2026 PROGRAMS

- ENGINEERING
- ONCOLOGY
- MULTISPECIFICS
- IMMUNOTHERAPY
- EXPRESSION
- ANALYTICAL
- IMMUNOGENICITY
- EMERGING THERAPEUTICS
- MACHINE LEARNING
- SC SHORT COURSES
- TS Training SEMINARS

Organized by Cambridge Healthtech Institute

22ND ANNUAL PEGS BOSTON

MAY 11-15, 2026 | BOSTON, MA + VIRTUAL

OMNI HOTEL BOSTON AT THE SEAPORT

The Essential Protein & Antibody Engineering Summit

PLENARY KEYNOTE

CARs 2026: New Models and New Runway

MICHEL SADELAIN, MD, PHD
Columbia University Irving Medical Center

PLENARY FIRESIDE CHAT

How to Think About Designing Smart Biologics in the Age of GenAI:
Integrating Biology, Technology, and Experience

Moderator: Christopher J. Langmead, PhD, Amgen

Panelists: Surge Biswas, PhD, Nabla Bio, Inc.

Rebecca Croasdale-Wood PhD, AstraZeneca

Joshua Meier, PhD, Chai Discovery

Maria Wendt, PhD, Sanofi

Register by January 9 for **EARLY BIRD SAVINGS UP TO $600**

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PEGS BOSTON

Welcome to PEGS Boston

The PEGS Boston Summit is where the future of biologics takes shape. For over 20 years, PEGS is the go-to event for protein and antibody engineering, drug development, immunotherapy, radiotherapy, and AI/ML-driven biologics research. New in 2026: a dedicated focus on peptides, spotlighting their therapeutic power, design innovations, and expanding role in drug discovery.

With 350+ presentations, breakout sessions, and interactive training seminars, PEGS delivers the insights and connections you need to stay ahead. The exhibit hall buzzes with top technology and service providers, giving you a front-row seat to the tools transforming the industry.

Don't just follow the science—be part of it. Join us at the 2026 PEGS Boston Summit and connect with the leaders shaping what's next in biologics and beyond.

2026 CONFERENCE PROGRAMS

ENGINEERING — VIEW

- Display of Biologics
- Engineering Antibodies
- Machine Learning for Protein Engineering

MULTISPECIFICS — VIEW

TRAINING SEMINAR:

- Intro to Multispecific Antibodies
- Advancing Multispecific Antibodies
- Engineering Bispecific and Multispecific Antibodies

EXPRESSION — VIEW

- Difficult-to-Express Proteins
- Optimizing Protein Expression
- Maximizing Protein Production Workflows

EMERGING THERAPEUTICS — VIEW

- Biologics for Autoimmune Diseases
- Frontiers in Radiopharmaceutical Therapy
- Emerging Peptide Therapeutics

MACHINE LEARNING — VIEW

- ML and Digital Integration in Biotherapeutic Analytics
- Predicting Immunogenicity with AI/ML Tools
- Machine Learning for Protein Engineering

ONCOLOGY — VIEW

- Antibodies for Cancer Therapy
- Emerging Targets for Oncology and Beyond
- Antibody-Drug Conjugates

IMMUNOTHERAPY — VIEW

- Emerging T Cell Engagers
- Advances in Immunotherapy
- Next-Generation Immunotherapies

ANALYTICAL — VIEW

- ML and Digital Integration in Biotherapeutic Analytics
- Biophysical Methods
- Characterization for Novel Biotherapeutics

IMMUNOGENICITY — VIEW

TRAINING SEMINAR:

- Introduction to Immunogenicity
- Predicting Immunogenicity with AI/ML Tools

TRAINING SEMINAR:

- Bioassay Development and Analysis

SC SHORT COURSES

Training SEMINARS

ELEVATE YOUR PROTEIN & ANTIBODY ENGINEERING RESEARCH

2026 PROGRAMS

- ENGINEERING
- ONCOLOGY
- MULTISPECIFICS
- IMMUNOTHERAPY
- EXPRESSION
- ANALYTICAL
- IMMUNOGENICITY
- EMERGING THERAPEUTICS
- MACHINE LEARNING

SUNDAY MAY 10

PRE-CONFERENCE SHORT COURSES

TUESDAY MAY 12

DINNER SHORT COURSES

PART A MONDAY - TUESDAY AM (MAY 11-12)	PART B TUESDAY PM - WEDNESDAY (MAY 12-13)	PART C THURSDAY – FRIDAY AM (MAY 14-15)
Display of Biologics	Engineering Antibodies	Machine Learning for Protein Engineering
Antibodies for Cancer Therapy	Emerging Targets for Oncology & Beyond	Driving Clinical Success in Antibody-Drug Conjugates
TS: Introduction to Multispecific Antibodies	Advancing Multispecific Antibodies and Combination Therapy to the Clinic	Engineering Bispecific and Multispecific Antibodies
Emerging T Cell Engagers	Advances in Immunotherapy	Next-Generation Immunotherapies
Difficult-to-Express Proteins	Optimizing Protein Expression	Maximizing Protein Production Workflows
ML and Digital Integration in Biotherapeutic Analytics	Biophysical Methods	Characterization for Novel Biotherapeutics
TS: Introduction to Immunogenicity	Predicting Immunogenicity with AI/ML Tools	TS: Bioassay Development & Analysis
Biologics for Autoimmune Diseases	Frontiers in Radiopharmaceutical Therapy	Emerging Peptide Therapeutics
ML and Digital Integration in Biotherapeutic Analytics	Predicting Immunogenicity with AI/ML Tools	Machine Learning for Protein Engineering

Training SEMINARS

By Cambridge Healthtech Institute

- TS3A: Introduction to Multispecific Antibodies: History, Engineering, and Applications
- TS7A: Introduction to Immunogenicity
- TS9A: Introduction to Machine Learning for Biologics Design
- TS10A: Introduction to Protein Engineering
- TS11A: Antibody Drug Discovery: From Target to Lead
- TS9B: AI-Driven Design of Biologics: A Hands-On Guide to Using State-of-the-Art ML Protein Models
- TS10B: Introduction to Antibody-Drug Conjugate Design: Targets, Payloads, and Linkers
- TS11B: Introduction to Peptide Therapeutics
- TS7C: Bioassay Development and Analysis

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PLENARY KEYNOTE SESSIONS

PEGS BOSTON

MONDAY, MAY 11 - 4:15 – 5:55 PM

PLENARY KEYNOTE

CARs 2026: New Models and New Runways

Michel Sadelain, MD, PhD
Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

YOUNG SCIENTIST KEYNOTE

Deep Learning-Based Binder Design to Probe Biology

Martin Pacesa, PhD
Assistant Professor, Pharmacology, University of Zurich

WEDNESDAY, MAY 13 - 8:25 – 9:15 AM

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

Innovation in Protein Science with Young Scientist Visionaries

MODERATOR:
James A. Wells, PhD
Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

PANELIST:
Kathryn Hastie, PhD
Instructor, La Jolla Institute for Immunology

PANELIST:
Jamie Spangler, PhD
Associate Professor, Johns Hopkins University

PANELIST:
Kipp Weiskopf, MD, PhD
Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center

PANELIST:
Timothy Whitehead, PhD
Professor, University of Colorado

PANELIST:
Xin Zhou, PhD
Assistant Professor, Harvard Medical School

THURSDAY, MAY 14 11:35 AM – 12:35 PM

PLENARY FIRESIDE CHAT

How to Think about Designing Smart Biologics in the Age of GenAI:

Integrating Biology, Technology, and Experience

MODERATOR:
Christopher J. Langmead, PhD
Executive Director, AI & Data for Engineered Biologics, Amgen

PANELIST:
Surge Biswas, PhD
Founder & CEO, Nabla Bio, Inc.

PANELIST:
Rebecca Croasdale-Wood, PhD
Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca

PANELIST:
Joshua Meier, PhD
Co-Founder, Chai Discovery

PANELIST:
Maria Wendt, PhD
Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

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SHORT COURSES

IN-PERSON ONLY

**Separate registration required.*

SUNDAY, MAY 10 2:00-5:00 PM

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

Instructors:

Vinodh B. Kurella, PhD, Research Scientific Associate Director, Global Biologics, Takeda Pharmaceuticals, Inc.

Tanmoy Sanyal, PhD, Principal Data Scientist, Large Molecule Discovery Group, Amgen

Valentin Stanev, PhD, Associate Principal Data Scientist, AstraZeneca

Ben Williams, PhD, Research Software Engineer, Department of Statistics, University of Oxford

Given the exciting pace in the evolution of machine learning tools towards antibody design and developability predictions, we plan to present an overview in this field specificity geared towards antibody design and developability predictions. There will be a live demo as well of few ML tools.

SC2: AI-Driven Predictive Preclinical Models: Rethinking the Role of Animal Testing

Instructors:

Sathy Balu-Iyer, PhD, Professor, Pharmaceutical Sciences, SUNY Buffalo

Panagiota (Pegy) Foteinou, PhD, Senior Director, Preclinical and Early Development, Bristol Myers Squibb

Jochem Gokemeijer, PhD, Distinguished Scientist Biologics, Biologics Discovery, Johnson & Johnson

Timothy Hickling, PhD, Consultant, Quasor Ltd.

Vibha Jawa, PhD, Chief Scientific Officer, Epivax Inc.

Pooja Khanna, PhD, Senior Scientist, Merck

Guilhem Richard, PhD, CTO, EpiVax Inc.

AI-driven predictive models are emerging as powerful tools to support preclinical IND activities by simulating human biology and forecasting pharmacology, toxicity, and immunogenicity outcomes. These approaches, consistent with NAM guidance, reduce reliance on animal testing by providing earlier, more human-relevant insights into safety and efficacy. As a result, animal studies can be repositioned as confirmatory rather than exploratory, improving translational relevance and regulatory alignment.

SC3: Challenges and Opportunities in Solid Tumor and Autoimmune Disease Therapeutics

Instructor:

Tony R. Arulanandam, DVM, PhD, CEO and Founder, Synaptimmune Therapeutics

This course offers advanced insights into developing next-generation immunotherapies for solid tumors and autoimmune diseases, focusing on identifying new targets, therapeutic methods, and emerging biology. It includes detailed analyses of the solid tumor microenvironment and the autoimmune diseases space, addressing challenges and showcasing successful therapeutic strategies across T cell engagers, blocking bispecific antibodies, ADCs, CAR-Ts, radioligand therapy and targeted protein degraders.

SC4: Unlocking Immunity: Mastering Epitope Analysis and Prediction with IEDB and CEDAR Tools & Insights

Instructors:

Nina Blazeska, Senior Project Manager, IEDB and CEDAR Resources, La Jolla Institute for Immunology

Zeynep Kosaloglu-Yalcin, PhD, Instructor, La Jolla Institute for Immunology

This short course offers an in-depth introduction to the Immune Epitope Database and Analysis Resource (IEDB) and Cancer Epitope Database and Analysis Resource (CEDAR), designed to help scientists harness their full potential for immunological research. Participants will receive two focused presentations—one on navigating the IEDB (https://iedb.org/) and CEDAR (cedar.iedb.org) databases and another on using powerful prediction and analysis tools, including both the classic Analysis Resource (http://tools.iedb.org/main/) and the cutting-edge Next-Generation Tools (https://nextgen-tools.iedb.org/). The course will feature live demonstrations to guide attendees through real-world applications of these resources, empowering them to integrate epitope data and predictive modeling into their own research workflows.

SC5: Safety & Efficacy of Bispecifics and ADCs

Instructor:

Rakesh Dixit, PhD, DABT, CEO & President, Bionavigen Oncology, LLC; CSO, TMAB Therapeutics, Regio Biosciences

Bispecific immunotherapies and ADCs are the two most rapidly advancing therapeutics in the war against cancer. However, efficacy and safety challenges limit their therapeutic effectiveness in resistant and refractory cancers. The short course will discuss five rights of the targets, effector arms, and constructs for attaining the best therapeutic index for bispecifics and ADCs. Special focus will be on attaining the best efficacy with minimal toxicities.

TUESDAY, MAY 12 6:30-9:00 PM

SC6: Developability of Bispecific Antibodies

Instructor:

Nimish Gera, PhD, Independent Consultant

Bispecific antibodies are a rapidly growing and clinically validated class of antibodies with marketed drugs and multiple candidates in clinical trials. Targeting multiple antigens in a synergistic manner can confer enhanced therapeutic benefit and potentially uncover novel biological mechanisms. However, multiple formats and a tedious candidate selection process to select functional and developable bispecific antibodies makes such programs cumbersome. This short course highlights the rapid growth in the field, therapeutic applications, and focuses on challenges with discovery and development of bispecific antibodies. We will use an approved bispecific antibody as a case study to understand the varied aspects of discovery and development of bispecific antibody programs.

SC7: Targeting the Target: Aligning Target and Biologic Format Biology to Achieve Desired Outcomes

Instructor:

Tariq Ghayur, PhD, Tariq Ghayur Consulting, LLC; Entrepreneur in Residence, FairJourney Biologics

Receptor–ligand interactions have co-evolved to maintain specificity of downstream signaling. However, biologics are not natural ligands and, therefore, different biologics to the same target (receptor or ligand) can have distinct outcomes. Recent advances in various high-throughput analytical technologies, biologic-based therapeutic formats, and our understanding of disease heterogeneity are & will challenge us to “re-evaluate” our discovery and development paradigm(s). In this course we will explore, with examples, potential avenues on how to apply these new technologies/understanding to select “better” lead candidates to achieve “better” desired outcomes.

SHORT COURSES

IN-PERSON ONLY

Separate registration required.

SC8: The Dark Proteome: Unlocking Novel Targets for Next-Generation Biologics

Instructor:

Sudhakaran Prabakaran, Co-Founder & CEO, NonExomics

The dark proteome—comprising over 250,000 novel proteins from noncoding regions—represents an untapped frontier for therapeutic discovery. This course provides protein engineers and drug developers frameworks to identify and exploit dark antigens: cryptic, noncanonical, and post-translationally modified epitopes that enable novel-binding interfaces. Participants will learn AI-driven discovery methods, target validation strategies, and design principles for engineering biologics against hidden epitopes, with applications across oncology, infectious disease, and autoimmunity.

SC9: Automation in Action: Hands-on, Liquid Handling for Protein & Antibody Engineering

Instructors:

Curtis Walton, PhD, Director of Automation and Process Optimization, Institute for Protein Innovation

Eloy Salinas, Senior Lab Automation Engineer, Institute for Protein Innovation

This short course introduces the principles, techniques, and key considerations of automated liquid handling. Participants will learn how to develop and optimize an automated assay through an interactive experience and live demonstration. The course is offered by experts from the Institute for Protein Innovation (IPI), a leader in applying cutting-edge automation to advance protein science. Participants are encouraged but not required to attend Friday off-site hands-on session.
Please note: *A laptop is required to participate

SC10: Best Practices and Advanced Applications for Label-Free Interaction Analysis in Therapeutic Antibody Discovery

Instructor:

Yasmina Abdiche, PhD, Senior Vice President, Exploratory Research, OmniAb Inc.

This short course will provide simple guidelines for best practices of interaction analysis using commonly-used commercial label–free biosensors in the characterisation of therapeutic antibodies. We will focus mainly on the use of surface plasmon resonance (SPR) and biolayer interferometry (BLI). First, we will address best practices for generating high-quality binding kinetic and affinity data. Then we will do a deep dive into epitope binning. A basic knowledge of interaction analysis is assumed, but “all-comers” should find this course helpful. We will review several case studies together to reinforce these concepts.

“Of all the major biomedical research meetings I have been to, I have to say that PEGS is still my favorite. I am biased since I love to get into the weeds of all things within protein and cell engineering.”

Mahiuddin A., PhD, President and CSO, VITRUVIAE

Training SEMINARS

Training Seminars Will Be Held In Person Only

To ensure a cohesive and focused learning environment, moving between conference sessions and the training seminars is not allowed

MONDAY, MAY 11, 2026 8:30 AM - 6:00 PM
TUESDAY, MAY 12, 2026 8:30 AM - 12:45 PM

TS3A: Introduction to Multispecific Antibodies: History, Engineering, and Applications

Instructor:

G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company

Introduction to Multispecific Antibodies is an informative and practical guide to getting up to speed on critical aspects of multispecific antibody therapeutics. Topics will include historical successes, failures, and lessons learned. Specific practical instruction will span mechanisms of action, engineering, developability, regulatory considerations, and translational guidelines. Perspectives on ideal implementation of multispecifics as targeted and immunomodulatory approaches will be discussed.

TS7A: Introduction to Immunogenicity

Instructors:

Chloé Ackaert, PhD, Senior Scientist, Immunogenicity, IQVIA Laboratories

Timothy Hickling, PhD, Consultant, Quasor Ltd.

Sofie Pattyn, Founder & CTO, IQVIA Laboratories

This 1.5-day training seminar provides a practical, comprehensive overview of immunogenicity—the causes, how to assess, predict, and prevent, and what to do if you observe immunogenicity during preclinical, clinical, and post-market approval. The seminar begins by detailing the science behind immunogenicity, the latest international guidance, followed by assay and bioanalytical assessment strategies for traditional and emerging biologics. Other topics include predictive models, the role of AI/ML, and reporting immunogenicity.

TS9A: Introduction to Machine Learning for Biologics Design

Instructors:

Francis Gaudreault, PhD, Associate Research Officer, Human Health Therapeutics, National Research Council Canada

Wanlei Wei, PhD, Research Officer, Computer-Aided Drug Discovery, National Research Council Canada

This course offers an introduction to concepts, strategies, and machine learning methods used for biologics design. It includes presentations and demonstrations of the methods used in the field, covering techniques such as triaging sequences, modulating affinity, and designing antibody libraries, along with increasing manufacturability. The course is directed at scientists new to the field and protein engineers wanting an introduction to how machine learning can aid in guiding biologics design.

TS10A: Introduction to Protein Engineering

Instructor:

David Bramhill, PhD, Founder, Bramhill Biological Consulting LLC

This course presents a comprehensive tutorial in the concepts, strategies, and latest tools of protein engineering applied to biotherapeutic research and development, particularly antibody-related products. The class is for scientists new to industry or working in support roles, academics, and protein scientists wanting a detailed update on the current state of the field.

TS11A: Antibody Drug Discovery: From Target to Lead

Instructor:

Zhiqiang An, PhD, Professor, Robert A. Welch Distinguished University Chair in Chemistry; Director, Texas Therapeutics Institute; Director, CPRIT Core for Antibody Drug Discovery; Vice President, Drug Discovery, University of Texas Health Science Center at Houston

Over 200 antibody-based therapies were approved for treating almost all major human diseases. Drug modalities include, but are not limited to, mAbs, bispecifics, ADCs, CAR-Ts, antibody-protein fusions, and fragments. Half of the top 20 bestselling prescription medicines in 2024 are antibodies. More than 50% of the new drugs in clinical development are antibody-based. This course will comprehensively review state-of-the-art concepts, methodologies, and therapeutic antibody discovery and development trends.

TUESDAY, MAY 12, 2026 2:20 PM - 6:10 PM
WEDNESDAY, MAY 13, 2026 10:00 AM - 6:20 PM

TS9B: AI-Driven Design of Biologics: A Hands-On Guide to Using State-of-the-Art ML Protein Models

Instructor:

David P. Nannemann, PhD, Vice President, Rosetta Commons Foundation

Since 2021, artificial intelligence models have revolutionized AI-driven biologics development, enabling breakthroughs in structure prediction, sequence design, and protein engineering. This course equips researchers and professionals with the expertise to leverage cutting-edge tools for structure prediction (AlphaFold, ImmuneBuilder), protein engineering with protein language models (ESM, AntiBERTy) and structure-based design (ProteinMPNN and RFDiffusion). Through a blend of lectures and hands-on exercises, participants will learn best practices for tool selection, method optimization, and design selection. By exploring real-world applications and emerging techniques, such as BindCraft and RFAntibody, attendees will gain a practical understanding of performance capabilities, limitations, and effective workflows.

TS10B: Introduction to Antibody-Drug Conjugate Design: Targets, Payloads, and Linkers

Instructors:

Robert J. Lutz, PhD, CDO, Synthis Therapeutics

Nathan L. Tumey, PhD, Associate Professor, Pharmaceutical Sciences, SUNY Binghamton

In this training seminar, your instructors will take you on a journey through the history of ADC technology, the current status of the ADC field, and the most promising up-and-coming technologies that will shape the ADCs of tomorrow. We will place particular emphasis on design principles that can be applied to next generation ADC programs, whether in oncology applications or in a myriad of other therapeutic applications. We will introduce various assay strategies, experimental approaches, and technical insights that will enable participants to have both a practical and a theoretical understanding of the inner-workings of a successful ADC program. Your instructors are seasoned ADC experts that have been involved in numerous ADC programs in academia, in big pharma, and in biotechnology companies.

TS11B: Introduction to Peptide Therapeutics

Instructor:

Sepideh Afshar, PhD, Senior Director, Head of Peptide Therapeutics, Genentech Inc.

This course provides a comprehensive introduction to the rapidly expanding field of peptide-based therapeutics. Students will explore how peptides are designed, synthesized, modified, and developed into clinically relevant drugs. Through an integrated blend of scientific concepts and real-world applications, learners will gain a foundational understanding of peptide structure–function relationships, drug delivery challenges, formulation strategies, and the regulatory landscape shaping modern peptide medicines

THURSDAY, MAY 14, 2026 8:30 AM - 5:40 PM
FRIDAY, MAY 15, 2026 8:30 AM - 12:15 PM

TS7C: Bioassay Development and Analysis

Instructor:

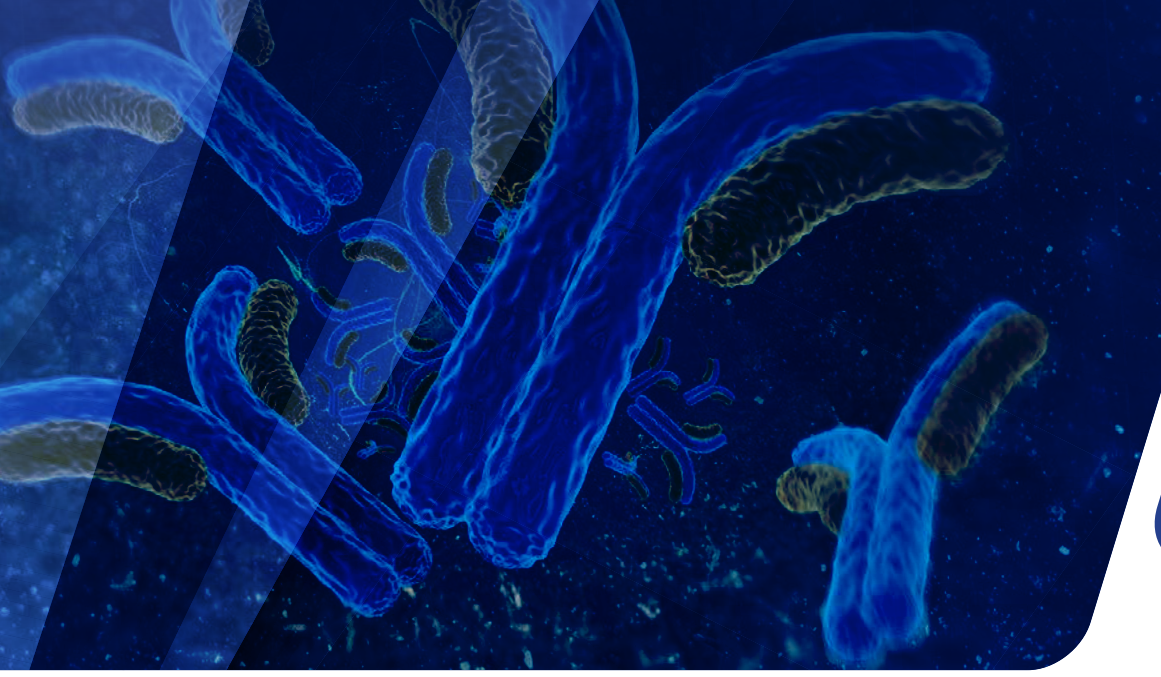
Steven Walfish, Principal CMC Statistician, Iovance Biotherapeutics

This course will focus on factors to be considered in the design, development, and validation of bioassays. The course introduces terminology and important statistical tools and best practices. Examples and case studies will be provided to help solidify understanding on the topics of design and development, robustness, validation, and post-validation. Relevant pharmacopeial and EUA regulations will be highlighted.

ENGINEERING STREAM

Engineering Novel Biologics with Precision Targeting

The Engineering Stream at the PEGS Boston Summit brings together leaders in protein and antibody engineering to highlight novel discovery platforms and their applications, enabling precision targeting and conditional activation, and approaches combining experimental with *in silico* methods. Be informed of the latest trends and technologies to gain insights into strategies to improve the function and targeting of antibodies.



ENGINEERING STREAM CONFERENCES

MAY 11-12

Display of Biologics

AGENDA

MAY 12-13

Engineering Antibodies

AGENDA

MAY 14-15

Machine Learning for Protein Engineering

AGENDA

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC3: AI-Driven Predictive Preclinical Models: Rethinking the Role of Animal Testing

*Separate registration required. See short course page for details.

MONDAY, MAY 11

7:00 am Registration and Morning Coffee

8:20 Organizer's Opening Remarks

NEW TECHNOLOGIES

8:25 Chairperson's Remarks

Andrew R.M. Bradbury, MD, PhD, CSO, Specifica, an IQVIA business

8:30 KEYNOTE PRESENTATION: History of Checkpoint Blockade Therapy for Cancer

Nils Lonberg, PhD, CEO, Tripeaks Therapeutics; Executive in Residence, Canaan Partners

The recent emergence of immunotherapy as a new pillar of cancer treatment is largely due to the success of immune-checkpoint blockade drugs, which block receptors such as CTLA4 and PD1, and ligands, such as PDL1, involved in pathways that attenuate T cell activation. Improvement over the first generation of these drugs was frustratingly slow over the last decade; however, exciting new drugs and combinations are now beginning to appear.

9:00 New Insights into Antibody-Mediated Immunity

Arturo Casadevall, PhD, Professor & Chair, Molecular Microbiology & Immunology, Johns Hopkins University

Antibodies have now been shown to modulate microbial function and to digest microbial antigens through catalytic activity. These findings suggest new ways to harness antibody-mediated immunity in the design of therapeutic immunoglobulins and protective vaccines.

9:30 Venom on Demand: Optimizing Snake-Toxin Yield, Folding, and Purity in *E. coli* and *P. pastoris* with Biotinylation, Solubility, and Purification Tags

Esperanza Rivera de Torre, PhD, Assistant Professor, Center for Antibody Technologies, Department of Bioengineering, Technical University of Denmark

Animal venoms contain a plethora of biologically active toxins that have the potential to revolutionize antivenom development. However, producing functional toxins with the correct disulfide pattern is challenging. Our approach to engineering co-chaperone systems in *Escherichia coli* and leveraging *Pichia pastoris*'s secretory capacity to produce natural and designed toxins. Our optimized strategies allow efficient toxin folding and purification, enabling downstream biotechnological applications, such as directed biotinylation for phage display.

10:00 Presentation to be Announced

Alloy Therapeutics

10:30 Networking Coffee Break

11:00 KEYNOTE PRESENTATION: Fifty Years of Monoclonals: From Hybridomas to Next-Generation Antibody Therapeutics

Paul J. Carter, PhD, Genentech Fellow, Antibody Engineering, Genentech

The invention of hybridoma technology by Köhler and Milstein in 1975 ultimately led to over 200 antibody therapeutics, bringing benefit to millions of patients. This keynote will trace the remarkable rise of antibody therapeutics including bispecifics, antibody-drug conjugates, and CAR T cells. Future progress with antibody therapeutics will surely be accelerated by artificial intelligence, including multi-parameter optimization.

11:30 A Universal Monoallelic Human Leukocyte Antigen Class II Immunopeptidomic Platform for Defining Therapeutic Protein Immunogenicity Potential

Robert Siegel, PhD, Vice President, Laboratory for Experimental Medicine, Eli Lilly and Company

Defining the exact sequences presented by HLA Class II molecules is essential for understanding immunogenicity potential of biotherapeutics. HLA heterozygosity complicates connecting the sequences associated with alleles and percentage of patients with potential anti-drug responses. This presentation will describe a diverse, robust, and reproducible monoallelic HLA-DRB1 system in professional antigen-presenting cells capable of examining the immunogenic potential of any human IgG. A case study with adalimumab will be discussed.

12:00 pm Session Break

12:10 Luncheon Presentation to be Announced

Ailux

12:40 LUNCHEON PRESENTATION: How a 'Switchable' Yeast, Antibody Libraries, and Laboratory Robotics Enable 4-Week Hit Discovery

neochromosome

Steven Thomas, Director, Business Development, Neochromosome

Developed by the team behind Sc2.0's synthetic yeast genome, neoSwitch is a yeast strain that flips between surface display and secretion with a simple media change—eliminating antibody reformatting and host switching. Neo offers high-diversity naïve VHH and scFv libraries (>10^9) for rapid, first-pass discovery, and we routinely design, build, and transform custom libraries for partners. Paired with the Opentrons Flex, neoSwitch enables turnkey, automatable workflows—including protein purification—to accelerate hit-to-lead.

1:10 Session Break

NAVIGATING EPISTASIS IN PROTEIN ENGINEERING

1:15 Chairperson's Remarks

K. Dane Wittrup, PhD, C.P. Dubbs Professor, Chemical Engineering & Bioengineering, Massachusetts Institute of Technology

1:20 Advancements in Machine Learning-Assisted Protein Fitness Optimization

Jason Yang, PhD Candidate, Chemical Engineering, California Institute of Technology

Here, I present frameworks for iterative, ML-assisted protein optimization: Active Learning-assisted Directed Evolution (ALDE) and Steered Generation for Protein Optimization (SGPO). Besides showing strong *in silico* performance, three rounds of wet-lab experimentation with ALDE enabled rapid optimization of five epistatic residues in the active site of an enzyme, yielding an ideal variant with a non-obvious (non-additive) combination of mutants.

1:50 The Cause and Consequence of Epistasis in Protein Evolution

Nobuhiko Tokuriki, PhD, Professor, Michael Smith Laboratories, University of British Columbia

I will discuss key molecular properties that can be associated with evolvability of proteins, the ability of proteins to promptly evolve a new function. Especially, I will discuss the causes and consequences of mutational epistasis, interactions between mutational effects that affect the pathways and outcomes of evolution.

2:20 AI-Generated Protein-Function Prediction with Therapeutic Applications

Lucy J. Colwell, PhD, Research Scientist, Google UK Ltd.

2:50 Presentation to be Announced

ABLEXIS
AlivaMab BIOLOGICS

3:20 Networking Coffee & Refreshment Break

4:05 Transition to Plenary Keynote Session

PLENARY KEYNOTE

4:15 Plenary Keynote Introduction
Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

4:25 CARs 2026: New Models and New Runways
Michel Sadelain, MD, PhD, Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

T cell engineering holds great promise for the treatment of cancers and other pathologies. The original chimeric antigen receptor (CAR) prototypes targeting CD19 are now giving way to further refined receptors endowed with greater sensitivity and combinatorial possibilities. Emerging new targets and engineering tools augur favorably for broadening the use of CAR therapies.

YOUNG SCIENTIST KEYNOTE

5:10 Deep Learning-Based Binder Design to Probe Biology
Martin Pacesa, PhD, Assistant Professor, Pharmacology, University of Zurich

Protein-protein interactions are central to biology and drug discovery, yet traditional antibody generation is slow and costly. BindCraft is an open-source, automated computational pipeline for *de novo* protein binder design that routinely yields nanomolar binders with 10-100% experimental success, without high-throughput screening or maturation. We illustrate applications to peptides, cell-surface receptors, allergens, and gene editors, and outline how deep-learning workflows can accelerate next-generation therapeutics, diagnostics, and bioprocessing.

5:55 Welcome Reception in the Exhibit Hall with Poster Viewing

7:15 Close of Day

TUESDAY, MAY 12

7:45 am Registration and Morning Coffee

ENGINEERING FOR RADIOPHARM AND CHEMOTHERAPY

8:30 Chairperson's Remarks
Jennifer R. Cochran, PhD, Senior Associate Vice Provost for Research and Macovski Professor of Bioengineering, Stanford University

8:35 Engineering Cyclotides as Orally Bioavailable Inflammatory Cytokine Antagonists
K. Dane Wittrup, PhD, C.P. Dubbs Professor, Chemical Engineering & Bioengineering, Massachusetts Institute of Technology

The first naturally occurring cyclotide, a circularized disulfide-rich protein, was discovered as the active ingredient of a folk medicine brewed as a tea. These small cyclic proteins exhibit remarkable oral bioavailability. Combining this property with antibody-like recognition of arbitrary targets would enable new oral therapeutic modalities for interrupting inflammatory cytokine cascades. We will present our progress in designing pre-immune cyclotide repertoires, minimizing polyspecificity, and accelerating lead optimization.

9:05 Radiolabeled Camelids against FAP Discovered with Immunization and Phage Display
Sam Massa, PhD, Head, Protein R&D and CMC, Precirix

9:35 Discovery and Development of ECM-Specific Nanobodies for Targeted Radioligand Therapy
Noor Jailkhani, PhD, CEO & Co-Founder, Matrisome Bio

We are targeting the disease-associated extracellular matrix or ECM within tumors and metastases, which offers a compelling new therapeutic avenue. This talk will highlight the discovery of high-affinity nanobodies (via phage-display) against ECM proteins and their subsequent engineering as radioisotope carriers, enabling the precise delivery of highly differentiated radioligand therapies.

10:05 Sponsored Presentation *(Opportunity Available)*

10:35 Coffee Break in the Exhibit Hall with Poster Viewing

EVERYTHING BUT VANILLA IgGs: AN OVERVIEW OF THE RISING THERAPEUTIC POTENTIAL OF PEPTIDES AND VHH

11:14 Chairperson's Remarks
Maria Groves, PhD, Senior Director, AstraZeneca

11:15 From Libraries to Leads: Expanding the Biologics Horizon with *de novo* Peptide Discovery
Thomas Murray, PhD, Director, Biologics Engineering, AstraZeneca

11:45 Anti-Von Willebrand Factor NANOBODY Compound Cablivi Story from Conception to Commercialization
Beneditke Serruys, PhD, Global Head Biologics Innovation, Large Molecule Research Platform, Sanofi

Caplacizumab, a revolutionary anti-von Willebrand Factor NANOBODY compound, emerged from two decades of innovation at Sanofi. This presentation chronicles the complete development journey from llama immunization in 2003, through major regulatory approvals, starting with EMA (2018) and FDA (2019). The HERCULES pivotal trial demonstrated significant clinical benefits in aTTP patients. As the first approved NANOBODY therapeutic, caplacizumab has established a new treatment paradigm for this rare blood disorder.

12:15 pm From Target to Therapeutic: Cryo-EM as a Catalyst for Antibody Development
Christopher Arthur, CSO, Structural Biology, FairJourney Biologics SA

12:45 Session Break

12:50 LUNCHEON PRESENTATION: CDR-Scanning for Antibody Engineering and Species Cross-Reactivity
Ross Chambers, Vice President, Antibody Discovery, Integral Molecular

We developed CDR-scanning, a high-throughput method that mutates each antibody CDR residue to all 19 other amino acids. Variant analysis generates a dataset that guides engineering to improve binding, developability, and other properties. Testing against orthologs enables engineering of cross-species reactivity, facilitating preclinical evaluation. CDR-scanning also strengthens antibody genus patent claims by supporting enablement and written description. The resulting datasets can train AI/ML models to improve antibody performance and design.

1:20 Luncheon Presentation to be Announced

1:50 Close of Display of Biologics Conference

6:30 Recommended Dinner Short Course

SC7: Targeting the Target: Aligning Target and Biologic Format Biology to Achieve Desired Outcomes
*Separate registration required. See short course page for details.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Prediction

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

PROGRESS IN ADVANCING SMALL PROTEIN SCAFFOLDS

2:25 Chairperson's Remarks

Christopher M. Koth, PhD, Vice Presidnet, Biotherapeutics, Discovery Sciences, Denali Therapeutics Inc.

2:30 Lessons Learned from Comprehensive Biophysical Profiling of Clinical Stage Single Domain Antibodies

Gilad Kaplan, PhD, Director, Protein Analytics & Developability, Biologics Engineering, AstraZeneca

Single-domain antibodies (sdAbs) are compact, stable, single-chain biologics increasingly used in diagnostics, radio-immunoconjugates, and multispecifics. As a newer therapeutic format, the developability rules for sdAb containing Biologics are still emerging. We share lessons from the comprehensive biophysical profiling of >30 clinical-stage sdAbs in the VHH-Fc and VHH formats, spanning developability and manufacturability metrics, alongside preliminary *in vivo* PK results.

3:00 Language Model Aided DARPin Maturation toward Hostile Biological Environment

Zhilei Chen, PhD, Professor, Medicinal Protein Lab, Texas A&M University

Enteric diseases are common human ailments. However, conventional biologics are not suited for enteric applications due to their susceptibility to degradation in the protease-rich hostile environment of the GI tract. Using click display, which directly links the protein library to the coding cDNA, and a language model to access "naturalness," we report the engineering of protein-stable DARPins for potent neutralization of *C. difficile* toxin TcdB as oral therapeutic candidates.

3:30 Next-Generation Bispecific Antibody Manufacturing Based on an Innovative Modular Toolbox

Stefan Schmidt, CEO, evitria AG

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

ENGINEERING DELIVERY TO THE BRAIN

4:40 Next-Generation Antibody Shuttles for CNS Protein and Nucleic Acid Delivery

Peter M. Tessier, PhD, Albert M. Mattocks Professor, Pharmaceutical Sciences & Chemical Engineering, University of Michigan

The modest ability of antibodies to penetrate the blood-brain barrier severely limits their use in therapeutic applications. We are developing antibody shuttles that target CNS proteins to mediate enhanced and selective CNS targeting and, in some cases, long-lived CNS retention. Here we will discuss our recent progress in engineering next-generation transferrin receptor and CD98hc-targeted CNS shuttles, as well as their application for delivering proteins and nucleic acids for therapeutic applications.

5:10 Identification of Variable Lymphocyte Receptors That Target the Blood-Brain Barrier

Eric V. Shusta, PhD, Howard Curler Distinguished Professor, Chemical & Biological Engineering, University of Wisconsin, Madison

The blood-brain barrier presents a major obstacle to brain drug delivery. We have developed an enabling platform for the identification of blood-brain barrier targeting antibody-like molecules known as Variable Lymphocyte Receptors (VLRs). These VLRs could ultimately be used to ferry drug cargo into the brain. Here we will describe our recent efforts to identify and validate such blood-brain barrier targeting VLRs.

5:40 Mechanisms Underlying Enhanced Brain Exposure by Dual-Targeting the Transferrin Receptor and CD98hc

Christopher M. Koth, PhD, Vice Presidnet, Biotherapeutics, Discovery Sciences, Denali Therapeutics Inc.

Targeting blood–brain barrier receptors enables brain delivery of biologics. We engineered an Fc-based dual transport vehicle (TV) that targets transferrin receptor (TfR) and CD98hc, combining rapid TfR-driven uptake with CD98hc-mediated retention. Dual TVs achieve higher brain concentrations than single-receptor formats. Adjusting TfR/CD98hc affinities tunes exposure kinetics and biodistribution. A mechanistic model links architectural designs to brain PK, guiding optimization of brain-penetrant biologics.

6:10 Close of Day

6:30 Recommended Dinner Short Course

SC7: Targeting the Target: Aligning Target and Biologic Format Biology to Achieve Desired Outcomes

*Separate registration required. See short course page for details.

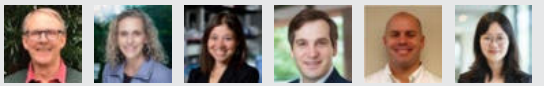
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:

Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology

Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University

Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School

Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder

Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

PANEL DISCUSSION

10:05 PANEL DISCUSSION: Near-Term Challenges for ML/AI in Biotherapeutic R&D

Moderator: Peter M. Tessier, PhD, Albert M. Mattocks Professor, Pharmaceutical Sciences & Chemical Engineering, University of Michigan

This panel will examine the state of AI and machine learning in biologics R&D, focusing on the data foundations needed for trustworthy models, the technology's ability to tackle complex targets, and the limits of current predictive power. Our group will explore practical design strategies, evaluate zero-shot versus iterative workflows, and highlight where AI already delivers value—and where future advances such as accurate immunogenicity prediction may emerge.

Panelists:
Andrew Buchanan, PhD, FRSC, Principal Scientist, Biologics Engineering, Oncology, AstraZeneca
Norbert Furtmann, PhD, Head of AI Innovation, Large Molecules Research, Sanofi
Konrad S. Krawczyk, PhD, Founder & CSO, NaturalAntibody SA
Andrew C.R. Martin, DPhil, Emeritus Professor of Bioinformatics and Computational Biology, University College London
Melody Shahsavarian, PhD, Director, Data Strategy & Digital Transformation, Biotherapeutics Discovery Research, Eli Lilly & Company
Bernhardt L.Trout, PhD, Professor, Chemical Engineering, Massachusetts Institute of Technology

11:05 Presentation to be Announced BIOINTRON

11:35 Session Break

11:40 Luncheon Presentation to be Announced Antibody Solutions

12:10 pm Luncheon Presentation to be Announced IQVIA LABORATORIES

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

MACHINE-LEARNING USE CASES IN PROTEIN ENGINEERING

1:35 Chairperson's Remarks

Gilad Kaplan, PhD, Director, Protein Analytics & Developability, Biologics Engineering, AstraZeneca

1:40 PROPERMAB: An Integrative Framework for *in silico* Prediction of Antibody Developability Using Machine Learning

Bian Li, PhD, Senior Scientist, Molecular Profiling and Data Science, Regeneron

Accurately predicting developability characteristics is a pivotal yet challenging task in antibody therapeutic development. To overcome the limitations of small training datasets, we designed and implemented an integrative antibody feature engineering and machine learning framework called PROPERMAB. Using this framework, we developed predictive models for antibody hydrophobic interaction chromatography retention time and high-concentration viscosity. We also demonstrate the potential to scale our approach to repertoire-scale sequence datasets.

2:10 Leveraging Experimental Affinity Data to Train AI for High-Affinity Antibody Design

Yejin Kim, PhD, Associate Professor, Department of Health Data Science and Artificial Intelligence, University of Texas Health Science Center at Houston

Experimental affinity data provide valuable guidance for AI-driven antibody design. We introduce an AI model that integrates structural context with experimentally measured affinities to guide sequence generation. Our model improves predicted binding affinity compared to a general protein language model in *in silico* validation, and ongoing experimental studies are revealing important insights into the interplay between affinity optimization and antibody developability.

2:40 KEYNOTE PRESENTATION: Unbiased Deep Screening of Antibody-Antigen Interactions

Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder

Massive, quantitative datasets on sequence-binding potency are necessary for training AI to learn antibody-antigen molecular recognition. My group has developed quantitative cDNA and yeast display platforms for evaluating antibody-antigen interactions at scale. In unpublished work, we use yeast-based MAGMA-seq (Petersen et al, NCOMMS 2024; Kirby et al PNAS 2025) to identify antigen sequences recognized by the germline-encoded human antibody repertoire. I'll also describe a new cDNA-based library on library assay.

3:10 Presentation to be Announced Ailux

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

CHALLENGING TARGETS AND PATHWAYS

4:20 Engineering Cytokine Agonists for Therapeutic Applications

Shion Lim, PhD, Principal Scientist & Group Leader, Genentech

Cytokines are vital for anti-tumor immunity but face several limitations as therapeutic molecules, including pleiotropic activity, poor stability and half-life, and dose-limiting toxicity. Different engineering approaches to modify the cytokine or turning to alternative formats such as antibody mimetics exist to address these limitations. In this talk, we describe engineering approaches undertaken to develop cytokine Fc fusion and mimetics for IL-27 agonism.

4:50 Unlocking Intractable Targets: A Cutting-Edge Platform for Advanced Antibody Discovery

Jie Zhou, PhD, Assistant Professor, Radiation and Cellular Oncology, Chemistry, University of Chicago

Antibody developability is difficult to ensure using traditional phage or yeast display platforms, which often yield binders with poor biophysical properties compared with those generated by animal immunization. To overcome this, we developed a mammalian selection platform based on pseudotyped lentiviral display that enables direct on-cell selection of antibodies in their native folding and secretion environment. This approach generates antibodies with markedly improved developability and accelerates discovery against challenging targets.

5:20 *De novo* Design of a Peptide Modulator to Reverse Sodium Channel Dysfunction Linked to Cardiac Arrhythmias and Epilepsy

Manu Ben-Johny, PhD, Assistant Professor, Physiology and Cellular Biophysics, Colombia. University

Voltage-gated sodium channels initiate action potentials in neurons and muscle. Dysfunction of these channels leads to sustained sodium influx that underlies various human diseases, including cardiac arrhythmias and epilepsy. We used *de novo* protein design to engineer a peptide modulator that restores the proper function of these ion channels. These studies demonstrate the therapeutic potential of rationally designed biologic agents for correcting ion-channel dysfunction across cardiac and neurological disease settings.

INNOVATION SHOWCASE

5:50 Sponsored Presentation *(Opportunity Available)*

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Engineering Antibodies Conference

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Remarks

USE OF AI IN COMPLEX MODALITIES: MULTISPECIFICS AND NOVEL SCAFFOLDS

8:45 Chairperson's Remarks

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

8:50 Towards Multispecifics by Design: Large-Scale Data Generation Enabling AI-Based Multispecific Design

Norbert Furtmann, PhD, Head of AI Innovation, Large Molecules Research, Sanofi

The design of multispecific protein therapeutics presents unique challenges that remain largely unaddressed by current computational approaches. We discuss critical data gaps in this field and present strategic approaches for generating fit-for-purpose datasets specifically tailored for multispecifics. Through practical examples and case studies, we demonstrate how targeted computational and machine-learning strategies can support the optimization of next-generation multispecific therapeutics.

9:20 Accurate Protein-Binder Design Using BindCraft

Lennart Nickel, Graduate Student, Biotechnology & Bioengineering, École Polytechnique Fédérale de Lausanne

Protein-protein interactions are fundamental to biology but remain difficult to design due to their structural complexity. We introduce BindCraft, an open-source platform for *de novo* protein-binder design that achieves high-affinity binding without experimental optimization or prior binding information. BindCraft enables the generation of functional binders for diverse targets including receptors, allergens, and nucleases, advancing a "one design one binder" paradigm with broad potential in therapeutics, diagnostics, and biotechnology.

9:50 Designing Biochemical Function with Generative AI

Rohith Krishna, PhD, Postdoctoral Fellow, Computational Biology & Machine Learning, University of Washington

Deep learning has accelerated protein design, but most existing methods are restricted to generating protein backbone coordinates and often neglect interactions with other biomolecules. I will present the next generation of protein design methods that include side-chain coordinates for design of more complex biomolecular function. Finally, I will show a series of applications of these algorithms to design of experimentally characterized functional proteins.

10:20 Presentation to be Announced MindWalk

10:35 Presentation to be Announced Immuto Scientific

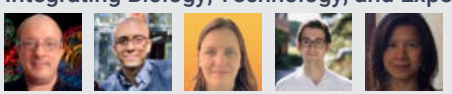
10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience



Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:

- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca

Joshua Meier, Co-Founder & CEO, Chai Discovery

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

DEVELOPABILITY AT-SCALE

2:05 Chairperson's Remarks

M. Frank Erasmus, PhD, Head, Bioinformatics, Specifica, an IQVIA business

2:10 Predicting Biophysical and Developability Properties

Paolo Marcatili, PhD, Head, Antibody Design, Novo Nordisk

2:40 Application of AI to Developability Screening, a Skeptic's View

Andrew C.R. Martin, DPhil, Emeritus Professor of Bioinformatics and Computational Biology, University College London

AI has been used in bioinformatics since the early 1990s, but recent advances, driven by approaches such as protein-language and generative models, have revolutionized many areas of life. There have been several publications that use such approaches for *ab initio* antibody design, but I for one remain skeptical. Nonetheless, there are clear applications for modern AI techniques around antibody developability, and improving candidate antibody-based drugs.

3:10 TherAbDesign: Bridging AI and Biophysics for Antibody Developability Optimization

Amy Wang, PhD, Structural & Computational Biologist, Prescient Design, Genentech

Antibodies are promising protein therapeutics, but successful development requires meeting strict developability criteria. We present TherAbDesign, a machine-learning method that evaluates and optimizes antibodies based on sequence alone, proposing modifications that mimic the biophysical properties of successful therapeutics. This approach circumvents computationally expensive structure prediction and physics-based calculations. We show that this method improves known developability liabilities, such as viscosity, without explicitly modeling their mechanism of action.

3:40 Sponsored Presentation *(Opportunity Available)*

4:10 Networking Refreshment Break

INNOVATION SHOWCASE

4:40 INNOVATION SHOWCASE Presentation to be Announced

IMMUNESPEC

DEVELOPABILITY AT-SCALE *(CONT.)*

4:45 Sponsored Presentation *(Opportunity Available)*

5:10 Benchmarking Language Models for Antibody and Nanobody Tasks

Koji Tsuda, PhD, Professor, Computational Biology & Medical Sciences, University of Tokyo

Recent advances in protein language models (PLMs) have demonstrated strong performance on structure and function prediction. To evaluate their performance in nanobody-related tasks, we developed a comprehensive benchmark suite, NbBench. Benchmarking of eleven models revealed that antibody language models excel in antigen-related tasks, while thermostability and affinity-related talks remain challenging across all models. We further discuss how PLMs and their benchmarks could impact on antibody research.

5:40 PANEL DISCUSSION: Are *In Silico* Tools Truly Reducing Clinical Failure and Accelerating Development?

Moderator: M. Frank Erasmus, PhD, Head, Bioinformatics, Specifica, an IQVIA business

- Validity of Proxies
- Manufacturing vs. Efficacy
- Generative Bias:
- The Negative Data Gap
- False Positives
- The MHC Limitation
- Predicting Tolerance

Panelists:
Hunter Elliott, PhD, Senior Director, Machine Learning, BigHat Biosciences
Sandeep Kumar, PhD, Distinguished Research Fellow, Computational Biochemistry and Bioinformatics, Boehringer Ingelheim Pharmaceuticals
Paolo Marcatili, PhD, Head, Antibody Design, Novo Nordisk
Morten Nielsen, PhD, Professor, Department of Health Technology, Technical University of Denmark
Ian Wilkinson, PhD, Co-Founder & CSO, mAbsolve Ltd.

5:40 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

INTERACTIVE ROUNDTABLE DISCUSSIONS

7:30 Interactive Roundtable Discussions with Continental Breakfast

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

LAB-IN-THE-LOOP

8:25 Chairperson's Remarks

Victor Greiff, PhD, Associate Professor, University of Oslo; Director, Computational Immunology, IMPRINT

8:30 Better Antibodies Engineered with a GLIMPSE of Human Data

Lance Hepler, PhD, Co-Founder, R&D, Infinimmune Inc.

Infinimmune presents GLIMPSE, an antibody language model trained on proprietary human data that achieves state-of-the-art performance. We used GLIMPSE within our lab-in-a-loop platform to engineer an anti-IL-13 antibody, enhancing its drug-like properties including potency, extended half-life, affinity, stability, and manufacturability via liability removal. This work demonstrates the practical application of language models for optimizing therapeutics while maintaining their humanness, moving beyond typical proof-of-concept studies.

9:00 Training Data Composition Determines Machine-Learning Generalization and Biological Rule Discovery

Victor Greiff, PhD, Associate Professor, University of Oslo; Director, Computational Immunology, IMPRINT

We evaluated how different negative-class definitions affect generalization and rule discovery in antibody-antigen binding using synthetic structure-based data. Models trained with negatives more similar to positives had reduced in-distribution performance but markedly better out-of-distribution generalization. Ground-truth analyses revealed that inferred binding rules shift with negative set choice, and experimental validation confirmed these findings, emphasizing dataset design for robust, biologically meaningful models.

9:30 Computational Design of Antibody Repertoires

Ariel Tennenhouse, Graduate Student, Biomolecular Sciences, Weizmann Institute of Science

We are developing a new strategy for designing repertoires of billions of structurally diverse and stable human antibodies. I will first describe two methods we developed for atomistic antibody design that enable this strategy and show that each method can optimize antibodies across a variety of criteria without prior mutational data. This shows that optimizing native-state energy is an excellent first approach for antibody optimization.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

DE NOVO BIOLOGICS DESIGN: USING AI TO CREATE BRAND-NEW ANTIBODIES AND PROTEINS FROM SCRATCH

10:44 Chairperson's Remarks

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

10:45 From Proof-of-Concept to Proof-of-Productivity and Scale

Hans M. Bitter, PhD, Head Computational Science, Data Strategy, Takeda Pharmaceutical Co. Ltd.

Proof-of-concept has been demonstrated, showing how AI methods can be used to design and optimize large molecules. We must shift our focus to scaling to maximize the productivity and innovation gains. This talk will cover a selection of PoCs and then how we are scaling digital biologics at Takeda across our portfolio.

10:55 Massively Multiplexed *in vivo* Screening of AI-Designed Proteins Enables Programmable Tissue Targeting

Pierce J. Ogden, PhD, Co-Founder & CSO, Manifold Biotechnologies Inc.

At Manifold Bio, we've built a direct-to-*vivo* platform that connects AI-driven protein design to functional data from living systems. Using this approach, we generate and evaluate thousands of designed binders to novel targets simultaneously *in vivo*. This massively multiplexed framework has yielded functional brain shuttles capable of crossing the blood–brain barrier, and we are now extending it to other tissues to enable selective delivery of diverse therapeutics.

11:05 Push-Button Biologics Design

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

We recently announced JAM-2, which can design antibodies with drug quality properties with high success rates. We'll discuss these results, and also share examples of what successful deployment on real drug discovery programs partnered with large pharma looks like. We'll discuss roadblocks and share practical lessons/ advice for how to build teams and infrastructure to ensure AI driven biologics discovery delivers real drugs not just headlines.

11:15 PANEL DISCUSSION: *De novo* Biologics Design: Using AI to Create Brand-New Antibodies and Proteins from Scratch

Moderator: Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Panelists:

Hans M. Bitter, PhD, Head Computational Science, Data Strategy, Takeda Pharmaceutical Co. Ltd.

Pierce J. Ogden, PhD, Co-Founder & CSO, Manifold Biotechnologies Inc.

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:15 pm Close of Summit

"PEGS provides a truly unique opportunity to put scientists together. Its networking power even had me run into my undergraduate research advisor for the first time since undergrad 20 years ago!"

Rob D., Technical Representative, CovalX

ONCOLOGY STREAM

Emerging Modalities and Targets Driving Precision Oncology

The Oncology Stream at the PEGS Boston Summit 2026 will present cutting-edge advances in antibody-based therapeutics and targeted cancer modalities, bringing together leaders from academia, biotech, and pharma to drive the next wave of innovation. Across three focused conferences—Antibodies for Cancer Therapy, Emerging Targets for Oncology and Beyond, and Driving Clinical Success in Antibody-Drug Conjugates—attendees will explore the latest breakthroughs in T cell engagers, bispecifics, conditional antibodies and novel scaffolds; uncover novel tumor-associated, intracellular and "undruggable" targets with the help of AI-enabled discovery platforms; and take a deep dive into the evolving ADC landscape, including dual payloads, next-generation linkers, and conjugates that integrate degraders, cytokines, and oligonucleotides. With case studies of recent clinical successes, insights into translational challenges, and showcases of innovative formats and designs, this stream offers a comprehensive view of how oncology biologics are reshaping treatment paradigms and accelerating precision medicine.

ONCOLOGY STREAM CONFERENCES

MAY 11-12

Antibodies for Cancer Therapy

AGENDA

MAY 12-13

Emerging Targets for Oncology & Beyond

AGENDA

MAY 14-15

Driving Clinical Success in Antibody-Drug Conjugates

AGENDA

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC5: Safety & Efficacy of Bispecifics and ADCs
*Separate registration required. See short course page for details.

MONDAY, MAY 11

7:00 am Registration and Morning Coffee

8:20 Organizer's Opening Remarks

COMPARING AND COMBINING TCEs, ADCs, CAR Ts AND RADIOIMMUNOTHERAPY

8:25 Chairperson's Remarks

Daniel A. Vallera, PhD, Lion Scholar; Director, Section on Molecular Cancer Therapeutics; Professor, Therapeutic Radiology, University of Minnesota Masonic Cancer Center

8:30 KEYNOTE PRESENTATION: Comparing TCEs, ADCs, and CAR T Cell Therapy: What Have We Learned So Far?

Patrick Baeuerle, PhD, Chief Scientific Advisor, Cullinan Therapeutics, Inc.

T cell-engaging antibodies (TCEs) are bispecific, antibody-based adaptor proteins that connect any kind of cytotoxic T cells with select target cells for redirected lysis. Over the last three years, TCEs have seen an unparalleled surge in approvals as a standalone therapy. A total of twelve TCEs are now approved that very effectively treat hematological as well as solid-tumor indications. I will review all learnings from the twelve approved TCEs.

9:00 Optimal Method of Targeting TRBC Alleles in T Cell Malignancies: Comparing CAR Ts and ADCs

Suman Paul, MBBS, PhD, Assistant Professor, Oncology, Johns Hopkins University

T cell cancers are often fatal. Targeting TRBC1 can kill T cell cancers while preserving sufficient healthy T cells to maintain immunity. However, the first-in-human clinical trial of anti-TRBC1 CAR T cells reported a low response rate and unexplained loss of anti-TRBC1 CAR T cells. We further show that the generation of TRBC1-targeting ADCs bypasses this limitation and may produce superior responses in patients with T cell cancers.

9:30 Radioimmunotherapy: Engineered Antibody Formats, Fusion Proteins, and Combination Therapy

Anna M. Wu, PhD, Chair and Professor, Immunology & Theranostics, Center for Theranostic Studies, City of Hope

The development of antibodies for radiopharmaceutical therapy continues apace, with recent progress in engineered antibody formats and fusion proteins adding versatility to treatment approaches. Combination therapies are likely to provide the greatest efficacy, and prospects for combining radioimmunotherapy with modalities including external beam therapy and immunotherapies will be described. Clinical examples include targeting CD25 and CD38 in hematologic malignancies and CEA in colorectal and other adenocarcinomas.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

MASKING AND CONDITIONAL ANTIBODIES—IMPROVING SPECIFICITY AND REDUCING TOXICITY

11:00 INDUCER Technology—The Next Generation of T Cell Engager Design

William Winston, PhD, Senior Vice President, Research, Werewolf Therapeutics

Challenges for TCE molecules targeting solid tumors include cytokine release syndrome and on-target/off-tumor toxicity due to systemic activity. Our INDUCER platform addresses these issues through conditional activation in the tumor microenvironment. Unlike existing prodrug TCEs, our approach uses a novel and differentiated anti-CD3 masking strategy that renders INDUCER molecules inactive systemically until regaining full function exclusively within the tumor microenvironment.

11:30 Coupling Tumor-Specific Payload Delivery with a Novel Target for Immune Engagement

John Burg, PhD, Senior Director, Protein Sciences, Pheast Therapeutics

Achieving specificity and efficacy remain key challenges in immuno-oncology. We have developed a bispecific antibody-drug conjugate (ADC), integrating a tumor targeting arm with a functional arm that enhances immune engagement by a novel mechanism. This strategy enables selective payload delivery while amplifying the immune response in the tumor microenvironment. Preclinical studies demonstrate potent *in vitro* and *in vivo* activity.

12:00 pm Session Break

12:10 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:10 Session Break

DUAL-TARGETING STRATEGY

1:15 Chairperson's Remarks

William Winston, PhD, Senior Vice President, Research, Werewolf Therapeutics

1:20 Next-Generation 4-1BB T Cell Engaging Bispecific Antibody (Grabody T) Demonstrated Clinical Activity and Safety Profile

Sang Hoon Lee, PhD, CEO & Founder, ABL Bio Inc.

Ragistomig (ABL503/TJ-L14B) is a bispecific combining PD-L1 checkpoint pathway with 4-1BB agonistic activity to overcome the current limitation of PD-(L)1 therapy and 4-1BB related toxicity. ABL503 is full length anti-PD-L1 mAb (Fc-silenced human IgG1) fused with scFv of anti-4-1BB engaging mAb. Givastomig (ABL111/TJ033721) is a bispecific designed to target tumors with CLDN18.2 expression and engage 4-1BB through a unique conditional activation mechanism at the tumor sites to avoid systemic toxicities.

1:50 Dual-Ig: A Novel Next-Generation T Cell Engager Targeting Both CD3 and CD137

Hiroaki Nagano, PhD, Pharmacology Researcher, Discovery Pharmacology, Research Division, Chugai Pharmaceutical, Co. Ltd.

TA/CD3 bispecific antibody is a potent approach in cancer treatment, but its efficacy is limited to tumors with less T cell infiltration. Dual-Ig binds to both CD3 and CD137 in the same Fab non-simultaneously, providing Signal 1 and Signal 2 to overcome this limitation while preventing off-target killing of TA-negative cells. We present the mechanism underlying this non-simultaneously binding and demonstrate advantages over conventional bispecific antibodies.

2:20 Simultaneous Targeting of Critical Immune Checkpoints and Activator by a Novel Multifunctional Fusion Protein for Cancer Therapy

Xiaodong Xiao, PhD, CEO, Jecho Laboratories, Inc.

We report a novel fusion protein, V5, for cancer immunotherapy. V5 contains an enhanced PD-1 ectodomain and a CD80 domain. The synergy of PD-1 blockade and T cell activation through CD80 led to inhibition of tumors in various animal models and induced immune memory. V5 also activates tumor-specific T cells via APCs and

PD-L2 signaling. Preclinical studies in cynomolgus monkeys show a promising safety profile, supporting V5s in human studies.

2:50 Sponsored Presentation *(Opportunity Available)*

3:20 Networking Coffee & Refreshment Break

4:05 Transition to Plenary Keynote Session

PLENARY KEYNOTE

4:15 Plenary Keynote Introduction

Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

4:25 CARs 2026: New Models and New Runways

Michel Sadelain, MD, PhD, Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

T cell engineering holds great promise for the treatment of cancers and other pathologies. The original chimeric antigen receptor (CAR) prototypes targeting CD19 are now giving way to further refined receptors endowed with greater sensitivity and combinatorial possibilities. Emerging new targets and engineering tools augur favorably for broadening the use of CAR therapies.

YOUNG SCIENTIST KEYNOTE

5:10 Deep Learning-Based Binder Design to Probe Biology

Martin Pacesa, PhD, Assistant Professor, Pharmacology, University of Zurich

Protein-protein interactions are central to biology and drug discovery, yet traditional antibody generation is slow and costly. BindCraft is an open-source, automated computational pipeline for *de novo* protein binder design that routinely yields nanomolar binders with 10-100% experimental success, without high-throughput screening or maturation. We illustrate applications to peptides, cell-surface receptors, allergens, and gene editors, and outline how deep-learning workflows can accelerate next-generation therapeutics, diagnostics, and bioprocessing.

5:55 Welcome Reception in the Exhibit Hall with Poster Viewing

7:15 Close of Day

TUESDAY, MAY 12

7:45 am Registration and Morning Coffee

IMPROVING T CELL ENGAGER ANTIGEN SELECTIVITY AND ANTI-TUMOR ACTIVITY

8:30 Chairperson's Remarks

David Cole, Head of Research, Accession Therapeutics Inc.; Honorary Professor, Cardiff University

8:35 CBX250, a Novel Cathepsin G Peptide-HLA-Targeting T Cell Engager that Exhibits High Tumor Antigen Selectivity and Potent Antileukemic Activity *in Vivo*

Scott Chunhua Shi, PhD, Associate Director Institute & Head of Biological Discovery, ORBIT Therapeutic Discovery, MD Anderson Cancer Center

TCRm represent a promising modality for tumor-therapeutics. We have developed a robust TCRm discovery pipeline that enabled identification of the CTSG peptide–HLA-A*02 complex from AML blasts, leading to the clinical candidate CBX250 (in collaboration with Crossbow Therapeutics). CBX250 demonstrates potent *in vitro* and *in vivo* efficacy without detectable cross-reactivity, and US Phase I trials are ongoing. A first-in-class TCRm×CD3 targeting CCNB1 is also in IND-enabling studies to benefit more patients.

9:05 Addressing Solid-Tumor Heterogeneity: TROCEPT-Mediated Activation of a Universal Bispecific T Cell Engager via IV Delivery

David Cole, Head of Research, Accession Therapeutics Inc.; Honorary Professor, Cardiff University

Tumors are very heterogenous and include immunosuppressive cell types, limiting the ability of current therapies to target all cells in the tumor with high potency. TROCEPT is a novel immuno-virotherapy that only targets cancer cells, and turns them into drug factories. We have used this technology to deliver a novel universal bispecific T cell engager, that can target all cancer cells, only inside the tumor.

9:35 Combining CD3 and CD28 T Cell Engagers for Enhanced Anti-Tumor Activity

Gregory L. Moore, PhD, Executive Director, Protein Engineering, Xencor, Inc.

CD3 T cell engagers activate T cells through Signal 1, but solid tumors generally lack the costimulatory signals required for full activation, potentially leading to anergy and reduced efficacy. Tumor-targeted CD28 bispecific antibodies that strictly depend on concurrent Signal 1 for costimulatory activity represent a key advancement in immunotherapy. Adding targeted costimulation enhances cytokine production, proliferation, survival, restores activity in restimulation settings, and drives stronger anti-tumor responses in preclinical models.

10:05 Presentation to be Announced

10:35 Coffee Break in the Exhibit Hall with Poster Viewing

NOVEL FORMATS AND ALTERNATIVE APPROACHES

11:15 Overcoming the Tumor Penetration Challenge: Nanofitin-Based Drug Conjugates for Deep and Efficient Tumor Engagement

Mathieu Cinier, PhD, CSO, Affilogic

Treating cancer requires balancing cytotoxicity, immune activation, and safety to eradicate malignant cells while sparing healthy tissue. Nanofitin-based drug conjugates combine antibody-like specificity with the superior tumor penetration of small scaffolds. Their rapid clearance minimizes off-target toxicity while ensuring efficient payload delivery. In preclinical models, weekly MMAE-Nanofitin dosing achieved complete tumor inhibition, overcoming diffusion and resistance barriers to reach poorly vascularized regions and enabling next-generation targeted cancer therapeutics.

11:45 Beyond IgG: The Therapeutic Potential of IgE and IgA Antibodies and Their Derivatives

Kevin FitzGerald, PhD, CSO, Epsilogen Ltd.

Epsilogen develops therapeutic IgE and therapeutic IgA antibodies. Our lead antibody, MOv18 IgE, targets folate receptor alpha and has completed a phase 1 clinical trial. It is currently in a phase Ib trial treating PROC patients. Epsilogen also has IgE and IgA antibodies undergoing pre-clinical studies and it has a number of proprietary platforms including bispecific IgE and hybrid antibodies that combine IgE or IgA with IgG functionality.

12:15 pm Presentation to be Announced

12:45 Session Break

12:50 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:50 Close of Antibodies for Cancer Therapy Conference

6:30 Recommended Dinner Short Course

SC6: Developability of Bispecific Antibodies

*Separate registration required. See short course page for details.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC3: Challenges and Opportunities in Solid Tumor and Autoimmune Disease Therapeutics
*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

NOVEL TARGETS LANDSCAPE

2:25 Chairperson's Remarks

Daniel A. Vallera, PhD, Lion Scholar; Director, Section on Molecular Cancer Therapeutics; Professor, Therapeutic Radiology, University of Minnesota Masonic Cancer Center

2:30 IGSF8, an Emerging Target for Cancer Immunotherapy

Xiaole Shirley Liu, PhD, CEO, GV20 Therapeutics

Despite the exciting clinical benefits of immune checkpoint inhibitors, only a minority of cancer patients respond. We integrate AI, functional genomics, and cancer immunology for drug discovery. Our STEAD platform computationally extracts antibodies from patient tumor RNA-seq profiles and pairs targets with antibodies *in silico*. Our lead program, GV20-0251, targets novel checkpoint IGSF8 and reached IND in three years, demonstrating favorable safety and promising monotherapy efficacy in metastatic cancer patients.

3:00 GPC2 as a Target for Antibody- and Cell-Based Therapies in Childhood Cancer

Mitchell Ho, PhD, Senior Investigator & Deputy Chief, Laboratory of Molecular Biology; Director, Antibody Engineering Program, National Cancer Institute (NCI), National Institutes of Health

Glypican-2 (GPC2), an oncofetal antigen in childhood cancers such as neuroblastoma, is a novel therapeutic target whose inhibition blocks Wnt/β-catenin signaling and N-Myc. I will also describe the engineering of T cells expressing antibody–TCR hybrids (AbTCRs) incorporating a humanized CT3 Fab specific for GPC2, linked to TCR γ and δ chains, which may outperform CAR T cells against low-antigen tumors and have broad potential in solid tumor therapy.

3:30 Sponsored Presentation *(Opportunity Available)*

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

4:40 Next-Generation T Cell Receptor Bispecific (TCER) Targeting COL6A3 on the Stroma of Solid Tumors

Felix Unverdorben, PhD, Associate Director, TCR Discovery and Bispecifics, Immatics Biotechnologies GmbH

Complementing Immatics' broad PRAME franchise, the presented T cell receptor bispecific (TCER) is directed against the stromal pHLA target COL6A3 Exon 6, aiming to disrupt the cancer's protective barrier providing an innovative approach for cancer treatment. TCR potency and specificity are assessed throughout TCR identification and TCER engineering, demonstrating strong thermal stability, high affinity target binding and killing of target positive tumor cell lines.

5:10 Breaking the Sweet Silence: TACA Targeting Therapeutics against Tumor-Glycan Shields

Francesco Muraca, PhD, Head, Cell Biology, Tacalyx GmbH

Tumor-associated carbohydrate antigens (TACAs) are defined oligosaccharide structures, derived from changes in glycosylation pathways, that are expressed on the surface of cancer cells. Tacalyx develops antibodies against these difficult-to-target structures with the goal of spearheading the next generation of targeted anti-cancer therapeutics and will present its advancements in their current lead programs.

5:40 Clean Cancer Targets for Better Therapeutics: Going beyond the Proteome

Hans H. Wandall, Co-Founder & CSO, Discovery, GO Therapeutics

Most targeted cancer therapies rely on proteins overexpressed on tumors, but these are rarely truly cancer-specific, limiting safety and efficacy. GO Therapeutics leverages cancer-selective aberrant O-glycosylation to overcome this limitation. Using high-resolution O-glycoproteomics, we have defined tumor-restricted Tn-glycoepitopes on a large set of targets, including MUC1, MUC4, cMET, LAMP1, and CD44. Antibodies and ADCs directed to these glycoforms show high selectivity, potent *in vivo* cytotoxicity, and favorable cynomolgus toxicology.

6:10 Close of Day

6:30 Recommended Dinner Short Course

SC7: Targeting the Target: Aligning Target and Biologic Format Biology to Achieve Desired Outcomes
*Separate registration required. See short course page for details.

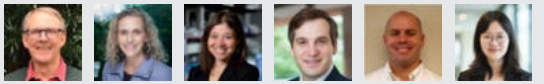
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:
Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology
Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University
Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School
Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder
Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

NOVEL APPROACHES FOR TARGETED PROTEIN DEGRADATION

10:00 Chairperson's Remarks

Mitchell Ho, PhD, Senior Investigator & Deputy Chief, Laboratory of Molecular Biology; Director, Antibody Engineering Program, National Cancer Institute (NCI), National Institutes of Health

10:05 KEYNOTE PRESENTATION: Novel Approaches for Extracellular Targeted Protein Degradation (eTPD)

James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

The cell surface proteome, the surfaceome, is a major hub for cellular communication and a primary source of drug targets, both small molecules and biologics. Inspired by the field intracellular targeted protein degradation (iTPD) that brought us PROTACs and molecular glues, there has been a surge of interest in extracellular targeted protein degradation (eTPD). Here, I'll describe novel modalities for eTPD for soluble and membrane bound targets.

10:35 Mechanisms and Therapeutic Applications of Antibody-Based Degraders

Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

Cell–surface proteins are key regulators of cellular activity, and one promising way to modulate their function is by controlling endocytosis. Under physiological conditions, cells use endocytosis to maintain homeostasis and tune signaling, yet its therapeutic potential is only beginning to be explored. I will discuss how bispecific antibodies can be designed to modularly control membrane protein endocytosis and signalling, their underlying mechanisms, and the potential therapeutic applications of these molecules.

11:05 Sponsored Presentation *(Opportunity Available)*

11:35 Session Break

11:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

AI AND DATA-DRIVEN APPROACHES FOR TARGET DISCOVERY AND THERAPEUTIC DESIGN

12:40 pm Chairperson's Remarks

Horacio G. Nastri, PhD, Vice President, Protein Science and Technology, Incyte Corporation

12:40 PANEL DISCUSSION: Designing for the Inside and Out: How Scaffold Choice Shapes Target Engagement and Drug Performance

Moderator: Marie-Eve Beaulieu, PhD, Co-Founder & Chief Development Officer, Peptomyc SL

The growing diversity of antibody scaffolds—DARPins, nanobodies, affibodies, miniproteins, and engineered fragments—is reshaping how we reach challenging intra- and extracellular targets. This panel will explore how scaffold architecture influences target engagement, pharmacokinetics, tissue penetration, and intracellular access. Experts from academia and industry will discuss the design trade-offs between stability, size, and function, and how next-generation scaffolds are unlocking previously inaccessible biology in oncology and beyond.

Panelists:

Bradley M. Lunde, PhD, Group Leader, Adimab LLC

1:10 Illuminating the Disease Surfaceome: Exploiting Conformational Targets for First-in-Class Cancer Therapies

Neal Goodwin, PhD, CSO, Research, Immuto Scientific

Immuto Scientific has advanced technologies that identify cancer-specific protein conformations, called Surface Protein Conformers (SPCs), which expose epitopes that do not present in healthy cells. SPC target discovery through structural proteomics is combined with AI-powered antibody engineering, enabling the development of next-generation biologics, such as ADCs and multispecifics, tailored for precise disease intervention. The SPC technology provides a key advantage by unlocking previously inaccessible therapeutic targets in challenging indications.

1:40 Mapping Cancer Vulnerabilities through the Cancer Dependency Map

Francisca Vazquez, PhD, Associate Director, Cancer Dependency Map, Broad Institute

DepMap systematically links tumor alterations to gene essentiality, supporting both basic and translational research. Many identified dependencies are now under validation or in clinical trials. Our recent work revealed a synthetic lethal interaction between the PELO/HBS1L and SKI complexes, suggesting PELO as a target in SKI-deficient cancers. DepMap continues to expand incorporating organoid models, new multiomics data modalities, and new features towards the goal of accelerating precision cancer medicine.

2:10 Beyond SSTR and PSMA: Human Data-Driven Discovery and *in silico* Design of Next-Generation Radiopharmaceutical Therapies

Hongyoon Choi, PhD, Associate Professor, Nuclear Medicine, Seoul National University Hospital

This talk explores a data-centric and AI-driven strategy to identify and develop the next wave of radiopharmaceutical therapy (RPT) beyond SSTR and PSMA. By integrating human omics data, *in silico* modeling, and radioligand pharmacokinetics understanding, we establish a systematic framework for target discovery, ligand optimization, and therapeutic design in oncology. This approach bridges translational biology with computational innovation to accelerate new RPT pipelines.

2:40 Developing Highly Specific TCEs against pHLA with Molecular Specificity Mapping

Marvin Gee, PhD, Co-Founder & Vice President, Target Discovery, 3T Biosciences

Peptide-HLAs are highly diverse tumor targets normally recognized by patient T cell immune responses. These targets can be discovered and targeted in solid tumors by leveraging off-the-shelf bispecific T cell engager therapies. We utilize an antibody-based discovery platform combined with high-throughput specificity mapping at the molecular resolution to develop highly potent T cell engagers. Preventing off-target specificity can ultimately improve the therapeutic index against pHLA targets.

3:10 Sponsored Presentation *(Opportunity Available)*

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

TARGETS FOR AUTOIMMUNE, CARDIOVASCULAR, AND OTHER INDICATIONS OUTSIDE CANCER

4:15 Chairperson's Remarks

Marie-Eve Beaulieu, PhD, Co-Founder & Chief Development Officer, Peptomyc SL

4:20 ANTXR1 Antibodies as a Universal Therapy for Cancer and Cardiovascular Disease

Bradley D. St. Croix, PhD, Head Tumor Angiogenesis, Mouse Cancer Genetics Program, NIH

Heart disease and cancer—the two leading causes of death—share fibrosis as a common culprit. ANTXR1/TEM8, a pathology-induced protein critical for collagen turnover, drives both tumor growth and heart injury. This lecture shows how ANTXR1-neutralizing antibodies, originally developed for cancer, also protect the heart after myocardial infarction or pressure overload—reversing damage, restoring function, and revealing a shared mechanism linking two of humanity's deadliest diseases.

4:50 Multifunctional Antibody Agonists for the Treatment of Autoimmune Pulmonary Alveolar Proteinosis (Apap)

Stefan Zielonka, PhD, Professor, Biomolecular Immunotherapy, Technische Universität Darmstadt

Autoimmune pulmonary alveolar proteinosis (aPAP) is a rare disorder characterized by myeloid cell dysfunction, pulmonary surfactant accumulation, and impaired innate immunity, resulting from autoantibodies targeting GM-CSF, a cytokine essential for macrophage function. In this talk, the development of GM-CSF receptor agonists engineered to resist neutralization by polyclonal autoantibodies will be presented. These agonists restore the function of macrophages and neutrophils, offering a promising strategy for overcoming immune dysregulation in aPAP.

5:20 Enhanced Inhibition of Ocular Neovascularization with Novel Bispecific Receptor Decoy Proteins that Comprehensively Block Vascular Endothelial Growth Factor Ligands

Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University

Ocular neovascularization causes severe vision loss and is driven by the upregulation of vascular endothelial growth factor (VEGF) ligands; hence therapeutics that antagonize VEGF proteins have greatly advanced ocular disease treatment. However, many patients do not show benefit, in part since current therapies do not comprehensively block VEGF activity. We introduce 2 promising bispecific receptor decoy proteins that inhibit all VEGF ligands and significantly reduce ocular neovascularization in animal models.

5:50 From Biology to IND: Paradox's Approach to Protein Misfolding Diseases

Yulong Sun, PhD, Co-Founder & CSO, Paradox Immunotherapeutics

The challenge of protein misfolding disease is targeting the often-scarce misfolded and pathological forms of the protein that cause disease, while avoiding the abundant, healthy form which performs important roles in the body. At Paradox Immunotherapeutics, we utilize a validated, structure-based approach to predict misfolding-specific epitopes to generate antibodies that target pathological proteins for clearance while avoiding the natively-folded species to improve organ function in systemic amyloidosis.

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Emerging Targets in Oncology & Beyond Conference

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC5: Safety & Efficacy of Bispecifics and ADCs

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Remarks

ENGINEERING NEXT-GENERATION ADCs—BEYOND CYTOTOXIC PAYLOADS

8:45 Chairperson's Remarks

Horacio G. Nastri, PhD, Vice President, Protein Science and Technology, Incyte Corporation

8:50 KEYNOTE PRESENTATION: Moving beyond Pan-Cytotoxic Payloads for ADCs: Next-Generation ADCs with Novel Targeted Payloads

Gail D. Lewis, Distinguished Scientist, Discovery Oncology, Genentech, Inc.

Although ADCs with chemotherapy-like payloads have demonstrated impressive clinical benefit, serious toxicities remain a challenge. ADCs with unique, more targeted payloads may offer efficacious ADCs with an improved therapeutic index compared to traditional ADCs. Approaches for developing novel ADCs with non-pan-cytotoxic payloads will be discussed. The presentation will then focus on one selected intracellular target for an ADC payload and its applicability across multiple tumor types.

9:20 177Lu-Labeled ADC: A Dual-Mechanistic Treatment Modality in Solid Tumors

Kyoji Tsuchikama, Assistant Professor, University of Texas Houston

While ADCs have shown clinical promise, their efficacy is often compromised by variable antigen expression within tumors. Compared to single-drug variants, our ADCs co-loaded with Lu177 and MMAE exhibited superior antitumor effects in xenograft tumor models with low or heterogeneous HER2/TROP2 expression, highlighting its advantage in overcoming heterogeneity-driven resistance. These advancements support our platform's potential to enable more effective and safer therapies for breast cancer and other treatment-resistant malignancies.

9:50 Pharmacokinetic Strategies to Increase the Safety and Efficacy of ADC Therapy

Joseph P. Balthasar, PhD, Professor, School of Pharmacy and Pharmaceutical Sciences, University of Buffalo, State University of New York

ADCs have ascended to a leading position among therapeutic modalities for oncology. However, great opportunities exist to engineer improvements in ADC safety and efficacy. This presentation discusses pharmacokinetic strategies that are under development for increasing ADC distribution within tumors, decreasing off-target exposure to payloads, and enhancing the selectivity of ADC delivery to cancer cells. The presentation will include discussion of the use of PBPK to guide engineering of multispecific ADCs.

10:20 Presentation to be Announced

XDC The Bioconjugation Leader

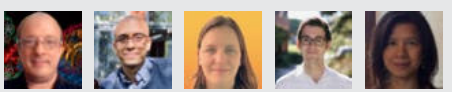
10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience



Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:

- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca

Joshua Meier, Co-Founder & CEO, Chai Discovery

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

DUAL/MULTI-PAYLOAD ADCs

2:05 Chairperson's Remarks

Nimish Gera, PhD, Independent Consultant

2:10 Therapeutic Potential of CBB-120, a TROP2-Targeted TOP1i/ATRi Dual-Payload ADC

Dan Pereira, PhD, CSO, CrossBridge Bio

CBB-120 is a next-gen site-specific, Fc-silenced, dual payload ADC targeting TROP2 that utilizes proprietary EGCit linkers to conjugate TOP1i/ATRi payloads. This presentation will summarize CBB-120's superior pharmacology and toxicology attributes.

2:40 Novel Multi-Payload ADCs Assembled in One Step from Native Antibodies Show High Efficacy and Tolerability *in Vivo*

Philipp Probst, Director, ADC Research, Araris Biotech AG

The Araris' site-specific one-step conjugation technology aims at generating safe and highly potent ADCs without the need for antibody engineering. We present a novel Nectin-4 targeting triple-warhead ADC using a combination of MMAE and two different topoisomerase-1 inhibitors designed to treat a broad range of solid

tumors, and demonstrate that the combination of multiple payloads in one ADC led to synergistic effects in mouse models while still being well tolerable.

3:10 Development of Next-Generation Dual-Payload ADCs

Richard Kendall, PhD, CSO, Catena Biosciences

CatenaBio has developed highly stable, dual-payload ADC combination therapies, with tunable payload ratios. Our selective Multi-Payload Conjugate (MPC) conjugation platform allows the attachment of distinct payloads targeting different mechanisms of action at three unique sites on antibody scaffolds, replacing the unstable maleimide bond with a more stable C-Y bond. MPCs, targeted combination chemotherapies within a single molecule, deliver superior efficacy with reduced toxicities to address shortcomings in current ADCs.

3:40 Sponsored Presentation *(Opportunity Available)*

4:10 Networking Refreshment Break

ANTIBODY-OLIGONUCLEOTIDE CONJUGATES (AOCs)

4:40 Next-Generation ADC for Targeted Immune Modulation: Oligonucleotide Payloads Differentiate from Cytotoxic Agents

Hong I. Wan, PhD, President, CEO and Co-Founder, Tallac Therapeutics, Inc.

Aiming to innovate beyond the traditional ADC approach to develop medicines with safer and more durable therapeutic profile, we established a next-generation ADC technology with novel oligonucleotide payloads, extending the therapeutic mechanism beyond cytotoxic agents. The presentation will highlight Tallac's novel Toll-like Receptor Agonist Antibody Conjugate (TRAAC) platform which employs a novel immune modulating oligonucleotide payload.

5:10 Next-Generation Antibody Conjugates: Delivery of Oligonucleotides for Neurological Indications

Kerstin Hofer, PhD, Matrix & Science Lead, F. Hoffmann-La Roche AG

Antisense-oligonucleotides are a promising drug modality for the treatment of neurological disorders, but their administration via intrathecal delivery is limiting the broader clinical application of ASOs. Our team's research focuses on conjugating the ASO to a Brainshuttle antibody that facilitates access to the central nervous system (CNS) via transcytosis at the blood–brain barrier. *In vivo* experiments suggest broad brain distribution and good duration of action.

5:40 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

7:30 Chairperson's Remarks

Gail D. Lewis, Distinguished Scientist, Discovery Oncology, Genentech, Inc.

7:35 PANEL DISCUSSION: The Next Wave of ADCs: How China Is Shaping the Global Landscape

Moderator: Jing Li, PhD, CEO, VelaVigo

- R&D innovations driving China's ADC development—TCE-ADC, bispecific ADCs, and dual-payload ADCs
- Clinical development strategies
- Partnering and out-licensing strategies

Panelists:

Xiaoqiang K. Kang, PhD, President & CEO, Leads Biolabs Inc

Yang Qiu, PhD, CSO & US GM, Duality Biologics

Ting Xu, PhD, Founder & CEO & President, AlphaMab Co Ltd

Yongxin Robert Zhao, PhD, CEO & Chairman, Hangzhou DAC Biotech Co Ltd

8:30 KEYNOTE PRESENTATION: The Story of Daiichi Sankyo's Pioneering DXd ADC Pipeline

Gerold Meinhardt, MD, PhD, Vice President & Head, Global Teams Lead, Early Oncology, Daiichi Sankyo, Inc.

Trastuzumab deruxtecan, an ADC comprised of a HER2-directed antibody and a topo-I payload, was the first DXd ADC to achieve approvals globally in various HER2-expressing cancers. This presentation will cover the characteristics of trastuzumab deruxtecan leading to its clinical activity and expand on the DXd ADC platform, which consists of several ADCs that combine different antibodies with the same payload to target a broad range of cancers.

BISPECIFIC ADCs

9:00 Conditional Logic-Gated Bispecific ADCs: Harnessing Novel Dual-Antigen Fingerprints to Expand Efficacy and Minimize On-Target/Off-Tissue Toxicity

Tiffany Thorn, Founder & CEO, BiVictriX Therapeutics plc

Conditional logic-gated bispecific ADCs offer a next-generation strategy for precise tumor targeting and improved efficacy in heterogeneous cancers. By exploiting unique dual-antigen expression fingerprints, they enable selective payload delivery to malignant cells, enhancing potency while minimizing on-target/off-tissue toxicity. This presentation will highlight key design principles, preclinical validation, and translational insights demonstrating how logic-gated ADCs can overcome the limitations of conventional ADCs and expand therapeutic opportunities across difficult-to-treat tumors.

9:30 Preclinical and Clinical Development of ABL/NEOK Bio's Bispecific ADCs

Mayank Gandhi, CEO, NEOK Bio

Bispecific ADCs represent cutting-edge advancement whose design involves the intelligent choice of target antigens, antibody formats, linker, payload, and conjugation technology. We report on this dual-targeting strategy's potential to target a wider range of tumors, overcome drug resistance, increase internalization rates and cell killing, and improve the safety profile by increasing selectivity and reducing off-tumor toxicity

10:00 First-in-Class Bispecific ADC Programs from VelaVigo: CD79b/CD20 and CDH17/CLDN18.2

Jing Li, PhD, CEO, VelaVigo

Two programs are showcased in this presentation. One is a FIC bispecific ADC targeting both CD79b and CD20, with preclinical data demonstrating superior efficacy compared to Polatuzumab Vedotin (PV) in both PV sensitive and resistant models, and excellent tumor inhibition in PDX model of Richter's syndrome. The other is a FIC bispecific anti-CDH17/CLDN18.2 ADC therapy, potentially addressing the limitation of targeting CLDN18.2 or CDH17 alone.

10:30 Networking Coffee Break

CELL-FREE ADC MANUFACTURING

10:45 STRO-004, a DAR8 Exatecan ADC Targeting TF

Hanspeter Gerber, PhD, CSO, Sutro Biosciences

Exatecan-based ADCs have demonstrated superior antitumor responses across multiple tumor types compared with traditional tubulin inhibitors, yet their impact on progression-free survival (PFS) remains limited. This presentation will highlight clinical updates on STRO-004, a DAR8 Topo1i ADC targeting tissue factor, and preclinical data generated with our most advanced dual-payload ADCs, designed to transform strong initial responses into durable clinical benefit.

ULTRA-HIGH DAR PLATFORMS FOR LOW-POTENCY WARHEADS

11:15 Antibody-Drug Conjugates with Novel Payloads Are Enabled by an Ultra-High DAR Platform

Antonina Simakova, PhD, Executive Vice President, Research, Myris Therapeutics

Herein, we introduce a new antibody-drug conjugate class (HiDARs) featuring polymer scaffolds that carry 50–200 kinase inhibitor payloads via cleavable linkers. Anti-HER2 conjugates incorporating PI3K/mTOR inhibitors exhibit potent activity in breast cancer tumor cells and demonstrate *in vivo* efficacy in mouse models. This platform broadens ADC payload diversity, enhancing safety and expanding applications beyond conventional cytotoxic payloads.

11:45 Antibody-Bottlebrush Conjugates for Targeted Cancer Therapy

Bin Liu, PhD, Assistant Professor, Biology and Biochemistry, Center for Nuclear Receptors and Cell Signaling, University of Houston

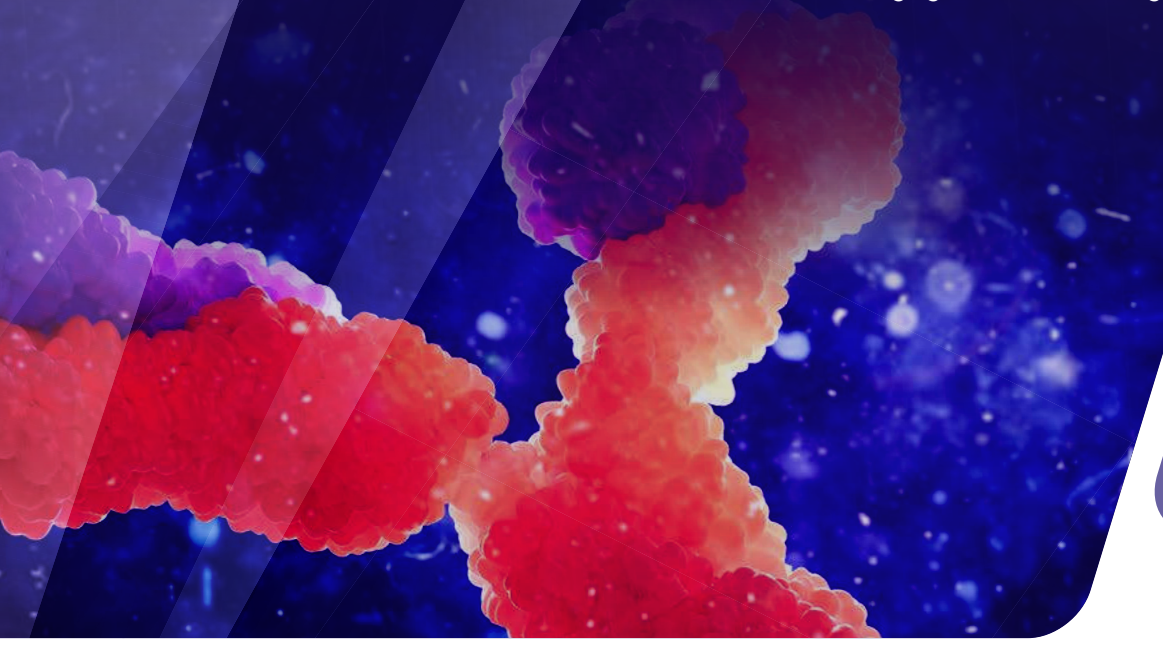
Antibody–drug conjugates are powerful targeted therapies but are limited by narrow payload diversity and chemical constraints. In this talk, I will introduce antibody–bottlebrush prodrug conjugates (ABCs) that overcome these barriers. ABCs feature antibodies covalently linked to polymeric bottlebrush prodrugs carrying diverse, tunable payloads at ultra-high drug-to-antibody ratios. This design enables precise tumor targeting, superior efficacy, and minimal toxicity in preclinical models, offering a promising next-generation therapeutic strategy.

12:15 pm Close of Summit

MULTISPECIFICS STREAM

Shaping the Future of Multispecific Antibody Therapeutics

The multispecific antibodies stream at the PEGS Boston Summit will review the latest developments from engineering and platform innovations to preclinical and clinical advancement in this burgeoning field. This year will feature the design of novel constructs, the mitigation of toxicity and optimization of efficacy, the proliferation of conditional activation and masking strategies, and emerging approaches to improved targeting. Don't miss out on the most significant forum of the year to learn about the latest trends and research results and meet face to face with leaders who are changing the future of biologics.



MULTISPECIFICS STREAM CONFERENCES

MAY 11-12
TRAINING SEMINAR:
Introduction to Multispecific Antibodies:
History, Engineering, and Applications

AGENDA

MAY 12-13
Advancing Multispecific Antibodies and Combination Therapy to the Clinic

AGENDA

MAY 14-15
Engineering Bispecific and Multispecific Antibodies

AGENDA

MONDAY, MAY 11, 2026 8:30 AM - 6:00 PM | TUESDAY, MAY 12, 2026 8:30 AM - 12:45 PM

Introduction to Multispecific Antibodies:
History, Engineering, and Applications

Introduction to Multispecific Antibodies is an informative and practical guide to getting up to speed on critical aspects of multispecific antibody therapeutics. Topics will include historical successes, failures, and lessons learned. Specific practical instruction will span mechanisms of action, engineering, developability, regulatory considerations, and translational guidelines. Perspectives on ideal implementation of multispecifics as targeted and immunomodulatory approaches will be discussed.

Instructor: G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company

TOPICS TO BE COVERED:

- A brief history of bispecific antibodies: 60 years of progress with critical advances and key pioneers
- Bispecific applications and powerful mechanisms-of-action
- Engineering bispecific antibodies:100 formats and counting
- Bispecific-specific considerations in preclinical development and regulatory landscape
- Developability, manufacturing, and analytical considerations
- Clinical experience, translation, and regulatory approval
- Current trends and future opportunities in regulating immune checkpoints, cell-based therapies, and personalized approaches

Cambridge Healthtech Institute Training Seminars offer real-life case studies, problems encountered and solutions applied, and extensive coverage of the basic science underlying each topic. Experienced Training Seminar instructors offer a mix of formal lectures, interactive discussions, and activities to help attendees maximize their learning experiences. These immersive trainings will be of value to scientists from industry and academic research groups who are entering new fields–and to those working in supporting roles that will benefit from an in-depth briefing on a specific aspect of the industry.

Training Seminars will be held in person only. To ensure a cohesive and focused learning environment, moving between conference sessions and the training seminars is not allowed.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC2: AI-Driven Predictive Preclinical Models: Rethinking the Role of Animal Testing

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

CO-STIMULATORY BISPECIFIC AND TRISPECIFIC ANTIBODIES

2:25 Chairperson's Remarks

Nathan D. Trinklein, PhD, Co-Founder and President, Rondo Therapeutics

2:30 KEYNOTE PRESENTATION: A Novel T Cell Engager for Colorectal Cancer

JoAnn A. Suzich, PhD, Head, Research, Immunocore LLC

Microsatellite stable colorectal cancer (MSS CRC) with liver metastases are immunologically "cold" tumors resistant to immune checkpoint therapy. ImmTACs are a class of T cell engagers that might overcome the immunological barriers in CRC. We have identified and characterized a promising novel CRC target antigen and have employed innovative engineering approaches to generate a highly potent ImmTAC with enhanced specificity that may have therapeutic benefit in MSS CRC.

3:00 EVOLVE: T Cell Engager Designs to Maximize Tumor Engagement with Integrated CD2 Costimulation

Jeremy S. Myers, PhD, Senior Vice President, R&D, EvolveImmune Therapeutics Inc.

Therapeutic design considerations for multiple-tumor antigen targeting to achieve maximal and selective tumor engagement and integration of TCR and selective costimulatory activation for optimal T cell effector activity to restore anti-tumor immunity in cancer patients.

3:30 Presentation to be Announced

3:45 Sponsored Presentation *(Opportunity Available)*

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

4:40 Advancing Cancer Immunotherapy with CD28-Engaging Bispecific Antibodies

Starlynn Clarke, PhD, Director, Preclinical Biology, Rondo Therapeutics

A new wave of immuno-oncology therapeutics is harnessing T cell costimulatory pathways to achieve transformative outcomes in difficult-to-treat cancers. Rondo Therapeutics' CD28 platform enables precise tuning of CD28 engagement, tailoring costimulation to each therapeutic context to maximize efficacy while preserving safety. Here, we highlight key platform design principles and provide an update on the clinical development of RNDO-564, the first CD28 × Nectin-4 bispecific antibody in development for advanced bladder cancer.

5:10 Novel Costimulatory Bispecific Antibodies for the Combination Treatment of Solid Tumors

Joseph Erhardt, PhD, Chief Research & Development Officer, Third Arc Bio

Solid-tumor therapy with CD3-bispecifics remains a promising therapeutic approach; however, progress toward transformative clinical activity has been limited to date. Third Arc Bio has developed novel CD3 and CD28-based multispecific antibodies for the treatment of solid tumors. Lead programs have been developed for ovarian cancer, and preclinical data on our novel CD28 bispecifics demonstrate robust costimulation and synergy with CD3-TCEs including ARC101, a CDLN6xCD3 currently in clinical development.

5:40 Tumor Selective CD47 targeting for the Treatment of Platinum Resistant Ovarian Cancer

Nicolas Fischer, PhD, CEO, Light Chain Bioscience

Blocking CD47 is an attractive therapeutic approach in oncology that has faced setbacks due to ubiquitous expression of this innate immune checkpoint. We have developed a bispecific approach, relying on unbalanced affinity arms to interfere with the SIRPa-CD47 "don't eat me" signal in a tumor antigen dependent way. This approach has now achieved clinical proof-of-concept in heavily pretreated, platinum-resistant ovarian cancer patients.

6:10 Close of Day

6:30 Recommended Dinner Short Course

SC6: Developability of Bispecific Antibodies

*Separate registration required. See short course page for details.

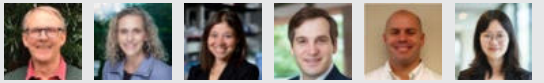
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:

Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology

Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University

Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School

Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder

Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

BISPECIFICS FOR NON-ONCOLOGY APPLICATIONS

10:00 Chairperson's Remarks

Frank Comer, PhD, Senior Director, Quarry Therapeutics

10:05 Multispecific Molecules Make for Multi Design Considerations: Early-Phase Trials with Lutikizumab

Alexa B. Kimball, MD, MPH, Professor, Harvard Medical School; President and CEO, Harvard Medical Faculty Physicians, BIDMC

This talk will explore early-phase clinical trials of lutikizumab, a dual-variable domain IgG targeting IL-1a and IL-1ß, in hidradenitis suppurativa, osteoarthritis, and inflammatory bowel disease. Key topics include the unique design considerations for multispecific antibodies, clinical results to date, strategies for translating across disease states, dosing challenges, and approaches to selecting optimal patient populations for these complex biologic therapies.

10:35 A Bispecific Antibody that Inhibits PAD2 and PAD4 Activity and the Generation of Citrullinated Autoantigens

Gary P. Sims, PhD, Senior Director, Immunology, AstraZeneca

11:05 Sequence-Forward Solutions by LAMPIRE for Monoclonal Antibody Discovery across Multiple Species

John Majercak, Head, Antibody Discovery, LAMPIRE Biological Labs Inc.

Leveraging decades of expertise in small and large animal immunization, LAMPIRE Biologicals has deployed a robust, cost-effective solution for monoclonal antibody discovery. Our "Sequence-Forward" approach combines FACS, NGS, sequence analytics, recombinant expression and *in vitro* screening to isolate high-affinity, epitope-diverse heavy + light chain antibodies, chicken IgYs, single-domain vHH nanobodies, and ultra-long CDR3 bovine picobodies. We will provide a comprehensive technical overview of our platform while highlighting recent advancements in mRNA_LNP *in vivo* campaigns and deep sequencing of the bovine picobody repertoire.

11:35 Session Break

11:40 Luncheon Presentation to be Announced

12:10 pm Luncheon Presentation to be Announced

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

CONDITIONALLY ACTIVE BISPECIFICS: EMERGING STRATEGIES

1:35 Chairperson's Remarks

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

1:40 Click-to-Release for Controlled Immune-Cell Activation: Tumor-Targeted Unmasking of an IL12 Prodrug

Marc S. Robillard, PhD, CSO & Founder, Tagworks Pharmaceuticals

We developed a click-activatable IL12 cytokine prodrug by conjugating PEG masks to lysines via trans-cyclooctene linkers, which were designed to be tracelessly released upon click reaction with tetrazine. Intravenous administration of a targeted tetrazine conjugate to tumor-bearing mice, followed 24 hours later by the masked IL12, resulted in efficient unmasking of IL12 in the tumor, while avoiding IL12 activation in blood.

2:10 Highly Selective T Cell Engagers Based on PRO-XTEN Protease-Releasable Masking Technology

Volker Schellenberger, PhD, Senior Vice President, Research Oncology, Vir Biotechnology, Inc.

PRO-XTEN technology enables drug candidates to become active (or unmasked) only where they are needed—in the tumor microenvironment—mitigating off-tumor damage and reducing toxicity. Three T cell engagers based on PRO-XTEN are currently in clinical trials. T cell engagers against multiple additional targets are in preclinical discovery.

2:40 PANEL DISCUSSION: Deep Dive into Cell Engagers and Solid-Tumor Targeting Multispecifics

Moderator: Nina E. Weisser, PhD, Director, Multispecific Antibody Therapeutics, Zymeworks, Inc.

Diving into predictive biomarkers of response to TCE therapy. What T cell populations are driving antitumor responses? Are there mechanistic learnings from TCE responses that can be applied to solid tumors?

Panelists:
David J. DiLillo, PhD, Senior Director, Regeneron Pharmaceuticals
JoAnn A. Suzich, PhD, Head, Research, Immunocore LLC
Adam Zwolak, PhD, Scientific Director, Multispecific Antibody Engineering, Johnson & Johnson

3:10 Presentation to be Announced

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

PROTEASE-ACTIVATED ANTIBODIES

4:19 Chairperson's Remarks

Volker Schellenberger, PhD, Senior Vice President, Research Oncology, Vir Biotechnology, Inc.

4:20 Mechanistic Insights into the Rational Design of Masked Antibodies

Carolina T. Orozco, PhD, Senior Scientist, AstraZeneca

Monoclonal antibodies have advanced cancer therapy but remain limited by on-target, off-tumor toxicity. Conditional activation via antigen-binding site masking has emerged as a mitigation strategy, yet the determinants of optimal mask design are not fully defined. Using various binding assays and structural methods, we identified three key parameters: binding site, and association and dissociation rate constants. Results provide a framework for the rational design and discovery of next-generation affinity-based masks.

4:50 Protease-Activated Antibodies and Other Approaches for Conditional Immune Activation in Cancer Therapy

Sebastian Kobold, MD, Professor, Clinical Pharmacology, Klinikum der Universität München

Bispecific T cell-redirecting antibodies are powerful therapeutics for cancer treatment. However, in a target space dominated by surface antigens most frequently shared with normal cells, the amount of suitable antigens happens to be limited. Use of conditional bispecific formats rendering activation conditional to certain events has the potential to derisk bispecific antibodies and to extend the target space. I will discuss several approaches from our team.

5:20 Conditional Activation of T Cell Engagers through Tumor-Localized Prodrug Design

Amelia C. McCue, PhD, Postdoctoral Fellow, Translational Tissue Engineering Center, Johns Hopkins University

T cell engagers (TCEs) are potent cancer therapeutics but often cause toxicity due to antigen expression on healthy tissues. We structurally characterize a new anti-CD3 antibody, E10, and use it to engineer a pro-drug TCE activated by matrix metalloproteinase-2 (MMP-2), a tumor-overexpressed protease. MMP-2 cleavage restores T cell binding and tumor-selective killing. This masking strategy can be extended to other clinical anti-CD3 antibodies, offering a generalizable path to safer immunotherapies.

5:50 Presentation to be Announced

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Advancing Multispecifics Conference

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC2: AI-Driven Predictive Preclinical Models: Rethinking the Role of Animal Testing

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

6:30 pm Recommended Dinner Short Course

SC6: Developability of Bispecific Antibodies

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Remarks

ENGINEERING TRISPECIFIC ANTIBODIES FOR SOLID-TUMOR AND AUTOIMMUNE INDICATIONS

8:45 Chairperson's Remarks

Shelley Force Aldred, PhD, Co-Founder and CEO, Rondo Therapeutics

8:50 TriTCE Co-Stim: A Differentiated T Cell Engager Platform with Conditional *cis* CD28 Co-Stimulation and Transferability to Diverse Targeting Strategies

Nina E. Weisser, PhD, Director, Multispecific Antibody Therapeutics, Zymeworks, Inc.

The design and optimization of a trispecific with conditional CD28 engagement and obligate *cis* T cell binding will be discussed, including enhanced and sustained T cell functionality and antitumor activity compared to bispecific cell engagers and safety in *in vitro* and *in vivo* models.

9:20 Trispecific NK and T Cell Engagers: How Target Selection and Format Impact Potency, Safety, and Developability

Harald Kolmar, PhD, Professor and Head, Institute for Organic Chemistry and Biochemistry, Technische Universität Darmstadt

We established several routes for the design of trispecific engagers with desired biophysical and functional properties. The strategy to discover and design heavy-chain-only binders paired with a common light chain will be highlighted. Alternatively, two-in-one antibodies were established, where two different targets are recognized individually by the VL and the VH domain, followed by amendment of additional binding modules to obtain symmetric trispecifics.

9:50 From Bi- to Trispecific Antibodies: Reimagining the Next Generation of ADCs

Bonnie J. Hammer, PhD, Executive Vice President, Research & Development, Invenra

Multispecific antibodies open new avenues of exploration within the ADC field. By targeting multiple tumor antigens, one common route of tumor escape through antigen loss can be avoided. Multispecifics also allow targeting of tumor matrix components alongside tumor antigens to assist in addressing tumors where the ECM prevents access to the tumor. Furthermore, biparatopics as well as conditional binding and internalization strategies can be utilized to enhance safety and efficacy.

10:20 Presentation to be Announced

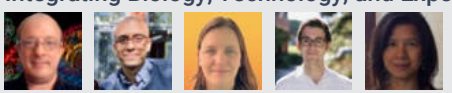
10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience



Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:
- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca

Joshua Meier, Co-Founder & CEO, Chai Discovery

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

BISPECIFICS WITH NEW MECHANISMS OF ACTION

2:05 Chairperson's Remarks

Christian Klein, CSO, Biotech Start-Up

2:10 Developing Induced-Proximity Strategies to Modulate Receptor Signaling in Inflammation and Cancer

Ricardo A. Fernandes, PhD, Group Lead, CAMS Oxford Institute, University of Oxford

We have developed induced-proximity platforms to modulate surface-receptor activity by recruiting endogenous enzymes. Our approach selectively inhibits immune-checkpoint and oncogenic-receptor signaling through targeted phosphatase recruitment, while conversely enhancing inhibitory receptor function via kinase recruitment. Additionally, we are mapping general principles that drive effective receptor dimerization at the cell surface, enabling modulation of receptor complexes which are not naturally associated.

2:40 Discovery and Development of an ALK1-BMPRII Agonistic Clustering Antibody to Treat Hereditary Hemorrhagic Telangiectasia

Melissa Geddie, PhD, Vice President Drug Discovery, Diagonal Therapeutics

Clustering antibodies present a compelling approach to treat diseases driven by defective signaling pathways, but their discovery has been limited by the difficulty of identifying epitopes that successfully trigger receptor signaling. Using a combination of physics-aware deep learning and experimental approaches, we successfully generated bispecific agonist antibodies against ALK1 and BMPRII that activate the signaling complex and treated HHT pathologies in various mouse models.

3:10 Bispecific Antibody Mixtures as a Strategy to Selectively Harness T Cell Cytokine Receptors and Co-Stimulation in Cancer Therapy

Walter G. Ferlin, PhD, CSO, Light Chain Bioscience a brand of Novimmune SA

Bispecific antibody mixtures provide a novel means to achieve controlled receptor agonism of T cell cytokine and co-stimulatory pathways. In contrast to native cytokines or monoclonal antibodies, which are constrained by systemic toxicity, this approach enables localized and selective pathway engagement to drive potent anti-tumor immunity. These findings demonstrate how bispecific antibodies can safely unlock immune mechanisms that have previously been inaccessible for therapeutic intervention.

3:40 Presentation to be Announced

4:10 Networking Refreshment Break

4:40 PANEL DISCUSSION: Engineering CAR Ts and Bispecifics to Achieve Better Outcomes: B Cell Depletion and Beyond

Moderator: G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company

Panelists:

Yvonne Y. Chen, PhD, Professor, Microbiology & Immunology & Molecular Genetics, University of California, Los Angeles

Laszlo G. Radvanyi, PhD, Professor, Department of Biochemistry, Microbiology and Immunology, University of Ottawa; Senior Scientist, Ottawa Hospital Research Institute

5:40 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

INTERACTIVE ROUNDTABLE DISCUSSIONS

7:30 Interactive Roundtable Discussions with Continental Breakfast

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

BISPECIFIC CHECKPOINT INHIBITORS

8:25 Chairperson's Remarks

Eugene A. Zhukovsky, PhD, Vice President and Site Head, Biologics R&D, Orion Pharma

8:30 KEYNOTE PRESENTATION: Engineering Multi-Pronged CAR T Cell Therapy for Cancer

Yvonne Y. Chen, PhD, Professor, Microbiology & Immunology & Molecular Genetics, University of California, Los Angeles

Here, I will discuss the development of next-generation T cells that can target multiple cancer antigens, modify the tumor microenvironment, and/or engage endogenous immunity to overcome tumor-defense mechanisms. This presentation will highlight the potential of synthetic biology in generating novel mammalian cell systems with multifunctional outputs for therapeutic applications.

9:00 Enhancing Antitumor Immunity through Simultaneous Blockade of Two Immune Checkpoints Using a Tetravalent Bispecific Antibody

Anil K. Thotakura, PhD, Immuno Oncology Head, R&D, Orion Corp.

Tetravalent bispecific antibodies (BsAbs) represent an emerging class of immunotherapeutics designed to enhance functional avidity and dual-target engagement compared with conventional bivalent formats.

9:30 Leveraging T Cell Co-Stimulation for Enhanced Therapeutic Efficacy of Trispecific Antibodies

Liqiang Pan PhD, Associate Dean and Qiushi Distinguished Professor/ Full Professor, School of Pharmaceutical Sciences, Zhejiang University; Adjunct Professor, The Second Affiliated Hospital of Medical School, Zhejiang University Laboratory of Precision Medicine and Biopharmaceuticals, College of Pharmaceutical Sciences, Zhejiang University

The efficacy of bispecific antibodies against solid tumors is limited by intratumoral T cell dysfunction and inadequate persistence. The co-stimulatory domains of 4-1BB, OX40, and CD28 are widely used in engineering CAR T cells to augment T cell responses. We designed three co-stimulatory trispecific T cell-engaging antibodies that target prostate-specific membrane antigens (PSMAs), CD3, and an additional co-stimulatory receptor, such as OX40, 4-1BB, and CD28, to tune T cell activity.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

NOVEL CONDITIONALLY ACTIVE FORMATS

10:44 Chairperson's Remarks

Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

10:45 Single-Chain Fab-Based Prodrug Approaches for Chain-Exchange Conditional Activation of T Cell Engager Functionality

Ulrich Brinkmann, PhD, Expert Scientist, Pharma Research & Early Development, Roche Innovation Center, Munich

Prodrug-activating chain exchange (PACE) approaches apply two inactive antibody derivatives that, upon co-accumulation on tumor cells, reconstitute prodrug functionality. Single-chain Fab PACE harbors functional Fc domains to improve pharmacokinetic properties, and places the effector prodrug domains into linker-connected Fab arms which reduces the risk of nonspecific prodrug activation.

11:15 Conditionally Active CD28xVISTA Bispecific Antibodies Promote Myeloid-Driven T Cell Activation

Edward van der Horst, PhD, CSO, Sensei Bio

We developed pH-selective CD28xVISTA bispecific antibodies that conditionally co-stimulate T cells within the acidic, myeloid-rich tumor microenvironment. By engaging VISTA on tumor-associated myeloid cells, our lead bispecific drives localized CD28 activation and enhances anti-tumor immunity. Functional studies demonstrated potent, VISTA-dependent T cell activation without systemic cytokine release. This approach broadens the immunotherapy toolbox, offering a novel paradigm for safe and effective tumor-selective co-stimulation.

11:45 Conditional by Design: Engineering Synapse-Gated Trispecific T Cell Engagers for Improved Therapeutic Index

Yariv Mazor, PhD, Executive Director, Head of Protein Engineering & Novel Modalities, Biologics Engineering, AstraZeneca R&D

T cell engagers are potent immunotherapeutic modalities. However, their broad application is constrained by on-target, off-tumor toxicity and CRS, resulting in a narrow therapeutic index. We present the development of a conditional, dual-antigen targeting trispecific TCE (TriMab) that integrates a synapse-gated design with affinity-tuned binding arms to achieve AND-gated tumor selectivity. Our work establishes synapse-gated, dual-targeting trispecifics as a next-generation framework for engineering safer and more precise T cell therapeutics.

12:15 pm Close of Summit

"I found PEGS to be incredibly valuable and highly relevant to my role as a scientist in the pharmaceutical industry. It gave me an industry-wide perspective on current trends and state-of-the-art technologies in the field of drug design, development and analytics."

Mahalia S., Principal Scientist, Bristol Myers Squibb

IMMUNOTHERAPY STREAM

Supercharging the Next Era of Immunotherapies

The Immunotherapy Stream at PEGS brings together the boldest innovations shaping the next era of immunotherapies for cancer, autoimmune disease, and beyond. Across three dynamic tracks, the program showcases breakthroughs in T cell and immune-cell engagers, immune engineering, microbiome, cellular therapies, and ***in vivo*** reprogramming powered by RNA, viral vectors, and AI. Part 1: T Cell Engagers spotlights the next wave of immune-cell engagers designed for greater safety, efficacy, and precision. Part 2: Advances in Immunotherapy dives into strategies to overcome resistance and persistence, engineer safer, smarter cell therapies, and unlock new opportunities in solid tumors and autoimmune conditions. Part 3: Next-Generation Immunotherapies looks to the rapid rise of ***in vivo*** immune cell reprogramming, new targets, oncolytic viruses, nanomedicine, and AI/ML-guided discovery of novel targets, including the dark genome. Don't miss out on the latest technologies and science driving the next era of immunotherapies.

IMMUNOTHERAPY STREAM CONFERENCES

MAY 11-12

Emerging T Cell Engagers

AGENDA

MAY 12-13

Advances in Immunotherapy

AGENDA

MAY 14-15

Next-Generation Immunotherapies

AGENDA

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC3: Challenges and Opportunities in Solid Tumor and Autoimmune Disease Therapeutics

*Separate registration required. See short course page for details.

MONDAY, MAY 11

7:00 am Registration and Morning Coffee

8:20 Organizer's Opening Remarks

COMPARING AND COMBINING TCEs, ADCs, CAR Ts AND RADIOIMMUNOTHERAPY

8:25 Chairperson's Remarks

Daniel A. Vallera, PhD, Lion Scholar; Director, Section on Molecular Cancer Therapeutics; Professor, Therapeutic Radiology, University of Minnesota Masonic Cancer Center

8:30 KEYNOTE PRESENTATION: Comparing TCEs, ADCs, and CAR T Cell Therapy: What Have We Learned So Far?

Patrick Baeuerle, PhD, Chief Scientific Advisor, Cullinan Therapeutics, Inc.

T cell-engaging antibodies (TCEs) are bispecific, antibody-based adaptor proteins that connect any kind of cytotoxic T cells with select target cells for redirected lysis. Over the last three years, TCEs have seen an unparalleled surge in approvals as a standalone therapy. A total of twelve TCEs are now approved that very effectively treat hematological as well as solid-tumor indications. I will review all learnings from the twelve approved TCEs.

IMPROVING TCE SAFETY AND EFFICACY

9:00 FEATURED PRESENTATION: Next-Generation TCEs: Update from Amgen

Andrew Rankin, PhD, Executive Director, Immuno-Oncology, Amgen Inc.

9:30 Discovery of Next-Generation T Cell Engagers

Nicolas Sabarth, PhD, Head, Biotherapeutics Discovery, Boehringer Ingelheim

TCR-mimic T cell engagers targeting HLA/peptide complexes enable recognition of tumor-associated intracellular proteins, expanding the antigen space for cancer immunotherapy. Potency, specificity, and developability are key attributes for the design of TCR-mimic T cell engagers. Integration of display technologies, pHLA-Fv structural insights, focused libraries, and innovative bispecific formats enable discovery and enhancement of pHLA-directed T cell engagers, offering a promising strategy for next-generation cancer therapeutics.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

TARGETING SOLID TUMORS

11:00 Novel CD8-Guided T Cell Engagers for Cancer Therapy

Saso Cemerski, PhD, Head, Immune Cell Engagers, AstraZeneca

11:30 MAIT Engagers Offer a Large Therapeutic Window for the Treatment of Cancer

Simon Plyte, PhD, CSO, R&D, Biomunex Pharmaceuticals

MAIT cells are an abundant, tissue and tumor resident, potent cytotoxic T cell subset. MAIT engagers (bispecific BiXAb antibodies) induce efficient tumor cytotoxicity but, in contrast to CD3 engagers, do not cause cytokine release. MAIT engagers do not induce regulatory T cell activation and are thus not dampened by increased immune suppression in the tumor. The increased safety and activity, especially in T-reg-rich tumors, affords a large therapeutic window.

12:00 pm Session Break

12:10 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:10 Session Break

1:15 Chairperson's Remarks

Alan J. Korman, PhD, Former Senior Vice President, Human Immunology, Vir Biotechnology

1:20 Development of a First-in-Class T Cell Receptor β Chain-Directed T Cell Engager to Treat Solid Tumors

Madan Katragadda, PhD, Vice President & Head, Antibody Technologies and CMC, Marengo Therapeutics

This presentation will describe the development of a first-in-class T cell engager designed to target the T cell receptor β chain as a novel entry point for treating solid tumors. It will outline the overarching concept, general engineering strategy, and supporting preclinical observations.

1:50 T Cell Engagers Targeting Common Driver Mutations Enable Tumor-Exclusive Activity

Vipin Suri, PhD, CSO, Clasp Therapeutics

T cell engagers (TCEs) can redirect immune cells to eliminate solid tumors, but their therapeutic index is limited by the scarcity of truly tumor-specific antigens that remain expressed under immune pressure. Neoantigens from driver mutations are both tumor-exclusive and essential for survival. Clasp's TCEs targeting p53 and KRas neoantigens demonstrate high selectivity and potent anti-tumor activity in preclinical models, offering a precision approach to immunotherapy.

EXPANDING INTO AUTOIMMUNITY AND INFLAMMATION

2:20 EM1042, a First-in-Class Bispecific TCE, Drives Deep Eosinophil Depletion and Broader Immunomodulation for the Treatment of Chronic Inflammatory and Allergic Diseases

Chengbin Wu, PhD, Founder & CEO, EpimAb Biotherapeutics, Inc.

EM1042 is a first-in-class TCE targeting eosinophils for treating eosinophil-related chronic inflammatory and allergic diseases. *In vitro*, it depletes eosinophils more effectively than the benralizumab analog, with minimal CRS. In murine asthma models, its surrogate molecule reduced tissue eosinophil and IgE more than the parental mAb, due to depletion of specific B cell subsets. In a monkey asthma model, EM1042 induced significantly deeper eosinophil depletion than the benralizumab analog.

2:50 Presentation to be Announced

Promega

3:20 Networking Coffee & Refreshment Break

4:05 Transition to Plenary Keynote Session

PLENARY KEYNOTE

4:15 Plenary Keynote Introduction

Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

4:25 CARs 2026: New Models and New Runways

Michel Sadelain, MD, PhD, Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

T cell engineering holds great promise for the treatment of cancers and other pathologies. The original chimeric antigen receptor (CAR) prototypes targeting CD19 are now giving way to further refined receptors endowed with greater sensitivity and combinatorial possibilities. Emerging new targets and engineering tools augur favorably for broadening the use of CAR therapies.

YOUNG SCIENTIST KEYNOTE

5:10 Deep Learning-Based Binder Design to Probe Biology

Martin Pacesa, PhD, Assistant Professor, Pharmacology, University of Zurich

Protein-protein interactions are central to biology and drug discovery, yet traditional antibody generation is slow and costly. BindCraft is an open-source, automated computational pipeline for *de novo* protein binder design that routinely yields nanomolar binders with 10-100% experimental success, without high-throughput screening or maturation. We illustrate applications to peptides, cell-surface receptors, allergens, and gene editors, and outline how deep-learning workflows can accelerate next-generation therapeutics, diagnostics, and bioprocessing.

5:55 Welcome Reception in the Exhibit Hall with Poster Viewing

7:15 Close of Day

TUESDAY, MAY 12

7:45 am Registration and Morning Coffee

AI/ML APPROACHES, LOGIC-GATED TCEs

8:30 Chairperson's Remarks

Rachel Rennard, PhD, Senior Vice President, Research, Stereo Biotherapeutics

8:35 AbiLeap—A Platform to Build Logic-Gated CD3-Based Immune Engagers

Patricia Giblin, PhD, CSO, Ability Biotherapeutics

Ability Biotherapeutics developed AbiLeap, an AI-enabled platform that systematically designs conditionally active, logic-gated antibodies. Focusing on CD3 and select tumor antigens such as mesothelin, these molecules overcome key therapeutic limitations by activating only in the tumor microenvironment while remaining inert in normal tissue. We demonstrate how AbiLeap enables on-demand generation of large antibody sets meeting defined design criteria for the efficient creation of logic-gated immune engagers.

9:05 Optimizing TCEs for Selective Tumor-Cell Killing through Machine Learning and High-Throughput Functional Screening

Winston Haynes, PhD, Vice President, Computational Sciences and Engineering, LabGenius Therapeutics

LabGenius Therapeutics' platform leverages avidity-driven selectivity to overcome T cell engager (TCE) challenges, including on-target, off-tumor toxicity. We describe how the closed-loop integration of high-throughput experimentation with machine learning has facilitated the discovery and optimization of multispecifics for function and developability. We share *in vitro* data demonstrating selective tumor-cell killing, alongside *in vivo* data highlighting the efficacy and tolerability of our lead asset, a highly tumor-selective bispecific TCE.

MULTISIGNAL T CELL ACTIVATION

9:35 Targeting Alternative T Cell Effector Pathways to Enhance the Anti-Tumor Activity of CD3-Engaging Bispecific Antibodies

David J. DiLillo, PhD, Senior Director, Regeneron Pharmaceuticals

Preclinical and clinical data support combinations of bispecific antibodies engaging distinct T cell signaling pathways. Co-localizing signal 1 (TCR/CD3) and signal 2 (costimulation) within the tumor microenvironment by combining CD3-engaging and costimulatory pathway-engaging bispecific antibodies drives superior anti-tumor responses. Integrating signal 3 (cytokine support) through targeted delivery of cytokine signaling also enables deeper and more durable anti-tumor responses.

10:05 Sponsored Presentation *(Opportunity Available)*

10:35 Coffee Break in the Exhibit Hall with Poster Viewing

11:15 Conditionally Active Costimulatory T Cell-Engager Programs for Autoimmunity and Solid-Tumor Indications

Tony R. Arulanandam, DVM, PhD, CEO and Founder, Synaptimmune Therapeutics

Synaptimmune Therapeutics, in collaboration with Lyvgen Biopharma, is developing conditionally active costimulatory T cell engagers (TCE) for autoimmune diseases and solid tumors. Leveraging our proprietary conditionally active (hidden CD3 binder) and integrated costimulation TCE platform (TROY-Ig) we have developed more potent and safe conditionally active 4-1BB costimulatory CD19 x CD20 TCEs (SYN8034) for autoimmunity and conditionally active CD2 costimulatory DLL3 TCEs (SYN8463) for SLC solid-tumor clinical development.

RNA-ENCODED TCEs

11:45 RNA-Encoded T Cell Engagers for Immunotherapy of Multiple Myeloma

Elizabeth Carstens, MD, Instructor, Dana-Farber Cancer Institute

Oncology has arguably the greatest potential to benefit from mRNA technology, as antibody-based immunotherapies, which can easily be encoded as mRNA, have revolutionized care for many cancer types. Despite recent advances, multiple myeloma (MM) remains a largely incurable malignancy where patients cycle through many therapies. We have developed dual-targeting mRNA-encoded T cell engagers for combination treatment of MM, to improve depth and durability of remission.

12:15 pm Sponsored Presentation *(Opportunity Available)*

12:45 Session Break

12:50 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:50 Close of Emerging T Cell Engagers Conference

6:30 Recommended Dinner Short Course

SC8: The Dark Proteome: Unlocking Novel Targets for Next-Generation Biologics

*Separate registration required. See short course page for details.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC3: Challenges and Opportunities in Solid Tumor and Autoimmune Disease Therapeutics
*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

IMPROVING THE OUTCOME OF IMMUNOTHERAPIES

2:25 Chairperson's Remarks

William Redmond, PhD, Member and Director, Immune Monitoring Laboratory, Earle A. Chiles Research Institute, Providence Cancer Institute

2:30 KEYNOTE PRESENTATION: Manipulating the Commensal Microbiome to Improve Immunotherapy Efficacy

Thomas F. Gajewski, Abbvie Foundation Professor, Pathology & Cancer Research, University of Chicago

Gut bacteria have been identified that are enriched in anti-PD-1 responders versus non-responders. Mechanistic experiments have demonstrated a causal relationship through immune mechanisms. Anaerobic culture methods are identifying specific bacteria that either promote or inhibit anti-tumor immunity. Prebiotics are being uncovered that can expand favorable bacteria *in vivo*, and metabolites liberated by those bacteria are also being identified and studied for functional effects.

3:00 HLA-Agnostic T Cell Receptor Recognition of Cancer

Andrew Sewell, PhD, Distinguished Research Professor & Wellcome Trust Senior Investigator, Division of Infection and Immunity, Cardiff University School of Medicine

We identify dominant anticancer T cell clonotypes from patients who clear metastatic cancer. While some recognize HLA-restricted neoantigens, others use a single TCR to target multiple different shared tumor-associated antigens across diverse cancers. Remarkably, some clonotypes recognize many tumor types without HLA restriction. These HLA-unrestricted TCRs and their ligands overcome a central barrier in T cell immunotherapy, opening new paths toward broadly applicable treatments across patients and cancer types.

3:30 Presentation to be Announced

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

4:40 Fas Ligand Blockade in Cancer Immunotherapy

Matthew Taylor, MD, Associate Member, Developmental Cancer Therapeutics Laboratory, Earle A. Chiles Research Institute, Providence Cancer Institute

T cell homeostasis is regulated in part by the extrinsic cell death pathway mediated by fas ligand (FasL) binding to the Fas receptor. Tumor-specific T cells undergo apoptosis following interaction with FasL. In preclinical studies, blockade of FasL results in improved T cell persistence, tumor infiltration and antitumor efficacy. FasL inhibition may represent a novel cancer immunotherapy and could augment the efficacy of immune checkpoint inhibitors and adoptive cell therapies.

NOVEL BISPECIFICS AND IMMUNE CELL ENGAGERS

5:10 High-Throughput Engineering of Novel Bispecific Antibodies for Cancer

Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School

Bispecific antibodies (bsAbs) have emerged as one of the most promising therapeutic modalities in cancer. We have developed a high-throughput platform to engineer and test the function of bsAbs at scale. Our approach has been successfully applied to discover novel bsAbs that target cancer cells, macrophages, or T cells. In the future, this system could be applied to test libraries of 100,000s of bsAbs for cancer or other life-threatening diseases.

5:40 A Novel Platform Technology for the Development of NK Cell-Based Cellular Immunotherapies—Opportunities for Combinations

Matthias Peipp, PhD, Research Head & Mildred Scheel Professor, Stem Cell Transplantation & Immunotherapy, University of Kiel

This talk will outline a platform designed to support the development of NK cell-based immunotherapies. It will look at how these therapies can be applied across different diseases and where they may offer advantages. The session will also touch on opportunities to combine NK cell therapies with NK cell engagers, highlighting how these approaches may work together to expand treatment options in the future.

6:10 Close of Day

6:30 Recommended Dinner Short Course

SC8: The Dark Proteome: Unlocking Novel Targets for Next-Generation Biologics
*Separate registration required. See short course page for details.

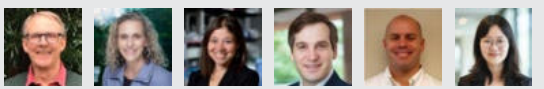
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:

Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology

Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University

Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School

Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder

Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

TARGETING SOLID TUMORS

10:00 Chairperson's Remarks

Daniel J. Powell Jr., PhD, Professor, Pathology & Laboratory Medicine, University of Pennsylvania

10:05 Overcoming Challenges in CAR T against Solid Cancers: Phase I Study and Back to Bench

Moonsoo M. Jin, PhD, Professor of Radiology, Academic Institute, Houston Methodist

I will present our "tune-and-track" CAR T cell platform, engineered with affinity-tuned receptors for selective targeting of tumors overexpressing ICAM1. These CAR T cells also co-express SSTR2, enabling noninvasive imaging via PET/CT. This therapeutic approach has been evaluated in a Phase I clinical trial for patients with advanced thyroid cancer. In addition, I will discuss complementary strategies aimed at enhancing the safety and efficacy of CAR T for solid tumors.

10:35 KITv Costimulatory Domain in CAR T Cells Tuned to Solid Tumors Cell Therapy

Prasad Adusumilli, MD, FACS, FCCP, Deputy Chief and Attending, Thoracic Surgery; Vice Chair, Department of Surgery; Director, Mesothelioma Program, Memorial Sloan-Kettering Cancer Center; Associate Professor, Cardiothoracic Surgery, Weill Cornell Medical Center

In solid tumors cell therapy, our preclinical and clinical data to date show that CD28 and 4-1BB costimulatory domains in CAR T cells are insufficient to achieve cytotoxicity against heterogenous antigen expressing cancer cells. We exploited KITv costimulatory domain that functions through IFN-gamma pathway through an IL-2 independent mechanism. Mesothelin-targeted CD28 and KITv costimulated CAR T cells are effective against high, low, and non-antigen expressing cancer cells within the tumor.

11:05 Presentation to be Announced

BIO-RAD

11:35 Session Break

11:40 Luncheon Presentation to be Announced

KACTUS lightcast

12:10 pm Luncheon Presentation to be Announced

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

1:35 Chairperson's Remarks

Huan Yang, PhD, Associate Principal Scientist, Discovery Biologics, Merck & Co. Inc.

1:40 Targeting of Intracellular Oncoproteins with CAR T Cells

Daniel J. Powell Jr., PhD, Professor, Pathology & Laboratory Medicine, University of Pennsylvania

This presentation will introduce peptide-centric CAR T strategies designed to recognize intracellular oncoproteins via naturally presented, unmutated peptides. Using recent findings as context, it will outline how immunopeptidome profiling and computational modelling can guide receptor design and support cross-allotype targeting. The talk will broadly discuss preclinical evidence, potential advantages for low-mutation cancers, and key considerations for advancing these approaches toward clinical translation.

AI/ML CELL THERAPY DESIGN

2:10 AI-Based T Cell Therapy Design

Zinaida Good, PhD, Assistant Professor, Department of Medicine, Stanford University

This presentation will explore how artificial intelligence can support the design and optimization of T cell therapies. It will consider ways that computational models, data-driven workflows, and *in silico* prediction may help guide target selection, receptor and construct design, and candidate prioritization.

OVERCOMING RESISTANCE

2:40 Overcoming BCMA CAR T Resistance by Targeting MZB1

Jianzhu Chen, PhD, Professor, Biology, Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology

We have developed one-step construction of allogeneic CAR-NK cells that evade host-mediated rejection by combining selective interference of HLA-I expression, a CAR and PD-L1. CAR-NK cells overexpressing PD-L1 exhibit enhanced anti-tumor activity through upregulation of cytotoxic genes and reduced exhaustion and enhanced safety profile due to the decreased production of inflammatory cytokines involved in cytokine release syndrome. Thus, our approach represents a promising strategy in enabling "off-the-shelf" allogeneic cellular immunotherapies.

3:10 LUNCHEON PRESENTATION: How Specific Are Antibody Drugs? Revealing Insights from a New Generation of Specificity Assays

integral molecular

Rachel Fong, Senior Director, MPA Commercial Operations, Integral Molecular

Off-target binding is a significant hurdle in the development of antibody-based therapies, contributing to both drug attrition and adverse events in patients. Recent analysis from our own work identified a surprisingly high off-target rate across the industry, with up to one third of antibody drugs displaying off-target binding. In this presentation, we will discuss the emergence of cell-based protein arrays, including the membrane proteome array, as an alternative and improved technology to assess antibody specificity.

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

IMMUNOTHERAPIES FOR AUTOIMMUNE DISORDERS

4:20 The Future of Cell Therapy in Autoimmune Disease

Ricardo Grieshaber-Bouyer, Professor, Head of the Clinical Trial Unit, Clinical Systems Immunology, FAU Erlangen-Nürnberg and University Hospital Erlangen

This presentation reviews cell therapies in autoimmunity and the mechanistic basis for cell therapies in mediating deep cell depletion. I will discuss various targets, including CD19, BCMA, emerging targets, and dual-targeting strategies. Modalities such as autologous and allogeneic CAR T, CAR NK, *in vivo* CAR, and T cell engagers will be examined across different disease indications, highlighting future directions that shape the field.

4:50 FOXP3 Engineered CD4 T Cells for Use in Treg-Based Immunotherapy

Stella Khiew, PhD, Senior Scientist, Merck & Co.

Therapies based on enhancing the function and numbers of Tregs represent one of the most promising approaches to restore tolerance in many immune-mediated diseases. The aim of our study is to reprogram the effector T cells to become Treg-like phenotype, which has not been fully characterized. We also explored novel engineering to increase the stability of Treg reprogramming. Among several constructs tested, some show enhanced Treg-like phenotype and functional profile.

5:20 Dual Engagement of IL-2 and TGF-β Receptors Promotes Treg Induction and Function to Prevent Autoimmunity

Richard J. DiPaolo, PhD, Professor and Chair, Molecular Microbiology & Immunology, Saint Louis University

This talk will present preclinical data demonstrating that CUE-401, a novel bispecific fusion protein comprising an IL-2/TGF-ß fusion protein, selectively expands, activates, and induces regulatory T cells (Tregs)—including both natural (nTregs) and induced (iTregs)—that are functionally suppressive, phenotypically stable, and effective in ameliorating disease in murine models of autoimmunity.

5:50 A Novel TGF-Beta/IL-2 Fusion Protein Targeting Autoimmune Diseases

Ahmet S. Vakkasoglu, PhD, Associate Director, Biologics Discovery and Innovation, Cue Biopharma

CUE-401, our lead autoimmune asset, is a novel bifunctional fusion molecule integrating a clinically validated IL-2 mutein with an attenuated TGF-ß domain to act as a master switch for Treg differentiation and immune tolerance. It expands existing Tregs, induces new iTreg subsets, and demonstrates *in vivo* efficacy with favorable manufacturing readiness as it advances toward clinical evaluation.

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Advances in Immunotherapy Conference

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC3: Challenges and Opportunities in Solid Tumor and Autoimmune Disease Therapeutics

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

6:30 pm Recommended Dinner Short Course

SC8: The Dark Proteome: Unlocking Novel Targets for Next-Generation Biologics

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Organizer's Remarks

IN VIVO CAR T: PRECLINICAL TO CLINICAL

8:45 Chairperson's Remarks

Adrian Bot, MD, PhD, Former CSO, Executive Vice President, R&D, Capstan Therapeutics

8:50 Immunotherapy Landscape: The *in vivo* Opportunity for Solving Industry-Wide Unmet Need

Ryan Crisman, PhD, Co-Founder & CTO, Umoja Biopharma

9:20 Leveraging Targeted Lentiviral Vectors for *in vivo* CAR-Cell Generation

James I. Andorko, PhD, Director, In Vivo Discovery, Kite Pharma (formerly Interius BioTherapeutics Inc.)

Lentiviral vectors provide a platform for *in vivo* delivery of genetic medicines and a means to simplify CAR T cell therapy. Here, we have designed an engineered delivery system to specifically target and transduce cells directly inside the body following a single intravenous injection. Preclinical mouse and non-human primate models supported advancement to a Phase 1 trial evaluating the safety of INT2104 in refractory/relapsing B-cell malignancies.

9:50 Latest Developments in *in vivo* CAR T: Transient vs. Viral Delivery

John Rossi, PhD, Vice President, Translational Medicine, Capstan Therapeutics

10:20 Sponsored Presentation *(Opportunity Available)*

10:35 Presentation to be Announced

NOF

10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience

Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:

- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:
Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.
Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca
Joshua Meier, Co-Founder & CEO, Chai Discovery
Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

IN VIVO CAR T: PRECLINICAL TO CLINICAL

2:05 Chairperson's Remarks

Adrian Bot, MD, PhD, Former CSO, Executive Vice President, R&D, Capstan Therapeutics

2:10 Toward the Democratization of CAR T Cell Therapies for Cancer

Kevin M. Friedman, PhD, CEO, Kelonia Therapeutics Inc.

Kelonia's iGPS platform is redefining the CAR T cell landscape by shifting from complex, costly *ex vivo* manufacturing to *in vivo* gene delivery that enables CAR T cell generation directly inside the patient. Preclinical data suggests that by harnessing iGPS technology Kelonia's lead program, KLN-1010, could potentially maintain or even improve the transformative clinical responses that have made CAR T cell therapy a breakthrough for patients suffering from multiple myeloma.

2:40 Transforming Immunotherapy through Multi-Immune Cell Programming *in Vivo*

Robert J. Hofmeister, PhD, CSO, CREATE Medicines

CREATE Medicines develops mRNA-based immunotherapies to directly program immune cells *in vivo,* thereby eliminating complex *ex vivo* manufacturing and reduced time to treatment. Cell-specific CAR mRNA products delivered through lipid nanoparticles enable us to launch a multi-immune cell attack on cancer or autoreactive cells. Preclinical studies in mice and non-human primates highlight the potential of a multi-pronged *in vivo* cell therapy to drive stronger and longer-lasting outcomes for patients.

3:10 PANEL DISCUSSION: Learnings from Current *in vivo* CAR T Programs

Moderator: Adrian Bot, MD, PhD, Former CSO, Executive Vice President, R&D, Capstan Therapeutics

Panelists:

Ryan Crisman, PhD, Co-Founder & CTO, Umoja Biopharma

James I. Andorko, PhD, Director, In Vivo Discovery, Kite Pharma (formerly Interius BioTherapeutics Inc.)

3:40 Sponsored Presentation *(Opportunity Available)*

4:10 Networking Refreshment Break

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LIPID NANOPARTICLES FOR *IN VIVO* CAR T

4:40 Latest Developments in LNP Delivery for *in vivo* Engineering

Hamideh Parhiz, PharmD, PhD, Assistant Professor, Department of Pharmacology, University of Pennsylvania

Targeted delivery of RNA-based therapeutics for *in vivo* cellular reprogramming holds significant potential. In this talk, I will explain how we can selectively target mRNA therapeutics to specific cells and cell subtypes using antibody-modified lipid nanoparticles. Additionally, I will discuss the recent potential applications we've explored with this platform technology.

5:10 The Development of a Lipid Nanoparticle Platform for *in vivo* CAR T

Andrew J. Sawyer, PhD, Distinguished Scientist & Oncology Project Lead, Immune Cell Reprogramming, Sanofi Group

CAR T cell therapy has set a new benchmark in patients with certain hematologic malignancies, but significant barriers to patient access remain. In this talk we will present the design and characterization of an LNP system designed to reprogram T cells *in vivo*. This system can specifically transfect T cells with an active CAR *in vitro* and *in vivo* and has the potential to revolutionize patient access to cell therapies.

5:40 Extra-Hepatic Delivery of Nucleic Acids via LNPs

Jagesh V. Shah, PhD, Senior Vice President, Head of Platform, Mirai Bio

Extrahepatic targeting for genetics medicines remains a key challenge. Mirai Bio has built an open platform driven by machine intelligence and *in vivo* barcoding to develop next-generation ionizable lipids and formulations. These base LNPs can be tuned for high on-target delivery to chosen cell types and favorable off-target selectivity, specifically reduced liver delivery. Further increases in potency and selectivity are seen through the addition of targeting moieties to the surface.

6:10 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

INTERACTIVE ROUNDTABLE DISCUSSIONS

7:30 Interactive Roundtable Discussions with Continental Breakfast

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

BEYOND FIRST-GENERATION *IN VIVO* CAR T

8:25 Chairperson's Remarks

Sara M. Mangsbo, PhD, Professor, Pharmacy, Uppsala University

8:30 T Cell Targeted Vectors for *in vivo* CAR Delivery

Christian J. Buchholz, PhD, Professor & Head, Molecular Biotechnology & Gene Therapy, Paul Ehrlich Institut

Highly effective, yet complex to manufacture, simplifying CAR T cell generation is at the forefront of current research. The recent progress in generating CAR T cells directly in the patient relies heavily on vector technology, particularly high selectivity for T lymphocytes. This presentation will discuss different vector platforms focusing especially on engineering strategies for lentiviral vectors, AAV vectors and lipid nanoparticles displaying DARPins recognizing T cell marker as entry receptor.

9:00 *In vivo* Site-Specific of Large DNA Payload to Reprogram T Cells

Justin Eyquem, PhD, Associate Professor, Department of Medicine, University of California San Francisco

Here we demonstrate that stable and cell-specific transgene expression can be achieved through *in vivo* site-specific integration of large DNA payloads. We developed a two-vector system to deliver CRISPR-Cas9 and DNA template. We optimized both vectors for specificity of delivery to T cells and knock-in efficiency. By integrating a CAR transgene into a T cell-specific locus we generated *in vivo* therapeutic levels of CAR-T cells in hematological and solid malignancies.

9:30 Streamlined Fusion Protein Surface Decorated LNP for Specific Drug Delivery of mRNA Therapeutics

Sara M. Mangsbo, PhD, Professor, Pharmacy, Uppsala University

Targeted delivery of lipid nanoparticles (LNPs) using protein-based strategies can expand the clinical use of RNA therapeutics. While antibody conjugation is promising, scalable production remains challenging. We designed a synthetic peptide tag-lipid integration and an ApoE2-tag design enabling subsequent rapid antibody dressing of LNPs. This approach preserves particle integrity during storage and supports scalable production, offering a viable path for precision delivery in RNA-based treatments.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

NEXT-GENERATION IMMUNOTHERAPIES

10:45 Therapeutic mRNA Cancer Vaccine by CATP

Yingzhong Li, PhD, President, SunVax mRNA Therapeutics

Achieving sufficient therapeutic payload delivery remains a significant challenge in gene therapy. To address this, we co-deliver self-amplifying mRNA (SamRNA) encoding therapeutic payloads and modified mRNA encoding alphavirus capsids and envelopes (CATP), initiating two waves of amplifications of therapeutic payloads by SamRNA and defective viral particles infection of neighboring cells for secondary payload amplification. The CATP represents a transformative approach to gene therapy and a potent platform for cancer immunotherapy.

11:15 Non-Viral Gene-Editing Approaches for Next-Generation CAR T Cell Therapies: Harnessing C4DNA-Mediated Genomic Integration

Hao Howard Wu, PhD, Co-Founder & CSO, Full Circles Therapeutics

At Full Circles, we developed C4DNA, a non-viral genome-writing platform generating programmable mini-circular single-stranded DNAs (up 20 kb) for precise, efficient transgene integration. C4DNA achieves up to 70% knock-in efficiency in iPSCs and primary immune cells using diverse editors. In CAR T and NK cells, it offers high precision, safety, and scalability, addressing key AAV and dsDNA limitations and enabling next-generation non-viral immune cell therapies for cancer and autoimmune diseases.

11:45 Drug-Regulated Synthetic Cytokine Receptors for Controlled *in vivo* Expansion of Cell Therapies

Louai Labanieh, PhD, Assistant Professor, Department of Immunology and Immunotherapy, Icahn School of Medicine at Mount Sinai

Delivering cytokine signals to engineered T cells expands them to therapeutic levels, but systemic cytokines or constitutive signaling cause toxicities. Tools for safely expanding CAR-T cells using small molecule-inducible systems are lacking. We developed modular synthetic cytokine receptor platforms delivering cytokine signals (gamma chain cytokines and others) via an FDA-approved small molecule. CAR-T cells expressing these receptors demonstrate enhanced expansion, persistence, and anti-tumor efficacy in difficult-to-treat tumor models *in vivo*.

12:15 pm Close of Summit

EXPRESSION STREAM

Enhancing Efficiency, Quality, and Cost-Effectiveness

Recombinant protein expression is time-consuming, technically challenging, and underappreciated. Yet its impact is foundational for biological research and biopharmaceutical development. The PEGS Boston Summit Expression Stream explores strategies to overcome expression, production, and purification challenges, compare host systems, implement automation, and refine scalable workflows.

EXPRESSION STREAM CONFERENCES

MAY 11-12

Difficult-to-Express Proteins

AGENDA

MAY 12-13

Optimizing Protein Expression

AGENDA

MAY 14-15

Maximizing Protein Production Workflows

AGENDA

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

MONDAY, MAY 11

7:00 am Registration and Morning Coffee

8:20 Organizer's Opening Remarks

Mary Ann Brown, Executive Director, Conferences, Cambridge Healthtech Institute

INTEGRATED STRATEGIES FOR CHALLENGING PROTEIN EXPRESSION

8:25 Chairperson's Remarks

Felix Findeisen, PhD, Principal Scientist II, Protein Therapeutics, Gilead Sciences

8:30 The Anatomy of Difficulty: What Makes a Protein Challenging to Produce and Characterize, and What Tools Enable Success?

Ethan Dunn, Associate Principal Scientist, Discovery Biologics, Merck

9:00 Design of Intrinsically Disordered Region Binding Proteins

Kejia Wu, PhD, Protein Design Lab, University of Washington

Intrinsically disordered proteins (IDPs) and regions (IDRs) control key "undruggable" processes in transcription, phase separation, and aggregation. I will describe a deep-learning–driven design framework that treats IDRs as programmable targets, generating *de novo* binders and proteases to disordered sequences and PTM-defined epitopes with high affinity and specificity. These designer proteins enable targeted inhibition, relocalization, or cleavage of disease-relevant IDRs in cell receptors, oncogene, neurodegenerative-relevant proteins, and viral oncogenic proteins.

9:30 Optimizing Baculovirus Expression Vector Systems for Difficult Recombinant Protein Targets

Carissa Grose, Co-Director, Protein Expression Laboratory, Cancer Research Technology Program, Leidos Biomedical Research Inc

We have been working to improve BEVS by experimenting with different insertion sites in the baculovirus genome and testing alternative baculovirus promoters to improve quality and yield for more complex target proteins. We have also demonstrated significant improvement in stability of the gene of interest over multiple passages.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

11:00 Innovations in Cell-Free Protein Synthesis for Therapeutic Development

Megan A. McSweeney, PhD, Postdoctoral Scholar, Jewett Lab, Stanford University

Cell-free protein synthesis (CFPS) is emerging as a transformative platform for recombinant therapeutic production. Here, we present advances in bacterial CFPS systems that improve yield, scalability, and product quality while accommodating complex modalities, including post-translational modifications like glycosylation. These innovations position CFPS to accelerate therapeutic discovery, streamline development, and enable flexible, distributed biomanufacturing for next-generation biologics.

11:30 Effect of Different Cell Culture Media on the Production and Glycosylation of a Monoclonal Antibody from a CHO Cell Line

Jaeweon Lee, Graduate Student, Chemical Engineering, University of Massachusetts Lowell

Three chemically defined media for CHO-K1 production of the VRC01 mAb were compared in this study regarding growth, titer, and N- glycosylation. ActiCHO P achieved high productivity and the most consistent glycan profiles, closely matching ActiPro, whereas EX-CELL 325 showed lower performance. Because media changes can alter critical quality attributes, comparability is essential. Results indicate ActiCHO P is a reliable alternative medium without compromising product quality.

12:00 pm Session Break

12:10 Luncheon Presentation to be Announced

12:40 Luncheon Presentation to be Announced

SAMSUNG BIOLOGICS
primrose bio

1:10 Session Break

ADVANCING GPCR PRODUCTION WORKFLOWS FOR DISCOVERY

1:15 Chairperson's Remarks

Timothy K. Craig, PhD, Associate Research Fellow, Pfizer Inc.

1:20 Establishing GPCR Production Workflows to Support Large- and Small- Molecule Discovery Programs

Felix Findeisen, PhD, Principal Scientist II, Protein Therapeutics, Gilead Sciences

Production of a wide variety of clinically relevant G-protein coupled receptors at quantities sufficient for a variety of downstream applications is challenging. Therefore, we established and improved screening methods to evaluate membrane protein construct expression and solubilization. Furthermore, we show translatability of production from milliliter to 10-liter scale. Using several examples, we show how our purification workflow can produce GPCRs, including for immunization, structural biology, and biophysical characterization.

1:50 Engineered Scaffolds for Soluble GPCR Expression

Alexander Taguchi, PhD, Director of Machine Learning, iBio Inc.

GPCR targets are recombinantly expressed in soluble form using machine learning–designed engineered scaffolds. These engineered GPCR surrogates express well, support post-translational modifications by production in human cells, bind specifically to their native ligands, and are structurally validated using experimental methods. This strategy enables high-yield, soluble expression of previously intractable GPCRs in a functionally and structurally validated format to support drug discovery efforts.

2:20 GPCR Production Supporting DNA Encoded Library Screening

Timothy K. Craig, PhD, Associate Research Fellow, Pfizer Inc.

GPCRs are a class of highly druggable targets that are difficult to access in recombinant systems in amounts and quality sufficient for binding-first methods, including DNA Encoded Library (DEL) screening for hit finding and then also for follow-up of hits. In this talk, I will review some of our successful strategies and tactics for accessing these targets using membrane mimetics including SMALPs and other detergent-free formulations.

Fyoni Bio

2:50 Presentation to be Announced

3:05 Sponsored Presentation
(Opportunity Available)

3:20 Networking Coffee & Refreshment Break

4:05 Transition to Plenary Keynote Session

PLENARY KEYNOTE

4:15 Plenary Keynote Introduction

Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

4:25 CARs 2026: New Models and New Runways

Michel Sadelain, MD, PhD, Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

T cell engineering holds great promise for the treatment of cancers and other pathologies. The original chimeric antigen receptor (CAR) prototypes targeting CD19 are now giving way to further refined receptors endowed with greater sensitivity and combinatorial possibilities. Emerging new targets and engineering tools augur favorably for broadening the use of CAR therapies.

YOUNG SCIENTIST KEYNOTE

5:10 Deep Learning-Based Binder Design to Probe Biology

Martin Pacesa, PhD, Assistant Professor, Pharmacology, University of Zurich

Protein-protein interactions are central to biology and drug discovery, yet traditional antibody generation is slow and costly. BindCraft is an open-source, automated computational pipeline for *de novo* protein binder design that routinely yields nanomolar binders with 10-100% experimental success, without high-throughput screening or maturation. We illustrate applications to peptides, cell-surface receptors, allergens, and gene editors, and outline how deep-learning workflows can accelerate next-generation therapeutics, diagnostics, and bioprocessing.

5:55 Welcome Reception in the Exhibit Hall with Poster Viewing

7:15 Close of Day

TUESDAY, MAY 12

7:45 am Registration and Morning Coffee

INNOVATION AT THE INTERFACE FOR COMPLEX PROTEIN PRODUCTION

8:30 Chairperson's Remarks

Deborah Moore-Lai, PhD, Vice President, Protein Sciences, ProFound Therapeutics

8:35 Design-Driven Optimization of Low-Cost High-Yielding Cell-Free Protein Synthesis

Ashty S. Karim, PhD, Assistant Professor, Chemical & Biological Engineering, Northwestern University

Access to recombinant proteins is vital for biotechnology. Cell-free protein synthesis systems could address this need, but widespread utilization remains limited by cost and complexity. To address these limitations, we discovered a simple and reproducible system that can produce up to 3.7 ± 0.2 g/L at a ~99% reduction in cost. We anticipate that our work will further democratize the use of cell-free systems for protein manufacturing and biotechnology.

9:05 FEATURED PANEL DISCUSSION: Convergence in Protein Science: The New Interface Where Computational Creativity, Experimental Rigor, and Hybrid Talent Meet

Moderator: Deborah Moore-Lai, PhD, Vice President, Protein Sciences, ProFound Therapeutics

ML/AI is generating unprecedented designer proteins, but their value depends on experimental confirmation. This panel explores how *in silico* models integrate with mammalian, yeast, *E. coli*, and cell-free expression systems, supported by display technologies for functional validation. Experts discuss strategies to assess expressibility, folding, and scalability, and how unified digital–wet lab workflows accelerate multi-modality therapeutic development.

Panelists:

Ashty S. Karim, PhD, Assistant Professor, Chemical & Biological Engineering, Northwestern University

Carter A. Mitchell, PhD, CSO, Purification & Expression, Kemp Proteins, LLC

10:05 Presentation to be Announced

10:35 Coffee Break in the Exhibit Hall with Poster Viewing

11:15 From Strain to Purification: A Systems Engineering Approach to Streamlined Nanobody Production

Romel Menacho-Melgar, PhD, CSO, Roke Biotechnologies

We present a systems engineering framework for microbial protein production that enables plug-and-play integration of advanced tools to unlock new manufacturing capabilities. By combining scalable two-stage expression, redox reprogramming for efficient disulfide bond formation, and cell-programmed downstream processing, we establish a unified platform for nanobody production.

11:45 Facile Antibody Conjugate Production by Interfacing Protein Engineering with Metabolic Glycoengineering

Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University

Antibodies have broad utility in imaging, targeted gene delivery, and disease therapy, and many of these applications require conjugation to secondary molecules. Unfortunately, conventional conjugation approaches are limited by destabilization of structure, heterogeneity, and technically demanding multi-step reactions. To overcome these challenges, we developed a straightforward and highly general platform for site-specific antibody conjugation that blends metabolic glycoengineering with protein design, presenting a highly efficient strategy to produce antibody conjugates.

12:15 pm Speed Without Compromise: Tailored CHO.RiGHT Cell Line Development for Any Antibody Format

Anneliese Krueger, Scientist, Pharmaceutical Cell Line Development, ProBioGen AG

ProBioGen established a fully optimized workflow that enables the rapid development of stable, high-yielding CHO cell lines, even for structurally complex antibodies. The DirectedLuck transposase ensures a stable and robust clone pool expression. This is achieved by advanced epigenetic targeting to the most active genomic sites. Complementary to this highly efficient gene delivery, our flexible, automated clone screening robotic system PSi.Bot and early high-throughput product analytics enable real-time decision-making and the early identification of high-performing clones. This combined approach sets new benchmarks for speed, scalability, and reliability in therapeutic protein development. It demonstrates that even the most complex biologics can be efficiently produced when all elements of cell line development are optimally aligned and finely tuned.

12:30 Presentation to be Announced

12:45 Session Break

12:50 Luncheon Presentation to be Announced

1:20 Luncheon Presentation to be Announced

1:50 Close of Difficult-to-Express Proteins Conference

6:30 Recommended Dinner Short Course

SC9: Automation in Action: Hands-on, Liquid Handling for Protein & Antibody Engineering

*Separate registration required. See short course page for details.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

Mary Ann Brown, Executive Director, Conferences, Cambridge Healthtech Institute

BALANCING PROTEIN DESIGN WITH EXPRESSION BIOLOGY

2:25 Chairperson's Remarks

Richard Altman, MS, Field Application Scientist, Thomson Instrument Company

2:30 FEATURED PRESENTATION: Challenging Protein Engineering and Expression Dogma

Ian Wilkinson, PhD, Co-Founder & CSO, mAbsolve Ltd.

In the quest for next-generation biologics, the drive for novel science is often eclipsed by the need to mitigate risk in an expensive process. The result is an undue focus on historical, clinically validated processes over scientific optimization. This presentation will challenge this entrenched complacency by rigorously scrutinizing long-held assumptions and established engineering and expression dogma with current clinical and scientific evidence.

3:00 GROQ-seq: A Massively Collaborative Approach to Addressing Protein Function Prediction

Kasia Baranowski, PhD, Program Manager, Open Datasets, Align Foundation

The Align Foundation, in partnership with NIST, has built a publicly available platform to advance protein sequence-to-function prediction. We are generating standardized functional data for hundreds of thousands of protein variants across diverse functions using our scalable, growth-based quantitative sequencing platform (GROQ-seq). With seven functions onboarded and multiple academic and facility partners, this growing resource is a coordinated field-wide effort to improve functional prediction models and benchmark library design strategies.

3:30 PUREfrex: The Rebuilt Protein Factory

GeneFrontier

Takashi Ebihara, COO, GeneFrontier Corporation

PUREfrex is a rebuilt cell-free protein expression system that transforms how proteins are produced and explored. Its modular design enables precise molecular control and broad adaptability—from expressing challenging biologics to supporting high-throughput workflows. PUREfrex serves as a flexible foundation for therapeutic protein development, synthetic biology, and ML/AI-driven innovation.

3:45 Presentation to be Announced

Demeetra

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

4:40 Engineering Recombinant CC49 IgG for Enhanced Solubility, Purity, and Thermal Stability in CHO Expression Systems

Zhihong Lin, PhD, Associate Research Fellow, Biologics Discovery & Design, Abbott Labs

Tumor-associated glycoprotein 72 (TAG-72) is a mucin overexpressed on cancer cells and targeted by the CC49 antibody. CC49 aggregates, reducing stability, solubility, and efficacy. Sequence analysis revealed aggregation-prone motifs, prompting engineered CC49 mIgG2a mutants (CC49M1–M3). These mutants achieved a 15-fold solubility enhancement, 97% vs. 70% purity, and a 10.9 °C thermal stability gain while retaining binding. Such enhancements position engineered CC49 as a highly promising for diagnostic and therapeutic applications.

5:10 PANEL DISCUSSION: The Recombinant Protein Pie Chart

Moderator: Richard Altman, MS, Field Application Scientist, Thomson Instrument Company

This panel explores how the landscape of recombinant proteins expressed has evolved over the past five years. The panel discusses and compares the classes of proteins more frequently produced then, such as traditional mAbs and receptors, and now, such as multispecific biologics and membrane proteins, and how they affect the acceleration of therapeutic innovation.

Panelists:

Ethan Dunn, Associate Principal Scientist, Discovery Biologics, Merck

Brian E. Hall, PhD, Distinguished Scientist, Large Molecule Research, Sanofi

Edward Kraft, PhD, Senior Director, Small Molecule Discovery, Leash Bio

6:10 Close of Day

6:30 Recommended Dinner Short Course

SC9: Automation in Action: Hands-on, Liquid Handling for Protein & Antibody Engineering

*Separate registration required. See short course page for details.

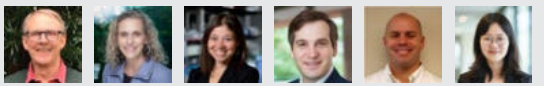
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:

Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology

Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University

Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School

Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder

Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

SELECTING, ENGINEERING, AND OPTIMIZING EXPRESSION PLATFORMS

10:00 Chairperson's Remarks

Kasia Baranowski, PhD, Program Manager, Open Datasets, Align Foundation

10:05 TniET: A Novel Baculovirus Titering Cell Line

Matthew R. Drew, Eukaryotic Protein Expression Lead, Protein Expression Lab, Frederick National Lab for Cancer Research

Titering of baculovirus stocks is a vital and necessary step in good protein production, though it is often subjective and/or time consuming and tedious. This newly developed cell line, aims to address the issues many of the current day titering techniques and offer a rapid, accurate method for obtaining viral stock titers.

10:35 Bridging AI Design and Rapid Experimental Validation: Optimizing Cell-Free Expression for Machine Learning Workflows

Adam Carr, Senior Scientist, Cell Free Production, BigHat Biosciences

BigHat Bioscience's platform couples AI design with a wet lab that enables rapid screening of thousands of antibodies per week. Powered by cell-free protein synthesis, our platform enables optimization of multiple antibody properties including affinity, function, and developability. We'll share key developments of our CFPS system which enable robust antibody characterization of *in silico* designs. We'll also highlight how our platform has optimized increasingly complex challenges for next-generation antibody therapeutics.

11:05 Presentation to be Announced

11:35 Session Break

11:40 Luncheon Presentation to be Announced

12:10 pm Luncheon Presentation to be Announced

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

ENHANCING BIOTHERAPEUTIC EXPRESSION & PRODUCTION

1:35 Chairperson's Remarks

Ayla Sessions, Associate Director, AstraZeneca

1:40 Combining UCB's Internal Antibody Expertise with External Innovations to Enhance CHO Cell Production

Mark Ellis, Senior Principal Scientist, UCB Pharma

2:10 Automating Mid-Scale Antibody Production: Bridging the Gap in Discovery Workflows with Novel Liquid Handling and Filtration Technologies

Ayla Sessions, Associate Director, AstraZeneca

Novel labware, integrated automation, and optimized workflows now enable efficient, high-throughput production and purification of antibodies at multi-milligram scales. Recent advances remove long-standing bottlenecks in harvesting and purifying harder to express antibody formats from mid-scale cultures, supporting seamless, end-to-end automation. These innovations accelerate discovery and development pipelines, advancing the automated manufacture of complex biologics previously limited by labor-intensive manual processes.

2:40 Featured Presentation: What Does a Protein Need for Efficient Protein Secretion?

Nathan E. Lewis, PhD, GRA Eminent Scholar and Professor, Center for Molecular Medicine Complex, Department of Biochemistry and Molecular Biology, University of Georgia

3:10 Presentation to be Announced

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

ALIGNING DATA AND BIOLOGY FOR ENHANCING EXPRESSION

4:20 A Deep Learning Model Trained on Expressed Transcripts across Different Tissue Types Reveals Cell-Type Codon-Optimization Preferences

Sandhiya Ravi, PhD, Postdoctoral Research Associate, University of Massachusetts Chan Medical School

Our deep learning framework analyzes highly expressed transcripts across multiple tissue types to uncover cell-type–specific codon-usage rules. By learning these endogenous patterns, the model generates optimized transgenes—without altering the amino acid sequence—that improve translation efficiency over wild-type and commercial tools. Using EGFP and luciferase benchmarks, we demonstrate enhanced expression across tissues and consistent *in vivo* AAV validation. This highlights data-driven codon design as a powerful strategy for optimizing protein expression.

4:50 Rethinking Transgene Design for Protein Expression

Jarrod Shilts, PhD, Group Leader, ExpressionEdits Ltd.

Despite recent advances in our understanding of genetic features that promote robust protein expression, transgenes in biotechnology have remained largely unchanged for decades. Natural human genes are rich in intron sequences that can drive these crucial expression benefits, but were previously difficult to replicate in artificial transgenes. At ExpressionEdits, we're changing this by deciphering 'genetic syntax' using high-throughput screening and machine learning to design intronized transgenes with improved protein expression.

5:20 Evaluating Codon Optimization Strategies for Mammalian Protein Production with an Open-source Expression Vector

Haisun Zhu, PhD, Associate Director, Antibody Platform, Institute for Protein Innovation

5:50 Leveraging Regulatory Elements to Improve Protein Yields

Monir Ejemel, Senior Scientist, Discovery Biotherapeutics, Bristol Myers Squibb Co

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Optimizing Protein Expression Conference

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

6:30 pm Recommended Dinner Short Course

SC9: Automation in Action: Hands-on, Liquid Handling for Protein & Antibody Engineering

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Remarks

Mary Ann Brown, Executive Director, Conferences, Cambridge Healthtech Institute

WORKFLOW MANAGEMENT: MEETING NEEDS BY INCREASING PRODUCTION EFFICIENCY

8:45 Chairperson's Remarks

Jessica Williamson, PhD, Head, US Protein Sciences, UCB

8:50 FEATURED PANEL DISCUSSION: Tailored to Fit: Protein Production for the Evolving Needs of Drug Discovery

Moderator: Jessica Williamson, PhD, Head, US Protein Sciences, UCB

Protein expression laboratories provide crucial reagents for many types of drug discovery efforts. This panel discussion will focus on the concepts, technologies, and strategies necessary to meet a large variety of recombinant protein needs.

- Scale and throughput
- Challenging proteins
- Managing people and resources
- Method development and new technologies
- Data management strategies

Panelists:

Heather Lopes, Director & Head, Protein Sciences, Aera Therapeutics

Anand Narayanan, PhD, Senior Scientist, Biologics Discovery, Johnson & Johnson

9:50 Introducing DRACO, an End-to-End Automated Cell Culture Seed Production Platform

Daniel Poole, PhD, Senior Scientist, Biologics HTP Expression Sciences, Johnson & Johnson Innovative Medicine

Maintaining sufficient volumes of high-quality seed culture is a major challenge, especially as more automated production platforms come online. These platforms typically demand 10-100L of cell culture with =99% viability each week, which at this scale is labor-intensive and difficult to automate. Here we are introducing a fully-automated platform to resolve these issues and bring reliability and scalability to traditional cell culture work.

10:20 Presentation to be Announced

FUTURE FIELDS

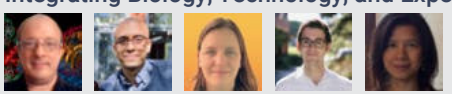
10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience



Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:

- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca

Joshua Meier, Co-Founder & CEO, Chai Discovery

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

DATA MANAGEMENT: MEETING NEEDS BY INCREASING PRODUCTION EFFICIENCY

2:05 Chairperson's Remarks

Mandy Li, Scientist II, Discovery Biologics, Merck & Co.

2:10 Expanding Solutions for Microfluidic Biologics: Novel Platform for Next-Generation Protein and Nucleic Acid Characterization

Kathryn A. Whitehead, PhD Candidate, Tripathi Lab, Biomedical Engineering, Brown University

Next-Generation biologics for biotherapeutics and drug development requires advanced and complex characterization assays. We present a novel device that enables complete sample preparation, including thermal heating, centrifugation, filtration, viscosity independent ML/AI integrated liquid handling, vacuum washing, and microfluidic electrophoresis procedures. This device enables higher complexity microfluidic characterization assays, particularly protein-based assays for biotherapeutic development to run independently, efficiently, and reproducibly.

2:40 Harnessing Design of Experiments and Automation, Significantly Improves Transient Protein Production and Accelerates Drug Discovery

Mandy Li, Scientist II, Discovery Biologics, Merck & Co.

Rapid protein production is crucial to enable early-stage discovery and lead optimization. This talk will highlight the integration of Design of Experiments (DOE) methodologies with automated liquid handling to systematically optimize key factors in a transient Chinese Hamster Ovary (CHO) expression system. Factors include plasmid DNA usage, transfection reagent, and transfection and feeding strategies to increase protein yield, while maintaining culture scale and compatibility with high-throughput automated protein production.

3:10 Cell-Free Expression of 20,000+ AI-Designed Proteins for Lab-in-the-Loop Validation

Julian Englert, MS, Co-Founder and CEO, Adaptyv Biosystems

3:40 Sponsored Presentation *(Opportunity Available)*

4:10 Networking Refreshment Break

THINK TANKS

4:40 IN-PERSON ONLY THINK TANKS

Mary Ann Brown, Executive Director, Conferences; Team Lead, PepTalk, Cambridge Healthtech Institute

- What challenges do we face?
- What improvements do you apply?
- What might address future needs?

5:10 Think Tank Report Outs: Listen and Learn

During the Think Tank Table discussions, we shared our experiences and working solutions for end-to-end protein production workflows. Now as a collective community, let's hear from the table facilitators as they share key discussion points and strategies. What can we take away and apply?

5:40 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

INTERACTIVE ROUNDTABLE DISCUSSIONS

7:30 Interactive Roundtable Discussions with Continental Breakfast

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

FROM AUTOMATION TO ANALYTICS: MAXIMIZING PROTEIN WORKFLOWS

8:25 Chairperson's Remarks

Brian E. Hall, PhD, Distinguished Scientist, Large Molecule Research, Sanofi

8:30 Automating Ultra-High-Throughput Protein Production by Synthetic Biology and AI

Haotian Guo, PhD, Founder & CEO, Ailurus Bio

High-throughput protein production remains a time-consuming, expensive bottleneck that relies heavily on trial-and-error experiments. Here we present a holistic, automation-friendly solution to maximize the efficiency, by leveraging synthetic biology and AI techniques. It involves the application of a massive library for multiplexed expression improvement and AI-aided optimization, and chromatography-free purification via synthetic organelles *in vivo*. This integrated pipeline de-risks discovery by making protein production a predictable, scalable, and automated engineering task.

9:00 Using High-Throughput Analytics to Streamline Multispecific Antibody Production

Brian E. Hall, PhD, Distinguished Scientist, Large Molecule Research, Sanofi

Production of multispecific antibodies is often complicated by product related impurities, such as mispaired species and half molecules. Without repeated productions and process optimization, it is hard to predict the impurities and downstream process. We will share an analytics platform that is implemented at harvest, prior to affinity chromatography consisting of HT MS, cGE, and analytical HPLC, to help quantitate impurities and guide purification strategies.

9:30 High-Throughput Protein Purification Meets Next-Gen DEL: A New Era in Chemoproteome Discovery

Edward Kraft, PhD, Senior Director, Small Molecule Discovery, Leash Bio

Mapping the human intracellular chemoproteome is a major frontier for drug discovery. I will present an optimized HT protein expression–purification pipeline integrated with a next-generation HT DEL screening platform designed to reduce historical noise sources through reengineered methodologies. With nearly 1,000 human proteins profiled, we reveal clearer protein–small-molecule interaction patterns and highlight how large, high-quality DEL datasets can significantly enhance the impact of ML/AI in SM therapeutic discovery.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

10:45 Enhancing Capability through Optimized Preparative and Small-Scale Automated Workflows

Heather Lopes, Director & Head, Protein Sciences, Aera Therapeutics

Protein Sciences at Aera Therapeutics has developed a robust multi-production platform that encompasses multiple expression systems, utilization of complex chromatography over automated 4-step and 2-step preparative purifications, and automated small-scale productions to support an internally built yeast display platform.

11:15 Accelerating the Drug Discovery Pipeline: Rapid Production and Characterization of Biologics to Shorten the Hit-to-Lead Timeline

Anand Narayanan, PhD, Senior Scientist, Biologics Discovery, Johnson & Johnson

Mammalian cell transfection enables the rapid generation of diverse large-molecule modalities for drug discovery. We have built an automated ecosystem to produce highly pure, complex antibodies suitable for cell-based functional assays and developability assessments. Although automation of protein production has grown exponentially in recent years, automated QC and characterization platforms remain challenging. Here, we present a high-throughput workflow for protein quantification and purity evaluation that accelerates hit-to-lead progression.

11:45 PANEL DISCUSSION: Streamlining Discovery Pipelines

Moderator: Brian E. Hall, PhD, Distinguished Scientist, Large Molecule Research, Sanofi

This panel showcases how automation, high-throughput analytics, and optimized purification enable faster, more reliable protein production. Experts explore strategies for integrating advanced characterization techniques to ensure quality and reproducibility across the entire workflow. The discussion highlights approaches that accelerate biologics development, streamline hit-to-lead timelines, and connect production directly to discovery. Attendees will leave with actionable insights for maximizing efficiency from protein expression through purification and characterization.

Panelists:

Haotian Guo, PhD, Founder & CEO, Ailurus Bio

Edward Kraft, PhD, Senior Director, Small Molecule Discovery, Leash Bio

Heather Lopes, Director & Head, Protein Sciences, Aera Therapeutics

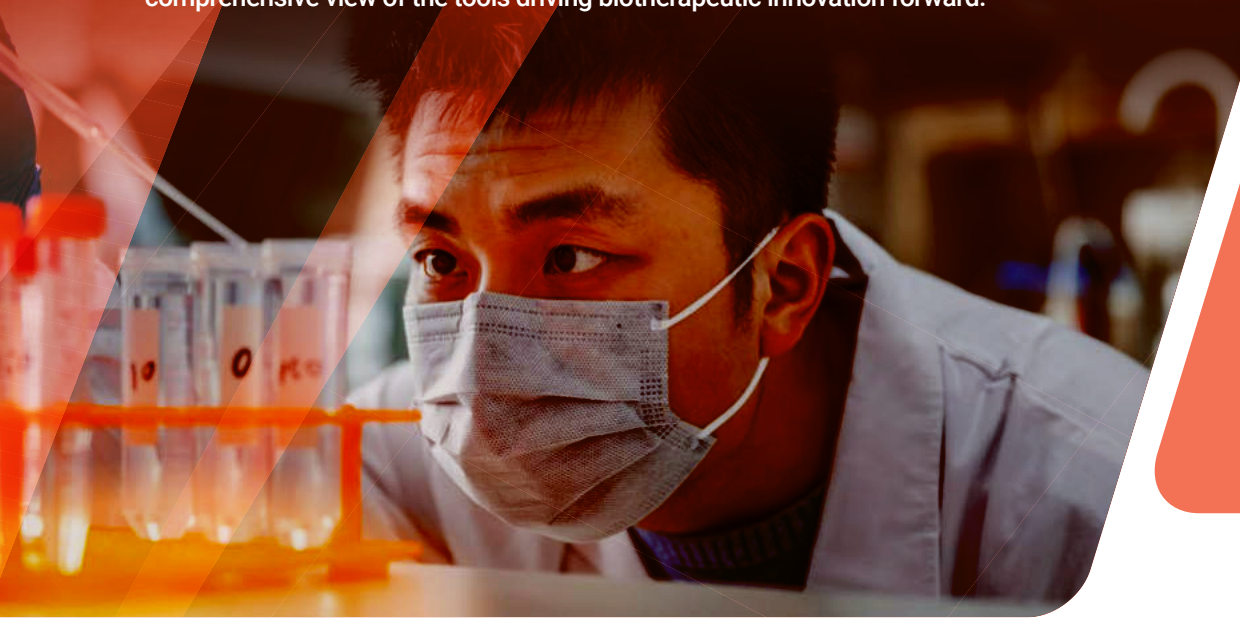
Anand Narayanan, PhD, Senior Scientist, Biologics Discovery, Johnson & Johnson

12:15 pm Close of Summit

ANALYTICAL STREAM

New Methods and Technologies to Support Development of Next-Generation Biotherapeutics

The Analytical Stream at the PEGS Boston Summit 2026 offers cutting-edge programs focused on advancing analytical science for next-generation biotherapeutics. ML and Digital Integration in Biotherapeutic Analytics will showcase how automation, AI, and data strategy are reshaping analytical workflows, from assay design and predictive modeling to digital twins and real-time release testing. Biophysical Methods will highlight innovations in high-throughput and miniaturized assays, mass spectrometry, and image-based tools for characterizing new modalities, with a focus on predictive modeling, developability, and solutions to formulation challenges. And, Characterization for Novel Biotherapeutics will cover emerging modalities including genetic medicines, cell therapies, radiotherapies, next-generation conjugates, and oligonucleotide and peptide therapeutics, exploring both analytical strategies and regulatory considerations. Together, these programs provide a comprehensive view of the tools driving biotherapeutic innovation forward.



ANALYTICAL STREAM CONFERENCES

MAY 11-12

ML and Digital Integration in Biotherapeutic Analytics

AGENDA

MAY 12-13

Biophysical Methods

AGENDA

MAY 14-15

Characterization for Novel Biotherapeutics

AGENDA

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

MONDAY, MAY 11

7:00 am Registration and Morning Coffee

8:20 Organizer's Opening Remarks

USE CASES OF ML/AI IN ANALYTICAL DEVELOPMENT

8:25 Chairperson's Remarks

Alejandro Carpy, PhD, Senior Director, Protein Sciences and Analytics, Biologics Engineering, AstraZeneca R&D

8:30 Challenges in Digital Representation and Bioanalytical Characterization of Antibody-Drug Conjugates

Joel Bard, PhD, Research Fellow, Bioinformatics, BioMedicine Design, Pfizer

Antibody-drug conjugates present challenges around compound registration and property prediction. Antibodies are registered as amino acid sequences. Calculation of properties like molecular weight is straightforward. Small molecules also have a variety of formats for registration of compounds and software tools for property calculation. When small molecules and antibodies are conjugated, the problems of registration and property calculation become more complex. We will discuss approaches to solving these problems.

9:00 Digitalization and Automation of Immunoassay in Bioanalysis

Andreas Hald, PhD, Manager, Research Bioanalysis, Novo Nordisk

Immunoassay platforms are widely used in bioanalytical studies as they offer high sensitivity, specificity, require low sample volume, and are 384-well plate compatible. However, automation of immunoassays is challenged by extensive protocols and the complexity of assay development. To enhance bioanalytical workflows, we leverage digitalization and integrated automation for assay development and sample analysis. This presentation will cover our current E2E-platform and our next steps in digitalization, AI, and automation.

9:30 KEYNOTE PRESENTATION: From Targets to Biologics: AI Powering the Next Leap in Discovery at Takeda

Yves Fomekong Nanfack, PhD, Head of AI/ML Research, Takeda

Takeda's AI/ML strategy is redefining the path from targets to biologics, using advanced models to identify and validate novel targets, decode complex biology, and design the next generation of high-quality therapeutic molecules. By integrating agentic, generative, and large language model–driven approaches, AI is powering the next leap in discovery at Takeda.

10:00 3dpredict: Scalable High-Quality Developability Predictions

Alain Ajamian, Director of Business Development, Chemical Computing Group

Predicting potential liabilities such as aggregation or viscosity is a key step in monoclonal antibody development. Computational property prediction methods are routinely used in the selection and optimization of candidate antibodies. High-quality property prediction involves prediction of ensembles of 3D structures at specified pH to reduce sensitivity to single conformational states. We will present 3dpredict/Ab, a solution that enables ensemble-based predictions of antibody developability descriptors and putative liabilities. 3dpredict/Ab allows for out-of-the-box SaaS automation and integration of such complex simulations of hundreds or thousands of sequences, making them accessible and efficient.

10:15 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

11:00 Toward an Automated and Auditable HPLC Chromatography Analysis Workflow

Zeran Li, PhD, Data Scientist, Moderna

I will present an envisioned automated analytical workflow for RPIP-HPLC chromatograms, covering baseline inference, retention-time alignment, peak detection, deconvolution, and quantification. Parameter settings are optimized via Bayesian search. Every step—from raw-file ingestion and versioned configurations to QC metrics, anomaly flags, a cautious LLM-assisted reviewer-triage step to aid manual review and decision-making—is logged with immutable provenance, enabling auditability and supporting GxP compliance. We target cross-modal applicability without prescribing instrument-specific workflows.

11:30 Unlocking the Capabilities of Microfluidic Electrophoresis for the Development of Protein-Based Therapeutics Using Predictive Analytics.

Jenna Rutberg, Researcher, Biomedical Engineering, Brown University

We will discuss innovative methods that use both size-based and charge-based automated microfluidic electrophoresis to analyze different types of proteins and how this translates to the drug discovery and development process. We will also discuss how the results from these findings can be paired with artificial intelligence and how our predictive analysis method can be used for reagent manufacturing protocols for microfluidics applications.

12:00 pm Session Break

12:10 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:10 Session Break

ML/AI IMPACTS ON DEVELOPMENT PIPELINES

1:15 Chairperson's Remarks

Yi Han, PhD, Principal Scientist, Data Science, Biologics Development, Bristol-Myers Squibb

1:20 From Prediction to Purification: A Scalable HT Strategy for Multispecifics Manufacturing

Alejandro Carpy, PhD, Senior Director, Protein Sciences and Analytics, Biologics Engineering, AstraZeneca R&D

We present an integrated high-throughput workflow combining predictive modeling and automated purification to accelerate multispecific development. Leveraging data-driven parameter optimization and digital analytics, this scalable strategy enhances yield, robustness, and process consistency across diverse molecule classes including DuetMab and TITAN formats. Our standardized platform demonstrates significant efficiency gains, enabling rapid transition from design to manufacturing while maintaining quality standards for complex biotherapeutics.

1:50 Integrating Machine Learning and *in silico* Property Prediction into a Computational Workflow to Support CMC Development

Colin Stackhouse, Senior Scientist, Biologics Analytical Development, Johnson & Johnson Innovative Medicine

Monoclonal antibody product quality is influenced by a complex interplay of the manufacturing process, formulation, and inherent structural attributes of the molecule. To better understand these relationships, an *in silico* data lake was created using state-of-the-art structure and property prediction tools, which enabled development of an unsupervised ML model of the biophysical feature space. This pipeline offers critical insight into how biophysical properties contribute to colloidal stability-related outcomes in CMC development.

2:20 Enabling Analytical Excellence: The Impact of Digital Integration in Clinical Method Performance

Yi Han, PhD, Principal Scientist, Data Science, Biologics Development, Bristol-Myers Squibb

Explore how digital tools and data automation are advancing the monitoring, evaluation, and enhancement of analytical methods for separation, impurity, and potency. Innovative strategies for integrating data and harnessing real-time insights will be showcased, enabling streamlined workflows and driving continuous improvement across the entire analytical lifecycle—elevating data quality, operational efficiency, and method performance in biotherapeutic analytics.

2:50 Sponsored Presentation *(Opportunity Available)*

3:20 Networking Coffee & Refreshment Break

4:05 Transition to Plenary Keynote Session

PLENARY KEYNOTE

4:15 Plenary Keynote Introduction

Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

4:25 CARs 2026: New Models and New Runways

Michel Sadelain, MD, PhD, Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

T cell engineering holds great promise for the treatment of cancers and other pathologies. The original chimeric antigen receptor (CAR) prototypes targeting CD19 are now giving way to further refined receptors endowed with greater sensitivity and combinatorial possibilities. Emerging new targets and engineering tools augur favorably for broadening the use of CAR therapies.

YOUNG SCIENTIST KEYNOTE

5:10 Deep Learning-Based Binder Design to Probe Biology

Martin Pacesa, PhD, Assistant Professor, Pharmacology, University of Zurich

Protein-protein interactions are central to biology and drug discovery, yet traditional antibody generation is slow and costly. BindCraft is an open-source, automated computational pipeline for *de novo* protein binder design that routinely yields nanomolar binders with 10-100% experimental success, without high-throughput screening or maturation. We illustrate applications to peptides, cell-surface receptors, allergens, and gene editors, and outline how deep-learning workflows can accelerate next-generation therapeutics, diagnostics, and bioprocessing.

5:55 Welcome Reception in the Exhibit Hall with Poster Viewing

7:15 Close of Day

TUESDAY, MAY 12

7:45 am Registration and Morning Coffee

DIGITALIZATION AND AUTOMATION

8:30 Chairperson's Remarks

Melody Shahsavarian, PhD, Director, Data Strategy & Digital Transformation, Biotherapeutics Discovery Research, Eli Lilly & Company

8:35 Engineering Success: High-Throughput Developability for Next-Generation Biotherapeutics

Maniraj Bhagawati, PhD, Senior Scientist and Lab Head, Functional Characterization, Large Molecule Research, Roche pRED

To meet the demand for subcutaneous, high-concentration biologics, predicting protein behavior (e.g., viscosity, aggregation) is crucial yet challenging. We introduce an integrated, automated platform for early discovery screening. This process combines high-throughput, low-mass assays with *in silico* developability assessments to predict critical solution parameters and risks across diverse molecule formats, optimizing developability from inception.

9:05 Scaling Developability: Automating High-Throughput Assays for Early Developability Assessment

Andrew Dippel, PhD, Associate Director, Protein Analytics & Developability, AstraZeneca

Modern biotherapeutic pipelines demand truly high-throughput, automated developability assessment to evaluate increasing candidate volumes efficiently. This presentation explores implementing standardized, automated assay platforms to generate comprehensive, high-quality developability datasets. By establishing this high-throughput developability data collection, we enable early identification of developability risks before costly downstream manufacturing issues arise, and generate the datasets essential for training robust machine-learning models.

9:35 From Automation to Visualization: Robotic Sample Preparation, High-Throughput Developability Analysis, and Dashboards

Jan Paulo Zaragoza, PhD, Associate Principal Scientist, Discovery Biologics, Merck

This talk introduces a data-centric platform that combines robotics, high-throughput biophysical characterization, and decision-ready visualization. Automated liquid handling standardizes sample prep and scales throughput, while multiplexed assays quantify biophysical and stability parameters to identify risks early. Case studies show shorter cycles, improved data quality, and stronger portfolio decisions, with sample traceability, method validation, and seamless integration across automation platforms and informatics systems.

10:05 Presentation to be Announced Genedata

10:35 Coffee Break in the Exhibit Hall with Poster Viewing

PROBLEMS AND SOLUTIONS

11:15 Fit-for-Purpose Automation: Adapting Platforms to Our Science

Nick Mukhitov, Principal Research Scientist, AbbVie

We will share strategies leveraged in our group to enable forward compatibility of our platforms. We will address automation,

data capture and custom engineering solutions to adopt our instrumentation to our science.

11:45 Democratizing Data and AI for Biologics Research

Melody Shahsavarian, PhD, Director, Data Strategy & Digital Transformation, Biotherapeutics Discovery Research, Eli Lilly & Company

Advances in automation and AI have revolutionized the field of biologics discovery. Quantity of data is exponentially increasing, and ML architectures are rapidly improving. Key to leveraging this technological revolution lies in accessibility of data and AI. I will talk about our efforts at Lilly in developing an integrated digital platform that allows us to fully leverage experimental and data science toward improved decision-making and accelerated DMTA cycles.

12:15 pm Presentation to be Announced

12:45 Session Break

12:50 LUNCHEON PRESENTATION: The PAIA Developability Assay Platform for the Fast and Comprehensive Biophysical Screening of Different Antibody Formats

Sebastian Giehring, PAIA Biotech GmbH

Developability assessment remains a bottleneck in early antibody discovery. PAIA´s plate-based developability assay platform provides a fast and easy-to-automate way to characterize hundreds to thousands of molecules per day. In this presentation we show developability screening data for different samples sets of mAbs, VHH-Fc-fusions and bispecifics, and compare the results with orthogonal and published data.

1:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:50 Close of ML and Digital Integration in Biotherapeutic Analytics Conference

6:30 Recommended Dinner Short Course

SC6: Developability of Bispecific Antibodies

*Separate registration required. See short course page for details.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

BIOPHYSICAL CHARACTERIZATION FOR NEW MODALITIES

2:25 Chairperson's Remarks

Deborah J. Moshinsky, PhD, Director, Antibody Characterization & Validation, Institute for Protein Innovation

2:30 Microfluidic Multi-Attribute RNA Analysis: Purity, Content, and Length

Adriana Coll De Peña, PhD, Scientist, Moderna

Rapid and reliable assessment of RNA purity, content, and length is essential to advance mRNA therapeutic development. Here, we present a high-throughput microfluidic multi-attribute method for directional analysis of mRNA, LNP, and DP samples. This approach streamlines characterization by enabling simultaneous evaluation of multiple RNA attributes, improving data turnaround and scalability while maintaining analytical quality and achieving substantial cost savings compared to traditional chromatographic methods.

3:00 Integrative Biophysical Characterization for Advanced Modalities in Biotherapeutic Discovery

David Boggs, PhD, Senior Scientist, AbbVie

In the discovery and development of novel biotherapeutics and genetic medicines, an increasingly complex landscape of antigen and therapeutic modalities demands synergistic implementation of advanced tools for robust characterization. We present an integrative toolkit for biophysical characterization combining dynamic light scattering, size-exclusion chromatography-multiangle light scattering, and microfluidic nano particle analysis that delivers deep insights to drive innovation in antibody-antigen, lipid nanoparticle, and virus-like particle platforms.

3:30 Presentation to be Announced

cytiva

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

ADVANCED IMAGING TOOLS FOR BIOPHYSICAL ANALYSIS

4:40 Automated Visual Inspection (AVI) for Drug Product

Rahim Rahimi, PhD, Associate Professor, Materials Engineering, Purdue University

Automated visual inspection (AVI) has become a critical tool for ensuring the quality of biologic drug products by detecting particulates, container defects, and cosmetic irregularities with greater consistency than manual methods. This presentation will highlight recent advances in imaging technologies, algorithmic classification, and system validation. Case examples will illustrate how optimized AVI workflows enhance process control, reduce false detections, and support robust, compliant release of biologic therapeutics.

5:10 Structural Determination of Small Proteins by CryoEM Using a Coiled Coil Module Strategy

Camille Samson, PhD, Senior Scientist, Structural Biology and Biophysics, Sanofi

Cryo-EM is expanding to small proteins through innovative strategies. We resolved the structure of kRasG12C fused to APH2, achieving 3.7 Å resolution with visible MRTX849 and GDP. This scaffold-based method is simple and broadly applicable. We also explored alternative techniques for small proteins lacking terminal helices. These advances highlight Cryo-EM's growing role in drug discovery and structural analysis of diverse protein targets.

5:40 KEYNOTE PRESENTATION: High-Throughput Small-Angle X-ray Scattering (SAXS) Approach to Predict High-Concentration Viscosity from Dilute Samples

Pin-Kuang Lai, PhD, Assistant Professor, Chemical Engineering and Materials Science, Stevens Institute of Technology

High-concentration monoclonal antibody formulations face viscosity challenges caused by protein-protein interactions (PPIs), hindering manufacturing and subcutaneous delivery. To enable early viscosity risk assessment, a high-throughput SAXS protocol was developed to detect mAb self-association at dilute concentrations. SAXS analyses of 22 mAbs revealed low-q structure factor upturns (3–10 mg/mL) correlating with high viscosity. This approach accurately classified mAbs by viscosity, providing a scalable, low-sample alternative to traditional measurements.

6:10 Close of Day

6:30 Recommended Dinner Short Course

SC9: Automation in Action: Hands-on, Liquid Handling for Protein & Antibody Engineering

*Separate registration required. See short course page for details.

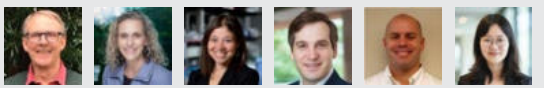
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:

Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology

Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University

Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School

Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder

Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

BIOPHYSICAL CHARACTERIZATION IN R&D

10:00 Chairperson's Remarks

Adriana Coll De Peña, PhD, Scientist, Moderna

10:05 Biophysical Profiling of T Cells Reveals Hidden Heterogeneity and Predicts Melanoma Immunotherapy Response

Jiaquan Yu, PhD, Research Scientist, Massachusetts Institute of Technology

In our under-review work, we show that resting CD8βT cells exhibit a bimodal distribution of buoyant mass, measured label-free by SMR, that defines intrinsic immune-fitness. In a neoadjuvant melanoma cohort, a pre-treatment T cell buoyant-mass profile stratified checkpoint-therapy response: a single "heavy-cell mass" metric achieved AUC 0.81, and a combined model reached AUC 0.88, outperforming tumor mutational burden. Mechanistically, "light" cells are activation-delayed/exhaustion-prone, whereas "heavy" cells are biosynthetically primed.

10:35 Quantitative Characterization of Research Antibodies Using Orthogonal Biophysical and Cellular Methods

Deborah J. Moshinsky, PhD, Director, Antibody Characterization & Validation, Institute for Protein Innovation

The Institute for Protein Innovation (IPI) has developed a scalable workflow that applies biophysical characterization standards from therapeutic antibody development to research-grade reagents. This systematic approach integrates surface plasmon resonance, flow cytometry, and immunofluorescence to assess binding kinetics, affinity, and functional performance. A distinguishing feature is comprehensive cross-reactivity profiling across related protein families, providing quantitative specificity insights that enhance reproducibility and confidence in antibody-based research tools.

11:05 Presentation to be Announced

UNCHAINED LABS

11:35 Session Break

11:40 Luncheon Presentation to be Announced

12:10 pm LUNCHEON PRESENTATION: 2bind Pharma Service—The Most Trusted CRO for Therapeutic Antibodies

2bind pharma services

Cosimo Kropp, PhD, CEO, 2bind GmbH

When it comes to choosing your lead candidate, you need a partner you can trust. We support antibody screening, developability, and lead selection with comprehensive studies designed for each project phase. Our offer includes affinity ranking, stability assessments, real-time kinetics using recombinant protein and living cells, polyreactivity, and off-target testing. Our mission: to accelerate your discovery process with scientific excellence, transparency, and reliability at every step.

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

SPECTROSCOPIC APPLICATIONS AND TECHNOLOGIES

1:35 Chairperson's Remarks

Dan (Cassie) Liu, Principal Statistician, Bristol Myers Squibb

1:40 Automating MS Analytical Workflows for Novel Biologics

David Bush, PhD, Principal Scientist, Novartis Institutes for BioMedical Research

Mass spectrometry-based methods are some of the most informative assays in the biotherapeutic discovery toolkit but are difficult to automate due to complex and diverse preparation and instrument methods. Unique attribute reporting needs across different modalities and project phases increases the complexity of requirements for a harmonized data analysis solution. This talk will discuss 1) our robotic sample preparation and 2) a rapidly adaptable data-acquisition, data processing, and reporting pipeline.

2:10 High-Throughput Intact Mass QC for IgG and Multispecifics with Automated Data Processing

Xinbi Li, PhD, Associate Principal Scientist, Biologics Engineering, AstraZeneca

High-throughput protein expression demands fast QC. Multispecifics complicate intact MS via heterogeneous pairing, format-specific architectures, and reduced resolution at high mass. We integrate deglycosylated and reduced–deglycosylated intact MS analyses with format-aware expected masses, variant libraries, and automated flags for robust, scalable QC for IgGs and multispecifics. Using Protein Metrics' intact workflow, we achieve ~1 minute per sample (>3,000/week) from sequence to theoretical mass with automated peak annotation.

2:40 Peak Exclusion–Driven Deep-Field LC-MS/MS for Enhanced HCP Detection

Leo Wang, PhD, Senior Scientist, Takeda

We present an automated deep-field LC-MS/MS workflow that dramatically improves detection of low-abundance host cell proteins without enrichment. By iteratively expanding peak-exclusion lists on the Orbitrap Exploris AcquireX platform, the method eliminates redundant sampling, boosts MS/MS quality, and uncovers HCPs missed by traditional DDA—even at far lower digest loading. Validated across multiple commercial mAbs, this approach delivers higher-confidence identifications and extends seamlessly to broader biologics characterization.

3:10 Presentation to be Announced

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3:25 Presentation to be Announced

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

4:20 Therapeutic RNA Structure Analysis Achieved by Ultra-High-Field NMR

Takanori Kigawa, PhD, Senior Scientist, RIKEN Center for Integrative Medical Sciences

NMR spectroscopy holds great promise for RNA-based drug discovery. However, the low proton density in RNA limits short-range structural information, posing a challenge for NMR studies. Long-range restraints, such as residual dipolar couplings (RDCs), are crucial for accurate tertiary structure determination. Using a state-of-the-art 1.3 GHz NMR, we successfully measured RDCs of an RNA aptamer. This demonstrates the feasibility of obtaining precise structural insights into therapeutic RNA using Ultra-High-Field NMR.

PROBLEMS AND SOLUTIONS

4:50 Accelerating Biologics Development with Predictive Stability Modeling

Dan (Cassie) Liu, Principal Statistician, Bristol Myers Squibb

Predictive stability modeling is revolutionizing biologic drug shelf-life evaluation by providing accurate long-term stability forecasts based on relevant short-term data. Several practical applications

will be presented. The integration of scientific rigor and statistical robustness in these models supports critical CMC decision-making, optimizes stability filing strategies, and accelerates the development timeline for new biologic therapies.

5:20 Developability and Manufacturability Challenges for Alternative Modalities

Sagar V. Kathuria, PhD, Senior Principal Scientist, Large Molecule Research, Sanofi

Developability assessments are an important stage gate for antibody therapeutics. A thorough risk profiling of the leads in research is essential for effective selection, and success later in development. However, with complex formats, early risk profiling is not always predictive. Focusing on a core set of characteristics of a large panel of molecules in early research may have a bigger payoff in selecting more diverse leads and saving critical resources.

5:50 The Role of AUC in Characterizing the Complexity of Diverse Modalities in Evolving Pipelines

Zahid Khan, MS, Principal Scientist, R&D Analytical Development, GSK

Sedimentation Velocity Analytical Ultracentrifugation (SV AUC) is a powerful technique for characterizing therapeutics and vaccines. By directly analyzing size variants and polydispersity in native sample matrices across a broad dynamic range, it provides an ideal approach for assessing diverse drug candidates during development. This presentation showcases examples of how recent advancements in instrumentation and data analysis are enabling faster, more informative characterization of therapeutic proteins, oligonucleotides, and vaccines.

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Biophysical Methods Conference

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC5: Safety & Efficacy of Bispecifics and ADCs

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

6:30 pm Recomended Dinner Short Course

SC10: Best Practices and Advanced Applications for Label-Free Interaction Analysis in Therapeutic Antibody Discovery

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Remarks

NEXT-GENERATION CONJUGATES

8:45 Chairperson's Remarks

Rachel Liuqing Shi, PhD, Principal Scientist, Genentech, Inc.

8:50 Formulation Solutions for a Novel Antibody-Oligonucleotide Conjugate

Sima Rahimian, PhD, Senior Scientist, Pharmaceutical Development, Roche

This presentation will describe the development of formulation strategies for a novel antibody-oligonucleotide conjugate, addressing the unique challenges posed by combining large-molecule and nucleic acid components. Topics include stabilization of the conjugate under physiological and storage conditions, mitigation of aggregation and degradation pathways, and analytical approaches used to characterize conjugation efficiency, stability, and potency, leading to a formulation optimized for manufacturability and clinical performance.

9:20 Bioanalysis of Novel Antibody and Conjugate Formats and Using Mass Spectrometry Approaches

Rachel Liuqing Shi, PhD, Principal Scientist, Genentech, Inc.

Here, we present a fully automated multiplexed mass spectrometry assay that enables simultaneous quantitation of multiple antibodies *in vivo*, which has significantly reduced the number of animals required for in-life studies and accelerated antibody candidate selection. This automated platform is now being applied to biomarker quantitation, *in vivo* ADC conjugation site screening, and *in vitro* pharmacology studies of biotherapeutics.

9:50 Innovative Protein Conjugation Strategies Supporting Biotherapeutic and Genetic Medicine Drug Discovery

Ornella D. Nelson, PhD, Senior Scientist, Biotherapeutics & Genetic Medicine, AbbVie

Chemical labeling of proteins is a key tool supporting biotherapeutic drug discovery, from initial discovery through development, enabling the capture, detection, and characterization of labeled proteins and their interacting partners. As therapeutics and their targets become increasingly complex, innovative conjugation strategies are needed. This presentation highlights tailored labeling approaches for generating and analyzing complex protein conjugates to support advances in drug discovery across multiple therapeutic areas.

10:20 Presentation to be Announced

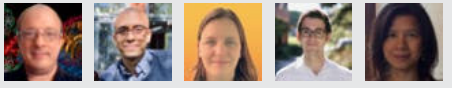
10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience



Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:

- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca

Joshua Meier, Co-Founder & CEO, Chai Discovery

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

GENETIC AND CELLULAR THERAPIES

2:05 Chairperson's Remarks

Ornella D. Nelson, PhD, Senior Scientist, Biotherapeutics & Genetic Medicine, AbbVie

2:10 KEYNOTE PRESENTATION: Revolutionizing Technologies for RNA Analytical Workflows: Academic versus BioPharma Strategies

Anubhav Tripathi, PhD, Professor, Engineering & Medical Sciences, Brown University

Innovations in RNA analytical technologies are rapidly transforming how researchers characterize structure, integrity, and critical quality attributes of RNA-based therapeutics. This presentation will compare academic and biopharma strategies for deploying emerging workflows, from advanced separation and sequencing methods to automation and data-analytics platforms. Case studies will highlight differences in scalability, regulatory alignment, and resource models, offering insight into how diverse approaches can accelerate robust RNA characterization and development.

2:40 Mass Photometry Method Development for Viral Vector Characterization

Anastasiia Vasiukhina-Martin, PhD, Advisor, BRD Analytical Development, Eli Lilly and Company

Mass photometry (MP) has emerged as a powerful tool for rapid, label-free viral vector characterization on a single-molecule level, and has potential for future GMP adoption. However, significant work is needed to overcome current limitations and ensure robustness in regulated environments. This talk will focus on method development and discuss broader challenges and opportunities that could shape MP's future as a reliable tool in gene therapy analytics and beyond.

3:10 Optimizing an Immunoprecipitation Mass Spectrometry Workflow for Enrichment of Surface Proteins: Applications to Surrogate CAR T Cells

Nicolle Serrano SantoDomingo, Senior Scientist, Novartis

CAR-T cells are engineered T cells expressing a chimeric antigen receptor on the cellular surface. CARs lead T cells to engage an antigen on tumor cells, activating downstream signaling leading to their destruction. Surface expression of the CAR is critical for therapeutic efficacy; often differences in efficacy are observed between constructs. We developed a workflow using immunoprecipitation of the CAR from the cell surface to characterize them by LC-MS (IP-MS).

3:40 Optimizing Therapeutic Antibodies by Balancing the Safety and Efficacy of Their Fc-Mediated Effector Functions

SeromYx Systems

Shashi Jatiani, Director, Strategic Partnerships, SeromYx Systems Inc.

Antibodies represent a rapidly expanding class of biotherapeutics, where Fc-mediated effector functions strongly influence clinical efficacy and safety. By restricting themselves to classical assays (ADCC, ADCP, CDC), current pipelines under-evaluate Fc functions elicited by other immune effectors like dendritic cells, macrophages, and granulocytes. Comprehensive Fc function profiling of established and novel antibody formats enables data-driven lead selection, optimization, and identification of clinical correlates, ultimately increasing clinical confidence.

3:55 Sponsored Presentation *(Opportunity Available)*

4:10 Networking Refreshment Break

4:40 Isotopically-Labeled Carriers to Enhance Recovery Yields and Limit of Detection for siRNA Therapeutics

Megha Chandrashekhar, PhD, Senior Scientist, Amgen Inc.

Isotopically-labeled carriers offer an approach to improve the quantification and recovery of siRNA therapeutics. This presentation explores how labeled molecules offer the potential to enhance assay sensitivity, increase recovery yields, and lower limits of detection across complex biological matrices. Case studies will demonstrate applications across various *in vitro* and *in vivo* matrices as applied to pharmacokinetic and toxicokinetic studies, highlighting how these tools accelerate development of next-generation RNA-based therapeutics.

5:10 Ultra-Rapid CAR T Development: Innovative Strategies for a 1-Day, Non-Activated Product

Saba Ghassemi, PhD, Research Assistant Professor, Pathology & Lab Medicine, Center for Cellular Immunotherapies, University of Pennsylvania

Ultra-rapid, non-activated CAR T manufacturing offers a paradigm shift, generating potent cell products within a single day. I will present principles underlying this streamlined workflow, approaches for product characterization, and its implications for decentralized or point-of-care deployment. This emerging platform provides a path toward same-day engineering while maintaining product quality and translational feasibility.

SPECIAL PRESENTATION

5:40 Analytical Control Strategies and Characterization Approaches for Co-Formulated Biologics

Joseph Valente, Associate Scientific Director, Bristol-Myers Squibb

This presentation highlights key industry trends for co-formulated fixed-dose combination biologic products. We address analytical and characterization challenges, focusing on how the number, identity, and ratio of combined molecules impact control strategies. Practical insights will be illustrated with case studies sourced from recent clinical trials and literature, emphasizing key questions and considerations for bringing these innovative products to patients.

6:10 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

INTERACTIVE ROUNTABLE DISCUSSIONS

7:30 Interactive Roundtable Discussions with Continental Breakfast

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

RESEARCH TOOLS AND EMERGING MODALITIES

8:25 Chairperson's Remarks

Nicolle Serrano SantoDomingo, Senior Scientist, Novartis

8:30 Characterization Challenges for Novel Antibody Constructs

Laura Kingsley, Principal Scientist, Biotherapeutics, Boehringer Ingelheim

The emergence of multispecifics and complex formats in the biologics space has led to unique challenges for characterization pipelines, especially high-throughput, small scale platforms that have been tailored to IgG discovery. This presentation will discuss limitations of high-throughput platforms in the context of multispecifics along with strategic and technical approaches to navigate these challenges. Additionally, we will discuss how carefully-selected lower throughput experiments can facilitate high-throughput outcomes.

9:00 Biophysical Characterization of New Modalities

Daniela M. Tomazela, PhD, Senior Director, Protein Therapeutics, Gilead Sciences Inc.

The development of complex molecular formats is expanding our ability to engineer biological systems and enabling new MoAs. This presentation highlights strategies for the biophysical characterization of novel molecular entities, with a focus on integrating experimental and predictive data to accelerate lead identification and molecule optimization.

9:30 Modeling ADCs and Bispecific Antibodies for High-Concentration Developability Prediction

Pin-Kuang Lai, PhD, Assistant Professor, Chemical Engineering and Materials Science, Stevens Institute of Technology

High-concentration formulations for emerging modalities such as antibody–drug conjugates (ADCs) and bispecific antibodies (bsAbs) frequently encounter viscosity and aggregation challenges that limit manufacturability and subcutaneous delivery. We present an integrated multiscale modeling framework to predict developability at elevated concentrations. This approach supports early risk assessment, reveals sequence- and domain-level determinants of undesired behavior, and guides the rational engineering and screening of next-generation ADCs and bsAbs.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

10:45 Bioanalytical Strategy Considerations for T Cell Engagers

Damien Fink, PhD, Director, Oncology Integrated Bioanalysis, AstraZeneca

Developing a bioanalytical strategy for T cell engaging (TCE) therapeutics requires coordinated evaluation of pharmacokinetics, immunogenicity, and engagement of target and effector cells. An integrated approach enables robust pharmacodynamic inputs to support PK/PD modeling and decision-making. This presentation outlines critical considerations and practical frameworks for designing comprehensive, fit-for-purpose bioanalytical strategies for TCE programs.

11:15 Control Strategies Tailored for Multispecifics

Wenqin Ni, PhD, Senior Principal Scientist, Analytical Research and Development, Pfizer

This presentation provides an overview of multispecific therapeutic development from early molecular design through clinical evaluation to commercial approval. It highlights unique quality attributes including homodimer formation and heavy/light chain mispairing, and the criticality assessment. The control strategies to mitigate these product-related impurities will be discussed. Key topics include molecule design, manufacturing process control, specification setting, analytical method development, and characterization tools. Additionally, regulatory feedback will be discussed.

11:45 mRNA Lipid Nanoparticle Formulation, Characterization, and Evaluation

Sabiruddin Mirza, PhD, Senior Research Associate, Harvard University

Messenger RNA–lipid nanoparticle (mRNA-LNP) therapeutics have transformed modern medicine. However, achieving consistent formulation quality and rapid characterization remains a major challenge. Our microfluidic-assisted platform for precise, scalable, and reproducible mRNA–LNP formulations minimizes batch variability, accelerates process optimization, and supports regulatory-compliant manufacturing of next-generation mRNA therapeutics. This integrated microfluidic strategy provides a versatile tool for rational LNP design, paving the way toward personalized and on-demand RNA delivery systems.

12:15 pm Close of Summit

IMMUNOGENICITY STREAM

From Fundamentals to AI-Driven Prediction: Advancing Immunogenicity in Drug Development

This year's Immunogenicity Stream at PEGS Boston Summit provides a comprehensive progression from foundational principles to cutting-edge applications. The program begins with an introductory training seminar providing a practical, comprehensive overview of immunogenicity, before moving into advanced discussions on the integration of AI/ML approaches for predicting immune responses. Sessions will address the latest computational models, incorporation of multi-omics and structural data, and the use of generative AI to enhance antibody humanization and epitope prediction. Case studies will explore regulatory perspectives on *in silico* tools, strategies for reducing clinical risk, and the translation of predictive models into drug development pipelines. The stream concludes with a training seminar providing a deep dive into bioassay design, validation, and monitoring.

IMMUNOGENICITY STREAM CONFERENCES

MAY 11-12
TRAINING SEMINAR:
Introduction to Immunogenicity

AGENDA

MAY 12-13
Predicting Immunogenicity with AI/ML Tools

AGENDA

MAY 14-15
TRAINING SEMINAR:
Bioassay Development and Analysis

AGENDA

MONDAY, MAY 11, 2026 8:30 AM - 6:00 PM | TUESDAY, MAY 12, 2026 8:30 AM - 12:45 PM

Introduction to Immunogenicity

This 1.5-day training seminar provides a practical, comprehensive overview of immunogenicity—the causes, how to assess, predict, and prevent, and what to do if you observe immunogenicity during preclinical, clinical, and post-market approval. The seminar begins by detailing the science behind immunogenicity, the latest international guidance, followed by assay and bioanalytical assessment strategies for traditional and emerging biologics. Other topics include predictive models, the role of AI/ML, and reporting immunogenicity.

Instructors:

Chloé Ackaert, PhD, Senior Scientist, Immunogenicity, ImmunXperts, a Q2 Solutions Company

Timothy Hickling, PhD, Consultant, Quasor Ltd.

Sofie Pattijn, Founder & CTO, ImmunXperts, a Q2 Solutions Company

TOPICS TO BE COVERED INCLUDE:

- Part 1: Introduction to Immunology and Immunogenicity
- Part 2: Non-Clinical Immunogenicity Potential Assessment
- Part 3: Clinical Considerations of Immunogenicity and Regulatory Expectations
- Part 4: Assay Methodology and Approaches for Describing Immunogenicity in the Clinic?

Cambridge Healthtech Institute Training Seminars offer real-life case studies, problems encountered and solutions applied, and extensive coverage of the basic science underlying each topic. Experienced Training Seminar instructors offer a mix of formal lectures, interactive discussions, and activities to help attendees maximize their learning experiences. These immersive trainings will be of value to scientists from industry and academic research groups who are entering new fields–and to those working in supporting roles that will benefit from an in-depth briefing on a specific aspect of the industry.

Training Seminars will be held in person only. To ensure a cohesive and focused learning environment, moving between conference sessions and the training seminars is not allowed.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course
SC2: AI-Driven Predictive Preclinical Models: Rethinking the Role of Animal Testing
*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

IMMUNOGENICITY RISK ASSESSMENT DATASETS

2:25 Chairperson's Opening Remarks
Daniel Leventhal, PhD, Principal Consultant, Tactyl

2:30 A Streamlined Preclinical Workflow to Assess the Immunogenicity Risk of Biotherapeutics
Rita Martello, PhD, Associate Director, EMD Serono

We have established a workflow integrating immunogenicity risk assessment with *in silico* analysis, which can trigger *in vitro* assays. This streamlined approach reduces the number of costly low-throughput *in vitro* tests and serves as a screening tool for selecting less immunogenic formats. We enhance initial immunogenicity risk assessments and develop effective mitigation strategies, safeguarding patient safety and improving therapeutic outcomes.

3:00 Defining the Data behind the Models: Interpreting Clinical Immunogenicity Measures for AI/ML Risk Assessment
Daniel Leventhal, PhD, Principal Consultant, Tactyl

Predicting unwanted immunogenicity remains a major challenge in biotherapeutic development. This presentation reviews molecular, mechanistic, and clinical features contributing to anti-drug antibody risk, offers guidance for interpreting public clinical immunogenicity datasets, and highlights the Immunogenicity Database Collaborative (IDC)—a community effort to standardize and structure clinical ADA data. These resources aim to enable more interpretable, multivariable models that better reflect clinical immunogenicity complexity.

3:30 Sponsored Presentation *(Opportunity Available)*

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

IMMUNOGENICITY PROPERTY PREDICTION

4:40 Harnessing Human and Machine Intelligence for Next-Generation Immunogenicity Risk Prediction
Guilhem Richard, PhD, CTO, EpiVax Inc.

EpiVax has developed the ISPRI platform for assessing the immunogenic risk of biotherapeutics. New AI/ML models have been integrated into ISPRI, leading to enhanced prediction of tolerated epitopes and estimation of ADA responses. These updates improved characterization of epitopes within biotherapeutic molecules and enabled a 3-fold increase in the correlation between predicted and observed ADAs over existing approaches, with over 75% of predicted ADAs within 10% of observed values.

5:10 B Cell Epitope Predictions: Can We Benefit from Immune-Receptor Data?
Morten Nielsen, PhD, Professor, Department of Health Technology, Technical University of Denmark

Immunogenicity assessment is key for the development of biologics. Traditional approaches have focused on MHC Class II antigen presentation. However, recent advances in B cell epitope and antibody-antigen interaction prediction have significantly enhanced predictive capabilities. This talk will describe some of these tools and introduces AbEpiTope-1.0, tool for predicting antibody targets, suggesting how these tools can be integrated into computational pipelines for immunogenicity assessment and de-risking of protein therapeutics.

5:40 Mapping the T Cell Receptor Specificity Landscape through *de novo* Peptide Design
Gian Marco Visani, PhD Graduate Student, University of Washington

We present a computational framework to predict TCR recognition of peptides presented by MHC-I and to design novel immunogenic peptides. Using HERMES, a model trained on the protein universe to predict amino acid preferences based on local structural environments, we accurately predict TCR–pMHC binding and T cell activity without task-specific training. We further design and experimentally validate *de novo* peptides that activate T cells and map peptide recognition landscapes across TCR–MHC systems.

6:10 Close of Day

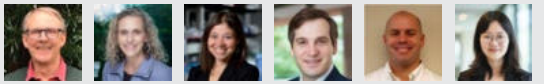
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:
Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology
Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University
Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School
Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder
Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

IMMUNOGENICITY PROPERTY PREDICTION

10:00 Chairperson's Remarks
Sophie Tourdot, PhD, Immunogenicity Sciences Lead, BioMedicine Design, Pfizer

10:05 Mapping the Anti-Drug Antibody Binding Site on Multidomain Biotherapeutics
Xiaobin Zhang, PhD, Associate Director, Takeda Pharmaceuticals

Immunogenicity of biotherapeutics poses a significant efficacy or safety concern in drug development. It is crucial to select

candidates with low immunogenicity risk or de-immunize the candidates at an early stage. In this presentation. I will introduce the tool of *in silico* prediction, domain competitive assay, and peptide screening for a multidomain therapeutics in preclinical and clinical studies. This integrated immunogenicity assessment will enhance the success ratio in drug development.

10:35 Improving Clinical Anti-Drug Immunogenicity Prediction with B Cell Epitopes

Will Thrift, PhD, Principal Artificial Intelligence Scientist, Genentech

We present a prototypical workflow for leveraging B cell epitope prediction, together with structural humanness assessment, to enhance immunogenicity risk evaluation for biotherapeutics. Using large clinical datasets of anti-drug antibody responses, we show that integrating B cell epitope and humanness information improves both precision and recall in immunogenicity prediction compared to T cell epitope only approaches, highlighting its potential to refine preclinical risk assessment strategies.

11:05 Presentation to be Announced

Syntekabio

11:35 Session Break

11:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 pm Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

IN SILICO IMMUNO SYSTEMS MODELING

1:35 Chairperson's Remarks

Lora Hamuro, PhD, Senior Director, Clinical Pharmacology & Pharmacometrics, Bristol Myers Squibb

1:40 Evaluating the Immunogenicity Risk of Protein Therapeutics by Augmenting T Cell Epitope Prediction with Clinical Factors

Zicheng Hu, PhD, Principal Scientist, Genentech

Protein-based therapeutics can trigger anti-drug antibodies (ADAs) that affect pharmacokinetics, efficacy, or safety. Using Roche/Genentech clinical data, we identified factors influencing drug immunogenicity across monoclonal antibodies and other modalities. ADA incidence was linked to drug and comedication mechanisms, administration routes, and disease types. Combining these clinical factors with *in silico* epitope predictions improved the accuracy of clinical immunogenicity prediction.

2:10 Immune System Modeling of Immunogenicity for a Biotherapeutic Combination

Lora Hamuro, PhD, Senior Director, Clinical Pharmacology & Pharmacometrics, Bristol Myers Squibb

This seminar presents quantitative systems pharmacology modeling of immunogenicity for biotherapeutic combinations, focusing on nivolumab and ipilimumab. The model showed that combining these agents increases nivolumab anti-drug antibodies compared to monotherapy but does not significantly alter pharmacokinetics, consistent with clinical data. This mechanistic approach to understanding immunogenicity can be applied to other biotherapeutic combinations.

2:40 IGMotifFinder: Improving Preclinical *in silico* Immunogenicity Assessment via Integration of Pathogen Similarity Analysis

Michael Gutknecht, PhD, Principal Scientist II, Novartis

Biotherapeutics may include motifs similar or identical to pathogenic sequences, acting as cross-reactive T cell epitopes that increase immunogenicity potential. IGMotifFinder is an *in silico* platform developed to identify HLA class II-presented cross-reactive motifs. Analysis of over 200 biotherapeutics revealed that a higher "pathogenic" to "self" motif-ratio correlates with increased clinical immunogenicity. IGMotifFinder will support early identification and proactive mitigation of immunogenicity in biotherapeutics.

3:10 Sponsored Presentation *(Opportunity Available)*

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

APPLYING AI STRATEGIES TO NEW MODALITIES

4:20 Immunovate: A Design-Focused Approach to Minimizing Immunogenicity with ML

Frank Teets, PhD, Head, Computational Science, AI Proteins

In silico predictions of immunogenicity have long been a grand challenge in the design of polypeptide therapeutics. While a complete solution remains difficult, the power of novel *de novo* design methods can be coupled with ML methods to produce an automated, general solution for minimizing unwanted immunogenicity in *de novo* designed miniproteins. We present Immunovate, a lightweight solution for controlling miniprotein immunogenicity at several levels of simulation complexity.

4:50 Applying AI Strategies to New Modalities: Cell and Gene Therapies

Timothy Hickling, PhD, Consultant, Quasor Ltd.

INTEGRATING *IN SILICO* IMMUNOGENICITY AND DEVELOPABILITY ASSESSMENTS

5:20 Generalized Multi-Objective Optimization Methods for the Design and Engineering of Low-Immunogenicity Protein Therapeutics

Ryan Peckner, PhD, Director, Machine Learning, Seismic Therapeutic

We develop machine learning models to simultaneously optimize multiple drug-like properties of biologics, including antibodies and enzymes. Our generative models that harness both the design of functional proteins and the prediction of drug-like properties to engineer therapeutically developable proteins with low immunogenicity. We produce and experimentally characterize these designs for fitness, function, and developability, exploring the synergy of these methods in a generalized multi-objective optimization pipeline for biologics.

5:50 Discovery to Development: Computational Approaches for Immunogenicity De-Risking

Priyanka Gupta, PhD, Scientist, Biotherapeutics, Boehringer Ingelheim Pharmaceuticals, Inc.

Molecular sequence is a key contributor to immunogenic responses against biologic drugs. Leveraging *in silico* techniques enables early identification and mitigation of sequence-associated risks during the discovery phase, in a high-throughput and efficient manner. This presentation will highlight computational strategies that integrate a suite of *in silico* tools to optimize lead molecules for developability and reduce immunogenicity risk—ultimately accelerating the path to candidate selection.

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Predicting Immunogenicity with AI/ML Tools Conference

THURSDAY, MAY 14, 2026 8:30 AM - 5:40 PM | FRIDAY, MAY 15, 2026 8:30 AM - 12:15 PM

Bioassay Development and Analysis

This course will focus on factors to be considered in the design, development, and validation of bioassays. The course introduces terminology and important statistical tools and best practices. Examples and case studies will be provided to help solidify understanding on the topics of design and development, robustness, validation, and post-validation. Relevant pharmacopeial and EUA regulations will be highlighted.

Instructor: Steven Walfish, Owner, Statistical Outsourcing Services

KEY TOPICS:

- Introduction to Bioassays
- Guidance Documents on Bioassays
- Design & Development
- Robustness Validation & Post Validation
- Statistical Analysis Models
- Examples/Case Studies

Cambridge Healthtech Institute Training Seminars offer real-life case studies, problems encountered and solutions applied, and extensive coverage of the basic science underlying each topic. Experienced Training Seminar instructors offer a mix of formal lectures, interactive discussions, and activities to help attendees maximize their learning experiences. These immersive trainings will be of value to scientists from industry and academic research groups who are entering new fields–and to those working in supporting roles that will benefit from an in-depth briefing on a specific aspect of the industry.

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TABLE OF CONTENTS

EMERGING THERAPEUTICS STREAM

Emerging and Innovative Biotherapeutics to Address Unmet Medical Needs

The Emerging Therapeutics Stream at the PEGS Boston Summit brings together three dynamic programs showcasing the diversity of approaches driving the next generation of drug innovation. Biologics for Autoimmune Diseases will highlight novel strategies across musculoskeletal, skin, and gut disorders, alongside cutting-edge modalities and translational tools that are reshaping treatment possibilities for complex immune-mediated conditions. Radiopharmaceutical Therapies will showcase the latest advances driving this rapidly expanding field, from novel targets and isotope selection, to dosimetry and next generation theranostic advances revolutionizing patient care. And the new Emerging Peptide Therapeutics track will spotlight the revival of peptide drug discovery, featuring advances in engineering, design, and therapeutic applications including half-life extended peptides and GLP-1 agonists. Together, these programs offer a comprehensive view of the therapeutic innovations poised to change patient care.

EMERGING THERAPEUTICS STREAM CONFERENCES

MAY 11-12

Biologics for Autoimmune Diseases

AGENDA

MAY 12-13

Frontiers in Radiopharmaceutical Therapy

AGENDA

MAY 14-15

NEW—Emerging Peptide Therapeutics

AGENDA

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC3:Challenges and Opportunities in Solid Tumor and Autoimmune Disease Therapeutics

*Separate registration required. See short course page for details.

MONDAY, MAY 11

7:00 am Registration and Morning Coffee

8:20 Organizer's Opening Remarks

TARGETING MAJOR ORGAN SYSTEMS

8:25 Chairperson's Remarks

Ahuva Nissim, PhD, Professor Emeritus, Antibody and Therapeutic Engineering, William Harvey Research Institute, Queen Mary University of London

8:30 Antibody-Based AAV Retargeting for Enhanced Skeletal Muscle Transduction

Tri Nguyen, PhD, Principal Scientist, Alternative Format and Antibody Engineering, Regeneron

The use of adeno-associated virus (AAV) for gene therapy delivery shows significant potential in treating various muscle diseases. We have developed a bispecific antibody that binds to AAVs and retargets them to skeletal muscles via a skeletal muscle-specific protein, CACNG1. This approach enables enhanced AAV transduction in skeletal muscles while greatly reducing off-target transduction in other tissues.

9:00 Trispecific Antibodies for Atopic Dermatitis and Other Disorders

Laird Bloom, Senior Director, BioMedicine Design, Pfizer Inc.

Monospecific therapeutics in inflammatory indications often are limited in their efficacy, while blockade of multiple pathways may enhance efficacy and benefit to patients. We describe design and engineering of PF-07275315 and PF-07264660, trispecific antibodies currently in Phase 2 studies in atopic dermatitis and other indications. These antibodies combine mechanisms with demonstrated efficacy across a range of atopic and inflammatory conditions by simultaneously neutralizing IL-4, IL-13, and TSLP or IL-33.

9:30 Novel Tolerogenic Biologics for Chronic Inflammatory Diseases

Tangsheng Yi, Senior Director, Inflammation Biology and Immunology Discovery, Gilead Sciences

Tolerogenic cytokines play an essential role in regulating immune responses and controlling aberrant immune activation. However, natural recombinant cytokines exhibit undesirable drug-like properties with short half-lives and toxicity. Here, we describe the design and engineering of cytokine-agonistic antibodies for the treatment of autoimmune inflammation.

10:00 Presentation to be Announced

10:15 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

11:00 Engineering Therapies to Restore Antigen-Specific Immune Tolerance in Autoimmune Disease

Brittany Hartwell, PhD, Assistant Professor, Biomedical Engineering, University of Minnesota

Most current autoimmune therapies act through nonspecific suppression of the immune response, leading to global immunosuppression and deleterious off-target effects for patients. Antigen-specific immunotherapies are needed that restore selective immune tolerance against the offending autoantigen and autoreactive cells. Here, we present engineering strategies to restore antigen-specific tolerance in autoimmune diseases like multiple sclerosis, using protein engineering combined with targeted drug delivery to create molecular platforms with tunable kinetics.

11:30 Gaps and Progress in Crohn's Disease, Ulcerative Colitis, and IBD

Mary E. Keir, PhD, Distinguished Scientist, Immunology Diagnostic Discovery, Genentech Inc.

Significant progress in inflammatory bowel disease (IBD) over the last two decades has yielded approved biologic and small-molecule therapies targeting inflammatory cytokines (TNF-alpha, IL-23) and leukocyte trafficking. Despite this, the majority of IBD patients fail to achieve long-term durable remission in response to therapy and predictive biomarkers are lacking. Patients are often diagnosed at a young age, and achieving personalized medicine and a definitive cure remains the primary goal.

12:00 pm Session Break

12:10 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:10 Session Break

RESEARCH TOOLS AND MODELS

1:15 Chairperson's Remarks

Tangsheng Yi, Senior Director, Inflammation Biology and Immunology Discovery, Gilead Sciences

1:20 Rapid, Deep Depletion of Autoantibodies by an Engineered IgG Protease for Acute and Chronic Disease Management

Erik Procko, PhD, CSO, Cyrus Biotechnology; Adjunct Professor, University of Illinois, Urbana

IgG proteases may bridge short-term crisis management with long-term reduction of autoantibodies for broadly treating autoimmune diseases. IgG proteases can catalyze >99% degradation of IgG in minutes *in vivo* at catalytic doses, including degradation of autoantibodies already bound to antigen. CYR212 is an engineered protease, modified using AI and rational design, for best-in-class properties. Long PK-PD, low immunogenicity, and fast recovery from antibody-mediated disease are demonstrated in animal models.

1:50 Advances in Predicting Treatment Response to Biologics in RA

Myles Lewis, PhD, Professor, Centre for Experimental Medicine & Rheumatology, William Harvey Research Institute, Queen Mary University of London

Accurately predicting treatment response to biologics in rheumatoid arthritis is essential for improving outcomes and reducing trial-and-error prescribing. This talk will review recent advances in multi-omics profiling, machine-learning models, and clinical biomarkers that enable earlier identification of likely responders. Case studies will illustrate how integrating molecular signatures with real-world data can refine patient stratification and guide development of next-generation targeted therapies for RA.

2:20 KEYNOTE PRESENTATION: Induced Proximity Strategies for Treatment of Autoimmune Diseases

Scott Lesley, PhD, President and CSO, InDuPro; former Vice President, Discovery Biologics, Merck

Signaling biology is driven by the local environment of proteins on the cell surface. Through its Membrane INTeractomics platform (MINT), InduPro has defined the proximity landscape of the immune synapse. We have created immune signaling agonists and antagonists using bispecific

antibodies to recruit proteins to, or sequester proteins from this unique signaling environment. These novel targeting strategies represent a new paradigm for disease intervention by defining and manipulating protein proximity.

2:50 Sponsored Presentation *(Opportunity Available)*

3:20 Networking Coffee & Refreshment Break

4:05 Transition to Plenary Keynote Session

PLENARY KEYNOTE

4:15 Plenary Keynote Introduction

Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

4:25 CARs 2026: New Models and New Runways

Michel Sadelain, MD, PhD, Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

T cell engineering holds great promise for the treatment of cancers and other pathologies. The original chimeric antigen receptor (CAR) prototypes targeting CD19 are now giving way to further refined receptors endowed with greater sensitivity and combinatorial possibilities. Emerging new targets and engineering tools augur favorably for broadening the use of CAR therapies.

YOUNG SCIENTIST KEYNOTE

5:10 Deep Learning-Based Binder Design to Probe Biology

Martin Pacesa, PhD, Assistant Professor, Pharmacology, University of Zurich

Protein-protein interactions are central to biology and drug discovery, yet traditional antibody generation is slow and costly. BindCraft is an open-source, automated computational pipeline for *de novo* protein binder design that routinely yields nanomolar binders with 10-100% experimental success, without high-throughput screening or maturation. We illustrate applications to peptides, cell-surface receptors, allergens, and gene editors, and outline how deep-learning workflows can accelerate next-generation therapeutics, diagnostics, and bioprocessing.

5:55 Welcome Reception in the Exhibit Hall with Poster Viewing

7:15 Close of Day

TUESDAY, MAY 12

7:45 am Registration and Morning Coffee

EMERGING AUTOIMMUNE INDICATIONS

8:30 Chairperson's Remarks

Matthew J. Bernett, PhD, Executive Director, Protein & Antibody Engineering, Xencor

8:35 Reprogramming Autoimmunity: Designing a Smarter Checkpoint Receptor Agonist

Daniela Cipolletta, PhD, Senior Director, Immunology, Seismic Therapeutic

S-4321 is a novel dual-cell bidirectional agonist that selectively binds and signals through the inhibitory receptors PD-1 and FcβRIIb at the synapse between a T cell and an antigen-presenting cell. Unlike first-generation PD-1 depleters, S-4321 has the potential to restore immune homeostasis without causing loss of PD-1 expression on T cells, induction of proinflammatory cytokines, or depletion of PD-1+ Tregs.

9:05 Emerging Diagnostic and Treatment Strategies for T1D

Amelia Linnemann, PhD, Associate Professor, Pediatrics, Indiana University School of Medicine
Ahuva Nissim, PhD, Professor Emeritus, Antibody and Therapeutic Engineering, William Harvey Research Institute, Queen Mary University of London

In Type 1 diabetes (T1D) oxidized insulin (oxPTM-INS) can be detected even before the clinical onset. Antibody response to oxPTM-INS neoepitope peptides (oxPTM-INSPs) and stimulate humoral and T cell responses in T1D. Biased human antibody library from T1D donors raised specific oxPTM-INS antibodies. Selected mAbs bind specifically to inflamed islet and may have a significant impact on the treatment of T1D.

9:35 Autoantigen-Drug Conjugates for Targeted Autoimmune Therapy

Cory Berkland, PhD, Professor, Chemistry and Biomedical Engineering, Washington University in St. Louis

Autoimmune diseases often involve a repertoire of autoantigens as drivers of disease. However, a single autoantigen or small subset can drive immune responses, particularly at early stages of disease. Autoantigen-drug conjugates aim to selectively cull or re-educate the offending autoimmune cells. Our approaches to link autoantigen to various drugs will be presented and our work in Type 1 diabetes will be emphasized.

10:05 Sponsored Presentation *(Opportunity Available)*

10:35 Coffee Break in the Exhibit Hall with Poster Viewing

T CELL ENGINEERING TO REDIRECT AND REGULATE IMMUNITY

11:15 Advancing T Cell Engagers for Autoimmune Disease: Insights from CD19×CD3, CD20×CD3, and IL2RG-Directed Bispecifics

Matthew J. Bernett, PhD, Executive Director, Protein & Antibody Engineering, Xencor

Xencor is advancing a portfolio of bispecific antibodies designed to restore immune balance in autoimmune disease. We will share translational data from XmAb657 (CD19xCD3), which achieves potent, sustained depletion of B-lineage cells in tissues after a single dose, plamotamab (CD20xCD3) transitioning from oncology to autoimmunity, and a novel IL2RG-directed bispecific that modulates γc cytokine pathways to temper autoreactive T cell activity. These programs highlight versatile engineering approaches to immune modulation.

11:45 Advancing CAR-Tregs for Autoimmune and Transplant Applications

Leonardo M. R. Ferreira, PhD, Assistant Professor, Pharmacology and Immunology, Medical University of South Carolina

Regulatory T cells (Tregs) can modulate the immune system with antigen specificity in transplant rejection and autoimmunity. Synthetic biology can impart any desired specificity to Tregs. We are co-engineering pluripotent stem cells and Tregs such that chimeric antigen receptor (CAR) Tregs protect CAR target-expressing hPSC-derived beta cells from immune attack in humanized mice. Moreover, we modified Tregs with a chimeric anti-HLA antibody receptor (CHAR) to specifically inhibit alloreactive B cells.

12:15 pm Sponsored Presentation *(Opportunity Available)*

12:45 Session Break

12:50 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:50 Close of Biologics for Autoimmune Diseases Conference

6:30 Recommended Dinner Short Course

SC7: Targeting the Target: Aligning Target and Biologic Format Biology to Achieve Desired Outcomes
*Separate registration required. See short course page for details.

TABLE OF CONTENTS

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC2: AI-Driven Predictive Preclinical Models: Rethinking the Role of Animal Testing
*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

ADDRESSING THE UNMET NEEDS AND NOVEL APPLICATIONS IN RADIOPHARM THERAPY

2:25 Chairperson's Remarks
Joseph Vacca, Vice President, RLT Solutions, Perceptive Imaging

2:30 KEYNOTE PRESENTATION: Novel Applications in Radiopharmaceutical Therapy: Routes of Delivery and Therapeutic Combinations
Zachary S. Morris, PhD, MD, Department Chair and Endowed Professor of Human Oncology, University of Wisconsin Madison

This talk will highlight preclinical evidence supporting the clinical translation of next-generation therapeutic approaches that investigate novel routes of delivery for radiopharmaceuticals and innovative combination therapy approaches to maximize treatment effect while minimizing associated side effects. Intrathecal approaches to radiopharmaceutical delivery for leptomeningeal disease and combinations with immunotherapies will be discussed to illustrate the exciting potential in this emerging frontier of oncology.

3:00 What are the Unmet Needs in Radiopharmaceutical Therapy?
Elcin Zan, MD, Chair, Division of Nuclear Medicine, Cleveland Clinic

Radiopharmaceutical trials, which involve developing and testing agents that combine radioactive isotopes with targeting molecules for diagnostic imaging or targeted radionuclide therapy (e.g., in oncology), face several persistent challenges. These unmet needs span logistical, regulatory, biological, and equity-related domains, hindering efficient trial execution, patient access, and broader therapeutic impact.

3:30 Sponsored Presentation *(Opportunity Available)*

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

DOSIMETRY AND TREATMENT SEQUENCING

4:40 Using Physics to Optimize Dosing of Radiopharmaceutical Therapy
Daniel Stevens, CMO, Blue Earth Therapeutics Ltd.

5:10 Advancing Radiopharmaceutical Therapy through Quantitative Digital Autoradiography
Brian W. Miller, PhD, Associate Professor, Radiation Oncology, College of Medicine, University of Arizona

Radiopharmaceutical therapy (RPT) shows promise for cancer treatment, but challenges in dose delivery and off-target effects remain. Quantitative digital autoradiography provides real-time visualization of radiopharmaceutical distribution in *ex vivo* tissue sections, improving the assessment of alpha/beta therapies. This approach is crucial for evaluating micro-scale dose estimates in tumors and normal organs. It enables evaluation of combination alpha/beta therapies and validating the biological equivalence of alpha RPT and PET theranostic surrogates.

5:40 PANEL DISCUSSION: Dose Wars: The Phantom Voxel vs. the Return of MIRD
Moderator: Sean Carlin, PhD, Vice President, Translational Sciences, Abdera Therapeutics

Focus of the panel will be to discuss the pros and cons to the different methods and views on the future of dosimetry.
- Are we headed toward Voxel-based methods?
- Are we headed toward individual dosimetry treatment plans?
- What will be needed to get us there?
- What realistic timeframe are we looking at?

Panelists:
Eric C. Frey, PhD, Co-Founder and Chief Science Officer, Radiopharmaceutical Imaging and Dosimetry, Radiopharmaceutical Imaging and Dosimetry (Rapid), LLC
Joseph A O'Donoghue, PhD, Attending Physicist, Memorial Sloan Kettering Cancer Center
Frederick Wilson, CSO, Voximetry Inc.

6:10 Close of Day

6:30 Recommended Dinner Short Course

SC8: The Dark Proteome: Unlocking Novel Targets for Next-Generation Biologics
*Separate registration required. See short course page for details.

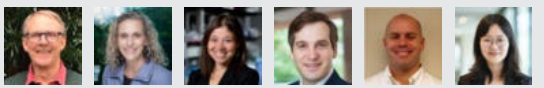
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:
Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology
Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University
Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School
Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder
Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

RADIOPHARMACEUTICALS VS. ADCs

10:00 Chairperson's Remarks

Joseph Vacca, Vice President, RLT Solutions, Perceptive Imaging

10:05 KEYNOTE PRESENTATION: Radiopharmaceuticals: The Next Generation of ADCs or a Completely Different Technology?

Geoffrey B. Johnson, MD, PhD, Physician, Nuclear Medicine, Mayo Clinic Comprehensive Cancer Care

10:35 PANEL DISCUSSION: Radiopharmaceuticals vs. ADCs: Competition or Convergence? Finding the Real Opportunity in Precision Oncology

Moderator: Anna M. Wu, PhD, Chair and Professor, Immunology & Theranostics, Center for Theranostic Studies, City of Hope

- Optimal target characteristics for either/both
- Optimal antibody characteristics for either/both—Affinity, internalization, linker design
- Advantages/challenges for both platforms
- Potential for combining RPT and ADC—Imaging to assess target expression. Imaging to assess actual delivery of ADC
- Combining RPT/ADC on a single antibody?

Panelists:

Sherin Al-Safadi, PhD, Vice President, Medical & Corporate Affairs, Radiopharm Theranostics

Paul Schaffer, PhD, SVP, R&D, Telix Pharmaceuticals Ltd.

11:05 Sponsored Presentation *(Opportunity Available)*

11:35 Session Break

11:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 pm Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

CLINICAL ADVANCES AND LESSONS LEARNED

1:35 Chairperson's Remarks

Elcin Zan, MD, Chair, Division of Nuclear Medicine, Cleveland Clinic

1:40 Designing Radioligands for Clinical Impact: Principles Shaping Therapeutic Performance

John Babich, PhD, Co-Founder, Ratio Therapeutics

Radioligand therapy is rapidly advancing toward the clinic, driven by recent approvals that highlight its therapeutic promise. Advancing next-generation agents demands rigorous application of principles that govern target engagement, radionuclide selection, stability, and safety. This presentation will focus on the foundational considerations that shape clinical performance, emphasizing how molecular design influences successful patient outcomes in diverse cancer therapeutic settings today.

2:10 Alpha Innovation: Introducing ABD-147 and the ROVEr Platform for DLL3 Positive SCLC

Rachael L. Brake, PhD, CSO, Abdera Therapeutics

ROVEr is a novel platform for RLT development. We entered clinical development with our first clinical program targeting DLL3 (ABD147) in 2025 and are beginning to reveal the PK and biodistribution profile of using a VHH-Fc binder format to tune these therapies. We are poised to share the translation of the platform from no clinical to clinical and share insights from a next generation platform on next generation targets.

2:40 Advancing Radio-DARPin Therapeutics: From Preclinical Insights to Clinical Development

Christian Reichen, PhD, Associate Director, Oncology Research, Lead Generation, Molecular Partners AG

DARPins are promising small-sized protein-based delivery vectors for radiopharmaceutical for targeted cancer therapy. This presentation summarizes preclinical strategies to advance Radio-DARPin Therapeutics (RDT) toward clinical evaluation, focusing on improving tumor uptake and minimizing kidney exposure for optimized therapeutic windows. Initial patient images from a compassionate care program with MP0712, our DLL3-targeting lead RDT candidate show selective uptake in primary and metastatic SCLC lesions providing first-in-human proof-of-concept for RDTs.

3:10 Lead Optimization: TRPV6-Targeted RadioLigand Therapy

Michael Groaning, PhD, CSO, Soricimed Biopharma Inc.

Multiple candidates targeting Transient Receptor Potential—Vanilloid Six (TRPV6)—were explored *in vivo* and *in vitro* using a proprietary peptide backbone to identify top leads for radioligand therapy. This lead optimization journey will be presented.

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

NEXT-GENERATION RADIOTHERANOSTICS

4:15 Chairperson's Remarks

Anna M. Wu, PhD, Chair and Professor, Immunology & Theranostics, Center for Theranostic Studies, City of Hope

4:20 Radiotheranostics Redefined: New Targets, Broader Indications, and Next-Gen Clinical-Trial Frameworks

Sherin Al-Safadi, PhD, Vice President, Medical & Corporate Affairs, Radiopharm Theranostics

Radiotheranostics are advancing beyond traditional targets and tumor types through the integration of novel ligands, promising new radionuclides, and imaging-biomarker strategies. This talk will discuss innovative clinical-trial frameworks tailored for radiopharmaceuticals, emphasizing adaptive designs, dosimetry-informed endpoints, and multidisciplinary collaboration. Key themes include radionuclide selection and supply, novel targeting vectors, theranostic pair development, and strategies to seamlessly bridge preclinical and clinical research, accelerating the translation of radiotherapeutics into effective patient care.

4:50 The Novel Theranostic Pair Cu-61/67 Has the Potential to Offer Clinical Advantages in Several Indications

Ben Pais, MD, CMO, Nuclidium AG

5:20 PreTarg-it: A Modular Pretargeting Architecture Enabling Next-Generation Radiotheranostics for Increased Therapeutic Windows

Michael Thiele, PhD, Founder & CSO, Biology Research, OncoOne R&D GmbH

PreTarg-it is OncoOne's modular pretargeting platform designed to expand therapeutic windows in radioligand therapies by decoupling tumor targeting from radiopeptide administration. Biodistribution and pharmacokinetic data demonstrate high tumor-to-background

ratios, supported by proof-of-concept efficacy findings in preclinical tumor models. These results position PreTarg-it as a next-generation strategy for safer, more effective radiotheranostics and outline its path toward clinical translation.

5:50 4B043, a Novel CAIX-Targeting Peptide Radioligand for Theranostic Applications in the Treatment of ccRCC

Weiliang (Timo) Xu, PhD, Associate Director, Business Development, Zonsen Peplib Biotech

4B043 exhibits strong binding affinity to human CAIX with a KD of ~ 90 pM. In VMRC-RCW tumor-bearing mice, ^{68}Ga-4B043 showed high tumor retention, achieving >50% ID/g tumor uptake at 4 hours post-injection. In human investigator-initiated trial (IIT) of ^{68}Ga-4B043. In three patients with renal tumors, ^{68}Ga-4B043 demonstrated high tumor uptake and low kidney uptake at 1 hour post-injection, with SUV_{max} of approximately 100 and a tumor-to-kidney ratio of ~8.

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Frontiers in Radiopharmaceutical Therapy Conference

TUESDAY, MAY 12

6:30 pm Recommended Dinner Short Course

SC7: Targeting the Target: Aligning Target and Biologic Format Biology to Achieve Desired Outcomes

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Remarks

EMERGING STRATEGIES FOR THE DISCOVERY, DESIGN, AND DELIVERY OF THERAPEUTIC PEPTIDES

8:45 Chairperson's Remarks

Sasha B. Ebrahimi, PhD, Scientific Leader, Emerging Drug Delivery Platforms, GlaxoSmithKline

8:50 FEATURED PRESENTATION: Peptide Therapeutics in Tissue Regeneration and Disease: Agonist and Antagonist Strategies

Rami N. Hannoush, PhD, Venture Partner, Versant Ventures; former Group Leader, Early Discovery Biochemistry, Genentech, Inc.

This talk will present a peptide drug discovery platform for generating *de novo* binders that modulate signaling pathways of therapeutic interest. We identified disulfide-constrained peptides that enhance Wnt signaling by regulating ZNRF3, an E3 ligase controlling Wnt cell surface receptor abundance. Beyond the scientific insights, the approach underscores the translational potential of peptides as a modality to unlock previously undruggable pathways and accelerate therapeutic development across multiple disease areas.

9:20 Repurposing Graspetide Synthetase to Make Cyclic Peptides

A. James Link, PhD, Professor, Chemical & Biological Engineering, Princeton University

Cyclic peptides are exciting new lead molecules for therapeutics. Graspetides are a class of RiPPs—ribosomally synthesized natural products—that harbor macrocyclic structures. I will describe our work on graspetide discovery, focusing on the biosynthesis of the graspetide fuscimiditide. Then, I will discuss how the key enzyme in fuscimiditide biosynthesis can be repurposed to cyclize short peptides with an arbitrary sequence, allowing for the construction of cyclic peptide libraries.

9:50 Utilizing Bioinformatics, Biocatalysis, and Synthetic Chemistry to Access Natural Product-Inspired Peptides

Elizabeth I. Parkinson, PhD, Associate Professor, James Tarpo Jr. and Margaret Tarpo, Department of Chemistry, Borch Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University

Cyclic peptides from soil-dwelling bacteria are a bountiful source of bioactive molecules, and the biosynthetic enzymes that produce them perform unique chemistries. Unfortunately, many biosynthetic gene clusters (BGCs) are cryptic. Herein, we are using bioinformatics predictions followed by direct chemical synthesis to access natural product-inspired cyclic peptides from cryptic BGCs followed by exploration of their bioactivities. Additionally, we have discovered biosynthetic enzymes capable of catalyzing cyclization of strained cyclic peptides.

10:20 Sponsored Presentation *(Opportunity Available)*

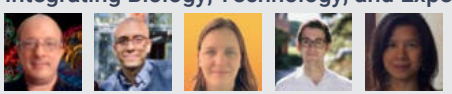
10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience



Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:

- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:
Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.
Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca
Joshua Meier, Co-Founder & CEO, Chai Discovery
Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

2:10 KEYNOTE PRESENTATION: Programmable Peptide Medicines: Design, Durability, and *In Situ* Repair

Krishna Kumar, PhD, Robinson Professor of Chemistry, Tufts University

Peptide therapeutics are moving from fragile drugs to programmable, durable medicines. We will discuss broadly applicable design rules for building enzyme-resistant yet fully active peptides, show how minimal chemical edits reshape pharmacology and *in vivo* performance, and highlight a new small-molecule–mediated "repair" strategy that restores damaged peptides on demand, offering a general platform to extend the lifetime and impact of peptide drugs.

2:40 Advances in Peptide-Based Therapeutics: Design, Applications, and Delivery

Annette Bak, PhD, Head, Advanced Drug Delivery, AstraZeneca

Therapeutic peptides offer unique advantages over small molecules but face delivery challenges. This talk highlights advances in peptide drug conjugates (PDCs) as targeting ligands and carriers for cytotoxics, radionuclides, and oligonucleotides.

It also covers long-acting injectables like nanofibrils and oral delivery strategies using lipid-based formulations and permeation enhancers. Integrating molecular design with advanced delivery technologies can overcome limitations in stability, bioavailability, and patient convenience.

3:10 Peptide-Based Nanoparticles via Flash Nanocomplexation for Therapeutic Delivery

Joel P. Schneider, PhD, Deputy Director, Center for Cancer Research; Chief, Chemical Biology Laboratory, National Cancer Institute, National Institutes of Health

Peptide design is used in combination with flash nanocomplexation (FNC) to produce uniform peptide-based particles of exceptional stability. FNC allows kinetic isolation of the mechanistic steps involved in particle formation facilitating the preparation of particles of discreet size in a highly reproducible, scalable, and continuous manner. We have prepared peptide-based miRNA particles for the treatment of mesothelioma and are working towards pure peptidic particles for the delivery of therapeutic peptides.

3:40 Sponsored Presentation *(Opportunity Available)*

4:10 Networking Refreshment Break

NOVEL MECHANISMS FOR PEPTIDE THERAPEUTICS

4:39 Chairperson's Remarks

Devleena Samanta, PhD, Assistant Professor, Department of Chemistry; Associate Member, Livestrong Cancer Institutes; Member, Dell Medical School, Texas Materials Institute, The University of Texas at Austin

4:40 Drug Delivery by Synthetic Intrinsically Disordered Proteins

Ashutosh Chilkoti, PhD, Alan L. Kaganov Professor, Biomedical Engineering, Duke University

I will discuss two synthetic—engineered—intrinsically disordered protein systems (SynIDPs) that we have developed that can be fused to peptide drugs at the gene level and enhance their *in vivo* delivery.

5:10 Peptide-STING Agonist Conjugates for Cancer Vaccines

Natalie Artzi, PhD, Associate Professor, Medicine, Anesthesia, Brigham & Women's Hospital

We developed a carrier-free, self-assembling peptide–CDN nanoconjugate (PCN) that integrates immunogenic cell death (ICD) with cytosolic STING activation. Peptide-library screening revealed that enriched hydrophobic and cationic residues promote self-assembly, cell penetration, and robust ICD via lysosomal and mitochondrial disruption, driving *in situ* antigen release.

5:40 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

INTERACTIVE ROUNDTABLE DISCUSSIONS

7:30 Interactive Roundtable Discussions with Continental Breakfast

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

NOVEL MECHANISMS FOR PEPTIDE THERAPEUTICS

8:25 Chairperson's Remarks

Devleena Samanta, PhD, Assistant Professor, Department of Chemistry; Associate Member, Livestrong Cancer Institutes; Member, Dell Medical School, Texas Materials Institute, The University of Texas at Austin

8:30 Proteomimetic Polymers Targeting Tau, MYC, and KRAS

Nathan C. Gianneschi, PhD, Jacob & Rosaline Cohn Professor, Departments of Chemistry, Materials Science & Engineering, Biomedical Engineering and Pharmacology, Northwestern University

Significant barriers face the development of therapeutics against key, complex intracellular proteins that drive cancer and neurodegenerative disease. We present a new modality capable of selective and potent target engagement based on synthetic, precision polymer chemistry to design and develop proteomimetic therapeutics.

9:00 Enzyme-Instructed Peptide Assemblies for Organelle Targeting and Cell Modulation

Bing Xu, PhD, Professor, Department of Chemistry, Brandeis University

This talk will introduce the concept, simplicity, and uniqueness of enzyme-instructed self-assembly (EISA), focusing on its ability to generate intracellular peptide assemblies, including artificial filaments, within the cytosol. We will highlight examples of organelle-specific targeting (e.g., mitochondria, endoplasmic reticulum, Golgi apparatus, and nucleus) using enzymatically generated assemblies for therapeutic applications.

9:30 Bicycle Molecules as a Unique Peptide Therapeutics Technology

Mark Frigerio, PhD, MBA, Vice President, Chemistry, Bicycle Therapeutics

Bicycle molecules are bicyclic peptides formed by constraining short linear peptide sequences into a stabilized bi-cyclic structure using a central chemical scaffold. Bicycle molecules have a unique structure that can be engineered to deliver with high precision to their chosen targets, while their size and surface area means they can potentially engage targets that have historically been resistant to conventional modalities.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

FUTURE OF PEPTIDE THERAPEUTICS

10:44 Chairperson's Remarks

Aaron K. Sato, PhD, Chief Strategy Officer, Adimab, LLC

11:15 The Clinical Landscape of Drug Conjugate Therapies Using Peptides & Nanobodies

Laurie Withington, PhD, Associate Director, Oncology Diseases, Citeline

Nanobody and peptide conjugates are driving a new wave of precision therapeutics by combining highly selective binding with potent payload delivery. Peptide conjugate therapies lead the way in the clinic with approved therapeutics and many in development, while there are significantly fewer nanobody conjugates that have only advanced to phase II. I will review the competitive intelligence of this landscape with respect to radio-, oligo-, antibody-, and degrader drug conjugates.

11:45 Talk Title to be Announced

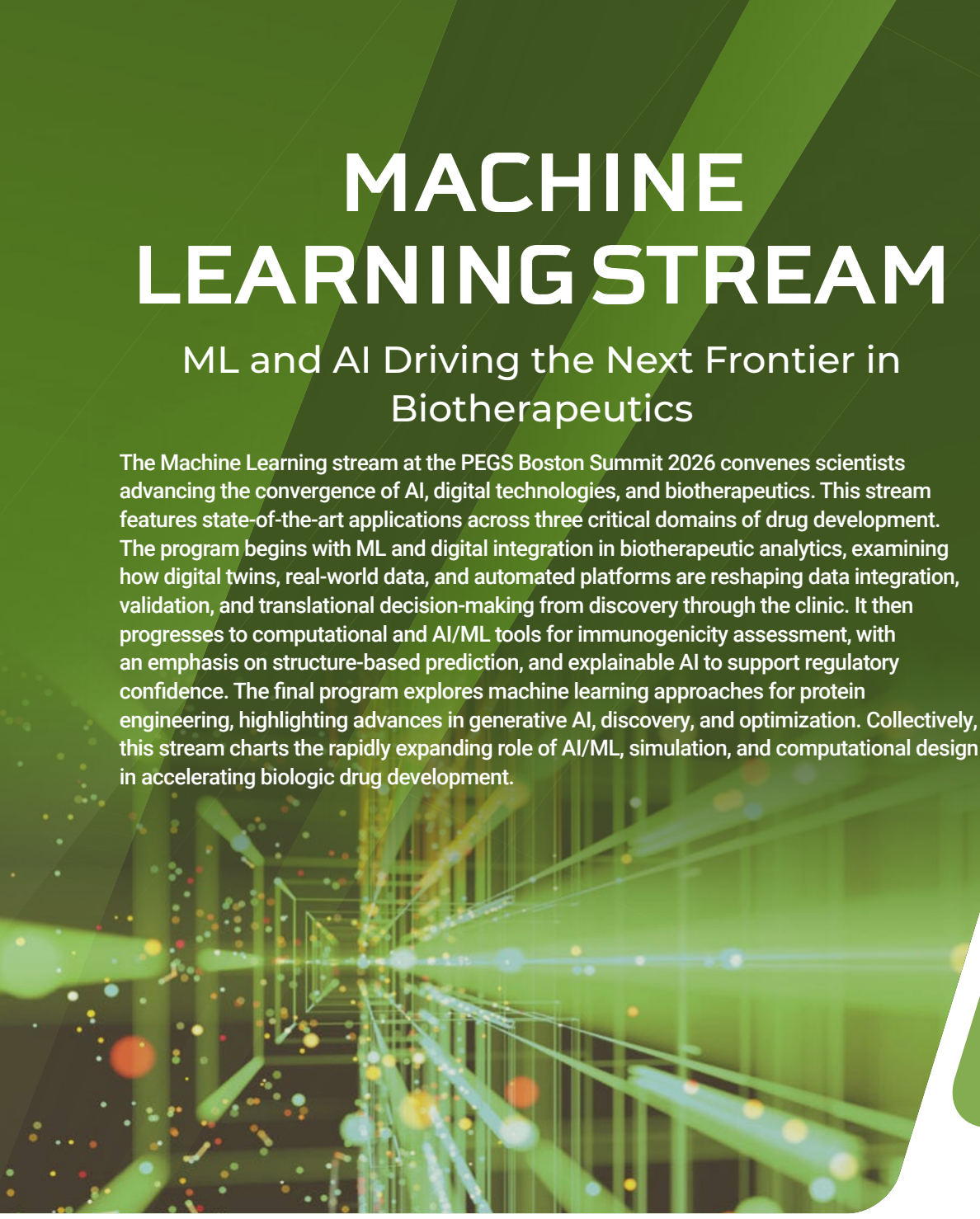
Ashok Bhandari, PhD, Executive Vice President, Chief Discovery Officer, Protagonist Therapeutics, Inc.

12:15 pm Close of Summit

MACHINE LEARNING STREAM

ML and AI Driving the Next Frontier in Biotherapeutics

The Machine Learning stream at the PEGS Boston Summit 2026 convenes scientists advancing the convergence of AI, digital technologies, and biotherapeutics. This stream features state-of-the-art applications across three critical domains of drug development. The program begins with ML and digital integration in biotherapeutic analytics, examining how digital twins, real-world data, and automated platforms are reshaping data integration, validation, and translational decision-making from discovery through the clinic. It then progresses to computational and AI/ML tools for immunogenicity assessment, with an emphasis on structure-based prediction, and explainable AI to support regulatory confidence. The final program explores machine learning approaches for protein engineering, highlighting advances in generative AI, discovery, and optimization. Collectively, this stream charts the rapidly expanding role of AI/ML, simulation, and computational design in accelerating biologic drug development.



MACHINE LEARNING STREAM CONFERENCES

MAY 11-12

ML and Digital Integration in Biotherapeutic Analytics

AGENDA

MAY 12-13

Predicting Immunogenicity with AI/ML Tools

AGENDA

MAY 14-15

Machine Learning for Protein Engineering

AGENDA

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

MONDAY, MAY 11

7:00 am Registration and Morning Coffee

8:20 Organizer's Opening Remarks

USE CASES OF ML/AI IN ANALYTICAL DEVELOPMENT

8:25 Chairperson's Remarks

Alejandro Carpy, PhD, Senior Director, Protein Sciences and Analytics, Biologics Engineering, AstraZeneca R&D

8:30 Challenges in Digital Representation and Bioanalytical Characterization of Antibody-Drug Conjugates

Joel Bard, PhD, Research Fellow, Bioinformatics, BioMedicine Design, Pfizer

Antibody-drug conjugates present challenges around compound registration and property prediction. Antibodies are registered as amino acid sequences. Calculation of properties like molecular weight is straightforward. Small molecules also have a variety of formats for registration of compounds and software tools for property calculation. When small molecules and antibodies are conjugated, the problems of registration and property calculation become more complex. We will discuss approaches to solving these problems.

9:00 Digitalization and Automation of Immunoassay in Bioanalysis

Andreas Hald, PhD, Manager, Research Bioanalysis, Novo Nordisk

Immunoassay platforms are widely used in bioanalytical studies as they offer high sensitivity, specificity, require low sample volume, and are 384-well plate compatible. However, automation of immunoassays is challenged by extensive protocols and the complexity of assay development. To enhance bioanalytical workflows, we leverage digitalization and integrated automation for assay development and sample analysis. This presentation will cover our current E2E-platform and our next steps in digitalization, AI, and automation.

9:30 KEYNOTE PRESENTATION: From Targets to Biologics: AI Powering the Next Leap in Discovery at Takeda

Yves Fomekong Nanfack, PhD, Head of AI/ML Research, Takeda

Takeda's AI/ML strategy is redefining the path from targets to biologics, using advanced models to identify and validate novel targets, decode complex biology, and design the next generation of high-quality therapeutic molecules. By integrating agentic, generative, and large language model–driven approaches, AI is powering the next leap in discovery at Takeda.

10:00 3dpredict: Scalable High-Quality Developability Predictions

Alain Ajamian, Director of Business Development, Chemical Computing Group

Predicting potential liabilities such as aggregation or viscosity is a key step in monoclonal antibody development. Computational property prediction methods are routinely used in the selection and optimization of candidate antibodies. High-quality property prediction involves prediction of ensembles of 3D structures at specified pH to reduce sensitivity to single conformational states. We will present 3dpredict/Ab, a solution that enables ensemble-based predictions of antibody developability descriptors and putative liabilities. 3dpredict/Ab allows for out-of-the-box SaaS automation and integration of such complex simulations of hundreds or thousands of sequences, making them accessible and efficient.

10:15 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

11:00 Toward an Automated and Auditable HPLC Chromatography Analysis Workflow

Zeran Li, PhD, Data Scientist, Moderna

I will present an envisioned automated analytical workflow for RPIP-HPLC chromatograms, covering baseline inference, retention-time alignment, peak detection, deconvolution, and quantification. Parameter settings are optimized via Bayesian search. Every step—from raw-file ingestion and versioned configurations to QC metrics, anomaly flags, a cautious LLM-assisted reviewer-triage step to aid manual review and decision-making—is logged with immutable provenance, enabling auditability and supporting GxP compliance. We target cross-modal applicability without prescribing instrument-specific workflows.

11:30 Unlocking the Capabilities of Microfluidic Electrophoresis for the Development of Protein-Based Therapeutics Using Predictive Analytics.

Jenna Rutberg, Researcher, Biomedical Engineering, Brown University

We will discuss innovative methods that use both size-based and charge-based automated microfluidic electrophoresis to analyze different types of proteins and how this translates to the drug discovery and development process. We will also discuss how the results from these findings can be paired with artificial intelligence and how our predictive analysis method can be used for reagent manufacturing protocols for microfluidics applications.

12:00 pm Session Break

12:10 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:10 Session Break

ML/AI IMPACTS ON DEVELOPMENT PIPELINES

1:15 Chairperson's Remarks

Yi Han, PhD, Principal Scientist, Data Science, Biologics Development, Bristol-Myers Squibb

1:20 From Prediction to Purification: A Scalable HT Strategy for Multispecifics Manufacturing

Alejandro Carpy, PhD, Senior Director, Protein Sciences and Analytics, Biologics Engineering, AstraZeneca R&D

We present an integrated high-throughput workflow combining predictive modeling and automated purification to accelerate multispecific development. Leveraging data-driven parameter optimization and digital analytics, this scalable strategy enhances yield, robustness, and process consistency across diverse molecule classes including DuetMab and TITAN formats. Our standardized platform demonstrates significant efficiency gains, enabling rapid transition from design to manufacturing while maintaining quality standards for complex biotherapeutics.

1:50 Integrating Machine Learning and *in silico* Property Prediction into a Computational Workflow to Support CMC Development

Colin Stackhouse, Senior Scientist, Biologics Analytical Development, Johnson & Johnson Innovative Medicine

Monoclonal antibody product quality is influenced by a complex interplay of the manufacturing process, formulation, and inherent structural attributes of the molecule. To better understand these relationships, an *in silico* data lake was created using state-of-the-art structure and property prediction tools, which enabled development of an unsupervised ML model of the biophysical feature space. This pipeline offers critical insight into how biophysical properties contribute to colloidal stability-related outcomes in CMC development.

2:20 Enabling Analytical Excellence: The Impact of Digital Integration in Clinical Method Performance

Yi Han, PhD, Principal Scientist, Data Science, Biologics Development, Bristol-Myers Squibb

Explore how digital tools and data automation are advancing the monitoring, evaluation, and enhancement of analytical methods for separation, impurity, and potency. Innovative strategies for integrating data and harnessing real-time insights will be showcased, enabling streamlined workflows and driving continuous improvement across the entire analytical lifecycle—elevating data quality, operational efficiency, and method performance in biotherapeutic analytics.

2:50 Sponsored Presentation *(Opportunity Available)*

3:20 Networking Coffee & Refreshment Break

4:05 Transition to Plenary Keynote Session

PLENARY KEYNOTE

4:15 Plenary Keynote Introduction

Mahiuddin Ahmed, PhD, President and CSO, VITRUVIAE

4:25 CARs 2026: New Models and New Runways

Michel Sadelain, MD, PhD, Director, Columbia University Initiative in Cell Engineering and Therapy (CICET); Director, Cell Therapy Initiative, Herbert Irving Comprehensive Cancer Center; Professor of Medicine, Columbia University Irving Medical Center

T cell engineering holds great promise for the treatment of cancers and other pathologies. The original chimeric antigen receptor (CAR) prototypes targeting CD19 are now giving way to further refined receptors endowed with greater sensitivity and combinatorial possibilities. Emerging new targets and engineering tools augur favorably for broadening the use of CAR therapies.

YOUNG SCIENTIST KEYNOTE

5:10 Deep Learning-Based Binder Design to Probe Biology

Martin Pacesa, PhD, Assistant Professor, Pharmacology, University of Zurich

Protein-protein interactions are central to biology and drug discovery, yet traditional antibody generation is slow and costly. BindCraft is an open-source, automated computational pipeline for *de novo* protein binder design that routinely yields nanomolar binders with 10-100% experimental success, without high-throughput screening or maturation. We illustrate applications to peptides, cell-surface receptors, allergens, and gene editors, and outline how deep-learning workflows can accelerate next-generation therapeutics, diagnostics, and bioprocessing.

5:55 Welcome Reception in the Exhibit Hall with Poster Viewing

7:15 Close of Day

TUESDAY, MAY 12

7:45 am Registration and Morning Coffee

DIGITALIZATION AND AUTOMATION

8:30 Chairperson's Remarks

Melody Shahsavarian, PhD, Director, Data Strategy & Digital Transformation, Biotherapeutics Discovery Research, Eli Lilly & Company

8:35 Engineering Success: High-Throughput Developability for Next-Generation Biotherapeutics

Maniraj Bhagawati, PhD, Senior Scientist and Lab Head, Functional Characterization, Large Molecule Research, Roche pRED

To meet the demand for subcutaneous, high-concentration biologics, predicting protein behavior (e.g., viscosity, aggregation) is crucial yet challenging. We introduce an integrated, automated platform for early discovery screening. This process combines high-throughput, low-mass assays with *in silico* developability assessments to predict critical solution parameters and risks across diverse molecule formats, optimizing developability from inception.

9:05 Scaling Developability: Automating High-Throughput Assays for Early Developability Assessment

Andrew Dippel, PhD, Associate Director, Protein Analytics & Developability, AstraZeneca

Modern biotherapeutic pipelines demand truly high-throughput, automated developability assessment to evaluate increasing candidate volumes efficiently. This presentation explores implementing standardized, automated assay platforms to generate comprehensive, high-quality developability datasets. By establishing this high-throughput developability data collection, we enable early identification of developability risks before costly downstream manufacturing issues arise, and generate the datasets essential for training robust machine-learning models.

9:35 From Automation to Visualization: Robotic Sample Preparation, High-Throughput Developability Analysis, and Dashboards

Jan Paulo Zaragoza, PhD, Associate Principal Scientist, Discovery Biologics, Merck

This talk introduces a data-centric platform that combines robotics, high-throughput biophysical characterization, and decision-ready visualization. Automated liquid handling standardizes sample prep and scales throughput, while multiplexed assays quantify biophysical and stability parameters to identify risks early. Case studies show shorter cycles, improved data quality, and stronger portfolio decisions, with sample traceability, method validation, and seamless integration across automation platforms and informatics systems.

10:05 Presentation to be Announced Genedata

10:35 Coffee Break in the Exhibit Hall with Poster Viewing

PROBLEMS AND SOLUTIONS

11:15 Fit-for-Purpose Automation: Adapting Platforms to Our Science

Nick Mukhitov, Principal Research Scientist, AbbVie

We will share strategies leveraged in our group to enable forward compatibility of our platforms. We will address automation, data capture and custom engineering solutions to adopt our instrumentation to our science.

11:45 Democratizing Data and AI for Biologics Research

Melody Shahsavarian, PhD, Director, Data Strategy & Digital Transformation, Biotherapeutics Discovery Research, Eli Lilly & Company

Advances in automation and AI have revolutionized the field of biologics discovery. Quantity of data is exponentially increasing, and ML architectures are rapidly improving. Key to leveraging this technological revolution lies in accessibility of data and AI. I will talk about our efforts at Lilly in developing an integrated digital platform that allows us to fully leverage experimental and data science toward improved decision-making and accelerated DMTA cycles.

12:15 pm Presentation to be Announced

12:45 Session Break

12:50 LUNCHEON PRESENTATION: The PAIA Developability Assay Platform for the Fast and Comprehensive Biophysical Screening of Different Antibody Formats

Sebastian Giehring, PAIA Biotech GmbH

Developability assessment remains a bottleneck in early antibody discovery. PAIA´s plate-based developability assay platform provides a fast and easy-to-automate way to characterize hundreds to thousands of molecules per day. In this presentation we show developability screening data for different samples sets of mAbs, VHH-Fc-fusions and bispecifics, and compare the results with orthogonal and published data.

1:20 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

1:50 Close of ML and Digital Integration in Biotherapeutic Analytics Conference

6:30 Recommended Dinner Short Course

SC6: Developability of Bispecific Antibodies

*Separate registration required. See short course page for details.

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC2: AI-Driven Predictive Preclinical Models: Rethinking the Role of Animal Testing

*Separate registration required. See short course page for details.

TUESDAY, MAY 12

1:50 pm Networking Coffee & Dessert Break in the Exhibit Hall with Poster Viewing

2:20 Organizer's Opening Remarks

IMMUNOGENICITY RISK ASSESSMENT DATASETS

2:25 Chairperson's Opening Remarks

Daniel Leventhal, PhD, Principal Consultant, Tactyl

2:30 A Streamlined Preclinical Workflow to Assess the Immunogenicity Risk of Biotherapeutics

Rita Martello, PhD, Associate Director, EMD Serono

We have established a workflow integrating immunogenicity risk assessment with *in silico* analysis, which can trigger *in vitro* assays. This streamlined approach reduces the number of costly low-throughput *in vitro* tests and serves as a screening tool for selecting less immunogenic formats. We enhance initial immunogenicity risk assessments and develop effective mitigation strategies, safeguarding patient safety and improving therapeutic outcomes.

3:00 Defining the Data behind the Models: Interpreting Clinical Immunogenicity Measures for AI/ML Risk Assessment

Daniel Leventhal, PhD, Principal Consultant, Tactyl

Predicting unwanted immunogenicity remains a major challenge in biotherapeutic development. This presentation reviews molecular, mechanistic, and clinical features contributing to anti-drug antibody risk, offers guidance for interpreting public clinical immunogenicity datasets, and highlights the Immunogenicity Database Collaborative (IDC)—a community effort to standardize and structure clinical ADA data. These resources aim to enable more interpretable, multivariable models that better reflect clinical immunogenicity complexity.

3:30 Sponsored Presentation *(Opportunity Available)*

4:00 Refreshment Break in the Exhibit Hall with Poster Viewing

IMMUNOGENICITY PROPERTY PREDICTION

4:40 Harnessing Human and Machine Intelligence for Next-Generation Immunogenicity Risk Prediction

Guilhem Richard, PhD, CTO, EpiVax Inc.

EpiVax has developed the ISPRI platform for assessing the immunogenic risk of biotherapeutics. New AI/ML models have been integrated into ISPRI, leading to enhanced prediction of tolerated epitopes and estimation of ADA responses. These updates improved characterization of epitopes within biotherapeutic molecules and enabled a 3-fold increase in the correlation between predicted and observed ADAs over existing approaches, with over 75% of predicted ADAs within 10% of observed values.

5:10 B Cell Epitope Predictions: Can We Benefit from Immune-Receptor Data?

Morten Nielsen, PhD, Professor, Department of Health Technology, Technical University of Denmark

Immunogenicity assessment is key for the development of biologics. Traditional approaches have focused on MHC Class II antigen presentation. However, recent advances in B cell epitope and antibody-antigen interaction prediction have significantly enhanced predictive capabilities. This talk will describe some of these tools and introduces AbEpiTope-1.0, tool for predicting antibody targets, suggesting how these tools can be integrated into computational pipelines for immunogenicity assessment and de-risking of protein therapeutics.

5:40 Mapping the T Cell Receptor Specificity Landscape through *de novo* Peptide Design

Gian Marco Visani, PhD Graduate Student, University of Washington

We present a computational framework to predict TCR recognition of peptides presented by MHC-I and to design novel immunogenic peptides. Using HERMES, a model trained on the protein universe to predict amino acid preferences based on local structural environments, we accurately predict TCR–pMHC binding and T cell activity without task-specific training. We further design and experimentally validate *de novo* peptides that activate T cells and map peptide recognition landscapes across TCR–MHC systems.

6:10 Close of Day

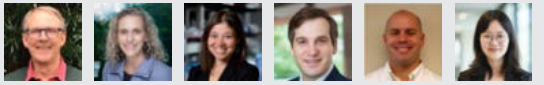
WEDNESDAY, MAY 13

8:00 am Registration Open

PEGS YOUNG SCIENTIST KEYNOTE ALUMNI PANEL

8:25 Chairperson's Remarks

8:30 Innovation in Protein Science with Young-Scientist Visionaries



Moderator: James A. Wells, PhD, Professor, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

2026 marks the 10-year anniversary of the PEGS Young Scientist Keynote, and these honorees have been selected for their outstanding contributions to the field of protein science and engineering. Our panel of YSK alumni will discuss the recent course of these contributions and discuss the factors that allowed them to quickly launch successful labs and research groups.

Panelists:
Kathryn M. Hastie, PhD, Instructor and Director of Antibody Discovery, La Jolla Institute for Immunology
Jamie B. Spangler, PhD, Associate Professor, Biomedical and Chemical & Biomolecular Engineering, Johns Hopkins University
Kipp Weiskopf, MD, PhD, Head of Antibody Therapeutics and Biologics, Cancer Research Institute, Beth Israel Deaconess Medical Center; Assistant Professor of Medicine & Physician, Department of Medical Oncology, Dana-Farber Cancer Institute, Harvard Medical School
Timothy A. Whitehead, PhD, Professor, Chemical & Biological Engineering, University of Colorado, Boulder
Xin Zhou, PhD, Assistant Professor, Biological Chemistry & Molecular Pharmacology, Dana-Farber Cancer Institute, Harvard Medical School

9:15 Coffee Break in the Exhibit Hall with Poster Viewing

IMMUNOGENICITY PROPERTY PREDICTION

10:00 Chairperson's Remarks

Sophie Tourdot, PhD, Immunogenicity Sciences Lead, BioMedicine Design, Pfizer

10:05 Mapping the Anti-Drug Antibody Binding Site on Multidomain Biotherapeutics

Xiaobin Zhang, PhD, Associate Director, Takeda Pharmaceuticals

Immunogenicity of biotherapeutics poses a significant efficacy or safety concern in drug development. It is crucial to select

candidates with low immunogenicity risk or de-immunize the candidates at an early stage. In this presentation. I will introduce the tool of *in silico* prediction, domain competitive assay, and peptide screening for a multidomain therapeutics in preclinical and clinical studies. This integrated immunogenicity assessment will enhance the success ratio in drug development.

10:35 Improving Clinical Anti-Drug Immunogenicity Prediction with B Cell Epitopes

Will Thrift, PhD, Principal Artificial Intelligence Scientist, Genentech

We present a prototypical workflow for leveraging B cell epitope prediction, together with structural humanness assessment, to enhance immunogenicity risk evaluation for biotherapeutics. Using large clinical datasets of anti-drug antibody responses, we show that integrating B cell epitope and humanness information improves both precision and recall in immunogenicity prediction compared to T cell epitope only approaches, highlighting its potential to refine preclinical risk assessment strategies.

Syntekabio

11:05 Presentation to be Announced

11:35 Session Break

11:40 Luncheon Presentation *(Sponsorship Opportunity Available)* **or Enjoy Lunch on Your Own**

INTERACTIVE BREAKOUT DISCUSSIONS

12:40 pm Find Your Table and Meet Your Discussion Moderator

12:50 Interactive Roundtable Discussions

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

IN SILICO IMMUNO SYSTEMS MODELING

1:35 Chairperson's Remarks

Lora Hamuro, PhD, Senior Director, Clinical Pharmacology & Pharmacometrics, Bristol Myers Squibb

1:40 Evaluating the Immunogenicity Risk of Protein Therapeutics by Augmenting T Cell Epitope Prediction with Clinical Factors

Zicheng Hu, PhD, Principal Scientist, Genentech

Protein-based therapeutics can trigger anti-drug antibodies (ADAs) that affect pharmacokinetics, efficacy, or safety. Using Roche/Genentech clinical data, we identified factors influencing drug immunogenicity across monoclonal antibodies and other modalities. ADA incidence was linked to drug and comedication mechanisms, administration routes, and disease types. Combining these clinical factors with *in silico* epitope predictions improved the accuracy of clinical immunogenicity prediction.

2:10 Immune System Modeling of Immunogenicity for a Biotherapeutic Combination

Lora Hamuro, PhD, Senior Director, Clinical Pharmacology & Pharmacometrics, Bristol Myers Squibb

This seminar presents quantitative systems pharmacology modeling of immunogenicity for biotherapeutic combinations, focusing on nivolumab and ipilimumab. The model showed that combining these agents increases nivolumab anti-drug antibodies compared to monotherapy but does not significantly alter pharmacokinetics, consistent with clinical data. This mechanistic approach to understanding immunogenicity can be applied to other biotherapeutic combinations.

2:40 IGMotifFinder: Improving Preclinical *in silico* Immunogenicity Assessment via Integration of Pathogen Similarity Analysis

Michael Gutknecht, PhD, Principal Scientist II, Novartis

Biotherapeutics may include motifs similar or identical to pathogenic sequences, acting as cross-reactive T cell epitopes that increase immunogenicity potential. IGMotifFinder is an *in silico* platform developed to identify HLA class II-presented cross-reactive motifs. Analysis of over 200 biotherapeutics revealed that a higher "pathogenic" to "self" motif-ratio correlates with increased clinical immunogenicity. IGMotifFinder will support early identification and proactive mitigation of immunogenicity in biotherapeutics.

3:10 Sponsored Presentation *(Opportunity Available)*

3:40 Ice Cream & Coffee Break in the Exhibit Hall with Poster Viewing

APPLYING AI STRATEGIES TO NEW MODALITIES

4:20 Immunovate: A Design-Focused Approach to Minimizing Immunogenicity with ML

Frank Teets, PhD, Head, Computational Science, AI Proteins

In silico predictions of immunogenicity have long been a grand challenge in the design of polypeptide therapeutics. While a complete solution remains difficult, the power of novel *de novo* design methods can be coupled with ML methods to produce an automated, general solution for minimizing unwanted immunogenicity in *de novo* designed miniproteins. We present Immunovate, a lightweight solution for controlling miniprotein immunogenicity at several levels of simulation complexity.

4:50 Applying AI Strategies to New Modalities: Cell and Gene Therapies

Timothy Hickling, PhD, Consultant, Quasor Ltd.

INTEGRATING *IN SILICO* IMMUNOGENICITY AND DEVELOPABILITY ASSESSMENTS

5:20 Generalized Multi-Objective Optimization Methods for the Design and Engineering of Low-Immunogenicity Protein Therapeutics

Ryan Peckner, PhD, Director, Machine Learning, Seismic Therapeutic

We develop machine learning models to simultaneously optimize multiple drug-like properties of biologics, including antibodies and enzymes. Our generative models that harness both the design of functional proteins and the prediction of drug-like properties to engineer therapeutically developable proteins with low immunogenicity. We produce and experimentally characterize these designs for fitness, function, and developability, exploring the synergy of these methods in a generalized multi-objective optimization pipeline for biologics.

5:50 Discovery to Development: Computational Approaches for Immunogenicity De-Risking

Priyanka Gupta, PhD, Scientist, Biotherapeutics, Boehringer Ingelheim Pharmaceuticals, Inc.

Molecular sequence is a key contributor to immunogenic responses against biologic drugs. Leveraging *in silico* techniques enables early identification and mitigation of sequence-associated risks during the discovery phase, in a high-throughput and efficient manner. This presentation will highlight computational strategies that integrate a suite of *in silico* tools to optimize lead molecules for developability and reduce immunogenicity risk—ultimately accelerating the path to candidate selection.

6:20 Networking Reception in the Exhibit Hall with Poster Viewing

7:20 Close of Predicting Immunogenicity with AI/ML Tools Conference

SUNDAY, MAY 10

2:00 pm Recommended Pre-Conference Short Course

SC1: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

*Separate registration required. See short course page for details.

THURSDAY, MAY 14

7:30 am Registration Open

7:30 From Scientist to Start-Up: An Interactive Entrepreneurship Breakfast

Moderator: Catharine Smith, Executive Director, Termeer Foundation

Join us for an interactive breakfast conversation on the journey from scientist to entrepreneur, featuring founder, CSO, CEO, and investor perspectives. Panelists will share how they navigated the leap from postdoc to scientist to startup leadership, from securing initial funding and building teams to cultivating networks of mentors and advisors.

8:30 Transition to Sessions

8:40 Organizer's Remarks

USE OF AI IN COMPLEX MODALITIES: MULTISPECIFICS AND NOVEL SCAFFOLDS

8:45 Chairperson's Remarks

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

8:50 Towards Multispecifics by Design: Large-Scale Data Generation Enabling AI-Based Multispecific Design

Norbert Furtmann, PhD, Head of AI Innovation, Large Molecules Research, Sanofi

The design of multispecific protein therapeutics presents unique challenges that remain largely unaddressed by current computational approaches. We discuss critical data gaps in this field and present strategic approaches for generating fit-for-purpose datasets specifically tailored for multispecifics. Through practical examples and case studies, we demonstrate how targeted computational and machine-learning strategies can support the optimization of next-generation multispecific therapeutics.

9:20 Accurate Protein-Binder Design Using BindCraft

Lennart Nickel, Graduate Student, Biotechnology & Bioengineering, École Polytechnique Fédérale de Lausanne

Protein-protein interactions are fundamental to biology but remain difficult to design due to their structural complexity. We introduce BindCraft, an open-source platform for *de novo* protein-binder design that achieves high-affinity binding without experimental optimization or prior binding information. BindCraft enables the generation of functional binders for diverse targets including receptors, allergens, and nucleases, advancing a "one design one binder" paradigm with broad potential in therapeutics, diagnostics, and biotechnology.

9:50 Designing Biochemical Function with Generative AI

Rohith Krishna, PhD, Postdoctoral Fellow, Computational Biology & Machine Learning, University of Washington

Deep learning has accelerated protein design, but most existing methods are restricted to generating protein backbone coordinates and often neglect interactions with other biomolecules. I will present the next generation of protein design methods that include side-chain coordinates for design of more complex biomolecular function. Finally, I will show a series of applications of these algorithms to design of experimentally characterized functional proteins.

10:20 Presentation to be Announced

MindWalk

10:35 Presentation to be Announced

Immuto Scientific

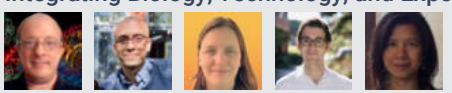
10:50 Coffee Break in the Exhibit Hall with Poster Viewing

PLENARY FIRESIDE CHAT

11:35 Plenary Fireside Chat Introduction

Eric Smith, PhD, Executive Director, Bispecifics, Regeneron Pharmaceuticals, Inc.

11:40 PANEL DISCUSSION: How to Think about Designing Smart Biologics in the Age of GenAI: Integrating Biology, Technology, and Experience



Moderator: Christopher J. Langmead, PhD, Executive Director, AI & Data for Engineered Biologics, Amgen

The conversation will explore:

- How AI is accelerating early discovery and molecular design for biologics
- Emerging strategies for integrating experimental data and large language models
- The challenges of data quality, interoperability, and interpretability
- The evolving roles of scientists, data, and automation in the next generation of discovery labs

Panelists:

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Rebecca Croasdale-Wood, PhD, Senior Director, Augmented Biologics Discovery & Design, Biologics Engineering, Oncology, AstraZeneca

Joshua Meier, Co-Founder & CEO, Chai Discovery

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:35 pm Networking Luncheon in the Exhibit Hall and Last Chance for Poster Viewing

DEVELOPABILITY AT-SCALE

2:05 Chairperson's Remarks

M. Frank Erasmus, PhD, Head, Bioinformatics, Specifica, an IQVIA business

2:10 Predicting Biophysical and Developability Properties

Paolo Marcatili, PhD, Head, Antibody Design, Novo Nordisk

2:40 Application of AI to Developability Screening, a Skeptic's View

Andrew C.R. Martin, DPhil, Emeritus Professor of Bioinformatics and Computational Biology, University College London

AI has been used in bioinformatics since the early 1990s, but recent advances, driven by approaches such as protein-language and generative models, have revolutionized many areas of life. There have been several publications that use such approaches for *ab initio* antibody design, but I for one remain skeptical. Nonetheless, there are clear applications for modern AI techniques around antibody developability, and improving candidate antibody-based drugs.

3:10 TherAbDesign: Bridging AI and Biophysics for Antibody Developability Optimization

Amy Wang, PhD, Structural & Computational Biologist, Prescient Design, Genentech

Antibodies are promising protein therapeutics, but successful development requires meeting strict developability criteria. We present TherAbDesign, a machine-learning method that evaluates and optimizes antibodies based on sequence alone, proposing modifications that mimic the biophysical properties of successful therapeutics. This approach circumvents computationally expensive structure prediction and physics-based calculations. We show that this method improves known developability liabilities, such as viscosity, without explicitly modeling their mechanism of action.

3:40 Sponsored Presentation *(Opportunity Available)*

4:10 Networking Refreshment Break

INNOVATION SHOWCASE

4:40 INNOVATION SHOWCASE Presentation to be Announced

IMMUNESPEC

DEVELOPABILITY AT-SCALE *(CONT.)*

4:45 Sponsored Presentation *(Opportunity Available)*

5:10 Benchmarking Language Models for Antibody and Nanobody Tasks

Koji Tsuda, PhD, Professor, Computational Biology & Medical Sciences, University of Tokyo

Recent advances in protein language models (PLMs) have demonstrated strong performance on structure and function prediction. To evaluate their performance in nanobody-related tasks, we developed a comprehensive benchmark suite, NbBench. Benchmarking of eleven models revealed that antibody language models excel in antigen-related tasks, while thermostability and affinity-related talks remain challenging across all models. We further discuss how PLMs and their benchmarks could impact on antibody research.

5:40 PANEL DISCUSSION: Are *In Silico* Tools Truly Reducing Clinical Failure and Accelerating Development?

Moderator: M. Frank Erasmus, PhD, Head, Bioinformatics, Specifica, an IQVIA business

- Validity of Proxies
- Manufacturing vs. Efficacy
- Generative Bias:
- The Negative Data Gap
- False Positives
- The MHC Limitation
- Predicting Tolerance

Panelists:
Hunter Elliott, PhD, Senior Director, Machine Learning, BigHat Biosciences
Sandeep Kumar, PhD, Distinguished Research Fellow, Computational Biochemistry and Bioinformatics, Boehringer Ingelheim Pharmaceuticals
Paolo Marcatili, PhD, Head, Antibody Design, Novo Nordisk
Morten Nielsen, PhD, Professor, Department of Health Technology, Technical University of Denmark
Ian Wilkinson, PhD, Co-Founder & CSO, mAbsolve Ltd.

5:40 Close of Day

FRIDAY, MAY 15

7:15 am Registration Open

INTERACTIVE ROUNDTABLE DISCUSSIONS

7:30 Interactive Roundtable Discussions with Continental Breakfast

Interactive Roundtable Discussions are informal, moderated discussions, allowing participants to exchange ideas and experiences and develop future collaborations around a focused topic. Each discussion will be led by a facilitator who keeps the discussion on track and the group engaged. To get the most out of this format, please come prepared to share examples from your work, be a part of a collective, problem-solving session, and participate in active idea sharing. Please visit the Interactive Roundtable Discussions page on the conference website for a complete listing of topics and descriptions.

LAB-IN-THE-LOOP

8:25 Chairperson's Remarks

Victor Greiff, PhD, Associate Professor, University of Oslo; Director, Computational Immunology, IMPRINT

8:30 Better Antibodies Engineered with a GLIMPSE of Human Data

Lance Hepler, PhD, Co-Founder, R&D, Infinimmune Inc.

Infinimmune presents GLIMPSE, an antibody language model trained on proprietary human data that achieves state-of-the-art performance. We used GLIMPSE within our lab-in-a-loop platform to engineer an anti-IL-13 antibody, enhancing its drug-like properties including potency, extended half-life, affinity, stability, and manufacturability via liability removal. This work demonstrates the practical application of language models for optimizing therapeutics while maintaining their humanness, moving beyond typical proof-of-concept studies.

9:00 Training Data Composition Determines Machine-Learning Generalization and Biological Rule Discovery

Victor Greiff, PhD, Associate Professor, University of Oslo; Director, Computational Immunology, IMPRINT

We evaluated how different negative-class definitions affect generalization and rule discovery in antibody-antigen binding using synthetic structure-based data. Models trained with negatives more similar to positives had reduced in-distribution performance but markedly better out-of-distribution generalization. Ground-truth analyses revealed that inferred binding rules shift with negative set choice, and experimental validation confirmed these findings, emphasizing dataset design for robust, biologically meaningful models.

9:30 Computational Design of Antibody Repertoires

Ariel Tennenhouse, Graduate Student, Biomolecular Sciences, Weizmann Institute of Science

We are developing a new strategy for designing repertoires of billions of structurally diverse and stable human antibodies. I will first describe two methods we developed for atomistic antibody design that enable this strategy and show that each method can optimize antibodies across a variety of criteria without prior mutational data. This shows that optimizing native-state energy is an excellent first approach for antibody optimization.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Networking Coffee Break

DE NOVO BIOLOGICS DESIGN: USING AI TO CREATE BRAND-NEW ANTIBODIES AND PROTEINS FROM SCRATCH

10:44 Chairperson's Remarks

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

10:45 From Proof-of-Concept to Proof-of-Productivity and Scale

Hans M. Bitter, PhD, Head Computational Science, Data Strategy, Takeda Pharmaceutical Co. Ltd.

Proof-of-concept has been demonstrated, showing how AI methods can be used to design and optimize large molecules. We must shift our focus to scaling to maximize the productivity and innovation gains. This talk will cover a selection of PoCs and then how we are scaling digital biologics at Takeda across our portfolio.

10:55 Massively Multiplexed *in vivo* Screening of AI-Designed Proteins Enables Programmable Tissue Targeting

Pierce J. Ogden, PhD, Co-Founder & CSO, Manifold Biotechnologies Inc.

At Manifold Bio, we've built a direct-to-*vivo* platform that connects AI-driven protein design to functional data from living systems. Using this approach, we generate and evaluate thousands of designed binders to novel targets simultaneously *in vivo*. This massively multiplexed framework has yielded functional brain shuttles capable of crossing the blood–brain barrier, and we are now extending it to other tissues to enable selective delivery of diverse therapeutics.

11:05 Push-Button Biologics Design

Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

We recently announced JAM-2, which can design antibodies with drug quality properties with high success rates. We'll discuss these results, and also share examples of what successful deployment on real drug discovery programs partnered with large pharma looks like. We'll discuss roadblocks and share practical lessons/ advice for how to build teams and infrastructure to ensure AI driven biologics discovery delivers real drugs not just headlines.

11:15 PANEL DISCUSSION: *De novo* Biologics Design: Using AI to Create Brand-New Antibodies and Proteins from Scratch

Moderator: Surge Biswas, PhD, Founder & CEO, Nabla Bio, Inc.

Panelists:

Hans M. Bitter, PhD, Head Computational Science, Data Strategy, Takeda Pharmaceutical Co. Ltd.

Pierce J. Ogden, PhD, Co-Founder & CSO, Manifold Biotechnologies Inc.

Maria Wendt, PhD, Global Head (Vice President) of Digital and Biologics Strategy and Innovation, Large Molecule Research, Novel Modalities, Synthetic Biology and AI, Sanofi

12:15 pm Close of Summit

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Select specific delegates from the pre-registration list to attend a private function at an upscale restaurant or a reception at the hotel. From extending the invitations, to venue suggestions, CII will deliver your prospects and help you make the most of this invaluable opportunity.

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The PEGS Boston Summit Innovation Showcase offers emerging companies (pre-commercial, offering tools and solutions for pharma and biotech; founded in 2020 or later; and currently raising a late seed or Series A) an alternative to sponsoring a traditional 15- or 30-minute vendor presentation. This opportunity features a shorter, 5-minute presentation in the main agenda.

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FOR MORE INFORMATION, PLEASE CONTACT:

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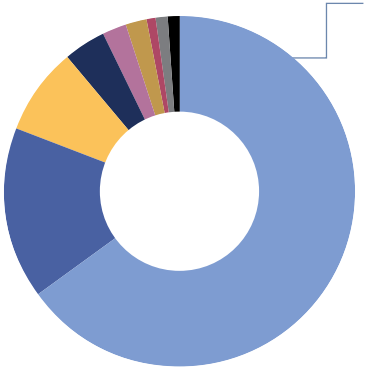
2025 ATTENDEE **DEMOGRAPHICS**

COMPANY TYPE



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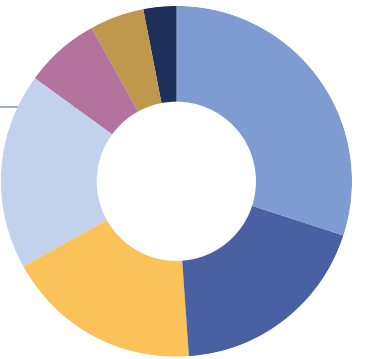

Scientist/ Technologist	30%
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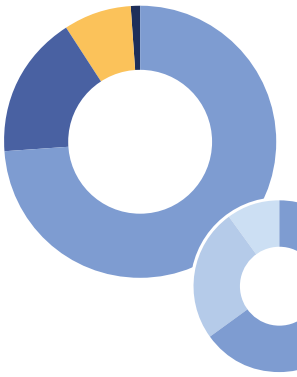

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