

## **Report: Top Down Proteomics and Top Down Mass Spectrometry Workshop**

**Date/Time:** June 3, 2020, 12-1:30 PM CDT

**Location:** Virtual Workshop via Zoom Interface

**Presiding:** Frederik Lermyte, University of Warwick and Joe Cannon, Merck & Co.

**Estimated Attendance:** 220

### **List of Presenters/Panelists:**

Kyle Brown, UW Madison

John Tran and Hanna Chi, Genentech

Mowei Zhou, PNNL

Marta Vilaseca, IRB Barcelona

Julia Chamot-Rooke, Institut Pasteur

Based on the success of last year's workshop, the theme of "Advancing Widespread Adoption and Expanding Applications" was continued with minor additions. Five talks lasting 7-10 minutes each were presented from representatives in industry, academia, and national laboratories. Following a short introduction and status update on the activities of the Consortium for Top-Down Proteomics provided by Neil Kelleher, the agenda proceeded with a talk from Kyle Brown, a graduate student in Ying Ge's group at the University of Wisconsin-Madison, highlighting the crucial differences between top-down MS for identification and for single protein characterization. John Tran and Hannah Chi, both from Genentech, were next and discussed the use of top-down MS in the pharmaceutical industry (an underrepresented perspective in previous workshops). The next three talks covered real-world examples of top down experiments in increasingly complex samples. First Mowei Zhou of PNNL presented on using top-down MS for native protein complexes to glean structural information. This was followed by a talk from Marta Vilaseca of IRB Barcelona on profiling human protamines associated with infertility, and finally, Julia Chamot-Rooke of the Institut Pasteur presented work on a clinical application of top-down proteomics in bacterial identification.

Following the five talks that covered the variety of topics outlined above, the floor was opened to questions that were raised during the talks or afterward. Despite the virtual format, attendance remained high during the Q&A session, and questions were posed that engaged the panelists for the full 30 minutes that were allotted for this part of the workshop, indicating a high level of audience participation. The real-world applications such as the industry perspective from John Tran and Hannah Chi and experimental considerations for intact protein characterization seemed a particularly hot topic, along with questions regarding technological advancements in top down proteomics as a field. Just prior to closing the session, an announcement was made advertising for an additional co-chair for the 2021 Conference, which will hopefully be held in Philadelphia, PA. Caroline DeHart (National Cancer Institute) has since been selected for this role.