# NIH Provides Funding to Counter Radiation Threats

The National Institute of Allergy and Infectious Diseases (NIAID) announced on October 12 that it had issued more than $47 million for grants, contracts, and interagency agreements as part of a new National Institutes of Health (NIH) research program on Medical Countermeasures Against Radiological and Nuclear Threats. This program emphasizes product development and seeks to develop preventions and treatments for radiation sickness after a terrorist attack. "Radiological 'dirty bombs' or nuclear explosive devices are among the potential terrorist threats Americans face. Our new medical countermeasures program will help protect the public from radiation should such an attack ever occur," said NIAID Director Anthony S. Fauci, MD.

NIAID is the lead institute at NIH for the development of biodefense countermeasures. The Department of Health and Human Services asked NIAID to coordinate and lead the development of a robust NIH research program on medical countermeasures to radiation. Funding for this program is from the Department of Health and Human Services Office of Public Health Emergency Preparedness. Twelve grants, 4 contracts and 2 interagency agreements have recently been formalized through this new research program. Although each award has a specific focus connected to product development or basic research, the efforts are grouped around assembling the necessary components to develop medical countermeasures from concept through licensure.

## Centers for Medical Countermeasures Against Radiation

Eight universities or research institutes have received grants to establish Centers for Medical Countermeasures Against Radiation. These centers will focus on basic and applied research to develop new products for measuring radiation exposure, to protect against exposure, and to minimize and treat the effects of exposure to a wide range of radioactive compounds. "The primary goal of the centers is to develop new medical products that would be needed in the event of radiation released in a terrorist attack. We are asking the centers to develop biodosimetry products to measure radiation exposure, therapeutics to treat short-term and long-term symptoms of radiation exposure, as well as products that can prevent or mitigate the effects of radiation exposure," said NIAID program officer Narayani Ramakrishnan, PhD.

Each center will be led by a principal investigator and may include a consortium of other research institutions. Funding for the centers totals about $28.7 million for fiscal year 2005. NIAID plans to fund the centers for 5 years. Principal investigators and approximate funding for fiscal year 2005 include:

Paul Okunieff, MD, University of Rochester Medical Center, Rochester, NY: $4.3 million;
David J. Brenner, PhD, DSc, Columbia University Medical Center, New York, NY: $5.0 million;
Nelson J. Chao, MD, Duke University, Durham, NC: $4.4 million;
George Georges, MD, Fred Hutchinson Cancer Research Center, Seattle, WA: $4.5 million;
John Moulder, PhD, Medical College of Wisconsin, Milwaukee, WI: $3.7 million;
William H. McBride, PhD, DSc, University of California, Los Angeles, CA: $2.8 million;
Alan D. D'Andrea, MD, Dana-Farber Cancer Institute, Boston, MA: $2.0 million; and
Joel S. Greenberger, MD, University of Pittsburgh: $2.0 million.

## Accelerated Product Development Grants for Radiation Countermeasures

NIAID awarded 4 additional grants to support projects focused on protecting the immune system from radiation (pre-exposure) or restoring the immune system after radiation exposure. These 18-month accelerated product development awards total $4.0 million and were awarded to:

Andrei Gudkov, PhD, DSc, Cleveland BioLabs, Inc., Cleveland, OH: $1.5 million;
George Georges, MD, Fred Hutchinson Cancer Research Center, Seattle, WA: $1.5 million;
Amelia Bartholomew, MD, University of Illinois at Chicago, Chicago, IL: $500,000; and
Thomas MacVittie, PhD, University of Maryland School of Medicine, Baltimore, MD: $500,000.

## Contracts for the Development of Radiation Countermeasures

Two universities and 2 companies are receiving contracts for developing medical countermeasures products. The largest of these contracts, Medical Countermeasures Against Radiological Threats: Product Development Support Services, was awarded to the University of Maryland School of Medicine. The university will receive about $9.3 million in fiscal year 2005. NIAID plans to fund this contract for 5 years to evaluate promising compounds to prevent, reduce, or treat symptoms of radiation exposure. For example, under the contract, the university may develop products to protect first responders, speed healing of bone marrow, measure radiation exposure, and decon-

*(Continued on page 20N)*

CCNEs, we are particularly looking forward to new nanotech-based therapeutic delivery systems that could enhance the efficacy and tolerability of cancer treatments—an advance that would greatly benefit cancer patients."

Other components of the NCI Alliance for Nanotechnology in Cancer include:

- **Cancer Nanotechnology Platform Partnerships**, which are highly focused programs designed to develop technologies to underpin new products in 6 key programmatic areas: molecular imaging and early detection, in vivo imaging, reporters of efficacy (e.g., real-time assessment of treatment), multifunctional therapeutics, prevention and control, and research enablers (opening new pathways for research).
- **The Nanotechnology Characterization Laboratory (NCL)**, established at NCI's Frederick, MD, facility, performs analytical tests to guide the research community, support regulatory decisions, and help identify and monitor environmental, health, and safety ramifications of nanotechnology applications. The NCL recently completed its first year of operation and is actively characterizing nanoparticles for academic and commercial researchers through a rigorous set of analytic protocols. The NCL works in concert with the National Institute of Standards and Technology and the FDA. For more information, see: http://ncl.cancer.gov.
- **Multidisciplinary research training and team development in the biological and physical sciences.** The Alliance will support training and career development initiatives to establish integrated teams of cancer researchers, through mechanisms such as the NIH National Research Service Awards for Senior Fellows and the NIH National Research Service Awards for Postdoctoral Fellows. Applications are now at http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-06-010.html. In addition, through NCI collaboration with the National Science Foundation, $12.8 million in 5-year grants were awarded in September to 4 institutions for U.S. science and engineering doctoral students to focus on interdisciplinary nanoscience and technology research with applications to cancer. For more information, see: www.cancer.gov/newscenter/pressreleases/NCINSFIGERT.

For more information about the NCI Alliance on Nanotechnology in Cancer, visit http://nano.cancer.gov.

*National Cancer Institute*



*(Continued from page 16N)*

taminate the body following exposure. Because different types of radiation and differing levels of exposure can damage the body in a variety of ways, an assortment of medical products is needed.

The University of Kentucky, Lexington; Nanotherapeutics of Alachua, FL; and SRI International of Menlo Park, CA, also are receiving 14-month with renewal option contracts for Development of Improved DTPA for Radionuclide Chelation. The contractors will seek to develop alternate ways to effectively administer DTPA, either by inhalation, oral liquid, or pill.

### Interagency Agreements

NIAID also has signed interagency agreements with 2 other federal government research institutes, the Armed Forces Radiobiology Research Institute (AFRRI) and the National Cancer Institute (NCI), both of Bethesda, MD. Under these agreements, AFRRI received $1.3 million in 2005 to screen and evaluate compounds that could be used to prevent, mitigate, or treat the effects of radiation exposure. AFRRI also will develop an automated approach to the assay of blood cell chromosome damage used to measure radiation exposure.

NCI, also part of NIH, received $1 million through a 2005 interagency agreement to develop compounds to protect against radiation exposure, conduct epidemiological studies on the medical consequences of radiation exposure, and identify compounds the body produces when exposed to radiation.

To learn more about these research programs, visit www3.niaid.nih.gov/research/topics/radnuc/.

*National Institute of Allergy and Infectious Diseases*