IBC Celebrates the 20th Annual International Conference

Antibody Engineering

Antibody Engineering and Immunotherapeutics for the 21st Century

December 6-10, 2009 • Sheraton San Diego Hotel and Marina • San Diego, CA

See page 11 for early registration discounts

Sessions for 2009:

- Antibody Repertoires and Responses
- Antibodies in a Complex Environment
- Antibodies – Not Just for Injection
- Antibody Polyspecificity and Single Molecule Imaging
- Bispecific Antibodies and Antibody Combinations
- Expanding our Grasp and Use of Binding Sites in the Human Immune System
- Exploring the Limits of Tumor Targeting with Molecular Formats
- Engineering Antibodies to Improve Cancer Therapy
- Pre-Conference Workshop: Working with IMGT and other Ab Sequence Databases

Delegates may attend the sessions of both conferences and select from more than 100 speaker presentations.

Co-Located with

IBC's 7th Annual International Conference

Antibody Therapeutics

December 8-10, 2009

Sessions for 2009:

- Business, Regulatory and Intellectual Property
- Preclinical Development of Antibody Therapeutics
- Clinical Development: Cancer
- Clinical Development: Alzheimer's and Others
- Clinical Development: Autoimmune Diseases
- Clinical Development: Inflammation and Infection

Annual Meeting of The Antibody Society

Celebrating the 20th Annual Antibody Engineering Conference:

Join the More than 700 International Delegates at the Original Annual Protein Engineering Meeting

Learn from a Leading International Faculty of more than 100 Speakers

Keynote Presentation

Human Antibodies in Immunity and Tolerance

Michel Nussenzweig, M.D., Ph.D.,

Investigator, Howard Hughes Medical Institute, Sherman Fairchild Professor and Senior Physician,

The Rockefeller University

Call for Posters and Student Poster Competition

Share scientific progress from your lab with other attendees at this meeting – and support the education and professional development of students with the Student Poster Competition. Get more details on how to submit your poster abstract at www.IBCLifeSciences.com/antibodyeng

- Learn from a leading international faculty of more than 100 speakers
- Join the more than 700 international delegates at the original annual protein engineering meeting

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IBC's 20th Annual International Conference

Antibody Engineering

Antibody Engineering and Immunotherapeutics for the 21st Century

December 6-10, 2009 • Sheraton San Diego Hotel and Marina • San Diego, CA

The 2009 Antibody Engineering International Faculty

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University of Alberta; Center for Drug Research & Development (CDRD), *Canada*

Carlos F. Barbas III, Ph.D.
The Scripps Research Institute

Amrik Basran, Ph.D.
GlaxoSmithKline, *United Kingdom*

Helen Baxendale, MBBS, Ph.D.
Royal Free Hospital and University College Medical School, *United Kingdom*

Richard H.J. Begent, M.D.
University College London, *United Kingdom*

Andrew Bradbury, M.B., B.S., Ph.D.
Los Alamos National Laboratories; The Antibody Society

Felix Breden, Ph.D.
Simon Fraser University, *Canada*

Dennis R. Burton, Ph.D.
The Scripps Research Institute

Kerry A. Chester, Ph.D.
University College London, *United Kingdom*

Raphael Clynes, M.D., Ph.D.
Columbia University

Melvin Cohn, Ph.D.
Salk Institute

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Vanderbilt Medical Center

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Emory University Eye Center

Damian C. Ekiert
The Scripps Research Institute

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National Cancer Institute

Germaine Fuh, Ph.D.
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Tariq Ghayur, Ph.D.
Abbott Bioresearch Center

Gottfried Himmler, Ph.D.
f-star Biotechnology, *Austria*

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EMD Serono Research Center

E. Yvonne Jones, Ph.D.
Oxford University, *United Kingdom*

Debbie Law, Ph.D.
Ablynx, *Belgium*

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CNRS Institute of Human Genetics, IMGT, *France*

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Stanford University

Wayne A. Marasco, M.D., Ph.D.
Harvard Medical School

James D. Marks M.D., Ph.D.
University of California, San Francisco

Shuming Nie, Ph.D.
Emory University; Georgia Institute of Technology

Ulrik Nielsen, Ph.D.
Merrimack Pharmaceuticals

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Howard Hughes Medical Institute, The Rockefeller University

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Celebrating the 20th Annual Antibody Engineering Conference

Dear Colleague,

2009 commemorates IBC's 20th Annual Antibody Engineering conference, an international summit now recognized the premier annual meeting in this field, and co-located with IBC's 7th Annual Antibody Therapeutics Conference. The two conferences are also the Annual Meeting of The Antibody Society.

Highlights of this year's meeting:

- Keynote by Professor Michel Nussenzweig, M.D., Ph.D., of Rockefeller University and the Howard Hughes Medical Institute. His presentation, "Human Antibodies in Immunity and Tolerance" will show how antibody engineering methodology provides for defining B-cell memory in HIV patients with some neutralizing activity
- Antibody Engineering sessions then explore details of B-cell immunity, antibody-mediated viral neutralization and remarkable new antibody library technology
- The Antibody Therapeutics meeting provides case studies of antibody-based drug products now advancing through clinical trials – with separate sessions dedicated to autoimmune diseases, cancer, infectious diseases and inflammation. You'll also hear updates on preclinical stage programs, the antibody therapeutics market, capital markets and important changes in intellectual property law.
- The two conferences offer a joint speaker faculty of more than 100, and more than 700 international delegates will join the five day conference.

And, to share your work with this important audience, participate in the extensive ten category poster hall – or if you are a student, submit your poster for consideration in the Antibody Society's Student Poster Scholarship Competition.

The Antibody Engineering and Antibody Therapeutics Scientific Advisory Boards

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Antibody Therapeutics

December 8-10, 2009

The 2009 Antibody Therapeutics International Faculty

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David Blakey, Ph.D.
AstraZeneca, *United Kingdom*

Søren Bregenholt, Ph.D.
Symphogen A/S, *Denmark*

Rolf A. Brekken, Ph.D.
University of Texas Southwestern Medical Center

Christopher C. Broder, Ph.D.
Uniformed Services University

Benjamin P. Chen, Ph.D.
Burrill & Company

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Rathin C. Das, Ph.D.
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William A. Kuziel, Ph.D.
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UCB, *United Kingdom*

Anil Singhal, Ph.D.
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Frank B. Dehn & Co, *United Kingdom*

Nancy C. Whiting, PharmD, BCOP
Seattle Genetics, Inc.

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Agenda-at-a-Glance

	Antibody Engineering	Antibody Therapeutics

Sunday, December 6, 2009

Afternoon	Pre-Conference Workshop: **Working with IMGT® and other Ab Sequence Databases**	Purchase the 4 Day Conference Plus Workshop to attend the Sunday workshop and Monday sessions of Antibody Engineering – **AND SAVE!**

Monday, December 7, 2009

Exhibit Hall Hours: 6:00 pm - 7:30 pm

Morning	**Keynote Presentation** **Human Antibodies in Immunity and Tolerance** **Michel Nussenzweig M.D., Ph.D.,** *Investigator, Howard Hughes Medical Institute, Sherman Fairchild Professor and Senior Physician*, **The Rockefeller University** Session I: **Antibody Repertoires and Responses**	
1:15 pm	*Technology Workshops:* **Bio-Rad Laboratories, Meso Scale Discovery**	
1:45 pm	*Technology Workshops*	
Afternoon	Session II: **Bispecific Antibodies and Antibody Combinations: The How and the Why** Special Presentation: **The Antibody Society**	
6:00 pm	Networking Cocktail Reception, Opening of Poster and Exhibit Hall	

Tuesday, December 8, 2009

Exhibit Hall Hours: 9:30 am – 7:45 pm

Morning	Session III: **Antibodies in a Complex Environment**	*Start of Antibody Therapeutics* Session I: **Preclinical Development of Antibody Therapeutics**
11:45 am	*Technology Workshops:* **ANTITOPE, Integral Molecular**	
12:15 pm	Networking Luncheon, Exhibit and Poster Viewing	
1:45 pm	*Technology Workshop*: **OMT Inc**	
Afternoon	Session IV: **Antibodies – Not Just for Injection**	Session II: **Clinical Development: Inflammation**
6:15 pm	Networking Cocktail Reception, Exhibit and Poster Viewing	

Wednesday, December 9, 2009

Exhibit Hall Hours: 9:45 am - 2:00 pm

Morning	Session V: **Antibody Polyspecificity and Single Molecule Imaging**	Session III: **Clinical Development: Cancer**
12:00 pm	*Technology Workshops*	
12:30 pm	Networking Luncheon, Last Chance for Exhibit and Poster Viewing	
Afternoon	Session VI: **Expanding our Grasp and Use of Binding Sites in the Human Immune System**	Session IV: **Business, Regulatory and Intellectual Property**

Thursday, December 10, 2009

Morning	Session VII: **Exploring the Limits of Tumor Targeting with Molecular Formats**	Session V: **Clinical Development: Infection and Autoimmune Diseases** *Antibody Therapeutics Ends*
Afternoon	Session VIII: **Engineering Antibodies to Improve Cancer Therapy**	

The 2009 Antibody Engineering Scientific Advisory Board

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Andrew Bradbury, M.B., B.S., Ph.D., *Research Scientist,* **Los Alamos National Laboratories**

Dennis R. Burton, Ph.D., *Professor, Immunology Department,* **The Scripps Research Institute**

James S. Huston, Ph.D., *Vice President & Senior Research Fellow,* **EMD Serono Research Center**

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Nils Lonberg, Ph.D., *Senior Vice President and Scientific Director,* **Medarex Inc.**

Trudi Veldman, Ph.D., *Director, Biologics Generation,* **Abbott Laboratories**

"The conference provided excellent coverage of all the relevant issues in antibody development."

– Janet White, *Director,* **Kirin Pharma USA**

To Register, Call: (800) 390-4078 • Fax: (941) 365-0104 • E-mail: reg@ibcusa.com

Pre-Conference Workshop • Sunday, December 6, 2009

12:00 *Registration Opens*

1:30 *Announcements*

Working with IMGT® and other Ab Sequence Databases

The quality and capabilities of sequence databases continue to improve – and these have become a valuable tool for academic and industry researchers working in the field of Antibody Engineering. Our workshop session uses IMGT®, the international ImMunoGeneTics information system® (databases and online tools) as an example and provides an overview of its capabilities and a set of hands-on exercises demonstrating its application in various types of research. The session concludes with four case studies demonstrating the use of sequence databases.

1:30 **Co-Chairpersons' Opening Remarks**

Jamie K. Scott, M.D., Ph.D., *Professor and Canada Research Chair in Molecular Immunity, Department of Molecular Biology & Biochemistry,* **Simon Fraser University,** *Canada*

Marie-Paule Lefranc, Ph.D., *Professor, Montpellier University, The University Institute of France,* **CNRS Institute of Human Genetics, IMGT,** *France*

1:45 **Overview of IMGT®, The International ImMunoGeneTics Information System®**

The IMGT databases (IMGT/LIGM-DB, IMGT/3Dstructure-DB…) and IMGT online tools (IMGT/DomainGapAlign and IMGT/Collier-de-Perles for amino acid sequences; IMGT/V-QUEST for nucleotide sequences) provide a standardized way to compare immunoglobulin sequences. They allow the delimiting of the FR-IMGT and CDR-IMGT in the process of antibody humanization and engineering. These criteria, based on IMGT-ONTOLOGY, the first ontology in immunogenetics and immunoinformatics, have been used to build the novel antibody IMGT/2Dstructure-DB database for INN entries.

Marie-Paule Lefranc, Ph.D., *Professor, Montpellier University, The University Institute of France,* **CNRS Institute of Human Genetics, IMGT,** *France*

2:00 **Interactive Exercises – IMGT Database**

Felix Breden, Ph.D., *Professor, Department of Biological Sciences,* **Simon Fraser University,** *Canada*; **Marie-Paule Lefranc, Ph.D.,** *Professor, Montpellier University, The University Institute of France,* **CNRS Institute of Human Genetics, IMGT,** *France*; **Jamie K. Scott, M.D., Ph.D.,** *Professor and Canada Research Chair in Molecular Immunity, Department of Molecular Biology & Biochemistry,* **Simon Fraser University,** *Canada*

2:45 **Repertoire Analysis of Allergen-Specific IgE Defines the Molecular Character of Allergy-Causing Immunoglobulins**

Antibodies of the IgE isotype are key components of allergic immune responses. The low abundance of IgE-producing B lymphocytes has prevented efficient molecular characterization of such antibodies. Recently combinatorial library technology and phage display has been exploited as a tool to isolate and characterize allergen-specific antibodies derived from IgE-encoding transcriptome. In this presentation, I will discuss how we have used antibody sequence databases to assess the immunoglobulin repertoire targeting major protein allergens.

Mats Ohlin, Ph.D., *Professor, Immunotechnology,* **Lund University,** *Sweden*

3:15 *Networking Refreshment Break*

3:45 **Structure-Function Relationships of Human mAbs with Polysaccharide Binding Activity from Natural and Adaptive Repertoires**

We have analyzed the structure-function relationships of human mAbs with pneumococcal polysaccharide binding activity. The IgM mAbs were characteristic of natural antibodies with germline VDJ gene use, long CDR3, the selective use of Dh6 and Jh6 genes and broad specificity. Class switched mAbs were highly mutated with distinct V gene usage, diverse CDR3 and a specificity profile consistent with an antigen selected adaptive response.

Helen Baxendale, MBBS, Ph.D., *Senior Lecturer and Honorary Consultant, Immunology,* **Royal Free Hospital and University College Medical School,** *United Kingdom*

4:15 **Elucidating the Antigen Specificity of B Cells Present within Autoimmune Tissue and Solid Tumors**

The immunoglobulin (Ig) sequences of B cells present in many autoimmune tissues and solid tumors exhibit clear evidence of antigen experience, yet the driving antigen(s) remain unknown. To identify these target antigens, single B cells were isolated from tissue specimens using laser-assisted microdissection. Then Ig variable regions were amplified and whole recombinant human Ig was constructed from paired heavy and light chains. Antigen discovery efforts have yielded a number of novel candidate antigens.

Kevin C. O'Connor, Ph.D., *Assistant Professor of Neurology,* **Harvard Medical School**

4:45 **Hallmarks of the Antibody Variable Gene Repertoire Associated with Checkpoints of Immune Tolerance**

Characterization of antibody variable gene usage during B cell development and immunity has identified particular hallmarks that occur either prior to selection or in association with autoreactive B cells. Examples include highly restricted use of particular variable and junctional genes such as VH4-34, VH3-30, and the JH6 gene. Selection for CDR3 length and the presence of charged amino acid residues are also major determinants of B cell selection. Somatic hypermutation is also an important factor that may distinguish simple auto- or poly-reactive antibodies from pathogenic autoantibodies found in autoimmune conditions.

Patrick C. Wilson, Ph.D., *Assistant Professor, Department of Medicine and Rheumatology, Knapp Center for Lupus and Immunology Research, Committee on Immunology,* **The University of Chicago**

5:15 **Audience Discussion: Databases and Tools for Antibody Engineering and Clinical Applications**

5:45 *Workshop Ends*

The Antibody Society

Welcome to the Annual Meeting of The Antibody Society. The Society was formed in 2007 to broadly further the interests of the antibody and related binder community. The GIATTE initiative has begun to ensure community involvement in the development of guidelines for the safe and thorough development of antibody and related therapeutic agents, from the lab through the clinic. The official journal of the Society is PEDS (Protein Engineering, Design and Selection), and members receive a special discount for subscriptions and for registration to attend our Annual Meeting. The Society represents this increasingly diverse field by supporting the resources that promote successful engineering of recombinant antibodies, single scaffold binders, related immunobiology and informatics, and other facets of basic and applied, and clinical research by those in academics and the private sector. The Society also seeks to provide a forum and voice for all aspects of this global field. By joining The Antibody Society, members will help the Society support its goals, including the following:

- To encourage participation at important meetings in our field
- To establish committees that will assess topics of urgency
- To develop guidelines for information about antibody therapy experiments (GIAATE) that help to ensure the safety of antibody or related therapeutics, from the lab stage through preclinical and clinical testing
- To work for development and acceptance of formats for the interoperability of data, databases, informatics and computational resources underpinning this field
- To work for the support, maintenance, and improvement of other critical resources in this field
- To develop mechanisms that encourages the training and funding of students, postdocs, and others in this field

For further information on how you and your organization can join the The Antibody Society, please visit the Society website: **www.AntibodySociety.org**. Graduate students are to join The Antibody Society with no membership fee.

Student Poster Scholarship Program

To support the education and professional development of students working toward careers in antibody engineering-related disciplines, IBC Life Sciences and The Antibody Society will offer ten complimentary registrations and posterboard spaces for this year's Antibody Engineering conference. The recipients will be selected by the Society's board of directors, and each student chosen will present their poster in the Antibody Engineering poster hall and receive complimentary registration for the full five-day conference. Eligibility requirements and instructions on how to participate are shown below:

- Student must be a full-time graduate student at a university or academic research institute
- Post-doctoral researchers are not eligible
- Poster abstracts must be submitted **no later than Friday, October 23, 2009** at: www.IBCLifeSciences.com/antibodyeng
- Winners will be notified by Friday, November 13, 2009 – and those not awarded a complimentary registration will receive a discount to attend the meeting
- The award includes a complimentary full registration to the conference and pre-conference workshop. Travel and lodging expenses are the responsibility of the recipient

See page 9 for non-student poster information and deadlines.

7:30 *Registration, Networking Coffee*

8:00 *Announcements*

Session I: Antibody Repertoires and Responses

8:15 **Co-Chairperson's Opening Remarks and Keynote Introduction**

Dennis R. Burton, Ph.D., *Professor, Immunology Department,* **The Scripps Research Institute**

Marie-Paule Lefranc, Ph.D., *Professor, Montpellier University, The University Institute of France,* **CNRS Institute of Human Genetics, IMGT,** *France*

Keynote Presentation

8:30 **Human Antibodies in Immunity and Tolerance**

We have developed a method for cloning of antibodies from single human B cells and used it to characterize the development of antibodies in the bone marrow and during immune responses to HIV. We find that the majority of newly arising human antibodies are highly poly-reactive and that these antibodies are removed from the B cell repertoire at distinct checkpoints in the bone marrow and the periphery. Similar techniques have been used to characterize the memory antibody repertoire in patients with high titers of broadly neutralizing serum antibodies to HIV.

Michel Nussenzweig M.D., Ph.D., *Investigator, Howard Hughes Medical Institute, Sherman Fairchild Professor and Senior Physician,* **The Rockefeller University**

9:30 *Audience Questions*

9:45 *Networking Refreshment Break*

10:15 **The Repertoire of Activated Plasmablasts Provides a Mirror Image of Ongoing Human B Cell Responses**

Vaccination and acute immune responses induce a rapid and massive burst of plasmablasts that are predominantly specific to ongoing immune responses. This response represents a rich source of fully human monoclonal antibodies and a direct reflection of the currently activated B cell repertoire. Analyses will be presented concerning new understanding of the role of plasmablasts in B cell immunity and insights into immune decline with age.

Patrick C. Wilson, Ph.D., *Assistant Professor, Department of Medicine and Rheumatology, Knapp Center for Lupus and Immunology Research, Committee on Immunology,* **The University of Chicago**

10:45 **Molecular Determinants of Neutralizing Human Antibody Responses to Viruses**

Investigation of the human antibody response to virus infections has been largely limited in the past to serologies with relatively little analysis of antigen-specific B cells at the molecular level. We present studies of the human response to a wide variety of pathogenic viruses including influenza, RSV, and HIV. The studies reveal interesting features of the molecular basis for virus neutralization.

James E. Crowe, Jr., M.D., *Ingram Professor of Research,* **Vanderbilt Medical Center**

11:15 **Spatially Addressed Germline Repertoires for Antibody Discovery**

Spatially addressed combinatorial libraries of recombinant human germline Fabs have been created through synthetic biology and high throughput fermentation and purification. Creation and screening of the library allows immediate information on expression, cross-reactivity, and SAR. The Fab library has been screened in multiplex assays to identify several low affinity but specific binders to many therapeutic targets. These have been affinity matured through iterative mutational processes. This discovery platform could allow discovery of novel Fabs against difficult targets and is amenable to functional cell based screening.

Vaughn Smider, M.D., Ph.D., *Founder,* **Fabrus, LLC;** *Assistant Professor, Molecular Biology,* **The Scripps Research Institute**

11:45 *Lunch on Your Own*

1:15 **Technology Workshops**

Elucidating the Mechanism of Action of Therapeutic Antibodies using Surface Plasmon Resonance

Binding of a therapeutic antibody to its target antigen alters the target's interactions with its biological partners to acheive the desired effect. The mechanism of action of therapeutic antibodies is elucidated at the molecular level using a variety of platforms, including surface plasmon resonance (BioRad ProteOn, GE Biacore) and kinetic exclusion assays (Sapidyne KinExA). Predictions based on biophysical characteristics are tested in cell-based functional assays, demonstrating that the molecular mechanism translates into effects on biological function. Examples will be presented to illustrate investigation of receptor/ligand blocking and the use of kinetic and affinity analyses to elucidate a novel mechanism of action of a therapeutic antibody.

Marina Roell, *Associate Director, Molecular Interactions & Biophysics,* **XOMA**

Identification and Affinity Maturation of Target Specific Antibodies Using Meso Scale Discovery's MULTI-ARRAY Technology

Fabrus has developed an antibody discovery platform using spatially addressed human germline repertoires. This talk will present how we incorporate Meso Scale Discovery's MULTI-SPOT® electrochemiluminescence technology to identify micro-molar affinity "hits" against target antigens within a small library. We will also show examples of affinity-maturation process we carried out with some of the weak binders using targeted mutagenesis, and demonstrate functional binding of these antibodies in a cell-based assay.

Helen Mao, Ph.D., *Chief Scientific Officer,* **Fabrus LLC**

1:45 **Technology Workshops**

IBC's Technology Workshops offer supplier and service companies the opportunity to present product and service offers directly to the audience at the conference. For more information on presenting a technology workshop at this meeting, please contact Jennifer McElligott at (508) 614-1672 or jmcelligott@ibcusa.com. Two workshop slots are available in this time slot at the time of printing this brochure.

2:15 *Announcements*

Session II: Bispecific Antibodies and Antibody Combinations: The How and the Why

2:20 **Chairperson's Opening Remarks**

James D. Marks M.D., Ph.D., *Department of Anesthesia and Pharmaceutical Chemistry, Member, Comprehensive Cancer Center,* **University of California, San Francisco**

2:30 **Unnatural Amino Acids for Discovery of Novel Antibodies and Bispecific Immunoconjugates**

We have developed methods to engineer unnatural amino acids into variable and constant regions of antibody Fab fragments. Constant region modification allows creation of a site-specific conjugation system that can be used to couple toxins, proteins, or other antibody fragments to one another in a well-controlled reaction to produce defined products. Unique immunotoxins and bivalent molecules have been produced and analyzed for activity in vitro and in vivo.

Vaughn Smider, M.D., Ph.D., *Assistant Professor, Molecular Biology,* **The Scripps Research Institute**

3:00 **Rationally Designed, Combinatorial Strategies for Inhibiting ErbB Signaling**

Insights from computational modeling have guided Merrimack's development of ErbB therapeutic regiments. In one approach targeted at inhibiting ligand-induced activation of the pathway, we are using MM-121, a monoclonal anti-ErbB3 antibody, as a single agent or in combination with EGFR inhibitors. In a second approach, aimed at treating ErbB2/HER2-amplified malignancies, a bispecific antibody fusion protein, MM-111, binding ErbB2 and ErbB3 has been devised. The designs and rationales of these approaches will be presented.

Ulrik Nielsen, Ph.D., *Chief Scientific Officer,* **Merrimack Pharmaceuticals**

Special Presentation

3:30 **The Antibody Society**

The Antibody Society (TAbS) was formed in 2007 to further the broad interests of the antibody engineering and antibody therapeutics community. This presentation will describe progress in the past year, including the institution of a society journal, website progress and the creation of a Board of Distinguished Advisors. Results of a recent survey on The Antibody Society will be presented within the context of future plans, which will be open to discussion.

Andrew Bradbury, M.B., B.S., Ph.D., *Research Scientist,* **Los Alamos National Laboratories;** *President,* **The Antibody Society**

4:00 *Networking Refreshment Break*

4:30 **Antibody Combinations and Bispecific Antibodies Potently Neutralize Botulinum Neurotoxins**

We have generated human monoclonal antibodies that neutralize botulinum neurotoxins. When individual mAb are combined, the potency of neutralization increases dramatically. Strategies to capture this potency in a single antibody based molecule will be described.

James D. Marks M.D., Ph.D., *Department of Anesthesia and Pharmaceutical Chemistry, Member, Comprehensive Cancer Center,* **University of California, San Francisco**

5:00 **The Design and Engineering of Fc Heterodimers for the Production of Bispecific Antibodies and Other Heterodimer Fusion Proteins**

We have modified the CH3 domain of the Fc interface with a few selected mutations so the engineered Fc proteins preferentially form heterodimers. Our engineering approach takes advantage of electrostatic interactions in promoting Fc heterodimer formation and discouraging Fc homodimers and does not affect the hydrophobic core of the CH3 domain interface. The successful production of heterodimeric Fc molecules facilitates the construction of bispecific antibodies and various heterodimeric Fc fusion proteins.

Wei Yan, Ph.D., *Principal Scientist, Protein Science,* **Amgen Inc.**

5:30 **Dual Variable Domain (DVD)–Ig™ Technology: Some Technical Considerations in Constructing DVD–Ig Molecules**

DVD-Ig™ technology can convert any mono-specific mAb to a dual-targeting biologic. A DVD–Ig is constructed by attaching antigen-binding domain of one mAb on to another pre-existing mAb. This modular approach enables construction of multiple molecules simultaneously to determine contributions of various components of DVD–Ig to functional and physicochemical properties. New insights into making DVD–Ig will be discussed.

Tariq Ghayur, Ph.D., *Senior Principal Scientist and Research Fellow,* **Abbott Bioresearch Center**

6:00 *Networking Cocktail Reception; Opening of Poster and Exhibit Hall*

"This was an informative, productive and well balanced conference with fantastic organization and a wonderful pool of speakers "

– Jamie Spangler, Massachusetts Institute of Technology

7:00 *Registration, Networking Coffee*

7:45 *Announcements*

Session III: Antibodies in a Complex Environment

7:50 **Chairperson's Opening Remarks**

Richard H.J. Begent, M.D., *Head of Oncology, Ronald Raven Professor of Oncology,* **University College London,** *United Kingdom*

8:00 **FcRn as an IgG Homeostat: from Single Molecules to In Vivo Function**

FcRn is a key regulator of the distribution and pharmacokinetics of IgGs. Recent work in our laboratory has involved an analysis of FcRn function at both the subcellular and whole body levels, together with the development of engineered antibodies that inhibit FcRn function. Results from these studies will be presented.

E. Sally Ward, Ph.D., *Professor of Immunology,* **University of Texas Southwestern Medical Center**

8:30 **A Systems Approach to Improving EGFR-Targeted Therapy**

This abstract was not available at the time of printing the brochure. For up to date program information, please visit www.IBCLifeSciences.com/Antibodyeng

Louis M. Weiner, M.D., *Director, Lombardi Comprehensive Cancer Center,* **Georgetown University Medical Center**

9:00 **Addressing Tumor Complexity using Intra-Tumor Prodrug Activation**

Intra-tumor prodrug activation by pre-targeted antibody-enzyme can be used to generate a potent cytotoxic in the tumor mass; essentially turning the tumor into a factory for its own destruction. The system has the potential to kill antigen negative cells, stem cells and tumor-supporting stroma; elements that may not be addressed by other antibody therapies. Feasibility and new developments of the system will be discussed using a bedside-to-bench approach.

Kerry A. Chester, Ph.D., *Professor of Molecular Medicine,* **University College London,** *United Kingdom*

9:30 *Networking Refreshment Break, Exhibit and Poster Viewing*

10:15 **Blocking Monoclonal Antibodies Directed Against CD47 Preferentially Enable Phagocytosis and Elimination of Human Acute Myeloid Leukemia Stem Cells**

We identified increased expression of CD47 on human AML stem cells (LSC) and hypothesized that CD47 contributes to pathogenesis by inhibiting phagocytosis of these cells through its interaction with an inhibitory receptor on phagocytes. Blocking monoclonal antibodies directed against CD47 preferentially enabled phagocytosis of AML LSC and inhibited their engraftment in vivo. Furthermore, treatment of human AML LSC-engrafted mice with anti-CD47 antibody depleted AML and targeted LSC.

Ravindra Majeti M.D., Ph.D., *Assistant Professor, Stanford Cancer Center, Division of Hematology,* **Stanford University**

10:45 **Human Antibodies and Host Immunity to Influenza A Hemagglutinin**

Influenza virus entry into host cells requires a global change in conformation of its major surface protein, hemagglutinin (HA), which triggers the fusion of viral and host membranes. The nexus of this change resides in the membrane-proximal stem region, which lies beneath the highly immunogenic and variable receptor-binding head. The need to adopt two very different conformations places strong evolutionary constraints on the sequence of the stem. Neutralizing antibodies to this region will be discussed.

Wayne A. Marasco, M.D., Ph.D., *Associate Professor of Medicine, Department of Cancer Immunology and AIDS,* **Dana-Farber Cancer Institute;** *Department of Medicine,* **Harvard Medical School,** *Scientific Director,* **National Foundation for Cancer Research (NFCR) – Center for Therapeutic Antibody Engineering (CTAE)**

11:15 **Recognition of the Influenza Virus Hemagglutinin by Neutralizing Antibodies**

Current influenza vaccines provide protection only against viral isolates similar to the vaccine strain, and will likely prove ineffective against an emerging pandemic virus. In contrast, antibodies recognizing conserved epitopes in the major surface antigen, hemagglutinin, neutralize across multiple virus subtypes. Here we present structural and mechanistic data highlighting the interaction of several monoclonal antibodies with the hemagglutinin. Such antibodies have immediate clinical applications and should guide the design of improved vaccines that elicit similar, broadly neutralizing antibodies.

Damian C. Ekiert, Ph.D. *Candidate,* **The Scripps Research Institute**

11:45 **Technology Workshops**

The Generation of Therapeutic Antibodies and Proteins with Reduced Immunogenicity

The clinical immunogenicity of biologics is typically associated with the development of high affinity IgG anti-therapeutic antibodies, indicating the role of CD4+ helper T cell epitopes. We have compared a number of technologies that enable the preclinical prediction of immunogenicity, and using EpiScreen™ technology, we have observed a correlation between T cell responses to biologics and the immunogenicity of protein therapeutics in the clinic. Data will be presented demonstrating our technology in screening for and removing immunogenicity from biologics.

Frank Carr, Ph.D., *Director for Biologics Research,* **Antitope,** *United Kingdom*

Production and Epitope Mapping of Antibodies Targeting Membrane Proteins

Integral Molecular's Lipoparticle technology provides an innovative solution for presenting structurally intact membrane protein antigens, including GPCRs and ion channels, at concentrations 10-100X higher (50-200 pmol/mg) than in cells or membrane preparations. This has enabled us to derive high titer serum responses (>1:500) against membrane proteins of interest. Once MAbs are isolated, our Shotgun Mutagenesis mapping technology has enabled us to rapidly identify both linear and conformationally complex epitopes that distinguish MAb binding sites.

Benjamin Doranz, Ph.D., *President and Chief Scientific Officer,* **Integral Molecular**

12:15 *Networking Luncheon, Exhibit and Poster Viewing*

1:45 **Technology Workshop**

The OMT Antibody Platform: Fully Human Antibodies from Transgenic Rats

Open Monoclonal Technology, Inc. (www.omtinc.net) is developing a human antibody platform using transgenic rats. This technology is based on an improved understanding of B-cell development and a novel approach to inactivating endogenous rat antibody expression. OMT's platform has broad freedom to operate and is protected by a patent application.

Roland Buelow, Ph.D., *Chief Executive Officer,* **OMT Inc.**

2:15 *Announcements*

Session IV: Antibodies – Not Just for Injection

2:20 **Chairperson's Opening Remarks**

Ian M. Tomlinson, Ph.D., *Senior Vice President, Biopharmaceuticals R&D,* **GlaxoSmithKline,** *United Kingdom*

2:30 **Effective Delivery of Domain Antibodies to the Lung**

Due to their small size and stability, human domain antibodies (dAbs) can readily be delivered to the respiratory tract. We have demonstrated superior efficacy using a low doses of pulmonary delivered dAb against the TNF receptor 1 in mouse models for COPD and acute inflammatory models in non-human primates. This data demonstrates utility of dAbs for pulmonary delivery and highlights the potential of TNFR1 as a target for treatment of pulmonary inflammatory diseases.

Amrik Basran, Ph.D., *Director Discovery Biosciences,* **GlaxoSmithKline,** *United Kingdom*

3:00 **Anticalins: New Options for Mode of Action and Administration**

An Anticalin that neutralizes VEGF-A is about to enter the clinic as a potent inhibitor of tumor angiogenesis and also offers prospects for the treatment of disorders that require local application, e.g. in the eye or joints. Another antagonistic Anticalin directed against an immune cell receptor is in preclinical development for severe asthma and appears suitable for pulmonary delivery. Due to their small size and robust constitution Anticalins provide several benefits for alternative routes of administration.

Arne Skerra, Ph.D., *Professor,* **Pieris AG and Technical University of Munich,** *Germany*

3:30 **Alternative Delivery of Nanobodies®**

Llama-derived Nanobodies have inherent biophysical properties, including small size (≥15kD), thermodynamic stability, resistance to pH and protease degradation, that make them ideal candidates for exploratory studies on alternative methods of drug delivery. We have been evaluating whether Nanobodies can be delivered via routes other than intravenous injection. Data will be presented demonstrating that Nanobodies can retain their function when delivered via skin (SC), oral and pulmonary routes.

Debbie Law, Ph.D., *Chief Scientific Officer,* **Ablynx,** *Belgium*

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

4:45 **Accelerating scFv Antibody Fragments for Topical Applications into the Clinic**

Single-chain antibody fragments qualify for local therapies and delivery routes that have not yet been explored for full-size antibodies and larger fragments thereof. ESBA105 is a humanized anti-TNF scFv, developed for the treatment of inflammatory ocular diseases as well as for osteoarthritis. This antibody fragment, upon administration by eye drops, penetrates into all ocular compartments and reaches therapeutic concentrations in the aequeous and the retina. Preclinical efficacy with topical application of eye drops containing ESBA105 is shown in the monkey laser-injury model for choroid neovascularisation.

David Urech, Ph.D., *Head of Research & Development,* **ESBATech,** *Switzerland*

5:15 **The Challenge of Ocular Drug Delivery For Small Molecules and Proteins**

Age related macular degeneration (AMD) is the leading cause of blindness in the USA; with the development of anti VEGF antibodies the progression of AMD can be controlled and in some cases a gain vision can be achieved. The current delivery modality to get the anti VEGF antibodies to the target tissues (retina & choroid) is with monthly intravitreal injections. This presentation will discuss and compare ocular drug delivery of topical eye drops, transscleral diffusion, intrascleral and suprachoridal delivery with microneedles and the potential of using microbeads, nanoparticles and viscoelastics to achieve sustained release drug delivery of antibodies and small molecules

Henry F. Edelhauser, Ph.D., *Professor of Ophthalmology,* **Emory University Eye Center**

5:45 **Induction of Regulatory T Cells by Mucosal Administration of Anti-CD3 Antibody Suppresses Autoimmunity**

We investigated Treg induction in autoimmunity models and in humans by mucosal anti-CD3 antibody. The mucosal route preferentially induces tolerance. Parenteral anti-CD3 is efficacious in autoimmunity models and is FDA approved for transplant rejection. Oral anti-CD3 suppressed animal models (MS, T1D and T2D, lupus, colitis) and induced immune changes in humans with no toxicity. Results identify novel and physiologic mechanisms to induce Tregs that are clinically applicable to a variety of immune mediated disorders.

Howard L. Weiner, M.D., *Professor, Center for Neurologic Diseases,* **Brigham and Women's Hospital**

6:15 *Networking Cocktail Reception, Exhibit and Poster Viewing*

7:30 *Registration, Networking Coffee*

8:00 *Announcements*

Session V: Antibody Polyspecificity and Single Molecule Imaging

8:05 **Chairperson's Opening Remarks**

Andrew Bradbury, M.B., B.S., Ph.D., *Research Scientist,* **Los Alamos National Laboratories**

8:15 **Measuring an Antibody Affinity Distribution Molecule by Molecule with Single Molecule Imaging**

Single molecule fluorescence microscopy was used to study the binding events of fluorescent antigens (biotinylated quantum dots) to individual surface immobilized (anti-biotin mouse IgG) antibodies. The fluorescence time history at an individual antibody location was monitored and used to calculate its binding affinity. By measuring individual affinities of a large population of antibodies, the surface affinity distribution function can be derived.

Jamshid Temirov, Ph.D., *Senior Scientist, Genetic Systems,* **Life Technologies**

8:45 **Using Atomic Force Microscopy for Single Molecule Based Selection and Analysis of Antibody Interactions**

Reagents that recognize specific protein morphologies can be used as diagnostic and therapeutic tools for treating protein misfolding diseases such as Alzheimer's disease. Using Atomic Force Microscopy to image both protein aggregation and the biopanning process, we can isolate antibody fragments to specific protein morphologies using minimal antigenic target, even as little as a single molecule. Antibody binding specificity can also be determined by AFM using only minimal target antigen.

Michael Sierks, Ph.D., *Professor, Chemical Engineering,* **Arizona State University**

9:15 **How do the Paratopes of Antigen-Receptors Classify the Epitopic Universe?**

The way we approach this question has ramifications both conceptual and empirical. There are two distinct sets of antigen-receptors, BCR and TCR, and there are two polar theories as to how each set classifies the epitopic universe. The role of the theories in understanding the two families of receptors as well as their relationship to effector function will be delineated.

Melvin Cohn, Ph.D., *Professor, Conceptual Immunology Group,* **Salk Institute**

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

10:30 **Specificity of Antigen Recognition in the Immune Response**

Antigen recognition and subsequent affinity maturation interface physico-chemical principles of molecular interactions with the physiological processes associated with self-nonself discrimination. We have addressed antigen-antibody interaction in the context of breakdown in the antigenic discrimination, economy of the antibody conformational repertoire and generation of antibody diversity. These studies, applying thermodynamic and crystallographic approaches, have resulted in identification of intriguing new aspects of immune recognition with possibilities of novel applications.

Dinakar M. Salunke, Ph.D., *Scientist, National Institute of Immunology,* **Indian Institute of Science,** *India*

11:00 **Two-in-One Antibody: Herceptin Variants that also Bind VEGF with High Affinity**

We explored the ability of an antigen-binding site to interact with two unrelated protein antigens using an engineering approach and phage display selection. Crystallographic and mutagenesis studies of a dual specific Fab based on Herceptin revealed that distinct amino acids of this antibody engage energetically with its two antigens, HER2 and VEGF, although there is extensive overlap between the antibody surface areas contacting the two antigens. The high dual affinity is achieved and translated to dual action in vitro and in vivo.

Germaine Fuh, Ph.D., *Scientist, Antibody and Protein Engineering, Research Division,* **Genentech, Inc.**

11:30 **Instant Immunity through Chemically Programmable Vaccination and Covalent Self-Assembly**

The ability to instantly create a state of immunity as achieved in the passive transfer of hyperimmune globulin has had a tremendous impact on public health. Unlike passive immunization, active immunization, which is the foundation of vaccinology, is an anticipatory strategy with inherent limitations. Here we show that elements of active and passive immunization can be combined to create an effective chemistry-driven approach to vaccinology in cancer and infectious disease.

Carlos F. Barbas III, Ph.D., *Kellogg Professor of Molecular Biology and Chemistry,* **The Scripps Research Institute**

12:00 **Technology Workshops**

IBC's Technology Workshops offer supplier and service companies the opportunity to present product and service offers directly to the audience at the conference. For more information on presenting a technology workshop at this meeting, please contact Jennifer McElligott at (508) 614-1672 or jmcelligott@ibcusa.com. Three workshop slots are available in this time slot at the time of printing this brochure.

12:30 *Networking Luncheon, Last Chance for Exhibit and Poster Viewing*

2:00 *Announcements*

Session VI: Expanding our Grasp and Use of Binding Sites in the Human Immune System

2:05 **Chairperson's Opening Remarks**

James S. Huston, Ph.D., *Vice President & Senior Research Fellow,* **EMD Serono Research Center**

2:15 **Pathogen Recognition by Toll-like Receptor 3 (TLR3)**

The ectodomain (ECD) of TLR3 binds dsRNA, a molecular signature of viral pathogens, with high affinity. TLR3-ECD consists of a 23 turn solenoid bent into the shape of a horseshoe, each turn formed by one leucine-rich repeat motif. dsRNA binds at two widely spaced sites on one lateral face of the TLR3 horseshoe, and a third homotypic interaction brings two TLR3 molecules together at their C-terminal ends, triggering inflammatory responses.

David M. Segal, Ph.D., *Chief, Immune Targeting Section, Experimental Immunology Branch, National Cancer Institute,* **National Institutes of Health**

2:45 **Rational Development of High-Affinity T-cell Receptor-like Antibodies**

T-cell receptor (TCR) avidity for a given pMHC is determined by number of MHC molecules, availability of co-receptors, and TCR affinity for MHC or peptide, respectively, with peptide recognition being the most important factor to confer target specificity. Here we present high-resolution crystal structures of 2 Fab antibodies in complex with the immunodominant NY-ESO-1(157-165) peptide analogue (SLLMWITQV) presented by HLA-A*0201 and compare them with a TCR recognizing the same pMHC.

E. Yvonne Jones, Ph.D., *Principal Research Fellow, Division of Structural Biology,* **Oxford University,** *United Kingdom*

3:15 **Human Antibody Discovery and Optimization in Yeast**

We have developed an integrated platform for the discovery and optimization of human IgGs in yeast. A synthetic library has been designed and constructed that reproduces key features of the preimmune human antibody repertoire. The abundance of nanomolar-affinity leads in this repertoire is 100-fold greater than that from published data for premier phage antibody libraries. Unprecedented speed from antigen to panels of human IgG protein is attained. Optimization of affinity and expression are robust and rapid within the platform.

K. Dane Wittrup, Ph.D., *Office of the CSO,* **Adimab, Inc.**

3:45 *Networking Refreshment Break*

4:15 **Building Analogues of Antibody Binding Sites in Molecularly Imprinted Polymers**

Applications of antibodies in therapy or diagnostics usually rely on an equilibrium binding between antibody and antigen after which 'something else happens'. The 'something else' event is often mediated by effector functions but may also involve simple clearance of the circulating complex. Molecularly imprinted polymers (MIPs) are analogs of antibodies for the first of these functions, the selective binding. Their application in analysis and extraction of toxic molecules, in proteomics analysis and to in vivo 'clean up' will be discussed.

Anthony R. Rees, Ph.D., *Chief Executive Officer,* **MIP Technologies AB,** *Sweden*

4:45 **Engineered scFv Fusion Proteins for Targeted Delivery of RNA Therapeutic Agents – Small Interfering RNAs (siRNAs) are Attractive as Potential Therapeutic Agents**

Transfected siRNA can "knock-down" certain mRNAs, but for therapeutic use in humans, available transfection methods are not sufficiently effective and safe. scFv-mediated import of siRNAs may present an alternative, and efficient import of intravenously injected CD4- and CCR5-specific siRNAs into transplanted human cells was achieved in a murine model of HIV infection, resulting in measurable control of viral infection. Attempts to eliminate leukemic cells via scFv-mediated import of siRNAs are underway.

Georg H. Fey, Ph.D., *Professor of Genetics,* **University of Erlangen,** *Germany*

5:15 **Antigen Binding Sites in the Fc region of IgG**

f-star's Modular Antibody Technology can be used to engineer additional binding sites into antibody constant domains. We have developed yeast surface display libraries of IgG1 Fc randomized in non-CDR-loops (Fcabs). These libraries were used to select specific, low nM binders against a number of protein antigens. Fcabs are shown to induce ADCC with antigen-positive cells and show long half life. Fcabs have been used engineer multivalent or multispecific antibodies (mAb2) by replacing the Fc fragment with an Fcab.

Gottfried Himmler, Ph.D., *Chief Scientific Officer,* **f-star Biotechnology,** *Austria*

5:45 *Close of Session*

7:30 *Networking Coffee*

8:00 *Announcements*

Session VII: Exploring the Limits of Tumor Targeting with Molecular Formats

8:05 **Chairperson's Opening Remarks**

Andreas Plückthun, Ph.D., *Professor of Biochemistry, Department of Biochemistry,* **University of Zürich,** *Switzerland*

8:15 **Efficient Tumor Targeting with DARPins: Effects of Affinity, Format and Size**

A systematic study with Designed Ankyrin Repeat Proteins (DARPins) specific for HER2 was carried out in targeting nude mice carrying xenograft tumors to establish the influence of size and affinity of protein-based targeting. Using DARPin point mutants ranging from pM to high nM with and without PEGylation, the optimal regimes for tumor targeting could be defined. With small high-affinity DARPins, a direct benefit of affinity is found, without any indication of a plateau or barrier effect, resulting in high levels and very large tumor to blood ratios, indicating their suitability for such therapeutic applications.

Andreas Plückthun, Ph.D., *Professor of Biochemistry, Department of Biochemistry,* **University of Zürich,** *Switzerland*

8:45 **Tumor Targeting Theory - Kinetic & Diffusive Processes that Determine Antibody Macro & Microdistribution**

A diverse array of tumor targeting agents ranging in size from peptides to nanoparticles is currently under development for applications in cancer imaging and therapy. However, it remains largely unclear how size differences among these molecules influence their targeting properties. Here we develop a simple, mechanistic model that can be used to understand and predict the complex interplay between molecular size, affinity, and tumor uptake.

K. Dane Wittrup, Ph.D., *Dubbs Professor of Chemical Engineering & Biological Engineering,* **Massachusetts Institute of Technology**

9:15 **Tumor Microvasculature and Microenvironment: Novel Insight through Intravital Imaging**

Intravital microscopy has provided unprecedented insights in tumor pathophysiology including angiogenesis and the microenvironment. Tumor vasculature has abnormal organization, structure, and function causing a hostile metabolic microenvironment characterized by hypoxia and acidosis and ineffective delivery and efficacy of therapeutics in tumors. In addition, host-tumor interactions regulate expression of pro- and anti-angiogenic factors, resulting in pathophysiological characteristics of the tumor. Restoration of imbalance of angiogenic factors in tumors normalizes tumor vasculature and microenvironment, and thus, improves concomitantly administered cytotoxic therapies.

Dai Fukumura, M.D., Ph.D., *Associate Professor, Edwin L. Steele Laboratory, Department of Radiation Oncology,* **Massachusetts General Hospital and Harvard Medical School**

9:45 *Networking Refreshment Break*

10:15 **Tumor Targeting with Immunoliposomal Anticancer Drugs**

Interest in the use of selectively targeted nanomedicines for the delivery of anticancer small molecule therapeutics, or gene medicines, is expanding rapidly. Recent research in the Allen lab explores the use of combination targeting strategies; these strategies are showing improved therapeutic outcomes in cancer. Examples include: increasing the 'apparent' receptor density on target cells by targeting to two or more surface receptor(s); targeting to two different cellular targets; and targeting combinations of therapeutic molecules with different modes of action.

Theresa M. Allen, Ph.D., *Professor of Pharmacology & Oncology,* **University of Alberta;** *Strategic Advisor,* **Center for Drug Research & Development (CDRD),** *Canada*

10:45 **Designing Nanoparticle Agents for Tumor Targeting and Imaging**

We have developed a new class of biocompatible and nontoxic nanoparticles for *in vivo* tumor targeting and detection based on self-assembled nanostructures and pegylated colloidal gold. These pegylated gold nanoparticles are considerably brighter than semiconductor quantum dots with light emission in the near-infrared window. When conjugated to tumor targeting ligands such as single chain variable fragment (ScFv) antibodies, the conjugated nanoparticles are able to target tumor biomarkers such as epidermal growth factor receptors (EGFR) on human cancer cells and in xenograft tumor models.

Shuming Nie, Ph.D., *Wallace H. Coulter Distinguished Faculty Chair in Biomedical Engineering, Director of Emory-Georgia Tech Cancer Nanotechnology Center,* **Emory University and Georgia Institute of Technology**

11:15 **Immunotargeted Delivery Across the Vascular Endothelium In Vivo**

Targeting disease biomarkers for imaging and pharmacodelivery is limited by *in vivo* barriers restricting access. Endothelia prevent tissue penetration of imaging agents, drugs, nanoparticles and gene vectors. By integrating tissue subfractionation, subtractive proteomics, bioinformatics, antibody generation, and imaging modalities, we identify and validate vascular biomarkers that enable tissue-specific targeting and transport across the endothelium. Rapid tissue penetration improves in vivo imaging and therapeutic efficacy.

Jan E. Schnitzer, M.D., *Scientific Director, Professor of Cellular & Molecular Biology, Director of Vascular Biology & Angiogenesis Program,* **Sidney Kimmel Cancer Center**

11:45 *Lunch on Your Own*

1:15 *Announcements*

Session VIII: Engineering Antibodies to Improve Cancer Therapy

1:20 **Chairperson's Opening Remarks**

Louis M. Weiner, M.D., *Director, Lombardi Comprehensive Cancer Center,* **Georgetown University Medical Center**

1:30 **Novel Antibodies that Bind to a Conformational Epitope of EGFR**

Therapies directed against EGFR have shown clinical benefit in colorectal, lung and head and neck cancers, although toxicity including skin rash can be dose limiting. Through crystal structure studies we have identified a unique epitope of EGFR that is not exposed in the inactive state, but is available for antibody binding in the activated form expressed on tumor cells. MAb 806 binds selectively to tumor expressed EGFR, but not normal tissues, and has potent anti-tumor activity. Preclinical studies and clinical trial data on mAb806 will be presented.

Andrew Scott, M.D., *Director,* **Ludwig Institute for Cancer Research,** *Australia*

2:00 **Clinical Development of Genetically Engineered anti-GD2 Monoclonal Antibodies for Neuroblastoma**

The ch14.18 chimeric anti-GD2 mAb mediates ADCC against neuroblastoma, particularly when combined with GM-CSF or IL2. Preclinical data indicate better antitumor control when tumor burden is small. A recent Children's Oncology Group Phase III trial showed ch14.18 + GM-CSF + IL2 was effective for high-risk patients in remission. The hu14.18-IL2 fusion protein, (IL2 linked to this mAb), is more effective in tumor-bearing mice than the combination of mAb+IL2. This fusion protein has Phase II activity; further development is underway.

Paul M. Sondel, M.D., Ph.D., *Walker Professor of Pediatrics and Human Oncology, Division Head, Pediatric Hematology and Oncology,* **University of Wisconsin**

2:30 **Ofatumumab, a Novel Human CD20 Antibody Therapeutic for B-Lymphoid Malignancies**

CD20 represents one of the best validated targets for immunotherapy of cancer. Ofatumumab is a fully human IgG1 antibody generated from Ig-transgenic mice that targets a distinct small loop epitope on the CD20 molecule. Ofatumumab exhibits a slow off-rate, potently triggers antibody dependent cellular cytotoxicity, and displays an exceptional efficacy in recruiting complement and inducing specific cell lysis. Novel insights into its mechanisms of action and recent data from clinical studies in front line and refractory B-CLL and NHL patients will be discussed.

Jan van de Winkel, Ph.D., *President R&D and Chief Scientific Officer,* **Genmab,** *The Netherlands*

3:00 *Networking Refreshment Break*

3:15 **Improved Recombinant Immunotoxins Targeted to CD22-Positive Malignancies**

Recombinant immunotoxins, antibody-toxin chimeric proteins, targeted to CD22 have produced complete remissions in patients with Hairy Cell Leukemia (HCL) but are less active against other B-cell malignancies. By making a modification to the toxin we have produced an immunotoxin, termed HA22-LR, which is smaller and more resistant to lysosomal proteases. In preclinical testing, HA22-LR was more potent for freshly isolated B-CLL cells and at least 10-fold less toxic for mice than earlier immunotoxins.

David J. FitzGerald, Ph.D., *Chief, Biotherapy Section, Laboratory of Molecular Biology, Center of Cancer Research,* **National Cancer Institute**

3:45 **Targeting Exposed Phosphatidylserine on Cancer Blood Vessels and Viruses**

Phosphatidylserine (PS) is confined to the internal leaflet of the plasma membrane in resting mammalian cells. It becomes exposed on tumor blood vessels and on virus-infected cells in response to cell activation and oxidizing stresses. We have developed therapeutic monoclonal antibodies that cause innate immune cells to target and destroy PS-expressing cancer blood vessels and virus-infected cells. Bavituximab, our leading therapeutic anti-PS antibody, is showing good efficacy in clinical trials.

Philip E. Thorpe, Ph.D., *Professor of Pharmacology, Serena S. Simmons Distinguished Chair,* **University of Texas Southwestern Medical Center**

4:15 **Antitumor Antibodies and the Immune Response to Cancer**

Monoclonal antibodies (mAbs) can impact tumor biology by altering the tumor cell or by altering the host response to the tumor. Murine models have established that antitumor antibody efficacy depends on Fc receptor engagement and in humans, clinical outcomes are improved in individual expressing Fc receptor allotypes with higher affinity to IgG. We will discuss the role of ADCC and dendritic cells in shaping the antitumor response to mAbs in murine systems and evidence supportive of a contribution of adaptive antitumor immunity to clinical outcome.

Raphael Clynes, M.D., Ph.D., *Associate Professor of Medicine,* **Columbia University**

4:45 *Close of Meeting*

7:00 *Registration, Networking Coffee*

7:45 *Announcements*

7:50 **Announcements and Chairperson's Opening Remarks**

Rathin C. Das, Ph.D., *Senior Vice President, Business Development/President,* **Affitech AS & Affitech USA, Inc.**

Session I: Preclinical Development of Antibody Therapeutics

8:00 **Challenges and Opportunities in the Design of Nonclinical Safety Programs to Support First in Human Dosing**

As the development of biotherapeutics becomes a more advanced science-based challenge, the selection of relevant animal models, utility of traditional species and alternatives to traditional safety approaches are becoming more accepted and in fact, necessary. Alternatives to the traditional safety approach include the use of homologous proteins, transgenic animals, and animal models of disease. The opportunities and challenges for these approaches to advance the science of biotechnology drugs will be discussed.

Laura Andrews, Ph.D., DABT, *Vice President, Pharmacology and Toxicology,* **Genzyme Corporation**

8:30 **Characterization of the Preclinical Anti-Tumor Effects of r84, a Novel Fully Human Anti-VEGF Antibody**

r84, a fully human antibody specific for human and mouse VEGF-A, is a selective inhibitor of VEGF-induced activation of VEGFR2 but does not inhibit VEGF binding or activation of VEGFR1. r84 has been evaluated in orthotopic xenograft models and a mouse chimeric version of r84 has been tested in multiple syngeneic as well as spontaneous transgenic tumor models. The effect of this unique and potent antibody on tumor growth, angiogenesis, and the tumor microenvironment will be discussed.

Rolf A. Brekken, Ph.D., *Associate Professor of Surgery & Pharmacology,* **University of Texas Southwestern Medical Center**

9:00 **Identification and Preclinical Anti-Tumor Activity of Novel Human Antibodies Neutralizing Either Growth Factor or Angiogenic Ligands**

The presentation will focus on two preclinical studies that led to the identification of antibodies capable of neutralizing important cancer ligands. First MEDI 573, which targets the IGF1 and IGF2 ligands responsible for growth and survival signalling through the IGFR1 and IRA receptors present on a range of cancers. And second, MEDI3617, which targets the ANG2 ligand that plays a key role in the angiogenic switch that is critical for tumor angiogenesis.

David Blakey, Ph.D., *Chief Scientist, Cancer and Infection Research,* **AstraZeneca,** *United Kingdom*

9:30 *Networking Refreshment Break, Exhibit and Poster Viewing*

10:15 **Generation of Dual-Targeting Antibodies and their Preclinical Development**

Domain Antibodies (dAbs) are the smallest functional binding fragments of human antibodies. By combining different dAbs, or through fusion of dAbs and mAbs, we are creating a suite of novel bispecific agents that offer enhanced efficacy in a range of indications. We will show that these molecules will provide differentiated, developable biopharmaceuticals, and by virtue of their modular nature offer up a pipeline of further such molecules in the future.

Michael Steward, Ph.D., *Manager, Discovery Biopharm R&D,* **GlaxoSmithKline,** *United Kingdom*

10:45 **Anti-TGFβ RII Antibody Suppresses Metastasis and Primary Tumor Growth by Multi-Effects on Cancer, Stroma and Immune Cells**

Therapeutics capable of controlling metastasis that accounts for most death of cancer patients and elevating weakened antitumor immunity in patients would have desirable clinical outcome. Antibody-directed therapeutics have been primarily focused on targeting a molecule in cancer cells or tumor-associated counterparts. This talk will present a novel approach utilizing a neutralizing anti-TGFβ Receptor II antibody to achieve antitumor efficacy through multi-effects on metastasis, angiogenesis, stroma and immunosuppression as well as enhancement of antitumor immunity.

Yan Wu, M.D., *Group Leader, Department of Antibody Technology and Immunology,* **ImClone Systems, a wholly owned subsidiary of Eli Lilly and Company**

11:15 **Engineered Fc Domains for Enhanced Cytotoxicity, Pharmacokinetics, and Immune Modulation: Preclinical Development Challenges for Candidate Antibodies**

We have engineered Fc domains for increased affinities to human activating Fc receptors, the inhibitory FcRIIb, and FcRn to improve cytotoxicity, immune cell regulation, or half-life, respectively. In each case, challenges related to imperfect inter-species affinity improvements have arisen. We have therefore utilized a variety of hu-PBL-SCID and transgenic models in combination with nonhuman primates to provide critical information on *in vivo* pharmocokinetics and pharmacology.

John R. Desjarlais, Ph.D., *Vice President, Research,* **Xencor, Inc.**

11:45 **Technology Workshops**

The Generation of Therapeutic Antibodies and Proteins with Reduced Immunogenicity

The clinical immunogenicity of biologics is typically associated with the development of high affinity IgG anti-therapeutic antibodies, indicating the role of CD4+ helper T cell epitopes. We have compared a number of technologies that enable the preclinical prediction of immunogenicity, and using EpiScreen™ technology, we have observed a correlation between T cell responses to biologics and the immunogenicity of protein therapeutics in the clinic. Data will be presented demonstrating our technology in screening for and removing immunogenicity from biologics.

Frank Carr, Ph.D., *Director for Biologics Research,* **Antitope,** *United Kingdom*

Production and Epitope Mapping of Antibodies Targeting Membrane Proteins

Integral Molecular's Lipoparticle technology provides an innovative solution for presenting structurally intact membrane protein antigens, including GPCRs and ion channels, at concentrations 10-100X higher (50-200 pmol/mg) than in cells or membrane preparations. This has enabled us to derive high titer serum responses (>1:500) against membrane proteins of interest. Once MAbs are isolated, our Shotgun Mutagenesis mapping technology has enabled us to rapidly identify both linear and conformationally complex epitopes that distinguish MAb binding sites.

Benjamin Doranz, Ph.D., *President and Chief Scientific Officer,* **Integral Molecular**

12:15 *Networking Luncheon, Exhibit and Poster Viewing*

1:45 **Technology Workshop**

The OMT Antibody Platform: Fully Human Antibodies from Transgenic Rats

Open Monoclonal Technology, Inc. (www.omtinc.net) is developing a human antibody platform using transgenic rats. This technology is based on an improved understanding of B-cell development and a novel approach to inactivating endogenous rat antibody expression. OMT's platform has broad freedom to operate and is protected by a patent application.

Roland Buelow, Ph.D., *Chief Executive Officer,* **OMT Inc.**

2:15 *Announcements*

"Nice broad coverage of all established and upcoming antibody topics"

– Markus Eazelberger, *Senior Director Research & Development,* **Morphosys AG**

Session II: Clinical Development: Inflammation

2:15 **Announcements and Chairperson's Opening Remarks**

Trudi Veldman, Ph.D., *Director, Biologics Generation,* **Abbott Laboratories**

2:30 **BT-061, a Therapeutic Antibody Targeting Regulatory T Cells**

BT-061 is a non-depleting humanized monoclonal antibody that selectively activates naturally occurring regulatory T cells (Tregs). Binding of BT-061 to an unique epitope of CD4 induces signaling events in Tregs resulting in their efficient activation. BT-061 is developed in the lead indications Rheumatoid Arthritis and Psoriasis. Based on blinded analysis from ongoing clinical phase IIa trials, BT-061 was generally well tolerated and first very promising efficacy data showed clear improvement of symptoms in both indications.

Kirsten Völp, Ph.D., *Director, Project Management Biotherapeutics,* **Biotest AG,** *Germany*

3:00 **ESBA105: an Anti-TNF scFv, Developed for Treatment of Local Inflammatory Diseases**

ESBA105 is a 27kDa TNF-alpha inhibitor originating from ESBATech's proprietary scFv platform. The compound has shown unique local biodistribution and pharmacokinetics characteristics. Based on these properties the ESBA105 can be applied locally, leading to high local concentrations in disease relevant tissues combined with low systemic drug exposure. ESBA105, using local delivery routes, is developed for treatment of local inflammatory diseases in which the use of conventional TNF-alpha inhibitors is prohibited for pharmacological or safety reasons.

Peter Lichtlen, M.D., Ph.D., *Head of Clinical Research & Development,* **ESBATech,** *Switzerland*

3:30 **MDX-1100, A Fully Human Anti-CXCL10 (IP-10) Monoclonal Antibody for Inflammatory Diseases**

The chemokine CXCL10 (IP10) binds to the cell surface receptor CXCL10 expressed on T cells and monocytes. CXCL10 and CXCR3 are expressed at inflammatory sites, such as in rheumatoid arthritis (RA) synovial membrane and colonic mucosa in ulcerative colitis (UC), and blocking this pathway ameliorates disease manifestations in RA and UC models. MDX-1100 is a fully human monoclonal antibody that neutralizes CXCL10 that has shown activity in RA and is currently in Phase 2 development in UC.

Michael Yellin, M.D., *Senior Director, Rheumatology and Immunology,* **Medarex, Inc.**

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

4:45 **The Therapeutic Lure of the Chemokine System: Past, Present and Future**

At the time of their discovery over twenty years ago, chemokines and their receptors attracted the immediate attention of drug developers. Consequently, many small molecule and monoclonal antibody antagonists have been developed. Several of these have been tested in clinical trials but the results have been generally disappointing. A better understanding of the complex biology of the chemokine system as well as new targeting strategies will help to fully exploit the therapeutic potential of chemokine inhibition.

William A. Kuziel, Ph.D., *Director, External Scientific Affairs,* **Daiichi Sankyo Research Institute**

5:15 **Sclerostin: A Potential New Target for Treating Low Bone Mass Disorders**

Individuals suffering from the rare mendelianly inherited condition sclerosteosis have exceptionally high bone mass. We have shown that neutralizing monoclonal antibodies to sclerostin can increase bone formation and bone strength in both rodents and primates. A recently completed human Ph I study in post menopausal women showed that a single dose of an antibody to sclerostin can produce a dose-dependent increase in biomarkers of bone formation and a decrease in a biomarker of bone resorption.

Martyn Robinson, Ph.D., *Vice President and Principal Scientist,* **UCB,** *United Kingdom*

5:45 **Clinical Development of Antibody for Inflammation**

This abstract was not available at the time of printing the brochure. For up to date program information, please visit www.IBCLifeSciences.com/Antibodyeng

Speaker TBA, Biocon Limited, *India*

6:15 *Networking Cocktail Reception, Exhibit and Poster Viewing*

7:30 *Registration, Networking Coffee*

8:00 **Announcements and Chairperson's Opening Remarks**
Nils Lonberg, Ph.D., *Senior Vice President and Scientific Director,* **Medarex Inc.**

Session III: Clinical Development: Cancer

8:15 **EpCAM-specific BiTE Antibody MT110 for Treatment of Solid Tumors**
MT110 is the second BiTE antibody in clinical trials. The first BiTE antibody, blinatumumab, has shown high response rates in patients with lymphoma and leukemia. The presentation will provide an update on preclinical activity of MT110 against mutated colorectal cancer stem cells, and on clinical data from patients with late-stage gastrointestinal or lung cancers.
Patrick A. Baeuerle, Ph.D., *Senior Vice President, Research and Development, Chief Scientific Officer,* **Micromet AG,** *Germany*

8:45 **PD-1 Pathway Blockade for Cancer Immunotherapy**
PD-1 is a negative signaling lymphocyte receptor associated with unresponsive antigen specific T cells. B7-H1, one of two ligands for PD-1, is expressed on many human cancers, and that expression correlates with poor survival. Two different human antibodies that block this pathway—one targeting the receptor and the other targeting the ligand—are in clinical development. Preclinical and clinical data will be presented.
Nils Lonberg, Ph.D., *Senior Vice President and Scientific Director,* **Medarex Inc.**

9:15 **Clinical Development of Dacetuzumab, a Humanized Anti-CD40 Monoclonal Antibody**
Dacetuzumab (SGN-40) selectively binds to CD40 and induces tumor cell death through multiple mechanisms. Phase I and II studies of single-agent dacetuzumab have demonstrated objective responses and tolerability in patients with hematologic malignancies. Preclinical data suggest that a novel gene signature may predict single-agent activity in patients with DLBCL. Phase Ib and IIb studies of dacetuzumab in combination with standard chemotherapies in patients with DLBCL, follicular NHL, or multiple myeloma are ongoing.
Nancy C. Whiting, PharmD, BCOP, *Associate Medical Director, Translational Medicine,* **Seattle Genetics, Inc.**

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

10:30 **CD22 Antibody Drug Conjugate for NHL**
CD22 is a B-cell antigen expressed on >90% of B-lymphoid malignancies and represents an attractive therapeutic target for the treatment of patients with B-cell NHL. Inotuzumab ozogamicin (CMC-544) combines a humanized IgG4 anti-CD22 antibody (G544) with a potent cytotoxic antibiotic (calicheamicin). CMC-544 has demonstrated activity against indolent and aggressive CD22 positive B-cell lymphomas in phase 1 and phase 1/2 trials when used as monotherapy or in combination with rituximab. Its activity and safety profile warrants continued development of this investigational agent.
Patrick Kelly, M.D., *Senior Director, Hematology, Clinical Research & Development,* **Wyeth Research**

11:00 **Mechanisms of Action of Daratumumab, a Novel CD38 Therapeutic Antibody for the Treatment of Multiple Myeloma**
CD38 is a type II membrane molecule involved in cell signaling which is highly expressed on all malignant Multiple Myeloma (MM) tumor cells. Daratumumab is a human IgG1 antibody generated in human Ig transgenic mice. Daratumumab interferes with CD38 enzyme function and effectively induces killing of fresh MM tumor cells by ADCC, apoptosis and potent CDC. In vivo, daratumumab inhibits the outgrowth of B cell tumors in a SCID mouse tumor model. Daratumumab represents a promising candidate for treatment of MM and is currently evaluated in a Phase I/II safety and dose finding study.
Paul W.H.I. Parren, Ph.D., *Senior Vice President Research & Preclinical Development,* **Genmab,** *The Netherlands*

11:30 **Elotuzumab, a Humanized Antibody, for the Potential Treatment of Multiple Myeloma**
Elotuzumab is directed against CS1, a cell surface glycoprotein, which is highly and uniformly expressed in multiple myeloma (MM). Elotuzumab is proposed to induce significant antibody-dependent cellular cytotoxicity (ADCC), which is significantly enhanced by combination treatment with either lenalidomide or bortezomib. Elotuzumab is being tested in 3 different phase 1/1b clinical studies, either alone or in combination with standard of care agents. The results from these studies will be discussed at the meeting.
Anil Singhal, Ph.D., *Senior Medical Director,* **Facet Biotech**

12:00 **Technology Workshops**
IBC's Technology Workshops offer supplier and service companies the opportunity to present product and service offers directly to the audience at the conference. For more information on presenting a technology workshop at this meeting, please contact Jennifer McElligott at (508) 614-1672 or jmcelligott@ibcusa.com. Three workshop slots are available in this time slot at the time of printing this brochure.

12:30 *Networking Luncheon, Last Chance for Exhibit and Poster Viewing*

Session IV: Business, Regulatory and Intellectual Property

2:00 **Chairperson's Opening Remarks**
Benjamin P. Chen, Ph.D., *Managing Director,* **Burrill & Company**

2:15 **Antibodies: A Wall Street Perspective**
With the largest consolidation of antibody assets now complete following the Roche/Genentech merger, many investors are wondering where the next wave of growth in the industry will come from. Increasingly, investors are seeing new opportunities in technologies outside of antibodies (vaccines, anti-sense, RNAi, etc.). The presentation will review some of the most exciting clinical data that supports continued interest in antibodies and next generation antibody technologies.
Jason Kantor, Ph.D., *Senior Biotechnology Analyst,* **RBC Capital Markets**

2:45 **Investing in Private Antibody Therapeutics Companies: A Venture Capitalist's Viewpoint**
Several case studies will be used to highlight market performance and projected trends. Topics to be addressed will include what acquirers want in the way of platforms versus products, when will they want it, and what will they be willing to pay for it. While the viewpoint will be that of a venture capitalist, it will be biased by this VC having formerly been the CEO of an antibody-based company.
Ron Eastman, *Managing Director,* **Essex Woodlands Health Ventures**

3:15 **Recent Changes in the IP Environment: Beware of the Key Changes that will Significantly Alter how Companies and Investors Manage Risk**
The Courts continue to change the rules for assessing risk and value of patents. eBay, Seagate, Medimmune, LG, Bilski, KSR, Broadcomm and their progeny have changed the rules of the game for life science and pharmaceutical companies. The impact of these changes is discussed in the context of an economic model. The potential impact of biosimilar legislation and other new legal trends will also be discussed.
Andrew Kumamoto, Ph.D., *Partner,* **McDermott, Will & Emery**

3:45 *Networking Refreshment Break*

4:15 **Is Your Antibody Obvious? A Comparison of US and European Approaches**
In order to be patentable, an antibody must be novel and non-obvious. But how do the patent offices decide what is obvious? Recent decisions from the U.S. Supreme Court and U.S. Court of Appeals have dramatically changed the way that obviousness is decided in the United States. This interactive presentation will discuss this new approach and compare it to the way that obviousness is judged in Europe.
Philip Webber, Ph.D., *European and UK Patent Attorney,* **Frank B. Dehn & Co,** *United Kingdom*

4:45 **A Flexible Business Model to Support a Novel Human Antibody Discovery Platform**
Big pharma is projecting major growth in the biologics arena in the upcoming decade. Because of the high level of clinical validation, much of this growth is expected to rely on therapeutic antibodies, at a time when many of the existing discovery platform providers for antibodies are encumbered by legacy agreements and gate keeping. We will discuss the main features of Adimab's human antibody discovery platform and how the development of an novel freestanding platform supports a more fluid and flexible business model.
Tillman U. Gergross, Ph.D., *Co-Founder and Chief Executive Officer,* **Adimab**

5:15 *Panel Discussion with Session Speakers*

5:45 *Close of Session*

Poster Presentations

The organizers of Antibody Engineering recognize the significant educational value in poster presentations. Any registered conference attendee may register to present a poster. The deadline to submit an abstract online, at the address below, is November 6, 2009 to have the abstract be included in the conference materials. Poster abstracts and registrations received after November 6, 2009 are subject to availability of an onsite poster board and will not be included in the conference materials. Full payment of conference registration and poster fees must also be received by this date for the abstract to be included in the conference materials and a poster board assignment to be made (see the registration page for details on the poster fee). The size of the poster board is 4'h x 8'w. Please note: Poster presentations may not be used as exhibit displays or for marketing purposes, and all posters are subject to approval by conference organizers. Only one poster presentation is allowed per registered attendee/author.

Poster abstracts should be submitted online at: www.IBCLifeSciences.com/Antibodyeng

See page 3 for Student Poster Scholarship information and deadlines.

7:30 *Networking Coffee*

Session V: Clinical Development: Infection and Autoimmune Diseases

8:00 **Announcements and Chairperson's Opening Remarks**

Mark R. Alfenito, Ph.D., *Head of Technology Licensing,* **KaloBios Pharmaceuticals Inc.**

8:45 **A Neutralizing Human Monoclonal Antibody Therapy for Nipah Virus Infection**

Nipah virus is a highly pathogenic zoonotic paramyxovirus that causes severe neurologic and/or respiratory disease in animals and humans. Nipah is a BSL-4 select agent and there are no approved therapies for human use. A ferret model of Nipah-pathogenesis, which mirrors the illness seen in infected humans, was developed and a neutralizing human monoclonal antibody (m102.4) targeting the viral attachment glycoprotein could completely protect ferrets from lethal disease as a post-exposure therapy.

Christopher C. Broder, Ph.D., *Professor of Microbiology and Immunology, Director, Emerging Infectious Diseases Graduate Program, Department of Microbiology and Immunology,* **Uniformed Services University**

9:15 **Recombinant Polyclonal Antibodies, a New Class of Drug for Treatment of Infectious Disease, Autoimmunity and Cancer**

Recombinant polyclonal antibodies (pAb) contain several antibody species, thus leveraging multiple mechanisms of action in a single drug. These offer significant advantages in the treatment of complex organism like virus and bacteria as well as in cancer and autoimmunity. Symphogen has developed technologies for the discovery, manufacturing and quality control of pAb enabling their development as well-characterized pharmaceuticals. Examples from the development of rozrolimupab, currently in phase II development for the treatment of ITP, will be provided with examples from Symphogen's anti-infectives development pipeline.

Søren Bregenholt, Ph.D., *Chief Operating Officer,* **Symphogen A/S,** *Denmark*

9:45 *Networking Refreshment Break*

10:15 **Type I Interferons in Systemic Autommine Disease**

Type I IFNs induce multiple biological effects in the immune system and recent data suggests a potential role of Type-I IFNs in lupus. In animal models, inhibition of interferon signaling prevents skin inflammation. MEDI-545 is a fully humanized anti-IFN-a mAb and patients with lupus inhibited the "Interferon signature" and reduced the expression of a number of genes that are upregulated in the inflamed skin suggesting that targeting Type I IFNs in autoimmune may be a new therapeutic approach.

Anthony J Coyle, Ph.D., *Vice President, Respiratory Inflammation and Autoimmunity Department,* **MedImmune, Inc.**

10:45 **Targeting TNF-Alpha with ART621 – the First Human Framework Domain Antibody to Hit the Clinic**

Domain antibodies (dAbs) offer potential for enhanced stability, production yields, tissue penetration and formatting flexibility, and reduced immunogenicity compared with IgG's. Combinatorial methods were used to develop a potent TNF-alpha-neutralizing dAb that was then formatted into a bivalent Fc-linked construct. A clinical update will be provided on ART621, which displays IgG-like pharmacokinetic behavior in humans, has completed testing in a phase II psoriasis trial and is currently in two phase II rheumatoid arthritis trials.

David S. Wilson, Ph.D., *Vice President, Research & Development,* **Arana Therapeutics Ltd,**

11:15 **Antibody for Infectious Disease**

This abstract was not available at the time of printing the brochure. For up to date program information, please visit www.IBCLifeSciences.com/Antibodyeng

Teresa Parli, M.D., *Medical Director,* **KaloBios Pharmaceuticals Inc.**

11:45 *Close of Antibody Therapeutics Meeting; Delegates are Invited to Attend the Afternoon Session of Antibody Engineering*

Sponsorship and Exhibition

Sponsors:

Silver and Technology Workshop Sponsor:

For over 50 years, Bio-Rad Laboratories has provided instrumentation and reagents supporting life science research. In 2006 Bio-Rad launched the ProteOn™ XPR36 protein interaction array system, which offers a novel 6 x 6 criss-cross fluidics design and unique referencing options to measure 36 simultaneous kinetic interactions in real time. With the ProteOn XPR36 system you can continue to rely on Bio-Rad for tools, technologies, and expertise that enable genomic and proteomic analysis.

Technology Workshop Sponsors:

Antitope Ltd. is a privately held Cambridge UK-based biotechnology company specializing in immunogenicity testing and the engineering of therapeutic antibodies/proteins with reduced immunogenicity. Antitope's pioneering technologies include EpiScreen™ for the selection of non-immunogenic therapeutic proteins, Composite Human Antibodies™ and Composite Proteins™ for the generation of novel non-immunogenic fully humanized antibodies and protein therapeutics, respectively. Antitope continues to validate these technologies through multiple commercial relationships with leading biotechnology and pharmaceutical companies as well as through the company's own commercial pipeline.

Integral Molecular is a platform-based company that provides products and services focusing on integral membrane proteins. Integral's Lipoparticle technology enables the cell-free manipulation of highly concentrated sources of membrane proteins, such as G protein-coupled receptors (GPCRs) and ion channels, for applications such as antibody development, biosensor kinetics, and high-throughput screening. Integral's Shotgun Mutagenesis mapping technology enables a residue-by-residue structure-function analysis of complex proteins, including GPCR interactions with antibodies, drugs, and natural ligands.

Meso Scale Discovery (MSD®) develops and markets solutions for singleplex and multiplex biological assays, including assays for toxicology biomarkers, metabolic biomarkers, cytokines, and phosphoproteins. MSD's platform is based on MULTI-ARRAY® technology, a proprietary combination of patterned arrays and electrochemiluminescence detection, enabling large numbers of measurements with exceptional sensitivity, wide dynamic range, and convenience.

Open Monoclonal Technology, Inc. ("OMT") is a private, California-based biotechnology company, developing a new, fully human monoclonal antibody (mAb) platform based on transgenic rats. This new technology is the result of breakthroughs in the understanding of B-cell development and a novel approach to the inactivation of endogenous antibody expression. OMT's antibody platform has broad freedom to operate and uses technology protected by a new patent application. For more information, please visit www.omtinc.net.

Totebag Sponsor:

UCB is a global leader in the biopharmaceutical industry dedicated to the research, development and commercialization of innovative products to treat severe immunology disorders and diseases in the central nervous system. UCB's Celltech Antibody Center of Excellence, located in the UK, specializes in the development of antibody-based drugs.

Badge & Lanyard Sponsor:

Exhibitors (as of 7/7/09):

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Drive Your Global Sales & Marketing

IBC's Antibody Engineering and Antibody Therapeutics provides a number of sponsorship and exhibiting opportunities you can choose from to meet your sales and marketing goals before, during and after the event. IBC's sponsorships ensure you the proper balance between attendees and exhibitors so you can spend more time developing your deals and less time searching for possible partners.

Sponsorship/Exhibiting opportunities include Technology Workshops, Session Sponsorships, Receptions, Luncheons and Break Sponsorships, Hospitality Suites, Portfolio, Tote Bags, and much more...

To learn more about sponsoring or exhibiting, please contact Jennifer McElligott at jmcelligott@ibcusa.com or 508-614-1672 for additional information.

Registration Form

1 ❑ **Please register me for Antibody Engineering and/or Antibody Therapeutics** D9172PDFWDL

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E-MAIL ❑ Yes, I would like to receive occasional e-mail messages and offers from other organizations.

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2 Industry Rates

	On or before Sept. 18, 2009	On or before Oct. 9, 2009	On or before Nov. 6, 2009	**Standard Rate** After Nov. 6, 2009
4 Day Conference Plus Workshop (Sun.-Thur.) (Includes Sunday Workshop; All conference sessions for Antibody Engineering and Antibody Therapeutics)	☐ $2099	☐ $2199	☐ $2299	☐ $2399
4 Day Conference Pass (Mon.-Thur.) (Includes all conference sessions for Antibody Engineering and Antibody Therapeutics)	☐ $1899	☐ $1999	☐ $2099	☐ $2199
3-Day Conference Pass Only (Tues.-Thur.) (Includes Tues.-Thurs. access to Antibody Engineering & Antibody Therapeutics)	☐ $1699	☐ $1799	☐ $1899	☐ $1999

2 Academic/Government Rates

	On or before Sept. 18, 2009	On or before Oct. 9, 2009	On or before Nov. 6, 2009	**Standard Rate** After Nov. 6, 2009
4 Day Conference Plus Workshop (Sun.-Thur.) (Includes Sunday Workshop; All conference sessions for Antibody Engineering and Antibody Therapeutics)	☐ $799	☐ $899	☐ $999	☐ $1099
4 Day Conference Pass (Mon.-Thur.) (Includes all conference sessions for Antibody Engineering and Antibody Therapeutics)	☐ $699	☐ $799	☐ $899	☐ $999
3-Day Conference Pass Only (Tues.-Thur.) (Includes Tues.-Thurs. access to Antibody Engineering & Antibody Therapeutics)	☐ $599	☐ $699	☐ $799	☐ $899

Prices include lunches, refreshments and speaker documentation. For security precautions, a photo identification will be required of ALL attendees at check-in. *For on-site registrations, please add $100*

3 Reserve a Posterboard *(space is limited)* ☐ Academic/Government = FREE ☐ Pharma/Biotech = $100 ☐ Vendor/Supplier* = $300

* Vendor/supplier rate is for exhibiting/sponsoring companies and/or other posters that upon review are of commercial/product focus.

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Please make check(s) (in U.S. funds drawn on a U.S. bank) payable to IBC USA Conferences and attach to the registration form. Confirmation of your booking will be sent. Wire Transfer: Please tell your bank to include the conference code, invoice number, person attending, name and date of the conference in the transfer instructions. Wire transfers and EFT payments: please contact accounts receivable at Account-liaison@informausa.com for banking details.

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Unable to Attend? Purchase the Conference Materials. Conference materials including a selection of speaker presentations will be available for purchase following the event.

❑ I cannot attend and would like to purchase the conference materials. Enclosed is my payment for $399 (fee does not include shipping and handling, when applicable).

5 Easy Ways to Register!

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Additional Registration Information

For onsite registrations, please add $100.

Unauthorized solicitation is strictly prohibited at this event and failure to comply could result in revocation of your access privileges. This is a trade only event. For your safety and security, a photo identification and industry related business card are required at the conference check-in to complete your registration.

Program content and speakers subject to change. Children under 18 are not permitted in the exhibit hall under any circumstances. Conference badges are non-transferable and lost badges will not be replaced without payment of the full conference registration fee.

Please note that payment is required in advance of the conference. Please make check(s) (in U.S. funds drawn on a U.S. bank) payable to IBC Life Sciences and attach to the registration form. Confirmation of your booking will be sent. Should you elect to pay by MasterCard, Visa or American Express, please send your credit card number, expiration date, name as it appears on card and signature along with the registration form.

Registration Substitutions/Cancellations:

If you need to make any changes or have any questions, please feel free to contact us via email at reg@ibcusa.com. Cancellations must be in writing and must be received by IBC prior to 10 business days before the start of the event. Upon receipt of a timely cancellation notice, IBC will issue a credit voucher for the full amount of your payment, which may be applied towards registration fees at any future IBC event held within 6 months after issuance (the "Expiration Date"). All credit vouchers shall automatically expire on the Expiration Date and shall thereupon become void. In lieu of issuance of a credit voucher, at your request, IBC will issue a refund less a $595 processing fee per registration. Registrants are advised that no credit vouchers or refunds will be issued for cancellations received 10 business days or less prior to start of the event, including cancellations due to weather or other causes beyond the Registrant's control. IBC therefore recommends that registrants allow for unexpected delays in making travel plans. Substitutions are welcome at any time. If for any reason IBC decides to cancel this conference, IBC accepts no responsibility for covering airfare, hotel or other costs incurred by registrants, including delegates, sponsors, speakers and guests.

SPECIAL NEEDS: If you have a disability or special dietary needs, please let us know in order that we may address your special needs for your attendance at this show. Please send your special needs via email to custserv@ibcusa.com or fax 508-616-5522.

Venue & Travel Information

Sheraton San Diego Hotel and Marina

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Please call the hotel directly before November 13, 2009 to be included in IBC's dedicated room block for this conference. Please identify yourself as part of IBC's Antibody Engineering/Antibody Therapeutics event to receive the reduced room rate. Be sure to make your reservations as soon as possible as rooms tend to fill up very quickly and all reservations are subject to availability.

Hotel Reservation Policies:

1. A first and last night non-refundable deposit is required at the time of reservation.
2. Cancellations and changes to a reservation will be accepted without further financial responsibility up until November 13, 2009. Your credit card is subject to being charged for your full reservation if cancellation or changes to a reservation are received after November 13 2009.