See You in December?

A symposium will be held this winter at the Massachusetts Institute of Technology that provides a comprehensive focus on the science and technology, clinical medicine and economic and policy implications of pharmacogenomics.

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For this column, we ask you to indulge us as we depart from the norm. Rather than discuss the challenges of some new aspect of pharmacogenomics, or introduce some cutting-edge biotechnology, we want to plug a destination.

On 9 and 10 December, the Massachusetts Institute of Technology (Cambridge, Massachusetts, USA) campus will be the site for a symposium on "The Future of the Pharmaceutical Industry," sponsored each year by the MIT Program on the Pharmaceutical Industry (POPI), with which we are affiliated. This year's symposium is titled "Pharmacogenomics, Drug Development and the Cost of Healthcare." Each year since 1993, POPI's symposia have brought together hundreds of thought leaders and distinguished experts from the pharmaceutical and biotechnology industries, as well as noted researchers, academicians and government policy makers. Together, the attendees amount to a critical mass of the scientific, management and regulatory leaders for whom the long-term health of the industry is a daily concern.

Of course, there always are conferences to attend. There are those that concentrate on science and technology, those that focus on issues of clinical medicine and there is a growing number of meetings that address the economic and policy implications of pharmacogenomics. How many, though, bring together all three of these categories under the same roof?

The POPI symposium is truly special – and even our obvious bias doesn't change that fact. The science and technology content is state-of-the-art, befitting one of the world's leading technology universities. The clinical medicine content is at the highest level, as you would expect from presenters affiliated with Harvard Medical School. And the economic and policy issues are being brought forth by people on the absolute forefront.

The concept of personalized medicine — the use of molecular markers to develop drugs targeted to serve the individual patient's particular condition and side effects profile — will serve as the symposium's framework. In three sessions, held over two days, participants will join in an examination of some of the major advances that are changing the face of pharmaceutical R&D. Distinguished experts will discuss what these developments mean for the future of pharmaceutical innovation. There will be a session on disease mechanisms and models, providing important lessons that participants will be able to apply to situations in their own work. Clinical trial design and health economics will be key topics in a panel discussion that brings together the perspectives of consumers, FDA, healthcare payers and both large and small firms within the pharmaceutical industry.

At the Frontiers of Science and Technology

The symposium opens on Tuesday morning, 9 December, with a session exploring the "Frontiers of Science and Technology." Keynote speaker Anthony J. Sinskey is a POPI co-director and professor of microbiology at MIT (as well as one of this column's authors). His topic — "The New Biology and the Future of the Pharmaceutical Industry" — sets the tone for the ses-

sion, which will include presentations on pharmacogenomics and cancer treatment, the multiple dimensions of systems biology, applying systems biology to drug discovery and how biomedical technologies are changing the medical paradigm. Distinguished MIT professors from the departments of biology, biological engineering and chemical engineering, as well as the Harvard-MIT Division of Health Sciences and Technology (Cambridge, Massachusetts, USA), will look at key questions, both generally and specifically, with respect to cancer treatment.

Central to the morning discussion's goals is to help participants gain a deeper understanding of the multiple dimensions of systems biology. Systems biology, as it is being developed at MIT, combines systematic experimentation and computational modeling to describe complex biological networks. Using the MIT Computational & Systems Biology Initiative as a jumping-off point, the integrative perspective — here with a focus on design and development of molecular therapeutics — will be described.

Tuesday's afternoon session applies pharmacogenomics and personalized medicine directly to clinical practice. It begins with a presentation by the chief medical and regulatory officer at Interleukin Genetics Inc. (Waltham, Massachusetts, USA), who will discuss the implications of the fact that the technology for studying the relationships among genetic variation, disease risk and drug response has matured to the point where its cost, availability, accuracy and reliability are no longer obstacles preventing its use in clinical medicine. Given that the integration of pharmacogenomics into the healthcare system has huge potential benefits on several levels — from the individual patient to society — the question becomes why it seems to be taking so long for it to become a reality.

The Wednesday morning session, on 10 December, brings the previous day's science and technology "down" to the real world of management and public policy. Stan N. Finkelstein, another POPI co-director (and also one of this column's authors), addresses the "Economic and Policy Implications Occasioned by Advancing Science and Technology of Drug Development."

Bringing innovative new therapies to market that are based on advancing science and technology of drug discovery and development represents a huge challenge, but is only the beginning of the challenge. It's quite likely that new drugs will be much more effective, but also more costly. Already, healthcare payers are taking steps to limit access to some of the newest therapies. Finkelstein's presentation will explore how the barriers to accessing drugs based on the "new biology" could affect medical practice and the future of drug development.

The session continues with a panel discussion of challenges from an industry perspective. Senior management and scientific officers from Beyond Genomics (Waltham, Massachusetts, USA), Adaptive Therapeutics (San Diego, California, USA), Millennium Pharmaceuticals (Cambridge, Massachusetts, USA) and The MEDSTAT Group (Ann Arbor, Michigan, USA) will offer their unique perspectives on systems biology and the pharmaceutical value chain, the implementation of pharmacogenomics in mainstream drug development, the use of biomarkers to optimize clinical drug development and health economics and personalized medicine.

Want More Information?

We hope this taste of the breadth and depth of the symposium will encourage you to attend, or at least to seek out more information. Registration can be completed online at http://ilp.mit.edu/ilp/conferences/current.html. If you have questions regarding registration, you can contact the conference coordinator, Diane Vrattos, at 617-253-0414 or by e-mail at vrattos@ilp.mit.edu. If you do attend, please be sure to introduce yourself and let us know that you read our column. Your comments on our past columns are welcome, and we'd enjoy hearing your ideas for next time. **PG**