

HOS 2023: International Symposium on the Higher Order Structure of Protein Therapeutics

Schedule

Wednesday, 6 September, 2023

6:00-6:30am

[WATCH NOW: Mass Photometry: The New Gold Standard for Biophysical Characterization](#)

This technical Seminar will be available to watch on demand 24/7 during the Symposium. Click on this session to access the presentation video.

6:30-7:00am

[WELCOME BACK: Co-Chair George Bou-Assaf has a few words to say!](#)

[Welcome to HOS 2023 - BACK IN PERSON](#)

[Welcome Back Video](#)

7:00-7:30am Burnham Office (Floor 2)

[Registration for HOS 2023 and Mass Spec 2023](#)

Registration will close at 17:00 PM CDT.

7:15-8:45am Discover Room (Floor 2)

[Diverse Voices: Emerging Professionals Breakfast Chat \(NEW!\)](#)

Calling all Emerging Professionals! Chat with Members of the CASSS Community about Career Pathways, Diverse Experiences and how they navigated their way to their career choice. Listen to diverse voices at this new session designed for Students, Post-docs and Early to Mid-Career Professionals. You are the future of CASSS. Come and join in the conversation!

****Minorities, Women, and Underrepresented Minorities are encouraged to attend. We also encourage anyone that wishes to sit in on these sessions, to join us!***

****Seating is limited to 100 people.***

Featured Speaker:

Emmanuel Cudjoe, Yale University (Current), Bristol-Myers Squibb Company (Former)

7:30-8:45am Sip - The CASSS Quiet Room (Floor 2)

The CASSS Quiet Room

CASSS is pleased to welcome you to the CASSS Quiet Room. The Quiet Room is a space where our attendees can regroup, relax and think. A tranquil space to provide a short period of down-time for those that need a moment of self-care to stay at their best and be prepared for the stimuli of the conference. The CASSS Quiet room will be open daily from 7:30 AM - 5:00 PM on each day of HOS and Mass Spec.

The room may NOT be used for the following:

- Cell phone conversations and meetings with others (please do not use any electronic devices in the quiet room)
- Talking or interrupting others that may be present
- Gathering or socializing
- Eating or drinking (no food or beverage allowed)
- Any types of noise or unnecessary light

Anyone not adhering to the above will be asked to leave the Quiet Room. Please be mindful of others and may the calm be with you.

7:30-8:45am Explore Room (Floor 2)

Rise and Dine: Breakfast

Start the day off right with breakfast and coffee. You may also view e-posters from your device and visit the Exhibit Hall before the sessions start!

New this year: Plug and Play Poster Sessions! Presenters will plug their laptop into an HD monitor and present their abstract on screens instead of boards!

Breakfast will be served until 09:00 AM CDT.

8:45-9:00am The Looking Glass Ballroom (Floor 3)

CASSS Welcome and HOS Introductory Comments

Co-Chairs: George Bou-Assaf, Galahad Deperalta

Welcome back to HOS in-person and thank you for joining us! See what CASSS is about, housekeeping rules, and prepare for an amazing Symposium as we introduce Session I.

8:45am-5:00pm Sip - The CASSS Quiet Room (Floor 2)

The CASSS Quiet Room

CASSS is pleased to welcome you to the CASSS Quiet Room. The Quiet Room is a space where our attendees can regroup, relax and think. A tranquil space to provide a short period of down-time for those that need a moment of self-care to stay at their best and be prepared for the stimuli of the conference. The CASSS Quiet room will be open daily from 7:30 AM - 5:00 PM on each day of HOS and Mass Spec.

The room may NOT be used for the following:

- Cell phone conversations and meetings with others (please do not use any electronic devices in the quiet room)
- Talking or interrupting others that may be present
- Gathering or socializing
- Eating or drinking (no food or beverage allowed)
- Any types of noise or unnecessary light

Anyone not adhering to the above will be asked to leave the Quiet Room. Please be mindful of others and may the calm be with you.

9:00-10:25am The Looking Glass Ballroom (Floor 3)

Session I: HOS Technologies

Co-Chairs: Sergey Arzhantsev, Thomas Cleveland IV

Plenary Session (Oral)

Session Speakers:

High-Speed Atomic Force Microscopy for Measuring Structure and Dynamics of Antibodies at the Single Molecule Level and its Potential Implications for Formulation Stability

Marilia Barros, *Regeneron Pharmaceuticals, Inc.*

Advancing Secondary Structure Characterization of Monoclonal Antibodies Using Microfluidic Modulation Spectroscopy

Dipanwita Batabyal, *Amgen Inc.*

Understanding Biomolecular Behaviour with Mass Photometry

Gael Nicolas, *Refeyn Ltd.*

10:25-10:40am Grand Ballrooms 4-6 (Floor 2)

Sip Break

Take a quick stretch break, grab some coffee and relax your mind.

10:40am-12:10pm The Looking Glass Ballroom (Floor 3)

Session II: New Modalities

Co-Chairs: Ivan Budyak, Guodong Chen

Session Speakers:

Multi-Attribute Assessment of Short Oligonucleotide Therapeutics by NMR Spectroscopy

Robert Brinson, *NIST, IBBR*

Rapid High-Resolution Size Distribution Analysis for Adeno-Associated Virus Using High Speed SV-AUC

Nicholas Larson, *Biogen*

Purity Assessment of rAAV Viral Vectors by Mass Photometry

Surinder Singh, *Bristol-Myers Squibb Company*

After this session ends, HOS attendees should head to Floor 2 for lunch. After lunch, the remaining sessions for the day will be held on Floor 2 with the attendees of Mass Spec.

12:10-1:10pm Explore Room (Floor 2)

Meet & Eat: What's for Lunch?

Grab lunch and chat with session speakers and other attendees about what you have enjoyed so far about the Symposium. Take this time to make new acquaintances. We challenge you to make at least one new connection during HOS!

*Please Note: Mass Spec may be holding Technical Seminars during Lunch. HOS attendees should eat in the designated meal areas as the **Mass Spec Technical Seminars are not part of the HOS program.***

1:10-1:55pm Grand Ballrooms 4-6 (Floor 2)

Sip and See Posters: Session I & Exhibits

After lunch, take your coffee or beverage of choice and visit the Poster Hall to chat with authors about their posters.

NEW ONSITE: Plug & Play Poster Presentations! No more Poster Boards. Bring your presentation on your laptop or thumb drive and plug into the HD Screen that will be available to display your poster presentation!

****Please be sure to visit our Exhibitors. See what products and services they have to offer.****
Without the support of these vendors and our program partners, HOS would not be possible.

Join in our game of POSTER TRIVIA. Find hidden icons, get a verbal clue from the poster presenter. Whoever gets the most clues and is most accurate will win a free registration to a future CASSS meeting of their choice!

1:55-2:45pm Grand Ballrooms 4-6 (Floor 2)

Featured Joint Keynote Presentation: Hacking Structural Biology for Drug Delivery Using Protein Footprinting Based Mass Spectrometry

Co-Chairs: Galahad Deperalta

Keynote Presentation

[VIEW MESSAGE FROM KEYNOTE PRESENTER MARK R. CHANCE](#)

Hold your questions for Mark R. Chance until the panel session. See you after the poster session and break.

[Watch Me](#)

2:45-3:30pm Grand Ballrooms 4-6 (Floor 2)

Sip & See: Poster Session II & Exhibits

Grab your coffee, tea or bottled water, and visit the Poster & Exhibit Hall. Hear from poster presenters and chat with vendors. This year, posters will be viewed in specific sessions, at dedicated times. The format will be different from previous years.

3:30-6:00pm Grand Ballrooms 4-6 (Floor 2)

Session III: Emerging Mass Spectrometry Technologies for HOS

Co-Chairs: George Bou-Assaf, Ingo Lindner

Plenary Session (Oral)

Session Speakers:

High-Order Structure Characterization of Membrane Proteins Using Benzoyl Fluoride Footprinting

Mengqi Chai, *Washington University in St. Louis*

In-Depth Characterization of Biologics Through a Combination of Mass Spectrometry and Molecular Modeling

Naresh Chennamsetty, *Bristol-Myers Squibb Company*

Protein Footprinting for Structural Biology in Complex Model Systems

Lisa Jones, *University of California San Diego*

Complementary Backbone and Side Chain Analysis of Drug - Protein Interactions Combining Hydrogen/Deuterium Exchange and Protein Oxidative Mass Spectrometry

Yan Sun, *Albert Einstein College of Medicine*

This is a joint plenary session for both HOS and Mass Spec attendees. After the last speaker, Mark R. Chance will join the panel discussion for your questions.

6:00-8:00pm Raised Roof Bar

Mix & Mingle Welcome Reception

After a full day of interactive and dynamic presentations, relax with colleagues, presenters, and session organizers. Enjoy a delicious selection of hors d'oeuvres and libations while reflecting on the sessions you enjoyed most on day 1 or just shoot the breeze.

Join us tomorrow for day 2 as we kickoff HOS session IV: Next Generation Investigators.

Thursday, 7 September, 2023

6:00-7:00am

WATCH NOW: Mass Photometry: The New Gold Standard for Biophysical Characterization

This technical Seminar will be available to watch on demand 24/7 during the Symposium. Click on this session to access the presentation video.

7:00-8:30am Burnham Office (Floor 2)

Registration for HOS 2023 and Mass Spec 2023

Registration for HOS will close at 14:00 PM CDT.

7:15-8:45am Discover Room (Floor 2)

Diverse Voices: Emerging Professionals Breakfast Chat (NEW!)

Calling all Early to Mid-Career Professionals! Chat with Members of the CASSS Community about Career Pathways, Diverse Experiences and how they navigated their way to their career choice. Listen to diverse voices at this new session designed for all Young Professionals. Come and join in the conversation!

**Minorities, Women, and Underrepresented Minorities are encouraged to attend. We also encourage ANYONE that wishes to sit in on these sessions, to join us!*

Featured Speaker:

Dennis Gessman, Pfizer, Inc.

7:30-8:45am Explore Room (Floor 2)

Rise and Dine: Breakfast

Start the day off right with breakfast and coffee. You may also view e-posters from your device and visit the Exhibit Hall before the sessions start!

Breakfast will be served until 09:15 AM CDT.

8:30-8:45am Sip - The CASSS Quiet Room (Floor 2)

The CASSS Quiet Room

CASSS is pleased to welcome you to the CASSS Quiet Room. The Quiet Room is a space where our attendees can regroup, relax and think. A tranquil space to provide a short period of down-time for those that need a moment of self-care to stay at their best and be prepared for the stimuli of the conference. The CASSS Quiet room will be open daily from 7:30 AM - 5:00 PM on each day of HOS and Mass Spec.

The room may NOT be used for the following:

- Cell phone conversations and meetings with others (please do not use any electronic devices in the quiet room)
- Talking or interrupting others that may be present
- Gathering or socializing
- Eating or drinking (no food or beverage allowed)
- Any types of noise or unnecessary light

Anyone not adhering to the above will be asked to leave the Quiet Room. Please be mindful of others and may the calm be with you.

8:45-10:10am The Looking Glass Ballroom (Floor 3)

Session IV: Next Generation Investigators

Co-Chairs: Alexander Bepperling, Mats Wikström

Session Speakers:

Structural Insights into the Binding Mechanism of Ctr4 Methyltransferase to H3K9 Methylated Nucleosome

Elias Akoury, *Lebanese American University* (NGI Award Winner)

Structural Analysis of Membrane Proteins in Living Cells via Radical Footprinting

Daniel Benjamin, *Immuto Scientific*

Validating Biophysical Methods to Avoid Footprinting-Induced Perturbation of Protein High Order Structure (HOS)

Wesley Wagner, *Washington University in St. Louis* (NGI Award Winner)

Encourage young and emerging scientists to shine in the Next Generation Investigators session. Listen to these fresh faces and future superstars as they share their work on the HOS platform. Join in the discussion during Q&A.

10:10-10:25am Grand Ballrooms 1-3 (Floor 2)

Stretch and Refresh Break

Use this time to grab coffee, go to the restroom, check emails.

10:25-11:30am The Looking Glass Ballroom (Floor 3)

Session V: Discovery and Candidate Selection

Co-Chairs: Alexander Bepperling, Katherine Bowers

Plenary Session (Oral)

Session Speakers:

FT-IR Supporting Oxidation Liability Examination in Biopharmaceutical Development

Thorben Höltkemeier, *Novartis Pharma AG*

Biophysical Characterization of “Stapled” scFv Molecules for Multispecific Biotherapeutic

Steven Jacobs, *Janssen Pharmaceuticals*

Complex Therapeutic Proteins and The Need for In-depth Biophysical Characterization to Ensure Their Safety and Efficacy

Belinda Pastrana, *University of Puerto Rico*

11:30-11:55am Grand Ballrooms 1-3 (Floor 2)

Q&A Panel Session

Co-Chairs: Alexander Bepperling, Katherine Bowers

Questions? Now is the time to ask.

11:55am-1:15pm Explore Room (Floor 2)

Meet & Eat: What's for Lunch?

Grab lunch and chat with session speakers and other attendees about what you have enjoyed so far about day 2 of the Symposium. Take this time to make new acquaintances. We challenge you to make at least one new connection during HOS!

*Please Note: Mass Spec may be holding Technical Seminars during Lunch. HOS attendees should eat in the designated meal areas as the **Mass Spec Technical Seminars are not part of the HOS program.***

1:15-2:00pm Grand Ballrooms 4-6 (Floor 2)

Sip & See: Posters & Exhibits III

Visit the poster hall and chat with our vendors and the poster presenters about their work and latest research discoveries.

1:15-2:00pm

WATCH NOW: Anne H. Kim Invites You to Attend HOS in Development

Anne H. Kim Invites You to Attend!

[Watch Me](#)

2:00-3:30pm The Looking Glass Ballroom (Floor 3)

Session VI: HOS in Development

Co-Chairs: Anne Kim, William Matousek
Plenary Session (Oral)

Session Speakers:

Chemometric and Machine Learning Enabled Applications of NMR in Biomanufacturing

Frank Delaglio, *NIST, IBBR*

Holistic Biophysical Characterization Approach During Formulation Development to Stabilize Two mAbs That Showed Similar Bioinformatics

Francisco Gonzales, *FUJIFILM Diosynth Technologies*

Quantitative Analysis on the Antigen - Adjuvant Binding Kinetics by Using Time-resolved Solid-state NMR

Jaekyun Jeon, *IBBR*

After this session, please attend the HOS Townhall. Come ready to discuss what you would like to see in the future, topics, what you enjoyed most about the Symposium this year and what you learned from attending that you found most useful. We want to hear from you. Start the conversation for 2024!

3:30-4:15pm The Looking Glass Ballroom (Floor 3)

HOS Townhall Meeting/Open Forum

Co-Chairs: George Bou-Assaf, Galahad Deperalta

Join us at the HOS Townhall. We want to hear from you. What did you learn? How can we improve for next year? What do you want to hear about in future HOS Symposiums? Help the Organizing Committee prepare for 2024 by voicing your ideas. Shape the future through the attendee lens!

**HOS Exhibitors and Sponsors are invited to participate.*

4:15-4:30pm The Looking Glass Ballroom (Floor 3)

Closing Remarks

5:00-6:30pm Grand Ballrooms 1-3 (Floor 2)

Exhibitor Reception

Join us at the Exhibitor Reception before you head home from the symposium. A great way to end the day with great food, lovely libations and conversations! Thank you for attending HOS. Be sure to stop by the exhibitor tables to find out more about their services and products they have to offer. Without their support, HOS and Mass Spec would not be possible.