

Translational medicine



Recent years have seen increased interest in and funding for initiatives that aim to bridge the ‘translational gap’ between basic and clinical research. Our two interviewees this month discuss the discipline from different vantage points.



Garret A. FitzGerald, M.D.

Chair, Department of Pharmacology and Director, the Institute for Translational Medicine and Therapeutics, University of Pennsylvania, Philadelphia, USA.

In order to cluster and expand resources that are relevant to translational research, the University of Pennsylvania (Penn) launched the Institute of Translational Medicine and Therapeutics (ITMAT) in January 2005. Previously, these resources were “...dispersed and largely invisible to trainees and faculty as an integrated entity...” says Garret FitzGerald, Director of ITMAT. Now, the Institute includes ~650 investigators focused on clinical and translational research in all schools at Penn, the Children’s Hospital of Philadelphia, the Wistar Institute and the University of Sciences in Philadelphia. In addition, ITMAT has been awarded a Clinical and Translational Science Award by the National Institutes of Health.

From the early stages of his career, FitzGerald has been interested in both clinical medicine and basic pharmacology. Following his medical

degree at University College Dublin (UCD) in 1974, he completed an internship and residency at teaching hospitals in Dublin that shaped the course of his future. “As an intern I was fortunate to see Colin Dollery speak at a symposium on the nascent discipline of clinical pharmacology,” says FitzGerald. “His vision and eloquent exposition of its importance captured my imagination.”

Inspired by Dollery, FitzGerald applied for, and was awarded, a fellowship by the Wellcome Trust that he completed at Hammersmith Hospital in London. During this time, he met John Oates, Professor of Medicine and Pharmacology at Vanderbilt University Medical Center in Nashville, Tennessee. Like Dollery, Oates impressed him with his science and vision and — after another fellowship funded by the Alexander von Humboldt Foundation that allowed FitzGerald to go to the Max Planck Institute and the Department of Cardiology at the University of Cologne — FitzGerald moved to Vanderbilt University, where he eventually led the division of Clinical Pharmacology. “All along, I have been very fortunate to be mentored by people who saw the value of integrating basic science with clinical medicine,” he says.

After 11 years at Vanderbilt University, FitzGerald returned to Dublin in 1991 as Chair in Medicine at UCD. Over the following few years, he founded a centre for cardiovascular science; however, he was attracted back to the USA in 1994. “I was very impressed by William Kelley, the then Dean at Penn. He had a clear expectation of success but was prepared to invest realistically in a novel programme,” he says.

Although FitzGerald’s interest in translational medicine has guided his ~35-year career, in parallel the number of physician scientists has declined, even though their work has catalysed the growth and achievement of biomedicine. “Sadly, our academic medical centres have increasingly been dominated by the demands of clinical revenue generation,” says FitzGerald. “Very few people can project their basic science into mechanistic studies in humans.”

Institutes such as ITMAT are essential to address this challenge. “We have to educate a new breed of individuals who can integrate the skill sets, and to do that we need a brand name — perhaps ‘Translational Medicine and Therapeutics’ — and to advertise it so that it is attractive to our best trainees,” he says.



Bruce H. Littman, M.D.

President, Translational Medicine Associates, LLC, Stonington, Connecticut, USA.

After retiring as Vice President of Global Translational Medicine at Pfizer at the end of 2007, Bruce Littman started a consulting business to assist clients — such as small biotechnology and pharmaceutical companies, non-profit research organizations and venture capitalists — in areas related to translational clinical research and personalized medicine. “I also work with colleagues across most therapeutic areas including drug safety, medicinal chemistry, discovery biology and late-stage clinical development,” says Littman.

His interest in translational clinical research began in 1970 at the University of Buffalo’s medical school, part of the State University of New York, where he spent time as a student working in immunology laboratories. Between an internship and residency at Tuft’s New England Medical Center in Boston, USA, he worked at the National Institutes of Health’s National Cancer Institute,

applying his immunology expertise to tumour immunology. This led on to a research fellowship at Harvard with John David, co-discoverer of the first cytokine, migration inhibitory factor (MIF), and to his decision to specialize in rheumatology and clinical immunology.

He then moved to Virginia Commonwealth University (VCU), progressing from assistant to full professor over 13 years, during which time he became interested in working for industry. “I felt that my research was going well, but it would not impact the lives of rheumatoid arthritis patients for decades, if at all,” he says. “I learned that Pfizer was about to start a new group called Experimental Medicine, and the translational role of this group was both exciting and groundbreaking in the industry. I made the move and never looked back.”

After 19 years at Pfizer, he became convinced that current strategies for drug discovery and development need to become more focused on molecularly defined patient populations. “I felt that large pharma was becoming less innovative and more focused on maintaining a pipeline of commercially successful products,” he says.

Littman therefore decided to become an independent consultant. “This has allowed me to advocate scientifically driven development

strategies for new drugs and diagnostics and to develop personalized medicine paradigms for both marketed and new medicines.” In addition, he is Co-Chair of The Immunity and Inflammation Steering Committee of The Biomarker Consortium, a public-private partnership run by the Foundation for the National Institutes of Health.

Now, the range of translational research projects that he is involved in helps to keep him abreast of relevant challenges. “Sometimes the issues provoke lots of thought about alternative models, not only for drug discovery and development, but also for much broader areas such as health-care delivery, cost-effectiveness and implementation of personalized medicine,” he says.

For anyone embarking on a translational research strategy, he has this advice: “No matter how solid and forward-thinking your research strategy is, the result is dependent on the quality of your techniques and biomarker technologies. Rigorously qualify these before attempting to implement them for decision-making research.”

WEBSITE

Career snapshots: http://www.nature.com/drugdisc/nj/nj_dd_arch.html