ENGINEERING
- Display of Biologics
- Engineering Antibodies
- Machine Learning Part 2

TARGETS
- Antibody-Based Therapies
- Emerging Targets
- Membrane Protein Targets

BISPECIFICS
- Safety & Efficacy
- Advancing Multispecifics
- Engineering Bispecifics

IMMUNOTHERAPY
- Immunoengineering
- Innovative CAR Therapy
- Next-Gen Immunotherapies

ANALYTICAL
- Optimisation & Developability
- Analytical Characterisation
- Protein Stability & Formulation

EXPRESSION
- Leveraging Data Science
- Optimising Expression
- Developing Workflows

MACHINE LEARNING
- Intro to Machine Learning
- Machine Learning Part 1
- Machine Learning Part 2

ONCOLOGY
- Antibody-Based Therapies
- Engineering ADCs
- Next-Gen Immunotherapies

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PLENARY DEEP DIVE

Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?

MODERATOR:
Daniel Chen, MD, PhD
Synthetic Design Lab

PANELISTS:

Paul J. Carter, PhD
Genentech

G. Jonah Rainey, PhD
Eli Lilly and Company

Janine Schuurman, PhD
Lust for Life Science B.V.

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TARGETS		Antibody-Based Therapies	Emerging Targets	Membrane Protein Targets
BISPECIFICS		Safety and Efficacy of Bispecifics	Advancing Multispecifics	Engineering Bispecifics
IMMUNOTHERAPY		Immunoengineering	Innovative CAR Therapy	Next-Gen Immunotherapies
ANALYTICAL		Optimisation & Developability	Analytical Characterisation	Protein Stability & Formulation
EXPRESSION		Leveraging Data Science	Optimising Expression	Developing Workflows
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Training SEMINARS
By Cambridge Healthtech Institute

TS1: AI-Driven Design of Biologics: A Hands-on Guide to Using State-of-the-Art ML Protein Models

TS2: Introduction to Multispecific Antibodies: History, Engineering, and Application

TS7A: Introduction to Machine Learning for Biologics Design

TS8A: Introduction to Analytical Characterisation and Quality Control for Biological Products

TS9A: Introduction to Immunogenicity

**Separate registration required for short courses.*

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>
> **Rakesh D., PhD** | President & CEO, Bionavigen

PLENARY DEEP DIVE

12 NOVEMBER 2025 | 15:30-16:35

Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?

MODERATOR:

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Cambridge Healthtech Institute encourages attendees to gain further exposure by presenting their work in the poster sessions. To secure an onsite poster board and/or ensure your poster is included in the conference materials, your full submission must be received, and your registration paid in full by **10 October 2025**.

Register and indicate that you would like to present a poster. Once your registration has been fully processed, we will send an email with a unique link and instructions for submitting your materials.

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TAMARIND BIO · TSINGKE · vector Drug development from BENCH 2 BEDSIDE

SHORT COURSES* | MONDAY, 10 NOVEMBER

All short courses will take place in-person only from 14:00 – 17:00 on 10 November. Our short courses are designed to be instructional, interactive, and provide in-depth information on a specific topic. They allow for one-on-one interaction between the participants and instructors to facilitate the explanation of the more technical aspects that would otherwise not be covered during our main presentations.

SC1: 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.

SC2: Best Practices for Targeting GCPRs, Ion Channels, and Transporters with Monoclonal Antibodies

Instructor:

Ross Chambers, PhD, Vice President, Antibody Discovery, Integral Molecular, Inc.

Complex membrane proteins are important therapeutic targets and together represent the majority of protein classes addressed by therapeutic drugs. Significant opportunities exist for targeting complex membrane proteins with antibodies, but it has been challenging to discover therapeutic antibodies against them. This course will examine emerging technologies and strategies for enabling the isolation of specific and functional antibodies against GPCRs, ion channels, and transporters, and highlight progress via case studies.

SC3: Developability of Bispecific Antibodies

Instructor:

Nimish Gera, PhD, Vice President, Biologics, Mythic Therapeutics

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.

SC4: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions

Instructors:

Rahmad Akbar, PhD, Senior Data Scientist, Antibody Design, Novo Nordisk

Vinodh B. Kurella, PhD, Biotherapeutic Computational Modeler, Takeda Pharmaceuticals, Inc.

Odysseas Vavourakis, Generative Antibody Design, 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.

SC5: Novel Payloads and Conjugation Strategies – Building on Lessons Learned to Inform Next-Generation ADC Design

Instructor:

Lenka Sadilkova, PhD, Head, Preclinical R&D, Mablink

In this short course you will learn from real-life experience what are the main drivers of success or failures during the ADC development. How to improve your *in vitro* and *in vivo* screening strategies to avoid repeating the same mistakes made by others before you. And finally, what are the critical nonclinical datasets that you need to generate and how to interpret them to make your drug a success.

Training SEMINARS

By Cambridge Healthtech Institute

10 & 11 NOVEMBER

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, 10 NOVEMBER, 2025 08:30 - 17:00

TS1: AI-Driven Design of Biologics: A Hands-on Guide to Using State-of-the-Art ML Protein Models

Instructors:

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

Dr. Antonia Sophia Peter, Institute for Drug Discovery, Leipzig University

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.

TS2: Introduction to Multispecific Antibodies: History, Engineering, and Application

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.

TUESDAY, 11 NOVEMBER, 2025 08:30 - 18:35

TS7A: Introduction to Machine Learning for Biologics Design

Instructor:

Francis Gaudreault, PhD, Associate Research Officer, Human Health Therapeutics, 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.

TS8A: Introduction to Analytical Characterisation and Quality Control for Biological Products

Instructor:

Kevin Zen, PhD, Principal Consultant, Biologics CMC Consulting

This training seminar provides a practical and comprehensive overview of analytical procedures, quality control, and characterisation methods for R&D scientists as well as CMC staffs. Attendees will learn the analytical procedures of product identity, strength, potency (ELISA, CBA, SPR), product-related impurity (HPLC, CE), process-related impurities (residual HCP, DNA, ProA), and contaminants. Case studies will be presented to demonstrate method development, robustness, validation, and specifications for QC batch analysis and stability. The instructor will elaborate extended characterisation and CMC comparability by HRMS, MAM, PTM, glycan profiling, higher order structure, aggregation (by SVP analysis), charge variant analysis, HCP (by MS), and discuss polysorbate degradation control strategy. Join this interactive training course to learn the best practices of analytical development, characterisation and QC.

TS9A: Everything You Ever Wanted to Know about Immunogenicity

Instructors:

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

Timothy Hickling, PhD, former Immunogenicity Expert Scientist, Investigative & Immunosafety Chapter, Roche

Sofie Pattyn, Founder & CTO, IQVIA Laboratories

This 1-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.

12TH ANNUAL | LISBON, PORTUGAL

DISPLAY OF BIOLOGICS

Leading the Way for New Classes of Therapy

TUESDAY 11 NOVEMBER

7:30 Registration and Morning Coffee

ACCELERATING AND IMPROVING THERAPEUTIC PROTEIN DISCOVERY: Combining Combinatorial Platforms with Deep Sequencing and Computational Methods

8:25 Chairperson's Remarks

Geir Åge Løset, PhD, CEO and CSO, Nextera AS

8:30 Phage Display Enables Machine Learning Discovery of Cancer Antigen Specific TCRs

David Gfeller, PhD, Associate Professor, Oncology, University of Lausanne

TCRs targeting epitopes in infectious diseases or cancer play a central role in spontaneous and therapy-induced immune responses. Here, we built large phage display TCR libraries and screened them against the cancer testis antigen NY-ESO-1. We then trained a machine learning TCR-epitope interaction predictor on these data and identified several epitope-specific TCRs directly from TCR repertoires. Functional assays revealed activity towards the NY-ESO-1 epitope and no cross-reactivity with self-peptides.

9:00 High-Throughput Specificity Profiling of Antibody Libraries Using Ribosome Display and Microfluidics

Ellen Wagner, PhD, Director, Technology Development, GigaGen Inc.

PolyMap is a high-throughput method for mapping thousands of protein-protein interactions in a single tube. Here we probe antibody libraries isolated from human donors against a set of SARS-CoV-2 spike variants to demonstrate how PolyMap can be used to profile immune responses, map epitopes of hundreds of antibodies, and select functionally-distinct clones for therapeutics.

9:30 Machine Learning–Enabled Development of a Highly-Functional Venom Library Platform with Fast Hits-to-Leads Workflow for Peptide Therapeutics Discovery

Yingnan Zhang, PhD, Senior Principal Scientific Manager, Biological Chemistry, Genentech, Inc.

A robust peptide therapeutics discovery platform has been developed using approximately 500 venom peptides as scaffolds with phage and yeast surface display technologies. The libraries were designed with machine learning model that can rapidly predict key-residue determinants for peptide foldability. A fast and cost-effective affinity maturation workflow has been enabled through machine learning, leading to the identification of potent and stable leads against targets of interest from this venom platform.

10:00 Presentation to be Announced

10:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

TRANSLATING DISCOVERIES FROM DISPLAY PLATFORMS TO THE CLINIC

11:14 Chairperson's Remarks

E. Sally Ward, PhD, Director, Translational Immunology; Professor, Molecular Immunology, Centre for Cancer Immunology, University of Southampton

11:15 Engineering Bicyclic Peptides (Bicycle) for New Classes of Precision-Targeted Medicines

Hector Newman, PhD, Associate Principal Scientist, Antibiotic Drug Discovery, Bicycle Therapeutics

The Bicycle platform uses proprietary bicyclic peptide phage display technology to deliver a unique toolkit of building blocks to create novel medicines. Bicycle molecules combine rapid extravasation and extensive tissue penetration with renal clearance and tuneable half-life. Bicycle peptides can target tumour antigens with different cytotoxic, radionuclide and imaging payloads. The Bicycle advantage provides opportunities to deliver tumour killing through different mechanisms, complemented by imaging to guide the therapeutic process.

11:45 Are Recombinant Snakebite Antivenoms Close to the Clinic?

Andreas H. Laustsen, M.Sc.Eng, PhD, Center Director & Professor, Center for Antibody Technologies, DTU Bioengineering, Technical University of Denmark

In this presentation, I will provide insight into the newest developments within recombinant snakebite antivenoms and demonstrate how phage display technology can be used to find monoclonal antibodies and nanobodies with unprecedented efficacy in rodent model compared to the standard of care, namely antivenoms derived from the plasma of immunised animals. I will further provide perspectives for what is needed to advance recombinant antivenoms into the clinic.

12:15 Luncheon Presentation to be Announced

12:45 Luncheon in the Exhibit Hall with Poster Viewing

FUTURE DISPLAY: How Structural Biology Guides ML/AI Design of Antibodies

13:45 Chairperson's Remarks

Maria Groves, PhD, Senior Director, AstraZeneca

13:50 Synergizing Cryo-EM and AI for Antibody Lead Optimisation

Juan Carlos Mobarec, PhD, Head Computational Structural Biology—Associate Director, Mechanistic and Structural Biology, Discovery Sciences, R&D, AstraZeneca, Cambridge, UK

This presentation will highlight case studies where the synergistic approach convergence of Cryo-Electron Microscopy (Cryo-EM) with Artificial Intelligence (AI) has led to breakthroughs in optimising antibodies for complex targets, including those considered challenging due to epitope variability or

DISPLAY OF BIOLOGICS

Leading the Way for New Classes of Therapy

conformational flexibility. With Cryo-EM's ability to handle dynamic molecular ensembles and AI's power in data-rich environments, the integration of these technologies promises unprecedented advancements in therapeutic antibody development.

14:20 Finding Antibodies with Cryo-EM Maps

Chiara Rapisarda, PhD, Group Leader, Sanofi

Therapeutic antibodies require structural optimisation, often guided by cryo-EM data. We present CrAI, the first fully-automated method to detect antibodies in cryo-EM maps using machine learning and a custom database. CrAI identifies Fab and VHH fragments in seconds, even at resolutions up to 10 Å, without additional inputs. It significantly outperforms existing tools in speed and accuracy, enabling seamless integration into structural analysis pipelines.

14:50 PANEL DISCUSSION: *In silico* Design of Antibodies Present & Future Perspectives

Moderator: Maria Groves, PhD, Senior Director, AstraZeneca

- State-of-the-art *in silico* methods for antibody design and optimisation
- Embedding *in silico* technologies into drug discovery workflows
- Data requirements for next generation *in silico* design
- Future state: *de novo* antibody design

Panelists:

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

Andreas Evers, PhD, Associate Scientific Director, Antibody Discovery & Protein Engineering, Global Research & Development Discovery Technology, Merck Healthcare KGaA

Juan Carlos Mobarec, PhD, Head Computational Structural Biology—Associate Director, Mechanistic and Structural Biology, Discovery Sciences, R&D, AstraZeneca, Cambridge, UK

Chiara Rapisarda, PhD, Group Leader, Sanofi

15:20 Data, Data in the Well, Who's the FAIRest of Them All?", The Tale Where *in vitro* Characterization of Biologics Prepares for the AI Era

Genedata

Pieter Kennis, Senior Principal Scientist, Large Molecule Research Ghent, Sanofi

As the NANOBODY® molecule discovery engine was established, screening and characterization were fully manual, relying on human intervention at every lab step and low-throughput data analysis with scattered spreadsheets and siloed data. Today, we stand at the intersection of automation and AI, where FAIR data principles and scientific excellence form the foundation of a new paradigm. This talk chronicles our journey through the phased integration of robotic and data workflows, from semi-automated systems and Excel-based analysis to fully integrated platforms with end-to-end data capture. These advances support high-throughput screening with structured, traceable datasets, enabling machine learning in assay optimization and lead selection. We will share the challenges and breakthroughs that shaped this evolution and reflect on how embracing automation and FAIR data is a strategic step toward the AI-powered lab of the future.

15:50 Refreshment Break in the Exhibit Hall with Poster Viewing

ADVANCES IN LIBRARY DESIGN

16:34 Chairperson's Remarks

Ahuva Nissim, PhD, Professor Emeritus, Antibody and Therapeutic Engineering, William Harvey Research Institute, Queen Mary University of London

16:35 Presentation to be Announced

ICSAGEN

17:05 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 experimental validation for each method. I will then describe a proof-of-concept universal repertoire of 500 million variants we designed and show we can reliably select highly developable and reasonably high-affinity antibodies against diverse targets.

17:35 Applying Antibody Libraries in Complex Selections to Identify Potential Leads

Peter Kristensen, PhD, Associate Professor & Head of Biotechnology, Chemistry & Bioscience, Aalborg University

In the past years we have been focusing on development of antibodies leads using phage display in complex selections. Many therapeutic targets are normally found in membranes; in order to ensure binding of antibodies to native, therapeutically-relevant epitopes, selection for binding specific targets is best performed when the antigens are presented in their native environment.

18:05 CIS Display™ - A Fully *in vitro* Platform for Enhancing Small-format Discovery

isogenica The VHH Company™

Lurdes Rodrigues-Duarte, Director of R&D, Isogenica Ltd

Small-format antibodies such as VHH are increasing in popularity thanks to clinical validation of the creative products that have been developed using these simple, robust building blocks. Like any antibody format, lead antibodies straight from primary screening are often of varied quality. In this talk, we explain how CIS Display™ can improve the quality of lead panels in terms of both affinities and developability characteristics, driven by ultra-high diversity libraries. When combined with NGS, we also explore how this higher diversity can be mined for additional sequence data to support both VHH discovery and downstream engineering objectives.

18:20 Presentation to be Announced

LX bio antibody discovery

CLADE

18:35 Welcome Reception in the Exhibit Hall with Poster Viewing

19:35 Close of Display of Biologics Conference

10TH ANNUAL | LISBON, PORTUGAL

ENGINEERING ANTIBODIES & BEYOND

Designing the Next Best-in-Class Biologics for Oncology & Beyond

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

COMBINING EXPERIMENTAL AND ML APPROACHES IN T-CELL ENGAGER DESIGN

8:25 Chairperson's Remarks

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

8:30 Machine-Learning Prediction of Picomolar Affinity Soluble T Cell Receptors

Rodrigo Vazquez-Lombardi, PhD, Co-Founder & CSO, Engimmune Therapeutics AG

Soluble TCR engagers enable high-affinity targeting of disease-relevant antigens and off-the-shelf use, thus representing a promising therapeutic modality with applications in oncology, autoimmunity, and infectious disease. Despite their therapeutic potential, affinity maturation of soluble TCRs, which typically requires a 1 million-fold improvement, is complicated by specificity challenges. Here we describe machine learning–guided protein engineering as an effective approach to rapidly identify picomolar affinity TCRs with high levels of specificity.

9:00 ETC-101: Designing a T Cell Receptor (TCR) Trispecific for Cancer Immunotherapy with Generative AI

Arianna Scagliotti, PhD, Senior Scientist, Etcembly

Etcembly leverages generative AI to discover and engineer a T cell receptor (TCR) to picomolar affinity. We formatted our lead PRAME targeting molecule, ETC-101, into a trispecific T cell engager and demonstrated that ETC-101 specifically redirected T cell killing of PRAME-positive cancer cells only, while demonstrating a promising safety profile with no detectable off-target effects. Our data highlights the efficacy of ETC-101 as a novel drug candidate for PRAME-positive malignancies.

9:30 Engineering T Cell Engagers for Complete On/Off Killing Selectivity through Machine Learning and High-Throughput Experimentation

Angus M. Sinclair, PhD, CSO, LabGenius Therapeutics

LabGenius Therapeutics' platform leverages avidity-driven selectivity to overcome common T-cell engager (TCE) challenges, including on-target, off-tumour toxicity. In this talk, we describe how the closed-loop integration of high-throughput experimentation with machine learning has facilitated the discovery and optimisation of multispecifics for function and developability. Specifically, how we've developed a pipeline of VHH-based TCEs that exhibit on/off killing selectivity for TAA targets with minimal expression differences.

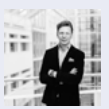
10:00 Novel Recombination Technologies for Rapid Assembly and Screening of Multispecific Antibodies

Stefan Schmidt, CEO, evitria AG

evitria AG introduces a novel, modular platform to solve the challenges of screening multispecific antibody formats. The platform establishes well-defined building blocks in the form of individual antibody fragments which are then seamlessly reconstituted into fully functional multispecific antibodies. This process opens the door for rapid generation of large combinatorial panels of antibodies, unlocking more data to quickly identify optimal candidates and accelerate preclinical research.

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

IMPROVING ANTIBODY FUNCTION, PK AND INTRACELLULAR TARGETING



11:15 KEYNOTE PRESENTATION: Antibody and Albumin-Based Designs with Tailored Effector Functions and PK Properties

Jan Terje Andersen, PhD, Professor, Department of Pharmacology, University of Oslo; Research Group Leader, Department of Immunology, Oslo University Hospital

The extraordinary plasma half-life of IgG and albumin is regulated by a common receptor, FcRn. As such, in-depth insights into how this receptor is orchestrating transport of its ligands within and across cells have implications for how to tailor-design long-acting protein therapeutics. I will discuss why this complex biology is relevant to consider for all antibody and albumin formats engineered for optimal pharmacokinetics and transcellular transport properties.

11:45 Chimaeric Intracelular Antibodies for Drug Discovery Against Intrinsically Disorder Proteins

Nikki Sereesongsaeng, PhD, Senior Scientist, Institute for Cancer Research

Genotype-specific therapeutics of leukaemia require targeting difficult molecules like transcription factors or mutant RAS. Intracellular antibodies are inhibitors blocking protein-protein interactions and can be engineered with effector functions such E3 ligases to create biodegraders. The antibody fragment binding site (paratope) can also be used to screen for small molecule surrogates that can form the basis of conventional drug development. These approaches will be discussed targeting transcription factors and mutant RAS.

10TH ANNUAL | LISBON, PORTUGAL

ENGINEERING ANTIBODIES & BEYOND

Designing the Next Best-in-Class Biologics for Oncology & Beyond

12:15 LUNCHEON PRESENTATION: Meta-Analysis of 150+ Antibody Discovery Campaigns: Transgenic Mice for Optimized Antibodies

Emily Leproust, CEO and Co-Founder, Twist Bioscience

With Twist Biopharma Solutions, explore how data-driven antibody discovery using hyperimmune and transgenic mice can maximize hit rates, accelerate discovery, and deliver fully human, developable antibodies against even the most challenging targets.

12:45 Luncheon in the Exhibit Hall with Poster Viewing

ENGINEERING THERAPEUTICS FOR AUTOIMMUNE AND CNS DISORDERS

13:45 Chairperson's Remarks

Hitto Kaufmann, PhD, Chief Scientific & Technology Officer, Hansa Biopharma

Jeanette Leusen, PhD, Professor AntibodyTherapy, University Medical Center Utrecht

13:50 Antibody Engineering to Maximise the Clearance of Redundant Targets

Maximilian Brinkhaus, PhD, Senior Scientist II, Discovery, argenx BVBA

The pathogenicity of autoreactive antibodies has been demonstrated for many autoimmune diseases and the isotype/subclass profile can potentially influence the disease pathophysiology. Here, we describe the development of anti-IgA monoclonal antibodies that can actively remove IgA from the circulation and block binding of IgA to its main Fc receptor FcαRI. Both Fab and Fc engineering were optimised to design a monoclonal antibody with the desired properties.

14:20 Targeting the High-Affinity Receptor for IgG in Autoimmunity

Jeanette Leusen, PhD, Professor AntibodyTherapy, University Medical Center Utrecht

Overactivation of FcγRI by immune complexes (ICs) has been implicated in various autoimmune disorders and neuropathy. To date, there are no effective FcγRI-specific blocking antibodies available. Here we report two first-in-class anti-FcγRI antibodies, with high affinity Fab-mediated binding within the IgG binding site on extracellular domain 2 of FcγRI. They effectively block IgG and IC binding in models for ITP and RA, and displace pre-bound ICs without activation.

14:50 One-Stop Solutions for Therapeutic Antibody Discovery and Development

Yu-Chih Lin, Tech Specialist, Field Applications, Sino Biological Europe GmbH

Sino Biological leads the way in therapeutic antibody discovery by seamlessly integrating cutting-edge technologies. Our approach combines hybridoma phage display and single B cell techniques, facilitating the development of high-affinity therapeutic antibodies or nanobodies. To further enhance antibody affinity, we employ AI-mediated antibody maturation, utilising 3D modelling to potentially increase affinity by up to 1000 times. Moreover, our capabilities extend to expressing various antibody formats, including conventional IgG, fragment antibodies, and bispecific antibodies. Addressing the demand for functional antibody screening, we offer high-throughput cell-based and cell-free platforms capable of rapidly expressing up to 1000 antibodies. With these innovations, Sino Biological leads the forefront of antibody discovery, continuously pushing the boundaries of therapeutic antibody research.

15:05 Biophysical Characterization of Antibodies Against Membrane Proteins: from high-throughput Screening to On-cell Kinetics

Sven Malik, Bus Dev, Bruker Daltonics SPR

As antibody formats grow more complex, precise biophysical characterization becomes essential. We present a workflow combining high-throughput SPR for epitope binning and interaction screening, switchSENSE® for affinity vs. avidity and ternary complex detection, and single-cell Interaction Cytometry for real-time kinetics on living cells in native context. Together, these tools support informed antibody design and selection.

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?

Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

- Describe the technology
- Show data
- Show forward-looking future applications

Panelists:

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

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

Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

ENGINEERING ANTIBODIES & BEYOND

Designing the Next Best-in-Class Biologics for Oncology & Beyond

ENGINEERING THERAPEUTICS FOR AUTOIMMUNE AND CNS DISORDERS (cont'd)

17:15 The Specifica Generation 3 Antibody Library Platforms: High Affinity Drug-like Antibodies and VHHs Straight from *in vitro* Selections

Andrew Bradbury, Founder & CSO, IQVIA Lab, Specifica an IQVIA business

Antibodies are vital therapeutics, but many fail due to poor developability traits, such as aggregation, poor stability and polyreactivity. The Specifica Generation 3 scFv Library Platform was designed to address this problem by embedding natural CDRs purged of sequence liabilities into highly developable clinical scaffolds, yielding highly diverse, high affinity (20% subnanomolar), developable (>80% lack biophysical liabilities), drug-like antibodies as potent or better than those from immune sources. This concept has now been extended to Fab and VHH libraries. This talk will discuss the *in vitro* selection of antibodies and VHHs from Specifica's Generation3 library platform, as well as its application to affinity and developability improvement of antibodies generated from other platforms

17:45 Bispecific Complement Engagers (BiCEs)—Harnessing Complement Activation for Enhanced Antibody Therapy

Mikkel W. Pedersen, PhD, CEO & CSO, Commit Biologics ApS

Complement is a powerful part of innate immunity, yet conventional antibody therapeutics exploit it only incompletely. Complement activation typically demands high antigen density and is structurally constrained, limiting efficacy against many clinically relevant targets. Commit has developed a bispecific complement engager (BiCE) platform that through C1q recruitment effectively activates complement in a target-dependent manner. Data will be presented demonstrating preclinical efficacy, safety, and broad applicability of the BiCE platform.

18:15 Targeted Immunoglobulin Degradation: A Novel Approach to Autoimmune Disease Treatment

Hitto Kaufmann, PhD, Chief Scientific & Technology Officer, Hansa Biopharma

In many autoimmune diseases IgG autoantibodies plays a crucial role by mistakenly targeting the body's own tissues. Different therapeutic approaches focusing on IgG reduction have emerged. Hansa's IgG cleaving enzymes (imlifidase and HNSA-5487) offer potential of altering disease progression and improving patient's outcome. HNSA-5487 is *in silico* optimised, highly efficacious second-generation IgG cleaving enzyme with reduced immunogenicity. Both molecules are currently under clinical evaluation in several disease areas and indications.

18:45 Sponsored Presentation *(Opportunity Available)*

19:15 Engineered Antibodies for Delivery of Nucleic Acids to the Brain

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

Brain-shuttles can deliver oligonucleotides to the brain. But conjugated oligonucleotides with modifications can affect biophysical properties and functionality of brain shuttles. These effects can be addressed by engineering complexes of antibody-based shuttles that harbour additional binders to cloak the ASO payload. Such entities show improved TfR-specific transcytosis in cellular blood-brain barrier models and improved PK and brain delivery in animal models.

19:45 Close of Engineering Antibodies & Beyond Conference

4TH ANNUAL | LISBON, PORTUGAL

MACHINE LEARNING FOR PROTEIN ENGINEERING PART 2

Demonstrating Value and Putting Theory into Practice

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

ML APPROACHES TO OPTIMISATION AND DEVELOPABILITY OF ANTIBODIES

8:25 Chairperson's Remarks

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

8:30 Predicting Nonspecificity in Therapeutic Antibody Formats Using Structure-Informed Machine Learning Models

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

This presentation examines how AI-driven computational frameworks—combining sequence, structural, and biophysical data—can predict nonspecific binding and developability risks in therapeutic antibodies and related formats. By integrating protein language models, inverse folding approaches, and dynamic structural features (simulated or ML-derived), we demonstrate how these tools identify molecular liabilities, and in turn how these models can impact the DMTA cycle by enhancing hit selection, guide optimisation, and de-risk development.

9:00 Antibody DomainBed: Out-of-Distribution Generalisation in Therapeutic Protein Design

Ji Won Park, PhD, Principal ML Scientist, Prescient Design / Genentech

We apply domain generalisation methods to classify the stability of interactions between an antibody and antigen across five domains defined by design cycles.

9:30 Sponsored Presentation *(Opportunity Available)*

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

10:45 Generative Design of Antibodies with Programmable Fc Functional Profiles

Edward B. Irvine, PhD, Postdoctoral Scientist, Sai Reddy Group, Laboratory for Systems and Synthetic Immunology, ETH Zürich

Antibodies bridge adaptive and innate immunity through their constant (Fc) domains, yet most of Fc sequence space remains unexplored due to experimental constraints. To address this, we developed a machine learning-guided platform for Fc-engineering. By integrating the screening of synthetic Fc-libraries with next-generation sequencing and deep learning, we can accurately predict antibody functional activity from sequence, and computationally design antibodies with bespoke functional profiles, unlocking new possibilities for precision immunotherapy.

11:15 A Machine Learning Approach to Improving Antibody Developability

Paul MacDonald, PhD, Data Scientist, Protein Design Informatics, GSK

Machine learning optimises biotherapeutics by evaluating antibody developability, focusing on stability, functionality, and safety. *In silico* assessments streamline discovery by deselecting problematic antibodies early. Predictive models can optimise libraries toward designs with fewer liabilities. Evaluating these models hinges on new, representative data, with an emphasis on generalisation to novel paratopes. Deliberate data partitioning and appropriate evaluation metrics are critical to achieving this and are the focus of this talk.

11:45 Data-Driven Design of Epitope-Specific Antibodies and Rapid Experimental Validation with SpyBLI

Pietro Sormanni, PhD, Group Leader, Royal Society University Research Fellow, Chemistry of Health, Yusuf Hamied Department of Chemistry, University of Cambridge

I will outline a data-augmented ML workflow for designing nanobodies and antibodies that bind pre-specified epitopes, discussing minimal data requirements and what *in silico* performance metrics are worth considering. To enable rapid experimental validation we developed SpyBLI, a 24-hour DNA-to-data assay that yields precise k_{on}, k_{off}, and K_D bypassing binder purification, thus accelerating the Design-Make-Test cycle.

12:15 Luncheon Presentation to be Announced

cradle

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

BENCHMARKING AND DATA CURATION

13:55 Chairperson's Remarks

Monica L. Fernandez-Quintero, PhD, Staff Scientist, Integrative Structural and Computational Biology Department, Scripps Research Institute

14:00 KEYNOTE PRESENTATION: AI for Antibody Design - Going Beyond the Static

Charlotte M. Deane, PhD, Professor, Structural Bioinformatics, Statistics, University of Oxford; Executive Chair, Engineering and Physical Sciences Research Council (EPSRC)

We can now computationally predict a single, static protein structure with high accuracy. However, we are not yet able to reliably predict structural flexibility. This ability to adapt their shape can be fundamental to their functional properties. A major factor limiting such predictions is the scarcity of suitable training data. I will show novel tools and databases that help to overcome this.

4TH ANNUAL | LISBON, PORTUGAL

MACHINE LEARNING FOR PROTEIN ENGINEERING PART 2

Demonstrating Value and Putting Theory into Practice

14:30 Scaling Foundation Models for Protein Generation

Ali Madani, PhD, Founder and CEO, Profluent Bio

Language models learn powerful representations of protein biology. We introduce a new foundation model suite that directly investigates scaling effects for protein generation. We then apply this for applications in antibody and gene editor design.

15:00 The AIntibody Challenge: An Update on the Use of AI/ML in Antibody Discovery

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

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

The AIntibody competition was launched to benchmark real-world performance, and potential value, of artificial intelligence (AI) models in antibody discovery through a blinded, prospective experimental design. In the inaugural challenge, 33 organizations submitted 527 antibody sequences responding to three tasks focused on RBD, the most studied protein in history.

15:15 Sponsored Presentation *(Opportunity Available)*

15:30 Session Break

NEW METHODS TO UNCOVER NEW BIOLOGY AND DRUG TARGETS: SHIFTING FROM DISCOVERY TO DESIGN

15:39 Chairperson's Remarks

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

15:40 Unraveling Structure-Function Relationships of Entire Protein Families Using Alphafold

Luigi Vitagliano, PhD, Director, Institute of Biostructure and Bioimaging, Department of Biomedical Science, National Research Council Italy

In traditional structural biology, the intrinsic technical difficulties associated with the experimental structural characterisation of biological macromolecules have frequently imposed reductionist approaches limiting the investigations of individual proteins. The rapid determination of protein structures starting from their sequences, assured by computational approaches based on machine learning, allows now the simultaneous elucidation of structure-function relationships in entire families. Illustrative examples will be provided for proteins (KCTDs/CHCHD4) involved in key physio-pathological processes.

16:10 Artificial Intelligence in the Creation of Precision Therapeutic Enzymes that Target Pathogenic Immunoglobulins

Nathan Higginson-Scott, PhD, CTO, Seismic Therapeutic

Considerable unmet need exists in autoimmune, inflammatory, and allergic indications with underlying etiology related to immunoglobulins. IgG, IgE, IgM, and IgA can each play a role in disparate disease processes, and an ability to precisely target only the immunoglobulin isotype involved is crucial in striking the desired balance between efficacy and safety. Seismic has achieved this using its structure-augmented AI/ML IMPACT platform creating a Swiss Army knife of Ig degrading therapeutics.

17:10 Engineering Modular Binders Combining Machine Learning, Structural Biology, and Experimental Evolution

Erich Michel, PhD, Postdoctoral Researcher, Department of Biochemistry, University of Zurich

We will challenge the paradigm of selection from large universal libraries to obtain binding proteins rapidly and efficiently. When it comes to linear epitopes, we can exploit the periodicity of peptide bonds and create a completely modular system, based on a binding protein design that shares the same periodicity. Here, we present our progress on a binding protein system that is modular and complementary to a given peptide sequence.

17:40 Structure-Guided Antibody and Immunogen Design

Monica L. Fernandez-Quintero, PhD, Staff Scientist, Integrative Structural and Computational Biology Department, Scripps Research Institute

Advances in protein design have enhanced our ability to engineer proteins with defined properties, functions, and structures. Here, we integrate computational protein design with structural biology to develop targeted vaccines and therapeutics for two major global health threats: influenza and malaria.

17:40 Designing Novel Protein Interactions with Therapeutic Potential Using Learned Surface Fingerprints

Anthony Marchand, PhD, R&D Scientist, bNovate Technologies

Protein-protein interactions (PPI) are essential for most biological processes governing life. Using a geometric deep-learning framework on protein surfaces, we generated fingerprints capturing key interaction features. As a proof of concept, we designed *de novo* protein binders targeting proteins and protein-ligand complexes. These novel interactions could act as protein therapeutics, enhance biosensing, and enable the construction of new synthetic pathways in engineered cells.

17:10 Close of Summit

3RD ANNUAL | LISBON, PORTUGAL

ANTIBODY-BASED THERAPIES Driving Breathrough Therapies

TUESDAY 11 NOVEMBER

7:30 Registration and Morning Coffee

T CELL ENGAGERS AND IMMUNE CELL MODULATORS

8:25 Chairperson's Remarks

Amelie Eriksson Karlstroem, PhD, Professor & Head, Protein Science, School of Engineering Sciences in Chemistry, Biotechnology & Health, KTH Royal Institute of Technology

8:30 KEYNOTE PRESENTATION: Development of a First-in-Class, ADCC-Enhanced Bispecific NK Engager that Simultaneously Blocks EGFR Receptor-Ligand Interactions on Tumour Cells and Engages a Novel NK-Activating Receptor

Hemanta Baruah, PhD, Founder & CEO, Aakha Biologics

Aakha Biologics is developing AHA-1322, a first-in-class, ADCC-enhanced bispecific NK cell engager. This novel therapeutic is designed to activate natural killer (NK) cells through multiple mechanisms while simultaneously blocking a key receptor-ligand interaction. AHA-1322 integrates three key components: (1) an EGFR-targeting arm, (2) a novel NK cell-targeting arm, and (3) an engineered IgG-Fc domain with enhanced ADCC (antibody-dependent cellular cytotoxicity) function.

9:00 High-Specificity pMHC scFv Antibodies: From Binder Discovery to Next-Generation T Cell Engagers

Stefan Warmuth, PhD, CTO, Technology & CMC, Numab Therapeutics AG

We present a comprehensive strategy for generating best-in-class anti-pMHC single-chain Fv (scFv) antibodies, from the discovery of anti-pHLA binders to the engineering of potent T-cell engagers. Our approach integrates advanced sorting techniques, bioinformatics-driven predictions, high-throughput screening, and protein engineering to develop highly specific and stable pMHC-targeting antibodies. This enables the identification of therapeutic candidates with exceptional selectivity and antitumour activity, paving the way for new advancements in antibody-based cancer therapies.

9:30 ISB 2001, a First-in-Class Trispecific BCMA and CD38 T Cell Engager Designed to Overcome Mechanisms of Escape from Multiple Myeloma Treatments

Mario Perro, PhD, Head of Biologics Research, Ichnos Glenmark Innovation

Downregulation of targets limits the efficacy of monotargeted T cell engagers (TCE). ISB 2001, a first-in-class TCE targeting both CD38 and BCMA, demonstrated superior tumour cytotoxicity *in vitro*, *in vivo*, and *ex vivo* using patient samples when compared to teclistamab. Clinically, ISB 2001 demonstrated an overall response rate of 75% across all dose levels and a favorable safety and tolerability profile in heavily pretreated patients with r/r MM.

10:00 Talk Title to be Announced

Tiago Santos, Speaker: Tiago Santos, Ph.D., MBA, Market Development Executive, Bruker Cellular Analysis

10:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

NEXT GENERATION BISPECIFIC ANTIBODIES FOR IMMUNO-ONCOLOGY

11:15 Tumour-Targeted Costimulation via CD28 Bispecific Antibodies—Turning Immunotherapy "Cold" Tumour "Hot"

Dimitris Skokos, PhD, Vice President, Cancer Immunology, Regeneron Pharmaceuticals

Tumour-targeted costimulatory CD28 bispecific antibodies represent a potential groundbreaking therapeutic approach for combating challenging solid tumours. Early human trials have demonstrated significant clinical efficacy of the PSMAxCD28 bispecific antibody when combined with anti-PD-1 treatment in patients with metastatic castration-resistant prostate cancer. Understanding the underlying mechanisms driving the potent synergy between these agents in enhancing responsiveness in mCRPC tumours, which are unresponsive to PD-1 inhibitors alone, is crucial.

11:45 Advancing Cancer Immunotherapy: Next-Phase Developments in Bispecific HER3 Antibodies

Giuseppe Roscilli, PhD, CTO & Director, Drug Evaluation & Monoclonal Antibody, Takis Srl

In this presentation, we will explore the latest advancements in the development of bispecific HER3 antibodies for cancer immunotherapy. We will discuss significant progress made since last year, including new insights into the mechanism of action and preliminary results from enhanced therapeutic strategies. This session aims to highlight how these developments are poised to transform treatment paradigms for cancers that express HER3.

3RD ANNUAL | LISBON, PORTUGAL

ANTIBODY-BASED THERAPIES Driving Breathrough Therapies

12:15 LUNCHEON PRESENTATION: Rethinking Antibody Development to IND: Early Risk Mitigation, Target Specificity & mRNA-LNP Delivery Strategies

Louise Brackenbury, Science Director, Charles River Labs

Charles River offers a comprehensive platform to expedite therapeutic antibody development through to IND submission. This extends from *in vitro* and *in vivo* pharmacology assessment in translationally relevant models, to early risk mitigation and evaluation of target specificity using the Retrogenix® Cell Microarray, followed by *in vitro* safety screening. In addition, a complimentary approach to therapeutic antibody delivery using mRNA-LNP technology will be explored, which may offer a cost effective, alternate strategy for solid tumour immunotherapy.

12:45 Luncheon in the Exhibit Hall with Poster Viewing

RADIOPHARMACEUTICAL THERAPIES

13:45 Chairperson's Remarks

Anna Park, PhD, Head, Protein Engineering, Large Molecule Research US, Sanofi

Giuseppe Roscilli, PhD, CTO & Director, Drug Evaluation & Monoclonal Antibody, Takis Srl

13:50 Peptide Nucleic Acid-Mediated Pre-Targeting for Radionuclide Therapy

Amelie Eriksson Karlstroem, PhD, Professor & Head, Protein Science, School of Engineering Sciences in Chemistry, Biotechnology & Health, KTH Royal Institute of Technology

A peptide nucleic acid (PNA)-based pretargeting strategy for radionuclide therapy has been developed to reduce radioactivity uptake in non-tumour organs. The PNA pretargeting concept has successfully been demonstrated in preclinical mouse models using affibody molecules, DARPins, and monoclonal antibodies as the tumour-targeting agents. The pretargeting technology has further been optimised by engineering of the PNA probes and investigation of new bioconjugation methods.

14:20 Engineered Antibodies for Pre-Targeted Radiotherapy

Alexander Haas, PhD, Head, Biologics Core Technologies, Roche Diagnostics GmbH

We have developed an innovative pre-targeted radioimmunotherapy (PRIT) strategy using reconstituting half-antibodies to specifically target cancer cells. Our novel approach enhances specificity and reduces systemic toxicity by forming a complete antibody only at tumour sites, eliminating the need for a clearing agent. Utilising lead-212 as an *in vivo* alpha generator, this method maximises tumour cell destruction while minimising healthy tissue damage, offering significant therapeutic advantages over traditional PRIT methods.

14:50 Harnessing the Power of DARPins as Radiopharmaceuticals

Francesca Malvezzi, PhD, Expert Scientist, Lead Generation, Molecular Partners AG

Designed Ankyrin Repeat Proteins (DARPins) are promising protein-based delivery vectors for radiopharmaceuticals due to their small size and high specificity. This presentation showcases our development of Radio-DARPin Therapeutic (RDT) candidates with favourable tumour-to-kidney ratios through DARPin surface engineering and half-life modulation using different albumin binders. Combined with the alpha-emitting radioisotope 212Pb, we achieved high-energy deposition in tumours, while minimising kidney accumulation, highlighting RDTs' potential as effective cancer treatments.

15:20 Sponsored Presentation *(Opportunity Available)*

15:35 Cross-Instrument Characterisation of Anti-Her2 ADCs

David Fradkin, Field Application Scientist, Sartorius

The rapid advancement in the development of antibody-drug conjugates (ADCs) in recent years has driven the requirement of robust and reliable techniques for evaluating novel candidate drugs. Here we will showcase the effectiveness of cross-instrument characterisation of anti-Her2 ADCs in assessing both binding and functional activity in live cells. Data, derived from iQue HTS cytometry and Incucyte live-cell analysis, will be presented from both simple monolayer and advanced 3D cell models.

15:50 Refreshment Break in the Exhibit Hall with Poster Viewing

TARGETED PROTEIN DEGRADATION

16:35 Sponsored Presentation *(Opportunity Available)*

17:05 Engineering and Development of an IgE Degrading Protease for Treatment of IgE-Mediated Allergic and Atopic Diseases

Jyothsna Visweswaraiah, PhD, Director, Biotherapeutics, Drug Creation, Seismic Therapeutic

We engineered a novel Fc-fused bacterially derived IgE protease using Seismic's proprietary machine learning enabled platform to reduce immunogenicity and improve manufacturability while maintaining selectivity and potency. The protease selectively cleaves IgE, eliminating it from circulation, from cell surface and immune complexes, and provides a novel therapeutic opportunity to treat IgE-mediated allergic and atopic diseases.

ANTIBODY-BASED THERAPIES Driving Breathrough Therapies

17:35 Targeted Protein Degradation through Site-Specific Antibody Conjugation with Mannose 6-Phosphate Glycan

Anna Park, PhD, Head, Protein Engineering, Large Molecule Research US, Sanofi

Recent developments in targeted protein degradation have provided great opportunities to eliminating extracellular protein targets using potential therapies with unique mechanisms of action and pharmacology. Among them, Lysosome-Targeting Chimeras (LYTACs) acting through mannose 6-phosphate receptor (M6PR) have been shown to facilitate degradation of several soluble and membrane-associated proteins in lysosomes with high efficiency. Herein we have developed a novel site-specific antibody conjugation approach to generate antibody mannose 6-phosphate (M6P) conjugates.

18:05 Sponsored Presentation *(Opportunity Available)*

18:35 Welcome Reception in the Exhibit Hall with Poster Viewing

CLADE

19:35 Close of Antibody-Based Therapies Conference

9TH ANNUAL | LISBON, PORTUGAL

EMERGING TARGETS FOR ONCOLOGY & BEYOND Hitting the Bullseye

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

INNOVATIVE APPROACHES FOR TARGET DISCOVERY

8:25 Chairperson's Remarks

Daniel M. Simão, PhD, Head, Bayer Pharma Satellite Lab, iBET Instituto de Biologia Experimental Tecnologica

8:30 B Cell TuLibs: Immortalised Tumour-Derived B Cell Libraries for the Interrogation and Unbiased Discovery of Novel Therapeutic Targets and Antibodies from Patients

Alessandra Villa, PhD, Director, Antibody Platform Development, Kling Biotherapeutics

Patients' B cell repertoires are unbeatable sources for antibody and target discovery. Kling Biotherapeutic's technology overcomes the limited proliferative lifespan of primary human and animal B cells by transduction with a proprietary vector to express Bcl6 and Bcl-xL, which prevents both terminal differentiation and apoptosis while allowing the ability to undergo somatic-hypermutation *in vitro*. Here we present the generation of tumour-derived cell libraries for immediate functional screening and therapeutics design.

9:00 KEYNOTE PRESENTATION: Unlocking MYC: Clinical Insights and Synergistic Combinations with a Novel Therapeutic Modality

Marie-Eve Beaulieu, PhD, Co-Founder & CSO, Drug Development, Peptomyc SL

MYC is a critical oncogenic driver and immune modulator in KRAS-mutant NSCLC. OMO-103, a clinical-grade MYC inhibitor derived from Omomyc that we designed and developed, impairs tumour growth, reprograms the tumour microenvironment, and overcomes resistance to KRAS inhibitors. We are elucidating MYC-RAS cooperation and demonstrating that MYC inhibition enhances immune activation, including interferon signaling and TNF pathways. Combination strategies with OMO-103 and immunomodulators hold promise for improved therapeutic efficacy.

9:30 A High-Throughput Platform to Engineer Macrophage-Stimulating Bispecific Antibodies: Targeting CD47/SIRPa & Beyond

Kipp Weiskopf, MD, PhD, Whitehead Fellow, Whitehead Institute for Biomedical Research

Macrophages are often the most common infiltrating immune cell in tumours. To engage these cells as effectors, we used surfaceome profiling data to engineer a compendium of 156 novel bispecific antibodies that target lymphoma cells and/or macrophages. We identified dozens of bispecifics that dramatically stimulate macrophage-mediated cytotoxicity of lymphoma cells. Our approach can be applied to other cancers or other immune cell subsets to rapidly engineer and validate bispecific antibodies.

10:00 Building Better Biologics: Managing Immunogenicity Risk by Design and Ankyrons, Target Binding Reagents beyond Antibodies

PROIMMUNE www.proimmune.com

Jeremy Fry, Director of Sales, ProImmune Ltd

Preclinical immunogenicity risk assessment is a crucial consideration in the development of biotherapeutics. Learn about best practices in this field from real-world case studies applying MAPPs, T cell proliferation, MHC-peptide binding and cytokine release assays. Additionally, the field of protein binding reagents will be explored, with a focus on the limitations of antibodies as a research reagent. Furthermore, the success in a diverse range of applications of ProImmune's next-generation, monoclonal target binding reagents called Ankyrons, will be highlighted.

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

NOVEL TARGETS AND APPROACHES FOR INDICATIONS BEYOND CANCER

11:15 Development of Antibody Therapeutics Targeting the "NLRP Inflammasome Platform" for the Treatment of Chronic Neurodegenerative Diseases

Mehdi Arbabi Ghahroudi, PhD, Senior Research Officer, Immunobiology & Human Health Therapeutics, National Research Council Canada

Development of antibody therapeutics targeting the "NLRP inflammasome platform" for the treatment of chronic neurodegenerative diseases. In this study, we have developed single-domain antibodies (sdAbs) that bind to the extracellular ASC and block its oligomerisation and the consequent inflammasome activation and will permit us to target both intracellular and extracellular inflammasome.

11:45 A First-in-Class Anti-Activin E Antibody Induces Fat-Selective Weight-Loss in Diet-Induced Obese Mice

Martin B. Brenner, PhD, CEO & CSO, iBio Inc.

Loss-of-function variants in INHBE encoding Activin E protect against obesity and Type 2 diabetes. Using a novel AI-enabled epitope steering platform, we developed a first-in-class anti-Activin E antibody. In diet-induced obese mice, treatment induced fat-selective weight loss, which was synergistically enhanced with a GLP-1 receptor agonist, highlighting its potential as a next-generation obesity therapy.

12:15 Luncheon Presentation *(Sponsorship Opportunity Available)*

12:45 Luncheon in the Exhibit Hall with Poster Viewing

EMERGING TARGETS FOR ONCOLOGY & BEYOND Hitting the Bullseye

NOVEL TARGETS AND APPROACHES FOR INDICATIONS BEYOND CANCER *(CONT.)*

13:45 Chairperson's Remarks

Marie-Eve Beaulieu, PhD, Co-Founder & CSO, Drug Development, Peptomyc SL

13:50 Oral Nanofitin Targeting IL-13Rα2 to Restore Anti-TNFα Efficacy in Crohn's Disease

Mathieu Cinier, PhD, CSO, Affilogic

Many Crohn's disease patients are primary resistant to anti-TNFα therapy, with IL-13Rα2 overexpression driving this resistance. Affilogic's GIJob project develops an orally administered anti-IL-13Rα2 Nanofitin to restore anti-TNFα therapy efficacy in primary resistant patients. The Nanofitin's high stability enables oral formulation. The candidate shows sub-nanomolar potency, resistance to gastrointestinal degradation, and oral *in vivo* efficacy in a murine colitis model, offering a promising solution for patients.

14:20 Exploring Monocyte-Derived Macrophage Phenotypes as a Therapeutic Target in Cardiac Fibrosis

Daniel M. Simão, PhD, Head, Bayer Pharma Satellite Lab, iBET Instituto de Biologia Experimental Tecnologica

This study examines monocyte-derived macrophage phenotypes and their role in cardiac fibrosis progression. We have identified distinct macrophage subsets that contribute to fibrotic remodeling through anti-fibrotic or pro-fibrotic paracrine signaling. Targeting these specific phenotypes may offer a novel therapeutic strategy to mitigate fibrosis and improve cardiac function. The findings highlight the potential of macrophage modulation as a promising avenue for treating heart disease associated with fibrotic damage.

14:50 Plasma Goldmine: *De novo* Sequencing Uncovers Functional Antibodies Missed by Traditional Methods rapid novor

Monique Seymour, Sr. Sales Executive & Development Mgr EMEA + India, Commercial, Rapid Novor

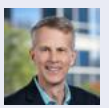
B-cell sequencing has advanced antibody discovery, but it captures only a fraction of the circulating antibody diversity, as just 2 to 3 percent of total B cells are in circulation.
We introduce a protein-driven approach to mining plasma, utilizing *de novo* sequencing with mass spectrometry to identify neutralizing antibodies from the plasma of a SARS-CoV-2 vaccinated patient. Notably, we identified monoclonal antibody sequences exclusively through mass spectrometry based *de novo* sequencing, which were absent in IgSeq data and revealed novel candidates detectable only in serum.

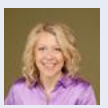
15:05 Sponsored Presentation *(Opportunity Available)*

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?



Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

- Describe the technology
- Show data
- Show forward-looking future applications

Panelists:
Paul J. Carter, PhD, Genentech Fellow, Antibody Engineering, Genentech
G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company
Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

NEW TARGETS AND APPROACHES FOR SOLID TUMOURS

17:15 Presentation to be Announced FUJIFILM Value from Innovation

17:45 Engineering Soluble T Cell Receptor Bispecifics to Target HLA-Presented Viral Peptides

Jonathan Chamberlain, PhD, Senior Manager, Research, Protein Science Pipeline, Immunocore Ltd.

Immune mobilising monoclonal T cell receptors (TCRs) Against Virus (ImmTAV) are soluble TCR bispecific molecules that are engineered to bind viral peptide-human leukocyte antigen (pHLA) complexes with high affinity and to redirect specific killing of virus-infected cells via engagement of CD3

EMERGING TARGETS FOR ONCOLOGY & BEYOND Hitting the Bullseye

on polyclonal effector T cells. Here we present our strategy for engineering ImmTAV molecules to bind HLA-A*02:01 presented viral epitopes and overcoming complexities of targeting viral peptide variants.

18:15 Identifying New Biology for TROP2: A Naked TROP2 Antibody Entering the Clinic

Luis da Cruz, PhD, Vice President, Research, Kisoji Biotechnology Inc.

TROP2 is overexpressed in aggressive tumours, making it an important target in oncology. KJ-103, a novel naked heavy chain–only anti-TROP2 antibody from KisoJi's technology platform, induces potent FcγR-dependent anti-tumour activity and reshapes the TME by promoting pro-inflammatory macrophages, enhancing antigen presentation, and T cell-associated responses. It is well tolerated with a broad therapeutic window, supporting its use as monotherapy or with checkpoint inhibitors. Phase 1 trials are set for 2026.

18:45 Engineering TIMP-2 Variants for Glioblastoma Treatment

Julia M. Shifman, PhD, Professor, Biological Chemistry, The Alexander Siblerman Institute for Life Sciences, The Hebrew University Jerusalem

Matrix Metalloproteinases 9 (MMP-9) have recently been implicated in glioblastoma progression, the most aggressive type of brain cancer with no cure. We present a drug candidate based on TIMP-2, an engineered human protein that selectively inhibits MMP-9 with picomolar affinity. Our protein effectively suppresses U251 glioblastoma cell proliferation and invasion while showing no cytotoxicity to healthy cells, thus presenting a new attractive strategy for drug development in glioblastoma.

19:15 A Novel Long-Acting Relaxin-2 Fusion, AZD3427, Improves Cardiac Performance in Non-Human Primates with Cardiac Dysfunction

Monika Papworth, PhD, Principal Scientist, Biologics Engineering, AstraZeneca

Relaxin-2 has shown promising cardiovascular benefits in both preclinical models and clinical trials, however, its therapeutic potential has been limited. To address this, we have developed AZD3427, a novel fusion protein, which closely mimics the natural hormone's structure and consists of a single relaxin-2 and a heterodimeric Fc fragment. AZD3427 exhibits an improved pharmacokinetic profile, maintains the pharmacology of relaxin-2 *in vitro,* and improves cardiac performance in an NHP model.

19:45 Close of Emerging Targets for Oncology & Beyond Conference

ANTIBODIES AGAINST MEMBRANE PROTEIN TARGETS

New Strategies and Technologies to Accelerate the Development of Biotherapeutics Against Complex GPCR and Ion Channel Targets

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

EMERGING MODALITIES FOR MEMBRANE PROTEIN TARGETS

8:25 Chairperson's Remarks

Catherine Hutchings, PhD, Independent Consultant

8:30 Redefining CCR8-Targeted Cancer Therapeutics: Effector-Independent Treg Modulation with ABT-863

Mauro Mileni, PhD, Founder & CEO, Abilita Bio

ABT-863 is a humanised VHH-Fc inverse agonist antibody that targets CCR8+ tumour-infiltrating Tregs. Discovered using Abilita's EMP platform, it binds the receptor's orthosteric pocket and inhibits both ligand-induced and basal signaling. In preclinical models, ABT-863 combined with anti-PD1 mediates tumour suppression independent of Fc-effector function. This mechanism may enable effective Treg modulation without systemic depletion, allowing a differentiated therapeutic approach with potential for improved safety and efficacy in cancer immunotherapy.

9:00 Bispecific Ligands against Membrane Protein Targets

Benjamin J. Hackel, PhD, Professor, Chemical Engineering & Materials Science, University of Minnesota

We have advanced multivalent miniprotein engineering platforms to achieve selective control of target engagement in a size-efficient manner. We will present the effects of different molecular formats for multivalent binding, including the impact of paratope linkages and monovalent affinity on resultant selectivity and utility across multiple applications.

9:30 Designing Solutions for Challenging Antigens: Making Complex MHCs and Multipass Membrane Proteins Accessible Targets KACTUS

Anil Kumar, KACTUS

9:45 Sponsored Presentation *(Opportunity Available)*

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

10:45 Engineering Affinity Attenuated and Effector CD8 Biased T Cell Engagers

Christopher Lloyd, PhD, Director, Biologics Engineering, AstraZeneca

T cell engagers (TCEs) have shown promising clinical efficacy, but are still associated with significant toxicities, such as cytokine release syndrome (CRS). To address this, we have developed novel affinity attenuated and CD8-biased TCEs. Case studies will be presented on the discovery and engineering of clinical lead candidates for CLDN18.2, CD20, and GPC-3, focusing the presentation on how the binders were generated and how the TCEs engage their receptors.

FUNCTIONAL ASSAYS AND STRUCTURAL STUDIES

11:15 Selection of Functional Modulators of CB2R and GLP-1R GPCRs and Characterisation of Functional Effects in T Cell and Insulinoma Cell Models

David O'Connell, PhD, Associate Professor, Biomolecular & Biomedical Science, University College Dublin

Targeting GPCRs for disease therapy has proven problematic with many drugs exhibiting off-target side effects due to lack of receptor selectivity. We have targeted the cannabinoid GPCR CB2R and the glucagon-like 1-peptide receptor with libraries of stabilised and constrained peptides, called Selektides. We describe here our work on discovery and functional characterisation of candidate receptor agonists and antagonists with an emphasis on functional experimental design and receptor selectivity determination.

11:45 Structural Insights into CXCR4 Modulation and Oligomerisation

Kei Saotome, PhD, Senior Principal Scientist, Structural Biology, Regeneron

CXCR4 is a G-protein coupled receptor for the chemokine ligand CXCL12 and an established target for cancer and HIV. Here, we used cryoelectron microscopy (cryoEM) to capture CXCR4 in various states, including its complexes with G_i heterotrimer, CXCL12, the FDA-approved antagonist AMD3100, and monoclonal antibody REGN7663. We also determined the structures of homotrimeric and homotetrameric forms of CXCR4, which represent unique modes of GPCR oligomerisation.

12:15 LUNCHEON PRESENTATION: CDR-Scanning for Antibody Engineering and Species Cross-Reactivity integral molecular

Ross Chambers, Vice President of 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.

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

DISCOVERY PLATFORMS AND ANTIGEN STRATEGIES

13:55 Chairperson's Remarks

Rajesh Sundaresan, PhD, Scientific Leader, Protein Cell and Structural Sciences, GlaxoSmithKline

ANTIBODIES AGAINST MEMBRANE PROTEIN TARGETS

New Strategies and Technologies to Accelerate the Development of Biotherapeutics Against Complex GPCR and Ion Channel Targets

14:00 Native Antigen Platforms (NAPs) for Membrane Protein Ab Discovery

Rajesh Sundaresan, PhD, Scientific Leader, Protein Cell and Structural Sciences, GlaxoSmithKline

At GSK we have successfully delivered complex membrane proteins for Ab discovery programs using a multimodal approach involving genetic, cellular, and biochemical reagents using our Native-Antigen-Platform. These include stable cell lines, mRNA-LNP, non-detergent stabilised membrane proteins, and native membrane nanoparticles with robust expression of the target. By reducing the cycle times and attrition rates seen in traditional approaches for reagent generation we have empowered an early start to discovery campaigns.

14:30 KEYNOTE PRESENTATION: Proximity-Driven Site-Specific Cyclisation of Phage-Displayed Peptides

Gonçalo Bernardes, PhD, Professor, Chemistry, University of Cambridge

Our research applies chemical principles to tackle key questions in life sciences and molecular medicine. This lecture will highlight recent advances from our group in developing methods for site-selective chemical modification of proteins and antibodies, and their application to proximity-driven, site-specific cyclisation of phage-displayed peptides.

15:00 Sponsored Presentation *(Opportunity Available)*

INTERACTIVE DISCUSSIONS

15:30 Find Your Table and Meet Your Discussion Moderator

Interactive Breakout 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 Breakout Discussions page on the conference website for a complete listing of topics and descriptions.

IN-PERSON ONLY BREAKOUT: Avoiding Roadblocks: Maneuvering the Challenges of Difficult Targets

Ross Chambers, PhD, Vice President, Antibody Discovery, Integral Molecular, Inc.

IN-PERSON ONLY BREAKOUT: Discovering Therapeutic Abs for Complex Antigens

Rajesh Sundaresan, PhD, Scientific Leader, Protein Cell and Structural Sciences, GlaxoSmithKline

COMPUTATIONAL DESIGN AND OPTIMISATION

16:10 *De novo* Design of Epitope-Specific Antibodies against Soluble and Multipass Membrane Proteins with High Specificity, Developability, and Function

Connor Blankenship, PhD, Senior Scientist, Nabla Bio Inc

We present a generative protein design system that enables fully-computational design of antibodies with therapeutic-grade properties for the first time. This system generates antibodies that achieve double-digit nanomolar affinities, strong early-stage developability profiles, and precise targeting of functional epitopes without experimental optimisation. We demonstrate capabilities across multiple therapeutic contexts, including the first fully computationally-designed antibodies to multipass membrane proteins—Claudin-4 and CXCR7.

16:40 A Data-Driven Computational Pipeline for Screening HexElect Antibody Perturbations Using Cell Painting

Leon Van Gurp, PhD, Senior Data Scientist, Discovery Data Science, Genmab BV

While cell painting is often used for drug screening, application to large-scale antibody data remains underexplored. We conducted a screen of thousands of combinatorial antibody treatments across multiple cell lines, then developed a data-driven computational pipeline to classify phenotypic responses. By analysing dual-target interventions, the pipeline enables stratification into phenotypic subclasses and direct comparisons between different therapeutic formats. This resource provides interpretable results suited for complex multifactorial phenotypic screening data.

17:10 Discovery, Design, and Optimisation of Antibody Modalities against a GPCR Target

Catharina Steentoft, PhD, Senior Scientist, Antibody Technology, Novo Nordisk

This presentation details a case study on the discovery and optimisation of antagonistic antibodies targeting a challenging GPCR. We will present multiple approaches employed to enhance affinity, efficacy, and developability, including a comparison of degenerate codon libraries informed by deep learning models, structure data, and ddG calculations. We also highlight an example of modality optimisation through structure-guided ligand conjugation resulting in improved antibody functionality.

17:40 Function-First Generative Design of GPCR Agonist Antibodies Targeting GLP1 Biology and Beyond

Marcin Paduch, PhD, Vice President, Head of Platform Biology, Metaphore Biotechnologies

Targeting GPCRs with efficacious agonist antibodies is a significant challenge. Our function-first generative design platform employs AI/ML, initially proven targeting the GLP1 biology and now engineered for broader GPCR applications. ML models learn from live-cell functional data to guide the generative design of antibodies with desired activation profiles, allowing fine-tuning of potency, bias, and developability. This platform provides a robust engine to engineer functional antibodies for diverse, intractable GPCR targets.

18:10 Close of Summit

SAFETY AND EFFICACY OF BISPECIFIC ANTIBODIES, ADCs, AND COMBINATION THERAPIES

Enhancing Safety and Creating Synergies with Novel Therapeutic Modalities

TUESDAY 11 NOVEMBER

7:30 Registration and Morning Coffee

SAFETY AND EFFICACY OF BISPECIFICS AND ADCs

8:25 Chairperson's Remarks

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

8:30 KEYNOTE PRESENTATION: Safety of Bispecifics, ADCs, and Combination Therapies

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

Immune modulation is a burgeoning field in medical science. The goal of immune modulation is to enhance the immune system's ability to combat diseases like cancer or to suppress it in cases of autoimmune disorders where the immune system mistakenly attacks the body's own tissues. This presentation will explore the safety aspects of immune modulation, referencing recent research and clinical trials.

9:00 Cancer Therapy with Bispecific Antibodies Directed to CD3 and CD28: Two Targets, Two Signals

Martin Pflügler, PhD, CEO, TWYCE GmbH

Efficacy of bispecific antibodies in solid tumours is limited by lack of accessibility of the tumour site for immune effector cells, tumour-specific target antigens, and costimulatory "signal 2" that enables thorough and long-lasting T cell activation. We overcome these limitations by a combination of functionally interrelated bsAbs that target two different antigens expressed on both tumour cells and the tumour microenvironment/tumour vasculature and stimulate CD3 and CD28 on T cells.

9:30 Beyond ADCs: Cancerlysins—Bispecific Antibodies That Selectively Eradicate Cancer Cells by Inducing Apoptosis

Victor S. Goldmacher, PhD, CSO, R&D, ImmuVia

IMV-M is a bispecific antibody that co-targets MUC16 and death receptor 5 (DR5) to induce tumour-selective apoptosis. MUC16 is overexpressed in non-small cell lung cancer, ovarian cancer, and pancreatic adenocarcinoma, while its expression in normal tissues is minimal. DR5 is broadly expressed across these tumour types. IMV-M has demonstrated potent antitumour activity in xenograft models, favorable safety in non-human primates, and is CMC-ready.

10:00 From BsAbs to BsADCs: Achieving High Titer and Purity across Complex Formats

WuXi Biologics Global Solution Provider

Jiansheng Wu, Senior Vice President and Head, CRO Services, WuXi Biologics USA LLC

Bispecific ADCs are at the forefront of therapeutic innovation. However, their development is often limited by challenges from the BsAb production such as low titers and difficult-to-remove impurities like homodimers and mispaired species. Hence, integrated expertise is an important aspect of generating bispecific ADCs. This presentation showcases innovative solutions, including ultra-high-titer CHO systems, optimised chain ratios, and LC-MS assisted purification tailored for various BsAb formats. Case studies will show how we design and select BsAbs from parental mAbs to BsADC-ready formats and offer insights into successful BsAb conjugation.

10:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

11:15 Emerging Immunogenicity Challenges for Next-Generation Biotherapeutics

Andreas Hollenstein, PhD, Principal Scientist, Immunosafety, Roche

Since the beginning of immunotherapy, the limits for higher efficiency have been pushed. This shift did not come without tradeoffs for safety and immunogenicity. This presentation showcases several examples of drug enhancing approaches that also can have a profound impact on immunogenicity. Understanding the underlying mechanisms can help to avoid immunogenic transformation and lead to the development of better drugs for patients.

11:35 Structure-Aided Design and Engineering of an FGFR1c x KLB Multispecific Altibody Agonist for MASH

Yang Shen, PhD, Executive Director of Antibody Engineering, Bispecifics, Regeneron

We have engineered a multispecific Altibody agonist mimicking FGF21 ligand function by activating FGFR1c only in the presence of its coreceptor KLB. Our study illuminates that factors such as IgG subclass, linker length, and building block contribute to improved agonism. Our FGFR1c x KLB multispecific Altibody offers an alternative to the current Fc-FGF21 fusion tested in clinic with superior PK, lower immunogenicity and similar efficacy in preclinical settings.

11:55 Cancer Immunotherapy Using Bispecific γδ-T Cell Engagers

Hans van der Vliet, MD, PhD, CSO, Lava Therapeutics

Vγ9Vδ2-T cells constitute a relatively homogeneous population of pro-inflammatory immune effector cells. This presentation will focus on the preclinical and early clinical development of bispecific Vγ9Vδ2-T cell engagers as a novel approach for cancer immunotherapy.

SAFETY AND EFFICACY OF BISPECIFIC ANTIBODIES, ADCs, AND COMBINATION THERAPIES

Enhancing Safety and Creating Synergies with Novel Therapeutic Modalities

12:15 LUNCHEON PRESENTATION: How Specific are Antibody Drugs? Revealing Insights from a New Generation of Specificity Assays

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.

12:45 Luncheon in the Exhibit Hall with Poster Viewing

APPROACHES TO ADDRESS SAFETY AND EFFICACY OF T CELL ENGAGERS

13:45 Chairperson's Remarks

Javier Chaparro-Riggers, PhD, Executive Director, BioMedicine Design, Pfizer Inc.

13:50 Engineering Approaches to Address Safety and Efficacy Challenges of T Cell Engagers

Javier Chaparro-Riggers, PhD, Executive Director, BioMedicine Design, Pfizer Inc.

T cell engagers have demonstrated clinical benefits in hematologic malignancies with safety concerns mainly focused on cytokine release syndrome. Clinical benefits in solid tumours have been more challenging and are limited by on-target/off-tumour toxicity and efficacy. Recently, several exciting clinical successes in solid tumours have been reported. This talk will highlight different engineering approaches to improve safety and efficacy for the development of next generation T cell engagers.

14:20 Machine Learning-Guided Design of Logic-Gated and Avidity-Driven T Cell Engagers for Solid Malignancies

Ryan Henrici, MD, PhD, Vice President, Discovery Medicine, BigHat Biosciences

Broad application of T cell engagers to patients with solid tumors is limited by the availability of antigens that discriminate malignant from non-malignant tissues. We show that T cell engagers can be readily built for classic solid tumor targets with a lab-in-the-loop approach to AI/ML-guided antibody design, efficiently clearing tumors without established on-target toxicities. We provide examples of avidity-gated and Boolean logic-gated T cell engagers in diverse malignancies.

14:50 Taking T Cell Engagement to the Next Level: Generating CD8-Selective T Cell Engagers with the TITAN Framework

Matthew Elder, PhD, Director, Project Lead, Immuno-Oncology Team, AstraZeneca

The TITAN framework enables the design of CD8-selective T cell engagers that enhance antitumour activity while minimising off-target effects. This talk will highlight how TITAN advances T cell engagement by optimising selectivity and potency, offering a next-generation approach to immunotherapy that could improve efficacy and safety in solid and hematologic malignancies.

15:20 Sponsored Presentation *(Opportunity Available)*

15:50 Refreshment Break in the Exhibit Hall with Poster Viewing

EMERGING ADC MODALITIES

16:35 Sponsored Presentation *(Opportunity Available)*

17:05 Targeting Transferrin Receptor to Transport Antisense Oligonucleotides across the Blood-Brain Barrier

Padma Akkapeddi, PhD, Scientist, Antibody Discovery & Protein Engineering, Denali Therapeutics, Inc.

The blood-brain barrier (BBB) restricts the effective delivery of protein therapeutics to the central nervous system (CNS). In this work, we describe the development of a new engineered Fc BBB oligonucleotide transport vehicle (OTV) that enables transport of ASOs into the brain to drive significant, cumulative, and sustained knockdown of target gene expression across CNS regions. Our data supports systemically OTV as a potential therapeutic oligonucleotide-delivery platform for neurological disorders.

17:35 Advancing the Cancer-Targeting Radio-Antibody Drug Conjugate 177Lu-AKIR001 to Clinical Trials

Marika Nestor, PhD, Professor, Immunology, Genetics, and Pathology, Uppsala University

This talk explores the development of 177Lu-AKIR001, a novel radio-antibody drug conjugate (RADC) for targeted cancer therapy. By integrating antibody engineering with radionuclide technology, this approach combines precise tumour targeting with localised radiation delivery. Preclinical findings demonstrate strong efficacy and safety, supporting the ongoing clinical trial. The presentation will discuss the design, challenges, and translational potential of RADCs, bridging protein engineering and radiopharmaceutical innovation.

18:05 Sponsored Presentation *(Opportunity Available)*

18:35 Welcome Reception in the Exhibit Hall with Poster Viewing

19:35 Close of Safety and Efficacy of Bispecific Antibodies, ADCs, and Combination Therapies Conference

ADVANCING MULTISPECIFIC ANTIBODIES AND COMBINATION THERAPY TO THE CLINIC

Novel and Synergistic Combinations

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

ADDRESSING CLINICAL UNMET NEEDS WITH MULTISPECIFIC ANTIBODIES

8:25 Chairperson's Remarks

Leendert A. Trouw, PhD, Professor, Department of Immunology, Leiden University Medical Center

8:30 Multispecific Antibodies to Treat Brain Disorders: Enhancing Blood-Brain Barrier Shuttling and Brain Retention

Maarten Dewilde, PhD, Assistant Professor, Therapeutic & Diagnostic Antibodies, Catholic University Leuven

Antibodies have revolutionised treatment paradigms for numerous diseases, but unfortunately this revolution is much more limited for central nervous system (CNS) disorders. One of the main reasons for this is that they have difficulties to pass the blood-brain barrier (BBB). Our research focusses on how to facilitate transport of biologics to the brain, and equally important, on how to extend the CNS half-life of antibodies once they've reached the brain.

9:00 Using Antibody Constructs to Target Antigen to Dendritic Cells for Optimal Immune Responses

Martijn Verdoes, PhD, Associate Professor, Chemical Immunology, Leiden University Medical Center

The aim of therapeutic cancer vaccines is to induce tumour-specific T cell responses. This requires efficient processing and presentation of tumour antigens by antigen-presenting cells, in particular dendritic cells (DCs). We have developed several site-specific antibody conjugation strategies, which we have applied for DC-targeted delivery of peptide-based antigenic cargo, as well as targeted immunostimulatory adjuvant co-delivery approaches in preclinical *in vivo* models.

9:30 Molecular Imaging to Support the Development of Multispecific Cancer Antibodies

Marjolijn N. Lub-de Hooge, PhD, Hospital Pharmacist, University Medical Center Groningen; Clinical Pharmacy and Pharmacology, Nuclear Medicine and Molecular Imaging, University of Groningen

Substantial challenges limit applications of multispecific antibodies in oncology, particularly inefficient targeting of solid tumours and severe adverse effects. PET imaging can reveal the unique biodistribution and complex pharmacology of radiolabelled multispecific antibodies. To better understand tumour targeting and healthy tissue uptake, this presentation highlights structural insights obtained from (pre)clinical molecular imaging studies of multispecific antibodies, and also focuses on opportunities of molecular imaging to support and de-risk clinical development.

10:00 Meeting the Challenges of Complex Biologics Discovery and Engineering with a Comprehensive and Modular Toolkit

Peter Slavny, CTO, FairJourney Biologics

Clinical drug candidates must not only have appropriate binding characteristics but also need optimal biophysical properties for cost efficient manufacture and distribution. We have constructed Mammalian Display libraries where each cell contains a single recombinant gene cassette, permitting display and selection of complex antibody-based drug molecules by FACS. Surface display level in this system is uniquely sensitive to key biophysical characteristics such as self-association and poly-specificity and is predictive of CMC performance. We describe the use of this platform for multi-parametric antibody discovery and optimisation, and its integration with *in vivo* immunisation, microfluidics based semi-permeable capsules, and other elements from our diverse biologics' development toolkit.

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

INNOVATING DESIGN AND USE OF T CELL ENGAGERS FOR THERAPY

11:14 Chairperson's Remarks

Paul Parren, PhD, CSO, Gyes; Professor, Molecular Immunology, Leiden University Medical Center

11:15 KEYNOTE PRESENTATION: Innovating T Cell Engager Therapy

Mark Cobbold, PhD, Vice President, Oncology Early Discovery, AstraZeneca Pharmaceuticals

11:45 Assessing Depth of Tissue B-Cell Depletion upon Different B-Cell Targeting Strategies

Carlo Tur, MD, University Hospital Erlangen, Medicine 3, Friedrich Alexander University Erlangen-Nuremberg

Deep B-cell tissue depletion may induce reset of autoimmunity and promote sustained drug-free remission. Assessing the depth of tissue B-cell depletion in peripheral tissues such as lymph nodes, bone marrow, and/or synovium has emerged as a reliable tool to assess the capacity of a therapeutic intervention to achieve the so-called immune reset in autoimmune diseases. Cell-based and protein-based B-cell depleters show different B-cell depleting capacity in peripheral tissues.

12:15 Luncheon Presentation to be Announced

12:45 Luncheon in the Exhibit Hall with Poster Viewing

ADVANCING MULTISPECIFIC ANTIBODIES AND COMBINATION THERAPY TO THE CLINIC

Novel and Synergistic Combinations

APPROACHES TO MASKING STRATEGIES AND TISSUE-SPECIFIC TARGETING

13:45 Chairperson's Remarks

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

13:50 Advancing Next Generation T Cell Engagers to Tackle Solid Cancers

Aude Segaliny, PhD, Vice President, Research & Development, Amberstone Biosciences

The therapeutic potential of T cell engagers (TCE) has been restricted by a narrow safety window, with excess cytokine release and on-target toxicity limiting their clinical usefulness. Our Tumour-Microenvironment Activated Therapeutics (T-MATE) platform overcomes these challenges by utilising a pH-dependent conformational switch. This innovative mechanism attenuates TCE activity at physiological pH while preserving full potency within the tumour microenvironment, enabling a new class of safe and effective TCE therapeutics.

14:20 A Novel ATP-Dependent FcγRs Affinity-Enhanced Anti-CTLA-4 Switch Antibody for Tumour-Selective Enhancement of Anti-Tumour Immunity

Hiroki Hayashi, Researcher, Discovery Pharmacology, Chugai Pharmaceutical Co Ltd.

ROSE12 is a novel, FcγRs affinity-enhanced anti-CTLA-4 antibody that is activated by high concentrations of extracellular ATP in the tumour microenvironment. ROSE12 shows ATP dependent and very stronger ADCC activity than non-fucosylated-Fc anti-CTLA-4 antibody and demonstrates anti-tumour effects without triggering systemic immune activation in mice models.

14:50 DirectedLuck® Transposase and Automated Clone Screening – Speed Without Compromise

ProBioGen
Intelligent Biopharmaceutical Solutions

Thomas Rose, Head of Expression Systems, Pharmaceutical Cell Lines, ProBioGen AG

Our DirectedLuck® transposase integrates genes at the most active genomic sites through advanced epigenetic targeting, resulting in highly efficient gene delivery and unmatched pool titers. These extremely stable pools are well suited to produce material for TOX studies, which greatly speeds time to clinic. In addition, our unique automated PsiBot system enables an earlier screening and selection of clones based on platform fit and critical product quality attributes. This smart automation approach delivers high-quality producer clones in the shortest time, which facilitates scalable manufacturing and rapid workflows towards FiH studies.

15:05 Sponsored Presentation *(Opportunity Available)*

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?




Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

- Describe the technology
- Show data
- Show forward-looking future applications

Panelists:
Paul J. Carter, PhD, Genentech Fellow, Antibody Engineering, Genentech
G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company
Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

ADDRESSING CLINICAL UNMET NEEDS

17:14 Chairperson's Remarks

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

17:15 Sponsored Presentation *(Opportunity Available)*

17:45 Advancing T Cell Engager Therapies: Mechanistic Insights and Translational Perspectives on Glofitamab

Marina Bacac, PhD, Head, Cancer Immunotherapy, Roche Innovation Center, Zurich

T cell engagers (TCEs) have transformed the treatment of hematologic malignancies and are gaining traction in solid tumours. This presentation explores emerging mechanistic insights into TCE activity, focusing on glofitamab—a CD20xCD3 TCE approved for relapsed/refractory large B-cell lymphomas. Emphasis is placed on resistance mechanisms and combination strategies to enhance efficacy and guide the future optimisation of TCE-based therapies.

ADVANCING MULTISPECIFIC ANTIBODIES AND COMBINATION THERAPY TO THE CLINIC

Novel and Synergistic Combinations

18:15 HexaBody-OX40: A Novel Fcyr Crosslinking-Independent OX40-Targeting Antibody with Agonistic Activity *in vitro* and Antitumour Activity *in Vivo*

Kristel Kemper, PhD, Director, Translational Research, Genmab BV

Clustering of the costimulatory TNF receptor superfamily member OX40 on activated T cells activates signaling pathways that enhance T cell activation, survival, and proliferation. First generation OX40 agonists requiring FcγR-mediated crosslinking to induce OX40 agonism have demonstrated limited clinical activity. HexaBody-OX40 (GEN1055/BNT315) is a next-generation investigational OX40 agonist antibody designed to cluster OX40 independent of FcγR-mediated crosslinking to enhance antitumour T cell responses.

18:45 Sponsored Presentation *(Opportunity Available)*

19:15 PANEL DISCUSSION: Understanding Mechanisms of Non-Response: Learning from Failures to Improve Treatment

Co-Moderators:

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

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

- Selecting patients
- Selecting treatments
- Selecting modalities

Panelists:

Marina Bacac, PhD, Head, Cancer Immunotherapy, Roche Innovation Center, Zurich

Kristel Kemper, PhD, Director, Translational Research, Genmab BV

19:45 Close of Advancing Multispecifics Conference

ENGINEERING THE NEXT GENERATION OF BISPECIFIC ANTIBODIES

Introducing Novel Functionality and Constructs

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

IMPROVING THE NEXT GENERATION OF BISPECIFIC ANTIBODIES

8:25 Chairperson's Remarks

Stefan Zielonka, PhD, Senior Director, Antibody Discovery and Protein Engineering, Merck Healthcare KGaA & Professor of Biomolecular Immunotherapy, Technische Universität Darmstadt

8:30 Integrated Machine Learning (ML) and Molecular Dynamics (MD) Model to Predict the Developability Profiles of Full-Length Multispecific Antibodies

Fernando Garces, PhD, Co-Founder and CEO, BioGlyph

Multispecific antibodies (MsAbs) are engineered molecules that exhibit extensive structural diversity, a critical feature for biologic therapeutics. However, this complexity poses significant challenges in rational design and manufacturing. Here, we present an object-based encoding system that enables an agnostic and universal design framework for MsAbs, independent of predefined structural constraints.

9:00 Advances in Engineering TfR1 Brain Shuttles for Enhanced Safety and Efficacy in Targeted Biologic Delivery to the CNS—Revolutionising Treatment for Neurological Disorders

Pawel Stocki, PhD, Vice President Research, Ossianix

Brain delivery of therapeutics is highly challenging. TXP1, a single-domain anti-TfR1 antibody, enhances antibody brain delivery >40-fold in NHPs. Its brain selectivity stems from a unique binding epitope, while bispecific engineering ensures an unparalleled safety profile, even with full effector function antibodies. TXP1 marks a breakthrough in achieving high brain penetration, specificity and safety, offering hope for patients with CNS disorders.

9:30 Leveraging High-Throughput Platforms for the Discovery of Bispecific Antibodies

Crystal Richardson, Sr Business Partnership Mgr, Gene Synthesis, GENEWIZ from Azenta Life Sciences

We present a high-throughput platform to accelerate antibody discovery by integrating antibody production, NGS screening, and high-throughput automated workflows. This enables rapid identification and scalable production of thousands of antibody candidates, significantly reducing timelines and overcoming the bottlenecks of traditional methods.

9:45 Presentation to be Announced

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

EFFECTOR CELL REDIRECTION

10:44 Chairperson's Remarks

Marina Bacac, PhD, Head, Cancer Immunotherapy, Roche Innovation Center, Zurich

10:45 Novel Anti-CD3 Heavy Chain-Only Antibodies for Use in T Cell–Engaging Therapeutics

Eric Krauland, PhD, President & CSO, Adimab LLC

T cell-engaging (TCE) multispecific antibodies demonstrate clinical efficacy but their use is partly limited by the small number of available anti-CD3 effector antibodies. This talk presents the discovery and engineering of novel anti-CD3 heavy chain-only antibodies (HCAbs), which exhibit T cell cytotoxicity similar to clinically validated TCEs and thereby provide a versatile new option for this potent class of biologics.

11:15 Modulation of BTN3A-Mediated Vγ9Vδ2 T Cell Agonism through Immune Checkpoint Engagement in a Bispecific Format

Carla Cano, PhD, Research Director, Lead Discovery, ImCheck Therapeutics SAS

ImCheck developed bispecific antibodies with varied formats and valency to modulate anti-BTN3A agonist potency. These approaches enhance Vγ9Vδ2 T cell stimulation, block immune checkpoints, and explore cis/trans anchoring for stronger anti-tumor activity.

11:45 KEYNOTE PRESENTATION: Recent Advances in Multispecific Antibodies in Oncology and Beyond

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

In the previous 10 years, the field of multispecific antibodies has been dominated by CD3 T-cell engagers which have shown impressive success in treating hematologic cancers. More recently, new targets and formats have enabled new mechanisms of action that will broaden the use of multispecific antibodies to a wider range of indications.

12:15 Luncheon Presentation *(Sponsorship Opportunity Available)*

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

IMMUNOCYTOKINES AND MULTIFUNCTIONAL ANTIBODIES

13:55 Chairperson's Remarks

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

ENGINEERING THE NEXT GENERATION OF BISPECIFIC ANTIBODIES

Introducing Novel Functionality and Constructs

14:00 Tailor-Made Immunocytokines: Comparison of Antibody-Cytokine Fusion Strategies with VHH-Derived Surrogate Agonists

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

Stefan Zielonka, PhD, Senior Director, Antibody Discovery and Protein Engineering, Merck Healthcare KGaA & Professor of Biomolecular Immunotherapy, Technische Universität Darmstadt

Immunocytokines target effector molecules to the tumour environment to expand the therapeutic window. Their clinical use is severely limited by dose-limiting toxicities and therefore careful fine-tuning of potency is required. Here, we compare two different strategies to obtain attenuated immunocytokines. This is exemplified by the generation of bispecifics containing IL-12 and IL-18 mutant cytokines with attenuated potency compared to agonist surrogate single domain antibodies targeting the respective cytokine receptors.

14:30 KEYNOTE PRESENTATION: Multispecific Antibodies and Avidity Engineering

Paul Parren, PhD, CSO, Gyes; Professor, Molecular Immunology, Leiden University Medical Center

Gyes is a science-driven biotech start-up committed to exploring new frontiers in antibody therapeutics. We developed the Multispecific Antibody Platform, which we use to discover and develop precision multifunctional antibodies. During this keynote lecture you will learn more about our innovative antibodies, built to only become functional upon binding to combinations of targets co-expressed on select cell populations.

15:00 Next-Gen Antibodies, Simplified: Accelerating Discovery Through Smart Integration

Amanda Grimm, Senior Segment Marketing Manager, GenScript

Multifunctional antibodies and immunocytokines are redefining the frontiers of immunotherapy by enabling precise and synergistic targeting of complex disease mechanisms. In this session, we will explore how GenScript's comprehensive suite of discovery and development services, including gene synthesis, antibody engineering, protein expression, early developability assessments, and functional bioassays, supports the efficient design and optimization of these next-generation biologics. Learn how GenScript provides the innovation, integration, and technical depth needed to accelerate breakthroughs in multifunctional antibody therapeutics.

INTERACTIVE DISCUSSIONS

15:30 Find Your Table and Meet Your Discussion Moderator

Interactive Breakout 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 Breakout Discussions page on the conference website for a complete listing of topics and descriptions.

BREAKOUT DISCUSSION: Integrated Machine Learning (ML) and Molecular Dynamics (MD) Model to Predict the Developability Profiles of Full-Length Multispecific Antibodies

Fernando Garces, PhD, Co-Founder and CEO, BioGlyph

- Can molecular sampling identify surface patches that predict molecule developability?
- Can we achieve the speed and computational efficiency needed to process hundreds of full-length molecules using conformational sampling within a day or less?
- Can machine learning–based sampling methods replicate the conformational space of all-atom molecular dynamics (MD) for Building Blocks with at least 80% accuracy?
- What is the computational cost of running these models?

BREAKOUT DISCUSSION: Engineering the Next Wave of Cytokines and Immunocytokines

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

Stefan Zielonka, PhD, Senior Director, Antibody Discovery and Protein Engineering, Merck Healthcare KGaA & Professor of Biomolecular Immunotherapy, Technische Universität Darmstadt

- Counteracting pleiotropy of cytokines
- Attenuated cytokines
- Engineered cytokines for immuno-oncology and immunology
- Cytokine mimetics: a viable alternative?

16:10 Immunocytokines with Target Cell-Restricted IL-15 Activity for Treatment of Lymphoid Malignancies and AML

Boris Klimovich, PhD, Senior Scientist, R&D, BiconY Therapeutics

We have developed novel immunocytokine format designed to prevent systemic immune activation and thus side effects. Leveraging unique properties of IL-15, we developed constructs where activity of the cytokine moiety is dependent on target binding by the antibody part. Based on this platform, we generated and characterised immunocytokines with favorable developability as well as high efficacy and safety for treatment of lymphoid malignancies and AML.

ENGINEERING THE NEXT GENERATION OF BISPECIFIC ANTIBODIES

Introducing Novel Functionality and Constructs

16:40 Engineering Cytokine Selectivity: A PD-1-Directed IL-21 Proximity-Activated Cytokine

Patrizia Murer, PhD, Head, Protein Engineering, Anaveon AG

The concept and design of Proximity-Activated Cytokines (PACs) will be presented, using ANV700, a PD-1-targeted IL-21 PAC for the treatment of solid tumors, as an example. Through structure-guided design, an optimised anti-IL-21/IL-21 fusion protein was developed to enable selective signaling on PD-1+ T cells, thereby reinvigorating tumor-reactive T cells while minimising systemic cytokine exposure.

17:10 Next Generation of Multifunctional ANKETs for Cancer Therapy

Éric Vivier, DVM, PhD, CSO, Innate Pharma

Recent immunotherapy advances have focused on boosting T cell responses, yet only a minority of patients benefit, highlighting the need for alternative strategies. NK cells, key innate immune lymphocytes, detect and eliminate distressed cells, including tumors, through direct cytotoxicity and immune regulation. Their therapeutic potential has led to emerging NK cell–based strategies, now progressing to clinical trials. Here, we explore NK cell immunity via Antibody-based NK cell Engager Therapeutics (ANKETs).

17:40 Close of Summit

INAUGURAL | LISBON, PORTUGAL

ADVANCES IN IMMUNOENGINEERING

New Approaches in Tumour Biology

TUESDAY 11 NOVEMBER

7:30 Registration and Morning Coffee

MODULATING THE TUMOUR MICROENVIRONMENT

8:25 Chairperson's Remarks

Björn L. Frendeus, PhD, CSO, BioInvent International AB

8:30 A Molecular Platform of Reconstructive 3D-Cell Models of Tumour Microenvironments to Evaluate Antibody-Based Therapies

Catarina Brito, PhD, Principal Investigator, Head, Advanced Cell Models Lab Animal Cell Technology Unit, iBET

We developed a flexible human tumour microenvironment 3D cell model platform, adjustable for cellular source and complexity, with comprehensive readouts for antibody specificity and potency. This breast cancer heterotypic 3D cell culture platform explores microencapsulation in alginate and stirred-tank culture systems. TME components (e.g., fibroblasts and immune cells) were added to tumour spheroids. Proof-of-concept studies evaluated the anti-tumour and immunomodulatory potential of therapies targeting tumour cells and tumour microenvironment.

9:00 Antibody Therapies for Solid Tumours Informed by Studying Patient Immunity

Sophia N. Karagiannis, PhD, Professor, Translational Cancer Immunology & Immunotherapy, Kings College London

Monoclonal antibodies and antibody-drug conjugates (ADCs) are a leading area of targeted cancer therapeutics. I will discuss novel approaches in antibody design considering patient immune responses and the tumour microenvironment, antibody target, and payload target combinations directed at pro-tumour mechanisms. Studying cancer immunology and the tumour microenvironment, alongside patient stratification can offer opportunities to harness immune states in cancer and deliver drugs that target cancer vulnerabilities in treatment-resistant solid tumours.

9:30 Leveraging High Content Imaging and Automation to Interrogate the Tumour Microenvironment in Complex Models

Bushra Husain, PhD, Senior Director, Assay, Profiling and Pharmacology, AstraZeneca

Hypoxia is a key feature of over 90% of solid tumors, and has long been known to play a role in promoting cancer progression and resistance to therapeutic intervention. In this study, we provide an overview of novel strategies to interrogate tumor targeting therapies under hypoxic conditions in 3-D, using robotics-enabled high content imaging. Furthermore, we illustrate how these models could enable novel target identification and validation.

10:00 Presentation to be Announced

hookebio

10:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

MONITORING IMMUNE RESPONSES AND OVERCOMING RESISTANCE

11:15 KEYNOTE PRESENTATION: Type 2 Immunity May Hold Key to Long-Term Cancer Remission

Li Tang, PhD, Associate Professor, Institute of Bioengineering (IBI) & Institute of Materials Science & Engineering (IMX), École Polytechnique Fédérale de Lausanne (EPFL)

Current cancer immunotherapies rely on Type 1 immunity, while the role of Type 2 immunity in cancer remains unclear. We show that Type 2 immune function in anti-CD19 CAR T cells positively correlates with >8-years cancer-free survival in ALL patients, suggesting its role in durable anti-cancer immune responses. We further show that IL-4 and IL-10 reinvigorate exhausted CD8+ T cells, for enhanced immunotherapy in preclinical and investigator-initiated Phase I trials.

11:45 KEYNOTE PRESENTATION: 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 recognise HLA-restricted neoantigens, others use a single TCR to target multiple different shared tumour-associated antigens across diverse cancers. Remarkably, some clonotypes recognise many tumour 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.

12:15 Luncheon Presentation to be Announced

lightcast

12:45 Luncheon in the Exhibit Hall with Poster Viewing

INAUGURAL | LISBON, PORTUGAL

ADVANCES IN IMMUNOENGINEERING

New Approaches in Tumour Biology

NOVEL APPROACHES IN TUMOUR BIOLOGY

13:45 Chairperson's Remarks

Bushra Husain, PhD, Senior Director, Assay, Profiling and Pharmacology, AstraZeneca

Michael Traxlmayr, PhD, Group Leader, CD Laboratory for Next-Generation CAR T Cells, University of Natural Resources & Life Sciences

13:50 How Immunopeptidomics May Contribute to the Next Paradigm Shift in Immunology and Immunotherapy

Etienne Caron, PhD, Assistant Professor, Immunobiology, Yale School of Medicine

In the post-GWAS era, the HLA region is linked to numerous human diseases. HLA proteins present a complex array of peptides that interact with CD8+ and CD4+ T cells, influencing disease dynamics. The Caron Lab aims to use mass spectrometry and systems immunology to explore the immunopeptidome's role in immune-related diseases and enhance treatments through next-gen immunopeptidomics technologies and collaboration in vaccine design and T cell immunotherapy.

14:20 Microbiome-Derived Postbiotics Enforce Cellular Immunotherapy

Maik Luu, PhD, Assistant Professor, Cellular Immunotherapy, University Hospital Wuerzburg

The microbiome is a complex host factor and key determinant of the outcome of cancer immunotherapy. Its postbiotics are a blend of soluble commensal byproducts that modulate the host environment and can be exploited to predict and improve chimeric antigen receptor (CAR) T cell therapy efficacy. We demonstrate that postbiotics-mediated epigenetic-metabolic reprogramming during CAR T cell manufacturing promotes anti-tumour function and tumour microenvironment resistance in hematologic and solid malignancies.

14:50 Location, Location, Location: Spatial Analysis of the Tumour Immune Microenvironment

Yvonne Vercoulen, PhD, Associate Professor, Center for Molecular Medicine, University Medical Center Utrecht

Dr. Vercoulen's team works at the interface of immunology and cancer to identify cellular and molecular underpinnings of disease using spatial omics technology. The lab asks fundamental questions to understand how immune cells contribute to cancer development, prognosis, and therapy response. She will discuss how interactions between immune, stromal, and tumour cells can define prognosis and therapy response in colorectal cancer and hepatoblastoma.

15:20 Sponsored Presentation *(Opportunity Available)*

15:50 Refreshment Break in the Exhibit Hall with Poster Viewing

ENGINEERING APPROACHES FOR NEXT-GENERATION IMMUNOTHERAPIES

16:35 TCER—Engineering Next-Generation T Cell Receptor Bispecifics against PRAME and beyond for the Treatment of Solid Tumors

Fabian Richter, PhD, Director, Immatics Biotechnologies GmbH

17:05 IOMX-0675: A Cross-Specific Antibody Selectively Inhibiting LILRB1 and LILRB2 with Best-in-Class Potential

Christine Rothe, PhD, Chief Development Officer, iOmx Therapeutics AG

IOMX-0675, a fully human antibody antagonises the immunosuppressive receptors LILRB1 and LILRB2 while showing a highly differentiated binding profile towards closely related immune-activating family members, LILRA1 and LILRA3. We describe the selection of IOMX-0675 from our proprietary phage display library and demonstrate that the differential binding profile translates into high-efficacy positioning IOMX-0675 as a dual-targeting checkpoint inhibitor with best-in-class potential. Recent CTA approval enables preparing for a FIH study.

17:35 INCA33890: A Bispecific Antibody Targeting TGFbR2 and PD1

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

INCA33890 is a bispecific antibody targeting TGFbR2 and PD1. It antagonises the TGFb signaling pathway only in cells co-expressing PD-1 and TGFR2, mitigating risks of adverse effects associated with systemic TGFb pathway inhibition. INCA33890 has a higher affinity for PD-1, antagonising the PD-1 axis independently of TGFbR2 co-expression and can specifically antagonise TGFb and PD-1 signaling in tumours.

18:05 Engineering Caffeine-Responsive Molecular Switches to Control CAR T Cell Function *in Vivo*

Michael Traxlmayr, PhD, Group Leader, CD Laboratory for Next-Generation CAR T Cells, University of Natural Resources & Life Sciences

One obstacle associated with CAR T cells is their limited controllability after administration to the patient, which becomes particularly problematic in the case of severe toxicities. To be able to control CAR T cell function *in vivo*, we generated caffeine-responsive molecular switches by using high-end protein engineering. We show that this switch platform is modular, enabling caffeine-dependent regulation of CARs directed against different antigens (including leukemia, lymphoma, and solid tumours).

18:35 Welcome Reception in the Exhibit Hall with Poster Viewing

19:35 Close of Advances in Immunoengineering Conference

CLADE

8TH ANNUAL | LISBON, PORTUGAL

INNOVATIVE CAR THERAPY

In Vivo Cell and Gene Engineering Solutions

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

INNOVATIVE CAR CELL THERAPIES

8:25 Chairperson's Remarks

Astero Klampatsa, PhD, Group Leader, Cancer Therapeutics, Institute of Cancer Research

8:30 KEYNOTE PRESENTATION: iNKT Cells in CAR-Based Cancer Immunotherapy

Anastasios Karadimitris, PhD, MRCP, FRCPath Langmuir Chair in Haematology and Consultant Haematologist Co-Director, Centre for Haematology Director, Hugh and Josseline Langmuir Centre for Myeloma Research Centre for Haematology, Department of Immunology and Inflammation, Imperial College London Department of Haematology, Hammersmith Hospital Imperial College Healthcare NHS Trust

We develop iNKT cells, a rare subset of T cells characterised by a stereotypical TCR, and restricted by the glycolipid-presenting, MHC-like molecule CD1d as a platform for immunotherapy of blood cancers. iNKT cells have features of both innate and adaptive immunity and possess effector as well as immunoregulatory activity.

9:00 Use of CAR-Treg Therapy to Induce Immunological Tolerance

Alberto Sanchez Fueyo, PhD, Professor, Hepatology, Inflammation Biology, Kings College London

Although many clinical trials have explored the adoptive transfer of *ex vivo* expanded autologous regulatory T cells (Tregs), pharmacodynamic read-outs and proof of clinical efficacy have been difficult to obtain. We will describe the rationale, preclinical evidence, and emerging clinical trial data on the use of chimeric antigen receptor (CAR) Tregs to induce allograft tolerance in liver transplantation

9:30 Development of a Novel Adaptor CAR for Solid Tumours: From Initial Design to the Bedside

Marc Davies, PhD, Vice President R&D, Leucid Bio

The complex microenvironments of solid tumours present multiple barriers to therapeutic efficacy with current treatments, including CAR T cells. To overcome these hurdles, we have designed and developed a novel 'adaptor' CAR, which demonstrates greater potency, proliferation, and durability of response compared to traditional 'linear' CARs. This talk will detail the development of this novel CAR structure from initial design to the commencement of an ongoing first-in-human Phase I clinical trial.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

CURRENT ROADBLOCKS TO DEVELOPING AUTOLOGOUS CAR THERAPIES AND POTENTIAL SOLUTIONS TO OVERCOME THEM

11:14 Chairperson's Remarks

Galatea Paredes, PhD, Associate Director, Technology Project & Portfolio Management, T Charge Cell Therapies, Novartis Pharma AG

11:15 Can CAR T Be Affordable?

Christopher Bravery, PhD, Consulting Regulatory Scientist, Advanced Biologicals Ltd.

The cost effectiveness of CAR T is a current limitation. A number of approaches are being explored to address this, but are any of these the solution?

11:25 Opportunities and Challenges for Decentralised Autologous Cell Therapy

Lantz Mackey, PhD, Director, CAR T Process Development, Galapagos BV

11:35 PANEL DISCUSSION: Current Roadblocks to Developing Autologous CAR Therapies and Potential Solutions to Overcome Them

Moderator: Galatea Paredes, PhD, Associate Director, Technology Project & Portfolio Management, T Charge Cell Therapies, Novartis Pharma AG

- CAR process development
- Efficacy in solid tumours
- Immune response
- Toxicity
- Manufacturing challenges
- Strict regulatory review
- Quality control
- Apheresis
- Vein-to-vein complexity
- Accessibility

Panelists:

Christopher Bravery, PhD, Consulting Regulatory Scientist, Advanced Biologicals Ltd.

Lantz Mackey, PhD, Director, CAR T Process Development, Galapagos BV

Margarida Rodrigues, Global Apheresis Technical Steward CGT, Novartis Pharma Stein AG

8TH ANNUAL | LISBON, PORTUGAL

INNOVATIVE CAR THERAPY

In vivo Cell and Gene Engineering Solutions

12:15 LUNCHEON PRESENTATION: Redefining Preclinical Models: PBMC-Humanized Mice for CAR-T Safety and Efficacy

James Keck, Presidents Innovation Fellow & Sr Dir, Innovation & Product Dev in JMCRS, The Jackson Laboratory

12:45 Luncheon in the Exhibit Hall with Poster Viewing

REMOVING LIMITATIONS TO CAR THERAPY

13:45 Chairperson's Remarks

Melita Irving, PhD, Group Leader, Ludwig Institute for Cancer Research, University of Lausanne

13:50 KEYNOTE PRESENTATION: Delivering the Breakthrough with CAR T in Solid Tumours

Michael Hudecek, MD, Professor, Cellular Immunotherapy of Malignant Diseases, University of Wuerzburg

While chimeric antigen receptor (CAR) T cell therapy has revolutionised haematology, its efficacy in solid malignancies still remains behind its potential. We apply an advanced target identification and genetic-engineering platform to tailor CAR T cells to the hostile milieu and overcome the limitations of cellular therapy.

14:20 Engineering T Regulatory Cells for Type 1 Diabetes and Celiac Disease

Yannick Muller, PhD, Assistant Professor, Allergology & Innovative Immunological Therapies, CHUV

The adoptive transfer of regulatory T cells (Tregs)—a subset of T cells armed with more than a dozen suppression mechanisms, but ones that do not proliferate and lack cytotoxic function—could represent a safe alternative for restoring tolerance in T1D and celiac disease patients. Herein, we investigate the possibility to redirect the specificity of Tregs by othotopic replacement of their TCRs against gluten or islet-derived peptides.

14:50 Sponsored Presentation *(Opportunity Available)*

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?




Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

- Describe the technology
- Show data
- Show forward-looking future applications

Panelists:
Paul J. Carter, PhD, Genentech Fellow, Antibody Engineering, Genentech
G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company
Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

17:15 Sponsored Presentation *(Opportunity Available)*

17:45 Systematic Identification of Targets Improving T Cell Therapies Persistence and Functionality

Laurie Menger, PhD, Researcher, Immunity & Cancer, Institut Curie

Allogeneic CAR T cells can overcome limitations associated with autologous cancer therapies, providing immediate access to standardised, affordable batches of CAR T with improved efficacy. We systematically interrogated genes providing resistance to allogeneic rejection using *in vivo* genome-wide CRISPR KO in T cells.

18:15 A Scalable Platform for Human Macrophage Production from iPSCs in Tumour Applications and Beyond

Nico Lachmann, PhD, Head, Klinik für Pädiatrische Pneumologie, Allergologie und Neonatologie, Medizinische Hochschule Hannover

The presentation will highlight a unique pipeline for generating macrophages from human iPSCs, enabling the production of genetically-engineered macrophages for applications in cancer immunotherapy and other diseases. This system allows precise control over macrophage differentiation and genetic modifications, facilitating the creation of macrophages with enhanced targeting abilities. These engineered macrophages hold great potential for advancing therapies not only in oncology but also in autoimmune disorders, inflammation, and tissue repair.

8TH ANNUAL | LISBON, PORTUGAL

INNOVATIVE CAR THERAPY

In vivo Cell and Gene Engineering Solutions

18:45 Sponsored Presentation *(Opportunity Available)*

19:15 mRNA-Based CAR T Cells for Glioblastoma

Valérie Dutoit, PhD, Senior Scientist, Faculty of Medicine, University of Geneva

Recent clinical trials in glioblastoma have shown that CAR T cell therapy is safe and can induce strong anti-tumour activity, but this effect is only transient. Here, we will discuss the use of mRNA CAR T cells for glioblastoma and how to overcome the current challenges of tumour-antigen heterogeneity and specificity as well as CAR T cell trafficking, persistence, and resistance to an immunosuppressive tumour environment.

19:45 Close of Innovative CAR Therapy Conference

3RD ANNUAL | LISBON, PORTUGAL

NEXT-GENERATION IMMUNOTHERAPIES

New Modalities and Technologies for Tumour Targeting

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

IMMUNE-CHECKPOINT INHIBITORS

8:25 Chairperson's Remarks

Katrin Mestermann, PhD, Scientific Project Manager, Fraunhofer Institute for Cell Therapy & Immunology IZI

8:30 Positive Allosteric Modulation of Immune-Checkpoint Complexes with Nanobodies as a New Mode of Therapeutic Intervention in Immunotherapy

Jan Steyaert, PhD, Professor, Vrije Universiteit Brussel (VUB); Director, VIB-VUB Center for Structural Biology, VIB

By applying innovative immunisation and bio-selection techniques, we have discovered and characterised the first-ever positive allosteric modulators (PAMs) of a clinically relevant inhibitory ICC which enhance receptor signaling with pathway-specific and spatio-temporal precision. These ICC PAMs open up novel therapeutic modes of intervention that ensure patient safety even in cases of overdose, and may outperform current inhibitor-based immunotherapies, which often cause significant side effects.

9:00 Myeloid Checkpoint Blockade in Combination with IgA for Acute Lymphoblastic Leukemia

Thomas Valerius, MD, Professor, Stem Cell Transplantation & Immunotherapy, Christian Albrechts University of Kiel

The study explores combining myeloid checkpoint blockade with IgA antibodies against CD19, CD20, or CD38 to enhance killing of acute lymphoblastic leukemia (ALL). By recruiting macrophages and PMN and harnessing IgA's unique Fc receptor engagement, this strategy improves tumour clearance. Preclinical results with anti-CD38 IgA2 and CD47 blockade show synergistic effects *in vitro* and *in vivo*, suggesting this may become a novel immunotherapeutic approach for more effective ALL treatment strategies.

9:30 Presentation to be Announced

Dotmatics

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

VIRAL IMMUNOTHERAPIES AND CANCER VACCINES

10:45 KEYNOTE PRESENTATION: Reprogramming the Immune System by Multimodal Biological Immunotherapy for the Treatment of Solid Tumours

Paul Peter Tak, MD, PhD, FMedSci, President & CEO, Candel Therapeutics

Next-generation multimodal immunotherapies represent a new frontier in immuno-oncology and cutting-edge research in this field has recently come to fruition. Candel has established two off-the-shelf, clinical-stage investigational viral immunotherapies, designed to cause *in situ* immunisation against the unique antigens presented when tumour cells lyse. The patient and tumour-specific memory response after experimental treatment has been shown to produce a systemic and sustained anti-cancer effect across various solid tumours.

11:15 TROCEPT: A Novel Immuno-Virotherapy Platform for Tumour-Localised Expression of Potent Drugs via Intravenous Delivery

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

We have developed a novel tumour-selective immuno-virotherapy, TROCEPT, based on adenovirus serotype 5 (Ad5). TROCEPT has been engineered not to enter normal human tissues by disabling (de-targeting) all three of the major capsid proteins (fiber knob, hexon, and penton). TROCEPT has been further engineered to specifically bind to αvβ6 integrin (re-targeting). The TROCEPT platform can be armed with transgenes encoding potent protein-based therapeutic drugs for in-tumour expression.

11:45 XCR1+ Dendritic Cell (DC) Role in Anti-Tumoural Response to Anti PD-L1 Antibody: Data from the Phase Ib/II Trial of DC Vaccination in Small-Cell Lung-Cancer Patients

Maria Gonzalez Cao, PhD, Chair, Melanoma Medical Oncology Unit, Oncology Institute Dr. Rosell, Dexeus University Hospital

We report findings from the VENEZOLUNG trial, assessing autologous dendritic cell (DC) vaccination plus atezolizumab in ES-SCLC. Expansion of circulating XCR1+ DCs and CXCR5+PD-1+ CD8+ T cells correlated with improved survival, while reductions in Tpex and DC subsets predicted poorer outcomes. These results highlight the relevance of XCR1+ DCs in enhancing immunotherapy efficacy in SCLC. Final data will be presented at the meeting.

3RD ANNUAL | LISBON, PORTUGAL

NEXT-GENERATION IMMUNOTHERAPIES

New Modalities and Technologies for Tumour Targeting

12:15 LUNCHEON PRESENTATION: Redesigning Antibody Discovery: How modular DNA synthesis unlocks smarter, faster engineering workflows TelesisBio

David Weiss, Sr. Director Marketing & Product, Marketing, Telesis Bio -

Antibody engineering has evolved, but the DNA synthesis methods supporting it have not - until now. Gibson SOLA introduces a modular, enzymatic DNA synthesis platform that fundamentally shifts how researchers approach screening, optimization, and affinity maturation. This presentation will demonstrate how antibody engineers can improve productivity and reduce cost. By enabling rapid, on-demand synthesis of hundreds of antibody variants, Gibson SOLA eliminates the bottlenecks of outsourcing and empowers real-time iteration within your lab.

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

CAR T ENGINEERING

13:55 Chairperson's Remarks

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

14:00 Blended Immunotherapies of CAR T Plus CAR Macrophages to Treat Cancer and Infection

Katrin Mestermann, PhD, Scientific Project Manager, Fraunhofer Institute for Cell Therapy & Immunology IZI

Both CAR T and CAR-M have a great potential to eradicate malignant cells. Macrophages have an intrinsic potential to migrate into solid tumours, and can reshape the tumour micro-environment, enabling CAR T to persist and remain active within a solid tumour. By combining the different properties of CAR-M and CAR T, we thus hope to overcome the hurdles of conventional mono-immune therapy and make CAR immunotherapy effective in solid cancers.

14:30 Generation of a Triple-Antigen Targeting CAR T Cell Therapy for AML—Why Use VHHs?

Reyisa Bughda, PhD, Research Associate, CAR-T Cell Therapies, Autolus

Functional impact of selecting either single-domain antibody (sdAb, VHH) or single-chain variable fragment (scFv)-derived CARs was compared *in vitro* and *in vivo*, using 10 affinity-matched CD123-targeting antibody pairs. VHH-CARs displayed improved biophysical properties and sensitivity to low-antigen targets, with enhanced cytokine secretion compared to scFv-CARs. This strategy was subsequently adopted for a triple-antigen targeting CAR T cell product for the treatment of acute myeloid leukemia (AML).

15:00 Sponsored Presentation *(Opportunity Available)*

15:30 Networking Coffee Break

IMMUNOCYTOKINES AND IMMUNOCONJUGATES

15:40 Next-Generation of PD1-Based Immunoconjugates: Platform to Patients

Vijaya Pattabiraman, PhD, Co-Founder & CTO, Bright Peak Therapeutics

The talk will give an overview of Bright Peak PD1-based immunoconjugates pipeline with specific focus on the clinical program of PD1-IL18. We will share unique insights from technology used to construct PD1-IL18-based immunocytokines to preclinical characterisation of 'first-in-class' molecules and an overview of the clinical plans.

16:10 Engineering Cell-Type Selective Immunotherapies via Cis-Targeting to Enhance Anti-Tumour Activity

Ivana Djuretic, PhD, Founder & CSO, Asher Biotherapeutics

Although cytokines activate many cell types, only a subset drives anti-tumour activity, while others may reduce efficacy or cause toxicity. This talk will present preclinical data showing that restricting IL-2 and IL-21 signaling to CD8+ T cells via cis-targeting can decouple anti-tumour effects from toxicity, expanding the therapeutic window. Clinical evidence of highly effective cis-targeting will also be discussed, including findings with etakafusp, a CD8-targeted IL-2 therapy.

17:10 Preclinical Pharmacology and Translational Aspects of a Cis-Acting PD-1/IL-15 Mutein-Based Immunocytokine SOT201

Anna Jirovec, PhD, Scientist, SOTIO Biotech a.s.

SOT201 is a novel cis-acting immunocytokine consisting of against PD-1 antibody fused to RLI-15 complex consisting of an attenuated human IL-15 mutein and the high-affinity binding site of the IL-15Ralpha, the sushi+ domain. SOT201 targets PD-1+ TILs with a balanced cytokine potency to revive exhausted T cells in tumours in comparison to PD1-IL-2v. SOT201 is currently being evaluated in Phase I clinical study VICTORIA-01 (NCT06163391) in metastatic advanced cancer patients.

17:40 Local Substrate and Response to InC01, Compartment-Locked IL-12 in Glioma

Johannes vom Berg, PhD, CSO, InCephalo Therapeutics AG; Group Leader Immunotherapy, Lab Animal Science, University of Zurich

InCephalo's compartment-lock (C-Lock) toolbox allows to confine the activity of antibodies or antibody Fc-fragment fusion proteins to the brain. InC01 is a C-Locked IL-12-based biologic which InCephalo develops for local treatment of brain cancer. Preclinical data on the development and proof of concept in murine and human *ex vivo* models will be presented with a focus on local intratumoural effector cells and a locally sustained anti-glioma immune response.

18:10 Close of Summit

16TH ANNUAL | LISBON, PORTUGAL

OPTIMISATION & DEVELOPABILITY

Improving Biologics Properties for Clinical Success

TUESDAY 11 NOVEMBER

7:30 Registration and Morning Coffee

AI/ML AND *IN SILICO* APPROACHES

8:25 Chairperson's Remarks

Paul Wassmann, PhD, Senior Principal Scientist, Biologics Research Center, Novartis

8:30 ***In silico*** **Developability for Biologics Engineering: Challenges and Successes**

Isabelle Sermadiras, Associate Principal Scientist, AstraZeneca

Update on AZ's *in silico* developability automated screening pipeline for biologics. How should it be used? Is it helping pipeline projects? What are the challenges and successes that we have encountered so far?

9:00 **Developability by Design: Integrating *in silico* and Experimental Data for VHH-Fc Engineering**

Lasse M. Blaabjerg, PhD, Scientist, Discovery Data Science, Genmab

Designing developable antibodies requires an integrated approach that combines high-throughput data collection, predictive modelling, and rational framework design. We present a data-driven workflow for VHH-Fc engineering, combining wet-lab measurements with *in silico* predictions of stability and developability. By analysing the correlation between predicted and experimental readouts, we evaluate the utility of sequence-based models for estimating developability features.

9:30 KEYNOTE PRESENTATION: AI-Driven Optimisation of Antibody Properties: Opportunities and Challenges

Andreas Evers, PhD, Associate Scientific Director, Antibody Discovery & Protein Engineering, Global Research & Development Discovery Technology, Merck Healthcare KGaA

In this presentation, we explore the transformative role of AI in optimising properties for classical and next-generation antibodies in our company. We will highlight successful case studies, and also address limitations and challenges encountered, illustrating the importance of a balanced approach.

10:00 **Meet Aunty, the Queen of High-Throughput Protein Stability** UNCHAINED LABS

Andre Mueller, PhD, Marketing Manager, Biologics Solutions, Unchained Labs

Screening piles of proteins and formulations for their stability calls for the fastest and highest throughput-characterisation tool on the planet. Meet Aunty; load up to 96 of your samples into its quartz plate and let it power through all your stability experiments: reading fluorescence, SLS, and DLS of the whole plate every minute of a Tm & Tagg thermal ramp. Join my talk to see Aunty and its unmatched resolution data.

10:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

SEQUENCE-BASED AND FUNCTIONAL SCREENING FOR PROPERTY PREDICTION AND ENGINEERING

11:15 **DyAb: Sequence-Based Antibody Design and Property Prediction in a Low-Data Regime**

Jen Hofmann, PhD, Senior ML Scientist, Prescient Design, Genentech

Antibody design and property prediction are frequently hampered by data scarcity. Here, we describe DyAb, a model that addresses this issue by leveraging pair-wise representations to predict property differences. When trained on binding affinity datasets containing as few as 100 labels, DyAb generates novel antibody candidates with high binding rates, improving affinity by up to 50-fold. We discuss DyAb's general utility for therapeutic property optimisation in low data regimes.

11:45 **A Lead Optimisation Analytic Screening Cascade for the Development of Trispecific Immune Engagers**

Lydia Caro, PhD, Associate Director, Cell Sciences, Ichnos Sciences Biotherapeutics SA

Our platform enables 5 or more functional modules to be combined into one with excellent manufacturability and developability. This has been validated by generating ISB 2001, a trispecific BCMA and CD38 T cell engager advancing in the clinic to treat relapsed/refractory Multiple Myeloma, with superior efficacy, low immunogenicity in humans, and good pharmacokinetics. The biophysical plus functional screening and precision engineering required to generate ISB 2001 will be described.

12:15 **Luncheon Presentation** *(Sponsorship Opportunity Available)*

12:45 **Luncheon in the Exhibit Hall with Poster Viewing**

DEVELOPABILITY AND IMMUNOGENICITY ASSESSMENT IN BIOLOGICS DRUG DESIGN

13:45 **Chairperson's Remarks**

Lars Linden, PhD, Senior Vice President Development, SideraBio

13:50 **Unlocking Developability: A Holistic Approach to Determine Structural-Functional Relationship for Drug Candidates**

Paul Wassmann, PhD, Senior Principal Scientist, Biologics Research Center, Novartis

Developability assessment (DAS) is a core element in identification of developable drug candidates at biopharmaceutical industry. Retrospective analysis of internal programs has revealed gaps in the

OPTIMISATION & DEVELOPABILITY

Improving Biologics Properties for Clinical Success

DAS concept, particularly in detecting critical structural-functional relationships that link critical quality attributes (CQA) findings to efficacy and safety parameters. The extensive time and material costs associated with studies to elucidate structural-functional relationships often push these activities into the development stage, typically post-Phase I.

14:20 Computational Strategies for Mono- and Multi-Valent VHH/Nanobody Developability Assessment

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

- Foundational models for VHH representation
- Examples of ML-based methods for VHH building block property prediction
- Translating building block properties into multi-specific formats & examples of ML-based methods for multispecific VHH developability predictions
- Addressing the data gap for complex multispecific formats: data generation strategies for "fit-for-purpose" and "AI-ready" data

14:50 Assessment and Incorporation of *in vitro* Correlates to Pharmacokinetic Outcomes in Antibody Developability Workflows

Tushar Jain, PhD, Principal Scientist, Computational Biology, Adimab LLC

In vitro assessments for predicting pharmacokinetics (PK) of biotherapeutics can identify risks earlier in discovery, reducing the need for extensive *in vivo* characterisation. The clearance of antibodies with diverse sequence and biophysical characteristics was assessed in hFcRn Tg32 mice. In particular, *in vitro* measures of polyspecific interactions showed the highest correlations to clearance. Additionally, a computational approach was developed, improving the correlation to PK compared to any individual assessment.

15:20 Presentation to be Announced

15:35 Sponsored Presentation *(Opportunity Available)*

15:50 Refreshment Break in the Exhibit Hall with Poster Viewing

16:35 Improving Antibody Developability through Framework Selection

Adi Goldenzweig, CoFounder & CTO, Scala Biodesign

The choice of antibody framework has a major impact on developability, yet is often made heuristically and left unoptimised. We present a structure-guided method that systematically selects human frameworks to preserve binding while improving traits such as stability, solubility, and expression. Case studies illustrate its application to challenging antibodies and its potential to streamline early-stage engineering.

16:50 Accelerating AgTech innovation: the Syngenta Biologicals R&D Protein and Peptide production pipeline

Emilie Fritsch, Senior Principal Scientist I - Automation, Syngenta

The global agricultural sector faces a monumental challenge: sustainably increasing crop production to ensure food security for a growing world population. However, farmers striving to meet this target encounter a complex array of obstacles. These multifaceted challenges underscore the critical need to accelerate the development of Biological solutions in agriculture. Biologicals represent a diverse and promising category of agricultural inputs, encompassing a range of solutions from living microorganisms to biomolecules. The development of these innovative solutions requires advanced platforms for engineering biology, drawing on expertise from multiple scientific disciplines. .In response, Syngenta has invested significantly in Biologicals R&D. This presentation will focus on Syngenta's R&D Protein and Peptide production pipeline, showcasing our commitment to sustainable solutions.

17:05 Humanisation and Engineering of Therapeutic Antibodies—Integrating CDR Grafting, Framework Region Modification, and *de novo* Design to Enhance Clinical Success

Nathan Robertson, PhD, Scientific Director, Biologics Discovery & Development, LifeArc

Antibody humanisation remains a pivotal strategy in the development of therapeutic antibodies, reducing immunogenicity while retaining antigen specificity and affinity. We present case studies of the humanisation of mAbs leading to licensed candidates and those entering the clinic. By integrating CDR grafting, framework region modification, and *de novo* design, we enhance the safety profiles of therapeutic antibodies and maintain functional characteristics while enhancing human content, reducing immunogenicity, and enhancing developability.

17:35 Immunogenicity Risk Assessment for Biologics Drug Discovery & Development at AstraZeneca

Olga Obrezanova, PhD, AI Principal Scientist, Biologics Engineering, Oncology R&D, AstraZeneca

Unwanted immunogenicity can negatively affect the safety and efficacy of biological drugs. Computational tools can be employed during the early stages of drug discovery and development to screen libraries and prioritise drug candidates with reduced immunogenicity risks. We will introduce ImmunoScreen, AstraZeneca's *in silico* tool for immunogenicity assessment, within the context of the developability screening workflow. Additionally, we will discuss efforts to predict the anti-drug antibodies incidence in clinic.

18:05 Presentation to be Announced

18:35 Welcome Reception in the Exhibit Hall with Poster Viewing

19:35 Close of Optimisation & Developability Conference

12TH ANNUAL | LISBON, PORTUGAL

ANALYTICAL CHARACTERISATION OF BIOTHERAPEUTICS

Expanding the Analytical Toolkit for New Modalities

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

ADVANCES IN MASS SPECTROMETRY APPROACHES

8:25 Chairperson's Remarks

Dirk Haubert, PhD, Associate Director, Biologics, Novartis Pharma AG, Switzerland

8:30 Miniaturised Target Protein Affinity Chromatography-Mass Spectrometry for Structure-Function Characterisation of Therapeutic Antibodies

Christian Graf, PhD, Fellow, Scientific Office, Novartis Technical R&D Biologics

Structure-function analysis of biotherapeutics is pivotal for evaluating key product quality attributes, but it requires extensive characterisation of enriched fractions. Online affinity chromatography combined with mass spectrometry (AC-MS) offers a quick and efficient way to simultaneously analyse binding and structural characteristics of mAb variants. We introduce novel AC-MS workflows with miniaturised target protein affinity columns connected to 1D or 2D-LC-MS setups, enabling early structure-function characterisation of mAbs and multispecifics.

9:00 Advanced Mass Spectrometry for Host Cell Protein Characterisation: From Discovery to Regulatory Application

Somar Khalil, PhD, Principal Scientist, Analytical Research & Development, GSK

This presentation introduces an advanced mass spectrometry workflow for host cell protein characterisation in biotherapeutics. The strategy delivers deep coverage, reliable quantification across a wide dynamic range, and clear regulatory alignment. By uniting scientific detail with compliance needs, it demonstrates how mass spectrometry can move beyond discovery into a practical platform for product development, comparability studies, and quality control.

9:30 KEYNOTE PRESENTATION: Automated Sample Fractionation and Non-Reduced Multi-Enzyme Digestion Coupled with Nanoflow LC-MS/MS for Comprehensive Characterisation of Antibody-Drug Conjugates

Dan Bach Kristensen, PhD, Scientific Director, Symphogen

Antibody-drug conjugates (ADCs) present unique analytical challenges due to their molecular complexity. This talk highlights recent advancements in ADC characterisation workflows, including automated fractionation of ADC variants, multi-enzyme digestion under non-reducing conditions, and peptide mapping using nanoflow LC-MS/MS. Case studies will reveal sources of linker-payload (L/P) over- and under-conjugation and critical process parameters for controlling disulfide scrambling in Cys-engineered ADCs.

10:00 Comprehensive Analysis of mAbs and Bioconjugates Using LC-MS and LC-MALS: From Early-Stage Determination to Quality Control and the Adoption of Advanced Analytics

Waters™

Nick Pittman, Senior Marketing Manager, Waters

Proteins like monoclonal antibodies (mAbs) and protein conjugates promise higher efficacy and novel targets compared to traditional therapies. Given the biotherapeutic structural complexity these molecules pose significant analytical challenges, with quality attributes like composition, aggregation, purity, and conformation affecting efficacy and toxicity.
This talk explores the comprehensive analysis mAbs and bioconjugates using Liquid Chromatography-Mass Spectrometry (LC-MS) and Liquid Chromatography-Multi-Angle Light Scattering (LC-MALS).
We will discuss methodologies for accurate pairing of technology and attribute from development to QC. Emphasis will be on recent advances in analytics and attendees will gain insights into adopting advanced analytics in QC, ensuring robust practices in the biopharmaceutical industry.

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

ADVANCED TECHNIQUES FOR STRUCTURAL ENGINEERING AND PK PROFILING

11:15 Comparative Analysis of Ala-scan, HDX, and Cryo-EM for Epitope Determination

Anand Kumar, PhD., Senior Scientist, Bio Structure and Biophysics, Integrated Drug Discovery, Sanofi

Epitope determination is a critical step in structure-based drug development. For the past decade, X-ray crystallography, Hydrogen-Deuterium Exchange and Alanine scanning have proven invaluable for studying protein-ligand interactions. Recent advancements in Cryo-Electron Microscopy have revolutionized structural biology. We conducted a comprehensive comparison of three cutting-edge techniques: Ala-scan, HDX, and Cryo-EM single particle analysis. Our findings highlight the strengths and limitations of each approach.

11:45 The Complex Binding Mode of IgGs to the Fc Receptor Neonatal

Tilman Schlothauer, PhD, Senior Principal Scientist, Roche Diagnostics GmbH

The pharmacokinetics of therapeutic IgGs are significantly influenced by their interaction with the neonatal Fc receptor (FcRn), which facilitates extended serum half-life through pH-dependent binding. This interaction involves both affinity and avidity, with IgGs engaging FcRn at acidic pH and releasing at neutral pH. Advanced techniques like switchSENSE, Interaction Map and FcRn affinity chromatography provide insights, aiding in the engineering of IgGs with optimised pharmacokinetic profiles and therapeutic efficacy.

12:15 Luncheon Presentation *(Sponsorship Opportunity Available)*

ANALYTICAL CHARACTERISATION OF BIOTHERAPEUTICS

Expanding the Analytical Toolkit for New Modalities

12:45 Luncheon in the Exhibit Hall with Poster Viewing

NOVEL APPROACHES FOR CHARACTERISING COMPLEX MOLECULES

13:45 Chairperson's Remarks

Dan Bach Kristensen, PhD, Scientific Director, Symphogen

13:50 New Approaches for Process Analytics—From mAbs to Multispecifics

Dirk Haubert, PhD, Associate Director, Biologics, Novartis Pharma AG, Switzerland

Platform analytical approaches enable fast product development during early clinical stages while maintaining comprehensive analytical quality control testing. Adapting these methods for multispecific mAbs and antibody-related formats comes with several challenges, such as altered separation behavior, additional quality attributes and low concentration formulations for highly active products. Incorporating increased flexibility and new technologies in analytical methods will allow platform approaches to be used for advanced antibody formats.

14:20 Biomarker-Driven Development and Characterisation of ELN27—A Novel Bispecific soloMER—For the Treatment of IBD

Julia Martinez Fraile, PhD, Senior Scientist, Elasmogen Ltd.

ELN27 is a bi-specific soloMER molecule that targets two key pro-inflammatory cytokines implicated in the pathogenesis of inflammatory bowel disease (IBD). ELN27 demonstrates high-affinity, picomolar binding to both targets, and exhibits superior potency compared to currently approved and investigational mono-specific biologics across multiple experimental models of inflammation. These results support the continued development of ELN27 as a biomarker-guided, next-generation therapeutic candidate for the treatment of IBD.

14:50 Leveraging Early Analytical Insight to Optimize Biotherapuetic Candidates

mosaic

Eric Furfine, CEO & CSO, Mosaic Biosciences Inc

Early analytical insight – receptor clarification, rapid developability triage, and translational PK/PD – can surface critical risks sooner and tighten go/no-go decisions. We'll illustrate this approach with IGFBPL-1, a neuroprotective candidate pursued in partnership with FireCyte Therapeutics, where early target clarification beyond the IGF axis and focused protein-engineering design principles improved expression and stability without over-investing in late assays. We'll then extend the same framework to antibody programs, showing how front-loaded epitope mapping and manufacturability screens prioritize higher-quality leads earlier, whether originating from *in vitro* libraries or *in vivo* immunization campaigns. Presented by Mosaic Biosciences, a large-molecule drug discovery services provider.

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?




Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

- Describe the technology
- Show data
- Show forward-looking future applications

Panelists:
Paul J. Carter, PhD, Genentech Fellow, Antibody Engineering, Genentech
G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company
Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

17:15 Explore the Unknown with Biacore SPR Technology

cytiva

Anna Moberg, Sr Manager Biacore Applications & Consumables, RnD Biacore System, Cytiva Life Sciences

Biacore SPR technology allows detailed studies of biomolecular interactions, from early research to drug discovery and development, and on to quality control (QC). The obtained results give insights on high quality kinetics, affinity, concentration, specificity, selectivity, and comparability—in real time with high sensitivity. Sometimes this technology is being perceived as challenging in terms of experimental setup and data analysis. Here we share new developments and benefits that would address these perceptions, such as new kit for ligand capture, new injection tools to study complex formation, and easier options for data analysis.

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ANALYTICAL CHARACTERISATION OF BIOTHERAPEUTICS

Expanding the Analytical Toolkit for New Modalities

17:30 Sponsored Presentation *(Opportunity Available)*

17:45 Assessment of Adeno-Associated Virus Purity by Capillary Electrophoresis-Based Western

Julyana Acevedo, PhD, Scientist II, Analytical Development, Sangamo Therapeutics, Inc.

In the development of AAV-based gene therapies, it is important to obtain a drug product with high purity and minimal levels of impurities. In this talk, we present two CE-Western assays for the analytical assessment of AAV, focusing on quantifying the relative stoichiometry of viral proteins (VP) and measuring residual baculovirus protein impurities, specifically GP64. The results were further supported by LC-MS analyses.

18:15 Flow-Induced Dispersion Analysis Opens New Avenues for Peptide Screening

Marie Østergaard Pedersen, PhD, Principal Scientist, R&D, Novo Nordisk AS

Flow induced dispersion analysis (FIDA), is an established method to determine diffusion coefficients of molecules with minuscule compound consumption. The sensitivity allows us to study oligomer dissociation simulating dilution upon subcutaneous injection as an alternative to CG-MALS, and the versatility allows us to achieve binding coefficients to serum components such as albumin. Finally, we are also applying the technology to rapidly screen biophysical properties for SAR and formulation development.

18:45 Sponsored Presentation *(Opportunity Available)*

19:15 Identification and Quantification of Mispaired Species of Asymmetric Monovalent Bispecific IgG1 Monoclonal Antibody Format Using Reverse-Phase Polyphenyl Chromatography-Coupled Electrospray Ionisation Mass Spectrometry

Ryte Poskute, Senior Scientist, Analytical Sciences, AstraZeneca

This presentation will cover analytical strategy for a bispecific antibody structure and non-standard CQA monitoring. A method development for a reverse-phase polyphenyl chromatography coupled electrospray ionization mass spectrometry and application case study will be presented where mispairing species were characterized and quantified in both upstream and downstream bispecific mAb process development. Additionally, method robustness and qualification data will be discussed.

19:45 Close of Analytical Characterisation of Biotherapeutics Conference

12TH ANNUAL | LISBON, PORTUGAL

PROTEIN STABILITY & FORMULATION

Ensuring Safety, Efficacy, and Formulation-Fit

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

NEW APPROACHES IN STABILITY PREDICTION

8:25 Chairperson's Remarks

Karoline B. Bechtold-Peters, PhD, Director, Science & Technology, Drug Product Develoment Biologics, Novartis Pharma AG

8:30 *In vivo* Disulfide Bond Stability—A Critical Factor for PK and PD Profiles of Insulins

Christian N. Cramer, Senior Principle Scientist, Discovery ADME, Novo Nordisk A/S

Longer-acting insulin variants can be engineered by a combination of lowering the receptor affinity and extending the half-life, e.g., by fatty-diacid derivatisation for reversible albumin binding. Key to this is to avoid unwanted non-receptor-mediated clearance mechanisms. In this presentation, we demonstrate by LC-MS that insulin undergo chain-splitting into free A- and B-chains via disulfide rearrangement as an unexpected clearance mechanism, and that engineering by amino acid substitutions can reduce this.

9:00 Strategy of Forced Degradation Study and Practical Uses of the Samples for Characterisation of the Products

Shusuke Nambu, PhD, Chief Scientist, Analytical Development Department, Chugai Pharmaceutical Co. Ltd.

Chugai has a clear strategy for sample preparation of forced degradation regarding to manufacturing process of each product. In addition, the samples are used for the characterisation of products including peak characterisation of purity tests and bioassay. This presentation introduces the strategy and some case studies of products, including some unique molecules developed in Chugai.

9:30 Particle Analysis and Formulation – Enabling Safer, More Stable Biotherapeutics

Waters™

Philippe Boniteau, Sr Market Application Specialist, Sales, Waters Corporation

Paul Dyer, Principal Market Applications Specialist, Sales, Waters Corporation

As biotherapeutics advance, maintain therapeutic stability and avoiding particle formation is even more challenging, but essential to ensure safety, efficacy, and compliance. Submicron and subvisible particles—aggregates and contaminants—are CQAs impacting immunogenicity and stability. Technologies like DLS + SLS, and BMI + FMM offer deep insight into aggregation and optimal formulation, enabling development of robustness and stability therapies.

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

10:45 Statistical and AI Approaches to Predict Long-Term Stability

David J. Brockwell, PhD, Professor, School of Molecular and Cellular Biology, University of Leeds

The emergence of machine learning and artificial intelligence is transforming discovery bioscience and the biologic development pipeline. In this talk, I will present two disparate methods to identify tractable protein sequences early in development—a high-throughput *in vivo* assay to generate large volumes of genotype-phenotype training datasets and a statistical method to identify key predictors of long term stability.

11:15 Generalising from Sparse Data: NanoMelt and Microfluidic Excipient Profiling for Nanobody Thermostability and Antibody-Excipient Solubility Predictions

Pietro Sormanni, PhD, Group Leader, Royal Society University Research Fellow, Chemistry of Health, Yusuf Hamied Department of Chemistry, University of Cambridge

Scarce, heterogeneous data hamper developability prediction. A framework combining protein-language embeddings, stratified nested cross-validation and ensemble modelling reliably generalises beyond training space. Applied to nanobody thermostability, NanoMelt retains accuracy on distant sequences streamlining experiments. Then, combinatorial droplet microfluidics maps antibody–excipient solubility landscapes, showing that the extents of excipient-induced improvements are strongly antibody-dependent. Sequence- and structure-level analyses reveal the physicochemical motifs governing these responses, enabling tailored formulation strategies.

11:45 Predicitve Stability for Biologics: Opportunities & Challenges

Andrea Junyan Ji, PhD, Senior Scientist, Pharmaceutical Development, Genentech, Inc.

Regulatory expectations, ICH Q1 revision, industry trend, applications, and challenges of the predictive stability for biologics will be discussed in this presentation.

12:15 Luncheon Presentation *(Sponsorship Opportunity Available)*

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

FORMULATION DEVELOPMENT AND DELIVERY CHALLENGES

13:55 Chairperson's Remarks

David J. Brockwell, PhD, Professor, School of Molecular and Cellular Biology, University of Leeds

Sophie Tourdot, PhD, Immunogenicity Sciences Lead, BioMedicine Design, Pfizer

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PROTEIN STABILITY & FORMULATION

Ensuring Safety, Efficacy, and Formulation-Fit

14:00 KEYNOTE PRESENTATION: Proteins on the Rack—Mechanism of Protein Aggregation at Interfaces

Wolfgang Friess, PhD, Professor & Chair, Pharmaceutical Technology & Biopharmaceutics, Ludwig-Maximilians-Universitaet Muenchen

Proteins face numerous interfaces from up-stream processing to patient application. Aggregation driven by the interfacial stress is a critical concern. The driving mechanisms of adsorption, compression and decompression, as well as protein self interaction are presented, which provides the basis for adequate counter measures.

14:30 Challenges of Using Ultralow Concentrated Clinical Products in MABEL Studies

Karoline B. Bechtold-Peters, PhD, Director, Science & Technology, Drug Product Develoment Biologics, Novartis Pharma AG

Conducting MABEL (Minimum Anticipated Biological Effect Level) studies with ultralow concentrated clinical products presents unique challenges. These include ensuring accurate dosing, maintaining product stability, and achieving reliable bioanalytical measurements. Analytical challenges involve precise quantification at low concentrations and ensuring compatibility studies demonstrate no drug loss during administration. Specification setting is difficult due to the low concentration, requiring rigorous reasoning.

15:00 Presentation to be Announced

Lipoid

15:15 Sponsored Presentation *(Opportunity Available)*

15:30 Networking Coffee Break

15:40 Formulation Development and Delivery Challenges for Novel Bispecifics

Jordan W. Bye, PhD, Principal Formulation Development Scientist I, CMC, Immunocore Ltd.

The talk will introduce our ImmTAX molecules and explain how they work.

16:10 Analytical Methods for Developing Co-Formulated Biopharmaceutical Dosage Forms: A Case Study

Ramesh Kumar Shanmugam, PhD, MBA, Associate Director, Biopharmaceutical Development, AstraZeneca

This presentation explores analytical methodologies for developing co-formulated biopharmaceutical dosage forms through a case study approach. It addresses challenges in characterising multiple therapeutic proteins within single formulations, focusing on method development, compatibility assessment, and stability monitoring. Key strategies for quantification, interaction detection, and quality assurance will be discussed, with practical insights applicable across diverse co-formulation platforms.

MITIGATING PARTICLE FORMATION AND IMMUNOGENICITY RISKS

16:40 Mitigation of Immunogenicity during Drug Design

Sophie Tourdot, PhD, Immunogenicity Sciences Lead, BioMedicine Design, Pfizer

Unwanted immune responses to biopharmaceuticals can affect their safety and efficacy. Where necessary, unintended immunogenicity will be mitigated in the clinic, but mitigation should preferably start early in development, at the drug design phase. This presentation discusses incorporating advanced *in silico* and *in vitro* de-immunisation tools into protein engineering processes to select a lead candidate that balances immunogenicity risk and desired biophysical properties.

17:10 The Connection between Liquid-Liquid Phase Separation, Protein Particle Formation, and Immunogenicity

Vito Foderà, PhD, Professor, Biophysics, University of Copenhagen

This presentation will showcase our approach based on fluorescence microscopy, X-ray scattering and spectroscopy, aimed at identifying the interactions responsible for protein and antibody phase separation, conformational changes and colloidal instability, and how those aspects are linked to the variability in the aggregate morphologies. We will also discuss the potential role of different aggregates in inducing immunoresponse depending on their structure, size, and morphology.

17:40 Droplet Microfluidic Platform for Characterisation of Precipitation and Phase Separation of Biologics

Nikolai Lorenzen, PhD, Scientific Director, Biophysics and Injectable Formulation, Novo Nordisk AS

I will share advances within application of a droplet microfluidic platform, phase scan, in biophysical characterisation, and formulation development of biologics. This include examples such as detailed analysis of peptide precipitation and mAb phase separation. Data shared will be a blend of recently published and unpublished material from collaboration between the research group of Professor Tuomas Knowles at University of Cambridge and the Drug Product Research area at Novo Nordisk.

18:10 Close of Summit

8TH ANNUAL | LISBON, PORTUGAL

LEVERAGING DATA SCIENCE FOR ENHANCED EXPRESSION AND PRODUCTION

Implementing Data and Models to Streamline the Process

TUESDAY 11 NOVEMBER

7:30 Registration and Morning Coffee

BUILDING AND LEVERAGING EXPRESSION PREDICTION MODELS

8:25 Chairperson's Welcome Remarks

Helena Maja Firczuk, PhD, Group Leader, Protein and Cellular Sciences, GSK

8:30 FEATURED PRESENTATION: FAIR Data to Predict Recombinant Protein Expression

Lovisa Holmberg Schiavone, PhD, Director, Protein Sciences, Structure & Biophysics, Discovery Sciences, R&D, AstraZeneca

We have leveraged internal recombinant protein production data that adhere to the F.A.I.R. guiding principles and large external datasets from the SGC to build a predictive model of *E. coli*-based protein production; RP3Net (Recombinant Protein Production Network) together with the EMBL-EBI. The model has been tested on a set of 46 proteins that were curated from the human proteome, avoiding proteins with prior published evidence of successful expression.

9:00 Utilising Learnings from High-Throughput Protein Expression Platforms to Enhance Delivery of Fit-for-Purpose Reagents

Helena Maja Firczuk, PhD, Group Leader, Protein and Cellular Sciences, GSK

I will present an overview of GSK's high-throughput expression platforms and the advantages of employing them, such as streamlining delivery of protein reagents, enabling multiparameter optimisation of complex reagents generation. In addition, they also enable collecting vast amounts of well-curated data for human and machine learning. This data was used to build and parameterise a model to predict protein expression in various systems.

9:30 Closed Loop Autonomous Learning for Protein Engineering

James D. Love, PhD, Vice President, Cross Modality Workflows, Novo Nordisk AS

Closed loop autonomous learning for protein engineering is a vision of a possible future that may connect AI to physical hardware, resulting in experimental design, execution, and analysis, while minimising human input. This is attractive, as it offers the possibility of more rapid discovery and development of therapeutic lead candidates. This talk will present the ongoing work at Novo Nordisk and our collaborators, and present some finding and future directions.

10:00 Presentation to be Announced

Cube Biotech

10:15 High-Throughput Signal Peptide Engineering: A New Frontier for Efficient Antibody Engineering

AVENUE BIOSCIENCES

Tero-Pekka Alastalo, CEO, Avenue Biosciences Inc

Monoclonal antibodies are top-selling biologics, yet efficient production remains challenging due to secretion complexity. Using machine learning and high throughput chemistry, we performed a multi-thousand signal peptide screen to identify the optimal match for multi-chain proteins. Systematic engineering enhanced antibody expression when compared to industry standard while maintaining quality. Our technology offers a first-to-market solution to overcome challenges in protein secretory pathway and enhancing production and development of antibody-based biologics.

10:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

INTEGRATING LEARNINGS FOR PROTEIN FORM AND FUNCTION

11:15 The SGC and Target2035: Generating Proteins and Ligands to Enable Machine Learning

Nicola Burgess-Brown, PhD, Professorial Research Fellow, UCL, London; COO, Protein Sciences, Structural Genomics Consortium

The SGC, a global public-private partnership, uncovers novel human biology through structural genomics and chemical biology approaches. Target 2035 aims to develop tool molecules for every human protein by creating massive open datasets of high-quality protein-small molecule binding data, using DNA-encoded libraries and affinity selection mass spectrometry platforms. Models built from these data will allow prediction of new and more drug-like small molecule binders, which will be tested experimentally.

11:45 Severe Deviation in Protein Fold Prediction by Advanced AI: Case Studies

Jacinto López Sagaseta, PhD, Head, Protein Crystallography and Structural Immunology Unit, Navarrabiomed

Artificial intelligence and deep learning are making groundbreaking strides in protein structure prediction. AlphaFold is remarkable in this arena for its outstanding accuracy in modelling protein folds based solely on their amino acid sequences. In spite of these remarkable advances, deviations from empirical structures are not uncommon, and experimental determination of protein folds remains vital for the advance of structural biology and biomedicine.

12:15 Luncheon Presentation *(Sponsorship Opportunity Available)*

12:45 Luncheon in the Exhibit Hall with Poster Viewing

DECODING GENETIC RULES TO BOOST EXPRESSION

13:45 Chairperson's Remarks

Nicola Burgess-Brown, PhD, Professorial Research Fellow, UCL, London; COO, Protein Sciences, Structural Genomics Consortium

LEVERAGING DATA SCIENCE FOR ENHANCED EXPRESSION AND PRODUCTION

Implementing Data and Models to Streamline the Process

13:50 Sequence Discovery and Optimisation with Machine Learning

Diego A. Oyarzun, PhD, Reader in Computational Biology, Informatics Forum, University of Edinburgh

Thanks to progress in high-throughput DNA synthesis and sequencing, artificial Intelligence and machine learning have emerged as leading approaches for building sequence-to-expression models for strain optimisation. In this talk, I will discuss our recent progress on using this technology for designing novel regulatory and coding sequences with improved expression phenotypes, using a combination of supervised learning and optimisation algorithms.

14:20 Decoding the Rules of Genetic Syntax to Improve Transgene Design

Jarrod Shilts, PhD, R&D Lead Scientist, 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 intronised transgenes with improved protein expression.

14:50 A Genetic Cure to Cell Line Instability

Peter Rugbjerg, PhD, Lecturer, Chalmers University; CSO and Founder, Enduro

Manufacturing proteins in CHO and microbial cells faces challenges in maintaining high cellular productivity over many cell divisions. We have developed a plug-in gene technology that prevents cell line production instability. The plugins link cell growth to antibody secretion using biosensors that regulate essential genes in CHO cells and beyond. This approach enables stable production and supports continuous manufacturing, improving scalability and commercialisation of antibody therapies.

15:20 Presentation to be Announced

15:50 Refreshment Break in the Exhibit Hall with Poster Viewing

ALIGNING DATA AND BIOLOGY FOR INNOVATIVE R&D

16:35 Removing Remaining Limitations for Plant-Based Expression of Biologicals and Unlocking Large-Scale, Commercial-Grade Cell Culture Potential

Christian Sievert, Head of Strain Development, eleva GmbH

Plant-based cell lines present a promising alternative for producing biological therapies, yet the number of approved plant-made pharmaceuticals (PMPs) remains limited. Moss-based expression systems show potential due to their precise genetic modifications, complex post-translational capabilities, and controlled cultivation environments. Recent research has led to an enhanced moss cell line with improved growth rates, aiming to achieve CHO-like expression levels and enabling scalability without the need for artificial lighting.

16:50 Presentation to be Announced

17:05 Connecting Data, People, and Process: The Digital Transformation of Protein Production

Dominik Schneider, PhD, Senior Manager, R&D Enabling Technology, CSL Behring Innovation

Discover how CSL Behring's digital ecosystem accelerates scientific progress in protein production. This presentation offers an overview of integrated digital tools and platforms that streamline workflows, enhance collaboration, and improve data management. Through real-world examples, learn how optimised processes drive key performance indicators, enabling more efficient, scalable, and innovative R&D efforts that support breakthrough therapies and advance biopharmaceutical development.

17:35 Design of Experiments (DoE)-Based Process Optimization in CHO Fed-Batch Cultures

Neha Misha , Senior Scientist, Senior Scientist, Revvity

CHO cells remain the industry standard for biologics production, yet increasing titer demands require continuous process optimization beyond traditional one-factor-at-a-time (OFAT) approaches that miss critical parameter interactions. In this presentation, we explore design of experiment (DoE) as a strategy to optimize CHO fed-batch culture conditions. We will present the concept of using DoE and how it can be integrated with multivariate analysis (MVA) to understand the combined effects of metabolites, viability, and cell density on culture performance. This approach could provide a robust framework for process development teams seeking to maximize CHO culture performance while streamlining laboratory operations.
The CHOSOURCE™ Platform is available for research, clinical, diagnostic, and commercialization applications, including services, under specific licenses from Revvity.

17:50 Sponsored Presentation *(Opportunity Available)*

LEVERAGING DATA SCIENCE FOR ENHANCED EXPRESSION AND PRODUCTION

Implementing Data and Models to Streamline the Process

18:20 FEATURED PANEL DISCUSSION: Beyond the Bench: Making Data Work for Protein Science

Moderator: Nicola Burgess-Brown, PhD, Professorial Research Fellow, UCL, London; COO, Protein Sciences, Structural Genomics Consortium

Data scientists view data in black and white, while protein scientists consider the gray. Hear from both disciplines as they address:

- Can we enhance protein production using ML?
- Which data to capture, in which format, and for which purpose?
- How do we simplify data capture to encourage data entry and consistency?
- How do we reduce the need to curate the data before applying ML?
- The importance of including negative data

Panelists:

Christopher Cooper, DPhil, Founder, Protein Sciences, Enzymogen Consulting

Lovisa Holmberg Schiavone, PhD, Director, Protein Sciences, Structure & Biophysics, Discovery Sciences, R&D, AstraZeneca

James D. Love, PhD, Vice President, Cross Modality Workflows, Novo Nordisk AS

Diego A. Oyarzun, PhD, Reader in Computational Biology, Informatics Forum, University of Edinburgh

18:35 Welcome Reception in the Exhibit Hall with Poster Viewing

CLADE

19:35 Close of Leveraging Data Science for Enhanced Expression and Production Conference

OPTIMISING EXPRESSION PLATFORMS

Employing Cell Factories for the Enhanced Production of Recombinant Proteins

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

SELECTING, ENGINEERING, AND OPTIMISING HOSTS

8:10 Chairperson's Remarks

Bjørn Voldborg, MSc, Head, National Biologics Facility, DTU Bioengineering, Technical University of Denmark

8:15 FEATURED PRESENTATION: Baculovirus Expression Vector System: Old Dog, New Tricks

Imre Berger, PhD, Professor of Chemistry and Biochemistry, Max Planck Centre Director, University of Bristol

The Baculovirus Expression Vector System (BEVS) has long been a reliable workhorse for the production of proteins and their complexes in insect cells. Yet recent innovations—from baculovirus engineering to CRISPR-based genome editing—are reinvigorating its applications in many exciting areas including therapeutics development, structural biology, and gene therapy. This presentation explores how BEVS is evolving, highlighting new developments and its renewed relevance in modern biotechnology.

8:45 Reimagining CHO Cell Metabolism

Hooman Hefzi, PhD, Associate Professor, Advanced Mammalian Cell Engineering Group, Department of Biotechnology and Biomedicine, Technical University of Denmark

Despite advances in process intensity and efficiency, universal mammalian cell phenotypes such as lactate and ammonia production, as well as the obligate requirement for numerous media components CHO cannot natively synthesize, have led to challenges in process optimisation without a one-size-fits-all solution. Over the last 9 years, we have developed genetic engineering strategies fundamentally reimagining these ubiquitous phenotypes in CHO and will present case studies around each in turn.

9:15 Overcoming Constitutive Expression Limits with Optogenetics for Scalable Complex Biologics

Prolific Machines

Kiana Mohajeri-Stickels, Head of Synthetic Biology, Prolific Machines

Prolific Machines' Photomolecular Platform uses molecular optogenetics to dynamically regulate gene expression in mammalian cell lines using light. Our platform enables novel solutions for the production of next-generation biologics, including tunable control of target genes and genes that facilitate PTMs. Data will showcase gains in yields and manufacturability, paving the way for scalable, low-COGS production of complex biologics.

9:30 Improvement on the Detection of High-Risk Host Cell Proteins with Optimised CHO SWATH-MS Spectral Library

Sochi Ogbonna, PhD, Researcher, Manufacturing Technology Association of Biologics

Efficient detection and analysis of high-risk host cell proteins (HCPs) are important for the production of high-quality biopharmaceuticals. In this study, we employed an optimised CHO SWATH-MS spectral library for the analysis of high-risk HCPs across various Chinese Hamster-derived cell lines, aiming to minimise false negatives and enhance HCP detection.

10:00 Unleashing the Power of Cell-Free: PURExfrex for Protein Engineering and Discovery

GeneFrontier

Takashi Ebihara, COO, GeneFrontier Corporation

PURExfrex is a revolutionary, fully reconstituted cell-free protein expression system designed to redefine protein production. Its unparalleled flexibility suits a wide range of applications, including the production of difficult-to-express/therapeutic proteins and high-throughput screening. PURExfrex enables efficient *in vitro* display, facilitating the discovery of novel antibodies and cyclic peptides, and combined with AI/ML, PURExfrex accelerates the development of next-generation biologics.

10:15 Biopharma Meets Glycosylation: Strategies for Targeted Molecule Sweetness in Biopharmaceutical Development

FyoniBio

Abdullah Karacorluoglu, Business Development Manager, FyoniBio GmbH

Biopharmaceuticals are complex molecules with unique properties, known as critical quality attributes (CQAs), that are shaped by post-translational modifications in the cellular environment. Glycosylation, a key CQA, significantly influences the activity, efficacy, and half-life of biopharmaceuticals. During biopharmaceutical development, various process steps can affect the final glycan profile of a protein drug, providing opportunities to fine-tune the glycan species in the final product. Here we present a strategy that combines host cell selection and engineering, bioprocess optimisation combined with targeted analytical techniques to ultimately achieve desired glycan profiles in commercial manufacturing processes.

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

ENHANCING EXPRESSION: PROTEIN COMPLEXES

11:15 Preparation of Human Multi-Protein Assemblies for Structural Investigations: Recombinant Expression or Purification from Endogenous Sources?

Arnaud Poterszman, PhD, Research Director, Integrated Structural Biology, IGBMC

Production/characterisation of multi-protein complexes is becoming increasingly important as the focus of molecular/structural biology progresses from analysis of individual proteins to that of multi-subunit assemblies. We will discuss the production of recombinant mid-size (3-9 subunits)

OPTIMISING EXPRESSION PLATFORMS

Employing Cell Factories for the Enhanced Production of Recombinant Proteins

complexes using multi-host plasmids libraries and streamlined procedures to assemble multi-gene expression constructs. We will also illustrate the use of a CRISPR-based approach to affinity-tag large macromolecular assemblies and facilitate their purification from endogenous source.

11:45 Chaperone Co-Expression to Improve Production of Recombinant Proteins and Protein Complexes in Eukaryotic Cells

Dominic Esposito, PhD, Director, Protein Sciences, Frederick National Laboratory for Cancer Research

Difficult-to-express proteins and protein complexes often require chaperone proteins for high-yield and high-quality production. We have explored new methods for co-expression of chaperones and foldases in both insect and mammalian expression systems to solve some of these challenges, and have identified novel chaperones specific for various classes of proteins which enable production of proteins for structural biology and drug discovery.

12:15 Luncheon Presentation to be Announced

12:45 Luncheon in the Exhibit Hall with Poster Viewing

ENHANCING EXPRESSION: COMPLEX PROTEINS

13:45 Chairperson's Remarks

Maren Schubert, PhD, Junior Research Group Leader, Virus-Like-Particle Based Technologies, Helmholtz Center for Infection Research

13:50 Optimising Vector Design for High-Quality Multispecific Antibody Production

Jose Miguel Escandell Planells, PhD, Principal Scientist, iBET - Instituto de Biologia Experimental e Tecnológica

Multispecific antibodies (MsAbs) offer enhanced therapeutic potential but present manufacturing challenges due to complex assembly. We systematically evaluated 40+ variables in transposase-based CHO-GS cell line development—covering vector design, chain configurations, and selection strategies. Using advanced analytics to assess productivity, transcript levels, and purity, we optimised yield and quality. Our findings provide key insights into vector engineering for efficient MsAb production and reliable high-performing clone generation.

14:20 Virus-Like-Particle Production and Characterisation for Use in Biologics Discovery Campaigns

Amberley Stephens, PhD, Senior Protein Scientist, Biologics Engineering, AstraZeneca

High quality VLPs are challenging to produce and QC, yet are an excellent display format for complex membrane proteins with small extracellular domains. I present a comprehensive VLP QC package, including methods such as flow virometry and TEM with machine learning, for downstream standardisation with an example case study of a biologics discovery campaign.

14:50 Unlocking Membrane Proteins for Drug Discovery in 48 Hours with eProtein Discovery

Speaker to be Announced, Nuclera US

Membrane proteins are vital to many biological functions and over 60% of drug targets, yet their expression, purification, and solubilisation remain challenging, often yielding misfolded or inactive proteins. In this talk, discover how Nuclera's eProtein Discovery uses membrane mimetic screening and cell-free expression to deliver assay-ready membrane proteins in 48 hours—accelerating structural biology and drug discovery.

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?




OPTIMISING EXPRESSION PLATFORMS

Employing Cell Factories for the Enhanced Production of Recombinant Proteins

Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

• Describe the technology

• Show data

• Show forward-looking future applications

Panelists:
Paul J. Carter, PhD, Genentech Fellow, Antibody Engineering, Genentech
G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company
Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

17:15 Presentation to be Announced

Lonza

17:45 Insect Cell-Based Virus-Like-Particle Technologies for Antibody Generation

Maren Schubert, PhD, Junior Research Group Leader, Virus-Like-Particle Based Technologies, Helmholtz Center for Infection Research

Virus-like-particles (VLP) resemble a viral surface but do not contain viral genetic information. Plasmid-based expression in insect cells of such VLP is a valuable alternative to the standard Baculovirus system. It results in similar yields while avoiding Baculovirus inherent bottlenecks like co-expression of baculoviral proteins or particles. One of the VLP applications is to facilitate antibody generation, e.g., by phage display as a target or in high-throughput screening.

18:15 Antibodies as Chaperones for Enhancing Protein Production

Opher Gileadi, PhD, Head, Protein Science, Structural Genomics Consortium (SGC), Karolinska Institute

Anecdotal evidence suggests that recovery of properly-folded, difficult-to-express recombinant proteins can be enhanced by co-expression of cognate antibodies. We describe the use of pre-selected nanobodies as a test case, and a screening strategy to identify expression chaperones from VHH libraries.

18:45 Presentation to be Announced

KBI BIOPHARMA

19:15 Producing Human Membrane Proteins in High-Throughput and Large-Scale

David B. Sauer, PhD, Principal Investigator, Membrane Protein Structural & Chemical Biology, University of Oxford

Solute carriers (SLCs) import and export a range of substrates, including nutrients, neurotransmitters, and pharmaceuticals. Despite being attractive therapeutic targets, this protein superfamily is relatively under-drugged. Therapeutic discovery is impeded by difficulties in the expression and purification of these membrane-embedded proteins. Here, we demonstrate methods to obtain high-purity, milligram quantities of human SLC transporter proteins suitable for structure determination, target engagement assays, and high-throughput screening.

19:45 Close of Optimising Expression Platforms Conference

9TH ANNUAL | LISBON, PORTUGAL

DEVELOPING BIOPHARMACEUTICAL WORKFLOWS

Innovations to Streamline Production from Benchtop to R&D

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

TRANSFORMING EXPRESSION, PURIFICATION & PRODUCTION WORKFLOWS

8:10 Chairperson's Remarks

Kim Remans, PhD, Head, Protein Expression & Purification Core Facility, EMBL Heidelberg

8:15 Enabling Mode-of-Action Studies of TEAD1 Ligands through Hydrogen Deuterium Exchange Mass-Spectrometry and Tailored Protein Purification Workflows

Alessio Bortoluzzi, PhD, Scientist, Merck Healthcare Satellite Lab, iBET Instituto de Biologia Experimental Tecnologica

This talk will demonstrate how hydrogen–deuterium exchange mass spectrometry (HDX-MS), supported by tailored protein purification strategies, enabled mechanistic insights into TEAD1 modulation by lipid and synthetic ligands. It will be shown how different P-site binders impact TEAD1 conformational dynamics and TEAD1/YAP interfaces behaviour. The presentation will also highlight the strategies and technical caveats employed to obtain the protein samples needed to interrogate the dynamics of the different TEAD1 states.

8:45 Talk Title to be Announced

Jonathan Zmuda, Sr Dir R&D, Protein & Viral Vector Expression Systems, Thermo Fisher Scientific Inc

9:00 Elevating Success, Throughput, and Efficiency: Advancing Protein Purification with Platform Technologies and Automation

Sandeep K. Talapatra, PhD, Leader Protein Science, Protein Cell & Structural Sciences, GSK

At Protein Sciences, GSK, our focus is on producing high-quality, multivariant recombinant proteins swiftly, meeting the evolving demands and supporting various stages of drug discovery and beyond. The talk will showcase our commitment to advancing this field by exploring novel ways to implement and enhance automation and platform technologies. This is with the aim to optimise and increase throughput for high quality recombinant protein generation.

9:30 Optimizing Biologics: How Polysorbate 80 Quality Drives Process Performance and Stability in Bioprocesses and Injectable Formulations

Speaker to be Announced, Evonik Industries AG

As the understanding of excipients in protein processing and formulations evolves, Polysorbate 80 (PS80) has been identified as a potential risk factor for degradation and particle formation depending on the grade employed. In this presentation, Evonik will introduce a highly pure PS80 with exceptionally high oleic acid content and a favorable impurity profile. It will explore how these properties influence protein integrity throughout bioprocessing and formulation, supported by literature and comparative grade data.

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

STREAMLINING EXPRESSION & PRODUCTION WORKFLOWS

10:45 FEATURED PRESENTATION: Streamlining Gene Expression Workflows: The Use of Baculovirus-Mediated Gene Expression in Mammalian Cells for Recombinant Protein Production

Kim Remans, PhD, Head, Protein Expression & Purification Core Facility, EMBL Heidelberg

Baculovirus-mediated gene expression in mammalian cells, BacMam, is a useful alternative to transient transfection for recombinant protein production in various mammalian cell lines. Due to the large cargo capacity of baculoviruses, BacMam is also ideal for the production of multi-subunit protein complexes. Furthermore, BacMam allows for easy streamlining of insect and mammalian gene expression workflows, as it is straightforward to parallelise the baculovirus generation for both types of eukaryotic cells.

11:15 Artificial Expression System for High-Performance Production of Biomedicines: From Concepts to Reality

Philippe H. Jais, MD, PhD, President & CSO, Eukarys SAS

Conventional expression systems predominantly exploit the host cell's endogenous transcriptional machinery, rendering mRNA synthesis a rate-limiting step. We report the development and optimisation of the first biologically-inspired artificial expression system capable of autonomous, high-efficiency mRNA production in mammalian cells. This system facilitates a range of post-transcriptional mRNA modifications critical for efficient translation and protein synthesis. Its robust performance offers a compelling alternative platform for enhancing the production yields of biologics.

11:45 Producing Challenging Protein Targets for Drug Discovery

Hazel Mak, PhD, Senior Protein Scientist, Discovery Sciences R&D, AstraZeneca

Targets for drug discovery projects are becoming more diverse and challenging. They are chosen based on evidence linking them to human disease and not on the challenges, which need to be overcome to express these proteins in suitable quantity and quality to support drug discovery projects. A number of

DEVELOPING BIOPHARMACEUTICAL WORKFLOWS

Innovations to Streamline Production from Benchtop to R&D

examples of recent AstraZeneca projects will be presented, in which difficult expression/purification challenges have been overcome.

12:15 LUNCHEON PRESENTATION: The FOLDTEC® Solution for Producing Difficult-to-Manufacture Proteins WACKER

Arndt Dietrich, Ph.D., Senior Expert, Downstream Processing Development, Wacker Biotech GmbH

The FOLDTEC® solution is a toolbox designed to enable the production of proteins that are challenging to produce in their native structure and functionality using common systems. It encompasses proprietary expression strains, systematic development strategies, advanced production systems, and analytical methods. A case study highlights its successful application in the production of a therapeutic protein.

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

ACCELERATING & AUTOMATING WORKFLOWS

13:55 Chairperson's Remarks

Richard Altman, MS, Field Application Scientist, Life Science Solutions, Thermo Fisher Scientific

14:00 Hinge-Engineering the Antibody with Expression First in Mind

Zahra Jawad, PhD, CEO & Founder, Creasallis

Antibody engineering formats are becoming more complex to address intricate biologies. However, such efforts are futile if how the molecule is made is not placed at the heart of the programme. CreaTap is a hinge engineering of antibodies, and in the development of these molecules, expression and stability were considered early on. Opting for simpler antibody engineering molecules with minimal impact on expression is key to making effective therapeutic modalities.

14:25 Accelerating Recombinant Protein Labelling Workflows Using *in vivo* Biotinylation in Different Host Platforms

Christopher Cooper, DPhil, Founder, Protein Sciences, Enzymogen Consulting

The coenzyme biotin binds with high affinity to streptavidin, and this is exploited in a variety of assay formats such as SPR and HTRF, commonly used in drug screening. Recombinant proteins can be selectively biotinylated using bacterial biotin ligase (BirA), and whilst biotinylation can be carried out using exogenous BirA, co-expression may lead to significant advantages. These include reduced processing times and more complete modification, accelerating workflows using labelled proteins.

14:50 Antibody Expression Strategies to Meet Accelerated Timelines in Small Biotech

Dana Moreno Sanchez, Protein Expression Scientist, Alchemab Therapeutics

Alchemab's target-agnostic and patient-oriented drug discovery platform identifies novel disease-relevant antibody therapeutics and antigens by screening patients resilient to disease. Our approach allows us to build new therapies for challenging disease areas such as neurodegeneration. Rapid antibody production is critical for biotechs advancing novel therapies from research into clinical stages. This presentation explores strategies for optimising early high-quality antibody production and achieving cost-effective, rapid development of lead candidates.

15:15 Accelerating Cell Line Selection with Integrated Analytical Strategies ABSELION

Alan Dickson, Prof Biotechnology & Dir, Ctr of Excellence in Biopharmaceuticals, Univ Of Manchester

Cell line development is central to biopharmaceutical success, yet clone selection is still guided by delayed or incomplete analytics. As modalities diversify and timelines shorten, earlier access to meaningful data is increasingly critical. This talk will discuss how integrating in-process quantification with existing workflows can accelerate clone evaluation, support more confident decisions, and help connect upstream development with downstream success.

15:30 Pfast™ Protein Expression Workflows: Accelerating Biotherapeutic Screening and Manufacturing Development primrose bio

Diane Retallack, PhD, President & COO, Primrose Bio

With 6 marketed products, the P. fluorescens-based Pfenex Expression Technology® platform is a well established solution for microbial manufacturing. The Pfast™ workflow offers an affordable 10 day protein titer and quality evaluation, seamlessly integrating the powerful Pfenex toolbox into both discovery and manufacturing process development workflows. Automated expression and analytical workflows enable quick decision making and cost effective pipeline management. Case studies demonstrate incorporation into traditional and AI assisted protein discovery campaigns.

16:00 Networking Refreshment Break

16:10 An End-to-End Automated Workflow for Characterisation of Next-Generation Biotherapeutics

Miroslav Nikolov, PhD, Senior Scientist & Laboratory Head, Roche Pharma Research and Early Development pRED, Roche

The rapid advancements of automation and digitalisation have the potential to transform every step in the complex process of biopharmaceutical research and development. This presentation highlights the recent innovations within Roche's pharma research and early development unit (pRED), focusing on a

DEVELOPING BIOPHARMACEUTICAL WORKFLOWS

Innovations to Streamline Production from Benchtop to R&D

fully E2E automated MS analytics workflow, which is an integral component of a broader, modular, and interconnected automation network that spans the entire biopharmaceutical R&ED value chain.

16:35 From Expression to Insight: Automating Protein Workflows for Modelling

Sarah Westarp, Group Lead, Applied Biocatalysis, Bioprocess Engineering, Technische University Berlin

Optimising microbial production strains remains challenging due to scale differences between screening and industrial processes. Miniaturised, high-throughput systems enable cost-effective testing of strain-condition combinations but require improved mimicry of production conditions. We developed a unified scale-down model to evaluate the cultivation parameter to yield dependencies. Central to this is a workflow management system ensuring reproducible, traceable data flows across scales and facilitating model-based analysis of microbial physiology and process conditions.

17:00 Accelerating Drug Discovery: The Power of *in silico*-Assisted Antibody Discovery at Bayer

Vanessa Verissimo, Research Scientist, Therapeutic Antibodies, Bayer Pharma AG

In antibody-drug discovery, accelerating therapeutic molecule identification while ensuring precision is crucial. This presentation explores the transition from traditional high-throughput screening to *in silico*-assisted methods, using next-generation sequencing and machine learning to enhance antibody diversity and minimise wet-lab experimentation. Bayer's next-generation biologics platform facilitates the rapid generation and purification of thousands of molecules for multidimensional characterisation, creating a faster, cost-effective, and innovative early-stage drug discovery process.

17:25 FEATURED PANEL DISCUSSION: Higher-Throughput Biopharmaceutical Workflow Challenges

Moderator: Richard Altman, MS, Field Application Scientist, Life Science Solutions, Thermo Fisher Scientific

Protein expression/production laboratories provide crucial support to drug discovery efforts. This panel discussion focuses on the concepts, technologies, and strategies necessary to meet the ever-increasing need for recombinant proteins.

- Strategies on how to manage multiple "top priority" projects
- Total workflow efficiency
- The importance of tech development to long-term success

Panelists:

Nicola Burgess-Brown, PhD, Professorial Research Fellow, UCL, London; COO, Protein Sciences, Structural Genomics Consortium

Kim Remans, PhD, Head, Protein Expression & Purification Core Facility, EMBL Heidelberg

Bjørn Voldborg, MSc, Head, National Biologics Facility, DTU Bioengineering, Technical University of Denmark

18:10 Close of Summit

Training SEMINARS
By Cambridge Healthtech Institute

INTRODUCTION TO MACHINE LEARNING FOR BIOLOGICS DESIGN

INSTRUCTOR:
Francis Gaudreault, PhD, Associate Research Officer, Human Health Therapeutics, 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.

SEMINAR HIGHLIGHTS:

- Basics of machine learning and where does it fit into drug discovery
- Modern homology modeling and structure prediction
- Predicting antibody affinity and specificity modulation
- Generative design in biologics: Library design and language models
- Machine learning applications of T cell and B cell immunogenicity
- Methods and application of ML for chemical, folding, solution stabilities

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

Francis obtained his PhD in Biochemistry from University of Sherbrooke in 2015, during which he developed a molecular docking program for docking small molecules to flexible protein or RNA targets. While doing his PhD studies, Francis co-founded a successful IT company for automating the management of scientific conferences. Francis joined the National Research Council (NRC) of Canada in 2016, where he has taken part in and led various efforts in the discovery and engineering of antibodies or other biologics. In such efforts are included the structure prediction of antibodies alone or in complex, the affinity assessment of antibody-antigen complexes, and the detection of antibody developability issues. Francis is leading the technical efforts in using artificial intelligence for antibody discovery.

4TH ANNUAL | LISBON, PORTUGAL

MACHINE LEARNING FOR PROTEIN ENGINEERING PART 1

Advancing Protein Engineering with AI: Next Generation Models, Data Strategies, and Applications

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

ACTIVE LEARNING AND TRAINING DATA GENERATION

8:25 Chairperson's Remarks

Karin Hrovatin, Bioinformatic Scientist, Merck KGaA

8:30 Lab-in-the-Loop Application for Clinically Relevant Antigen Targets

Ji Won Park, PhD, Principal ML Scientist, Prescient Design / Genentech

We introduce "Lab-in-the-loop," a paradigm shift for antibody design that orchestrates generative machine learning models, multi-task property predictors, active learning ranking and selection, and *in vitro* experimentation in a semiautonomous, iterative optimization loop. We apply lab-in-the-loop to four clinically relevant antigen targets: EGFR, IL-6, HER2, and OSM.

9:00 Active Learning for Antibody Pairwise Epitope Binning

Akila I. Katuwawala, PhD, Scientist II, Computational Biology, Adimab LLC

Epitope competition assays are a routine part of therapeutic antibody discovery. Modern high-throughput technologies have enabled the generation of complete pairwise binning matrices on large antibody panels. However, running the experiment for large panels is time-consuming and costly. The proposed Machine Learning workflow predicts pairwise binning competition for a large antibody panel that binds to a given antigen. Blind testing across twelve panels of antibodies shows an accuracy of 85-90%.

9:30 Designing and Analysis of a Large Library-on-Library Dataset to Reveal Insights on Protein Stability across Different VHH:Antigen Complexes

Jurrian de Kanter, PhD, Data Scientist, Genmab

Accelerating antibody-based medicine development requires better understanding and prediction of antibody-antigen binding. Affinity datasets from mutational scans are valuable but poorly understood. We present a multi-modal dataset of antigen and VHH interface variants, capturing affinity, stability, and expression changes. Most affinity changes stem from stability shifts. Structure-conditioned inverse folding models predict stability well but struggle with interface changes, underscoring the need for high-quality datasets in protein engineering.

10:00 Maximise AI Potential in Biologics Discovery and Development: From Model Training to Consumption ENPICOM

Nicola Bonzanni, CEO, ENPICOM

We will discuss the key challenges in creating and deploying machine learning for biologics discovery. While creating complex models for discovery and development is becoming commonplace, managing the entire ML model lifecycle is essential for effective use in therapeutic research and maximising AI investment returns. Discover how a unified platform can streamline AI use in biologics discovery, from model training to consumption.

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

SEQUENCE-CENTRIC MODELS

11:15 To What Extent Can Large-Language Models Represent 3D Information?

Isaac Ellmen, Researcher, Oxford Protein Informatics Group, University of Oxford

In machine learning, protein sequences are usually processed by Transformers/LLMs, while protein structures are typically represented as graphs and processed by GNNs. However, AlphaFold3 and recent studies on protein LLMs show that Transformers alone can make sense of 3D inputs. Here I will share our recent work on deciphering the inner workings of Transformers when given 3D coordinates. These insights can guide the rational design of hybrid sequence/structure protein models.

11:45 KEYNOTE PRESENTATION: Exploring Log-Likelihood Scores for Ranking Antibody Sequence Designs

Simon Chell, PhD, VP, Biologics Engineering, AstraZeneca

As generative models advance antibody engineering, *in silico* metrics are essentialfor guiding design. We benchmark LLM-style, diffusion-based, and graph-based models usingexperimental binding data from diverse datasets, examining how structure-based, sequence-based, and intrinsic scores relate to experimental outcomes. We explore the role of these metricsin filtering versus ranking antibody designs and assess the impact of scaling up generativemodels with large synthetic training data.

12:15 Luncheon Presentation to be Announced cradle

12:45 Luncheon in the Exhibit Hall with Poster Viewing

4TH ANNUAL | LISBON, PORTUGAL

MACHINE LEARNING FOR PROTEIN ENGINEERING PART 1

Advancing Protein Engineering with AI: Next Generation Models, Data Strategies, and Applications

EXPANDING AND OPTIMISING THE ML MODEL AND ALGORITHM TOOLKIT

13:45 Chairperson's Remarks

Simon Chell, PhD, VP, Biologics Engineering, AstraZeneca

13:50 Evaluation of Digital Protein Design Tools in an Industry Setting

Karin Hrovatin, Bioinformatic Scientist, Merck KGaA

Stephanie Linker, PhD, Senior Computational Biochemist, Merck Group

As traditional protein development is resource-intensive, Merck is leveraging digital approaches to design and assess new proteins, increasing the hit rate of laboratory screens. We combine state-of-the-art tools for protein structure prediction (AlphaFold3-type models), representation (ESM), and *de novo* generation (diffusion models) with classical computational biochemistry and bioinformatics methods. We will present the application of our pipeline and discuss current gaps and potential solutions based on ongoing developments in the field.

14:20 Towards a Unified Approach for Biomolecular Interaction Modelling: Boltz-1 and the Future of Biomolecular Foundation Models

Gabriele Corso, PhD, Co-founder and CEO, Boltz

Jeremy Wohlwend, PhD, CTO, Boltz

Boltz-1 is an open-source deep learning model incorporating innovations in model architecture, speed optimisation, and data processing achieving AlphaFold3-level accuracy in predicting 3D structures of biomolecular complexes. The performance of Boltz-1 sets a new benchmark for commercially accessible tools in structural biology, and Boltz-steering adds a new inference time steering technique that can fix hallucinations and non-physical predictions from the models. Boltiz-1is released under the MIT open license.

14:50 AI-Powered Immune Repertoire Mining and Multi-Objective Antibody Engineering

Mary Ann Pohl, Director, Alliance Management, Ailux Biologics by XtalPi

Artificial intelligence (AI) is transforming antibody discovery and engineering. Ailux's platform synergistically combines the best of our comprehensive wet lab, AtlaX biologics database, and three proprietary AI engines. We will explore our latest case studies that exemplify our AI-driven approach for tackling challenging targets, identifying unique functional antibodies, and achieving multi-objective optimization. This presentation provides our realistic and evidence-based perspective on AI's impact on developing next-generation antibody therapeutics.

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?




Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

- Describe the technology
- Show data
- Show forward-looking future applications

Panelists:

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

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

Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

17:15 Structure-Based Calculations for Predicting Properties and Profiling Antibody Therapeutics

Nels Thorsteinson, Director of Biologics, Chemical Computing Group

We present a method for modeling antibodies and performing pH-dependent conformational sampling, which can enhance property calculations. Structure-based descriptors are evaluated for their predictive performance on HIC and viscosity data. From this, we devised four rules for therapeutic antibody profiling which address developability issues arising from hydrophobicity and charged-based solution behavior, and the ability to enrich for those that are approved by the FDA. Antibody modeling and docking accuracy is assessed and compared to recent ML tools.

17:30 Presentation to be Announced

4TH ANNUAL | LISBON, PORTUGAL

MACHINE LEARNING FOR PROTEIN ENGINEERING PART 1

Advancing Protein Engineering with AI: Next Generation Models, Data Strategies, and Applications

NEXT GENERATION APPLICATIONS FOR AI AND MACHINE LEARNING

17:45 AI-Guided Discovery and Engineering of a Dual-Specific scFv

Ryan Emerson, PhD, Vice President, Data Science, A Alpha Bio Inc.

Dual-specific antibodies are a promising but challenging modality. We demonstrate a combination of experimental and computational techniques to discover and optimise a TIGIT/LILRB4 dual-specific binder. Starting from a synthetic humanoid phage library, we identified compatible scFvs, used multiplexed yeast display affinity data to confirm binding and generate a training dataset, and applied a fine-tuned deep learning affinity oracle for optimisation, yielding a molecule with improved dual-target affinity and developability.

18:15 New Specificities and Ultra-High Affinities: Can Sequence-Trained LLMs Predict Labels They Have Never Seen?

Tzvika Hartman, PhD, Senior Vice President, Computational, Biolojic Design Ltd.

Typical ML models are trained by masking and predicting experimentally determined labels. However, in novel drug discovery the goal is often to design antibodies that are better than previously observed ones or even have entirely new characteristics. In this work, we demonstrate that integrating pretrained LLMs with datasets featuring continuous labels allows prediction of binders with novel specificities and with much better affinities than those seen previously in experiments.

18:45 Sponsored Presentation *(Opportunity Available)*

19:15 OpenFold3: A Frontier Model for Biomolecular Structure Prediction

Vinay S Swamy, Computational Biologist, Biomedical Informatics, Columbia University

The OpenFold Consortium brings together academic and industrial teams to build state-of-the-art protein structure and co-folding prediction models optimised for use on commercial computational hardware. With our latest release, we aim to fully reproduce the scale and training regimen of AlphaFold3 and provide open source model weights, extensive datasets, and a permissively licensed code library for developing novel architectures and custom training pipelines.

19:45 Close of Machine Learning for Protein Engineering Part 1 Conference

4TH ANNUAL | LISBON, PORTUGAL

MACHINE LEARNING FOR PROTEIN ENGINEERING PART 2

Demonstrating Value and Putting Theory into Practice

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

ML APPROACHES TO OPTIMISATION AND DEVELOPABILITY OF ANTIBODIES

8:25 Chairperson's Remarks

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

8:30 Predicting Nonspecificity in Therapeutic Antibody Formats Using Structure-Informed Machine Learning Models

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

This presentation examines how AI-driven computational frameworks—combining sequence, structural, and biophysical data—can predict nonspecific binding and developability risks in therapeutic antibodies and related formats. By integrating protein language models, inverse folding approaches, and dynamic structural features (simulated or ML-derived), we demonstrate how these tools identify molecular liabilities, and in turn how these models can impact the DMTA cycle by enhancing hit selection, guide optimisation, and de-risk development.

9:00 Antibody DomainBed: Out-of-Distribution Generalisation in Therapeutic Protein Design

Ji Won Park, PhD, Principal ML Scientist, Prescient Design / Genentech

We apply domain generalisation methods to classify the stability of interactions between an antibody and antigen across five domains defined by design cycles.

9:30 Sponsored Presentation *(Opportunity Available)*

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

10:45 Generative Design of Antibodies with Programmable Fc Functional Profiles

Edward B. Irvine, PhD, Postdoctoral Scientist, Sai Reddy Group, Laboratory for Systems and Synthetic Immunology, ETH Zürich

Antibodies bridge adaptive and innate immunity through their constant (Fc) domains, yet most of Fc sequence space remains unexplored due to experimental constraints. To address this, we developed a machine learning-guided platform for Fc-engineering. By integrating the screening of synthetic Fc-libraries with next-generation sequencing and deep learning, we can accurately predict antibody functional activity from sequence, and computationally design antibodies with bespoke functional profiles, unlocking new possibilities for precision immunotherapy.

11:15 A Machine Learning Approach to Improving Antibody Developability

Paul MacDonald, PhD, Data Scientist, Protein Design Informatics, GSK

Machine learning optimises biotherapeutics by evaluating antibody developability, focusing on stability, functionality, and safety. *In silico* assessments streamline discovery by deselecting problematic antibodies early. Predictive models can optimise libraries toward designs with fewer liabilities. Evaluating these models hinges on new, representative data, with an emphasis on generalisation to novel paratopes. Deliberate data partitioning and appropriate evaluation metrics are critical to achieving this and are the focus of this talk.

11:45 Data-Driven Design of Epitope-Specific Antibodies and Rapid Experimental Validation with SpyBLI

Pietro Sormanni, PhD, Group Leader, Royal Society University Research Fellow, Chemistry of Health, Yusuf Hamied Department of Chemistry, University of Cambridge

I will outline a data-augmented ML workflow for designing nanobodies and antibodies that bind pre-specified epitopes, discussing minimal data requirements and what *in silico* performance metrics are worth considering. To enable rapid experimental validation we developed SpyBLI, a 24-hour DNA-to-data assay that yields precise k_{on}, k_{off}, and K_D bypassing binder purification, thus accelerating the Design-Make-Test cycle.

12:15 Luncheon Presentation to be Announced

cradle

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

BENCHMARKING AND DATA CURATION

13:55 Chairperson's Remarks

Monica L. Fernandez-Quintero, PhD, Staff Scientist, Integrative Structural and Computational Biology Department, Scripps Research Institute

14:00 KEYNOTE PRESENTATION: AI for Antibody Design - Going Beyond the Static

Charlotte M. Deane, PhD, Professor, Structural Bioinformatics, Statistics, University of Oxford; Executive Chair, Engineering and Physical Sciences Research Council (EPSRC)

We can now computationally predict a single, static protein structure with high accuracy. However, we are not yet able to reliably predict structural flexibility. This ability to adapt their shape can be fundamental to their functional properties. A major factor limiting such predictions is the scarcity of suitable training data. I will show novel tools and databases that help to overcome this.

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MACHINE LEARNING FOR PROTEIN ENGINEERING PART 2

Demonstrating Value and Putting Theory into Practice

14:30 Scaling Foundation Models for Protein Generation

Ali Madani, PhD, Founder and CEO, Profluent Bio

Language models learn powerful representations of protein biology. We introduce a new foundation model suite that directly investigates scaling effects for protein generation. We then apply this for applications in antibody and gene editor design.

15:00 The AIntibody Challenge: An Update on the Use of AI/ML in Antibody Discovery

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

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

The AIntibody competition was launched to benchmark real-world performance, and potential value, of artificial intelligence (AI) models in antibody discovery through a blinded, prospective experimental design. In the inaugural challenge, 33 organizations submitted 527 antibody sequences responding to three tasks focused on RBD, the most studied protein in history.

15:15 Sponsored Presentation *(Opportunity Available)*

15:30 Session Break

NEW METHODS TO UNCOVER NEW BIOLOGY AND DRUG TARGETS: SHIFTING FROM DISCOVERY TO DESIGN

15:39 Chairperson's Remarks

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

15:40 Unraveling Structure-Function Relationships of Entire Protein Families Using Alphafold

Luigi Vitagliano, PhD, Director, Institute of Biostructure and Bioimaging, Department of Biomedical Science, National Research Council Italy

In traditional structural biology, the intrinsic technical difficulties associated with the experimental structural characterisation of biological macromolecules have frequently imposed reductionist approaches limiting the investigations of individual proteins. The rapid determination of protein structures starting from their sequences, assured by computational approaches based on machine learning, allows now the simultaneous elucidation of structure-function relationships in entire families. Illustrative examples will be provided for proteins (KCTDs/CHCHD4) involved in key physio-pathological processes.

16:10 Artificial Intelligence in the Creation of Precision Therapeutic Enzymes that Target Pathogenic Immunoglobulins

Nathan Higginson-Scott, PhD, CTO, Seismic Therapeutic

Considerable unmet need exists in autoimmune, inflammatory, and allergic indications with underlying etiology related to immunoglobulins. IgG, IgE, IgM, and IgA can each play a role in disparate disease processes, and an ability to precisely target only the immunoglobulin isotype involved is crucial in striking the desired balance between efficacy and safety. Seismic has achieved this using its structure-augmented AI/ML IMPACT platform creating a Swiss Army knife of Ig degrading therapeutics.

17:10 Engineering Modular Binders Combining Machine Learning, Structural Biology, and Experimental Evolution

Erich Michel, PhD, Postdoctoral Researcher, Department of Biochemistry, University of Zurich

We will challenge the paradigm of selection from large universal libraries to obtain binding proteins rapidly and efficiently. When it comes to linear epitopes, we can exploit the periodicity of peptide bonds and create a completely modular system, based on a binding protein design that shares the same periodicity. Here, we present our progress on a binding protein system that is modular and complementary to a given peptide sequence.

17:40 Structure-Guided Antibody and Immunogen Design

Monica L. Fernandez-Quintero, PhD, Staff Scientist, Integrative Structural and Computational Biology Department, Scripps Research Institute

Advances in protein design have enhanced our ability to engineer proteins with defined properties, functions, and structures. Here, we integrate computational protein design with structural biology to develop targeted vaccines and therapeutics for two major global health threats: influenza and malaria.

17:40 Designing Novel Protein Interactions with Therapeutic Potential Using Learned Surface Fingerprints

Anthony Marchand, PhD, R&D Scientist, bNovate Technologies

Protein-protein interactions (PPI) are essential for most biological processes governing life. Using a geometric deep-learning framework on protein surfaces, we generated fingerprints capturing key interaction features. As a proof of concept, we designed *de novo* protein binders targeting proteins and protein-ligand complexes. These novel interactions could act as protein therapeutics, enhance biosensing, and enable the construction of new synthetic pathways in engineered cells.

17:10 Close of Summit

3RD ANNUAL | LISBON, PORTUGAL

ANTIBODY-BASED THERAPIES

Driving Breakthrough Therapies

TUESDAY 11 NOVEMBER

7:30 Registration and Morning Coffee

T CELL ENGAGERS AND IMMUNE CELL MODULATORS

8:25 Chairperson's Remarks

Amelie Eriksson Karlstroem, PhD, Professor & Head, Protein Science, School of Engineering Sciences in Chemistry, Biotechnology & Health, KTH Royal Institute of Technology

8:30 KEYNOTE PRESENTATION: Development of a First-in-Class, ADCC-Enhanced Bispecific NK Engager that Simultaneously Blocks EGFR Receptor-Ligand Interactions on Tumour Cells and Engages a Novel NK-Activating Receptor

Hemanta Baruah, PhD, Founder & CEO, Aakha Biologics

Aakha Biologics is developing AHA-1322, a first-in-class, ADCC-enhanced bispecific NK cell engager. This novel therapeutic is designed to activate natural killer (NK) cells through multiple mechanisms while simultaneously blocking a key receptor-ligand interaction. AHA-1322 integrates three key components: (1) an EGFR-targeting arm, (2) a novel NK cell-targeting arm, and (3) an engineered IgG-Fc domain with enhanced ADCC (antibody-dependent cellular cytotoxicity) function.

9:00 High-Specificity pMHC scFv Antibodies: From Binder Discovery to Next-Generation T Cell Engagers

Stefan Warmuth, PhD, CTO, Technology & CMC, Numab Therapeutics AG

We present a comprehensive strategy for generating best-in-class anti-pMHC single-chain Fv (scFv) antibodies, from the discovery of anti-pHLA binders to the engineering of potent T-cell engagers. Our approach integrates advanced sorting techniques, bioinformatics-driven predictions, high-throughput screening, and protein engineering to develop highly specific and stable pMHC-targeting antibodies. This enables the identification of therapeutic candidates with exceptional selectivity and antitumour activity, paving the way for new advancements in antibody-based cancer therapies.

9:30 ISB 2001, a First-in-Class Trispecific BCMA and CD38 T Cell Engager Designed to Overcome Mechanisms of Escape from Multiple Myeloma Treatments

Mario Perro, PhD, Head of Biologics Research, Ichnos Glenmark Innovation

Downregulation of targets limits the efficacy of monotargeted T cell engagers (TCE). ISB 2001, a first-in-class TCE targeting both CD38 and BCMA, demonstrated superior tumour cytotoxicity *in vitro*, *in vivo*, and *ex vivo* using patient samples when compared to teclistamab. Clinically, ISB 2001 demonstrated an overall response rate of 75% across all dose levels and a favorable safety and tolerability profile in heavily pretreated patients with r/r MM.

10:00 Talk Title to be Announced

Tiago Santos, Speaker: Tiago Santos, Ph.D., MBA, Market Development Executive, Bruker Cellular Analysis

10:30 Grand Opening Coffee Break in the Exhibit Hall with Poster Viewing

NEXT GENERATION BISPECIFIC ANTIBODIES FOR IMMUNO-ONCOLOGY

11:15 Tumour-Targeted Costimulation via CD28 Bispecific Antibodies—Turning Immunotherapy "Cold" Tumour "Hot"

Dimitris Skokos, PhD, Vice President, Cancer Immunology, Regeneron Pharmaceuticals

Tumour-targeted costimulatory CD28 bispecific antibodies represent a potential groundbreaking therapeutic approach for combating challenging solid tumours. Early human trials have demonstrated significant clinical efficacy of the PSMAxCD28 bispecific antibody when combined with anti-PD-1 treatment in patients with metastatic castration-resistant prostate cancer. Understanding the underlying mechanisms driving the potent synergy between these agents in enhancing responsiveness in mCRPC tumours, which are unresponsive to PD-1 inhibitors alone, is crucial.

11:45 Advancing Cancer Immunotherapy: Next-Phase Developments in Bispecific HER3 Antibodies

Giuseppe Roscilli, PhD, CTO & Director, Drug Evaluation & Monoclonal Antibody, Takis Srl

In this presentation, we will explore the latest advancements in the development of bispecific HER3 antibodies for cancer immunotherapy. We will discuss significant progress made since last year, including new insights into the mechanism of action and preliminary results from enhanced therapeutic strategies. This session aims to highlight how these developments are poised to transform treatment paradigms for cancers that express HER3.

12:15 LUNCHEON PRESENTATION: Rethinking Antibody Development to IND: Early Risk Mitigation, Target Specificity & mRNA-LNP Delivery Strategies

Louise Brackenbury, Science Director, Charles River Labs

Charles River offers a comprehensive platform to expedite therapeutic antibody development through to IND submission. This extends from *in vitro* and *in vivo* pharmacology assessment in translationally relevant models, to early risk mitigation and evaluation of target specificity using the Retrogenix® Cell Microarray, followed by *in vitro* safety screening. In addition, a complimentary approach to therapeutic

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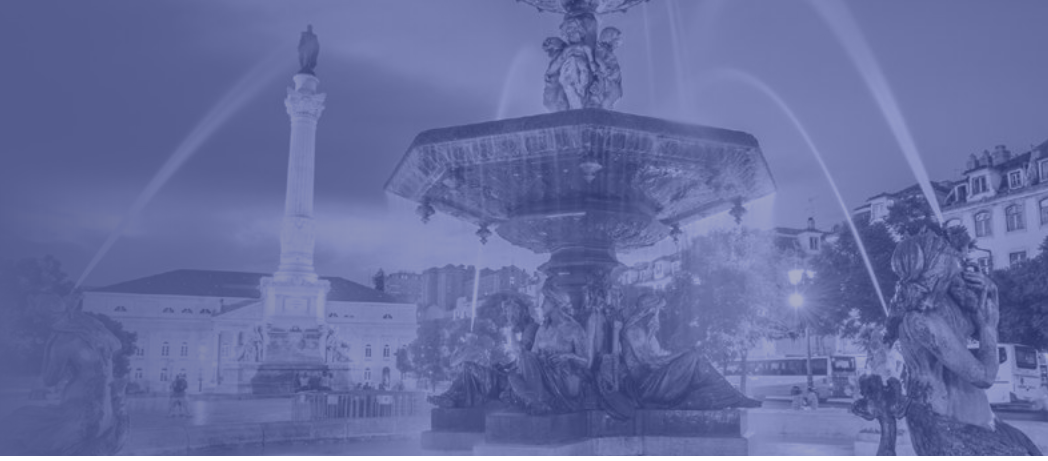
ANTIBODY-BASED THERAPIES

Driving Breakthrough Therapies



antibody delivery using mRNA-LNP technology will be explored, which may offer a cost effective, alternate strategy for solid tumour immunotherapy.

12:45 Luncheon in the Exhibit Hall with Poster Viewing

RADIOPHARMACEUTICAL THERAPIES

13:45 Chairperson's Remarks

Anna Park, PhD, Head, Protein Engineering, Large Molecule Research US, Sanofi

Giuseppe Roscilli, PhD, CTO & Director, Drug Evaluation & Monoclonal Antibody, Takis Srl

13:50 Peptide Nucleic Acid-Mediated Pre-Targeting for Radionuclide Therapy

Amelie Eriksson Karlstroem, PhD, Professor & Head, Protein Science, School of Engineering Sciences in Chemistry, Biotechnology & Health, KTH Royal Institute of Technology

A peptide nucleic acid (PNA)-based pretargeting strategy for radionuclide therapy has been developed to reduce radioactivity uptake in non-tumour organs. The PNA pretargeting concept has successfully been demonstrated in preclinical mouse models using affibody molecules, DARPins, and monoclonal antibodies as the tumour-targeting agents. The pretargeting technology has further been optimised by engineering of the PNA probes and investigation of new bioconjugation methods.

14:20 Engineered Antibodies for Pre-Targeted Radiotherapy

Alexander Haas, PhD, Head, Biologics Core Technologies, Roche Diagnostics GmbH

We have developed an innovative pre-targeted radioimmunotherapy (PRIT) strategy using reconstituting half-antibodies to specifically target cancer cells. Our novel approach enhances specificity and reduces systemic toxicity by forming a complete antibody only at tumour sites, eliminating the need for a clearing agent. Utilising lead-212 as an *in vivo* alpha generator, this method maximises tumour cell destruction while minimising healthy tissue damage, offering significant therapeutic advantages over traditional PRIT methods.

14:50 Harnessing the Power of DARPins as Radiopharmaceuticals

Francesca Malvezzi, PhD, Expert Scientist, Lead Generation, Molecular Partners AG

Designed Ankyrin Repeat Proteins (DARPins) are promising protein-based delivery vectors for radiopharmaceuticals due to their small size and high specificity. This presentation showcases our development of Radio-DARPin Therapeutic (RDT) candidates with favourable tumour-to-kidney ratios through DARPin surface engineering and half-life modulation using different albumin binders. Combined with the alpha-emitting radioisotope 212Pb, we achieved high-energy deposition in tumours, while minimising kidney accumulation, highlighting RDTs' potential as effective cancer treatments.

15:20 Sponsored Presentation *(Opportunity Available)*

15:35 Cross-Instrument Characterisation of Anti-Her2 ADCs

SARTORIUS

David Fradkin, Field Application Scientist, Sartorius

The rapid advancement in the development of antibody-drug conjugates (ADCs) in recent years has driven the requirement of robust and reliable techniques for evaluating novel candidate drugs. Here we will showcase the effectiveness of cross-instrument characterisation of anti-Her2 ADCs in assessing both binding and functional activity in live cells. Data, derived from iQue HTS cytometry and Incucyte live-cell analysis, will be presented from both simple monolayer and advanced 3D cell models.

15:50 Refreshment Break in the Exhibit Hall with Poster Viewing

TARGETED PROTEIN DEGRADATION

16:35 Sponsored Presentation *(Opportunity Available)*

17:05 Engineering and Development of an IgE Degrading Protease for Treatment of IgE-Mediated Allergic and Atopic Diseases

Jyothsna Visweswaraiah, PhD, Director, Biotherapeutics, Drug Creation, Seismic Therapeutic

We engineered a novel Fc-fused bacterially derived IgE protease using Seismic's proprietary machine learning enabled platform to reduce immunogenicity and improve manufacturability while maintaining selectivity and potency. The protease selectively cleaves IgE, eliminating it from circulation, from cell surface and immune complexes, and provides a novel therapeutic opportunity to treat IgE-mediated allergic and atopic diseases.

17:35 Targeted Protein Degradation through Site-Specific Antibody Conjugation with Mannose 6-Phosphate Glycan

Anna Park, PhD, Head, Protein Engineering, Large Molecule Research US, Sanofi

Recent developments in targeted protein degradation have provided great opportunities to eliminating extracellular protein targets using potential therapies with unique mechanisms of action and pharmacology. Among them, Lysosome-Targeting Chimeras (LYTACs) acting through mannose 6-phosphate receptor (M6PR) have been shown to facilitate degradation of several soluble and membrane-associated proteins in lysosomes with high efficiency. Herein we have developed a novel site-specific antibody conjugation approach to generate antibody mannose 6-phosphate (M6P) conjugates.

18:05 Sponsored Presentation *(Opportunity Available)*

18:35 Welcome Reception in the Exhibit Hall with Poster Viewing

CLADE

19:35 Close of Antibody-Based Therapies Conference

2ND ANNUAL | LISBON, PORTUGAL

ENGINEERING ANTIBODY-DRUG CONJUGATES Designing the Magic Bullet

WEDNESDAY 12 NOVEMBER

7:30 Registration and Morning Coffee

NEXT-GENERATION PAYLOADS AND MOAs

8:25 Chairperson's Remarks

Mahendra P. Deonarain, PhD, Chief Executive & Science Officer, Antikor Biopharma Ltd.

8:30 Dual-Site-Specific Antibody Conjugation for Targeted Delivery of Different Payloads

Gonçalo Bernardes, PhD, Professor, Chemistry, University of Cambridge

Our research leverages chemical principles to address major challenges in the life sciences and molecular medicine. In this lecture, I will highlight recent advances from my group in two emerging areas: strategies for site-specific antibody modification, and their application in attaching two distinct payloads—each with a different mechanism of action—to a single targeting antibody.

9:00 Discovery and Characterisation of AZD5335, a FRα-Targeted TOP1i-Loaded ADC

Roger B. Dodd, PhD, Director, Biologics Engineering, AstraZeneca

This presentation will unveil the discovery process and comprehensive characterisation of the antibody component in AZD5335, AstraZeneca's novel folate receptor alpha-targeted, TOP1 inhibitor ADC. Currently in clinical development for ovarian cancer treatment (FONTANA, NCT#05797168), AZD5335 offers the potential for a significant advancement in FRa-targeted therapy. The talk will highlight the critical research phase of development, emphasising the rigorous down-selection process that yielded a potent, robust, and highly developable candidate drug.

9:30 Antibody-Oligonucleotide Conjugates: Design, Developability, and Activity

Maximilian Hartl, PhD, Scientist & Lab Manager, Pharma Research & Early Development, Roche Diagnostics GmbH

This talk examines antibody-oligonucleotide conjugates, using BrainshuttleTM-ASO to deliver antisense oligonucleotides (ASOs) to the brain. We'll cover design, stability, and developability, culminating in *in vivo* activity data. A comprehensive overview from concept to application is presented.

10:00 Sponsored Presentation *(Opportunity Available)*

10:30 Coffee Break in the Exhibit Hall with Poster Viewing

11:15 A Novel Kinase Degrader Antibody Conjugate for the Treatment of mCRPC

Joost Uitdehaag, PhD, Head of Biology, Crossfire Oncology

The payloads currently employed in ADCs are limited in diversity and are sensitive to developing resistance. High off-tumour toxicity furthermore leads to a narrow therapeutic window. We have rationally designed a novel kinase degrader payload that targets a tumour-driving cell cycle kinase. The degrader payload was conjugated to various clinically validated antibodies to generate efficacious Degrader Antibody Conjugates (DACs). These can be applied in solid cancers such as prostate cancer.

11:45 Click-Cleavable ADCs and Radioimmunoconjugates

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

Tagworks developed a cleavage reaction (Click-to-Release) to control drug activity *in vivo*. It enables on-target extracellular ADC cleavage through a reaction with a trigger, expanding the target scope to non-internalising receptors. And it enables off-target deactivation of radioimmunotherapeutics by selective radiolabel cleavage and clearance from circulating mAbs. This contribution covers the preclinical development of anti-TAG72 ADC TGW101, for which a Phase-I has been initiated (NCT06959706), and anti-HER2 RIT TGW211.

12:15 Luncheon Presentation *(Sponsorship Opportunity Available)*

12:45 Luncheon in the Exhibit Hall with Poster Viewing

PRECLINICAL UPDATES

13:45 Chairperson's Remarks

Nimish Gera, PhD, Vice President, Biologics, Mythic Therapeutics

Philipp Spycher, PhD, CSO, Araris Biotech AG

13:50 KEYNOTE PRESENTATION: SOT109: A CDH17 Targeting ADC with Best-in-Class Potential Activity for the Treatment of CRC and Other GI Cancers

Radek Spisek, PhD, CEO, SOTIO Biotech a s

Cadherin-17 (CDH17), a previously unappreciated tumour-associated antigen, has recently received significant attention for colorectal cancer and other GI malignancies. We will be reviewing CDH17 target biology as well as the preclinical efficacy and safety of SOT109, a potential best-in-class, exatecan-conjugated ADC targeting CDH17. Our data corroborates that SOT109 holds significant potential as a therapeutic ADC for patients with gastrointestinal malignancies and supports the further clinical development of SOT109.

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ENGINEERING ANTIBODY-DRUG CONJUGATES Designing the Magic Bullet

14:20 VBC108: A First-in-Class CDH17/CLDN18.2 Targeted Bispecific Antibody-Drug Conjugate (ADC) to Overcome Tumour Heterogeneity of Gastrointestinal Cancers

Jing Li, PhD, CEO, VelaVigo

VBC108 is a bispecific ADC designed to target both CDH17 and CLDN18.2 with TOPO1i payload. The unique design shows promising potential as a first-in-class ADC for GI cancer. It has demonstrated favorable efficacy and safety, supporting its advancement to clinical trials.

14:50 Engineering Antibody-Drug Conjugates in Cell-free Systems scienova

Dr. habil. Stefan Kubick, Freie Universität Berlin, CEO B4 PharmaTech GmbH, Scientific Advisor scienova GmbH

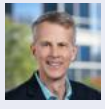
Intensive research and development work is focused on establishing new cell-free eukaryotic protein synthesis systems for the generation of diagnostic and therapeutic antibodies in cancer therapy. Functional screening for new antibody candidates and their bioconjugates is significantly accelerated in the early stages of development through the use of cell-free production and modification processes. The development of innovative eukaryotic cell-free protein synthesis systems for the production of different antibody formats directed against defined tumor markers enables faster, automatable antibody production. Cell-free generated antibodies are modified by the position-specific introduction of non-canonical amino acids and can then be efficiently conjugated with newly developed fluorescent dyes and payloads using strain-promoted azide-alkyne cycloaddition (SPAAC).

15:05 Sponsored Presentation *(Opportunity Available)*

15:20 Transition to Keynote Session

PLENARY DEEP DIVE

15:30 PANEL DISCUSSION: Future of Biologic Therapeutics: Will Half-Life Extended Peptides Replace Multispecific Antibodies?

Moderator: Daniel Chen, MD, PhD, Founder & CEO, Synthetic Design Lab

- Describe the technology
- Show data
- Show forward-looking future applications

Panelists:
Paul J. Carter, PhD, Genentech Fellow, Antibody Engineering, Genentech
G. Jonah Rainey, PhD, Associate Vice President, Eli Lilly and Company
Janine Schuurman, PhD, Biotech Consultant, Lust for Life Science B.V.

16:35 Refreshment Break in the Exhibit Hall with Poster Viewing

ALTERNATIVE FORMATS AND NEW ADVANCES IN ADC ENGINEERING

17:15 Sponsored Presentation *(Opportunity Available)*

17:45 PANEL DISCUSSION: Bispecifics and Multi-Payload ADCs—The Next Wave of ADCs for Oncology & Beyond

Moderator: Philipp Spycher, PhD, CSO, Araris Biotech AG

- Current status of ADC space
- Will bispecific and multi-payload ADCs be the next wave of ADCs?
- How do you choose the targets and the payloads to combine?
- Are these approaches better suited to overcome cancer resistance and heterogeneity compared to conventional ADCs?

Panelists:
Gonçalo Bernardes, PhD, Professor, Chemistry, University of Cambridge
Jing Li, PhD, CEO, VelaVigo

18:15 Combining Recombinant Antibody Fragment Engineering and Bespoke Linker-Payload Design to Produce Next-Generation ADCs

Mahendra P. Deonarain, PhD, Chief Executive & Science Officer, Antikor Biopharma Ltd.

Antibody Fragment Drug Conjugates (FDCs) promise many advantages over ADCs, including rapid tumour penetration and systemic clearance. Our approach enables high-DARs whilst retaining effective binding and other favourable biophysical properties. Our platform develops scFvs in context with complex linker-payload moieties. Our lead ANT-045 demonstrates superior tumour cures in cMET-high, moderate and low CDX/PDX gastric cancer models and better tolerability. New products based on our learnings will also be covered.

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ENGINEERING ANTIBODY-DRUG CONJUGATES Designing the Magic Bullet

18:45 Combining CD45 Epitope Engineering with an ADC for More Effective Haematological Cancer Treatment

Anna Camus, PhD, Senior Scientist, Protein Engineering, Cimeio Therapeutics AG

Targeted therapies have revolutionised the management of hematologic malignancies; however, the lack of disease-specific antigens restricts its treatment. At Cimeio, we generated a state of the art CD45 ADC, which selectively depletes malignant AML cells, while the healthy hematopoietic system is protected through editing the antibody's epitope in CD45. Our anti-CD45 ADC demonstrates full tumour elimination *in vitro* and *in vivo*, while hematopoiesis is fully preserved by engineering/ shielding approach.

19:15 Shedding Light on ADCs: A Fluorogenic Platform for Real-Time Imaging of Payload Release

Ferran Nadal-Bufi, PhD, Postdoctoral Research Fellow, Centre for Inflammatory Research, The University of Edinburgh

ADCs selectively deliver drugs to target cells, but *when* and *where* do ADCs release their payloads? We developed a fluorogenic platform for real-time imaging of payload release, incorporating dual-activatable fluorophores that switch fluorescence OFF to ON in response to two key events simultaneously: 1) subcellular localisation in acidic endolysosomal compartments, and 2) linker cleavage by proteases. This approach provides unprecedented mechanistic insights, guiding rational ADC design for enhanced efficacy.

19:45 Close of Engineering Antibody-Drug Conjugates Conference

3RD ANNUAL | LISBON, PORTUGAL

NEXT-GENERATION IMMUNOTHERAPIES

New Modalities and Technologies for Tumour Targeting

THURSDAY 13 NOVEMBER

7:30 Registration and Morning Coffee

IMMUNE-CHECKPOINT INHIBITORS

8:25 Chairperson's Remarks

Katrin Mestermann, PhD, Scientific Project Manager, Fraunhofer Institute for Cell Therapy & Immunology IZI

8:30 Positive Allosteric Modulation of Immune-Checkpoint Complexes with Nanobodies as a New Mode of Therapeutic Intervention in Immunotherapy

Jan Steyaert, PhD, Professor, Vrije Universiteit Brussel (VUB); Director, VIB-VUB Center for Structural Biology, VIB

By applying innovative immunisation and bio-selection techniques, we have discovered and characterised the first-ever positive allosteric modulators (PAMs) of a clinically relevant inhibitory ICC which enhance receptor signaling with pathway-specific and spatio-temporal precision. These ICC PAMs open up novel therapeutic modes of intervention that ensure patient safety even in cases of overdose, and may outperform current inhibitor-based immunotherapies, which often cause significant side effects.

9:00 Myeloid Checkpoint Blockade in Combination with IgA for Acute Lymphoblastic Leukemia

Thomas Valerius, MD, Professor, Stem Cell Transplantation & Immunotherapy, Christian Albrechts University of Kiel

The study explores combining myeloid checkpoint blockade with IgA antibodies against CD19, CD20, or CD38 to enhance killing of acute lymphoblastic leukemia (ALL). By recruiting macrophages and PMN and harnessing IgA's unique Fc receptor engagement, this strategy improves tumour clearance. Preclinical results with anti-CD38 IgA2 and CD47 blockade show synergistic effects *in vitro* and *in vivo*, suggesting this may become a novel immunotherapeutic approach for more effective ALL treatment strategies.

9:30 Presentation to be Announced

Dotmatics

10:00 Coffee Break in the Exhibit Hall with Poster Viewing

VIRAL IMMUNOTHERAPIES AND CANCER VACCINES

10:45 KEYNOTE PRESENTATION: Reprogramming the Immune System by Multimodal Biological Immunotherapy for the Treatment of Solid Tumours

Paul Peter Tak, MD, PhD, FMedSci, President & CEO, Candel Therapeutics

Next-generation multimodal immunotherapies represent a new frontier in immuno-oncology and cutting-edge research in this field has recently come to fruition. Candel has established two off-the-shelf, clinical-stage investigational viral immunotherapies, designed to cause *in situ* immunisation against the unique antigens presented when tumour cells lyse. The patient and tumour-specific memory response after experimental treatment has been shown to produce a systemic and sustained anti-cancer effect across various solid tumours.

11:15 TROCEPT: A Novel Immuno-Virotherapy Platform for Tumour-Localised Expression of Potent Drugs via Intravenous Delivery

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

We have developed a novel tumour-selective immuno-virotherapy, TROCEPT, based on adenovirus serotype 5 (Ad5). TROCEPT has been engineered not to enter normal human tissues by disabling (de-targeting) all three of the major capsid proteins (fiber knob, hexon, and penton). TROCEPT has been further engineered to specifically bind to αvβ6 integrin (re-targeting). The TROCEPT platform can be armed with transgenes encoding potent protein-based therapeutic drugs for in-tumour expression.

11:45 XCR1+ Dendritic Cell (DC) Role in Anti-Tumoural Response to Anti PD-L1 Antibody: Data from the Phase Ib/II Trial of DC Vaccination in Small-Cell Lung-Cancer Patients

Maria Gonzalez Cao, PhD, Chair, Melanoma Medical Oncology Unit, Oncology Institute Dr. Rosell, Dexeus University Hospital

We report findings from the VENEZOLUNG trial, assessing autologous dendritic cell (DC) vaccination plus atezolizumab in ES-SCLC. Expansion of circulating XCR1+ DCs and CXCR5+PD-1+ CD8+ T cells correlated with improved survival, while reductions in Tpex and DC subsets predicted poorer outcomes. These results highlight the relevance of XCR1+ DCs in enhancing immunotherapy efficacy in SCLC. Final data will be presented at the meeting.

12:15 LUNCHEON PRESENTATION: Redesigning Antibody Discovery: How modular DNA synthesis unlocks smarter, faster engineering workflows

TelesisBio

David Weiss, Sr. Director Marketing & Product, Marketing, Telesis Bio -

Antibody engineering has evolved, but the DNA synthesis methods supporting it have not - until now. Gibson SOLA introduces a modular, enzymatic DNA synthesis platform that fundamentally shifts

3RD ANNUAL | LISBON, PORTUGAL

NEXT-GENERATION IMMUNOTHERAPIES

New Modalities and Technologies for Tumour Targeting

how researchers approach screening, optimization, and affinity maturation. This presentation will demonstrate how antibody engineers can improve productivity and reduce cost. By enabling rapid, on-demand synthesis of hundreds of antibody variants, Gibson SOLA eliminates the bottlenecks of outsourcing and empowers real-time iteration within your lab.

12:45 Luncheon in the Exhibit Hall with Last Chance for Poster Viewing

CAR T ENGINEERING

13:55 Chairperson's Remarks

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

14:00 Blended Immunotherapies of CAR T Plus CAR Macrophages to Treat Cancer and Infection

Katrin Mestermann, PhD, Scientific Project Manager, Fraunhofer Institute for Cell Therapy & Immunology IZI

Both CAR T and CAR-M have a great potential to eradicate malignant cells. Macrophages have an intrinsic potential to migrate into solid tumours, and can reshape the tumour micro-environment, enabling CAR T to persist and remain active within a solid tumour. By combining the different properties of CAR-M and CAR T, we thus hope to overcome the hurdles of conventional mono-immune therapy and make CAR immunotherapy effective in solid cancers.

14:30 Generation of a Triple-Antigen Targeting CAR T Cell Therapy for AML—Why Use VHHs?

Reyisa Bughda, PhD, Research Associate, CAR-T Cell Therapies, Autolus

Functional impact of selecting either single-domain antibody (sdAb, VHH) or single-chain variable fragment (scFv)-derived CARs was compared *in vitro* and *in vivo*, using 10 affinity-matched CD123-targeting antibody pairs. VHH-CARs displayed improved biophysical properties and sensitivity to low-antigen targets, with enhanced cytokine secretion compared to scFv-CARs. This strategy was subsequently adopted for a triple-antigen targeting CAR T cell product for the treatment of acute myeloid leukemia (AML).

15:00 Sponsored Presentation *(Opportunity Available)*

15:30 Networking Coffee Break

IMMUNOCYTOKINES AND IMMUNOCONJUGATES

15:40 Next-Generation of PD1-Based Immunoconjugates: Platform to Patients

Vijaya Pattabiraman, PhD, Co-Founder & CTO, Bright Peak Therapeutics

The talk will give an overview of Bright Peak PD1-based immunoconjugates pipeline with specific focus on the clinical program of PD1-IL18. We will share unique insights from technology used to construct PD1-IL18-based immunocytokines to preclinical characterisation of 'first-in-class' molecules and an overview of the clinical plans.

16:10 Engineering Cell-Type Selective Immunotherapies via Cis-Targeting to Enhance Anti-Tumour Activity

Ivana Djuretic, PhD, Founder & CSO, Asher Biotherapeutics

Although cytokines activate many cell types, only a subset drives anti-tumour activity, while others may reduce efficacy or cause toxicity. This talk will present preclinical data showing that restricting IL-2 and IL-21 signaling to CD8+ T cells via cis-targeting can decouple anti-tumour effects from toxicity, expanding the therapeutic window. Clinical evidence of highly effective cis-targeting will also be discussed, including findings with etakafusp, a CD8-targeted IL-2 therapy.

17:10 Preclinical Pharmacology and Translational Aspects of a Cis-Acting PD-1/IL-15 Mutein-Based Immunocytokine SOT201

Anna Jirovec, PhD, Scientist, SOTIO Biotech a.s.

SOT201 is a novel cis-acting immunocytokine consisting of against PD-1 antibody fused to RLI-15 complex consisting of an attenuated human IL-15 mutein and the high-affinity binding site of the IL-15Ralpha, the sushi+ domain. SOT201 targets PD-1+ TILs with a balanced cytokine potency to revive exhausted T cells in tumours in comparison to PD1-IL-2v. SOT201 is currently being evaluated in Phase I clinical study VICTORIA-01 (NCT06163391) in metastatic advanced cancer patients.

17:40 Local Substrate and Response to InC01, Compartment-Locked IL-12 in Glioma

Johannes vom Berg, PhD, CSO, InCephalo Therapeutics AG; Group Leader Immunotherapy, Lab Animal Science, University of Zurich

InCephalo's compartment-lock (C-Lock) toolbox allows to confine the activity of antibodies or antibody Fc-fragment fusion proteins to the brain. InC01 is a C-Locked IL-12-based biologic which InCephalo develops for local treatment of brain cancer. Preclinical data on the development and proof of concept in murine and human *ex vivo* models will be presented with a focus on local intratumoural effector cells and a locally sustained anti-glioma immune response.

18:10 Close of Summit

HOTEL & TRAVEL INFORMATION

CONFERENCE VENUE:

Lisbon Congress Center
Pracas Das Industrias
Lisbon, 1300-307, Portugal

HOST HOTELS:

Vila Gale Opera Hotel Lisbon
Travessa Conde da Ponte
1300-141 Lisbon, Portugal

Pestana Palace Lisboa
Rua Jau, 54
1300-314, Lisbon, Portugal

Hyatt Regency Lisbon
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Please visit pegsummiteurope.com/travel for reserving hotel accommodations and for additional Information.

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Showcase your solutions to a guaranteed, targeted audience through a 15- or 30-minute presentation during a specific conference program. Package includes exhibit space, on-site branding, and access to cooperative marketing efforts by CHI. Presentations do sell out early.

ONE-ON-ONE MEETINGS

Work with us to identify your target prospects and we will schedule meetings for you. Think of us as your inside sales team with all your hottest leads in close reach. Opportunities sold on a very limited basis.

INVITATION-ONLY DINNER / HOSPITALITY SUITE

Sponsors will select their top prospects from the conference preregistration list for an evening of networking at the hotel or at a choice local venue. CHI will extend invitations, conduct follow-up, and confirm attendees. The evening will be customised to meet with your specific objectives.

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Exhibitors will enjoy facilitated networking opportunities with over 1,500+ qualified delegates, making it the perfect opportunity to launch a new product, collect feedback, and generate new leads from around the world.

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HOW SPONSORING PROMOTES & BENEFITS YOUR BUSINESS:

- Generate qualified leads consisting of actual decision-makers from within your focus area
- Network with over 1,500+ senior-level professionals and generate leads during dedicated exhibit hall hours, lunches, etc.
- Promote your company's participation in the conference materials
- Increase your brand awareness and drive organic traffic to your website through our various marketing campaigns
- Increase Dedicated Networking Time in the Exhibit Hall

FOR ADDITIONAL INFORMATION REGARDING SPONSORSHIP AVAILABILITY, PLEASE CONTACT:

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CONFERENCE PRICING

SHORT COURSES

	Commercial	Academic, Government, Hospital-Affiliated	Student*
One short course (All In-Person Only)	**€629**	**€399**	**€129**

Monday, 10 November 14:00 – 17:00	
SC1: Best Practices and Advanced Applications for Label-Free Interaction Analysis in Therapeutic Antibody Discovery	SC4: *In silico* and Machine Learning Tools for Antibody Design and Developability Predictions
SC2: Practices for Targeting GCPRs, Ion Channels, and Transporters with Monoclonal Antibodies	SC5: Novel Payloads and Conjugation Strategies: Building on Lessons Learned to Inform Next-Generation ADC Design
SC3: Developability of Bispecific Antibodies	

CONFERENCE PRICING

PREMIUM PACKAGE - Includes access to ALL conferences Tuesday-Thursday. Plus, Virtual and On-Demand access to all conferences for one year. Excludes short courses.			
Advance Registration Rate until 10 October	**€2999**	**€1499**	**€599**
Registration Rate after 10 October	**€3199**	**€1599**	
STANDARD PACKAGE - Includes access to TWO conferences. Plus, Virtual and On-Demand access for one year. Excludes short courses.			
Advance Registration Rate until 10 October	**€2699**	**€1349**	**€399**
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BASIC PACKAGE - Includes access to ONE conference. Plus, Virtual and On-Demand access for one year. Excludes short courses.			
Advance Registration Rate until 10 October	**€2099**	**€1149**	**€299**
Registration Rate after 10 October	**€2299**	**€1199**	

	Tuesday 11 November	Wednesday 12 November	Thursday 13 November
ENGINEERING	C1A: Display of Biologics	C1B: Engineering Antibodies & Beyond	C1C: Machine Learning for Protein Engineering: Part 2
TARGETS	C2A: Antibody-Based Cancer Therapies	C2B: Emerging Targets for Oncology & Beyond	C2C: Antibodies Against Membrane Protein Targets
BISPECIFICS	C3A: Safety and Efficacy of Multispecific Antibodies, ADCs, and Combination Therapies	C3B: Advancing Multispecific Antibodies and Combination Therapy to the Clinic	C3C: Engineering the Next Generation of Bispecific Antibodies
IMMUNOTHERAPY	C4A: Advances in Immunoengineering	C4B: Innovative CAR Therapy	C4C: Next-Generation Immunotherapies
ANALYTICAL	C5A: Optimisation & Developability	C5B: Analytical Characterisation of Biotherapeutics	C5C: Protein Stability & Formulation
EXPRESSION	C6A: Leveraging Data Science for Enhanced Expression and Production	C6B: Optimising Expression Platforms	C6C: Developing BioPharmaceutical Workflows
MACHINE LEARNING	TS7A: Introduction to Machine Learning for Biologics Design	C7B: Machine Learning for Protein Engineering: Part 1	C7C: Machine Learning for Protein Engineering: Part 2
ONCOLOGY	C2A: Antibody-Based Therapies	C8B: Engineering Antibody-Drug Conjugates	C4C: Next-Generation Immunotherapies
TRAINING SEMINARS (10 NOVEMBER) TS1: AI-Driven Design of Biologics: A Hands-on Guide to Using State-of-the-Art ML Protein Models TS2: Introduction to Multispecific Antibodies: History, Engineering, and Application	**TRAINING SEMINARS (11 NOVEMBER)** TS7A: Introduction to Machine Learning for Biologics Design TS8A: Introduction to Analytical Characterisation and Quality Control for Biological Products TS9A: Introduction to Immunogenicity		

See website for details on Group discounts and On-Demand options

** Pre-doctoral, full-time student*

ALUMNI DISCOUNT 20% OFF
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WANT TO REGISTER BY PHONE?

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POST-EVENT ON-DEMAND ONLY:
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ADDITIONAL REGISTRATION DETAILS
23% VAT will be added to each registration

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