

# SYMPOSIUM

## Introduction: Career Planning for Experimental Biology, Biomedical, and Physician Scientists

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Career opportunities for experimental biologists, biomedical scientists, and physician-scientists have changed dramatically over the past few years. Traditionally, the career vision of most graduate students and research fellows was to enter academic positions and strive to emulate the careers of their academic mentors. This vision has changed dramatically because of the rapid translation of new experimental biology discoveries into useful products in the private sector, the increased dependency of academic positions on soft money sources such as research grants and clinical income, the increased complexity and expense of experimental biology research, and the need for physician-scientists who are prepared to translate the results of modern biology into new treatments for human diseases. Also, there is a new awareness of the importance of balancing lifestyles as the gender mix of incoming scientists nears equality and there is a growing number of two-career couples.

These forces mean that a growing proportion of newly trained experimental and biomedical scientists will be employed by industry instead of by universities; there will be an increased demand on the time of those who take academic positions to generate their own salary support from research grants and clinical income; there will be a loss of long-term job security; fewer people will have the opportunity to be "independent investigators"; and there will be a general reduction in the reciprocal commitment and loyalty between the scientist and his or her employer. Scientists-in-training must be aware of the reality of these trends and prepare for both the complications and special opportunities these issues will present during their careers.

This symposium held at the Experimental Biology 2003 meeting of April 14, 2003, addressed some of these

issues from the perspective of individuals who have extensive experience and special interests in each area. Kenneth Kaushansky, M.D., Chairman, and Helen M. Ranney, Professor, Department of Medicine, University of California, San Diego, and President of the American Society for Clinical Investigation, gave his perspective and special interest in the essential role and characteristics of physician-scientists in the future of medicine. M. Sue O'Dorisio, M.D., Ph.D., Foundation Professor of Pediatrics and Director of Pediatric Oncology, and her husband, Thomas M. O'Dorisio, M.D., Professor of Internal Medicine in the Carver College of Medicine at the University of Iowa, shared their experiences and recommendations as a two-career family that also raised three children who now also enjoy successful professional careers. William T. Schrader, Ph.D., Senior Scientist and Deputy Director, National Institute of Environmental Health Sciences, drew on his multiple perspectives as a successful professor of cell biology and graduate school dean, and founder and vice president of multiple biotechnology companies to compare career opportunities, characteristics, and preparation for students entering the biotechnology and pharmaceutical business world with those of traditional academic aspirations. Kenneth L. Barker, Ph.D., Provost and Vice President for Academic Affairs and Research at the State University of New York Upstate Medical University in Syracuse, drew upon 20 years of academic administrative experience to describe the changing environment of academic medical centers that will affect and define the careers and expectations of academic biomedical and clinician-scientists in today's market-driven health care environment.

It is our hope that presentations of these topics may assist and encourage young scientists, working with their mentors, to take full advantage of career preparation opportunities while they are still in training and to develop realistic personal career goals that are appropriate for the times.