SYMPOSIUM

The Role of Modern Biology and Medicine in Drug Development in Academia and Industry

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This symposium addresses careers in drug development in industry; the performance of translational research by academia, industry, and both; and numerous factors pertinent to alliances essential to drug discovery and development. Drug development is a complex process that regularly involves effective collaborations between academic and physician scientists and industry. There are specific occupational factors affecting recruitment of scientists and physicians in drug development programs in industry; ideal backgrounds for successful applicants for positions in industry in drug development; ethical and regulatory considerations particularly germane to the performance of scientists and physicians in drug development programs in industry and at universities; and particular gratifications available to scientists in industry working on drug development. Both similarities and differences characterize the performance of translational research in industry compared with academia. In industry, logistic, operational, and scientific oversight is complex, especially because it often involves relationships with clinical enterprises outside of the corporation. The process is long and arduous from formulation of a good idea in discovery to acceptance of a novel drug in the marketplace. Collaborations and partnerships by industry often involving academia and confrontation of multiple issues are pivotal. Exp Biol Med 231:1680–1681, 2006

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Drug development is a long-term process that is risky, expensive, and complex. It invariably involves collaboration by academic basic and clinical scientists with industry. Many factors should be considered in making a decision to embark on a career in academia, clinical medicine, or industry. Collaboration among members of these diverse groups may evolve at any point in the long process beginning with identification of a drug target through development, testing and validation of a potential new drug to bringing the drug to market. The complex activities often involve cross-disciplinary and interinstitutional research. Partnerships and collaborations increase confidence and improve decision making that can reduce false starts, expedite development of novel agents of high quality for patients, accelerate the development process, and reduce costs. Such partnerships and collaborations as well as potential logistic difficulties and examples of positive outcomes are addressed in this symposium.

The symposium entitled "The Role of Modern Biology and Medicine in Drug Development in Academia and Industry" was presented at the Experimental Biology Annual Meeting in San Francisco, California, on April 2, 2006. Charles A. Blake, Ph.D., Kenneth L. Barker, Ph.D., and Burton E. Sobel, M.D. organized the symposium. Drs. Blake and. Barker cochaired the symposium. A discussion session was led by Dr. Sobel after presentations by three speakers.

The first speaker, Ted W. Love, M.D., earned his bachelor's degree in molecular biology from Haverford College and his M.D. from Yale University. He completed his residency in internal medicine and fellowship training in cardiology at Massachusetts General Hospital and Harvard

Medical School. He was subsequently appointed to the faculty in the Cardiology Unit at Massachusetts General Hospital. He has held senior management positions in medical affairs and product development at Genentech, Inc., served as Senior Vice President of Development at Theravance, Inc., and is presently President and Chief Executive Officer of Nuvelo, Inc.

Dr. Love drew from his own life experiences in presenting an overview of factors that affect decisions of scientists and physicians when selecting careers in academia, medicine, or industry. He emphasized the competing occupational advantages affecting recruitment of scientists and physicians who play an important role in drug development in industry. Dr. Love focused on differences in individual backgrounds, work environments, personal career goals, individual compared with team-oriented interactions, and daily and long-term challenges and rewards.

The second speaker, Timothy P. Clackson, Ph.D., earned his B.A. in biochemistry from the University of Oxford and his Ph.D. from the University of Cambridge. He was a postdoctoral fellow at Genentech, Inc. in the Department of Protein Engineering before joining ARIAD Pharmaceuticals, Inc., where he currently is Senior Vice President and Chief Scientific Officer.

Dr. Clackson focused on translational research in the drug development process. He emphasized the importance of collaborations between academia and organizations in industry in conducting research that bridges scientific ideas and clinical applications. Dr. Clackson presented examples that illustrated the challenges, pitfalls, and rewards of translational research.

The third speaker, Scott P. Kennedy, Ph.D., earned his doctorate in biomedical science-immunology from the University of Connecticut Medical School. His experience includes positions at Yale University School of Medicine where he studied the role of membrane cytoskeleton in the establishment of cell polarity and at Alexion Pharmaceuticals, Inc. where he pursued applied research in transplant rejection and gene therapy platforms. He currently is Vice President of Drug Safety Research and Development at Pfizer, Inc.

Dr. Kennedy presented an overview of the drug discovery and development process. He focused on partnerships and collaborations in these activities and how they affect the decision-making processes. Dr. Kennedy elaborated on considerations of safety, regulations, technical and personnel matters, and intellectual property in these alliances. He discussed a variety of features of partnering opportunities between industry and academia entailed in the discovery of novel technologies and drug targets; identification of leads; licensing arrangements; gifts and external support; and expediting and lowering the cost of bringing new drugs to the marketplace.

Dr. Love, Dr. Clackson, and Dr. Kennedy, joined by his colleague Dr. B. J. Bormann, have authored the following three articles that address the topics they presented at the symposium.

The symposium heightened understanding of factors that affect decisions of individuals electing to pursue careers in academia, clinical medicine, and industry particularly in relation to the drug development process. It facilitated appreciation of components in translational research and the nature of the long road from formulation of an idea in discovery to the acceptance of a novel drug and its consummation in the marketplace. It is hoped that publication of the material presented in the symposium will stimulate awareness, interest, and collaboration among academicians, physician scientists, and industry.