

Breakout sessions on **DISEASE CLASSIFIERS**

The following questions will be addressed in Breakout Session 2B- Disease Classifier Assays

Session leaders: Drs. Waldman, Polley, and Thurin

Morning session

The morning session will focus on the definitions and evidence needed to achieve clinical utility using illustrative two case examples.

Definition of clinical utility of prognostic assays

- *Distinguishing diagnostic assay, prognostic assay and predictive assay*
- *Does clinical utility of a prognostic assay apply only in the setting of a difficult clinical decision regarding treatment/management?*
- *Must the assay drive a treatment/management decision?*
- *Is it necessary to understand the biology behind the clinical association?*
- *Must clinical utility always relate to improved clinical outcome?*
- *What are other factors in play and how should we balance among them? Efficacy, toxicity, cost of drug and cost of assay?*

Evidence generation

- *Does the assay work with the specimens of choice?*
- *Does the assay clearly define the population of interest? Does evidence always have to be generated in the same organ or context it will be used?*
- *What are clinically relevant endpoints? Does the choice depend on disease?*
- *Is it sufficient to identify different risk groups? How large does a difference in outcome need to be?*
- *Evidence-based approach: what are common statistical issues? (Subramanian and Simon, JNCI 2010)*

Afternoon session

The afternoon session will focus on how to generate the data we need and how organizations such as the NCI can help facilitate and accelerate evaluation of clinical utility?

Source of Data

- *Randomized controlled trials are the standard? Why or why not? Are there any cases in which nothing less can be considered?*
- *What are other options? When are they appropriate and when are they not?*
- *How do low-prevalence markers and small sample sizes affect the ability to evaluate clinical utility?*

Role of NCI

- *Does the NCI have a unique role? Can the NCI help fund the development of promising assays? Can the NCI help facilitate interactions with the FDA?*
- *Could the clinical trials network be utilized differently to generate the evidence? What are the hurdles?*

Please review the following articles. They will be used to illustrate the challenges faced in trying to answer the questions above.

Kang, et al. (2012) A DNA repair pathway-focused score for prediction of outcomes in ovarian cancer treated with platinum-based chemotherapy. [J Natl Cancer Inst 104\(9\):1-12](#)

Zhu et al. (2010) Prognostic and predictive gene signature for adjuvant chemotherapy in resected non-small-cell lung cancer. [JCO 28\(29\): 4417-4424](#)

Oh et al. (2012) Prognostic gene expression signature associated with two molecularly distinct subtypes of colorectal cancer. [Gut 61: 1291-1298](#)

Additional suggested reading:

Subramanian and Simon (2010) Gene expression-based prognostic signatures in lung cancer: Ready for clinical use? [J Natl Cancer Inst 102\(7\):464-474](#)