in health care. This is a fundamentally new model for biomedical research in the 21st century that is based upon strategic investments in advanced technologies and the application of those technologies. The following are new, or significantly expanded, initiatives planned for FY 2007.

Alzheimer's Disease (AD) Preclinical Drug Discovery and Development. *At present, the few agents approved by the Food and Drug Administration for treatment of AD have only modest effects on clinical symptoms, and none has shown a significant effect on disease progression.*

- New types of agents are being developed which are directed at targets in the pathways leading to neuronal dysfunction and death, and may slow or stop the initiation and progression of AD pathology. Scientists will develop and test these novel compounds for their ability to slow, halt, or reverse the decline in cognitive function associated with AD.

Integrated Sensors and Lab-on-a-Chip for Laboratory Tests at the Patient Point of Care. *Microsystem-based laboratory tests in the doctor's office could reduce the cost of health care, much as integrated electronics have reduced the cost of computing, and greatly simplify and improve the delivery of care for the patient by providing results at the time of the visit.*

- This initiative will significantly expand the program for development of integrated microsystem and microsensor technologies capable of providing diagnostic results at the point of care.

Imaging Studies of Osteoarthritis. *Osteoarthritis is a very common disease with varying presentations. Currently, both X-ray and MRI are being used to assess the presence of disease. Neither method, as currently examined, has been shown to adequately correlate with changes in clinical function.*

- This initiative seeks to develop and validate novel imaging methods for monitoring the onset and assessing the progression of osteoarthritis in order to facilitate the development of disease preempting drugs.

The Autism Phenome Project. *Autism is a range of different disorders that require different treatments. The lack of a clear description of each type of autism severely hampers the development of specific therapies.*

- The project will identify the various clinical characteristics and subtypes of autism to facilitate research on genetic and other potential causes of autism and guide individualized approaches to treatment.

Enabling Technologies for Nerve Regeneration. *Existing technologies are inadequate to meet the challenge of regenerating one of the most complex human tissues—nerves.*

- NIH will expand its initiative to develop novel technologies for nerve regeneration and tools to monitor nerve growth and function for the treatment of spinal cord injuries and neurodegenerative disorders.

Cardiovascular Cell Therapy Clinical Research Network. *Studies in animal models of cardiovascular disease suggest that cell therapy may be able to improve cardiac function and replace damaged or diseased tissue.*

- This new program will accelerate development of cardiovascular disease treatments based on cell therapies by establishing a clinical network to conduct phase I and II cell therapy clinical trials.

Image-Guided Surgery for Minimally Invasive Treatments. *Current standard surgical treatments are complex, invasive and costly.*

- This initiative will expand NIH work on means to integrate imaging techniques with minimally invasive surgical instruments. The aim is to enable surgical procedures with fewer complications and shorter hospital stays.

Informatics Tools to Support Cancer Clinical Trials.

Inefficient duplication of effort when conducting multi-center clinical trials is costly and reduces the usefulness of the knowledge gained from the clinical trial.

- To improve cost-effectiveness and comparability of results across cancer trials, the NIH will substantially expand its support for a shared cancer information technology infrastructure. This effort will also support the use of personal electronic health records to assist participants and their healthcare providers in coordinating their care during and following clinical trials.

Imaging for Cancer Research and Care

Management. Adapting imaging technologies for cancer care has the potential to optimize data sharing, minimize invasive procedures, and facilitate early detection, and treatment.

- NIH will substantially expand the development of new imaging technologies to enhance understanding of cancer biology, and facilitate the preemption and clinical management of cancer and cancer risk.

Computational Modeling to Support Cancer

Research and Patient Care. *Computer programs that incorporate complex, interactive calculations may someday yield insights and knowledge about cancer and provide a tool to improve the accuracy of patient diagnosis and the planning and monitoring of treatment.*

- This initiative will substantially expand support for interdisciplinary collaboration among computer scientists, physicists, and cancer scientists to create computational models for computerized prediction of cancer outcomes, including patient response to treatment.

Influenza Drug Screening. *Influenza is responsible for approximately 100,000 hospitalizations and 36,000 deaths each year in the United States. Periodically new viral strains can emerge with characteristics resulting in a deadly global pandemic.*

- This initiative will expand preclinical drug development by facilitating the selection of the best compounds with the potential to be effective against a broad spectrum of influenza strains, including newly emergent strains.

AIDS Structural Biology Program. *The structures of isolated HIV proteins are the basis for the current AIDS drugs. New generations of anti-HIV drugs will depend on solving the structure of complexes of HIV and cellular proteins.*

- This new initiative will establish two to three research centers to determine the structures of complexes of HIV proteins and cellular components, which will be used as targets for the development of new anti-HIV drugs.