Antibody Engineering & Therapeutics

Scientific Program Partner
ANTIBODY SOCIETY

December 15–18, 2024 | Marriott Marquis, San Diego

The #1 Antibody Engineering Conference For Accelerating Next Generation Antibodies To Commercial Success

Keynote Speaker Provides Valuable Insights on Antibody Design

David Baker, PhD, Professor of Biochemistry and Director, Institute for Protein Design, University of Washington

Joy Zuchero, PhD, Senior Director and Staff Scientist, Denali Therapeutics

Galit Alter, PhD, Vice President of Immunology Research, Moderna

Suzanne L. Topalian, MD, Associate Director, Bloomberg-Kimmel Institute for Cancer Immunotherapy, Johns Hopkins Medicine

Register Today to Learn from Case Studies and New Data

- Innovate, Invest, Succeed: The Business Landscape of Antibody Therapeutics
- Quantitative Systems Pharmacology in Antibody Development
- Forward and Reverse Translation in Antibody Research
- Emerging In Vitro Approaches to Antibody Discovery
- Advanced In Vivo Antibody Discovery (i.e. repertoires, single cell, antigens/tolerance, immunizations, etc.)
- Novel Bispecific and Multi-specific Antibodies
- Unusual Antibody Formats
- Emerging Technologies for Antibody-Drug Conjugates (including radioisotypes and non-cytotoxic payloads)
- Innovative Concepts in Cell Engagers (incl. co-stim, and cell therapy)
- Antibody-Based Degraders for Therapeutic Development
- Antibody-Based Approaches to Treat Autoimmunity
- Antibodies for Metabolic Disease and Neurodegeneration

Book by October 20 to save up to $400 | www.antibodyeng.com

Brought to you by informa connect

Connect With The Antibody Community This December

135+

Global Speaker Presentations

Expand your pipeline of antibody therapeutics by hearing case studies, new data and industry updates from leading experts working across the entire spectrum of antibody discovery and development.

900+

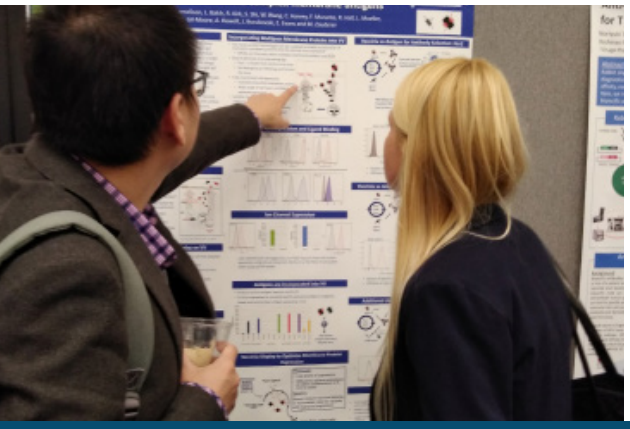
Global Antibody Scientists And Executives

Fast-track your antibody research to the clinic and beyond by collaborating with leading pharma, biotech, academia and solution providers from North America, Asia and Europe.

75+

Exhibitors

Accelerate your promising therapeutic towards commercial sucess by connecting with leading technology and service providers.



125+

Scientific Posters

Stay at the forefront of antibody innovation by accessing cutting-edge and unpublished data from fellow attendees.

Pre-Conference Training Course

Sunday, December 15, 2024 | 9:00am-5:00pm

Introduction to Antibody Engineering

Add-on this pre-conference training course to your main conference registration package for an additional fee and gain a comprehensive overview of antibody engineering in an easy-to-follow classroom setting to help you prepare for the main conference program.

Training Course Overview

Today's wealth of knowledge of protein structures will be reviewed along with the genetics of diversity generation of antibodies, to give insights into the best strategies for improving protein function. There is particular emphasis on the choice of a functional assay to effectively monitor the changes in a desired property, and the use of functional enrichment steps where a library approach is employed. Not only is amino acid sequence amenable to engineering, but glycan structures and other modifications may also be engineered. The course will focus on the engineering and enhancement of antibodies and antibody-like scaffolds. Examples will include work on antibody fragment affinity improvement by 100-fold to low pM affinity. Also, the engineering of bispecific antibodies by diverse approaches and the adaptation to generate Chimeric Antibody Receptor (CAR) constructs will be discussed. Expression platforms for producing antibodies for testing and for manufacture will also be covered. A background in biochemistry and molecular biology is useful, as the course is designed to progress rapidly from simple to advanced concepts.

Instructor:

David Bramhill, Ph.D., Founder, Bramhill Biological Consulting, LLC and Research Corporation Technologies

Course Agenda

- Functions amenable to engineering: affinity, specificity, stability, solubility, immunogenicity
- The measure of success: functional assays
- Engineering by design
- Engineering by random mutation
- Designed libraries
- Display technologies
- Improving manufacturing by protein engineering methods
- Glycosylation engineering – function and homogeneity
- Other protein modifications
- Immunogenicity engineering
- Bispecific antibodies
- Antibody-drug conjugates (ADCs)
- CAR-T strategies
- Expression of antibodies and fragments for discovery and testing
- Manufacturing platforms for antibodies and fragments

Training Course Schedule

08:30am Registration

10:30–11:00am Morning Refreshment Break

12:30am–1:30pm Luncheon

3:00–3:30pm Afternoon Refreshment Break

December 15 * 10:00am-12:00pm * Early Career Scientists Session

As a new addition to the Antibody Engineering & Therapeutics flagship event, we're excited to announce this Early Career Scientists session taking place on the morning of December 15, the day before the main conference. Are you within 10 years of completing your Master's or Ph.D. and under the age of 35? If so, unlock a range of exclusive benefits by selecting the "Early Career Scientist" pass when you register. This session will spotlight short, novel research presentations from early career scientists in the antibody engineering and therapeutics community. You'll also hear an inspiring career journey from a distinguished mid-career scientist, plus enjoy the opportunity to connect and network with peers. You'll also receive free admission to the afternoon pre-conferences workshops on December and the opportunity to present a free poster during the main conference. Please Note: Access to the early career scientists session is only available to those who register for the main conference by selecting the "Early Career Scientist" pass. All passes subject to approval by conference organizers.

CONFIRMED EARLY CAREER SCIENTIST PRESENTATIONS:

Design Meets Biology – Engineering Next Generation Immune Engagers
John Schardt, Ph.D., Senior Scientist, AstraZeneca

Presentation Title TBA
Elaine Chen, Ph.D., Scientist, Translational Biology & Discovery, Rondo Therapeutics

To be considered for a short oral presentation in this session, or for general information about this session, please contact Michael Keenan at Michael.keenan@informa.com

If you are interested in sponsoring this session, please contact Blake Shuka at Blake.Shuka@informa.com

Pre-Conference Workshops

Sunday, December 15, 2024 | 1:00am–5:00pm

Workshop 1:
Quantitative Systems Pharmacology in Antibody Development

1:00 **Co-Chairs' Remarks**

K.Dane Wittrup, Ph.D., C.P. Dubbs Professor of Chemical Engineering and Biological Engineering, Koch Institute for Integrative Cancer Research, Massachusetts Institute of Technology

Stephen Beers, Ph.D., Professor of Immunology and Immunotherapy, Antibody and Vaccine Group, Centre for Cancer Immunology, University of Southampton, United Kingdom

1:15 **Advances in Understanding Cell Signaling in Immunotherapeutics**

Prominent among challenges faced in the immunotherapeutics field across a spectrum of platforms is the need for improved understanding of the complex mechanisms involved in their operation at multiple levels of the immune system.
We have been working to address one aspect of this challenge with respect to immune cell signaling networks, aiming to construct comprehensive yet actionable models for their how they govern effectiveness of immunotherapeutic modalities. This presentation will describe certain new findings, including in applications to antibody glycosylation and to chimeric antigen receptor T cells.

Douglas Lauffenburger, Ph.D., Ford Professor of Bioengineering, Massachusetts Institute of Technology

1:45 **Mathematical Modeling of Response to Immunotherapy in Pancreatic Ductal Adenocarcinoma**

Pancreatic ductal adenocarcinoma (PDAC) is an immunologically cold disease. Increasing immune cell trafficking and activation in PDAC are therefore important for understanding response to immune checkpoint therapies (ICT). Mathematical modeling of the tumor microenvironment (TME) allows us to elucidate the features of PDAC that can determine responsiveness to ICT. By integrating mathematical models with spatial data from patients, we can identify the specific mechanisms in the TME that regulate immune cell trafficking during ICT treatment.

Daniel Bergman, Ph.D., Postdoctoral Fellow, Johns Hopkins Medicine

2:15 **Designing Clinically Effective Antibody Drug Conjugates in Solid Tumors Using Quantitative Systems Pharmacology**

ADCs are a rapidly expanding class of therapeutics with 7 new approvals in the past 6 years. However, they have a long history with many failures in the clinic. This presentation will use a quantitative systems pharmacology approach to highlight the major delivery challenges with ADCs in solid tumors, and how recent successes can be used to inform the design of the next wave of clinical approvals.

Greg Thurber, Ph.D., Associate Professor, Chemical Engineering and Biomedical Engineering, University of Michigan

2:45 **Networking Refreshment Break**

3:15 **Bridging the In Vitro to In Vivo Gap for T-cell Engagers Using QSP Modeling**

ADCs are a rapidly expanding class of therapeutics with 7 new The unique cell-to-cell crosslinking action of T-cell engagers (TCEs) poses challenges for in vitro to in vivo translation. Recent advances in QSP models of TCEs capture key biophysical details of crosslinking, enabling rational techniques for first-in-human dose selection and efficacious dose prediction from in vitro potency assays and preclinical animal studies. This talk will review these developments and explain how QSP models can support and accelerate TCE development.

David Flowers, Ph.D., Director, ABS, Certara

3:45 **Modeling Immunological Synapse Formation Initiated by Bispecific T cell Engagers: What, Why and How**

Bispecific antibody clinical development remains rife with challenges, including nuanced pharmacology, limited translatability of preclinical findings, frequent on-target toxicity, and convoluted dosing regimens. Here we argue that trimer formation on the molecular level are but a proxy for the actual driver of pharmacology. The formation of immunological synapses between tumor cells and T cells involves a coordinated cascade of molecular and cellular interactions that extend beyond the initial antigen-binding event. This cascade includes the survey of potential target cells within the tumor microenvironment, the slowing of T-cell movement upon identification, and the establishment cell-to-cell adhesion. Incorporating these cellular mechanisms into bsTCE QSP models offers promise for predicting long-term efficacy, resistance, and relapse in solid tumors.

Yanguang, Cao, Ph.D., Associate Professor, University of North Carolina at Chapel Hill

4:15 **Comparison of Cancer-targeting and Stromal-targeting Antibody Drug Conjugates Using Bystander QSP models**

This talk will present ADC QSP bystander models incorporating both antigen-positive and antigen-negative cells. These models demonstrate that ADC modality may offer limited response durability if antigen-positive and antigen-negative cells grow independently. However, this limitation could potentially be overcome by stromal-targeting ADCs, as stromal cells are recruited to the tumor. Additionally, we will discuss the optimal ADC properties that balance efficacy across both cell populations.

Ezgi Wood, Ph.D., Senior Research Investigator, QSP, Bristol Myers Squibb

4:45 **Concluding Remarks**

5:00 **Close of Workshop**

Pre-Conference Workshops

Sunday, December 15, 2024 | 1:00am–5:00pm

Workshop 2:
Innovate, Invest, Succeed: The Business Landscape of Antibody Therapeutics

1:00 **Co-Chairs' Remarks**

Jonathan Sockolosky, Ph.D., Senior Director, CSO Partner Team, Curie.Bio

Jennifer Cochran, Ph.D., Professor & Department Chair of Bioengineering, Stanford University

1:15 **Antibody Therapeutics: Riding the Pendulum of Innovation**

While some of the best selling drugs of all time are biologics, several other modalities have been propelled into the limelight by continued innovations that have the potential to outcompete biologics. My talk will focus on the exciting new areas in biologics development through the lens of early-stage therapeutics investing.

Lazar Bojic, Ph.D., Vice President of Investor Network, Curie.Bio

1:45 **Protecting Innovation: IP Strategies for Antibody Therapeutics in a Competitive Market**

Protecting antibody innovations globally faces increasing challenges, both due to different laws in different countries as well as evolving legal standards, particular in the US and Europe. My talk will focus on potential strategies to a) cover products, b) throw patent obstacles in front of biosimilars and c) generate third party licenses for platform technologies.

Robin Silva, Consulting Patent Attorney, Xencor

2:15 **Investing in Antibody-based Therapeutics**

Key considerations in starting and investing in companies focused on antibody- based therapeutics include the importance of choosing the right target, molecule attributes and format, clinical indication, investors and team.
I will also discuss the differences in drug discovery at large biotech/pharma versus at a smaller company including portfolio considerations.

Sarah Hymowitz, Partner, The Column Group

2:45 **Networking Refreshment Break**

3:15 **Tackling the Impossible Task of Project Selection in An Early Stage Biotech Startup**

Alexey Lugovskoy, Ph.D., President and CEO, Diagonal Therapeutics

3:45 **Carving out a Path to Differentiation in a Crowded Therapeutics Market**

Early-stage biotech companies must walk a fine line between innovation and risk management. For some companies, this means working with a clinically validated MOA and differentiating from first movers based on target and ind ication selection or significant functional improvements. As part of the highly active T-cell engager field, our team has successfully created multiple differentiated platforms.

Shelley Force Aldred, Ph.D., CEO, Rondo Therapeutics

4:15 **Panel Discussion**

Jonathan Sockolosky, Ph.D., Senior Director, CSO Partner Team, Curie.Bio

Jennifer Cochran, Ph.D., Professor & Department Chair of Bioengineering, Stanford University

4:45 **Concluding Remarks**

5:00 **Close of Workshop**

Main Conference | Keynote Presentations

Monday, December 16, 2024

7:00 **Registration and Breakfast**

Keynote Presentations

8:00 **Co-Chairs' Welcome and Opening Remarks**

Janine Schuurman, Ph.D., Biotech Consultant, Lust for Life Science

Katherine Harris, Ph.D., Chief Development Officer, Rondo Therapeutics

8:05 **PD-1 Pathway Blockade: A Common Denominator for Cancer Therapy**

Antibodies blocking the immunosuppressive receptor PD-1 on immune cells or its major ligand PD-L1 on tumor and stromal cells have become foundational in oncology. Their wide-ranging applications are now extending across more than 20 cancer types, and from advanced to earlier stages of cancer. The discovery of biomarkers predicting therapeutic response/resistance holds promise for further advancing this mode of cancer therapy.

Suzanne L. Topalian, M.D., Associate Director, Bloomberg-Kimmel Institute for Cancer Immunotherapy, Johns Hopkins Medicine

8:45 **Using Systems Immunology to Define Antibody Mediated Mechanism of Action: Inspiring Monoclonal Therapeutic Design?**

Galit Alter, Ph.D., Vice President of Immunology Research, Moderna

9:25 **Transport Vehicle: Utilizing the Brain Vasculature to Deliver CNS Therapeutics through Fc Engineering**

The inability of large molecule therapeutics to cross the blood-brain barrier has remained a major obstacle for the treatment of neurological disorders. Numerous strategies have aimed to increase brain exposure of biotherapeutics; approaches which utilize transport across the BBB via the rich capillary network are expected to significantly increase exposure in the brain and additionally result in broad distribution throughout the brain. Our approach utilizes the Transport Vehicle (TV), which binds to receptors, such as the transferrin receptor (TfR) and CD98hc, present on the BBB via modifications to the Fc region of an IgG. The TV-targeted receptors are expressed on brain vascular endothelial cells and enable transport of bound molecules across the BBB to reach target cells in the brain parenchyma. The molecular architecture of the TV platform is highly modular and enables the delivery of numerous types of biotherapeutics, including antibodies, enzymes, proteins, and oligonucleotides with the potential to meaningfully increase drug concentrations and target engagement in the CNS for the treatment of neurological disorders.

Joy Zuchero, Ph.D., Senior Director and Staff Scientist, Denali Therapeutics

10:05 **Networking Refreshment Break**

10:35 **Design of New Protein Functions Using Deep Learning**

Proteins mediate the critical processes of life and beautifully solve the challenges faced during the evolution of modern organisms. Our goal is to design a new generation of proteins that address current-day problems not faced during evolution. In contrast to traditional protein engineering efforts, which have focused on modifying naturally occurring proteins, we design new proteins from scratch to optimally solve the problem at hand. Increasingly, we develop and use deep learning methods to design amino acid sequences that are predicted to fold to desired structures and functions. We also produce synthetic genes encoding these sequences and characterize them experimentally. In this talk, I will describe several recent advances in computational protein design.

David Baker, Ph.D., Professor of Biochemistry and Director, Institute for Protein Design, University of Washington

Keynote Presentations

11:15 **Jim Huston Science Talent Award and Presentation**

Award Presentation Co-Chairs:

Jonathan Sockolosky, Ph.D., Senior Director, CSO Partner Team, Curie.Bio

Katherine Harris, Ph.D., Chief Development Officer, Rondo Therapeutics

Jim Huston Science Talent Award Winner:

Jenna Guthmiller, Ph.D., Assistant Professor, Department of Immunology, University of Colorado Anschutz Medical Campus

11:45 **Antibodies to Watch in 2025**

In this presentation, Dr. Reichert will provide an update on the antibody therapeutics currently in late-stage clinical studies, as well as those in regulatory review and recently approved. Trends observed in the burgeoning early-stage pipeline, popular formats and mechanisms of action, as well as common and obscure targets for antibody therapeutics will also be discussed.

Janice M. Reichert, Ph.D., Executive Director, The Antibody Society; Editor-in-Chief, mAbs

12:10 **Transition to Scientific Luncheon Briefings**

12:15 Scientific Luncheon Briefings

Writing the Future of Biologics with an Integrated Offering of Immunization, Libraries, and Machine Learning

Twist Biopharma Solutions, a division of twist Bioscience, combines HT DNA synthesis technology with expertise in antibody engineering to provide end-to-end antibody discovery solutions — from gene synthesis to antibody optimization. The result is a make-test cycle that yields better antibodies against challenging targets from immunization, libraries, and machine learning. Twist Biopharma Solutions will continue to optimize and expand its discovery, library synthesis and screening capabilities in partnership with others to further utilize their make-test cycle.

Aaron Sato, Chief Scientific Officer, Twist Bioscience

At-Line Nanoparticle-Based Antibody Molecular Structure Analyses

At-line nanoparticle-based molecular structure analyses were performed on antibody samples in Clarified Fermentation Broth using ProteometerTM kits, which provide rapid analytical tests for titer, aggregates, and charge variants. The Novilytic Proteometer's nanotechnology is for Process R&D and Discovery scientists/engineers who need a more efficient method of molecular structure analysis. Unlike LC/MS instruments, Proteometers provide fast, accurate, and quantifiable molecular data in-process without sample preparation or Protein A purification.

Eric Bowen, Director of Product Management, Novilytic

Building Multispecifics from in vivo Derived Antibody Domains and Alternative Scaffolds

At OmniAb, we build, shape and mine custom, naturally optimized immune repertoires in divergent species to discover next generation biotherapeutics. We use high throughput phenotypic screening augmented by an AI-guided NGS workflow to navigate the vast sequence space and find high quality leads, bypassing extensive ex-vivo engineering. We demonstrate how we discovered developable anti-NKp46 binders with broad epitope coverage and affinities as building blocks for NK cell engager multispecifics.

Yasmina Abdiche, Ph.D., Vice President, Exploratory Research, OmniAb

Accelerating Antibody Drug Discovery with GenScript's MonoRab TM & TurboCHOTM Platforms

The therapeutic antibody market is rapidly growing due to unmet needs and increased awareness of targeted therapies. The availability of advanced techniques and platforms in the market speeds up the process of antibody drug discovery to meet the increasing demands. GenScript's MonoRab™ and TurboCHO™ platforms streamline development, reducing timelines and costs. This integrated approach delivers high-quality therapeutic antibodies faster, addressing urgent medical needs and advancing biopharmaceutical innovation.

Hui Foon Tan, PhD., Global Product Manager, GenScript

Custom Antibody Optimization in a Single Step

Many antibody-based drug candidates require additional engineering such as affinity maturation, humanization, cross-reactivity and improved stability for optimal therapeutic efficacy. Here, we discuss TumblerTM, a validated CDR shuffling approach for customizable antibody optimization. This method utilizes diversity from our in-house libraries and near-parental sequence space CDR variants, grafted into a human framework, to minimize redundancy and maximize functional diversity. The talk will highlight a variety of engineering successes, including affinity maturation, induction of cross-binding, and humanization campaigns. The presentation will also showcase how Tumbler maximizes diversity and provides valuable insights about sequence-activity relationships. With over a dozen successful project outcomes across a diverse set of targets, Tumbler offers a robust and flexible antibody engineering solution to help accelerate therapeutic candidates through the drug development process.

Kalyani Mondal, Ph.D., Associate Director BioSensors, Charles River Laboratories

Main Conference

Monday, December 16, 2024

1:15 Scientific Briefings

Maximize AI Potential in Biologics Discovery and Development: from model Training to Consumption

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 maximizing AI investment returns. Discover how a unified platform can streamline AI use in biologics discovery, from model training to consumption.

Nestor Vazquez Bernat, Ph.D., Head of Application Science, ENPICOM, The Netherlands

---

Automated, Small-scale Transient Expression of Recombinant Antibodies in ExpiCHO and Expi293 Cell Lines for High-throughput Screening Applications

Thermo Fisher Scientific's GeneArt Protein Expression Services offer scalability, reproducibility, and speed in transient expression of recombinant antibodies. We give insight in the technical as well as experimental design process to develop an automated platform with end-to-end traceability in a fully integrated workflow starting from single nucleotides to deliver a purified and polished antibody product.

Benjamin Gengenbach, Ph.D., Staff Engineer - Bioprocess Automation, Life Sciences Solutions, Thermo Fisher Scientific

---

Build Better Biology with an Expanded Toolbox of Acronyms; AI, LLM, ML, αfold, ASR, DoE & LIMS

The typical drug development funnel for biologics starts with many thousands of binders derived from a discovery engine. Each subsequent developability assay reduces the lead pipeline until only a handful winners are left standing. Instead, ATUM's developability engineering relies on utilizing information-rich multi-objective testing of a modest number of lead variants that are perfectly distributed in sequence-function space. Modern statistical tools AI, ML, ASR, DoE and more have profoundly improved the efficiency of the information capture and data modeling. The resulting knowledge not only dictates the 'best' solution in the searched space, but also provides boundaries for developability attributes.

Claes Gustafsson, Ph.D., Co-founder and Chief Commercial Officer, ATUM

Design and Implementation of OmniHubTM, A Platform for Bioinformatics Tools Facilitating Antibody Discovery Workflows

OmniHub significantly enhances the operational efficiency of antibody discovery workflows by automating data handling. This reduces manual effort, provides standardization, and minimizes errors. OmniHub integrates machine learning (ML) and artificial intelligence (AI) tools, along with bioinformatics pipelines, to create a comprehensive interface that allows internal and partner scientific teams to collaborate through shared data visualization and analysis. As a result, OmniHub lays the foundation for innovative and collaborative scientific discovery.

Swetha Garimalla, Ph.D., Director of Computational Immunology, OmniAb

1:45 Scientific Briefings

Strategies to Amplify the Therapeutic Potential of Rabbit-derived Antibodies

This session will explore effective strategies for accelerating lead selection from a diverse panel of antibodies. Key techniques presented include proprietary methods for leveraging the unique immune system of rabbits, early epitope landscape profiling, and the use of IPA's in silico-driven humanization workflow. This approach combines thorough risk assessment, early de-risking, and high-throughput, in vitro kinetic profiling, resulting in the rapid delivery of optimized antibodies ready for clinical development.

Andra Li, Ph.D., Scientific Director, IPA (ImmunoPrecise Antibodies), Canada

---

Main Conference

Monday, December 16, 2024

Discovery of Antibody-derived Therapeutic Candidates with Optimal Developability Profile

In the early discovery of antibody-derived biologics, finding a candidate with optimal binding and biological functions is crucial. However, the developability of these molecules—evaluating attributes like homogeneity, stability, solubility, and specificity—is often overlooked. This oversight can lead to significant CMC development challenges, extended timelines, high costs, and potential clinical failures. This speech will discuss the importance of incorporating developability evaluations and enhancements early on, using case studies to highlight their critical nature.

Geroge Wang, Ph.D., Vice President, Discovery and Preclinical Development Service, WuXi Biologics

Development of a NK Cell Engager Utilizing Antibodies Targeting a Single Amino Acid Variation

Natural killer (NK) cells play a vital role in the human innate immune system and NK cell engagers are being explored as a promising approach for cancer and autoimmune disease immunotherapy. Using AvantGen's Germliner™ Library Collection, we've isolated and developed a panel of highly specific fully human CD16a antibodies that exhibit potent activities in killing target cells in various NK cell engager formats.

Jordon Wang, Ph.D., COO, Senior Vice President, Technology Development, AvantGen

Revolutionizing Therapeutic Antibody Engineering with Geneious-Luma: A Path to Next-Gen Multispecific Antibodies

The field of therapeutic antibody engineering is on the brink of a transformative leap forward with the advent of Geneious-Luma-supported computational design. This cutting-edge platform promises unparalleled precision and efficiency in the discovery of next-generation multispecific antibodies (msAbs). This talk will delve into the myriad challenges inherent in researching and developing therapeutic msAbs, and will showcase how the Geneious-Luma computational design platform adeptly addresses these challenges, paving the way for more successful biologics drug treatments.

Christian Olsen, Associate VP, Industry Principal, Biologics, Dotmatics

Unlock a New Era of Automated Mini- and Maxi-Scale Plasmid Purification with AmMag™ Quatro Solutions

GenScript's new AmMag™ Quatro Mini-1100 and Maxi-1400 systems, utilizing novel magnetic bead technology, provide automated, high-quality plasmid DNA purification. These advanced systems enhance throughput, yield, and reproducibility, handling culture volumes of up to 10 mL with the Mini-1100 and up to 200 mL with the Maxi-1400. Discover how these innovative solutions streamline workflows, delivering superior transfection-ready plasmid DNA and boosting lab efficiency and scalability.

Luciana K. Rosselli-Murai, Ph.D., Head of Field Application Scientist (FAS), Products and Instruments Division (USA and Europe), GenScript

TRACK 1: ANTIBODY-BASED DEGRADERS FOR THERAPEUTIC DEVELOPMENT

2:25 Co-Chairs' Remarks

Katherine Harris, Ph.D., Chief Development Officer, Rondo Therapeutics

Jamie Spangler, Ph.D., Associate Professor of Biomedical Engineering and Chemical & Biomolecular Engineering, Johns Hopkins University

2:30 Targeted Membrane and Extracellular Protein Degradation via Transferrin Receptor

The extracellular proteome plays central roles in health and disease. Harnessing TfR1, a constitutive, rapidly internalizing receptor, we developed Transferrin Receptor Targeting Chimeras (TransTACs) for targeted degradation of membrane and extracellular proteins. In two applications, TransTACs enabled the targeting of drug-resistant EGFR-driven lung cancer and reversible control of CAR-T cells. TransTACs represent a promising new family of bifunctional antibodies for precise manipulation of extracellular proteins and for targeted cancer therapy.

Xin Zhou, Ph.D., Assistant Professor of Biological Chemistry & Molecular Pharmacology, Dana-Farber & Harvard Medical School

TRACK 2: FORWARD AND REVERSE TRANSLATION IN ANTIBODY RESEARCH

2:25 Co-Chairs' Remarks

Jyothsna Visweswaraiah, Ph.D., Director, Biotherapeutics, Drug Creation, Seismic Therapeutic

Sara Colombetti, Ph.D., Global Head of Oncology Discovery Pharmacology, Roche Innovation Center, Switzerland

2:30 Optimising Immunostimulatory Antibodies for Cancer Therapy

The talk will focus on our pre-clinical and clinical experience with CD27 monoclonal antibodies and consider how their therapeutic activity might be improved.

Sean Lim, Ph.D., Professor of Haematology & Translational Immunology, University of Southampton, United Kingdom

Main Conference

Monday, December 16, 2024

3:00 Antibody-mediated Delivery of Chimeric Protein Degraders

Utilizing the ability of antibodies as delivery vehicles has resulted in a therapeutic modality known as antibody-drug conjugates or ADCs. As the field advances, new opportunities for antibody-mediated delivery are being explored. This talk will focus on our efforts to link chimeric protein degraders (aka PROTACs) to antibodies, their efficacy and safety, and how this general approach can expand the utility of directed protein degradation as both a biological tool and a therapeutic possibility.

Thomas Pillow, Ph.D., Distinguished Scientist, Genentech

3:30 Degrader Antibody Conjugates – Reimagined ADCs for Oncology and Beyond

Degrader antibody conjugates (DACs) combine the unique strengths of ADCs with selective protein degraders. Our state-of-the-art platform enables DACs broadly. Degraders with different mechanisms of action and diverse structures can be delivered in antigen-dependent manner opening exciting opportunities for this novel therapeutic modality.

Bernhard Geierstanger, Ph.D., Co-founder and Chief Technology OfficerFirefly Biologics

4:00 Networking Refreshment Break and Opening of Exhibit and Poster Hall

4:45 EpiTACs Are a Novel Bispecific Antibody Platform that Drive the Degradation of Disease-Driving

Elimination of extracellular proteins is a compelling therapeutic modality. EpiTACs are bispecific antibodies in which one arm binds a target and the other arm leverages an EpiAtlas of tissue-enriched degrading receptors comprised of transmembrane ligases, cytokine/chemokine receptors, and internalizing receptors resulting in selective degradation of membrane and soluble proteins. EpiTACs elicit robust in-vitro and in-vivo activity in a target-, tissue- and disease-specific manner for a broad range of indications. Compelling data across multiple targets demonstrates that EpiTACs can degrade a target independent of mutational status, are better than neutralizing antibodies in preclinical models, and drive a survival benefit in preclinical tumor models.

Shyra Gardai, Ph.D., Chief Scientific Officer, EpiBiologics

5:15 Single Domain Antibodies as Therapy for Tauopathies and Synucleinopathies Single

Single domain antibodies (sdAbs) are about one-tenth the size of standard antibodies and have several advantages for therapeutic development. We have generated numerous sdAbs from llamas immunized with tau or α-synuclein proteins. The presentation will highlight our key findings to date and ongoing studies.

Einar Sigurdsson, Ph.D., Professor, NYU Grossman School of Medicine

5:45 Lysosomal Targeting Chimeras for the Degradation of Extracellular Proteins

The Lysosome Targeting Chimera (LYTAC) is a targeted protein degradation modality that utilizes receptor-mediated endocytosis to drive internalization and lysosome-mediated degradation of extracellular target proteins. In this presentation, we will disclose application of Lycia's platform to design and generate small molecule conjugate and fully biologic LYTACs that promote strong in vitro and in vivo depletion of protein targets of interest.

Steve Staben, Ph.D., Chief Scientific Officer, Lycia Therapeutics

3:00 The Therapeutic Potential of IgE and IgE-derived Antibodies

A recent clinical trial involving MOv18 IgE, provided tantalising evidence of IgE's potential for the treatment of cancer. Epsilogen is conducting a phase Ib trial in which translational data will be collated to further understand mechanisms associated with IgE therapy. In addition, Epsilogen has established a pipeline of anti-tumoral IgEs and two novel platforms: bispecific IgE and a hybrid antibody which combines the effector functions of IgE and IgG.

Kevin Fitzgerald, Ph.D., Chief Scientific Officer, Epsilogen, United Kingdom

3:30 The FORCE Platform Leverages TfR1 for Delivery of Potentially Disease-modifying Therapeutics to Treat Muscle Diseases

The FORCE™ platform was designed to enhance delivery of oligonucleotide to muscle for the treatment of neuromuscular disorders by conjugating them to an antigen-binding fragment (Fab) that is selective for the human transferrin receptor 1 (TfR1). In this presentation, we introduce the properties and modularity of the FORCE platform and provide evidence of translation between pre-clinical models and clinical proof of concept in myotonic dystrophy type 1 (DM1) with DYNE-101.

Tama Evron, Ph.D., Director, Platform Discovery, Dyne Therapeutics 4:

4:00 Networking Refreshment Break and Opening of Exhibit and Poster Hall

4:45 Presentation Title TBA

Christine Moussion, Ph.D., Senior Principal Scientist and Group HeadCancer Immunotherapy, Genentech

5:15 Checkpoint Flexible Dimer Biology, Novel Pathways, and Forward Translation

We show unique mechanisms of flexible homodimerization crucial for the inhibitory function of checkpoint receptor PD-1 and LAG-3, and identified a novel cell surface receptor potently modulating myeloid-associated Type-I IFN responses. These efforts laid the foundation for developing novel immunotherapies for cancer and autoimmune diseases.

Jun Wang, Ph.D., Assistant Professor, Department of Pathology, NYU Grossman School of Medicine

5:45 CD19 Targeted CD28 Agonism: Learnings from Forward and Reverse Translation Approaches

Sara Colombetti, Ph.D., Global Head of Oncology Discovery Pharmacology, Roche Innovation Center, Switzerland

6:15-7:45 pm Opening Night Networking Reception, Exhibits and Poster Viewing

Please join your fellow attendees in the exhibit hall for an evening of networking while enjoying beverages and appetizers.

Main Conference

Tuesday, December 17, 2024

6:30am **Sunrise Yoga: Wellness Event**

7:15am **Registration**

7:30 Scientific Breakfast Briefings

Alloy Therapeutics

emp BIOTECH

TRACK 1: NOVEL BISPECIFIC AND MULTI-SPECIFIC ANTIBODIES

8:10 **Co-Chairs' Remarks**

Janine Schuurman, Ph.D., Biotech Consultant, Lust for Life Science

James Ernst, Ph.D., Vice President, Development Sciences; Head of Protein Sciences & Technology, Xencor

8:15 **DuoBody-EpCAMx4-1BB Facilitates Conditional T-cell Co-stimulation and Augments Antitumor Activity in Preclinical Studies**

DuoBody®-EpCAMx4-1BB is a novel, clinical stage, bispecific antibody targeting EpCAM and 4-1BB designed to boost antitumor responses conditionally in EpCAM-expressing tumors. By crosslinking EpCAM on tumor cells with 4-1BB on immune cells, DuoBody-EpCAMx4-1BB enhances T-cell activation, proliferation, and antitumor activity in preclinical studies. DuoBody-EpCAMx4-1BB is co-developed by BioNTech and Genmab. The preclinical characterization of DuoBody-EpCAMx4-1BBB will be presented.

Kristel Kemper, Ph.D., Director, Translational Research, Genmab, The Netherlands

8:45 **BiCE™ – An Antibody Platform to Potentiate Complement Activation for the Treatment of Cancer and Autoimmune Diseases**

Monoclonal antibodies struggle to achieve potent complement activation due to the need for multivalent C1q binding, resulting in the underutilization of complement as a therapeutic mechanism. We have recently described an innovative approach involving bispecific single domain antibodies, BiCE™, which efficiently recruit and activate C1. We now present the 2nd generation BiCE™ IgG molecules that exhibit superior complement-mediated cell killing compared to competing technologies, holding great therapeutic potential.

Mikael Winkler, Ph.D., CTO & Co-founder, Commit Biologics, Denmark

TRACK 2: ANTIBODIES FOR METABOLIC DISEASE AND NEURODEGENERATION

8:10 **Co-Chairs' Remarks**

James Larrick, M.D., Ph.D., Managing Director and Chief Medical Officer, Panorama Research Institute

Katrin J. Svensson, Ph.D., Assistant Professor, Department of Pathology, Stanford School of Medicine

8:15 **Targeting Na+/K+ ATPase to Treat Neurodegenerative Diseases**

Na+/K+–adenosine triphosphatase (NKA) is a transmembrane protein consisting of three subunits: α, β, y. A progressive decline of NKA activity exacerbates neurodegeneration in the aging process. To reverse this effect, we generated an NKA-stabilizing monoclonal antibody, DR5-12D, against the DR region (897DVEDSYGQQWTYEQR911) of the NKAα1 subunit. It was demonstrated that DR5-12D produced therapeutic effects against neurodegenerative diseases. Therefore, DR5-12D may represent a new therapeutic strategy for neurodegenerative diseases.

Jinsong Bian, Ph.D., Professor and Head Department of Pharmacology, Southern University of Science and Technology, China

8:45 **GDF-15 Neutralization with Ponsegromab: A Potential Treatment for Cachexia**

Growth differentiation factor 15 (GDF-15) is a stress induced cytokine that causes anorexia and weight loss, and higher circulating levels are associated with cachexia and reduced survival in patients with cancer. Inhibition of GDF-15/GFRAL biological activity reverses cachexia in numerous preclinical tumor models, and ponsegromab (a novel, first in class humanized monoclonal anti-GDF15 antibody) is being developed as a therapeutic agent for cancer cachexia.

Danna Breen, Ph.D., Research Fellow, Pfizer

Main Conference
Tuesday, December 17, 2024

9:15 **Extracellular Protein Degradation by Biparatopic Sweeping Antibody**

We previously developed SMART-Ig® technology to efficiently remove soluble antigens from the blood. This time, we aimed for more efficient antigen removal by creating pH-dependent biparatopic antibodies that bind to different epitopes of a soluble monomeric antigen in a pH-dependent manner. These antibodies accelerated cellular uptake by forming larger immune complexes, successfully removing soluble antigens from the blood more efficiently.

Eriko Matsuda, Head of Lead Identification, Discovery Biologics, Chugai Pharmaceutical Co. Ltd., Japan

9:15 **Identification of Novel Metabolic Targets**

This talk describes the regulation of energy balance and appetite beyond traditional hormonal mechanisms. We discuss Peptide Predictor, a computational tool that identified BRINP2-Related Peptide (BRP), an anorexigenic peptide cleaved by PCSK1. BRP significantly reduces food intake and obesity through a unique central signaling pathway, without affecting other metabolic behaviors. This discovery highlights the potential of peptide prediction platforms in uncovering new metabolic regulatory mechanisms and biological pathways.

Katrin J. Svensson, Ph.D., Assistant Professor, Department of Pathology, Stanford School of Medicine

9:45 **Networking Refreshment Break, Exhibit and Poster Viewing**

Sponsored by aureka

Technology Showcase Presentation

9:55–10:15 **Revolutionizing GPCR Antibody Discovery with Autonomous Yeast and AI**
Alon Wellner, Ph.D., Vice President Biology and Co-Founder, Aureka Biotechnologies

aureka

10:30 **Discovery and Development of an Antibody Agonist everaging Experimental and Computational Methods**

The discovery of agonistic antibody drugs has been severely limited by the difficulty of identifying epitopes that support the productive engagement of the signaling complex. Using a combination of experimental and computational approaches, we generated agonist antibodies that activate the ALK1 Information Classification: General pathway to treat vasculopathies. The techniques we developed can generate agonist antibodies against any heteromeric receptor complex, opening new opportunities to treat many human diseases with precision biologics drugs.

Alexey Lugovskoy, Ph.D., President and CEO, Diagonal Therapeutics

11:00 **Machine Learning-guided Design of Next-generation Logic Gated and Avidity-driven T Cell Engagers for Patients with Solid Malignancies**

T cell engaging antibodies (TCEs) are effective therapeutics for patients with diverse malignancies when adequately targeted to tumor biomass. We show that ML methods can support the efficient design of TCEs, including via boolean logic, targeting co-expressed tumor antigens and sparing healthy tissues expressing either antigen, even at high receptor densities. Overall, we demonstrate how AI/ML design with rapid, closed loop wet-lab characterization supports the systematic design of safe and effective TCEs.

Ryan Henrici, M.D., Ph.D., Senior Director, Translational Research, BigHat Biosciences

11:30 **Bispecific Antibodies for Oncology and Autoimmune Diseases**

Xencor has created a growing set of bispecific antibodies, using principles of avidity-driven selectivity to improve therapeutic index. Building on these modalities are additional efforts to explore T cell costimulation via signal 2 to potentiate anti-tumor activity of T cells.

John Desjarlais, Ph.D., Chief Scientific Officer, Xencor

10:30 **AAV-based anti-RAN antibody therapy for C9orf72 ALS/FTD**

We show AAV delivery of full-length antibodies targeting GA-dipeptide proteins in C9orf72 ALS/FTD BAC-transgenic mice reduces repeat associated non-AUG (RAN) protein levels, improves behavior and neuropathology, and increases survival. AAV delivery of high-affinity antibodies is a novel strategy to achieve broad and sustained CNS expression and biodistribution of therapeutic antibodies. These data open new possibilities for developing AAV-antibody therapies as a novel approach for C9orf72 ALS/FTD and other neurodegenerative disorders.

Laura Ranum, Ph.D., Director, Center for NeuroGenetics, University of Florida

11:00 **CNS Delivery of Biologics Using Bispecific Antibodies Targeting CD98hc and Transferrin Receptor**

The inability of antibodies to penetrate the blood-brain barrier is a key limitation to their use in diverse applications. We are developing bispecific antibodies that engage either CD98hc or transferrin receptor, which results in the transport of IgGs and other biologics into the CNS. We will highlight our findings related to the unique advantages of CD98hc and transferrin receptor bispecific antibodies, especially related to the impact of target engagement in the CNS on pharmacokinetics and CNS distribution. Finally, we will discuss our recent findings on applications of bispecific antibodies for targeted CNS drug delivery.

Yunxuan Xie, Ph.D. Candidate, Graduate Research Assistant, University of Michigan

11:30 **Harnessing Alector Brain Carrier (ABC) to Deliver Novel Neuroimmunology Therapies to the CNS**

Alector is a leader in the field of Neuroimmunology - harnessing the brain's immune system to cure neurogenerative disorders. Here we describe our Neuroimmunology pipeline and our novel Blood-brain barrier crossing technology (ABC) designed to further enhance brain delivery of antibody and protein therapeutics to address neurodegenerative diseases.

Eric Brown, Ph.D., Associate Director, Protein Engineering, Alector

12:00 pm **Transition to Scientific Briefings**

Main Conference
Tuesday, December 17, 2024

12:05 Scientific Briefings

Cutting Through the Hype: Real-World Applications of AI in Antibody Discovery and Engineering

Artificial intelligence (AI) is transforming antibody discovery and engineering. Ailux's platform synergistically combines the best of our comprehensive wet lab, AtlaX proprietary database, and three AI engines. We will explore a series of case studies that exemplify our AI-driven approach for tackling hard targets, engineering challenging molecules, and accelerating conventional discovery campaigns. This presentation provides our realistic and evidence-based perspective on AI's impact on the industry.

Barry Duplantis, Ph.D., Director of Global Business Development, Ailux Biologics by XtalPi

An Integrated approach for Characterizing and Managing Immunogenicity Risk

Immunogenicity risk assessment is an essential step in bringing therapeutic drugs to the market. ProImmune's risk management tools evaluate immunogenic epitopes and the corresponding functional T cell responses that can lead to unwanted immune responses. Case studies will highlight how the integrated platform is used to address key questions in the drug development phase.

Emilee Knowlton, Ph.D., Senior Immunology Sales Specialist, ProImmune, Inc.

Accelerating Antibody Drug Discovery with Fully Human Antibody Mouse and High-Throughput Single B Cell Screening

This topic explores the revolutionary potential of the genome-edited mouse where endogenous VH and VL genes are replaced by fully human VH and VL genes in situ, enabling the generation of fully human antibody molecules. Combined with microfluidic technology-enhanced single B cell screening, this approach allows for the high-throughput and efficient discovery of antibody drug molecules.

Lei Shi, Ph.D., Senior Vice President, Biointron Biological

12:35 pm **Networking Luncheon, Exhibit and Poster Viewing**

Technology Showcase Presentation

12:45–12:55 **Tools to Accelerate PK Screening in Antibody Development**
Maria Germana Sanna, Ph.D., Field Application Scientist-West Coast, Gyros Protein Technologies

1:45 Scientific Briefings

Integrating Synthetic Biology and Computer-aided Design to Advance Biologics Production in CHO Cells

In this talk, we present the CHO Edge System, which integrates a glutamine synthetase (GS)-CRISPR knockout CHO host, a hyperactive transposase, libraries of characterized genetic elements to control cellular functions, and computational tools for rational vector design and multi-omics analysis. We present case studies highlighting the impact of these tools to optimize expression for both standard monoclonal and bispecific antibodies.

Scott Estes, Head of Cell Line Development, Asimov

Main Conference

Tuesday, December 17, 2024

Asymmetric Bispecific Antibody Purification Platforms

Asymmetric bispecific antibodies have a great potential for becoming the next big leap for antibodies, but present challenges for purification. One way to purify these molecules is by using avidity effects on affinity protein A and protein L resins. In this presentation, we show newly developed tools and a systematic approach that can be used to achieve high purity of the correctly paired antibody in the capture step.

Mats Ander, Principal Research Engineer, Cytiva

Faster Antibody Discovery with Automated Bioinformatics Pipelines – Flexible in silico Analysis for Antibody Discovery and Development

Quickly obtaining qualified clones from multiple antibody generation technologies is crucial for advancing functional antibodies that eventually constitute the therapeutics of tomorrow.

Jannick Bendtsen, Ph.D., CEO, PipeBio

Unlocking Membrane Targets: A Journey Through Antibody Discovery

This talk details an antibody discovery campaign targeting a membrane protein using advanced single B cell screening. It highlights pioneering cell-binding assays, high sequence fidelity, robust bioinformatics, and stringent validation. The discovery step, crucial for IP generation, ensures no valuable hits are missed, with high predictability in determining valuable antibodies and confirmation through flow cytometry.

Allison Schulkins, Chief Operating Officer, Single Cell Technology

TRACK 1: INNOVATIVE CONCEPTS IN CELL ENGAGERS

2:25 **Co-Chairs' Remarks**

Shelley Force Aldred, Ph.D., CEO, Rondo Therapeutics

Eric Smith, Ph.D., Executive Director – Bispecifics, Regeneron Pharmaceuticals

2:30 **Combination Strategies to Enhance Anti-tumor T cell Response**

This presentation will describe pre-clinical data from Regeneron's clinical approaches to enhancing anti-tumor efficacy of T cells, focusing on the combination of costimulatory bispecific antibodies with checkpoint blockade and T cell redirecting bispecifics. In addition, data from new classes of T cell targeted enhancement strategies in pre-clinical development will be discussed.

Eric Smith, Ph.D., Executive Director – Bispecifics, Regeneron Pharmaceuticals

3:00 **Co-stimulatory Bispecific Antibody Strategies for Treating Solid Tumors**

T-cell engaging bispecific antibodies have had tremendous success in treating hematologic tumors but have shown limited efficacy in solid tumors. Alternative strategies for engaging the immune system employing safe and tunable bispecific antibodies are needed to overcome the challenges of solid tumors. In this presentation, we describe the bispecific platforms developed at Rondo Therapeutics and highlight progress on our lead program, RNDO-564, a CD28 x Nectin-4 bispecific antibody for treatment of metastatic bladder cancer.

Katherine Harris, Ph.D., Chief Development Officer, Rondo Therapeutics

TRACK 2: ANTIBODY-BASED APPROACHES TO TREAT AUTOIMMUNITY

2:25 **Chairman's Remarks**

John Desjarlais, Ph.D., Chief Scientific Officer, Xencor

2:30 **Briquilimab, An anti-c-Kit Monoclonal Antibody, As A Potential Therapeutic for Mast Cell-related Disorders**

Mast cells (MCs) are key players in many allergic and inflammatory diseases. Briquilimab is a monoclonal antibody that binds to c-Kit, blocking stem cell factor from binding and activating c-Kit, leading to MC apoptosis and depletion. Pharmacokinetic and pharmacodynamic evaluation of briquilimab in non-human primates and in murine disease models of asthma and dermatitis suggest that briquilimab-mediated depletion of MCs is well-tolerated, protects against MC activation from various stimuli, and significantly reduces tissue inflammation.

Wendy Pang, M.D., Ph.D., SVP Research and Translational Medicine, Jasper Therapeutics

3:00 **Obexelimab: A Differentiated B cell Targeted Antibody for Treatment of Autoimmune Diseases**

Obexelimab is a CD19 x FcγRIIb bifunctional monoclonal antibody resulting in an inhibitory effect, rather than depletion, across B cell lineage (pro-B cells, pre-B cells, B cells, plasmablasts and CD19-expressing plasma cells). It mimics natural antigen-antibody complex for inhibition of B cells. It is being developed for multiple I&I indications for autoimmune diseases. Clinical data from obexelimab-treated patients and relevant mechanisms of action will be discussed.

Xiao Feng, Ph.D., Vice President, Head of Research, Zenas BioPharma

Main Conference
Tuesday, December 17, 2024

3:30 **EVOLVE: Advanced T Cell Engagers with Integrated CD2 Costimulation**

CD3 bispecifics are clinically validated modalities, but none of the 9 approved molecules incorporates a costimulatory signal for optimal T-cell activation. EvolveImmune has integrated natural CD2 costimulation and affinity-tuned CD3 engagement into our EVOLVE platform, which induces sustained T-cell activation and potent redirection against tumor cells, whilst limiting T-cell exhaustion.

Martin Preyer, Ph.D., Executive Director, Biotherapeutics, Evolveimmune Therapeutics

4:00 **Networking Refreshment Break, Exhibit and Poster Viewing**

4:45 **Co-stimulatory IgM T-cell Engagers with Enhanced and Durable Cytotoxicity against Solid Tumors**

IgM-based T-cell engagers (TCEs) exhibit high avidity, specificity and potential safety advantages over other formats due to multivalent architecture and unique position of the CD3 binding domain on J-chain. Having two binding sites on the J chain (for CD3 and CD28), co-stimulatory IgM TCE engages both signal 1 and signal 2 on T-cells, with the goal of optimal T-cell activation and survival for more robust and durable tumor cytotoxicity.

Bruce Keyt, Ph.D., Chief Scientific Officer, IGM Biosciences

5:15 **Engineered Monoclonal IgA for the Treatment of Cancer**

IgA can be a well-suited isotype for therapeutic application in oncology due to its capacity to activate myeloid cells, especially neutrophils. However, therapeutic use is limited through issues with developability, pharmacokinetics, and in vivo translatability. In my talk, I will address the steps we have taken to employ IgA optimally for oncology.

Mitchell Evers, Ph.D., Assistant Professor, UMC Utrecht, The Netherlands

5:45 **Dendritic-T Cell Engagers**

This presentation discusses the pivotal role of dendritic-T cell crosstalk in driving anti-tumor immunity and enhancing immunotherapy. I will highlight our recent studies that led to the development of new immunotherapies, harnessing dendritic cell-T cell interactions for optimal efficacy.

Rony Dahan, Ph.D., Principal Investigator, Weizmann Institute of Science, Israel

3:30 **Forced Proximity and Cotargeting for Autoimmune Diseases**

InduPro leverages inherent and induced proximity of cell surface proteins to discover novel biology and enable therapeutic development. We demonstrate that re- location of immunomodulatory proteins into or out of the immune synapse using select bi-specific antibodies can alter T cell activation. Application of this approach to dampen T cell signaling for the treatment of autoimmune disease will be presented.

Pamela Holland, Ph.D., Senior Vice President, Biology, InduPro

4:00 **Networking Refreshment Break, Exhibit and Poster Viewing**

4:45 **Leveraging Formation of Post-translationally Modified Neoepitopes to Targeting Therapeutic Specifically to Diseased Tissue**

Oxidative stress occurs in many autoimmune diseases which give rise to oxidative post translationally modified (oxPTM) neoepitopes that are recognized by the immune system as 'non-self'. The detection of autoantibodies against oxPTM neoepitopes, might improve early diagnosis and monitoring of disease activity. Importantly, oxPTM neoepitopes accumulating in the diseased tissue can be exploited for targeting therapeutic specifically to diseased tissue. Studies on musculoskeletal diseases and type 1 diabetes will be reviewed.

Ahuva Nissim, Ph.D., Professor in Antibody and Therapeutic Engineering, Queen Mary University, United Kingdom

5:15 **DNTH103, a Highly Potent, Potentially Safer and More Convenient Novel Investigational Therapy in Development for Rare Neuromuscular Autoimmune Diseases**

DNTH103 is an investigational, fully human, half-life extended, potent monoclonal antibody engineered to selectively target the classical pathway by inhibiting only the active form of the C1s protein, to enable a more convenient subcutaneous, self-administered injection dosed as infrequently as once every two weeks. Additionally, selective inhibition of the classical complement pathway may lower patient risk of infection from encapsulated bacteria by preserving immune activity of the lectin and alternative pathways. DNTH103 is in development for Myasthenia Gravis, CIDP and MMN.

Jeffrey Stavenhagen, Ph.D., Chief Scientific Officer, Dianthus Therapeutics

5:45 **Engineered Regulatory T cell Therapy for Autoimmune and Inflammatory Disorders**

Regulatory T cells (Tregs) are naturally occurring immune cells that modulate immune responses and promote tissue homeostasis. Treg dysfunction is characteristic of many chronic autoimmune and inflammatory diseases. Sonoma Biotherapeutics genetically engineers and expands patients' Tregs as a "living therapy" with antigen receptors that target diseased tissue to regulate inappropriate immune responses, reducing inflammation and facilitating tissue repair without compromising host defense.

Joseph Arron, M.D., Ph.D., Chief Scientific Officer, Sonoma Biotherapeutics

6:15–7:15 pm **Exhibit Hall Networking Reception and Poster Viewing**

Main Conference
Wednesday, December 18, 2024

6:30am **Fun Run on San Diego Harbor**

7:15am **Registration**

7:30 Scientific Breakfast Briefings

Electron Density Topography (EDT): A Way for On-demand 3D Observation of Therapeutic Molecules in Solution, From Small Proteins up to Delivery Particles

Rigaku

Enhancing various modalities is at the leading edge of mAb development, however, research and development processes are becoming increasingly complex and unpredictable. It will change the situation if scientists can visualize a newly designed molecule just after a few days or confirm the mode of complex formation as well as epitope/paratopes based on 3D images in solution. EDT enables it not only for 3D images of the molecule but also for molecular flexibilities, dynamic characteristics, and even the internal ratio of components of a molecular complex.

Takashi Sato, Ph.D., Chief Scientist & Technical Architect, Life Science Product Division, Rigaku Corporation, Japan

---

GlobalBio
Engineering better antibodies

TRACK 1: EMERGING IN VITRO APPROACHES TO ANTIBODY DISCOVERY

8:10 **Co-Chairs' Remarks**

Paul W.H.I. Parren, Ph.D., Professor, Department of Immunology, Leiden University Medical Center and Founder and CSO, Gyes BV, The Netherlands

Andrew Bradbury, M.D., Ph.D., Chief Scientific Officer, Specifica

8:15 **Direct Selection of Functional Antibodies and/or VHHs**

It is relatively straightforward to select antibodies or VHHs that bind targets, but much more challenging to generate antibodies with functional activity. Here we describe the use of TripleBar's microfluidics system to select functional CD3 activating antibodies from Specifica's Generation 3 library platform.

Sarah Ives, Vice President, Biopharma, Triplebar Bio

8:45 **Overcoming the Membrane Mountain: Roadmap to Biotherapeutic Discovery Against Complex Membrane Targets Using Next-Gen Antibody and Antibody Fragment Libraries**

Discovery of biotherapeutics against challenging targets such as integral membrane proteins, membrane protein complexes, and heavily glycosylated surface proteins using display technologies remains a challenge. We have utilized therapeutic-ready phage- and yeast-display platforms expressing a diversity of formats to pan against both cells and virus-like particles. Using these novel reagents and protocols, we have managed to discover biotherapeutics to traditionally display "unfriendly" targets.

Jeff Barker, Ph.D., Principal Research Scientist I, AbbVie Bioresearch Center

TRACK 2: UNUSUAL ANTIBODY FORMATS

8:10 **Co-Chairs' Remarks**

Sally Ward, Ph.D., Professor and Director, University of Southampton, United Kingdom

Karen Silence, Ph.D., Head Preclinical Product Development, Argenx, Belgium

8:15 **Engineered Multispecific Immunoglobulin/Single-domain Antibody Fusion Proteins As Novel Immunotherapeutics**

Groundbreaking immunotherapies known as immune checkpoint inhibitors mobilize the immune system against cancer by blocking the protein interactions that suppress immune cell activation. However, limited response rates to these therapies necessitate the development of new molecules that act through alternative mechanisms. Here, we describe the discovery and design of multispecific antibody fusion proteins incorporating single-domain shark antibodies that improve upon clinical drugs, presenting a novel modality to advance cancer treatment.

Jamie Spangler, Ph.D., Associate Professor of Biomedical Engineering and Chemical & Biomolecular Engineering, Johns Hopkins University

8:45 **Applications of Cow Ultralong CDR3 Knobs as the Smallest Antibody Fragment**

A subset of cow antibodies have a heavy chain "ultralong" CDR3 region that can be over 70 amino acids in length, with a disulfide-bonded "knob" domain that protrudes far from the antibody surface. These knob domains can be produced independently of the antibody to generate tiny, high affinity, binding fragments. The novel genetics, structural biology, and biomedical applications of ultralong CDR3 antibodies will be discussed.

Vaughn Smider, M.D., Ph.D., President, Applied Biomedical Science Institute and Adjunct Professor, Molecular Medicine, The Scripps Research Institute

Main Conference
Wednesday, December 18, 2024

9:15 Fast Track Discovery of Human B Cell-derived Antibodies by Direct Functional Screening

We have developed a droplet-microfluidic single-cell-based platform for the repertoire biobanking and expression of the antibodies of up to one million human B cells in HEK cells. This cognate biobank represents 80% of the input cells, the robustness of this format enables any screening process including droplet microfluidic sorting.

This technology is applied for the direct discovery of tumor-reactive antibodies from tumor-infiltrating B cells in cell-based assays.

Christoph Esslinger, Ph.D., Chief Scientific Officer, Memo Therapeutics, Switzerland

9:45 Networking Refreshment Break, Exhibit and Poster Viewing

10:30 FAST - Unlocking GPCR Activating Antibodies with Library-scale Functional Data

Abalone Bio's Functional Antibody Selection Technology (FAST) platform combines biology and machine learning (ML) to identify and design functionally active antibody drugs. FAST simultaneously tests the entire diversity of antibody libraries directly for the desired function and produces library-scale sequence-function datasets that uniquely power generative protein language models to design novel active antibody sequences. FAST-discovered antibodies have been demonstrated to have agonist activity in vitro and in vivo.

Monica Schwartz, Ph.D., Vice President of Antibody Discovery, Abalone Bio

11:00 A Novel, Label-free Assay to Determine the Binding Kinetics of Therapeutic Antibodies on Living Cells

Characterizing the binding parameters (ka, kd, KD) of antibody:receptor interactions is crucial in drug discovery. However complex Abs and/or receptors are not always amenable to traditional biophysical methods (i.e., SPR, BLI, etc.), necessitating cell-based binding assays. We developed a pre-equilibrium assay to simultaneously determine the binding kinetics of up to 30 therapeutic Abs on living cells.

Eric Janezic, Ph.D., Principal Scientist, Genentech

11:30 High Throughput Antibody-on-a-Chip Sequencing and Affinity Determination

Protillion combines ML-guided antibody design technology with purpose-built chip-based high-throughput instrumentation to tackle challenging problems in therapeutic protein engineering. The platform is capable of characterizing the binding affinity of up to 10^6 antibody variants in a 2-day automated run. This unique approach enables identification of better antibody candidates that meet challenging product profiles, including pH-dependent binding, cross-species reactivity, and stringent developability.

Curtis Layton, Ph.D., CEO and Co-Founder, Protillion Biosciences

9:15 KnotBodies; Creating Ion Channel Modulating Antibodies by Fusing Knottins into Antibody Loops

Ion channels are an important target class which are under-served by biologics. Maxion have shown that small cys rich peptides with ion-channel modulating activity can be inserted into antibody CDRs while retaining their function. The resulting molecules modulate ion channel activity while benefitting from the optimal drug-like properties of antibodies.
This presentation will illustrate the generation and optimisation of KnotBody inhibitors to therapeutically relevant ion channel targets.

Aneesh Karatt Vellatt, Ph.D., Chief Scientific Officer, Maxion Therapeutics, United Kingdom

9:45 Networking Refreshment Break, Exhibit and Poster Viewing

10:30 Antibody Engineering to Maximize the Clearance of Abundant Targets

The pathogenicity of autoreactive antibodies has been demonstrated for many autoimmune diseases and the isotype/subclass profile can potentially influence the disease pathophysiology. Although often overlooked, IgA autoantibodies are increasingly recognized in different autoimmune indications. 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. Given the abundancy of IgA in human serum (1-3 mg/mL), both Fab and Fc engineering were optimized to design a monoclonal antibody with the desired properties.

Sofie Voet, Ph.D., Principal Scientist, Argenx, Belgium

11:00 Dual Cell Bidirectional Antibodies for Treating Autoimmunity

Inhibitory checkpoint receptor (IR) agonists have the potential to restore immune homeostasis for patients with autoimmunity but are limited by their ability to non-discriminately bind activating FcγRs. IR agonists anchored to FcγRIIb, the inhibitory Fc receptor, have the potential to provide superior agonism by avoiding inflammatory cytokine responses and limiting APC activation. Discovery and development of a Dual-cell Bidirectional PD-1 FcγRIIb agonist antibody that activates multiple inhibitory pathways in more than one cell type to regulate both sides of the immune cell synapse will be discussed.

Jyothsna Visweswaraiah, Ph.D., Director, Biotherapeutics Drug Creation, Seismic Therapeutic

11:30 Converting IgG to IgM to Target Infectious Disease

Although antibodies are actively explored as therapeutic for bacterial infections, their narrow specificity poses a challenge due to the broad diversity between bacterial species. We reveal that conversion of highly specific anti-staphylococcal IgGs into IgM induced cross-reactivity with a range of bacterial species.

Remy Muts, PhD Candidate, UMC Utrecht, The Netherlands

12:00pm Scientific Briefings

Optimizing Collaborations with AI Teams: A Primer for Scientists Exploring AI for Antibody Design
Explore the essentials of collaborations between scientists and AI teams to understand the opportunities, challenges, and risks involved in AI-driven antibody design and how to best leverage data science and data scientists. Key topics include: project fit and feasibility using AI; real-world use cases of failure and success; optimal data to support AI-driven antibody design; communication challenges and opportunities between technologists and scientists; and data protection and intellectual property. Leave the presentation with a better understanding of how to leverage AI teams for your next antibody discovery and engineering campaign.

Brett Averso MS, Chief Technology Officer, EVQLV

Main Conference
Wednesday, December 18, 2024

Advancing Discovery: Leveraging Hybrid-mechanistic Modeling for Development of a Robust mAb Platform Process

Wheeler Bio

Wheeler Bio's Portable CMC® open-source upstream and downstream platform processes generates a predictable, reliable, and scalable approach for accelerating the movement of molecules from discovery, through lead candidate selection, and into clinical manufacturing. The Portable CMC® platform and hybrid-mechanistic process model was developed using data from both stable bulk cultures (SBCs, also known as bulk pools) and derivative clones to enable well-controlled cell lines, high titers, process robustness, scalability, and speed-to-clinic.

Brian R. Berquist, Ph.D., SVP & Chief Development Officer, Wheeler Bio

---

High-Throughput Droplet Sorting Technology Accelerates Antibody Discovery

DPBIO

Xin Yuan, Ph.D., Senior Scientist, DPBio

Deeper Therapeutic Antibody Developmental Insights via Comprehensive Fc Effector Function Profiling

SeromYx SYSTEMS

Each immune complex is unique and affects its own set of Fc functions. To treat the antibody as a sum of two independent domains, the Fab and Fc, is fraught with false assumptions that could negatively impact therapeutic development. SeromYx's high-throughput GCLP platform enables the empirical and comprehensive determination of the antigen-specific Fc functional profile of therapeutic antibodies uncovering vital insights into their safety and immune mechanisms of efficacy upfront.

Shashi Jatiani, Ph.D., Director of Research, SeromYx Systems

---

lightcast

12:35 pm **Networking Luncheon, Exhibit and Poster Viewing**

TRACK 1: ADVANCED IN VIVO ANTIBODY DISCOVERY

2:10 Co-Chairs' Remarks

Laura Walker, Ph.D., Head of Infectious Disease Biotherapeutics Discovery & Engineering, Moderna

Mitchell Ho, Ph.D., Senior Investigator, Laboratory of Molecular Biology, NIH NCI

2:15 Advanced Technologies to Screen and Engineer Immune Receptors

Current approaches to mine functional immune responses are generally limited in quality or throughput. To address these limitations, our group established high-throughput functional screening platforms for natively paired antibodies and T cell receptors generated in vivo. Here we will share several case studies of immune mining and engineering from in vivo leads.

Brandon DeKosky, Ph.D., Assistant Professor of Chemical Engineering, MIT

TRACK 2: EMERGING TECHNOLOGIES FOR ANTIBODY-DRUG CONJUGATES

2:10 Co-Chairs' Remarks

Gregory Adams, Ph.D., Chief Scientific Officer, Elucida Oncology

Thomas Pillow, Ph.D., Distinguished Scientist, Genentech

2:15 MYTX-011: A cMET-targeting ADC Engineered for Anti-tumor Activity Against a Broader Spectrum of cMET Expression

MYTX-011 is an investigational, pH-sensitive, vcMMAE ADC. It has been designed to benefit a broader population of patients whose tumors express lower/moderate levels of cMET. MYTX-011 drives increased internalization and cytotoxicity and shows robust activity in xenograft models across a range of levels of cMET expression. Early clinical data demonstrate a differentiated profile: extended PK, low free MMAE release, and low incidence of side effects commonly associated with vcMMAE ADCs.

Brian Fiske, Ph.D., Chief Scientific Officer, Mythic Therapeutics

2:45 **In Vivo Affinity Maturation of Human Antibodies in Mice**

Primary mouse B cells were engineered so their heavy and kappa variable-chain loci were scarlessly overwritten by their respective human antibody variable-chain genes. These B cells proliferated in vivo to generate potent neutralizing plasma, and affinity matured to develop broader, more potent, and more bioavailable HIV-1 and SARS-CoV-2 neutralizing antibodies. This approach improves the clinical utility of antibodies and biologics, enables more human-like vaccine models, and suggests new cell-based therapies.

Yiming Yin, Ph.D., Postdoctoral Research Fellow, Boston Children's Hospital

3:15 **Identifying, Characterizing and Targeting Distinct Sources of IgE To Durably Reverse Allergy**

Jamie Orengo, Ph.D., Vice President Research, Allergy and Immunity, Regeneron

3:45 **Networking Refreshment Break**

4:15 **mRNA-encoded Bispecific Antibodies to Combat SARS-COV-2**

The rapid evolution of SARS-CoV-2 has resulted in continuous escape from traditional IgG-based monoclonal antibody (mAb) therapeutics, suggesting that new antibody engineering and delivery strategies are required to keep pace with viral evolution. In this presentation, I will describe the discovery and engineering of multi-specific antibodies with broad and potent activity against SARS-CoV-2 variants and the in vivo delivery of these constructs using mRNA technology.

Anna Wec, Ph.D., Associate Director, Infectious Disease Research, Immunology, Moderna

4:45 **Characterization of Viral Antigen Supersites in Human Vaccine Studies**

Identifying novel epitopes naturally targeted by the human antibody repertoire is an important component of immunogen design aimed at eliciting protective antibodies to infectious disease. I will describe techniques used to survey and characterize monoclonal antibodies generated in response to experimental vaccines in human clinical trials.

Sarah Andrews, Ph.D., Chief, B Cell Immunobiology Section, Vaccine Research Center, NIH

5:15 **Germinal Center B Cell Response to mRNA Vaccination in Humans**

After vaccination, responding B cells may differentiate along the extrafollicular path, which leads to the production of short-lived plasmablasts, or along the germinal center (GC) route, which leads to the generation of long-lived plasma cells and memory B cells. GCs are the primary site of affinity maturation, the process whereby the binding affinity of induced antibodies to vaccine antigens increases with time after vaccination. We have recently shown that mRNA vaccination against SARS-CoV-2 in humans can elicit a GC reaction that engages pre-existing memory B cell clones and de novo ones that can target new epitopes, broadening the spectrum of vaccine-induced protective antibodies. These findings raised the following important questions: (1) What are the dynamics of vaccine-induced GC B cell responses in humans? (2) Do responding GC B cells accumulate somatic hypermutations (SHM) after mRNA vaccination? (3) Can a GC reaction be remounted upon repeat mRNA vaccination? These are some of the questions I will discuss in my presentation.

Ali Ellebedy, Ph.D., Leo Loeb Endowed Professor, Pathology & Immunology, Washington University School of Medicines

2:45 **Generation of Binder-Format-Payload Antibody Conjugate Matrices by Antibody Chain Exchange**

Chain exchange technologies can be used to generate binder-format matrices of bispecific antibodies. Similar to the optimization of bsAbs, chain-exchange can also generate ADC-matrices by combining different binders, formats, attachment-positions and payloads. As an example, a Her2-ADC matrix with payloads attached in different formats, positions and stoichiometries reveals that 'format-defines-function' applies not only to bsAbs but also to ADCs.

Ulrich Brinkmann, Ph.D., Expert Scientist, Pharma Research & Early Development, Roche Innovation Center Munich, Germany

3:15 **A Novel Dual-payload ADC Platform to Overcome Payload Resistance and Maximize Therapeutic Promise**

Payload resistance is a critical concern for ADCs. Combinations may be beneficial but therapeutic windows are limited. Hummingbird Bioscience's dual-payload ADC platform is a targeted, single-agent approach designed to overcome resistance and maximize therapeutic window. HMBD-802, an anti-HER2 dual-payload ADC shows robust efficacy in trastuzumab deruxtecan resistant models and good tolerability.

Jerome Boyd-Kirkup, Ph.D., Chief Scientific Officer and Co-Founder, Hummingbird Bioscience

3:45 **Networking Refreshment Break**

4:15 **Tumor Targeting Therapies with CAPAC (Click Activated Protodrugs Against Cancer): A Novel Platform to Overcome Efficacy Limiting Toxicities Associated with ADCs**

99% of a dose of an ADC is eliminated by normal tissues, causing efficacy limiting toxicities. Shasqi has developed an approach to overcome this problem by separating tumor binding from the payload and enabling selective payload activation at the tumor using click chemistry. This approach maximizes efficacy and therapeutic index by reducing toxicities.

José M. Mejía Oneto, M.D., Ph.D., Founder & CEO, Shasqi

4:45 **Potentiation strategies to enhance the efficacy of radioimmunotherapy**

Radiolabeled antibodies are essential in cancer theranostics and radio-immunotherapy (RIT) due to their high specificity for cancer antigens. While promising, RIT faces challenges including long half-life leading to prolonged radioactivity exposure. This presentation explores strategies to improve RIT efficacy and safety, including combination therapies with drugs that modulate radiation response or interact with the immune system, as well as antibody modifications, and optimized administration techniques.

Marika Nestor, Ph.D., Professor in Biomedical Radiation Sciences, Department of Immunology, Genetics and Pathology, Upssala University, Sweden

5:15 **Design and Evaluation of Fc-gamma Ablated TLR7 Agonist ADCs**

Immunostimulatory antibody conjugates (ISACs) often rely on Fcγ receptor (FcγR) interactions to activate immune cells and drive tumor regression. However, these interactions may also contribute to immune-related side effects. To address this, we are developing deglycosylated ISACs that bypass FcγR binding. Tested in HER2+ breast and Trop2+ pancreatic cancer models, these ISACs maintained potent tumor-specific immune activation while potentially minimizing off-target effects. Ongoing studies are exploring the link between immunogenicity and FcγR binding.

Anqi Zhang, Ph.D. Postdoctoral Fellow, Binghamton University

5:45 **Close of Conference**

Limited Space Available: Reserve Your Exhibit Booth and Sponsorship Today

Informa Connect's Antibody Engineering & Therapeutics conference offers a unique opportunity to reach the pre-eminent researchers working in this important field of science from both the industry and academic sectors. The 33rd Antibody Engineering & Therapeutics conference is the the longest running event on these topics in the world. The conference is dedicated to current developments in the basic science of this important field, and also tracks the clinical progress of antibody based drug products.

Event Partner

OmniAb®

Platinum Sponsors

GenScript Make Research Easy

TWIST BIOSCIENCE

Gold Sponsors

Ailux Biologics by XtalPi

Alloy Therapeutics

ThermoFisher SCIENTIFIC

Silver Sponsors

Beckman Coulter Life Sciences

cytiva

Dotmatics

SeromYx SYSTEMS

Bronze Sponsors

ATUM

aureka

BIOINTRON

charles river

ENPICOM DECODING THE IMMUNE SYSTEM

emp BIOTECH

GlobalBio Engineering better antibodies

IpA IMMUNOPRECISE ANTIBODIES

lightcast

NONA BIOSCIENCES

PipeBio

primrose bio

Rigaku POWERING NEW PERSPECTIVES

DPBIO

WuXi Biologics Global Solution Provider

Associate Sponsors

Abterra bio

AbTherx

Acro BIOSYSTEMS

ABLEXIS AlivaMab BIOLOGICS

Antibody Solutions

Antibody Design LABORATORIES

AsymBio

AURIGENE PHARMACEUTICAL SERVICES

AVANTGEN

Benchling

BIOCYTOGEN

Bio 博恒科学 electronica

Biosensing Instrument

Bioworkshops

bio RENDER

BON-OPUS

BRUKER

Celetrix Electroporation

Chemglass Life Sciences

Chemical Computing Group

ChemPartner Dedicated to Lifescience

curia

cyagen We help you discover life

CYPRE

Deeptope Advanced antibody expertise

evitria

EVOLV

FORTIS LIFE SCIENCES

gator

GenNext TECHNOLOGIES

GENOVAC

GBB Great Bay Bio An Antibody Drug Company

GYROS PROTEIN Technologies

iBody

Immuto Scientific

KACTUS

Kuhner shaker

neochromosome

nicoya

NOVILYTIC

novaprotein 诺禾蛋白

PAIA

PARTILLION BIOSCIENCE

Promega

PROTEINA

ProteinBioSolutions

PROIMMUNE www.proimmune.com

rapid novor

Sapidyne INSTRUMENTS

Schrödinger

SinoBiological

single cell TECHNOLOGY

SPECIFICA A Danaher Company

sphere FLUIDICS

StackWave

THOMSON Solutions at Work INSTRUMENT COMPANY

Wheeler Bio

YUROGEN Biosystems LLC