



Critical Biomedical Technologies Lead to Improved Human Health

Advances in technology drive innovation and rapid progress in all stages of biomedical research—from basic discovery to clinical investigations. NCRR funds more than 50 specialized Biomedical Technology (BT) Resource Centers across the country, primarily at major academic institutions and health centers.

The BT Resource Centers are hubs for multidisciplinary and interdisciplinary research, linking together collaborators nationally and internationally. To support a range of research pursuits, the centers focus on five technology areas: information technology; optical/spectroscopic technology; imaging technology; technology for structural biology; and technology for systems biology. These diverse tools and expertise have enabled countless groundbreaking discoveries in biomedical science. Many have evolved from utilization for basic research into a broad spectrum of techniques for early detection and diagnosis of diseases.

The cover story in this issue of the *NCRR Reporter* illustrates how the technology known as mass spectrometry—long a workhorse in the analytical chemistry lab—has been developed and enhanced by BT Resource Center scientists to become a critical tool for addressing complex health-related problems, including more accurate diagnosis of amyloid diseases and better understanding of muscle deterioration in AIDS patients.

These examples tell only part of the story. Across the nation, researchers depend on BT Resource Centers for a wide variety of clinical and translational studies. For instance, synchrotron X-ray technologies are providing clues to treating multidrug-resistant infections; imaging technologies are revealing motor learning deficits in autistic children; and laser microbeam technologies are enabling cancer detection and better understanding of cardiovascular disease, neurologic conditions, and metabolic syndrome. The list could continue, but the message is clear—advances in biomedical technology enable researchers to explore answers to a multitude of questions that affect human health.

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CRITICAL RESOURCES



4 Solving Chemical Structures To Treat Disease

Mass spectrometry addresses complex problems in human health.

Research Brief

9 Nanoparticles Aid Ultrasound Imaging

Funding Matters

10 Developing Essential Research Tools

Grants create shared resources for preclinical research.

SCIENCE ADVANCES

12 Peptide Delivers Poison to Cancer Cells

Cargo-carrying molecule injects cells with therapeutic payloads.

14 News from NCRR

NCRR Reporter



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On the Cover: Advanced technologies developed at NCRR-funded resource centers allow scientists to study the molecular underpinnings of human disorders. Working with clinical researcher Kristen Mondy (left) at Washington University in St. Louis, Kevin Yarasheski uses state-of-the-art mass spectrometry techniques to analyze the molecules associated with muscle degeneration in HIV-infected patients.
PHOTO BY PETER NEWCOMB