News from the National Institute of General Medical Sciences (NIGMS)

AAPS/NIH FRONTIER SYMPOSIUM: MEMBRANE TRANSPORTERS AND DRUG THERAPY APRIL 8–10, MASUR AUDITORIUM, BUILDING 10, NIH, BETHESDA, MARYLAND

In April next year, the National Institutes of Health will welcome the AAPS back to the NIH campus in Bethesda, Maryland for a second AAPS/NIH Frontier Symposium. The topic for this year will be the role of transporters in drug action. The focus will be on membrane-associated transport proteins that are relevant to the uptake, distribution, and clearance of therapeutic agents, and relevant to drug resistance in both humans and disease causing organisms. A secondary focus will be transporters that are known targets of drug action. Additional talks will feature model transport systems for which knowledge of the structure and mechanism of substrate transport is the most fully advanced. The symposium will cover the identities of drug transporters, their biosynthesis and regulation, their variations in the human population, and their impact on the drug discovery/drug development process. Structures of the transporters, structure/activity relationships for transported substrates, and mechanisms of substrate transport will be considered.

The objective of the meeting is to bring together researchers from academia, industry, and government with interests in drug transporters. Research on drug transport has progressed significantly from correlations of physical parameters (mw, log P) to recognize that specific protein-mediated transmembrane transport processes can be important. These are best understood in the context of drug resistance, where the existence of drug export pumps has been known for over 20 years and is increasingly being refined. The role of specific transporters in drug uptake is a rapidly emerging area. A large class of physiologically important transport proteins are known to exist, that may potentially be exploited for drug delivery once they are sufficiently well understood. A long term objective of research on transporters would be the ability *a priori* to quantitatively predict their contribution to the probable pharmacokinetic profile of candidate drug designs. While this may not be true for some time to come, it is hoped that the AAPS/NIH symposium next spring will begin to point the direction.

NIH has invested considerable support in research on membrane transport proteins. The AAPS/NIH Frontiers Symposium will provide an opportunity to showcase the results of that investment and to investigate opportunities to apply new knowledge to the drug discovery/drug development process. The symposium will feature a view of the current state of the art, will identify areas of opportunity, and will identify obstacles to further progress.

Session titles for the planned two and one-half day meeting include:

I. Structure of Membrane Transporter Proteins
II. Drug Disposition: intestine, liver, and kidney transporters.
III. Cell biology of membrane transporters, regulation, pathophysiology.
IV. Drug targeting, resistance, sensitization: cancer, blood brain barrier, and other tissue distribution issues.
V. Bioinformatics, Pharmacogenetics/genomics of transporters.

The symposium program coordinators are Wolfgang Sadée, Gordon Amidon, and myself (Peter Preusch). Additional planning committee members and session chairs include: Suresh Ambudkar, Bradley Anderson, Susan Bates, Kim Brouwer, Kathleen Giacomini, Frederick Leibach, Rochelle Long, Michael May, Peter Pedersen, James Scherbenske, and Philip Smith. Co-sponsoring organizations include the AAPS, the National Institute of General Medical Sciences (NIGMS), the National Institute of Diabetes, and Digestive, and Kidney Diseases (NIDDK), and the National Cancer Institute (NCI).

For additional information about this symposium, consult the AAPS website at www.aaps.org or the NIGMS website at www.nih.gov/nigms/. Registration information will be mailed to AAPS members in the near future.

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