FROM THE DIRECTOR



Critical Biomedical Technologies Lead to Improved Human Health

dvances 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 multidrugresistant 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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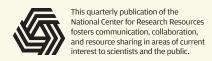
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PHOTO BY PETER NEWCOMB