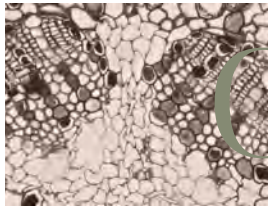


Frontiers in Top-Down Proteomics and Proteoform Analysis



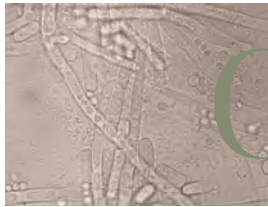
PACIFICHEM 2025
SESSION - ANA016
DECEMBER 16-17, 2025
LOCATION: SHERATON WAIKIKI

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MESSAGE FROM THE
ORGANIZING COMMITTEE



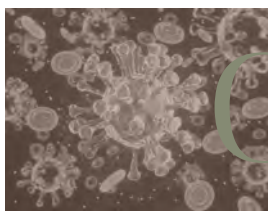
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PLENARY SPEAKER



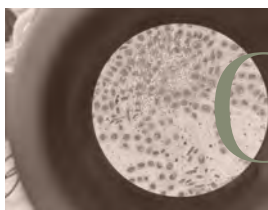
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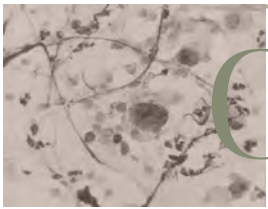
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KA MOANA LU'AU



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SPONSORS

Message from the Organizing Committee

Welcome to Frontiers in Top-Down Proteomics and Proteoform Analysis at Pacifichem 2025. This symposium brings together leading researchers from around the world to share recent discoveries, innovations, and perspectives in top-down mass spectrometry and allied technologies. With a focus on the characterization of post-translational modifications (PTMs) and intact proteoforms, the program highlights emerging methods and their impact on understanding cellular processes and biochemical function.

From planning to execution, our goal has been to foster an inclusive, collaborative environment that encourages curiosity and connection across this rapidly evolving field. We're proud to offer a platform that reflects the diversity of approaches shaping proteoform analysis today and welcomes contributions from researchers of all backgrounds and career stages. Whether you're here to present, learn, or spark new collaborations, we hope this symposium inspires and energizes your work.

Organizing Committee:

Si Wu, The University of Alabama

Mowei Zhou, Zhejiang University

Nobuaki Takemori, Ehime University

Muhammad Zenaidee, Macquarie University / Australian Proteome Analysis Facility

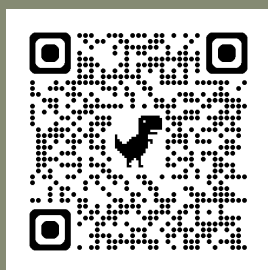
Advisory Committee:

Ying Ge, University of Wisconsin-Madison

Joseph Loo, University of California, Los Angeles

Ljiljana Paša-Tolić, PNNL

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for details**



Design:

Kellye A. Cupp-Sutton, The University of Alabama

Plenary: Koichi Tanaka

Date: December 17, 2025

Time: 6:30–7:30 PM

Location: Hawaii Convention Center – 1801 Kalākaua Ave, Honolulu, HI 96815



It is our distinct honor to welcome Koichi Tanaka, Executive Research Fellow at Shimadzu Corporation, as a plenary speaker for *Frontiers in Top-Down Proteomics and Proteoform Analysis* at Pacificchem 2025. In concert with the Shimadzu team, Mr. Tanaka profoundly advanced mass spectrometry through the development of soft laser desorption technology, a seminal contribution that was internationally recognized with the 2002 Nobel Prize in Chemistry.

In the preceding year, the LAMS-50K laser desorption mass spectrometer, employing this soft laser desorption technology, was conferred the distinction of an IEEE Milestone, serving as a lasting testament to the research culture and technological excellence cultivated at Shimadzu Corporation. Even so, significant challenges endure in extending this exceptional technology across research laboratories and clinical settings, particularly in terms of accessibility and market implementation. In this context, the sustained interest of the top-down proteomics and proteoform research community in MALDI is of profound significance.

A prominent example of this effort is Amyloid MS, developed by the Shimadzu team. This MALDI-based diagnostic platform enables the rapid and high-precision characterization of diverse proteoforms of amyloid- β , and has been successfully translated into clinical applications for Alzheimer's disease diagnostics. It stands as a paradigmatic example of how the synergy between MALDI and proteoform analysis can yield transformative medical outcomes.

At this symposium, we look forward to Mr. Tanaka sharing with our proteoform research community the pioneering achievements of the Shimadzu team and his insights into clinical translation and proteoform analysis. His perspective promises to shed illuminating guidance for the future evolution of top-down proteomics.

Tuesday Morning - ANA016A

Session Chair: Si Wu

Time	Title	Speaker
8:00-8:05	Opening	
8:05-8:10	Opening Remarks: Mass Spectrometry: Bridging Chemistry and Other Scientific Disciplines	Koichi Tanaka (Shimadzu)
8:10-8:40	Native top-down proteomics reveals functional proteoforms	Joseph Loo (UCLA)
8:40-9:10	Direct Native Mass Spectrometry of Single Human Cells	Satoko Akashi (Yokohama City Univ.)
9:10-9:40	Native Mass Spectrometry Supports Enzyme Design	Mowei Zhou (Zhejiang Univ.)
9:40-10:00	Coffee Break	Sponsored by SCIEX
10:00-10:20	Integrative Structural Mass Spectrometry: Towards a Comprehensive Understanding of Protein-Ligand Interactions, Dynamics, and Functions	Huilin Li (Sun Yat-sen Univ.)
10:20-10:40	Exploring snake venoms beyond the primary sequence	Tara Pukala (Univ. of Adelaide)
10:40-11:00	What Can Gas-Phase Unfolding Thermochemistry Tell Us About Native Protein Structure?	James Prell (Univ. of Oregon)
11:00-11:20	Characterizing Conformational Selective Antigen Binding in Multispecific Antibodies Using Tandem-Trapped Ion Mobility Spectrometry (Tandem-TIMS)	Fanny Caroline Liu (FSU)
11:20-11:40	Resolving Protein Structural Heterogeneity with Tandem-Ion Mobility Spectrometry Methods	Christian Bleiholder (FSU)

Tuesday Afternoon – ANA016B

Session Chair: Mowei Zhou

Time	Title	Speaker
1:00–1:30	Digitizing Proteoform Biology with Single Molecule & Single Cell Mass Spectrometry	Neil Kelleher (Northwestern Univ.)
1:30–2:00	Mapping proteins and proteoforms within tissues	Ljiljana Paša-Tolić (PNNL)
2:00–2:30	Advancing nanomedicine by mass spectrometry-based top-down proteomics of nanoparticle protein corona	Liangliang Sun (MSU)
2:30–2:50	Coffee Break	Sponsored by Sciway
2:50–3:20	Advancing Native Top-Down Proteomics: New Strategies in Structural Characterization and Proteoform Analysis	Ying Ge (Univ. of Wisconsin Madison)
3:20–3:40	Alternative fragmentation is not enough for Top-down MS and intact protein characterization	Rafael Melani (Thermo)
3:40–4:00	An Automatic Pipeline for In-depth Characterization of Antibodies by Intact/Top-down/Middle-down and Bottom-up Mass Spectrometry	Baozhen Shan (BSI)
4:00–4:45	Carpool to Ka Moana Luau	
5:00–7:45	Dinner at Ka Moana Luau	Sponsored by BSI

Wednesday Morning – ANA016C

Session Chair: Nobuaki Takemori

Time	Title	Speaker
8:00–8:30	Capturing Cardiomyocyte Cell-to-Cell Heterogeneity via Shotgun Top-Down Proteomics	John Yates (Scripps)
8:30–9:00	Large-scale mapping the molecular pheno-conversion from normal human coronary artery to atherosclerotic plaque	Jennifer Van Eyk (Cedar Sinai)
9:00–9:30	From proteome damage to precision therapy: isoDGR-targeting antibodies for cancer and age-linked diseases	Newman Sze (Brock Univ.)
9:30–9:50	Coffee Break	Sponsored by Fresh Bioscience
9:50–10:10	Leveraging internal fragments and ion mobility for proteoform characterisation in native mass spectrometry experiments reveals insights into structural biology	Muhammad Zenaidee (Macquarie Univ.)
10:10–10:30	Top-down mass spectrometry study of monoclonal proteins as biomarkers of multiple myeloma	Ruben Luo (Stanford)
10:30–10:50	Mass Spectrometry Trends to Study Epigenetic Chromatin Dynamics	Francisco Fernandez-Lima (FIU)
10:50–11:10	Quantitative Mass Spectrometry Imaging of Intact Proteins in Tissues	Julia Laskin (Purdue)
11:10–11:30	Native Top-Down Characterization of Proteoforms and Their Complexoforms	Fabio Pereira Gomes (Virginia Commonwealth Univ.)

Wednesday Afternoon – ANA016D

Session Chair: Muhammad Zenaidee

Time	Title	Speaker
1:00–1:20	PEPPI-SP3: high-throughput sample prefractionation strategy for in-depth top-down proteomics	Nobuaki Takemori (Ehime Univ.)
1:20–1:40	Methionine Oxidation Footprinting in Intact Proteins (MOFIP) to examine structures of human proteins	Si Wu (Univ. of Alabama)
1:40–2:00	Toward comprehensive characterization of guide RNA and beyond by top-down mass spectrometry	Bifan Chen (Genentech)
2:00–2:20	Quantifying the intact proteome: new strategies in quantitative top-down proteomics	Kellye Cupp-Sutton (Univ. of Alabama)
2:20–2:40	Design of smart-responsive materials toward highly efficient enrichment of protein post-translational modifications	Jia Fan (Tulane School of Medicine)
2:40–2:50	Lightning Talks	Bilal Saqib (Univ. of Toronto)
2:50–3:00	Closing Remarks	
6:30–7:30	Mass Spectrometry: Bridging Chemistry and Other Scientific Disciplines	Koichi Tanaka – Hawaii Convention Center

Join Us for the Ka Moana Lu'au

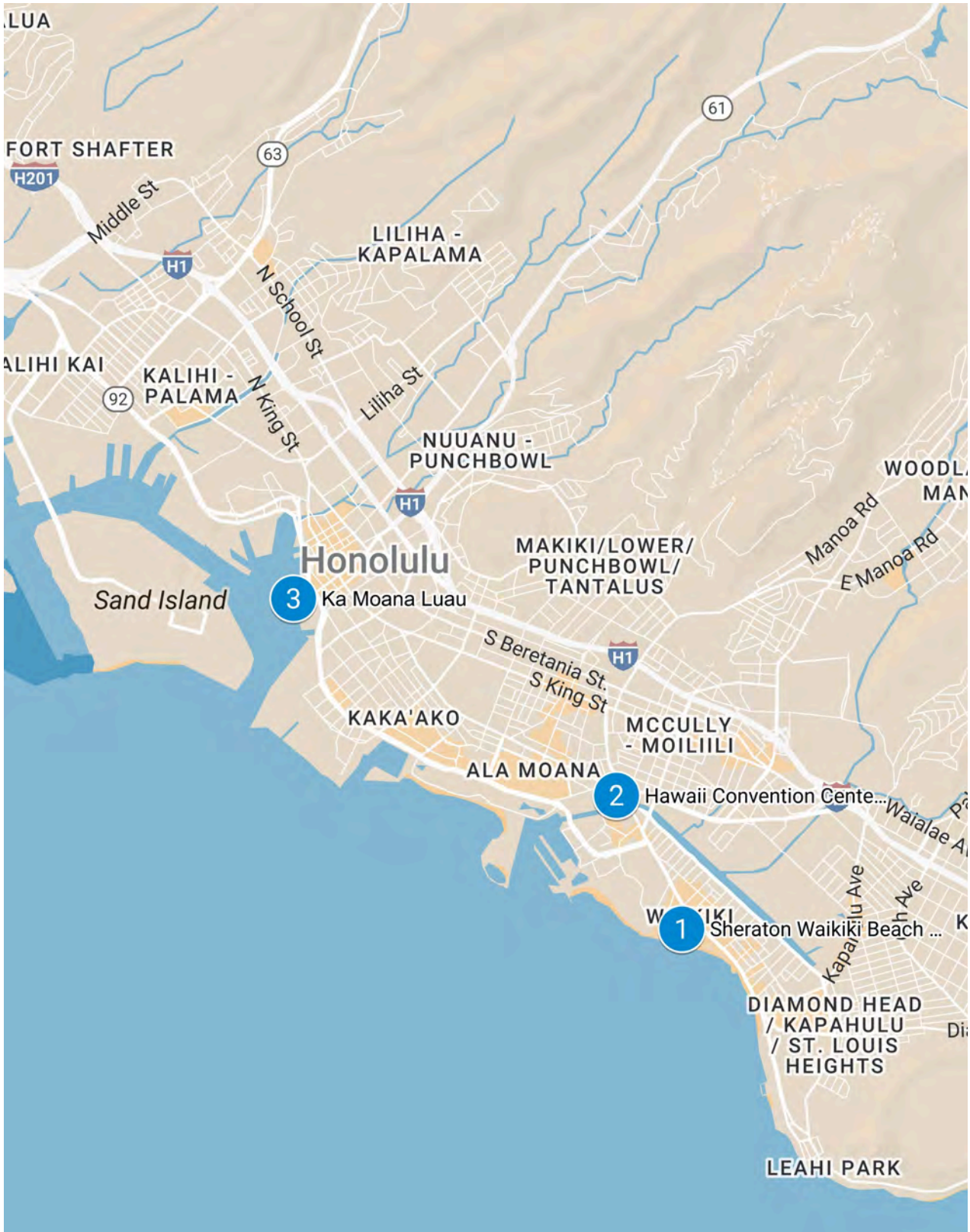
Ka Moana Lu'au

1 Aloha Tower Drive
Honolulu, HI 96813

December 16th, 5 PM

We invite all seminar attendees to join us for an evening of great food, music, and island hospitality at the Ka Manan Luau **Sponsored by BSI**. Come relax, connect with colleagues, and celebrate the spirit of collaboration that makes top-down proteomics so special. We look forward to sharing this unforgettable Hawaiian evening with you!





1. **Sheraton Waikiki** - Symposium Location - 2255 Kalākaua Ave
2. **Hawaii Convention Center** - Plenary Lecture - 1801 Kalākaua Ave
3. **Ka Moana Luau** - Dinner - 1 Aloha Tower Dr,

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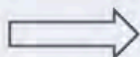
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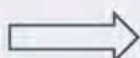
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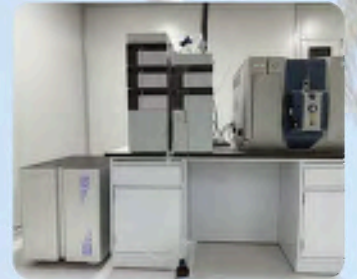
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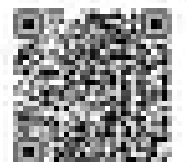
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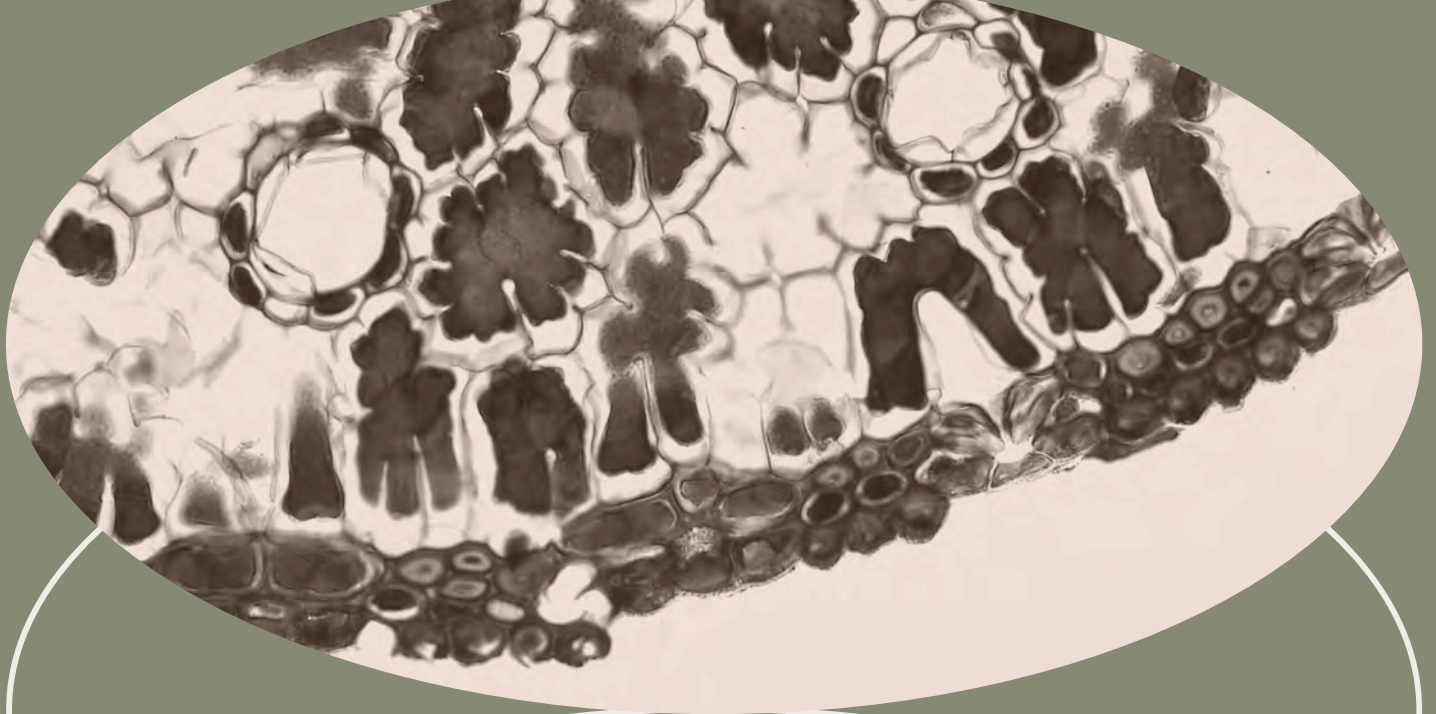
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