

## Scientific and Regulatory Considerations for the Analytical Validation of Assays Used in the Qualification of Biomarkers in Biological Matrices

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The characterization and validation of biomarker assay performance is an important aspect of biomarker qualification. A number of intricate analytical factors must be taken into account when assessing the robustness and reliability of a biomarker assay. Given the complexities associated with this process, clarity on scientific and regulatory expectations for biomarker assay performance characteristics and validation is needed to guide biomarker qualification studies. In order to advance this topic toward greater scientific consensus, the Biomarker Assay Collaborative Evidentiary Considerations Writing Group, under the leadership of the Critical Path Institute (C-Path), has developed a draft framework outlining key criteria and best practices for biomarker assay performance considerations and validation.

In support of this effort, and under a cooperative agreement with the U.S. Food and Drug Administration, the Duke-Margolis Center for Health Policy will hold a working meeting to inform the further development of this framework and highlight key next steps moving forward. More specifically, the objectives for this discussion are to: 1) review and further refine the draft set of best practices and performance characteristics for biomarker assay validation, including the optimization of pre-analytical factors, defining core assay expectations, and setting minimally acceptable assay performance criteria; 2) identify major takeaways and next steps for building agreement around this framework; and 3) determine a format and approach to inform a public workshop in the spring of 2017 that will serve as a forum for broader input and feedback on the framework.

**8:30 a.m. Registration**

**9:00 a.m. Welcome and Introductions**  
*Gregory Daniel, Duke-Margolis Center for Health Policy*

**9:10 a.m. Opening Remarks**  
*ShaAvhrée Buckman-Garner, U.S. Food and Drug Administration*

**9:20 a.m. FDA Efforts to Support Biomarker Development and Qualification**  
**Objective:** Review the biomarker qualification process, provide an update on the evidentiary criteria framework, and highlight the importance of the assay in the biomarker qualification process.

**Presentation:** *Christopher Leptak, U.S. Food and Drug Administration*

**9:40 a.m. Setting the Right Expectations and Laying out Needs: Review of Existing Bioanalytical Guidelines**  
**Objective:** Delineate the different expectations for biomarker and PK assay characteristics and explain the implications of these differences for the biomarker qualification process.

**Presentations:**

- Steven Piccoli, Bristol-Myers Squibb
- Shashi Amur, U.S. Food and Drug Administration

**10:00 a.m. Review and Discussion of Key Biomarker Terminology**  
**Objective:** Define essential terminology that is used in white paper to ensure alignment among participants

**Presentation:** *Nicholas King, Critical Path Institute*

**10:30 a.m. Break**

**10:45 a.m. Session Ia: Overview of Whitepaper and Draft Framework**  
**Objective:** Review the draft expectations from pre-analytical variables to general assay performance, and explore any areas that need further refinement

**Moderator:** *John-Michael Sauer, Critical Path Institute*

**Structure:**

- **Opening Presentation:** *John-Michael Sauer, Critical Path Institute (20 min)*
- **Facilitated discussion of white paper sections:**
  - **Assay Design, Development, and Validation:** *Shashi Amur, U.S. Food and Drug Administration (35 min)*
  - **Pre-Analytical:** *Amanda Baker, Critical Path Institute (35 min)*

**12:15 p.m. Lunch**

**1:15 p.m. Session Ib: Overview of Whitepaper and Draft Framework**  
**Objective:** Continue reviewing the draft expectations from pre-analytical variables to general assay performance, and explore any areas that need further refinement

**Moderator:** *John-Michael Sauer, Critical Path Institute*

**Structure:**

- **Facilitated discussion of white paper sections:**
  - **Assay Performance:** *Steven Piccoli, Bristol-Myers Squibb (40 min)*
  - **Assay Validation Acceptance Criteria:** *Kylie Haskins, U.S. Food and Drug Administration (35 min)*

**2:30 p.m. Break**

**2:45 p.m. Session II: Re-cap, Summary of Main Takeaways and Key Next Steps**

**Moderators:**

- *Susan McCune, U.S. Food and Drug Administration*
- *John-Michael Sauer, Critical Path Institute*

- 3:15 p.m.**      **Session III: Define Public Workshop in the Spring of 2017**  
**Objective:** Agree upon format (including major topics) and provisional list of speakers for workshop  
**Moderators:**
- *Gregory Daniel, Duke-Margolis Center for Health Policy*
  - *Martha Brumfield, Critical Path Institute*
  - *Susan McCune, U.S. Food and Drug Administration*
- 4:15 p.m.**      **Closing Remarks**  
*Gregory Daniel, Duke-Margolis Center for Health Policy*
- 4:30 p.m.**      **Adjournment**

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