

# The Diagnostic Proteome: Challenges and Opportunities in the Discovery and Clinical Implementation of Protein Biomarkers

Frontiers in Biological Sciences  
Seminar Series

Presented by...

## Leigh Anderson, Ph.D.

CEO, Plasma Proteome Institute

Washington, DC

### Abstract

The current clinical plasma proteome consists of 109 proteins measured by FDA-cleared or approved assays and 96 proteins measured using widely available laboratory developed tests, ~1% of the baseline human proteome. However the rate at which new protein analytes achieve FDA approval has remained essentially constant over the past 15 years at 1.5 proteins per year, insufficient to meet medical needs. The striking shortfall in new protein diagnostics emerging from proteomics research reflects a lack of critical biomarker verification capacity.

To bridge the gap between biomarker discovery and clinical use, a new approach to verification is described: multiplexed panels of specific candidate assays based on hybrid immuno-mass spectrometric (SISCAPA) detection. By combining high sensitivity, high throughput, and precision with use of small plasma samples, a platform for systematic verification of hundreds of candidates in thousands of samples can be implemented. In the clinical laboratory, affinity enrichment with MS quantitation can provide absolute specificity, true internal standardization, and facile multiplexing – thus transcending the limitations of conventional immunoassays. An extension of this approach, the hPDQ project providing a library of specific tests for all 21,300 human proteins, could provide the larger biomedical research community with direct quantitative access to the entire human proteome.

### More info?

See <http://biology.pnl.gov>

Date: Friday, July  
15, 2011

Location: EMSL  
Auditorium

Time: 11:00 a.m.