EDITORIAL

Translational Research: Advancing Medical Science by Stimulating Interdisciplinary Research

KENNETH A. FOON
Associate Editor

Dr. Steven R. Goodman, editor-in-chief of *Experimental Biology and Medicine*, asked me to serve as the associate editor of a new section, Translational Research. This section will focus on interdisciplinary approaches in which basic discoveries are made at the "bench" and have the potential to progress to the patients, as well as "bedside to bench," where clinical investigators make observations that stimulate basic investigations. Progress in translational research is arguably the most dynamic area in medical research and has lead to major discoveries both at the "bench" and "bedside." Novel targeted therapies, developed translationally, have lead to a paradigm shift in the treatment of a variety of diseases. Perhaps the best example would be the small molecule imatinib, which inhibits the tyrosine-kinase activity of *bcr/abl* and has changed the therapy paradigm for most patients with newly diagnosed chronic myelogenous leukemia. Prior to imatinib, patients with chronic myelogenous leukemia had a median of 3 years of chronic phase disease before the invariably fatal accelerated and blast crisis phases. The only curative therapy was allogeneic stem cell transplantation; because many patients are not eligible for stem cell transplantation and many die of the complications, only a small proportion of patients are actually cured by transplant. Currently, nearly all patients with newly diagnosed chronic myelogenous leukemia are treated with imatinib. Complete hematologic remissions are seen in 95% of patients, and complete cytogenetic responses are seen in 70% of patients. Although less than 10% of patients achieve a molecular remission, only 30% have progressive disease over the course of 5 years. Imatinib has clearly prolonged the chronic phase and changed the natural history of this disease. There are many other examples of targeted therapies that have had a major favorable impact on a variety of malignant and benign diseases. The number of new molecules in development is staggering, and we are optimistic that the future is very promising.

The National Institutes of Health (NIH) Roadmap for Medical Research has reengineered the clinical research enterprise to accelerate drug discovery. The new Clinical and Translational Sciences Award (CTSA) Program, administered by the National Center for Research Resources, will create a "definable academic home" for the discipline of clinical and translational science at academic institutions. The NIH is defining clinical research as studies and trials that involve human subjects, whereas translational research will include two segments. The first is applying laboratory discoveries, testing them in animals, and developing trials for humans. The second is research focused on adopting best treatment practices in the medical community. To paraphrase Dr. Elias Zerhouni, the NIH Director: "This consortium represents the first change in our approach to clinical research in 50 years and working together these sites will serve as discovery engines to improve medical care by applying new scientific advances to real world practice."

The CTSA institutions are expected to develop improved designs for clinical trials to ensure that all patients benefit from new medical therapies; produce enriched environments to educate and develop the next generation of translational researchers; design new and improved clinical research informatics tools; expand outreach efforts to minority and underserved communities; assemble interdisciplinary teams that cover the *complete* spectrum of research—biology, clinical medicine, dentistry, nursing, biomedical engineering, genomics and population sciences; and forge new partnerships with private and public health care organizations. Twelve academic institutions received the CTSA, and 52 received planning grants. When fully implemented in 2012,

1535-3702/07/2326-0713$15.00

the CTSA program is expected to fund $500,000,000 annually to a consortium of 60 academic health centers. This represents a monumental investment by the NIH for translational research. While we have made amazing progress over the past 20 years in developing novel new strategies for the treatment of a variety of diseases, these Awards should accelerate the pace. I believe that this will be Dr. Zerhouni's legacy, and it will be considered one of the most important NIH initiatives and lead to more rapid discovery and development of promising new targeted agents.

I am pleased to be the Associate Editor of Translational Research. I have committed my 30-year career to translational research and look forward to the opportunity to play a key role in being the steward for the exciting scientific manuscripts that will be published in this new section of *Experimental Biology and Medicine*.