

## THURSDAY, JANUARY 23

5:00 - 7:00 pm **Setup all posters, Lumpkin Ballroom**

5:00 - 7:00 pm **Registration**

7:00 - 7:10 pm **Opening Remarks**, Igor Kaltashov and Aleksandra Nita-lazar  
*Lumpkin Ballroom*

**7:10 - 8:00 pm, Lumpkin Ballroom**

**Keynote Lecture**

**Illuminating Cellular Machineries in Adaptive Immunity**

Robert Tampé, *Goethe University, Institute of Biochemistry*

**8:00 - 9:00 pm**

**Reception**

**The following students received an ASMS Student Travel Award.  
Congratulations!**

Tahir Ali

*University of Mississippi*

Allison Fry

*University of North Carolina at Chapel Hill*

Hyojung Kim

*National Institutes of Health*

Linda Lieu

*University of Oklahoma*

Despoina Mavridou

*Leiden University Medical Center*

Weiwei Peng

*The University of Texas at Austin*

Raquel Takaya

*Northwestern University*

Minh Tran

*Vanderbilt University*

Clint Vorauer

*University of Washington*

Tae-Geun Yu

*Dartmouth College*

**Contribute a manuscript for the *JASMS* Special Issue on  
“Mass Spectrometry in Immunology and Antibody Research”**

**Attendees, presenters and non-attendees are invited to submit**

**Submission Deadline: May 30**

## FRIDAY, JANUARY 24

7:30 - 8:20 am **Continental Breakfast**, *Lumpkin Ballroom*

**8:20 – 10:05 am**, *Lumpkin Ballroom*

**Methods: Antibody and Antigen Covalent Structure Characterization  
(de Novo Sequencing, Glycosylation, Other PTMs) 1**

Session Chair: Weiwei Peng, *University of Texas, Austin*

*5 minutes of Q&A following each talk*

- 8:20 - 8:40 am From Antibody-Based Drugs to Ultra-precise Serology Readouts at Single Clone Resolution  
Neil Kelleher, *Northwestern University*
- 8:45 - 9:05 am Mass Spectrometry Tools for Detailed Characterization of Antibody Glycosylation  
Parastoo Azadi, *Complex Carbohydrate Research Center, U. of Georgia*
- 9:10 – 9:30 am Study the Impact of mAb PTMs on Target and Fc Receptor Binding by Affinity-Resolved SEC-MS  
Shunhai Wang, *Regeneron Pharmaceuticals*
- 9:35 – 9:45 am Enhancing the Localization of Forced Oxidative Products in mAb-Based Therapeutics Using Proton Transfer Charge Reduction  
Linda Lieu, *University of Oklahoma*
- 9:50 – 10:00 am DeGlyPHER-ing Site-Specific Distribution of N-Glycans on Candidate Vaccines Against HIV  
John Yates III, *The Scripps Research Institute*
- 10:05 - 10:35 am **Coffee Break**, *Lumpkin Ballroom*

**10:35 am – 12:05 pm**

**Applications: Immunopeptidomics**

Session Chair: Sydney Klaisner, *NIH*

*5 minutes of Q&A following each talk*

- 10:35 – 10:55 am Sensitive Detection of HLA Presented Antigens via User-Defined Peptide Spectral Libraries  
Jennifer Abelin, *Broad Institute*
- 11:00 – 11:20 am T Hidden Tumor Antigens in Colorectal Cancer: A Proteogenomic Path to Vaccines  
Pierre Thibault, *University of Montreal*
- 11:25 – 11:45 am Immune-Recognition of Antibody Drugs  
Nicola Ternette, *University of Dundee, Scotland*
- 11:50 – 12:00 pm Immunopeptidomic Signatures of Viral Infection: Impacts on T Cell Immunogenicity and Disease Susceptibility  
Anthony Purcell, *Monash University*
- 12:05 – 1:00 pm **Group Photo & Lunch**, provided by ASMS  
*La Terraza*

## FRIDAY, JANUARY 24

**1:00 – 2:35 pm, Lumpkin Ballroom**  
**Methods & Applications: Characterization of Polyclonal Antibodies  
and Antibodies beyond the  $\gamma$  Isotype**  
*5 minutes of Q&A following each talk*

- 1:00 – 1:25 pm    On the Structural and Clonal Peculiarities of IgA and IgM  
Albert Heck, *Utrecht University, Netherlands*
- 1:30 – 1:50 pm    Molecular Deconvolution of Antibody Repertoires Transferred from Mother to Neonate  
Jiwon Lee, *Dartmouth College*
- 1:55 – 2:15 pm    Bringing Mass Spectrometry into the Care of Patients with Myeloma  
David L. Murray, *Mayo Clinic*
- 2:20 – 2:30 pm    Application of Mass Spectrometry on de novo Antibody Sequencing and Fab Profiling  
Weiwei Peng, *The University of Texas, Austin*  
*also presenting at Poster 13*
- 2:35 – 2:50 pm    **Coffee Break**

**2:50 – 4:00 pm**  
**Methods: Higher Order Structure 1 (HDX, Oxidative Labeling/FPOP, Other Chemical Labeling  
Methods, Chemical Cross-Linking and Limited Proteolysis – Focus on Epitope/Paratope  
Mapping)**

Session Chair: Guanbo Wang, *Peking University*  
*5 minutes of Q&A following each talk*

- 2:50 – 3:15 pm    What do MS Methods Teach us about Antigens  
Michael L. Gross, *Washington University*
- 3:20 – 3:40 pm    Intact Transition Epitope Mapping (ITEM)  
Michael Glocker, *Proteome Center Rostock*
- 3:45 – 3:55 pm    Predicting Antibody-Antigen Interactions with Rosetta Using Hydrogen-Deuterium Exchange Mass Spectrometry Data  
Minh Tran, *Vanderbilt University*

**7:00 - 9:00 pm**  
**Poster Session I**  
**Odd-Numbered Posters Present**

**Starts with 2-minute Flash Talks from the Odd-Numbered Posters Presenters**

## SATURDAY, JANUARY 25

7:30 - 8:20 am Continental Breakfast, Lumpkin Ballroom

**8:20 – 9:50 am**

**Applications: OMICS and Bioinformatics in Immunology 1 (Adaptive and Innate Immune Signaling - Focus on Proteomics)**

Session Chair: Jennifer Geddes-McAlister, *University of Guelph*  
5 minutes of Q&A following each talk

- 8:20 – 8:40 am The Great Escape: SARS-CoV-2 Evasion of Antiviral Immunity  
Chris Overall, *University of British Columbia*
- 8:45 – 9:05 am New Approaches for Host-Pathogen Proteomic Profiling  
Bryan Bryson, *MIT*
- 9:10 – 9:30 am Signaling Mechanisms and Protein Networks in Innate Immunity  
Aleksandra Nita-Lazar, *NIAID*
- 9:35 – 9:45 am Macrophages Redeploy Functional Cancer Cell Surface Proteins Following Phagocytosis  
Regan Volk, *UC, San Francisco*  
also presenting at Poster 18
- 9:50 – 10:10 am Coffee Break

**10:10 – 11:15 am**

**Applications: OMICS and Bioinformatics in Immunology 2 (Immune Signaling and Responses - Focus on Lipids and Small Molecules)**

Session Chair: Hyojung Kim, *NIH*  
5 minutes of Q&A following each talk

- 10:10 – 10:30 am Identification of Novel Mechanistic Targets in Pulmonary Infection Models Using Spatial Lipidomics  
Alison Scott, *University of Maryland*
- 10:35 – 10:55 am Hybrid MS/MS Strategies in Immunology  
Jennifer Brodbelt, *University of Texas, Austin*
- 11:00 – 11:10 am Unlocking Modified Epitopes through MHC-3PO: A Hybrid AI Framework Leveraging Structural Information for Peptide Binding Predictions  
Arthur Declercq, *VIB-UGENT*
- 11:15 – 7:00 pm Free Time

**7:00 - 9:00 pm, Lumpkin Ballroom**

**Poster Session II**

**Even-Numbered Posters Present**

**Starts with 2-minute Flash Talks from the Even-Numbered Posters Presenters**

## SUNDAY, JANUARY 26

**8:20 – 9:40 am, Lumpkin Ballroom**

**Methods: Higher Order Structure 2 (Native MS in Immunology)**

*5 minutes of Q&A following each talk*

- 8:20 – 8:40 am    IMS, MS, and CDMS studies of Proteasome Structures and Stabilities  
David Clemmer, *Megadalon Solutions/Univ. Indiana Bloomington*
- 8:45 – 9:05 am    Resolving the Structural Heterogeneity of Natural Protein Complexes and  
Recombinant Protein Vaccines by Native MS  
Guanbo Wang, *Peking University, China, Biomedical Pioneering Innovation Center*
- 9:10 – 9:20 am    PEGylation to Decrease Immunogenicity of Anti-HIV Immunotoxins: Analysis by  
Native Mass Spectrometry and Ion Mobility  
Dana Auganova, *Montana State University*
- 9:25 – 9:35 am    Epitope Mapping of Membrane Proteins in Live Cells Using Covalent Labeling-MS  
Richard Vachet, *UMASS, Amherst*  
*also presenting at Poster 16*
- 9:40 – 10:00 am    Coffee Break

**10:00 – 11:40 am, Lumpkin Ballroom**

**Applications: Autoimmunity, Allergy and Anaphylaxis**

Session Chair: Richard Vachet, *UMASS-Amherst*

*5 minutes of Q&A following each talk*

- 10:00 – 10:20 am    Oxidative Stress and Type 1 Diabetes Neoantigens  
Cheryl Lichti, *Washington University*
- 10:25 – 10:45 am    Characterization of Ovalbumin and Its Monoclonal IgE by Mass Spectrometry  
Wenhua Yang, *Zhongkai University of Agriculture and Engineering*
- 10:50 – 11:10 am    Understanding the Mechanism of an Adenoviral-Vectored Vaccine Side Effect by  
Reverse-Engineering of the Pathogenic Antibody  
Igor Kaltashov, *UMass-Amherst*
- 11:15 – 11:35 am    Discriminating Autoimmune Responses in Rheumatoid Arthritis: Autoantibody Fc-  
Proteoforms and their Association with Disease Activity  
Elena Dominguez-Vega, *Leiden Univ. Medical Center*
- 11:40 – 12:40 pm    **Lunch, on your own**

## SUNDAY, JANUARY 26

12:40 – 2:25 pm

**Applications: Host-Pathogen Interactions**

Session Chair: Alison Scott, *University of Maryland*

*5 minutes of Q&A following each talk*

- 12:40 – 1:00 pm The Interface between Metabolism and Immunity in a Virus Microenvironment  
Ileana Cristea, *Princeton University*
- 1:05 – 1:25 pm Dual Perspective Proteome Remodeling of Fungal Infections  
Jennifer Geddes-McAlister, *Guelph University*
- 1:30 – 1:50 pm Post-Translational Regulation of Bacterial Stress Response: Focus on Ser/Thr Kinases  
Boris Macek, *University of Tuebingen*
- 1:55 – 2:05 pm Spatially Resolved Thermal Profiling Uncovers Virus-Driven Regulation of  
Proteostasis *via* Nuclear Sequestration of Translation Machinery  
Peter Metzger, *Princeton University*
- 2:10 – 2:20 pm Exploring the Neutrophil Proteome at Single Cell Resolution Using Single Cell  
Proteoform Imaging Mass Spectrometry (scPiMS)  
Raquel Takaya, *Northwestern University*
- 2:25 – 2:35 pm **Closing Remarks**, Igor Kaltashov and Aleksandra Nita-lazar