Bioinformatics for MS Workshop

June 1, 2025, San Diego

DIA for PTMs: Ready for Primetime?

Organizers

Daniel Polasky - University of Michigan, Ann Arbor, Michigan, United States
Kai Li - University of Michigan, Ann Arbor, Michigan, United States

Panel Discussion

Daniel Polasky - University of Michigan, Ann Arbor, Michigan, United States
Kai Li - University of Michigan, Ann Arbor, Michigan, United States
Meena Choi – Genentech, San Fransico, California, United States
Walter Viegener – Max Planck Institute of Biochemistry, Munich, Bavaria, Germany

This year's workshop provided attendees with a forum for exploration and discussion of the state of post-translational modification (PTM) analysis by data independent acquisition (DIA) proteomics. The workshop began with short presentations giving a brief overview of DIA proteomics and the challenges inherent in PTM analysis, followed by an engaging panel discussion with extensive attendee participation.

The initial presentation was given by organizers Daniel Polasky and Kai Li, giving a brief overview of DDA vs DIA acquisition modes and methods for PTM search and discovery. The presentation also described challenges in PTM analysis, such as localization and search space, to seed topics for the panel discussion. Finally, the presentation showcased a few recently published examples of PTM analyses by DIA to show the current state of the field.

Following the initial presentation, the panel discussion began with a series of questions posed by the organizers to the panel, followed by open Q&A and discussion with questions from attendees. Guided by feedback from last year's workshop, ample time was given to the panel discussion (~1 hour) to allow for robust discussion with the panel and for audience participation. The discussion covered a range of topics, including best practices for spectral library construction, PTM localization, false discovery rate control, and practical experiences of the panelists and attendees in applying DIA to PTM analysis. The discussion included viewpoints shared by numerous attendees, as well as questions and topics that supplemented the prepared questions for the panelists.

The workshop was successful in providing an engaging forum for discussion of DIA and PTM analysis for approximately 100 attendees (based on survey results). Next year's organizers will include Kai Li, who will select the co-coordinator and panelists.