



SPOREs
Specialized Programs
of Research Excellence



STRATEGIES FOR IMPLEMENTING BIOMARKER EVIDENCE IN TRANSLATIONAL CANCER RESEARCH

**SATURDAY, JULY 7, 2007
9:00am - 5:00pm
HARBORSIDE BALLROOM A & B
BALTIMORE MARRIOTT WATERFRONT**

*To improve the quality of biomarker information,
enhance integration of biological knowledge into trial design,
and strengthen scientific inference in clinical studies*

Strategies for Implementing Biomarker Evidence in Translational Cancer Research

Baltimore Marriott Waterfront
July 7, 2007
9:00 a.m. - 5:00 p.m.

AGENDA

To improve the quality of biomarker information, enhance integration of biologic knowledge into trial design, and strengthen scientific inference in clinical cancer studies

9:00 a.m. - 9:10 a.m.

Welcome

Co-chairs: George Klee and Garnet Anderson

Introduction:

The Clinic as a Laboratory: Bridging Biomarker “Discovery” to Practice in Translational Cancer Research and Development

Objective: To overview key issues related to the implementation of biomarkers in translational cancer research and to present visions of future opportunities.

Issues: How can we best leverage biomarker information in the evaluation of translational clinical cancer studies?

What are the major limitations of existing approaches and what are our best opportunities to address the gaps?

9:10 a.m. - 9:30 a.m.

Peter Nelson

Exploiting the Success and Failure of Cancer Therapies: Investing Now To Improve Outcomes Later

9:30 a.m. - 9:50 a.m.

David Ransohoff

Chance and Bias as a Threat to the Validity of Cancer Molecular Marker Research: Proposal of Rules of Evidence

9:50 a.m. - 10:00 a.m.

Discussion - All

Part I: Quality Systems for Biomarker Data Accuracy

Objective: To address pre-analytic and analytic criteria for enhancing data accuracy for translational cancer research. Topics of discussion will include specimen quality, standard reference materials, and criteria for analytical accuracy, statistical determinants of analytic uncertainty, and review of existing guidelines.

Issues: When is an assay good enough to implement in translational cancer research?

What are the quality assurance parameters for biomarker data and how can they be implemented among laboratories?

10:00 a.m. - 10:20 a.m. **Herbert Fritsche**
Biomarker Assay Validation for Early-Phase Clinical Studies - Minimal Requirements

10:20 a.m. - 10:40 a.m. **Michael Donovan**
The Challenge of Using Human Tissue in Quantitative Analyses

10:40 a.m. - 10:50 a.m. **Yu Shyr**
Statistics Methods for Assessing Biomarkers

10:50 a.m. - 11:00 a.m. **Discussion - All**

The topic of "Quality Systems for Biomarker Data Accuracy" will be further discussed in Working Group Breakout I, Essex Room, 2:00 p.m. - 5:00 p.m.; see page 4.

Part II: Assessing Biologic Evidence: Multidisciplinary Considerations

Objective: To review new technologies for data evaluation and offer guidelines for acceptability of biomarker data for scientific inference in clinical studies. To discuss ways to determine whether biomarker measurements accurately reflect biologic phenomena of interest.

Issues: How reliable are the existing databases and disease classifications based on data-mining paradigms if the biomarker data are generated with the pre-analytical and analytical confounders inherent in current methodologies?

How should we best be integrating biologic information with empirical biomarker data, including high-dimensional measurements?

Of the numerous biomarkers being identified, how should we select those with the most promise to be informative in clinical cancer studies and of potential benefit in clinical cancer research?

- 11:00 a.m. - 11:20 a.m. **Arul Chinnaiyan**
Bioinformatics as an Engine for Translational Cancer Research
- 11:20 a.m. - 11:40 a.m. **Steven Gutman**
FDA Standards for Multiple Marker Testing: Turning the Critical Path into a Yellow Brick Road
- 11:40 a.m. - 11:50 a.m. **George Klee**
Recommendations for the Selection, Confirmation, and Implementation of Biomarkers for Translational Clinical Studies: A New Path Forward
- 11:50 a.m. - 12 noon **Discussion – All**

The topic of “Assessing Biologic Evidence: Multidisciplinary Considerations” will be further discussed in Working Group Breakout II, Laurel Room, 2:00 p.m. - 5:00 p.m.; see page 4.

12 noon - 1:00 p.m. **Lunch** (*on your own*)

Part III: Enhancing Inference From Clinical Studies With Biomarker Data

Objective: To assess areas of clinical research where biomarker data could be most informative and to review promising statistical approaches to optimize data interpretation. To highlight current promising statistical paradigms for utilizing markers in clinical studies of cancer, and to identify gaps in mathematical methodologies and technical infrastructure that need to be addressed to enhance scientific inference and new hypothesis generation for translational cancer studies.

Issues: How do we design translational studies so biomarkers can be used effectively as intermediate endpoints or targets, to acquire sufficient information to guide the subsequent experiment(s) and to improve the assessment of agent efficacy and selection?

How can the use of biomarkers define cohorts for cancer studies and enhance the power of an early-phase clinical study?

How do we control bias in early-phase clinical studies (small sample size)?

- 1:00 p.m. - 1:20 p.m. **Donald Berry**
Using Biomarkers in Adaptive Bayesian Designs
- 1:20 p.m. - 1:40 p.m. **Steven Piantadosi**
Using Biomarkers in Translational Study Design
- 1:40 p.m. - 1:50 p.m. **Garnet Anderson**
Recommendations for the Development and Implementation of Statistical Designs for Translational Research

1:50 p.m. - 2:00 p.m. **Discussion – All**

The topic of “Enhancing Inference From Clinical Studies With Biomarker Data” will be further discussed in Working Group Breakout III, Kent Room, 2:00 p.m. - 5:00 p.m.; see below.

2:00 p.m. - 5:00 p.m. Working Group Breakouts

Strategic Planning for Integrating Biomarker Evidence in Translational Cancer Research

All are welcome to attend and contribute. Please be aware that there is limited room capacity. Session chairs and discussion leaders are listed below.

Objective: To provide recommendations to the NCI SPOREs for enhancing the implementation of biomarker data in translational cancer research.

Issue: How can we augment therapeutic cancer clinical trials to more fully incorporate biomarkers in order to validate the combined clinical utility of therapy and biomarker assays and to guide subsequent translational clinical studies?

Working Group Breakout I: Quality Systems for Biomarker Data Accuracy

Essex Room

Co-chairs: Herbert Fritsche and Craig Allred

Discussion Leaders: Michael Donovan, Angelo De Marzo, Hans Lilja, Patrick Roche, Roberta Madej, David Rimm, Gustavo Ayala, William Bigbee, Daniel Chan, Michael Amos

Working Group Breakout II: Assessing Biologic Evidence: Multidisciplinary Considerations

Laurel Room

Co-chairs: George Klee and Arul Chinnaiyan

Discussion Leaders: Steven Gutman, Bruce Johnson, Massimo Loda, Robert Bast, Timothy Triche, Timothy Thompson, George Thomas, Michael Berens, Martin McIntosh, Gordon Mills, Robert Jenkins

Working Group Breakout III: Enhancing Inference From Clinical Studies With Biomarker Data

Kent Room

Co-chairs: Garnet Anderson and Steven Piantadosi

Discussion Leaders: Donald Berry, Yu Shyr, David Ransohoff, Peter Nelson, Michael Kattan, Howard Scher, Susan Hilsenbeck, Steven Skates, Bruce Trock, David Carbone