

2001 Spring Symposium Review

by Melanie Marty

On June 5, 2001, GETA held a very successful and well-attended Spring symposium in Oakland at the Elihu Harris State Office Building. The theme of the meeting was “The Promise of the Genomics Revolution.” Our opening speaker was Dr. Ed Penhoet currently the Dean of U.C. Berkeley’s School of Public Health, and one of the founders of Chiron. Dr. Penhoet gave us a bird’s eye view of the history of genomics and where it is leading us today. One of the earlier series of events involved defining the genome of viruses, such as the HIV virus, in the 1980s via recombinant DNA technologies. The resultant ability to predict protein products lead to development of protease inhibitors for HIV treatment, and lead to HIV diagnostics which currently safeguards the blood supply. As Dr. Penhoet pointed out, the field of genetics has become genomics. Outlining the human genome is now allowing exponential growth in studying genetic susceptibility to disease, including the study of pathological mechanisms.

Our second speaker, Dr. Huijun Ring of Incyte Genomics, provided us with an overview of their work on looking at the genetics influencing the disposition of drugs and toxicants and genetic polymorphisms in genes responsible for variation in drug/toxicant response. Dr. Ring pointed out that most studies are based on a largely Caucasian population, which can present problems extrapolating to the diverse ethnic populations in the world due to different frequencies of alleles that effect disposition of the drug in various ethnic subgroups. This information will help develop safer and more efficacious drugs, and provide better information on factors influencing concentration of toxicant at the receptor, which is highly relevant to assessing risks from environmental chemical exposures.

Dr. Russell Higuchi from Roche Molecular Systems presented some of his work on a genomic approach to finding disease-susceptibility genes using SNPs and real-time PCR. Dr. Colette Rudd provided an overview of the field of proteomics, which represents a natural progression from genomics. Scientists are now enumerating the complete set of proteins synthesized by a cell under a given set of conditions. Structural and functional analysis can lead to insights into the mechanisms of disease and toxic insult.

Finally, Dr. Mark Van der Laan from UC Berkeley’s School of Public Health gave us a presentation on the utility of microarray gene expression and cluster analysis in evaluating differential gene expression between cancer cells and noncancerous cells in the same tissue. Such analysis can lead to prognostic indicators such as the level of expression of her-2-neu in breast cancers, and eventually to potential therapies.

There were also a number of excellent poster presentations on relevant topics. Our annual awards were given in three categories: graduate student, technical staff (BS/MS level), and postdoctoral. The winner this year in the student category was Shelley DuTeaux of UC Davis for her abstract entitled “Identification of cytochrome P4502E1 in the efferent ducts and epididymus of the rat.” The winner in the technical category was Julie Hursey of SRI International for her abstract entitled “Evaluation of mutant frequencies in liver tumors of lacI transgenic mice treated with oxazepam.” Finally, the winner in the post-doctoral category was Rustam Turakulov of UC Berkeley for the abstract entitled “Induction of the BCL-e

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translocation (14;18) found in follicular lymphoma by the benzene metabolite, hydroquinone.”
The abstracts are presented elsewhere in this Newsletter.

In summary, it was a very interesting meeting in an area that is moving fast, and which we all must keep pace with in the field of toxicology (or be left in the dust!).