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National Institutes of Health

[National Heart, Lung, and Blood Institute](#)

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NHLBI renews programs for nanotechnology research

\$65 million in contracts to help advance disease detection, delivery of therapies

The National Heart, Lung, and Blood Institute (NHLBI), part of the National Institutes of Health, is awarding \$65 million to renew its Programs for Nanotechnology Research to help researchers develop tools based on materials designed at the molecular level to detect and deliver treatments for heart, lung, and blood diseases.

The four contracts, to be funded over five years, bring chemists, engineers, and physical and material scientists together with physicians, biologists, and clinical researchers from the heart, lung, and blood research fields. These interdisciplinary teams will create nanotechnology solutions for projects such as detecting pulmonary infections and repairing heart tissue damage.

The programs build upon progress made since the original funding in 2005. The new projects will have a greater focus on moving technological advances into practice.

Each award will also support techniques to establish a pool of investigators capable of applying nanotechnology solutions to problems in cardiovascular, pulmonary, and blood disease. The programs will be supported by an administrative coordinating center, to be awarded in 2011.

"Nanotechnology has enormous potential for faster and more sensitive detection of disease and for targeted disease treatments," said Susan B. Shurin, M.D., acting director of the NHLBI. "We are committed to harnessing these new technologies for heart, lung, and blood diseases, and moving them towards application in the real world."

The four awards involve teams spread across 17 institutions.

- Massachusetts General Hospital (Ralph Weissleder, M.D.) leads a consortium of six Boston-area institutions, including Harvard Medical School, the Harvard School of Engineering and Applied Sciences, Massachusetts Institute of Technology, Brigham and Women's Hospital, and the Broad Institute of Harvard and MIT. The group is developing nanomaterials to diagnose and treat cardiovascular diseases and create a point-of-care system for the rapid detection of pulmonary infections.
- Georgia Institute of Technology (Gang Bao, Ph.D.) is collaborating with Emory University and the University of California, Davis to develop nanoparticle-based tools to image and deliver therapeutics to atherosclerotic plaque and to enhance stem cell repair of damaged heart tissue.
- Washington University (Michael Welch, Ph.D.) and Texas A&M University (Karen Wooley, Ph.D.) head a collaboration that also includes the University of California, Santa Barbara, the University of California, Berkeley, and the University of Texas-Southwestern Medical Center. Their work will include the nanoparticle-based diagnosis and treatment of acute lung diseases, as well as imaging and treating cardiovascular diseases.
- Mount Sinai Medical School (Zahi Fayad, Ph.D.) and Massachusetts Institute of Technology (Robert Langer, Ph.D.) are collaborating with New York University, Columbia University, and Brigham and Women's Hospital. The group is focused on developing therapies for early- and late-stage cardiac disease, treatment for atherosclerotic plaque to prevent heart attack, and

delivery of regeneration factors to repair heart tissue damaged by heart attack.

To interview an NHLBI spokesperson, contact the NHLBI Communications Office at 301-496-4236 or at nhlbi_news@nhlbi.nih.gov.

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Part of the National Institutes of Health, the National Heart, Lung, and Blood Institute (NHLBI) plans, conducts, and supports research related to the causes, prevention, diagnosis, and treatment of heart, blood vessel, lung, and blood diseases; and sleep disorders. The Institute also administers national health education campaigns on women and heart disease, healthy weight for children, and other topics. NHLBI press releases and other materials are available online at www.nhlbi.nih.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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