FINAL AGENDA

Cambridge Healthtech Institute's 16th International

Molecular Medicine Tri-Conference

Shaping Future Medicine

Conference Dates:
February 25-27, 2009

Exhibit Dates:
February 25-26, 2009

Moscone North Convention Center
San Francisco, California

- **Molecular Diagnostics**
- **Mastering Medicinal Chemistry**
- **Stem Cells Congress**
- **Executive Summit on Strategy and Innovation**
  Qualified Attendance
- **Preclinical Drug Safety**
- **Preclinical Development of Biologics**
- **Translational Medicine**
- **Cancer Profiling & Pathways**
- **Adopting Integrated R&D Informatics Systems**
- **Cancer Molecular Markers**
- **Companion Diagnostics**

KEYNOTE SPEAKERS

Brave New Age of Personalized Medicine

David Ewing Duncan, Chief Correspondent of NPR Talk's "Biotech Nation" and best-selling Author, "Masterminds"

Using Molecular Medicine to do Therapeutic Development in the Network Age

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

Tissue Engineering Strategies for Musculoskeletal Regenerative Medicine in Civilian and Military Applications

Michael J. Yaszemski, M.D., Ph.D., Brigadier General, United States Air Force Reserves; Professor, Orthopedic Surgery and Biomedical Engineering, College of Medicine, Mayo Clinic

Engineering Cells to Death

James A. Wells, Ph.D., Professor and Chair of Pharmaceutical Chemistry, and Professor of Cellular & Molecular Pharmacology, University of California, San Francisco

CONFERENCE FEATURES: 3000 Attendees • 250+ Speakers • 11 Concurrent Tracks
160 Exhibitors • 80+ Posters • Unsurpassed Networking

Corporate Sponsors

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CONFERENCE-AT-A-GLANCE

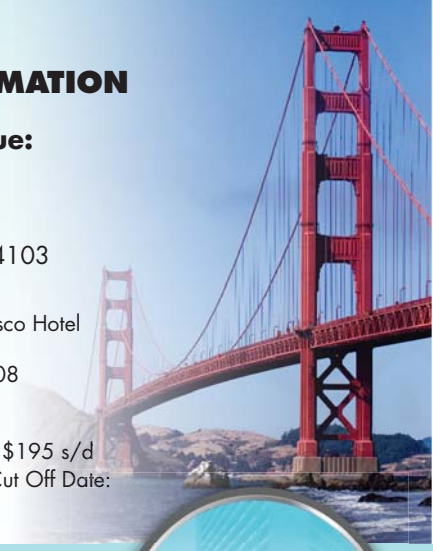
Tuesday, February 24	
8:00 am	Registration Open & Morning Coffee
9:00 - 10:15 am	Morning Short Courses
10:15 - 10:30 am	Networking Coffee Break
10:30 - 12:00 pm	Morning Short Courses
12:00 -2:00 pm	Lunch on Your Own
2:00 - 3:15 pm	Afternoon Short Courses
3:15 - 3:30 pm	Networking Refreshment Break
3:30 - 5:00 pm	Afternoon Short Courses
Wednesday, February 25	
7:15 am	Registration Open & Morning Coffee
8:45 - 9:40 am	Plenary Keynotes
9:40 - 11:00 am	Grand Opening Refreshment Break in the Exhibit Hall Chance to win 1 of 2 iPod® Videos!
11:00 - 1:10 pm	Concurrent Tracks
1:10 - 2:15 pm	Walk & Talk Luncheon in the Exhibit Hall Play the Match Game to win 1 of 2 iPod® Videos and 2 Nintendo® Wii™ Systems!
2:15 - 4:20 pm	Concurrent Tracks
4:20 - 5:00 pm	Reception in the Exhibit Hall *(Sponsorship Available)*
5:00 - 6:00 pm	Break-out Discussions in the Exhibit Hall
Thursday, February 26	
7:00 am	Registration Open and Morning Coffee
7:20 - 8:15 am	Plenary Keynotes
8:25 - 10:30 am	Concurrent Tracks
10:30 - 11:30 am	Poster Competition, Refreshment Break & Raffles in the Exhibit Hall iPod® & Nintendo® Wii™ *Winners Announced*
11:30 - 12:30 pm	Concurrent Tracks
12:30 - 1:30 pm	Sponsored Luncheon Presentations in the Track Rooms
1:30 - 3:05 pm	Plenary Keynote
3:05- 4:00 pm	Ice Cream Refreshment Break in the Exhibit Hall, BEST NEW PRODUCTS AWARDS *(Last Chance to View Exhibits & Posters)*
3:55 - 6:00 pm	Concurrent Tracks
Friday, February 27	
8:30 - 10:20 am	Concurrent Tracks
10:05 - 11:00 am	Coffee Break
11:00 - 12:00 pm	Concurrent Tracks
12:00 - 1:00 pm	Luncheon Presentation *(Sponsorship Available)* or Lunch on Your Own
1:00 - 3:05 pm	Concurrent Tracks
3:05 pm	Close of Conference

Sponsoring Publications

Expert Review of Vaccines

Nanomedicine

HOTEL INFORMATION



Conference Venue:
The Moscone North
Convention Center
747 Howard Street
San Francisco, CA 94103

Host Hotel:
Grand Hyatt San Francisco Hotel
345 Stockton Street
San Francisco, CA 94108
(T) 415-398-1234
(F) 415-391-1780
Discounted Group Rate: $195 s/d
Discounted Room Rate Cut Off Date:
January 23, 2009

To reserve your hotel reservations on-line, please visit the Hotel & Travel page of the conference website:

Tri-Conference.com

Reserve Your Hotel and Save $75 off Registration*

You can also make your hotel reservations by calling the hotel directly and asking for the Molecular Med Tri-Conference and/or the Cambridge Healthtech group rate. Reservations made after the cut-off date or after the group room block has been filled (whichever comes first) will be accepted on a space and-rate availability basis. Rooms are limited, so please book early.

**see registration page for details*

TRAVEL INFORMATION

Flight Discounts:
To receive a 5% or greater discount on all American Airline flights please use one of the following methods:
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Special discount rentals have been established with AVIS for this conference. Please call AVIS directly at 800-331-1600 and you must reference our Avis Worldwide Discount (AWD) Number J868190.

PLEASE VISIT THE TRAVEL PAGE OF THE CONFERENCE WEBSITE FOR ADDITIONAL HOTEL AND TRAVEL INFORMATION

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PRE-CONFERENCE SHORT COURSES* Tuesday, February 24, 2009

(SC1) TRANSLATIONAL STRATEGIES FOR DEVELOPMENT OF MONOCLONAL ANTIBODIES FROM DISCOVERY TO THE CLINIC – PART 1

9:00 am – 12:30 pm

Course Instructors:

Mohammad Tabrizi, Ph.D., Director,Global PK-PD & Bioanalysis, MedImmune

Gadi Bornstein, Ph.D., Principle Scientist, AstraZeneca

Scott Klakamp, Ph.D., Research Fellow, Biophysical Chemistry and Bioinformatics, Takeda

Andrew Drake, Ph.D., Principal Scientist, Biophysical Chemistry, Takeda

(SC2) TRANSLATIONAL STRATEGIES FOR DEVELOPMENT OF MONOCLONAL ANTIBODIES FROM DISCOVERY TO THE CLINIC – PART 2

2:00 – 5:00 pm

Course Instructors:

Cherryl Funelas, B.S., Manager, Global PK-PD & Bioanalysis, MedImmune

Mohammad Tabrizi, Ph.D., Director, Global PK-PD & Bioanalysis, MedImmune

(SC3) REALITY CHECK ON COMPANION DIAGNOSTICS

9:00 am – 12:00 pm

Course Instructors:

Jorge A. León, Ph.D., President, Leomics Consulting

Richard Bender, M.D., FACP, Chief Medical Officer, Agendia, Inc.

Bryan M. Dechairo, Ph.D, Senior Director, Development Head - Personalized Medicine R & D, Medco Health Solutions, Inc.

(SC4) CIRCULATING TUMOR CELLS AND CANCER STEM CELLS

2:00 – 5:00 pm

Course Instructors:

John Park, M.D., Associate Clinical Professor, Hematology & Oncology, University of California, San Francisco

Glenn Deng, Ph.D., Senior Scientist, Circulating Tumor Cells, Genetix

Katharina Effenberger, Ph.D., Institute of Tumor Biology, Center for Experimental Medicine, University Medical Center Hamburg-Eppendorf

Amir Ali Talasaz, Ph.D., Research Associate, Stanford Genome Technology Center, Stanford Univ.

Ying Liu, Ph.D, Stem Cells and Regenerative Medicine, Invitrogen Corporation

Eleni Andreopoulou, M.D., DSc, Assistant Professor, Department of Breast Medical Oncology, University of Texas, MD Anderson Cancer Center

(SC5) FRAGMENT-INSPIRED MEDICINAL CHEMISTRY

9:00 am – 12:00 pm

Course Instructors:

Daniel A. Erlanson, Ph.D.,Cofounder, Carmot Therapeutics, Inc.

Edward R. Zartler, Ph.D., Research Fellow, Bioprocess & Bioanalytical Research, Merck & Co.

James Murray, Ph.D., Director of Structural Sciences, Vernalis

Hans-Dieter Junker, Ph.D., Head of Chemistry, Graffinity Pharmaceuticals GmbH

(SC6) BEST PRACTICES IN TRANSLATIONAL MEDICINE, DRUG DISCOVERY, AND INFORMATICS

2:00 – 5:00 pm

Chairperson's Introduction: Kevin Davies, Ph.D., Chief Editor, Bio-IT World

Course Instructors:

Renee Kenney, Ph.D; Director, Scientific Research; Genstruct

Victor Lobanov, Ph.D., Director, Research & Early Development (RED) IT; Johnson & Johnson

Dr. George Komatsoulis, Deputy Director, acting COO and Chief, Informatics Operations Branch, Center for Biomedical Informatics and Information Technology, National Cancer Institute

Fabrice Beretta, Principal, Process Research and Development; Business Excellence, Strategy and Training, Genentech

Samir Raiyani, CEO, Dolcera

Brenda Yanak, Lead, Translational Medicine Informatics and IT, Merck Research Laboratories

(SC8) ASSESSING MITOCHONDRIAL FUNCTION IN DRUG DISCOVERY AND SAFETY

9:00 am-12:00 pm

Course Instructors:

Roderick A. Capaldi D.Phil., Chief Scientific Officer, MitoSciences Inc.

Yvonne Will, Ph.D., Senior Principal Scientist, Group Lead Mitochondrial Biology and Cell Based Assays, Exploratory Safety Differentiation, Pfizer Global R&D

Toshimori Kitami, Ph.D., Senior Scientist, Broad Institute, Massachusetts Institute of Technology

Hirdesh Uppal, Ph.D., Research Scientist, Investigative Toxicology, Roche Palo Alto

Richard Fernandes, Ph.D., CEO, Luxcel Biosciences

David Ferrick, Ph.D.,VP Biology and Applications, Seahorse Bioscience

(SC9) NOVEL APPROACHES TO CANCER BIOMARKERS

9:00 am – 5:00 pm

Course Instructors:

Thea D. Tlsty, Ph.D., Professor, Department of Pathology, University of California, San Francisco

Richard Bender, M.D., FACP, Chief Medical Officer, Agendia, Inc.

Joerg Heyer, Ph.D., Principal Scientist, Group Leader, Genetic Models, AVEO Pharmaceuticals, Inc.

Søren Møller, Ph.D., Vice President, Research & Development, Exiqon A/S

Joanna Hunter, Ph.D., Senior Director, Protein Analysis, Caprion

Shen Hu, Ph.D., Assistant Professor, Proteomics and Oral Biology, UCLA School of Dentistry

Toyoki Moribe, Ph.D., Technical Support Team Leader, Array Group, applied Science Business Unit, Roche Diagnostics K.K.

Cathy Lofton-Day, Ph.D., Vice President, Molecular Biology & Diagnostics, Epigenomics, Inc.

Jeffrey Shuster, Ph.D., Director, Diagnostic Development, Metabolon, Inc.

Anna Szafranska-Schwarzbach, Ph.D., CLIA Laboratory Supervisor, Pharmocogenomics Services, Asuragen

(SC10) COLLABORATING TO ACCELERATE THE ADOPTION OF NOVEL TECHNOLOGIES IN THE PRECLINICAL R&D PROCESS: IDENTIFYING TOOLS THAT WILL MAKE A POSITIVE IMPACT

2:00 – 5:00 pm

Course Instructors:

Ernie Bush, Ph.D., Vice President, Collaborative Projects, The Drug Safety Executive Council

Brian T. Edmonds, Ph.D., Research Advisor, Global External Research & Development, Eli Lilly & Co.

Eric Glazer, Managing Director, The Drug Safety Executive Council

Judy Marquis, Ph.D., Group Vice President, Pharmacology and Preclinical Development, Genzyme

George C. McCormick, Ph.D., D.A.B.T., Vice President, Drug Safety & Disposition, Cephalon, Inc

Jack Reynolds, DVM, Chairman of the Advisory Board, The Drug Safety Executive Council

Klaus R. Krauser, D.V.M., Ph.D., Sr. Director, Drug Safety, Arena Pharmaceuticals

MORE ONLINE:

*Separate Registration Required

VIEW COMPLETE SHORT COURSE DETAILS AT TRI-CONFERENCE.COM/PRECON.ASP

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TUESDAY, FEBRUARY 24

PRE-CONFERENCE SHORT COURSES*

Recommended Short Course(s)*

(SC3) REALITY CHECK ON COMPANION DIAGNOSTICS
9:00am – 12:00pm

(SC5) CIRCULATING TUMOR CELLS AND CANCER STEM CELLS
2:00 – 5:00pm

(See page 3 for details and a complete list of short courses)

*Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:15am **Registration Open**

8:45 **Plenary Keynote Introduction**

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 **PLENARY KEYNOTE**

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 **Grand Opening Refreshment Break in the Exhibit Hall**

KEYNOTE SESSION

11:00 **Chairperson's Remarks**

Paul Billings, M.D., Ph.D., President and Chief Executive Officer, CELLective Dx Corporation

11:10 *William J. Rutter, Ph.D., Chairman, Synergenics LLC*

11:40 **Genes for Common Disease: But What Next?**

John A. Todd, Ph.D., University Chair, Medical Genetics, University of Cambridge

Technology, extensive clinical sample collections and a maturation in statistical assessment of results coincided in 2007 to trigger an avalanche of gene identification in "complex" diseases: the disorders that fill clinics and cost billions of dollars. These susceptibility genes mark and point to the etiological pathways of disease, including facilitation of disease precursors or biomarkers. The latter research, knowledge and future knowledge should lead to improved efficiency in the development of strategies to prevent disease.

12:10pm **MDx--From Revolution to Mainstream to Personalized Medicine**

Daniel H. Farkas, Ph.D., HCLD, Executive Director, Center for Molecular Medicine

The golden age of molecular biology led to the development of tools that transformed the practice and business of laboratory medicine. Molecular pathologists and their clinical colleagues are now poised to use the tools of the 21st century, arrays, high-speed sequencing, bioinformatics and the like, to bring a new and exciting growth period to molecular diagnostics that will have dramatic effects in all areas of medicine.

12:40 **Introduction and Insights from the New Thomson Reuters Biomarker Database, BIOMARKER Center**

Sponsored by THOMSON REUTERS

Joel Lackovich, Account Consultant, Bio Chem, Thomson Reuters

The use of Biomarkers is becoming increasingly important in Drug discovery and in the development of companion diagnostics. Alongside this, the amount of information being published across a wide range of sources is growing rapidly. In this presentation we will introduce a new Thomson Reuters information resource for those working with biomarker data, BIOMARKERcenter. We will also reveal some insights into trends in biomarker use based on the information contained in the database.

1:10 **Walk & Talk Luncheon in the Exhibit Hall**

SUCCESS STORIES OF NOVEL TEST ADOPTION

2:15 **Chairperson's Remarks**

Daniel H. Farkas, Ph.D., HCLD, Executive Director, Center for Molecular Medicine

2:20 **Molecular Diagnostic Tests That Affect Diagnosis and Therapy in Myeloid Leukemias**

Adam Bagg, M.D., Director, Hematology, Department of Pathology and Laboratory Medicine, University of Pennsylvania

The laboratory diagnosis and classification of myeloid neoplasms requires the integration of a number of disparate technologies. Molecular studies provide the most prognostically-pertinent and therapeutically-relevant data. This session will highlight some of the scenarios in which molecular tests can not only refine diagnoses, but also dictate therapy as well as redefine concepts of remission.

2:50 **Molecular Chimerism Analysis in Hematopoietic Cell Transplantation**

Christopher Watt, M.D., Ph.D., Molecular Pathology Fellow, Department of Pathology and Laboratory Medicine, Hospital of the University of Pennsylvania

An increasing number of diseases, both malignant and non-malignant, are being treated with hematopoietic cell transplantation. Molecular chimerism analysis was developed by harnessing the power of forensic identity analysis to monitor patients following allogenic hematopoietic cell transplants. Chimerism analysis is used to evaluate the relative amounts of donor and recipient cells using DNA identity markers.

3:20 **Reimbursement Considerations and Strategies**

Jeffrey A. Kant, M.D., Ph.D., Director, Molecular Diagnostics, Department of Pathology, University of Pittsburgh

I will present case examples to illustrate areas of confusion or controversy arising from technical or philosophical considerations along with difficulties and limitations associated with coverage policies promulgated by payers unfamiliar with molecular technology and its clinical applications. I will also discuss creative approaches users have adopted to deal with regulatory constraints and provide an update on emerging concepts and proposals to 'fix' this area.

3:50 **Molecular Diagnostic Tests to Detect, Characterize and Monitor Viral Agents of Infection and Disease**

Daniel Amsterdam, M.D., School of Medicine and Biomedical Sciences, University of Buffalo

Great strides have been made in understanding the progression of HIV infection and treatment of HIV disease, utilizing qualitative and quantitative molecular (nucleic acid) testing modalities. The latter additions to the testing armamentarium permit the clinical diagnostic laboratory to fulfill its role in partnering with healthcare professionals and specialists in the diagnosis, monitoring and management of HIV disease. The strategy to include molecular tests in routine HIV screening protocols may change and conform to the model for other diseases of viral etiology.

4:20 **Reception in the Exhibit Hall**

5:00 **Breakout Discussions in the Exhibit Hall**

Overcoming Integration Hurdles for Rapid Testing

Moderator: Katherine Tynan, Consultant

Value-Based Pricing for Molecular Diagnostics

Moderator: Michael Stocum, MS, Managing Director, Personalized Medicine Partners, LLC

Preventive Genomic Medicine

Moderator: Vance Vanier, M.D., Chief Medical Officer, Navigenics and Partner, Mohr Davidow Ventures

Biomarker Partnerships in Companion Diagnostics

Moderator: Brian T. Edmonds, Ph.D., Principal Investigator, Integrative Biology/ Global External Research & Development, Lilly Corporate Center

Advanced Screening Protocols for Early Detection of Lung Cancer

Moderator: Paul Billings, M.D., Ph.D., President and Chief Executive Officer, CELLective Dx Corporation

Future of Point-of-Care Testing

Moderator: Shuqi Chen, Ph.D., President, CEO, and Chairman of the Board, IQuum

6:00 **Close of Day**

THURSDAY, FEBRUARY 26

7:00am **Registration Open and Morning Coffee**

7:20 **Plenary Keynote Introduction**

7:30 **PLENARY KEYNOTE**

DEVELOPMENT OF DIAGNOSTICS FOR STANDARD OF CARE

8:25 **Chairperson's Remarks**

David S. Lester, Ph.D., Senior Vice President, Strategy & Corporate Development, Gene Express, Inc.

8:30 **KEYNOTE PRESENTATION**

Bringing the Promise of Genomics to Clinical Practice: Development and Commercialization of the Oncotype DX Breast Cancer Assay

Steve Shak, M.D., Chief Medical Officer, Genomic Health Inc.

We all feel an urgency to improve cancer care. Patients desire individualized treatment based on their specific cancer. Physicians desire more accurate clinical predictors to guide their treatment recommendations. Payors desire better allocation of resources. The Oncotype DX Breast Cancer Assay was developed to meet the needs of patients, physicians, and payors and has become a standard in breast cancer clinical practice.

9:00 **The BCR-ABL qRT-PCR Assay: Status of a Molecular Diagnostic that is a Current Standard of Care**

J. Milburn Jessup, M.D., Chief, Diagnostics Evaluation Branch, Cancer Diagnosis Program, DCTD, National Cancer Institute

Newly diagnosed chronic phase Chronic Myelogenous Leukemia (CML) is the paradigm for molecular oncology with a targeted therapy that efficiently induces remissions. Although the BCR-ABL assay is performed in over 150 hospitals in the US, results in one laboratory are not directly comparable to those in another because the assay lacks a daily use calibrator. In this presentation the Cancer Diagnosis Program (CDP) of NCI will describe a pilot study using calibrators to harmonize the BCR-ABL assay and improve its use as a standard of care.

9:30 **Moving Biomarkers into Applications**

Elizabeth Gribble Walker, Ph.D., Assistant Director, Toxicology, Predictive Safety Testing Consortium, Critical Path Institute

Biomarkers are most valuable to support decision-making during drug development when they have been "qualified for use" by regulatory scientists. The critical path initiative, through the work of consortia, has resulted in a new pathway for qualification of biomarkers and improved testing methods. Also, in the clinical phases, biomarkers can enable development of targeted therapies but the pathway for evolution of a laboratory biomarker to a clinically reliable diagnostic test is still being defined and will be discussed.

10:00 **Pathwork® Tissue of Origin Test: Identify Tumors with Uncertain Origins Using FFPE Specimens**

Sponsored by Pathwork Diagnostics

Raji Pillai, Ph.D., Director, Clinical Programs, Pathwork Diagnostics

There are clinical and economic benefits to determining the primary site in tumors with uncertain origins. Microarray use has been largely limited to RNA derived from frozen specimens. Pathwork

Track 1

has developed a microarray-based test which measures the expression pattern, comprising more than 1500 genes, in a tumor to compare it to expression patterns of a panel of 15 known tumor types, representing 58 morphologies and covering 90 percent of all solid tumors. It produces a report with an objective score for each potential tissue. The test uses a proprietary Pathchip® microarray and runs on the proven Affymetrix GeneChip® System. The session will include a discussion of the following:

- Challenges in diagnosis of tumors with uncertain origins
- Microarrays, FFPE specimens and Pathwork informatics expertise
- Tissue of Origin Test: Design and Performance

10:30 Poster Competition Refreshment Break & Raffles in the Exhibit Hall

11:30 Quantitative Imaging as a Biomarker of Drug Response in Lung Cancer

James L. Mulshine, M.D., Professor, Associate Provost for Research and Vice President, Director, Rush Translational Sciences Consortium, Internal Medicine, Rush University Medical Center, Chicago

Major improvements in imaging resolution and image processing with helical computerized tomography are permitting strategic evaluation of drug response in untreated lung cancer. Using a new neoadjuvant trial structure, candidate drugs are administered for two to three weeks prior to a curative surgical procedure. The exposure of drugs to untreated cancer allows cross-evaluation of molecular and imaging endpoints permitting a rapid and clean evaluation of the molecular underpinnings of early lung cancer.

12:00pm Personalized Medicine – Towards an Integrated Approach to Health Care

J.W. (Hans) Hofstraat, Ph.D., Vice President Philips Research, Healthcare Strategic Partnerships

Science-based innovations will enable the creation of entirely new, integrated and personalized, approaches to diagnosis, treatment and management of medical conditions. For patients, these approaches will lead to better outcomes, less traumatic experiences, and an enhanced quality of life. For healthcare providers, they will contribute to more cost-effective healthcare systems through the delivery of easy-to-use tools to healthcare professionals. Diagnostic technologies, developed in public-private partnerships, play a key role in enabling this paradigm shift in health care.

12:30 Luncheon Presentation *(Opportunity Available)* **or Lunch on your own**

1:30 Plenary Keynote Introduction and Presentations

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole.

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCTS AWARDS *(Last Chance for Viewing Exhibits & Posters)*

NEXT WAVE OF ASSAYS FOR PERSONALIZED MEDICINE: Implementing Novel Technologies

3:55 Chairperson's Remarks

4:00 New Generation Predictive Multiplexed Gene Expression Diagnostics: Case Studies in Non-Hodgkin's Lymphoma

Bruce Seligmann, Ph.D., Founder, Board Member and Chief Science Officer, R&D, High Throughput Genomics

Precise measurement of gene expression levels using the multiplexed qNPA™ assay can reliably distinguish differences in gene expression levels of 10% to 20% (1.1- to 1.2-fold differences), even from (fresh or archived) formalin fixed paraffin embedded (FFPE) tissue samples. This precision has enabled a new generation of diagnostic. Case studies will be presented describing the steps of identifying a predictive signature and then translating this into a simple diagnostic score for predicting survival risk in Non-Hodgkin's Lymphoma (NHL) following different treatment modalities.

4:25 A Simple Colorimetric "Dipstick" Test for Molecular Diagnosis of a Broad Range Of Molecules Based on Functional DNA Nanotechnology

Yi Lu, Ph.D., Professor, Chemistry, University of Illinois at Urbana-Champaign

Recent advance in nanotechnology has produced a number of nanomaterials with high sensitivity for molecular diagnostics, while progress in functional DNA biology made it possible to obtain DNAzyme and aptamers that can bind a broad range of target molecules with high selectivity. By combining the benefits of both fields, we have demonstrated a simple, sensitive and selective "dip-stick" test by immobilizing DNAzymes and aptamer functionalized gold nanoparticle aggregates onto a lateral flow device.

4:50 Improving Early Disease Detection with Single Molecule Counting Technology

John Todd, Ph.D., Vice President, R&D, Singulex, Inc.

The Erenna Immunoassay System is based on novel technology that integrates microparticle (MP) immunoassays and single molecule counting (SMC). Implementation of this new technology enables measurement of biomarkers with unprecedented levels of sensitivity and precision, providing access to valuable new diagnostic information and expansion of current assay capabilities. We have successfully used the IA to quantify baseline levels of oncology biomarkers from healthy individuals, which were previously considered intractable with other IA systems, demonstrating the utility of this novel technology.

5:15 Comprehensive Highly Multiplexed Single-Tube Liquid Bead Microarray Assay for Constitutively Activated Tyrosine Kinases enables personalized therapy in Chronic Myeloproliferative Disorders

German Pihan, M.D., Director, Hematopathology, Pathology, Beth Israel Deaconess Medical Center

We have developed and implemented an assay capable of detecting the majority if the fused, point mutated or tandem duplicated tyrosine kinases known to play a key pathogenic role in a group of disorders classed under the rubric chronic myeloproliferative diseases or neoplasms.

5:40 Integration of Clinical and Pan-Omic Findings to Predict Course of Disease

Marti Jett Ph.D., Chief, Department of Molecular Pathology, Walter Reed Army Institute of Research

Exposures of animal models to pathogenic agents has provided a continuum of pan-omic information that can be integrated with clinical findings. The composite that emerges has enabled us to begin to identify predictors of impending illness. Most importantly, we identify molecular branchpoints that correlate with severity of disease progression. Some of these pathways have the potential to serve as therapeutic targets.

6:05 Close of Day

SPEAKER ABSTRACTS AVAILABLE ONLINE AT WWW.TRI-CONFERENCE.COM

FRIDAY, FEBRUARY 27

VC PANEL: HOW IS PERSONALIZED MEDICINE MOVING FORWARD?

8:30am *Moderator: Peter S. Miller, Chief Operating Officer, Genomic Healthcare Strategies*

Panelists: *Vance Vanier, M.D., Chief Medical Officer, Navigenics and Partner, Mohr Davidow Ventures*

Mickey S. Urdea, Ph.D., Chief Executive Officer, Tethys Bioscience, Inc., and Managing Partner, Halteres Associates, LLC

David G. Lowe, Ph.D., Managing Director, Skyline Ventures

Vijay Lathi, Managing Director, New Leaf Venture Partners

MEDICAL EXPERT PANEL: FUTURE OF POINT-OF-CARE

9:15 Moderator: Keith F. Batchelder, Chief Executive Officer, Genomic Healthcare Strategies

Panelists: *Richard D. Gill, Ph.D., Principal, ActiveCyte Holdings*

Kent B. Lewandrowski, M.D., Associate Professor of Pathology, Harvard Medical School; Associate Chief of Pathology (Operations), Massachusetts General Hospital

Shuqi Chen, Ph.D., President, CEO, and Chairman of the Board, IQuum

10:05 Enabling Personalized Medicine from FFPE Tissue

Sponsored by ALMAC

Austin Tanney, Ph.D., Scientific Liaison Manager, Almac Diagnostics

This talk provides an overview of some of the issues surrounding working with FFPE samples and how these can now be addressed. Examples will be given showing the application of RNA profiling in biomarker discovery from FFPE tissue.

10:20 Coffee Break

BUSINESS EXPERT PANEL: GLOBAL TRENDS IN MOLECULAR DIAGNOSTICS

11:00 Moderator: Harry Glorikian, Partner, Scientia Advisors

Panelists: *Tiffany Olson, Director, ThermoGenesis Corporation (formerly Chief Executive Officer and President, Roche Diagnostics Corporation)*

Howard Grey, Ph.D., Vice President Molecular Diagnostics, PerkinElmer - Genetic Screening

Todd Morrill, Head, Acquisitions, Business Development and Strategic Research, Bio-Rad Laboratories

12:00pm Luncheon Presentation *(Opportunity Available)* **or Lunch on your own**

POINT-OF-CARE MARKET OUTLOOK AND TECHNICAL DEVELOPMENT

1:00 Chairperson's Remarks

Boris Nikolic, M.D., Senior Program Officer, Bill & Melinda Gates Foundation

1:05 Cervical Cancer and Avian Flu

Linda McAllister, M.D., Ph.D., Vice President, Diagnostics, Arbor Vita Corp.

1:35 Low Density Microarrays for Point of Care Diagnostics

Nick M. Cirino, Ph.D., CBSP, Director, Emerging Technologies Laboratory Director, Applied Genomic Technologies Core Wadsworth Center- NYSDOH

As the leading State public health lab, we are collaborating with industry partners to develop a sensitive and robust POC system which employs low density microarrays. We have developed cartridges for various applications including Biodefense, TB, STDs, respiratory panels, and encephalitis. The system is cost effective and simple enough for POC applications.

2:05 The PanNAT System for Rapid POC Molecular Detection of Infectious Disease

Karen L. Hedine, President and Chief Executive Officer, Micronics, Inc.

Micronics is advancing a microfluidics-enabled molecular diagnostic platform for detection of infectious disease. The PanNAT system will permit the rapid simultaneous detection of both single and multiplex targets from a small volume of biological sample; no sample pre-processing required. The system includes a portable, battery powered instrument designed for operation in low infrastructure settings.

2:35 Novel Field-Assisted Lab-on-a-Chip System for Rapid Point of Care Diagnosis

Prof. Albert Cheung-Hoi Yu, Chairman & Chief Executive Officer, Hai Kang Life Corporation Limited, Beijing Hai Kang DNA Chips Limited; and Professor & Vice Director, Neuroscience Research Institute, Professor, Infectious Disease Center, Peking University

We have invented a novel patented field assisted hybridization technology to be used on lab-on-a-chip (LOAC) system. This technology has the capacity to achieve sensitive and accurate detection of nucleic acid in minutes, enabling diagnostic results to be delivered within the hour from sampling stage. The LOAC system has tremendous potential application in rapid point of care diagnosis including genotyping that is essential for personalised medicine.

3:05 Close of Conference

TUESDAY, FEBRUARY 24

PRE-CONFERENCE SHORT COURSE*

Recommended Short Course(s)*

(SC5) Fragment-Inspired Medicinal Chemistry
9:00-12:00

Speakers:
Daniel A. Erlanson, Ph.D.,Cofounder, Carmot Therapeutics, Inc.
Edward R. Zartler, Ph.D., Research Fellow, Bioprocess & Bioanalytical Research, Merck & Co.
James Murray, Ph.D., Director of Structural Sciences, Vernalis
Hans-Dieter Junker, Ph.D., Head of Chemistry, Graffinity Pharmaceuticals GmbH

(See page 3 for details and a complete list of short courses)
*Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:15am Registration Open

8:35 Plenary Keynote Introduction

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:45 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

MEETING THE CHALLENGES IN MODERN MEDICINAL CHEMISTRY I

11:00 Chairperson's Remarks

Hing L. Sham, Ph.D. Senior Vice President, Chemical Sciences, Elan Pharmaceuticals

Challenge One: FRAGMENT-INSPIRED MEDICINAL CHEMISTRY

11:10 Fragment-Based Drug Discovery: What Has It Achieved So Far?

Maria M. Flocco, Ph.D.,Senior Director, Head of Lead Discovery, Head of Structural Biology & Biophysics, Pfizer Global R&D

11:40 Identification of Dual H3 Antagonists/ Serotonin Transporter Reuptake Inhibitors and Exploration of their Structure Activity Relationships

Nicholas Carruthers Ph.D., Senior Research Fellow, Drug Discovery, Team Leader, Neuroscience, Johnson & Johnson Pharmaceutical Research & Development L.L.C.

In pre-clinical studies histamine H3 antagonists have demonstrated both pro-cognitive and wake-promoting effects suggesting that the combination of activities may have therapeutic utility. To this end we sought to introduce histamine H3 antagonist activity into both known antidepressants and proprietary templates which have afforded several series of compounds with the desired activities.

Challenge Two: SELECTIVITY, SPECIFICITY & SOLUBILITY

12:10pm The Challenge of Protein Kinase Inhibitor Drug Discovery: Are you ready?

Jerry L. Adams, Ph.D., Director, Medicinal Chemistry, Oncology CEDD, GlaxoSmithKline Pharmaceuticals

A brief overview of the structural paradigms for the design of ATP-competitive kinase inhibitors will be presented as a preface to the kinase class-specific issues resulting from these approaches. A major focus of the presentation will be the multi-faceted issue of kinase selectivity, as ultimately, it is the selectivity of your compound that will determine clinical success or failure.

12:40 Detection, Assignment and Analysis of Multiple Scaffolds for Medicinal Chemistry Project Databases

Sponsored by CHEMICAL COMPUTING GROUP Inc.

Alex Clark, Ph.D., Research Scientist, R&D, Chemical Computing Group, Inc.

Analysis of structure-activity relationships within lead optimization databases requires knowledge of each of the common scaffold substructures, an understanding of how the substitution sites map to each other, and an optimal assignment of scaffolds to input molecules in the event of ambiguity. We will present algorithms for solving each of these problems, which are capable of operating using only the molecules themselves as input, as well as being able to take into account any scaffold hints which may be known beforehand. Also discussed will be methods for depicting the resulting information in a visually intuitive way, as well as compilation of the results in the form of a report which allows structure-activity trends to be examined interactively.

1:10 Walk & Talk Luncheon in the Exhibit Hall

MEETING THE CHALLENGES IN MODERN MEDICINAL CHEMISTRY II

2:15 Chairperson's Remarks

Christopher Hulme, Ph.D., Associate Professor Medicinal & Organic Chemistry, University of Arizona

Challenge Two: SELECTIVITY, SPECIFICITY & SOLUBILITY (cont.)

2:20 A Probabilistic Approach Towards Physicochemical Properties: Identification and Optimization of Triazole Oxytocin Antagonists

Alan D. Brown, Ph.D., Associate Director, Discovery Chemistry, Pfizer Global Research and Development

This presentation will describe the use of pharmacophoric overlap and heavy atom binding efficiency in the design of attractive lead matter in our Oxytocin (OT) antagonist programme. Further optimisation utilised the concept of lipophilic binding efficiency in a probabilistic manner to optimise such properties as metabolic stability, selectivity and aqueous solubility.

2:50 A Unique Approach to Identifying Selectivity Islands in an Ocean of Compounds

Sponsored by NANOSYN

John K. Dickson, Ph.D., Site Head & Senior Director of Chemistry, Nanosyn, Inc.

HDAC (histone deacetylase) isozyme selectivity is an interesting and relevant challenge as a number of HDAC inhibitors are currently being investigated. A variety of new chemotypes are being explored for different diseases, and many of the drug discovery efforts are focused on selectivity as a key requirement for their programs. Large numbers of institutional and/or commercial compounds are available to the practicing medicinal chemist, and vast numbers of disease-relevant proteins are available to the practicing biologist. How does one most efficiently screen the interactions of the two to provide the most valuable information for drug discovery, and how can this be applied to programs targeting the HDACs? This talk will provide examples within this new challenge and demonstrate how determination of enzyme selectivity can provide a valuable tool for the medicinal chemist at all stages of preclinical discovery and development.

Challenge Three: NOVEL SYNTHETIC STRATEGIES

3:20 Synthetic Strategies for Selective Modulators of the Glucocorticoid Receptor

Michael Coghlan, Ph.D., Senior Research Fellow, Eli Lilly & Co

3:50 Bench to Bedside with Iterative Efficiency

Christopher Hulme, Ph.D., Associate Professor Medicinal & Organic Chemistry, University of Arizona

This talk details chemical strategies that deliver libraries with desirable properties that enable downstream ultra-high iterative speeds. This combination equates to molecules with 'high iterative efficiency potential'.

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:00 Registration Open and Morning Coffee

7:20 Plenary Keynote Introduction and Plenary Keynote

FRAGMENT-BASED INHIBITOR DESIGN, SCREENING AND OPTIMIZATION

8:25am Chairperson's Remarks

Nicholas Carruthers Ph.D., Senior Research Fellow, Drug Discovery, Team Leader, Neuroscience, Johnson & Johnson Pharmaceutical Research & Development L.L.C.

8:30 Challenges and Successes in Fragment-based Lead Generation: Increasing Impact across Drug Discovery

Jeffrey S. Albert., CNS Discovery Research, AstraZeneca Pharmaceuticals

Fragment based lead generation (FBLG) has emerged as an alternative to traditional high throughput screening (HTS) to identify new leads for drug discovery. We will describe the methodologies that we have employed as well as challenges and successes across several projects at AstraZeneca, including projects that lack NMR or crystallographic structure information. In particular, we will illustrate the discovery of novel hits as beta-

secretase inhibitors and their efficient progression from 5 mM to <100 nM potency.

9:00 Ligand Efficiency:Trends and Implications for Fragment-Based Discovery

Charles H. Reynolds, Ph.D., Research Fellow, Computer-Aided Drug Discovery, Johnson & Johnson Pharma R&D

Ligand efficiency has become an important benchmark in drug discovery since smaller (more efficient) ligands are considered more likely to have favorable drug properties. Analysis of thousands of ligands across many protein targets shows that ligand efficiency systematically declines as molecular size increases. This trend is particularly relevant to fragment-based drug discovery since it means that the calculated efficiencies of small fragments and larger more complex ligands are not directly comparable. We have proposed a size-independent measure of efficiency, Fit Quality, to address this problem, and we have applied this metric to a number of fragment-based discovery efforts in the literature.

9:30 Fragment-Based Screening: Identification of Novel Fragment Motifs by SPR Imaging

Sponsored by GRAFFINITY

Hans-Dieter Junker, Ph.D., Head of Chemistry, Graffinity Pharmaceuticals GmbH

Fragment-based screening has recently evolved into a promising drug discovery technology due to the high 'ligand efficiency' of fragments. In this context, surface plasmon resonance (SPR) imaging of chemical microarrays has been proven to be a powerful tool for primary screening of large and diverse fragment libraries with about 23,000 compounds (MW < 300 Da). Screening fragments are immobilized on gold chips to construct arrays with high spot densities of 9216 compounds per chip. Binding of soluble proteins onto such chemical microarrays can be read out with high sensitivity by SPR imaging in a label-free, function-blind and high-throughput fashion. The technology enables the identification of potent fragment hits and delivers early selectivity information at the primary screening level. Moreover, information about the fragment binding mode can be obtained by on array competition studies using compounds with established interaction modes. Examples from more than 70 screening campaigns show that breakthroughs are possible in target classes such as protein-protein interaction targets, kinases and proteases.

10:00 Fragment-based Drug Discovery of Novel CNS Target Inhibitors

John Barker, Ph.D., Group Leader, XRay Crystallography & Computational Chemistry, Evotec AG

Fragment based drug discovery (FBDD) has the potential to establish itself as a core technique for drug discovery. FBDD is complimentary to traditional hit finding approaches such as uHTS or knowledge-based methods. We have created a FBDD technology platform, EVOlution™, and applied it to the discovery and optimization of novel inhibitors of several prominent pharmaceutical targets including PDE10a, BACE-1 and MK2. Our presentation will detail the screening and hit profiling strategies applied to these projects, the screening results, the development of crystallographic systems, high-resolution ligand complexes for novel fragment hits and the subsequent optimization of these to cell-active target modulators. We will compare the screening of lead-like compound collections with fragment screening for the above and other targets and put the two approaches into a general drug discovery perspective.

10:30 Poster Competition Refreshment Break & Raffles in the Exhibit Hall

11:30 Bridging the Gap between Ligand and and Structure-Based Drug Design Through the Application of Pharamophcores Derived from Fragment Docking

Sponsored by SCHRÖDINGER

Noeris Salam, Ph.D., Application Scientist, Schrodinger Inc.

Computeraided drug design is a valuable tool for drug discovery and can contribute to greater efficiency in finding novel hits leads and optimized compounds. Here we report a novel method that unites two computational strategies: ligand and structurebased through the use of pharmacophore hypotheses derived from fragment docking. This methodology uses an atomic breakdown of the energetics from docking of fragments to locate key molecular features responsible for high binding affinity. First we show that the docking program Glide consistently docks fragments in a pose similar to the experimental structure with root mean squared deviation RMSD of less than 1.0 Å to known crystal structures. We then show that Glide XP energetic analysis of docked fragments works well for selecting pharmacophore features that are consistent with known tight binding compounds. Finally we describe the methodology that bridges structurebased fragment docking detailed energetic pharmacophore feature analysis and ligandbased pharmacophore database screening into a single automated protocol. We find that the hybrid method produces viable pharmacophore hypotheses that are consistent with known active compounds. The method is shown to enrich a databased for active compounds in a virtual screen.

12:00 Panel: Meeting the Challenges of Modern Medicinal Chemistry

12:30 Luncheon Presentation Fragment-Based Ligand Discovery using the Fujifilm AP3000 HT-SPR

Sponsored by FUJIFILM Life Science

Michelle Arkin, Ph.D, Associate Director of Biology, Small Molecule Discovery Center, Department of Pharmaceutical Chemistry, University of California, San Francisco

The Small Molecule Discovery Center at UCSF has been collaborating with Fujifilm Life Science to evaluate the AP3000 high-throughput surface plasmon resonance (HT-SPR) instrument for fragment-based discovery. We have developed an efficient workflow for identifying small-molecule ligands for the kinase domain of NEK-2 and other therapeutically interesting targets. The session will discuss the following:

- An overview of fragment-based ligand discovery and the benefits of HT-SPR for fragment discovery.
- A description of the AP3000 HT-SPR instrument.
- The proposed workflow for using the AP3000 in a discovery program.
- Results obtained for NEK-2 kinase domain, a case-study for this approach.

1:00 Luncheon Presentation *(Opportunity Available)*

1:30 Plenary Keynote Introduction and Presentations

1:40 PLENARY KEYNOTE
Engineering Cells to Death

James A. Wells, Ph.D., Chair, Department of Pharmaceutical Chemistry; Professor of Pharmaceutical Sciences, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology; and Director of the Small Molecule Discovery Center, University of California, San Francisco

Apoptosis, or programmed cell death, represents an ultimate fate decision in cell biology. This process is critical for cellular differentiation and remodeling of tissues, and for anti-viral and anti-tumor defense. The study of apoptotic pathways has important ramifications for determining what is critical for cellular homeostasis, and for the development of potential anti-cancer therapeutics. A distinct molecular feature of apoptosis is the widespread but controlled cellular proteolysis, that is predominantly mediated by eight members of the caspase family of cysteine proteases. These enzymes are like demolition experts that cleave protein targets critical for cellular life. We have designed new enzymes, and antibodies, and small molecules to study and activate individual caspases and the proteins they cleave. For example, a robust proteomic method for global profiling of proteolysis ("degradomics") in cells has been developed. Key to this is an engineered enzyme, subtiligase, that permits selective labeling and enrichment for the protein N-termini created as a result of proteolysis. Using this approach we have already identified >300 caspase substrates from Jurkat cells that were induced to undergo apoptosis by treatment with the chemotherapeutic agent etoposide. The proteins fall into a wide range of functional classes, and reveal much about the molecular components, logic, and timed sequence of events that drive a cell from life to death. We believe these engineered enzymes and proteomic approaches will be useful for characterizing the proteolysis of apoptosis induced by various agents or in different cell types, and will be generally useful for dissecting protease signaling pathways.

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole.

3:05 Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS *(Last chance for viewing posters and exhibits)*

MEETING THE CHALLENGES IN MODERN MEDICINAL CHEMISTRY III

3:55 Chairperson's Remarks

Alex Kiselyov, Ph.D., President of Chemistry, deCODE Chemistry

Challenge Four: WINNING OUTSOURCING STRATEGIES

4:00 Outsourcing Models for Lead Generation - The Design Studio and the Process Factory

Kenneth A. Savin Ph.D., Head Drug Disposition, Eli Lilly and Co.

Considerations for outsourcing early lead generation medicinal chemistry efforts will be presented. A model for collaboration, based upon a current effort, and key strategies and approaches to improve the chances for success in partnering will be described.

Challenge Five: WINNING OUTSOURCING STRATEGIES - BIOTECH

4:30 The Impact on the Biotech Company

C. Eric Schwartz, Ph.D., Vice President, Chemistry, Resolvyx Pharmaceuticals, Inc.

Resolvyx Pharmaceuticals is a privately held drug discovery company advancing new therapies based on "resolvins", a novel class of endogenous small molecule lipid mediators derived from omega-3 fatty acids. Our chemistry program has been fully outsourced from the inception of the company and has successfully evolved from a small medicinal chemistry program to include a very large effort on process chemistry leading to production of GMP materials for our first clinical trials.

Challenge Six: BLOOD-BRAIN-BARRIER

5:00 Do CNS Targets Represent Inherently More Difficult ADME Space?

Douglas K. Spracklin, Ph.D., Director, Biotransformation & Enzymology, Pfizer Inc.

The blood-brain barrier presents a formidable obstacle to delivering drugs to central targets, yet a large body of experience has been gained as related to the impact of transporters and the balance of ADME properties required to optimize CNS penetration. This talk will review some of these learnings, specifically around P-gp, and contrast how the nature of different targets can dramatically influence the required ADME properties.

Challenge Seven: LIGAND-BASED DESIGN

5:30 Antagonists of The EP3 Receptor for Prostaglandin E2 Are Novel Anti-Platelet Agents That do not Prolong Bleeding

Alex Kiselyov, Ph.D., President of Chemistry, deCODE Chemistry

The platelet EP3 receptor for PGE2 facilitates platelet aggregation in response to multiple agonists. Analysis of the platelet signaling cascade suggests that the EP3 receptor for prostaglandin E2 (PGE2) represents a novel target for preventing acute thrombosis in cardiovascular disease. We successfully

employed a ligand-based design strategy to develop potent antagonists of PGE2 binding to EP3. The combined SAR and in vitro/ex vivo studies yielded lead molecule designated DG-041 as our clinical lead.

6:00 Close of Day

FRIDAY, FEBRUARY 27

8:30 Chairperson's Remarks

Jeff Zablocki, Ph.D., Head of Chemistry, CV Therapeutics

RECENT FDA APPROVAL

8:35 A Medchem Case Study on the Discovery of Regadenoson (Lexiscan), a Pharmacological Stress Agent that is an Agonist for the A2A Adenosine Receptor

Jeff Zablocki, Ph.D., Head of Chemistry, CV Therapeutics

Regadenoson is the first non-adenosine agonist to be approved by the United States Food and Drug Administration (US FDA) as a pharmacological stress agent indicated for radionuclide myocardial perfusion imaging (MPI). The discovery of Regadenoson started in 1999 with a group scientists that hypothesized that a selective A2A adenosine receptor (AdoR) agonist may have fewer side effects than the MPI agent, adenosine Adenoscan™. Our medicinal chemistry efforts were directed towards discovering a novel functionally selective A2A AdoR agonist with a short pharmacodynamic half life designed by the incorporation of 2-pi-substituted adenosine derivatives- 2-(2-thienyl), 2-(N-1-pyrazolyl), 2-(4-pyrazolyl), and 2-(propargylphenylethyl) adenosine derivatives.

ALZHEIMER THERAPEUTICS

9:05 Screening for Alzheimer Therapeutics

Varghese John, Ph.D., Director Alzheimer's Drug Discovery Network, The Buck Institute for Age Research

In Alzheimer's disease (AD), brain cells and brain cell connections are lost, leaving the brain unable to function normally. The reason for the neuronal cell loss is not yet understood, but a great deal of attention has been focused on the aberrant cleavage pathway of the amyloid precursor protein (APP) leading to the production of toxic Aβ peptide which collects in the brains of patients with Alzheimer's disease. Three protease cleavages are known to occur in the aberrant processing of APP. These include the β-secretase and γ-secretase cleavages that result in the production of neurotoxic Aβ peptide along with a third C-terminal protease cleavage that occurs in the intracellular region of APP. This C-terminal cleavage of APP gives rise to a neuronal cell-killing molecule called C31 (derived from the 31 amino acids from the carboxyterminal tail of APP), which was discovered by our laboratory at the Buck Institute.

9:35 Discovery, SAR and antiparkinsonaim effect of novel positive allosteric modulators (PAMs) and ago-potentiators of metabotropic glutamate receptor subtype 4 (mGluR4)

Corey R. Hopkins, Ph.D., Associate Director, Medicinal Chemistry, Vanderbilt University Medical Center

This talk will concern the discovery and development of three novel series of mGluR4 PAMs and ago-poentiators, VU0155041, VU0080241 and VU001171, which are more potent, efficacious and possess improved properties relative to (-)-PHCCC. Moreover, VU0155041 displayed significant efficacy ion preclinical Parkinsonian models, further validating the therapeutic role of mGLuR4 activation in PD.

10:05 From Ideas to Preclinical Candidates: MedChem-Driven Drug Discovery at NiKem

Sponsored by NiKem

Luca F. Raveglia, Ph.D., Director Medicinal Chemistry, NiKem Research Srl

10:20 Coffee Break

PAIN INHIBITORS

11:00 Inhibitors of Fatty Acid Amide Hydrolase (FAAH): SAR and Results in Pre-clinical Pain Models

J. Guy Breitenbucher, Ph.D., Research Fellow, Team Leader, Pain and Related Disorders Johnson & Johnson, PRD San Diego

Known inhibitors of FAAH show amelioration of pain behaviours in rats. The present account describes the discovery of a novel classes of FAAH inhibitors and describes our work to characterize the SAR and pharmacological actions of these FAAH inhibitors.

11:30 Design & Synthesis of TRPV1 Antagonists with Improved Physicochemical and Pharmacokinetic Properties

Hui-Ling Wang, Ph.D., Senior Scientist, Department of Medicinal Chemistry, Amgen Inc.

Over the past several years TRPV1 has emerged as an exciting target for the treatment of chronic pain. After the identification of our first TRPV1 clinical candidate AMG 517, continuing optimization of in vitro potency, physicochemical, and pharmacokinetic properties led to the discovery of AMG 628, a second-generation candidate with excellent aqueous solubility.

12:00pm Luncheon Workshop *(Opportunity Available)*
or Lunch on your own

ANTIVIRAL AND ANTINFECTIVE THERAPEUTICS – SPECIAL FOCUS, HCV AND HIV INHIBITORS

1:00 Chairperson's Remarks

Aubrey Mendonca, President & CEO, ChemRoutes Corp.

1:05 Designing Oral gp120 Inhibitors for the Treatment of HIV

Don Middleton, Ph.D., Senior Director, Department of Discovery Chemistry, Pfizer Global Research and Development

1:35 Discovery of HIV-1 Non-Nucleoside Reverse Transcriptase Inhibitors That Maintain Excellent Potency Against NNRTI-Resistant Mutant Viruses

Zachary Sweeney, Ph.D., Principal Research Scientist, Medicinal Chemistry, Roche Pharmaceuticals

This presentation will describe our structure based design program targeting next-generation NNRTIs for the treatment of HIV infection. Starting from a HTS hit, rational modification resulted in the identification of a number of candidate compounds that have superior potency against wild-type and resistant viruses as well as excellent pharmacokinetics in animal species. Example compounds were well tolerated in GLP toxicity studies. Over 120 co crystal structures of inhibitors bound to HIV-RT were obtained in the course of this work, and fragment screening and deconstruction exercises, as well as surface plasmon resonance experiments that provide insight to the binding of these NNRTIs will be described.

2:05 Discovery and Preclinical Evaluation of Tri-cyclic HIV-1 Integrase Inhibitors

Choung U. Kim, Ph.D., Vice President, Chemistry, Gilead Sciences

A number of highly potent Tri-cyclic HIV integrase inhibitors have been identified via rational drug design. SAR and pharmacokinetic studies of these inhibitors will be discussed.

2:35 Discovery and Early Clinical Development of TD-1792, a Unique, Heterodimer Antibiotic

Dan Marquess, D. Phil., Vice President, Medicinal Chemistry, Theravance

This presentation will describe Theravance multivalent approach to heterodimer antibiotics. The medicinal chemistry and SAR of in vitro microbiology of heterodimer compounds will be described. How this in vitro activity relates to activity in vivo efficacy data in pharmacological models of bacterial infection and PK/PD relationships will also be discussed. Preliminary clinical data will also be presented. TD-1792 demonstrated marked bactericidal activity in vitro and was 30 fold more potent than vancomycin against methicillin-resistant Staphylococcus aureus (MRSA).

3:05 Close of Conference

MAIN CONFERENCE

WEDNESDAY, FEBRUARY 25

7:15am Registration Open and Morning Coffee

8:45 Plenary Keynote Introduction

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

THE STEM CELL NICHE

11:00 Chairperson's Remarks

11:10 Deconstructing the Hematopoietic Stem Cell Niche: Revealing the Therapeutic Potential

Gregor B. Adams, Ph.D., Assistant Professor, Cell and Neurobiology, Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research, Keck School of Medicine, University of Southern California

The success of hematopoietic stem cell based therapies relies on the ability of the stem cells to both engraft and self renew sufficiently in the bone marrow microenvironment. Understanding and manipulating the microenvironmental niche and the intracellular signals that allow for expansion of stem cells may have therapeutic potential. We have identified key components of the hematopoietic stem cell niche and further demonstrated that these can be targeted to enhance therapies aimed at the stem cells. These results suggest that the niche may be a pharmacologic target for altering stem cell function in settings of regenerative medicine.

11:40 The Cancer Stem Cell-Vascular Niche Complex in Brain Tumor Formation

Victor Tse, Ph.D., Associate Professor, Neurosurgery, Stanford University School of Medicine

The transition of senescence cancer stem cells to a proliferative cell mass is the most intriguing event in tumorogenesis. The formation of the neoangio-architecture is thought to play a pivotal role in this epoch. Pro-angiogenic progenitors migrate to and coalesce in forming the vascular niche to support the malignant potential of these cancer stem cells. The result is the formation of the cancer stem cells vascular niche complexes.

12:10pm Primary Cilia in the Regulation of Neural Progenitors and Cancer

Young-Goo Han, Ph.D., Postdoctoral Fellow, Neurological Surgery and Institute for Regeneration Medicine, University of California San Francisco

Signaling pathways from the stem cell niche control stem cell behavior and deregulation of these pathways can lead to tumor formation. Neural stem cells, like many other cell types, have a primary cilium, a hair-like appendage extending from the surface of a cell. This organelle plays a critical role in sonic hedgehog (SHH) signal reception and processing. Defective cilia are associated with diverse human disorders including mental retardation and ataxia. We found that primary cilia are essential for the expansion of embryonic neural precursors and their transition into postnatal neural progenitors. We also found that primary cilia are required for the growth of a certain brain tumor, but for another the presence of primary cilia inhibits tumor growth.

12:40 ProSenTM Feeder-free Media Supplement *Sponsored by*

Thomas Primiano, Ph.D., Founder, Shiloh Laboratories

Human embryonic stem cell (hESC) therapies show promise for repairing or replacing damaged or diseased tissues because they continuously self-renew as normal cells, affording a constant supply of cells, and mature into any type of cell required. Obviously, enough of the appropriate hESC-derived replacement cells must be available for clinical use. A supplement that increases the growth rates of hESCs in culture would be highly valuable for providing sufficient numbers of cells for treatment. Shiloh Laboratories has discovered a mixture of growth factors (ProSenTM) that, when combined, yield three times the amount of hESCs per culture, increases plating efficiency, and prolongs the usefulness of the media by 2 extra days, while maintaining a normal diploid karyotype. Successful achievement of the aims of this proposal will indicate a robust commercial potential the growth factor supplement.

12:55 Automated Passage of ES and iPS Cell Colonies and Generation of Embryoid Bodies *Sponsored by* CYNTELLECT

Gary Bright, Ph.D., Senior Director, Applications Development, Cyntellect, Inc.

Derivation and propagation of embryonic stem and induced pluripotent stem (ES/iPS) cell lines are common tasks in stem cell biology. Cyntellect has developed a novel approach for efficient, standardized, automated propagation of reproducible stem cell cultures using the LEAP platform. Undifferentiated stem cell colonies can be automatically isolated and sectioned into clumps of defined size, resulting in more uniform stem cell cultures than current methods. The approach also enables more consistent embryoid body (EB) formation. These novel applications allow propagation of consistent, large-scale ES/iPS cell cultures and may significantly improve the efficiency of ES cell differentiation for generation of specialized cell types for cell-based screening and therapeutics. The session will focus on the following:

- Introduction of a novel technique for large scale physical passage of ES/iPS stem cell lines
- Automated generation of stem cell colonies of consistent size
- Generation of embryoid bodies of more uniform size
- Specific benefits of controlling the size of both stem cell colonies and embryoid bodies

1:10 Walk & Talk Luncheon in the Exhibit Hall

CONTROLLING AND UNDERSTANDING DIFFERENTIATION

2:15 Chairperson's Remarks

2:20 Molecular Engineering of the Stem Cell Microenvironment

David Schaffer, Ph.D., Professor, Chemical Engineering, Bioengineering, Neuroscience, University of California Berkeley

The successful integration of stem cells into therapies will hinge upon three critical steps: their expansion without differentiation, differentiation into a specific cell type or collection of cell types, and functional integration into existing tissue. Precisely controlling each of these steps will be essential to maximize their therapeutic efficacy, as well as minimize potential side effects that can occur when the cells numbers and types are not properly controlled. We combine experimental and computational approaches to understand basic mechanisms by which microenvironmental signals regulate of stem cell fate choice, including neural stem and human embryonic stem cells. Furthermore, we have applied this basic information towards the engineering of synthetic biomaterials based "artificial niches" for the controlled expansion and differentiation of stem cells, which offer significant advantages for safety and scalability.

2:50 Identification of Human Embryonic Stem Cell-Derived Blastocyst- and Epiblast-Stage Progenitors

Micha Drukker, Ph.D., Postdoctoral Scholar, Stanford Institute for Stem Cell Biology

The potential of human embryonic stem cells (hESCs) to differentiate into any type of adult tissue makes these cells a unique model for studying early human development and at the same time, a source of cells for regenerative medicine. To address the challenge of isolating lineage committed progenitors that are specified during the earliest stages of differentiation, we used flow cytometry in conjunction with libraries of commercial and novel monoclonal antibodies that we prepared against surface markers of hESCs. Of over 30 different subsets defined by specific cell surface markers, we discovered only four distinct precursor profiles, two of which likely correspond to early visceral endoderm cells and later-stage mesododerm progenitors. Purification of these precursor types may improve the derivation of desired lineages and facilitate study of early differentiation programs with unprecedented resolution.

Cover and page 8 Photo Credit: Andrew Paul Leonard. APL Microscopic

3:20 Macro- and Micro-Scale Control of Stem Cell Aggregate Differentiation in Suspension Culture

Todd McDevitt, Ph.D., Assistant Professor, Biomedical Engineering, Georgia Institute of Technology and Emory University

Differentiation of ESCs *in vitro* is commonly induced via 3D cell aggregates in suspension, referred to as "embryoid bodies" (EBs), which typically yield a heterogeneous population of ectoderm, endoderm and mesoderm cells. Currently, most strategies to direct the differentiation of ESCs consist solely of applying soluble factors exogenously to stem cell cultures, however, improved methods to spatiotemporally control physico-chemical cues influencing cell morphogenesis may result in increased efficiency and homogeneity of stem cell differentiation. We have developed and characterized the effects of novel methods to control the differentiation of EBs via 1) hydrodynamic forces imposed during suspension culture and 2) microparticle-mediated delivery of morphogenic factors directly within stem cell aggregates. These novel enabling technologies to enhance the directed differentiation of ESCs represent scalable approaches capable of being directly integrated into bioprocessing methods for the engineering of stem cell therapies and diagnostics.

3:50 Module Map of Stem Cell Genes Guides Creation of Epithelial Cancer Stem Cells

David Wong, M.D., Ph.D., Instructor, Dermatology, Stanford University

Cancer cells and normal stem cells share the unique property of self-renewal. A gene module map of stem cells and differentiated cells revealed two distinct transcriptional signatures that distinguish embryonic stem cells (ESC) and adult tissue-specific stem cells. The ESC-like transcriptional program is activated in human epithelial cancers and strongly predicts metastasis and death. MYC is sufficient to activate the ESC-like program in normal and cancer cells and increase the fraction of tumor-initiating cells by 150-fold, enabling tumor formation and serial propagation with as few as 500 cells. These results suggest that activation of an ESC-like transcriptional program in differentiated adult cells may induce pathologic self-renewal characteristic of cancer stem cells.

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:00am Registration and Morning Coffee

7:20 Plenary Keynote Introduction

7:30 PLENARY KEYNOTE

Michael J. Yaszemski, Ph.D., M.D., Brigadier General, United States Air Force Reserves, Professor, Orthopedic Surgery and Biomedical Engineering, College of Medicine, Mayo Clinic

THERAPEUTIC THEMES: CONSIDERATIONS FOR CARDIAC REGENERATION

8:25am Chairperson's Remarks **FEATURED PRESENTATIONS**

8:30 Directed Differentiation of Pluripotent Stem Cells for Heart Disease

Deepak Srivastava, M.D., Professor and Director, Gladstone Institute of Cardiovascular Disease University of California San Francisco

9:00 Stem Cells for Cardiac Regeneration

Eduardo Marbán, M.D., Ph.D., Founding Director, Heart Institute, Cedars-Sinai

9:30 Human Embryonic Stem Cells in Safety Pharmacology: A Powerful Tool to Predict Arrhythmias?

Martin Traebert, Ph.D., Head, Safety Pharmacology EU, Preclinical Safety, Novartis Pharma AG

An introduction to the field of cardiosafety testing and the pharmaceutical industry background of differentiation of human embryonic stem cell into cardiomyocytes will presented. In addition, the potential future of the technology within the Novartis test strategy and biochemical and electrophysiological characterization of these cardiomyocytes.

10:00 Cardiology Panel of Experts

Biologic Perspective: Deepak Srivastava, M.D., UCSF

Clinical Perspective: Eduardo Marbán, M.D., Ph.D., Cedars-Sinai

Screening: Martin Traebert, Ph.D., Novartis Pharma AG

Clinical Trial Design: Dawn Driscoll, Ph.D., DCi Biotech

Imaging: Joseph Wu, M.D., Ph.D., Stanford University

Manufacturing: Nicholas L'Heureux, Ph.D., Cytograft

10:30 Poster Competition, Refreshment Break & Raffles in the Exhibit Hall

11:30 MMTC Breakout Groups Hosted by the Panel of Experts Motivating Meeting for the Therapeutic Community

Join the focused discussion tables hosted by each of the Cardiology Panel of Experts

12:30 Luncheon Presentation: Ultrasensitive Multiplexed Biomarker Assays from Discovery to the Clinic

Sponsored by MSD Meso Scale Discovery

Pankaj Oberoi, Ph.D., Director, Qualified Kit Development, Meso Scale Discovery

1:30 Plenary Keynote Introduction

1:40 PLENARY KEYNOTE

Engineering Cells to Death

James A. Wells, Ph.D., Chair, Professor of Pharmaceutical Sciences, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology, University of California, San Francisco

Apoptosis, or programmed cell death, represents an ultimate fate decision in cell biology. This process is critical for cellular differentiation and remodeling of tissues, and for anti-viral and anti-tumor defense. The study of apoptotic pathways has important ramifications for determining what is critical for cellular homeostasis, and for the development of potential anti-cancer therapeutics. A distinct molecular feature of apoptosis is the widespread but controlled cellular proteolysis, that is predominantly mediated by eight members of the caspase family of cysteine proteases. These enzymes are like demolition experts that cleave protein targets critical for cellular life. We have designed new enzymes, and antibodies, and small molecules to study and activate individual caspases and the proteins they cleave. For example, a robust proteomic method for global profiling of proteolysis ("degradomics") in cells has been developed. Key to this is an engineered enzyme, subtiligase, that permits selective labeling and enrichment for the protein N-termini created as a result of proteolysis. Using this approach we have already identified >300 caspase substrates from Jurkat cells that were induced to undergo apoptosis by treatment with the chemotherapeutic agent etoposide. The proteins fall into a wide range of functional classes, and reveal much about the molecular components, logic, and timed sequence of events that drive a cell from life to death. We believe these engineered enzymes and proteomic approaches will be useful for characterizing the proteolysis of apoptosis induced by various agents or in different cell types, and will be generally useful for dissecting protease signaling pathways.

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole.

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS *(Last Chance for Viewing Exhibits & Posters)*

HARNESSING CELLS FOR REGENERATIVE HEALING

3:55 Chairperson's Remarks

4:00 miRNA Mimic/Inhibitor Screen Identifies miRNA Involvement in Mesenchymal Stem Cell Differentiation

Sponsored by Thermo SCIENTIFIC

Queta Smith, Ph.D., Associate Director Tech Communications, Thermo Fisher Scientific

MicroRNAs play a fundamental role in a wide array of developmental events. Here, we have used a library of miRNA mimics and inhibitors to identify miRNAs that play a role in mesenchymal stem cell osteogenic differentiation. The miRNAs identified in the screen were able to trigger the expression of early osteogenic markers in the absence of other external signals (e.g., dexamethsome, ascorbate) and restore osteogenic potential to high passage number human MS cells. These findings define a role for miRNAs in human MS cell osteogenic differentiation and demonstrate the value of mimic/inhibitor screens in identifying biologically relevant miRNAs.

4:30 Programming Cells in Situ

Omar Ali, Ph.D., Post Doctoral Fellow, Laboratory for Cell and Tissue Engineering, Harvard University

There are hundreds of clinical trials of cell therapy currently underway, with the goal of curing a variety of diseases, but simple cell infusions lead to large-scale cell death and little control over cell fate. We propose a new approach, in which material systems are first used either as cell carriers or attractors of host cell populations, and in either case the material then programs the cells *in vivo* and ultimately disperses the cells to surrounding host tissues or organs to participate in tissue regeneration or destruction.

5:00 Genetically Engineered MSCs for CNS Regeneration

Casey Case, Ph.D., Vice President, Research, SanBio

MSCs transiently transfected with Notch-1 are more effective than unmanipulated MSCs in models of stroke regeneration. We have new data concerning mechanism of action. In addition, we have established GMP manufacturing, successfully presented our protocol to the Recombinant DNA Advisory Committee (RAC) and submitted an IND to the FDA.

5:30 ES Cell Therapies for Muscular Dystrophy

Radbod Darabi, M.D., Ph.D., Senior Research Fellow, Lillehei Heart Institute and Department of Medicine, University of Minnesota

Embryonic stem (ES) cells are endowed with self-renewal and broad differentiation potential. However, the generation of a population of myogenic progenitors from differentiating ES cells with significant regenerative potential has proven elusive. We have recently shown that it is possible to circumvent the defective EB environment by over-expressing Pax3, the master regulator of the myogenic program. This strategy, in concert with a cell purification method based on paraxial and lateral plate mesoderm surface markers, enabled us to generate a teratoma-free early population of myogenic progenitors from ES cells, capable of promoting extensive engraftment of adult myofibers and improvement in contractile function. We are currently assessing the long-term regenerative potential of the cells and whether they seed the satellite cell compartment *in vivo*. These results will be discussed.

6:00 Close of Day

FRIDAY, FEBRUARY 27

THERAPEUTIC THEMES: iPS CELLS AND PERSONALIZED MEDICINE

8:00am Morning Coffee

8:30 Chairperson's Remarks

8:35 Diagnostic Perspective: iPS Cells for Cardiovascular Diagnostics

Bruce Conklin, M.D., Senior Investigator, Gladstone Institute of Cardiovascular Disease, Professor of Medicine, Division of Medical Genetics, University of California San Francisco

9:05 Patient-Specific Pluriopotent Stem Cells for Drug Discovery and Regenerative Medicine

Justin Ichida, Ph.D., Post Doctoral Fellow, Stem Cell and Regenerative Biology, Harvard Stem Cell Institute

9:35 iPS Panel of Experts

Therapeutic Perspective: Justin Ichida, Ph.D., Harvard Stem Cell Institute

Diagnostic Perspective: Bruce Conklin, M.D., Gladstone Institute of Cardiovascular Disease

Commercial Considerations: R. Lee Buckler, LLB, Cell Therapy Group

IP & Regulatory Landscape: Stacy Taylor, J.D., DLA Piper US, LLP

Quantitative Analysis: Paul Grayson, President and CEO, Fate Therapeutics

Screening: Berta Strulovici, Ph.D., VP Research & Discovery, iZumi Bio

10:20 Coffee Break

11:00 MMTC Break-Out Groups Hosted by the Panel of Experts

Mingle, Meet, Talk & Communicate

Join the focused discussion groups hosted by each of the iPS Panel of Experts

12:00pm Luncheon Presentation *(Opportunity Available)*
or Lunch on Your Own

FIVE N' FIVE VENTURE CAPITAL AND EMERGING COMPANY FORUM

1:00 Chairperson's Remarks

VENTURE CAPITAL FORUM

1:05 Venture Capital Panel of Experts
A panel of venture capital experts present an overview of their VC firm and give helpful tips in building a cell-based technology into a viable business.

Gregory Bonfiglio, J.D., Managing Partner, Proteus Venture Partners

Beth Seidenberg, M.D., Partner, Kleiner Perkins Caufield & Byers

Ken Aldrich, J.D., Member, Tech Coast Angels, Managing Director, Convergent Ventures, LLC

Michael Goldberg, M.B.A., General Partner, Mohr Davidow Ventures

EMERGING COMPANY FORUM

In this unique session, emerging stem cell companies present their technologies, tools, therapies, and business goals. Each has FIVE minutes to present FIVE slides, followed by an interactive discussion with the VC experts who will give valuable feedback to the company on how to better present their technology and plan to receive adequate funding.

1:50 America Stem Cell Inc.
Stem Cell Homing and Engraftment

Amelia J. Spiliotes, M.B.A., Executive Vice President, Corporate Development

2:05 AuxoCell Laboratories, Inc.
Umbilical Cord Matrix Mesenchymal Stem Cells: Regenerative Medicine Beyond Umbilical Cord Blood

Kyle Cetrulo, M.D., Chief Operating Officer

2:20 California Stem Cell Inc.
High-Purity Human Cells for Therapeutic Development and Clinical Application

Chris Airriess, Ph.D., Chief Operating Officer

2:35 Capricor Inc.
Cardiac Stem Cell Therapies for Heart Disease

Oliver Foellmer, M.B.A., President and Chief Executive Officer

2:50 GIRUS Life Sciences, Inc.
Directed Cell Trafficking for Improved Bone Marrow Transplants

M. Abi Abitorabi, M.A., Ph.D., Founder and President

3:05 Close of Conference

The Executive Summit is designed for qualified research & development, finance or business manager and executive audience who are considering or need innovative ideas, solutions and contacts for enhancing their current or evolving business models. In light of industry changes and the world recession, this Summit will provide finance persons, managers and executives successful strategies to help their organizations manage change in the marketplace, maintain sustainability and revenues with a strong pipeline of products and services, remain profitable, and build or sustain a high reputation and valuation.

The Summit is designed in a 'boot-camp' style format. A case analysis on disruption, transformation, and innovation kicks-off the first session. The remaining sessions are case studies that build upon the case analysis. Case studies focus on these themes: 1) diversifying product/service portfolios, 2) expanding R&D efficiencies, 3) developing new and multiple partner/alliance/collaboration models, 4) international partnerships, and 5) implementing novel approaches towards product commercialization. Debrief sessions will be held to share knowledge and ideas heard throughout the program. A compendium of these ideas will be distributed after the program. An exclusive Summit networking luncheon with executive participants and speakers will be held on Thursday.

Summit participants are invited to attend additional Tri-conference activities including the plenary keynotes and exhibit hall featuring 160 companies on Tuesday and Wednesday, well as track sessions on Friday. The Summit is an opportunity for a qualified executive audience to gather, share, and network within the larger Tri-conference program.

Audience Criteria

The Executive Summit on Strategy and Innovation is open to qualified attendees only - directors and higher from pharmaceutical and biotechnology organizations; senior faculty at research universities and institutes; government agencies, and Summit sponsors. Participants of the Summit are an important, elite and growing group of individuals that are carefully screened to ensure that all in attendance meet the appropriate criteria necessary to be included and will be encouraged to interact.

MAIN CONFERENCE

WEDNESDAY, FEBRUARY 25

7:15am Registration Open and Morning Coffee

8:45 Plenary Keynote Introduction

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

LEADING THROUGH DISRUPTION AND TRANSFORMATION

11:00 Executive Summit Chairperson's Remarks

Bill W. Massey, Ph.D., President, LITMUS Molecular Design LLC

11:10 Competing in the Dynamic Economy of the 21st Century: Challenges and Opportunities

Bill W. Massey, Ph.D., President, LITMUS Molecular Design LLC

Through case analysis, application exercises, and interactive breakout discussions, participants will examine innovation and leadership during transformation change. Learn leadership skills to help you leverage opportunities, design effective strategies, and drive implementation for diversifying product/service portfolios, expanding R&D investments in emerging markets, developing new partner/alliance/collaboration models, and implementing novel approaches towards product commercialization.

11:40 Inventing New Ways to Think About IP: Time for an IP Share Market?

James Lyons-Weiler, Ph.D., Director, Bioinformatics Analysis Core, University of Pittsburgh; Adjunct Faculty, Department of Biomedical Informatics

Direct investment in market-valued intellectual property could drive forward translational success. It is time for revolutionary IP models to transform our global economy. Thousands of potentially life-saving and life-changing ideas, such as orphan drugs, exist scattered across Pharma. The biotechnology and pharmaceutical sectors would be a wonderfully humane place to test and ground-truth the concept, and would serve as a model for all IP-rich technology sectors, generating wealth and placing it in the hands of individuals with the ideas and visions to drive their programs forward, and securing a healthier future for us all. Attendees will explore this concept further as well as the advantages of direct investment to investors and organizations.

12:10pm Case Study: Adapting an Organization to Focus on Innovation & IP Management

Jochen Hurlebaus, Ph.D., M.B.A., Director, Innovation and IP Management, Roche Diagnostics GmbH

Within Roche Professional Diagnostics, we have implemented in the last two years new strategies for innovation and IP management. The technological development and IP strategy is based on identification of long term trends in society, markets and technology. All developments, even early technological developments, require a joint effort between business and R&D representatives in order to be funded. This approach required organizational and process changes within Roche Diagnostics which will be presented. The case shows how Roche Diagnostics has changed in order to foster innovation and ensure future success.

DIVERSIFYING PRODUCT/SERVICE PORTFOLIOS

12:10 Case Study: Drug Repurposing Strategy: Extending the Life of Blockbuster Products with Synergistic Repurposed-drug Combinations

John Maki, President and Chief Executive Officer, Vicus Therapeutics

Over $100 billion worth of blockbuster product sales will be going off-patent and thus subject to generic incursion between 2008-2012. Vicus Therapeutics is leveraging this market trend with drug repurposing to discover and develop novel, high-impact drugs for critical unmet clinical needs in the cancer arena. Drug repurposing is becoming an attractive business strategy. It reduces risks and costs and creates opportunities to fill pipelines with new products that have a higher level of success, an accelerated development timeframe, and a quicker FDA approval process. Repurposing a drug from outside a therapeutic area and combining the drug with a blockbuster offers the potential to add significant and proprietary clinical value beyond that provided by the blockbuster drug alone. This session reviews case study examples and benefits of synergistic, repurposed-drug combinations and discusses methods for identifying and developing such product candidates.

1:10 Networking Luncheon in the Tri-Conference Exhibit Hall

2:15 Executive Summit Chairperson's Remarks

2:50 Case Study: NanoMedicine: Next Generation Blockbusters

Arkesh Mehta, Ph.D., Founder & CEO, Chikujee Therapeutics

Chikujee Therapeutics utilizes nanomedicine as an innovative multifunctional Nano-Bindi technology to build a portfolio of potentially safer and more effective versions of well-known anti-cancer agents. The company employs several platform technologies that utilize new chemical entities, generic drugs, or existing drug types ranging from small synthetic molecules to large recombinant macromolecules. This session reviews Chikujee's business strategy of generics to brand, life cycle extension, and new drugs by IP unlocking. Attendees will learn how to establish and maintain competitive advantage without excessive R&D expense and low development expense with high probability of regulatory agency approval.

2:50 Innovations and Optimizations of Antibody Therapeutics

Bruce Keyt, Ph.D., Vice President Research and Chief Technology Officer, Trellis Bioscience, Inc.

One of the fastest growing segments of the pharmaceutical market is therapeutic antibodies. The past five years have seen an approximate triple in value. This talk will discuss how evolutions in innovation and business model dynamics need to continue driving the sector's position and how life sciences organizations can best achieve this. We will explore the movement of antibody technologies towards fully human products (as opposed to chimeric products) and the role of safety of biologicals. Attendees will learn how to identify opportunities to effectively plan product and technology licensing strategies.

3:20 Case Study: Diversification of Product Portfolio

Mauri Okamoto-Kearney, Vice President, Product Development & New Product Planning, KAI Pharmaceuticals, Inc.

With increasing pressures for viable exit strategies, private biopharma companies require diversification strategies for their product portfolios to add perceived and real value. KAI Pharmaceuticals uses risk estimates, resource needs, timeline, and value assessments to define interim financial gates to move products through its pipeline. This presentation discusses some of these diversification strategies and how market opportunity assessments and longer term goals of commercialization and revenue generation are linked to business and corporate development strategies.

3:50 Executive Summit De-brief

Program Chair will lead an interactive discussion with participants on the knowledge and ideas they have gleaned throughout the day and how they can be applied to your working environment.

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:20am Plenary Keynote Introduction

7:30 PLENARY KEYNOTE

Tissue Engineering Strategies for Musculoskeletal Regenerative Medicine in Civilian and Military Applications

Michael J. Yaszemski, M.D., Ph.D., Brigadier General, United States Air Force Reserves; Professor, Orthopedic Surgery and Biomedical Engineering, College of Medicine, Mayo Clinic

Tissue regeneration via tissue engineering strategies requires some combination of cells, a scaffold upon which the cells can attach and express their phenotypic function, and signaling molecules to direct the cells down the desired differentiation path. This cellular component often includes stem cells. This lecture will present current concepts regarding musculoskeletal tissue regeneration and the issues to be considered for its translation to clinical practice, as well as the unique reconstructive challenges encountered in combat injuries.

EXPANDING R&D EFFICIENCIES

8:25am Executive Summit Chairperson's Remarks

8:30 Case Study: Cost-risk-value Optimization – A New Model that Leads to Greater R&D Efficiency

Stephen A. Williams, M.D., Ph.D., Decisionability LLC

For many years, Pharma has recognized the importance of cost, risk and value enhancement. Unfortunately, focusing on any one domain causes collateral damage to the others. Cost reduction strategies have the obvious intent of lowering costs and improving efficiency, but they can lead to a lack of resourcing to the investigation of risk, and smaller, narrower programs of lower value. "De-risking" strategies that systematically evaluate drug candidates against thresholds for all historically important causes of failure do indeed reduce risk, but increase costs and potentially reduce value by wrongly terminating drugs with higher than average benefits where the threshold should be raised. Value enhancement strategies can increase costs through expansion of programs, and increase risks as there is a disincentive to pursue any activity that might harm the value. Sophisticated computer models can be built that take into account all of these domains, but they are resource-intensive, tend not to be trusted by the human scientists and governance bodies, and are difficult to adapt to the specifics of each project. We describe a simple method of characterizing and monetizing risk within individual drug programs that enables the teams to identify, communicate and pursue activities that create the most value through liberating the greatest amount of risk at the least cost: cost-risk-value optimization.

DEVELOPING NEW PARTNER/ALLIANCE/ COLLABORATION MODELS

9:00 Case Study: Leveraging Web2.0 Social Networks for Collaborative Drug Discovery

Barry A. Bunin, Ph.D., CEO & President, Collaborative Drug Discovery, Inc.

Collaborative Drug Discovery (CD) will present a platform for more cost-effective, simultaneous global collaborations working with Industry and Foundations. CDD has created a community based platform that combines traditional drug discovery informatics with Web2.0 features to provide the best of both worlds. Four case studies will be used to highlight how community based drug discovery informatics capabilities are transforming academic, and increasingly industrial science in today's more collaborative pharmaceutical research environment.

9:30 Deploying Enterprise 2.0 Solutions: Case Studies & Business Challenges

William Mattes, Ph.D., DABT, Director of Toxicology, The Critical Path Institute

Deploying Enterprise 2.0 and search capability into a large life sciences company presents many challenges. Although much of the technology exists already, and results from social network based business models on the internet are compelling, ensuring a positive ROI in the corporate environment can be difficult. Unclear incentives and lack of focus on change management processes account in large part for the barriers of adoption. Case studies will be presented that show the provision of workspaces for team collaboration, the use of idea management software for innovation and the prototype of a guided navigation system for domain-based search.

10:00 Innovative Collaboration Models to Achieve Competitive Advantage

Christine J. Cioffe, Ph.D., Vice President, R&D Portfolio Management, Merck & Co., Inc.

10:15 Agenda Presentations *(Opportunity Available)*

10:30 Poster Competition, Refreshment Break & Raffles in the Exhibit Hall

INTERNATIONAL PARTNERSHIPS

11:30 Case Study: USA Company Partnerings with Companies outside the USA

David Zarling, Ph.D., M.B.A., Chief Executive Officer, Colby Pharmaceuticals

Life sciences international partnership formation and management between organizations with aligned strategic goals can find and achieve synergy to significantly reduce costs, manage risks, and to maximize resource allocation and rewards. Life science international partnering is increasing due to the current necessity to rapidly achieve proof of principal, external validation and entry to global sales and marketing and to creatively finance product research and development. Life sciences business executives are now evaluating and working with the best and cleverest international partner candidates willing to share and manage risk, resources or financing, but who may not necessarily be the highest bidders or the partnering candidates with the most prestige or visibility. Partnership management, especially shared expectations, communication, respect, trust and timely achievement of co-development milestones following the partnering agreement is as important as it is in the introductory, preparation and negotiation phases. International partnering and financing is increasingly for life science company product development, testing and distribution. Product candidate research and developed with international partners requires close communication, continued trust, earned respect and genuine compromise, sharing of resources, expectations, and managed risk and nearer term reward. Business models for life science businesses are currently evolving and life science companies are interacting and creatively financing product development in new ways that require international collaboration and, can require multiple international partners.

12:00pm Case Study: Building Sustainable Value through International Partnerships

Villoo Morawala-Patel, Ph.D., Founder, Chairperson & Managing Director, Avesthagen Ltd. (Invited)

12:30 Luncheon Hosted by CHI

1:30 Plenary Keynote Introduction

1:40 PLENARY KEYNOTE

Engineering Cells to Death

James A. Wells, Ph.D., Chair, Department of Pharmaceutical Chemistry; Professor of Pharmaceutical Sciences, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology; and Director of the Small Molecule Discovery Center, University of California, San Francisco

Apoptosis, or programmed cell death, represents an ultimate fate decision in cell biology. This process is critical for cellular differentiation and remodeling of tissues, and for anti-viral and anti-tumor defense. The study of apoptotic pathways has important ramifications for determining what is critical for cellular homeostasis, and for the development of potential anti-cancer therapeutics. A distinct molecular feature of apoptosis is the widespread but controlled cellular proteolysis, that is predominantly mediated by eight members of the caspase family of cysteine proteases. These enzymes are like demolition experts that cleave protein targets critical for cellular life. We have designed new enzymes, and antibodies, and small molecules to study and activate individual caspases and the proteins they cleave. For example, a robust proteomic method for global profiling of proteolysis ("degradomics") in cells has been developed. Key to this is an engineered enzyme, subtiligase, that permits selective labeling and enrichment for the protein N-termini created as a result of proteolysis. Using this approach we have already identified >300 caspase substrates from Jurkat cells that were induced to undergo apoptosis by treatment with the chemotherapeutic agent etoposide. The proteins fall into a wide range of functional classes, and reveal much about the molecular components, logic, and timed sequence of events that drive a cell from life to death. We believe these engineered enzymes and proteomic approaches will be useful for characterizing the proteolysis of apoptosis induced by various agents or in different cell types, and will be generally useful for dissecting protease signaling pathways.

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole.

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS
(last chance for viewing posters and exhibits)

IMPLEMENTING NOVEL APPROACHES TOWARDS PRODUCT COMMERCIALIZATION

3:55 Executive Summit Chairperson's Remarks

4:00 Critical Path Program - Current Status

William Mattes, Ph.D., DABT, Director of Toxicology, The Critical Path Institute
The Critical Path Initiative is the U.S. Food and Drug Administration's (FDA) effort to stimulate and facilitate a national effort to modernize the sciences through which FDA-regulated products are developed, evaluated, and manufactured. Participants will learn how the FDA is making progress to build on its unique position to work with other federal agencies, patient groups, academic researchers, industry, and other stakeholders to identify areas ripe for improvement and to coordinate, develop, and/or disseminate solutions to scientific hurdles that are impairing the efficiency of developing and evaluating FDA regulated products.

4:30 Case Study: Strategies and Novel Approaches toward Product Line Extension

Dongzhou J. Liu, Ph.D., MSc, M.B.A., Assistant Director, New Products R&D, GlaxoSmithKline
With the increasingly tough challenges in the industry, developing a new drug remains a costly and risky venture. More companies have been trying to diversify the business units, create amalgam of many smaller disease-based units, and/or extend variation of existing products to stay profitable and provide returns for shareholders. This presentation focuses on how to apply line extension strategy and novel approaches to increase productivity, economic development cycles, support innovations, and successful product launches.

5:00 Case Study: Improving Pharmaceutical R&D Productivity to Sustain Value for Stakeholders

Aditya R. Das, Ph.D., M.B.A., Director, Business Development, AAIPharma, Inc.
AAIPharma, Inc. is a global full service Contract Research and Development Organization focused on both CMC and Clinical Services. They have four novel drug delivery platforms for oral delivery that include strategies for formulating poorly soluble actives and targeted delivery to specific regions of the GI tract using qualified excipients. These platforms are offered free of any royalty or milestone payments. Attendees will learn how early stage clients can utilize these platforms to accelerate product development and reduce time to market.

5:30 Executive Summit De-brief
Program Chair will lead an interactive discussion with participants on the knowledge and ideas they have gleaned throughout the day and how they can be applied to your working environment.

6:00 Close of Executive Summit

Participants who wish to extend their education may attend any of the Tri-Conference Sessions on Friday, February 27.

Please visit www.tri-conference.com for Summit updates and presenter biographical profiles.

TUESDAY, FEBRUARY 24

Recommended Short Course(s)*

(SC8) Assessing Mitochondrial Function in Preclinical Drug Discovery and Safety 9:00– 12:00

(SC10) Collaborating to Accelerate the Adoption of Novel Technologies 2:00 – 5:00

Please see p.3 for all short courses and visit www.tri-conference.com for full agendas

*Separate Registration Required

MAIN CONFERENCE

WEDNESDAY, FEBRUARY 25

7:15am Registration Open and Morning Coffee

8:45 Plenary Keynote Introduction

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

KEYNOTE PERSPECTIVE

11:00 Chairperson's Remarks

11:10 Challenges and Opportunities in 21st Century Safety Testing

William B. Mattes, Ph.D., DABT, Director of Toxicology, The Critical Path Institute

- The "-omic" technologies will truly bear fruit as a means for discovering, translating, and confirming novel biomarkers and safety testing approaches
- 21st Century safety testing will rediscover itself as "Translational Toxicology", i.e. translating findings in animal studies to measurable risks in humans through the use of novel, translational, non-invasive biomarkers.
- Regulatory agencies will play a much more engaged and important role in shaping and approving new safety testing strategies

CARDIOVASCULAR SAFETY EVALUATION

11:40 Cardiotoxicity Screening: Cardiomyocytes and Engineered Cell Lines

Craig T. January, M.D., Ph.D., Professor, Division of Cardiovascular Medicine, University of Wisconsin-Madison

This presentation focuses on cardiotoxicity approaches that couples engineered cell lines and stem cell derived cardiomyocytes with multiple screening methods. Electrophysiologic, biochemical and immunohistologic modalities will be discussed.

12:10pm What is Acceptable Cardiotoxicity Risk for a Preclinical Small Molecule Drug Candidate

Shayne Gad, Ph.D., Gad Consulting

The range of potential mechanisms of drug cardiotoxicity will be considered with examples - it isn't just QTc anymore. The components of a cardiovascular risk/therapeutic benefit matrix for a new pharmaceutical as well as more effectively identifying and quantifying cardiovascular risk in the nonclinical phase will be discussed.

12:40 - Discover Potential Targets and Drug Effects Using an Integrative, Knowledge-Rich, Approach

Sponsored by ARIADNE GENOMICS

Nikolai Daraselia, Ph.D., Senior Director of Research, Ariadne

By elucidating knowledge on existing drugs/drug candidates garnered from published findings, Pathway Studio® can help support portfolio management for drug and lead compounds, facilitate decision workflows and experimental designs based on findings and find novel biological relationships including potentially new drug targets and drug side effects.

Educational Needs/Learning Objectives:

- Learn how to extract biological relationships from multiple scientific resources including PubMed/PubChem
- Use findings to help structure experimental designs
- "See" functional relationships in interactive pathways and compare them with recent scientific findings

1:10 Walk & Talk Luncheon in the Exhibit Hall

EVALUATING AND IMPROVING PRE-CLINICAL MODELS: ARE THEY PREDICTIVE OF HUMAN RESPONSE?

(combined with Translational Medicine track)

2:15 Chairperson's Remarks

Vivek Kadambi, Ph.D., Senior Director, Drug Safety Evaluation, Millennium Pharmaceuticals

2:20 Transitioning of Neurology Drugs from Discovery to Development: Building a Comprehensive Preclinical Package and Enabling for Discovery in Development

Johan Luthman, D.D.S, Ph.D., Professor, Global Head, Experimental Medicine Neurology, PoC Management and Liaison, Merck Serono International SA

This presentation examines the relevance of animal models for exploratory clinical development: validation of animal models in translational medicine for neurological disorders. I'll discuss the difference between 'validated' and 'predictable' animal models and the need to separate mechanism from disease modeling; construction of a consolidated package; and particular challenges with symptomatic and disease modifying approaches in neurology.

2:50 How well do animal models predict adverse effects in humans?

Vivek Kadambi, Ph.D., Senior Director, Drug Safety Evaluation, Millennium Pharmaceuticals

3:20 Predictive Preclinical Cardio-safety Assays

Martin Traebert, Ph.D., Head of Safety Pharmacology EU, Translational Sciences, Novartis Institutes for BioMedical Research

Drug-induced long QT syndrome and potential cardiac arrhythmia are a major con¬cern for patients, regulators and the pharmaceutical industry. Thus the preclinical identification of a potential cardiosafety liability needs to be addressed very carefully by a variety of in vitro and in vivo assays with increasing complexity. The most important assays (receptor binding studies, hERG electrophysiology, isolated cardiac tissue/organs and in vivo ECG recording) will be presented and discussed.

3:50 Can Studies of Animal Idiosyncratic Drug Toxicity Break the Unpredictability Log Jam for Human Serious Adverse Reactions?

John R. Senior, M.D., Associate Director for Science, Office of Surveillance and Epidemiology, Center for Drug Evaluation and Research, Food and Drug Administration

It is widely believed that serious idiosyncratic adverse drug reactions in patients (liver failure, rhabdomyolysis and others) are not discovered in preclinical animal studies because they are very rare, not predictable or dose-related and occur only in humans who are genetically extremely diverse. However an increasing number of findings challenge these beliefs. In fact, standard laboratory animals may also show idiosyncratic reactions to the same doses of drugs. These reactions can be investigated using new 'omic methods. This presentation uses drug-induced liver injury (DILI) as a model to show how a modest number of animals can be used to elucidate why certain individual animals differ in their responses to the same dose-duration of drugs. This approach may break the log jam of drug unpredictability and allow earlier detection of the truly rare but serious human adverse drug toxicity that sometimes is observed too late, in clinical trials.

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall
(Please visit Tri-Conference.com for details.)

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:20am PLENARY KEYNOTE INTRODUCTION AND PRESENTATION

LIVER AND IDIOSYNCRATIC TOXICITIES

8:25 Chairperson's Remarks

Paul B. Watkins, M.D., Director of Hamner/U.N.C. Center for Drug Safety Science, University of North Carolina at Chapel Hill

8:30 The role of reactive intermediates in idiosyncratic drug toxicity

John C. L. Erve, Ph.D., Principal Research Scientist II, Wyeth Research, Drug Safety and Metabolism

For drugs that have been withdrawn from the market for toxicity reasons, many have latter shown to undergo metabolism to reactive intermediates. Still, there remain unanswered questions regarding the relationship between reactive metabolites and idiosyncratic toxicity. This talk will cover the proposed mechanistic role for reactive metabolites in causing idiosyncratic toxicity and point out areas where further knowledge is needed.

9:00 How to Improve Preclinical Testing for Liver Toxicity

Paul B. Watkins, MD, Director of Hamner/UNC Center for Drug Safety Science, University of North Carolina at Chapel Hill

Current preclinical liver safety screening has not prevented entry into the clinic of drugs capable of causing catastrophic but rare liver injury. "Humanizing" preclinical screening has shown some promise, but most humans are not good models for this toxicity- only a very small fraction of the human population is susceptible. Major improvements in preclinical screening must await better understanding of the mechanisms that underlie these rare clinical events. Ongoing efforts of networks combined with focused preclinical studies and virtual liver models should provide the understanding necessary to develop better screening techniques.

9:30 Imaging techniques for assessing toxicity in primary human hepatocyte cell culture

Eric Tien, Ph.D., Senior Scientist, Biotherapeutics and Bioinnovation Center, Target Generation Unit, Pfizer Research Technology Center
This presentation will discuss the challenges of culturing of primary human hepatocytes in 96 well format and our approach for image capture and analysis. A focus will be on the assessment of positive hepatotoxic compounds.

10:00 Drug-Induced Nephrotoxicity – Multiplex Detection of Key Kidney Damage Biomarkers in Rat Urine

Sponsored by EMD Calbiochem Novagen

Christopher McMahon, Ph.D., Research & Development Group Leader, EMD Chemicals
In 2008 the Predictive Safety Testing Consortium (PSTC), a public-private consortium led by the Critical Path Institute (C-Path) submitted a list of urinary biomarkers indicative of drug-induced kidney damage to the FDA and EMEA regulatory authorities. The FDA and EMEA have issued new guidelines on the submission of the biomarkers as indicators of kidney damage in pre-clinical studies. Rules Based Medicine worked with the members of the PSTC to develop the assays used in the kidney toxicity study, and made the assays available in the Rat Kidney MAP testing service. EMD and Rules Based Medicine have collaborated to develop these assays as commercially available kits, exclusively for the Luminex® xMAP® Technology platform, to support preclinical rat nephrotoxicity studies. This presentation will describe the assessment of temporal and dose-dependent changes in biomarker levels in response to known kidney damaging agents.

10:30 Poster Competition Refreshment Break & Raffles in the Exhibit Hall

11:30 Mechanistic Investigation of a Species-specific Liver Toxicity Induced by a Preclinical Drug Candidate

Cindy Xia, Ph.D., Senior Scientist I, DMPK department, Millennium, The Takeda Oncology Company
A selective Aurora A kinase inhibitor under clinical development for the treatment of solid tumors was found to cause, at similar high dose liver concentrations, profound reversible hyperbilirubinemia in SD-rats but not in beagle dog. We'll present the *in vitro* and *in vivo* tools we used to determine which species' liver toxicity was more predictive of the toxicity the compound would encounter in humans.

12:00pm Panel – Predicting Liver Toxicity

Session speakers and John Senior,M.D., FDA. Moderated by Paul Watkins, M.D.

12:30 Luncheon Presentations *(Opportunity Available)* **or Lunch on your own**

1:30 PLENARY KEYNOTE INTRODUCTION AND PRESENTATION

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"
This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole.

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS *(Last Chance for Viewing Exhibits & Posters)*

EMERGING ASSAYS AND TRENDS IN TOXICOLOGY/DRUG SAFETY

3:55 Chairperson's Remarks

Dina Andrews-Cleavenger, Ph.D., Director of Pathology, Amgen

4:00 Utility and Positioning of the Comet Assay in Toxicologicy Testing

Patricia Escobar, Ph.D., Senior Scientist, Toxicology and Safety Assessment, Boehringer-Ingelheim Pharmaceuticals, Inc.
The Comet Assay, also known as Single Cell Gel Electrophoresis (SCGE), is a microgel electrophoretic technique that has the ability to detect DNA damage at a single cell level. The comet assay is increasingly being used to evaluate the genotoxic potential of pharmaceutical compounds. An update on the applications of the rodent Comet Assay, including its use in regulatory applications, will be provided.

4:30 Applying Improved Nephrotoxicity Markers in Preclinical Safety Studies: An Industry Perspective

Dina A. Andrews, DVM, PhD, DACVP, Director of Pathology, Amgen
This presentation will review the seven rodent kidney safety biomarkers recently submitted by the Preclinical Safety Testing Consortium Nephrotoxicity Working Group and how pharmaceutical companies can use them to strategically and appropriately communicate with regulatory agencies about a new drug's safety profile.

5:00 Understanding and Avoiding Mitochondrial Toxicity

Yvonne Will, Ph.D., Senior Principal Scientist, Exploratory Safety Differentiation, Pfizer Global R&D
Conventional *in vitro* approaches often fail to detect mitochondrial dysfunction early in a drug candidate's development, and there are few animal models which would readily reveal mitochondrial liability. Organelle and cell based in vitro screens we've developed to detect potential mitochondrial toxicities and other new approaches will be presented.

5:30 Expanded Scope of Animal Disease Models for Preclinical Toxicology

Alain Stricker-Krongrad, Ph.D., Chief Scientific Officer, Preclinical Services, Charles River
Animal models of human disease are widely used to study the efficacy of therapeutics. However healthy animals are usually used for safety studies. This largely ignores the potential impact of a disease state on results. Animal models of human disease may predict and reveal potential human toxicities or adverse side effects that are present in the human diseased population but not observed in healthy animals.

6:00 Close of Day

FRIDAY, FEBRUARY 27

SELECTION AND DEVELOPMENT OF NON-CLINICAL SAFETY PROGRAMS FOR NEW THERAPIES
(combined with Preclinical Development of Biologics track)

8:30am Chairperson's Remarks

8:35 Scientific Challenges in Preclinical Toxicology Studies to Support the Clinical Development of Biologic

Barbara Mounho, Ph.D., Scientific Director, Toxicology, Comparative Biology and Safety Sciences, Amgen
The therapeutic advantage of biologics is their specificity, which provides them with a highly targeted therapeutic action. Due to the complex structural and biological nature of biologics, these molecules have several distinctive properties making them fundamentally different from conventional (small molecule) pharmaceuticals. The unique properties associated with biologics can create certain scientific challenges in conducting preclinical toxicology studies that typically are not issues for small molecules. The alternative approaches that toxicologists often use for the preclinical safety evaluation of these molecules will be discussed.

9:05 Safety of Molecularly-Targeted Biologics Versus Cytoxic Oncology Drugs: Utility and Limitations of Nonclinical Safety Assessment

Rakesh Dixit, Ph.D., DABT. Senior Director & Head, Biologics Safety Assessment, MedImmune, Gaithersburg, MD
The molecularly-targeted biologic (MTB) therapies have greatly improved the treatment of debilitating cancers. While MTB therapies are generally well tolerated, many MTB therapies with unique targets have also resulted in a wide spectrum of previously unrecognized and ill-defined toxicities in sensitive cancer patients. This presentation will discuss the potential mechanisms of toxicity of MTB versus standard cytoxic therapies in cancer treatment. The value and limitations of nonclinical safety assessment using animal models in identifying toxicities of newer MTBs versus cytoxics will also be presented.

9:35 Streamlined Custom Non-Clinical Safety Programs for Biological Therapies

Lauren E. Black, Ph.D., Senior Scientific Advisor, Navigator Services, Charles River Laboratories
There is no "one size fits all standard" for biologic toxicology programs. For novel biologics, there may be more "gap" than "knowledge" of the treatment's or the targets' effects. To define appropriate safety programs but avoid excess studies, some processes can be cross applied. Knowing target structure, distribution, and function, we can anticipate many safety events. Historical cases, successful strategies for streamlining preclinical programs, and common hurdles to success will be discussed.

10:05 Sponsored Presentation *(Opportunity Available)*

10:20 Coffee Break

11:00 Qualification of New Safety Biomarkers for Use in Drug Development: Experience of the Predictive Safety Testing Consortium

Elizabeth Gribble Walker, Ph.D., Assistant Director, Toxicology, Predictive Safety Testing Consortium, Critical Path Institute
Establishing a process for putting new biomarkers into routine practice for regulatory submission in drug development is a complex undertaking. While safety biomarkers that reflect injury to a particular target organ are applicable to developing both small- and large-molecule therapeutics, biologics possess unique considerations for safety testing. This talk will give an overview

of the process and accomplishments of the Predictive Safety Testing Consortium, and highlight case studies and opportunities where such a collaborative consortium approach might advance biologic drug safety.

11:30 Panel with Speakers: Developing Non-Clinical Safety Programs

- Lessons learned from *in-vivo* small molecules toxicology testing that can be applied to biologics or vice versa
- Points of intersection for nonclinical toxicology testing of biologics and small molecule therapies

12:00pm Luncheon Presentation *(Opportunity Available)*
or Lunch on your own

COMPUTATIONAL TOOLS FOR PREDICTING COMPOUND TOXICITY

1:00 Chairperson's Remarks

Wolfgang Muster, Ph.D., Head of In Silico & In Vitro Screens, F Hoffmann La Roche AG

1:05 Impact of Target Selection on Drug Safety and Side-effect

Michael Liebman, Ph.D., Managing Director, Strategic Medicine
We uniquely examine the "other side of the equation" in drug safety by analyzing the impact of target selection on predicting potential side-effects rather than focusing solely on the drug molecule's profile for safety. These methods expand the target protein network using structural, functional and pathway relationships integrated with gene regulation and metabolomics to produce a complex network which can be analyzed through simulation-based approaches to identify considerations such as potential at-risk populations.

1:35 Knowledge-Based Expert Systems, (Quantitative) Structure Activity Relationship Tools and Modeling Approaches in Preclinical Safety Studies

Wolfgang Muster, PhD, Head of In silico and In vitro Screens, F. Hoffmann-La Roche Ltd.
This presentation will illustrate how computation tools, deployed in the early drug development process, can help predicting toxicity and thereby optimize and select the best clinical candidates to move forward. A focus will be on *in silico* prediction methods roughly classified into so-called "expert systems" and "data driven systems."

2:05 Compound Cytotoxicity Profiling and Characterization of Toxicity Mechanisms Using Quantitative High-Throughput Screening

Ruili Huang, Ph.D., Research Scientist, Informatics, NIH Chemical Genomics Center
A large library of compounds previously tested in traditional toxicological assays were profiled for cytotoxicity using quantitative high-throughput screening (qHTS). Combining data generated from these assays we designed a broader array of in vitro cell-based assays in order to screen large sets of compounds. Such assays should also elucidate mechanism of toxicity, prioritize compounds for further toxicological evaluation and predict in vivo biological response. As a proof of principle, we applied an unsupervised clustering method to this data set to identify mechanisms of action and evaluated the performance of this method by comparing the results against literature annotations of compound mechanisms.

2:35 To be Announced

3:05 Close of Conference

TUESDAY, FEBRUARY 24

Recommended Short Courses*

9:00 – 12:30

(SC1) Translational Strategies for Development of mAbs from Discovery to the Clinic – Part 1

- Considerations for target selection and antibody screening and preclinical development of mAbs
- Antibody affinity and biophysical characterization: Biacore, Kinexa, and FACS
- Introduction to Antibody Pharmacokinetics (PK), Pharmacodynamics (PD) and Safety

2:00 – 5:00

(SC2) Translational Strategies for Development of mAbs from Discovery to the Clinic – Part 2

- Considerations for Immunoassay Development in support of Pharmacokinetic & Immunogenicity & Biomarker Evaluation
- Introduction to surrogate approaches in development of monoclonal antibodies
- Translation of exposure-response data from discovery into the clinic in support of FIH dosing

(See page 3 for details and a complete list of short courses)

*Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:15 Registration Open and Morning Coffee

8:45 Plenary Keynote Introduction

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 PLENARY KEYNOTE

Using Molecular Medicine to do Therapeutic Development in the Network Age

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

PROOF OF CONCEPT/PHARMACOLOGY

11:00 Chairperson's Remark

11:10 SESSION KEYNOTE

Understanding the Value Environment: Biomarkers in an age of Evidence-Based Medicine

Joseph V. Ferrara, President, Boston Healthcare Associates

As the cost of care increases and the population ages, financial risk for the adoption of innovative medical technology will be distributed more widely among health care stakeholders. When stakeholders are increasingly employing clinical and economic evidence to make adoption decisions, what tools can biopharmaceutical innovators use to examine the value potential of these development stage technologies? And further, how can innovators deploy an understanding of this value environment to prioritize R&D investment?

11:40 Overview of Biologics and Unique Preclinical Development Challenges

Matt Devalaraja, D.V.M, Ph.D., Director, Pharmacology, PK and Toxicology, Human Genome Sciences

A variety of technology platforms are enabling multiple biotherapeutic modalities, which bring unique challenges in both preclinical and clinical development. The development path for each and every biologic can be distinct and situation dependent. Inherently, it is apparent that the preclinical development of biologics is quite a contrast from small molecules. This presentation will provide an overview of the primary differences between the two approaches in their preclinical validation, development and human dose projection strategies and project paths for emerging biologics.

12:10 Challenges In Early Clinical Development of Biologics

Gilles Gallant, B.Pharm. Ph.D., Vice President, Clinical Oncology, Human Genome Sciences

The early clinical development of new biologics for the treatment of patients with advanced malignancies can be quite complex. The production of a complete pre-clinical data package is not always predictive of a rapid Phase 1 study initiation and/or duration. A partnership between government regulatory agencies, industry and clinical investigators is necessary for the success of the early clinical development of biologics. Potential approaches to accelerate and possibly shorten the duration of the initial single-agent Phase 1 studies of new biologics will be discussed.

12:40 Sponsored Presentations (Opportunity Available)

1:10 Walk and Talk Luncheon in the Exhibit Hall

2:15 Chairperson's Remark

2:20 The Next Generation of Vaccines for the Prevention and Treatment of Infectious Diseases

Sue Clarke, CIBiol, Head of Project Management, Development, ImmBio

This case study will present the inter-disciplinary, pre-clinical development of ImmBio's novel ImmunoBody influenza vaccines. Particular emphasis will be placed on the critical role of analytical development describing the range of assays - haemagglutination (HA), size exclusion (SEC), flow cytometry (FACS), ELISA, SPR (BiaCore) and cytokine release - used within this development phase to define the product integrity, biological activity and immunogenicity. The establishment of a murine influenza challenge model will also be described.

2:50 Development of an Improved Insulin Product (Nasulin T) for Type 1 and 2 Diabetes Treatment

Fred Feldman, Ph.D., Senior Vice President, Chief Scientific Officer, Research and Development, CPEX Pharmaceuticals

A novel platform for delivery of peptide therapeutics has been developed that permits administration of products for chronic treatment by nasal administration. PK data in a mini-pig model with insulin predicted a unique time-action profile that mimics the action of insulin as released by a normal pancreas. Toxicology studies in two animal species administering the product as a nasal spray three times daily for three months verified safety in chronic use. Preclinical studies of the peptide and the delivery device allowed approval of an IND for Phase 2 human studies in type 1 and 2 diabetes.

3:20 Development of Antibody-Maytansinoid Conjugates for the Treatment of Cancer

Robert Lutz, Ph.D., Executive Director, Preclinical Development, ImmunoGen, Inc.

This presentation will discuss the establishment of preclinical proof-of-concept for antibody-maytansinoid conjugates in oncology. The critical determinants for moving forward into clinical development, the preclinical packages to support INDs and the questions raised by and responses given to regulatory agencies regarding these preclinical packages will also be reviewed. Lastly the recent clinical results for the lead candidates will be presented.

3:50 Pre-Clinical Development Program of an ACE2 Enzyme Substitution Therapy

Manfred Schuster, Ph.D., Chief Scientific Officer, Apeiron Biologics

Angiotensin converting enzyme 2 (ACE2) is a promising candidate for an enzyme substitution therapy to treat acute cardio-vascular, pulmonary and inflammatory diseases. It is a highly N-glycosylated Zink-metalloprotease expressed on lung, kidney, heart and liver cells whose expression is down-regulated in several life-threatening diseases. This talk will focus on the outcome of our meetings with regulatory agencies in Europe and USA and presents the strategy we have adopted to produce, to formulate and to characterize our protein therapeutic, and summarize the pharmacological properties of ACE2 and the results of our toxicology and safety pharmacology program.

4:20 Reception in the Exhibit Hall

5:00 Break-Out Discussion in the Exhibit Hall

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:00 am Registration Open and Morning Coffee

7:20 Plenary Keynote Introduction

7:30 PLENARY KEYNOTE PRESENTATION

Tissue Engineering Strategies for Musculoskeletal Regenerative Medicine in Civilian and Military Applications

Michael J. Yaszemski, M.D., Ph.D., Brigadier General, United States Air Force Reserves; Professor, Orthopedic Surgery and Biomedical Engineering, College of Medicine, Mayo Clinic

Tissue regeneration via tissue engineering strategies requires some combination of cells, a scaffold upon which the cells can attach and express their phenotypic function, and signaling molecules to direct the cells down the desired differentiation path. This cellular component often includes stem cells. This lecture will present current concepts regarding musculoskeletal tissue regeneration and the issues to be considered for its translation to clinical practice, as well as the unique reconstructive challenges encountered in combat injuries.

USE OF SURROGATE MOLECULES OR ANIMAL MODELS OF DISEASE IN THE SAFETY EVALUATION OF BIOTHERAPEUTICS

8:25 Chairperson's Remarks

8:30 Alternative Strategies for Toxicity Testing of Species-Specific Biopharmaceuticals

Jeanine Bussiere, Ph.D., Executive Director, Toxicology, Amgen, Inc.

Surrogate molecules as well as animal models are often used to support the preclinical safety evaluation of biotherapeutics. However, when and how they should be used is not clear and regulatory agencies have different views on the value and appropriateness of these models. A discussion on the pros and cons of the various alternative strategies will be presented.

9:00 Use of Homologous Proteins and Transgenic Animals in Safety Assessments

Tim MacLachlan, Ph.D., Associate Director of Nonclinical Safety Assessment, Genzyme Corporation

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.

9:30 Development of an Anti-Mouse IL-12p40 Surrogate mAb to Support an Anti-Human IL-12p40 Therapeutic mAb

Clifford Sachs, Ph.D., D.A.B.T., Associate Director, Toxicology and Investigational Pharmacology, Centocor R&D

Ustekinumab binds to the 40 kilo Dalton (kDa) subunit of the heterodimeric interleukin (IL) 12 and IL 23 cytokines and neutralizes activity of these cytokines. Pharmacology studies identified cynomolgus monkeys as a pharmacologically relevant species and showed that rodents were not due to lack of binding and neutralization of rodent IL-12/23 by ustekinumab. To identify potential adverse effects of inhibition of IL 12/23 activity on female fertility, an analogous mAb (CNTO 3913) was developed and tested in mice. In contrast to mice, cynomolgus monkeys have a relatively high abortion rate, low conception rate, and only one offspring. No female fertility hazards were identified in the CNTO 3913 mouse female fertility study and the study report supported the ustekinumab BLA submission.

10:00 The Use of New Rodent Models in Discovery Research

Sponsored by PCO PreClinOmics

Richard G. Peterson, Ph.D., EVP Research and Development, PreClinOmics, Inc.

10:30 Poster Competition Refreshment Break & Raffles in Exhibit Hall

11:30 A Cautionary Tale of Two Surrogates

Suezanne Parker, Ph.D., Director Pharmacotoxicology, Biogen IDEC

Two case studies with surrogate molecules, a mAb and a receptor fusion protein, will be presented. For the mAb, a cynomolgus monkey surrogate was developed as the clinical candidate had only human and chimpanzee cross-reactivity. For the receptor fusion protein, the clinical candidate was active in cynomolgus monkeys. A rodent surrogate was developed and used in IND enabling preclinical studies and was under consideration for a carcinogenicity assessment when it was determined that the clinical candidate was pharmacologically active in rodents and amenable to long term rodent studies. Lessons learned from both cases will be discussed in the context of characterization required for a surrogate and assumptions regarding when a surrogate is necessary.

12:00 Panel Discussion with the Speakers

- When and how do you decide to use surrogate molecules or animal models of disease in your development programs?
- How do you ensure your surrogate is adequate to predict clinical risk? Based on pharmacology, molecular characteristics, PK, etc.?
- What do you do when your preclinical models give different answers? Species differences vs molecule differences vs pharmacology differences?

12:30 Luncheon Presentations (Opportunity Available) or Lunch on your own

1:30 Plenary Keynote Introduction

1:40 PLENARY KEYNOTE

Engineering Cells to Death

James A. Wells, Ph.D., Chair, Department of Pharmaceutical Chemistry; Professor of Pharmaceutical Sciences, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology; and Director of the Small Molecule Discovery Center, University of California, San Francisco

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST OF SHOW AWARDS (Last Chance for Viewing Exhibits & Posters)

ASSESSMENT OF IMMUNOGENICITY

3:55 Chairperson's Remarks

4:00 Current Trends in Immunogenicity Assessment

Philippe Stas, M.Sc.E. , Chief Executive Officer, Algonomics NV

Immunogenicity of biologics can lead to loss of drug efficacy and in some cases to severe side effects. Therefore, avoiding, minimizing and/or characterizing the expected immunogenicity prior to enter into clinical trials supports the development of safer drugs. This presentation focuses on strategies to minimize and characterize immunogenicity in a preclinical setting, with specific focus on the recent industry whitepapers and regulatory guidelines. Selected case studies will be presented.

4:30 Development and Validation of an Immunogenicity Assay for a Biologic

Travis Harrison, Ph.D., Associate Director, Assay Development and Validation, Immunology and Inflammation, SRI International

Evaluation of immunogenicity is an important step in the development of biologics. This presentation will describe the development and validation processes for an ectrochemiluminescence (ECL)-based immunogenicity assay against a biologic (a human monoclonal antibody). Data will be presented, along with a description of common pitfalls in development of the assay and how to overcome them.

5:00 Challenges of Supporting Immunogenicity Assays During Long Term Clinical Development Programs

Eric Wakschull, Ph.D, Senior Scientist/Group Leader, Bioanalytical R & D, Genentech, Inc.

5:30 Risk-based Bioanalytical Assessment Strategies for Immunogenicity

Adrienne Clements-Egan, Ph.D., Principal Research Investigator, Immune Response Assessment and Research, Centocor R&D, Inc.

The impact of an immune response to biologics on clinical safety and efficacy can range from none to severe. The degree of immunogenicity testing required in both preclinical and clinical settings is dependent on the overall risk of immunogenicity to the safety and efficacy of the product. This presentation will review a variety of risk factors that may be assessed early in a biologic development program to aid in an effective "fit for purpose" bioanalytical assessment of immunogenicity.

6:00 Close of Day

FRIDAY, FEBRUARY 27

SELECTION and DEVELOPMENT OF NON-CLINICAL SAFETY PROGRAMS FOR BIOLOGICAL THERAPIES

8:30 Chairperson's remarks

8:35 Scientific Challenges in Preclinical Toxicology Studies to Support the Clinical Development of Biologics

Barbara Mounho, Ph.D., Scientific Director, Toxicology, Comparative Biology and Safety Sciences, Amgen

The therapeutic advantage of biologics is their specificity, which provides them with a highly targeted therapeutic action. Due to the complex structural and biological nature of biologics, these molecules have several distinctive properties making them

fundamentally different from conventional (small molecule) pharmaceuticals. The unique properties associated with biologics can create certain scientific challenges in conducting preclinical toxicology studies that typically are not issues for small molecules. The alternative approaches that toxicologists often use for the preclinical safety evaluation of these molecules will be discussed.

9:05 Safety of Molecularly-Targeted Biologics Versus Cytoxic Oncology Drugs: Utility and Limitations of Nonclinical Safety Assessment

Rakesh Dixit, Ph.D., D.A.B.T. Senior Director & Head, Biologics Safety Assessment, MedImmune, Gaithersburg, MD

The molecularly-targeted biologic (MTB) therapies have greatly improved the treatment of debilitating cancers. While MTB therapies are generally well tolerated, many MTB therapies with unique targets have also resulted in a wide spectrum of previously unrecognized and ill-defined toxicities in sensitive cancer patients. This presentation will discuss the potential mechanisms of toxicity of MTB versus standard cytoxic therapies in cancer treatment. The value and limitations of nonclinical safety assessment using animal models in identifying toxicities of newer MTBs versus cytoxics will also be presented.

9:35 Streamlined Custom Non-Clinical Safety Programs for Biological Therapies

Lauren E. Black, Ph.D., Senior Scientific Advisor, Navigator Services, Charles River Laboratories

There is no "one size fits all standard" for biologic toxicology programs. For novel biologics, there may be more "gap" than "knowledge" of the treatment's or the targets' effects. To define appropriate safety programs but avoid excess studies, some processes can be cross applied. Knowing target structure, distribution, and function, we can anticipate many safety events. Historical cases, successful strategies for streamlining preclinical programs, and common hurdles to success will be discussed.

10:05 Sponsored Presentation (Opportunity Available)

10:20 Coffee Break

11:00 Qualification of New Safety Biomarkers for Use in Drug Development: Experience of the Predictive Safety Testing Consortium

Elizabeth Gribble Walker, Ph.D., Assistant Director, Toxicology, Predictive Safety Testing Consortium, Critical Path Institute

Establishing a process for putting new biomarkers into routine practice for regulatory submission in drug development is a complex undertaking. While safety biomarkers that reflect injury to a particular target organ are applicable to developing both small- and large-molecule therapeutics, biologics possess unique considerations for safety testing. This talk will give an overview of the process and accomplishments of the Predictive Safety Testing Consortium, and highlight case studies and opportunities where such a collaborative consortium approach might advance biologic drug safety.

11:30 Panel with Speakers: Developing Non-Clinical Safety Programs

Moderator: Vivek Kadambi, Ph.D., Director of Drug Safety Evaluation, Millennium: The Takeda Oncology Company

- Lessons learned from in-vivo small molecules toxicology testing that can be applied to biologics or vis-a-vis
- Points of intersection for nonclinical toxicology testing of biologics and small molecule therapies

12:00 Luncheon Presentation (Opportunity Available) or Lunch on your own

FIRST IN HUMAN DOSE

1:00 Chairperson's remarks

Mary Haak-Frendscho, Ph.D., President and CSO, Takeda San Francisco

1:05 Overview: FIH Dose Selection for Biologics

Kathy A. Elias, Ph.D., Director, Pharmacology & Experimental Pathology, Takeda San Francisco

An overview will be provided including recent perspectives aimed at determining the starting dose for first in human clinical trials of biologic drug candidates. This introductory presentation is designed to set the context for the case studies in this session. Definitions and methods also will be discussed.

1:35 Dose Selection Case Study #1

Kathleen Meyer, M.P.H., Ph.D., D.A.B.T., Director, Toxicology, XOMA

This presentation will discuss the preclinical studies and PK/PD modeling used to support FIH dosing of XOMA 052, a potent antibody that binds to IL-1b. XOMA 052 is currently in phase 1 studies in patients with Type 2 Diabetes (T2D) as inhibiting IL-1b may satisfy the unmet medical needs in a variety of autoimmune and inflammatory diseases, including T2D.

2:05 Preclinical Markers Relevant for FIH Dose Selection with an Anti-Integrin Monoclonal Antibody

Dale Johnson, Ph.D., President and CEO, Emiliem, Inc.; Adjunct Professor of Molecular Toxicology, UC Berkeley

Mechanistic studies in a preclinical macular degeneration model, binding saturation in circulating monocytes, and pharmacokinetic modeling provided the rationale for FIH dosing of an anti-integrin monoclonal antibody in cancer patients.

2:35 Dose Selection Case Study #3

Robert Bauer, Ph.D., Vice President, Pharmacometrics, ICON Development Solutions

Pharmacokinetic (PK) and pharmacodynamic (PD) models developed based on known and putative biological mechanisms and preclinical data can be very useful in anticipating PK/PD profiles that are likely to be observed in humans. This knowledge can help drug developers more effectively design their phase I clinical trials and capture the needed information in humans. An example is given of such a PK/PD model developed for the anti-Psoriasis product Raptiva, developed jointly by XOMA and Genentech.

3:05 Close of Conference

Scientific Advisors

Matt Devalaraja, D.V.M, Ph.D., Director, Pharmacology, PK and Toxicology, Human Genome Sciences

Jeanine Bussiere, Ph.D., Executive Director, Toxicology, Amgen, Inc.

Barbara Mounho, Ph.D., Scientific Director, Toxicology, Comparative Biology and Safety Sciences, Amgen

Mary Haak-Frendscho, Ph.D., President and CSO, Takeda San Francisco

TUESDAY, FEBRUARY 24

PRE-CONFERENCE SHORT COURSE*

Recommended Short Course(s)*

(SC9) Novel Approaches to Cancer Biomarkers

Visit Tri-Conference.com for complete program.

(See page 3 for details and a complete list of short courses)

*Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:15am Registration Open

8:45 Plenary Keynote Introduction

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

TRANSLATIONAL MEDICINE INITIATIVES AT BIG PHARMA

11:00 Chairperson's Remarks

Chairperson: Christopher-Paul Milne, D.V.M., M.P.H., J.D., Tufts University

11:10pm Translational Medicine: Where Are We Going? How Will We Get There?

Christopher-Paul Milne, D.V.M., M.P.H., J.D., Associate Director, Tufts Center for the Study of Drug Development, Tufts University

Translational Medicine is the communication channel that reaches from researcher goals upstream in the R&D continuum to patient needs at the other end, covering a lot of territory populated by a varied and complex set of interactions and interdependency. The achievements of translational medicine depend on the perception and purpose of those who have set it into motion as an essential vehicle for moving the Research & Development paradigm toward a more patient-centered focus. This presentation will examine translational medicine initiatives in the US and EU to look at who is doing what and how it will change the process and products of the Research & Development enterprise.

11:40 Questions, Answers, Decisions: A Systematic Translational Research Approach

Erik D. Sprengers, Ph.D., M.D., M.B.A., Site Head, SPRI Singapore; Head, Translational Medicine Research Centre Singapore, Schering-Plough

Translational Research in the pharmaceutical industry is an approach to reduce pipeline attrition. At Schering-Plough we implemented a simple tool that is used from early Lead Optimization to guide the Research & Development teams and management in their translational approaches. Basic questions about target engagement, target modulation, downstream pharmacology, clinical effects, and patient stratification, need to be addressed. Case by case, R&D teams need to find and apply the right biomarker approaches to get reliable answers to these questions, which will result in reliable go/no-go or accelerate decisions.

12:10 Biomarker Validation in Translational Medicine: In-vitro Model to Human

Sponsored by nextgen sciences

Michael Ford, Senior Scientist, NextGen Sciences

Molecular markers are used as key indicators for therapeutic development. A model system exhibiting the development of metastatic cancer was employed for the discovery of biomarkers of efficacy of new compounds as well as putative biomarkers for various stages of cancer in humans. The discovery phase yielded a panel of 20 proteins as biomarker candidates for metastatic disease. A pMRM multiplexed assay was developed for the quantitation of all 20 proteins. The assay was utilized to validate the 20 marker proteins in the cell model system for testing compounds. The assay was also applied to human plasma samples obtained from normal volunteers and patients with various stages of lung cancer. The results and progress will be presented.

12:40 Expert Panel: Translational Medicine Best Practices

1:10 Walk & Talk Luncheon in the Exhibit Hall

EVALUATING AND IMPROVING PRE-CLINICAL MODELS: ARE THEY PREDICTIVE OF HUMAN RESPONSE?

(Combined with Preclinical Drug Safety track)

2:15 Chairperson's Remarks

Chairperson: Vivek Kadambi, Ph.D., Senior Director, Millennium Pharmaceuticals

2:20 Can Studies of Animal Idiosyncratic Drug Toxicity Break the Unpredictability Log Jam for Human Serious Adverse Reactions?

John R. Senior, M.D., Associate Director for Science, Office of Surveillance and Epidemiology, Center for Drug Evaluation and Research, Food and Drug Administration

It's believed that serious idiosyncratic adverse drug reactions in patients aren't discovered in preclinical animal studies because they're very rare, not predictable or dose-related and occur only in humans who are genetically extremely diverse. However, an increasing number of findings challenge these beliefs. This presentation uses drug-induced liver injury (DILI) as a model to elucidate why certain individual animals differ in response to the same dose-duration of drugs, which may allow earlier detection of rare human adverse drug toxicity.

3:00 How Well do Animal Models Predict Adverse Effects in Humans?

Vivek Kadambi, Ph.D., Senior Director, Drug Safety Evaluation, Millennium Pharmaceuticals

3:40 Predictive Preclinical Cardiosafety Assays

Martin Traebert, Ph.D., Head, Safety Pharmacology EU, Translational Sciences, Novartis Institutes for BioMedical Research

Drug-induced long QT syndrome and potential cardiac arrhythmia are a major concern for patients, regulators and the pharmaceutical industry. Thus the preclinical identification of a potential cardiosafety liability needs to be addressed very carefully by a variety of *in vitro* and *in vivo* assays with increasing complexity. The most important assays (receptor binding studies, hERG electrophysiology, isolated cardiac tissue/organs and *in vivo* ECG recording) will be presented and discussed.

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall

(Please visit www.tri-conference.com for details.)

6:00 Close of Day

THURSDAY, FEBRUARY 26

OPTIMIZING TRANSLATION TO FIH STUDIES

8:25am Chairperson's Remarks

Chairperson: B. Michael Silber, Ph.D., Chief, Drug Discovery R&D, University of California San Francisco

8:30 T-lymphocyte Targeting Treatment Strategies in Chronic Inflammatory Disorders: Translation from Preclinical Disease Models to PoM Studies

Gerhard Wolff, M.D., Ph.D., Global Clinical Director, Translational Medicine Leader, Clinical Research and Exploratory Development, Hoffmann-La Roche, Inc.

9:00 Translational Research in Neurodegenerative Diseases: From Discovering the Causes of Disease to Developing Cures

B. Michael Silber, Ph.D., Chief, Drug Discovery R&D, Institute for Neurodegenerative Diseases, Department of Neurology; Adjunct Professor, Neurology and Biopharmaceutical Sciences, School of Medicine, University of California San Francisco

There are no effective therapies or preventions for any of the neurodegenerative diseases. One of the fundamental reasons for this lack of success is our continued lack of understanding of basic disease biology, availability of predictive cell-based assays, availability of predictive animal bioassays, and clinically relevant biomarkers of disease diagnosis, severity, progression, and response to therapy for each of these disorders. This talk will examine how we can address these gaps in basic and translational medical knowledge toward the development of effective research and development efforts that will yield robust treatments and cures.

9:30 Translational Considerations for FIH Dose Selection: Application of Proof-of-Mechanism Biomarkers

Mohammad Tabrizi, Ph.D., Director, Translational Sciences, Global PK-PD and Bioanalysis, MedImmune

Effective information flow and translation of accumulated knowledge across various development phases remain a major challenge in drug development. Design of successful translational strategies from early phases of development process is not only necessary to lessen the development time and cost, but also to foster implementation of rational decision making processes. This presentation will highlight a science-based decision making approach, through application of proof-of-mechanisms (POM) biomarkers in designing effective strategies, for translation of preclinical data into First-in-Human (FIH) clinical studies.

10:00 Protein Biomarkers: Bridging the Gap between Discovery and the Clinic

Sponsored by CAPRION PROTEOMICS

Daniel Chelsky, Ph.D., Chief Scientific Officer, Caprion Proteomics, Inc.

10:15 Quantitative Metabolomics: From Animal Model to Man

Sponsored by BIOCRATES

Matthias Keller MD, Ph.D., Director Contract Research, BIOCRATES Life sciences AG, Innsbruck.

Hans-Peter Deigner, Ph.D., Director Biomarker Discovery, BIOCRATES Life sciences AG, Innsbruck.

10:30 Poster Competition Refreshment Break & Raffles in the Exhibit Hall

11:30 From Early Discovery to First-in-Human: Realities of the Post-Technology Revolution

Kailash Swarna, Ph.D., Executive Director, Research & Development, Amgen, Inc.

12:00pm Human Microdosing Phase 0

Graham Lappin, Ph.D., Senior Director, Science and Technology, Xceleron, Ltd.

Using one hundredth of the predicted pharmacologic dose (up to a limit of 100µg), developmental drug candidates can be dosed into human volunteers straight out of discovery. With reduced pre-clinical toxicology and GMP-like drug substance, this technique has been used to obtain very early pharmacokinetic data on drug candidates to ensure that only the most promising drug candidates are taken forward. A recently completed € 2M EU funded microdose study which compared 7 drugs at both a microdose and pharmacologic dose will be discussed.

12:30 Cisplatin Resistance Biomarker Development

Sponsored by Monarch LifeSciences

Mu Wang, Ph.D., Vice President, Research, Monarch LifeSciences

Platinum-based chemotherapy is the primary treatment for ovarian cancer. Drug resistance has become a major impediment to successful treatment. The molecular mechanisms of this resistance remain unclear. We applied LC/MS-based, label-free, protein quantification to examine the global protein expression profiles of two pair of ovarian cancer cell lines. 95 proteins showed significant expression changes between sensitive and resistant groups with a false-discovery-rate (FDR) of less than 5%. A redox regulated pathway involving superoxide dismutase 1 (SOD1) was targeted to further explore its involvement in drug resistance.

1:30 Plenary Keynote Introduction and Presentation

1:40 PLENARY KEYNOTE

Engineering Cells to Death

James A. Wells, Ph.D., Chair, Department, Pharmaceutical Chemistry; Professor, Pharmaceutical Sciences, Departments of Pharmaceutical Chemistry and Cellular & Molecular Pharmacology; Director, the Small Molecule Discovery Center, University of California, San Francisco

Apoptosis, or programmed cell death, represents an ultimate fate decision in cell biology. This process is critical for cellular differentiation and remodeling of tissues, and for anti-viral and anti-tumor defense. The study of apoptotic pathways has important ramifications for determining what is critical for cellular homeostasis, and for the development of potential anti-cancer therapeutics. A distinct molecular feature of apoptosis is the widespread but controlled cellular proteolysis, that is predominantly mediated by eight members of the caspase family of cysteine proteases. These enzymes are like demolition experts that cleave protein targets critical for cellular life. We have designed new enzymes, and antibodies, and small molecules to study and activate individual caspases and the proteins they cleave. For example, a robust proteomic method for global profiling of proteolysis ("degradomics") in cells has been developed. Key to this is an engineered enzyme, subtiligase, that permits selective labeling and enrichment for the protein N-termini created as a result of proteolysis. Using this approach we have already identified >300 caspase substrates from Jurkat cells that were induced to undergo apoptosis by treatment with the chemotherapeutic agent etoposide. The proteins fall into a wide range of functional classes, and reveal much about the molecular components, logic, and timed sequence of events that drive a cell from life to death. We believe these engineered enzymes and proteomic approaches will be useful for characterizing the proteolysis of apoptosis induced by various agents or in different cell types, and will be generally useful for dissecting protease signaling pathways.

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole. 1:40 Plenary Keynote

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS *(Last chance for viewing posters and exhibits)*

IMPLEMENTING PERSONALIZED MEDICINE

3:55 Chairperson's Remarks

Chairperson: To be Announced

4:00 Translational Strategies for Personalized Medicine

Bruce H. Littman, M.D., President, Translational Medicine Associates, LLC (formerly Vice President, Global Head, Translational Medicine, Pfizer)

The same principles applied in early drug development that focus on the "molecularly correct" population to achieve early confirmation of proof of concept for new drugs can be applied to medical practice. Molecular definition of disease is rapidly replacing traditional pathology-based disease descriptions in cancer in part because of its utility in identifying the optimal treatment regimen for patients. It is clear that the same changes are coming for many common chronic diseases. Utilizing molecular disease definitions these chronic disease phenotypes can be split into distinct subpopulations with important implications for safe and effective personalized treatment choices.

4:30 Bringing Personalized Medicine into Practice: The National Medco Experience

Teresa DeLuca, M.D., M.B.A, Vice President, Department of Personalized Medicine - Business Solutions, Medco

This talk will provide attendees with actual in-depth information drawn from recent national Personalized Medicine programs for several disease areas. Attendees will learn about the type of evidence required by payers for coverage, the barriers and accelerators related to physician adoption and those related to patient adoption as well. For those developing drugs or tests, this talk will provide real-life experience from hands-on work with more than 100 different payers across the USA.

5:00 Paradigms on the Development of Personalized Medicine: A Regulatory Perspective

Francis Kalush, Ph.D., Network Leader, Diagnostics, Office of the Center Director, Center for Devices and Radiological Health, Food and Drug Administration

The field of personalized medicine has the potential to improve patient care, optimize therapeutics development with the help of new diagnostics; and improve benefit/risk ratio to patients. However, major challenges such as development of strong scientific evidence, evolving business/regulatory models and changes to the current reimbursement process are essential to bring these tests into routine clinical practice. The talk will focus on the regulatory perspective, highlighting recent FDA initiatives to facilitate the integration of pharmacogenomics into drug development and clinical practice.

5:30 Expert Panel: Implementing Personalized Medicine

- What strategies can reduce late-stage attrition?
- What predictive tools are most valuable in evaluating drug candidates? How can these predictive tools be used in combination for optimum results?
- Are animal models representative of human response? How can they be improved?
- How can iterative learning between clinical and pre-clinical development be efficiently implemented? What lessons can be taken from the clinic back into development?
- What are the unmet data/knowledge management needs in integrating pre-clinical and clinical information and enabling efficient bi-directional information flow?
- How are the patient needs changing and what does that mean for pharmaceutical R&D?
- Is there benefit to consortia in translational medicine?

6:00 Close of Day

FRIDAY, FEBRUARY 27

ROI ON BIOMARKERS AND ENABLING TECHNOLOGIES IN TRANSLATIONAL MEDICINE

8:30 Chairperson's Remarks

Stephen H. Friend, M.D., Ph.D., Senior Vice President, Franchise Head, Oncology, Merck Research Laboratories, Merck & Co., Inc.

8:35 Examining the Scale and Scope of Tools and Programs to Navigate in Translational Oncology Space: Lessons Learned

Stephen H. Friend, M.D., Ph.D., Senior Vice President, Franchise Head, Oncology, Merck Research Laboratories, Merck & Co., Inc.

9:05 Integration of Predictive Biomarker Strategies in Oncology Drug Development

Mitch Raponi, Ph.D., Principal Research Scientist, Biomarkers, Centocor Research & Development, Inc., Johnson & Johnson

All currently approved companion diagnostics directly test the status of the drug target. However, the emergence of advanced technical platforms such as genome wide expression profiling is enabling the generation of genomic-based signatures that reflect the activity of signaling pathways down-stream of the targeted molecule. Identification of a molecular predictor of response to a farnesyltransefrase inhibitor will be presented to highlight the challenges and opportunities of integrating genome-wide approaches for the development of predictive biomarkers in oncology drug development.

9:35 To be Announced

10:05 Coffee Break

11:00 Expert Panel: Biomarkers for Go/No-Go Decision Making

- Has there been sufficient ROI on biomarkers and enabling technologies in drug development? How is ROI estimated and measured?
- Which types of biomarkers should be developed at various stages in the drug pipeline?
- What strategies help translate biomarkers from preclinical to clinical development?
- What type of biomarker data should lead to terminating a target or a compound? What type of data should lead to increased investment in a compound?
- How should biomarker data be weighed against "traditional" safety and efficacy data? Can "general" toxicity biomarkers be re-used across programs?
- What level of validation is required for which types of decisions?
- What regulatory guidance is needed?
- How to manage risk in biomarker development? What validation and monitoring practices should be in place?
- Where is the value of using biomarkers in decision making? What is the cost of mistakes? Which biomarkers are the highest-value or highest-risk?
- What are the current obstacles in biomarker implementation?
- What translational strategies enable more efficient implementation of personalized medicine?

12:00pm Luncheon Presentation *(Opportunity available)* **or Lunch on your own**

ROLE OF SYSTEMS BIOLOGY IN TRANSLATIONAL MEDICINE: IS IT FEASIBLE AT BIG PHARMA?

1:00 Chairperson's Remarks

Chairperson: Stephen Naylor, Ph.D., Chief Executive Officer, Predictive Physiology & Medicine, Inc

1:05 Translational Medicine and Pharma: More Measurement or Knowledge Management?

Stephen Naylor, Ph.D., Chief Executive Officer, Chairman, Predictive Physiology & Medicine, Inc.

It might be argued that the bench-to-bedside description often applied to Translational Medicine is also applicable to current pharmaceutical industry practice. Clearly this is not the case, particularly in light of Lean's definition that Translational Medicine is "the process which leads from evidence based medicine to sustainable solutions for public health problems". Translational medicine requires basic research tools, individual and population measurements as well as sophisticated knowledge management capabilities. Many of these issues are being addressed in the current development of systems biology. We will discuss the development of systems biology tools and their application in the pharmaceutical sector.

1:35 How Systems Biology Can Enable Translational and Individualized Medicine

Keith Elliston, Ph.D., President & Chief Executive Officer, Genstruct, Inc.

The development of novel therapeutics increasingly relies upon the ability of pharmaceutical companies to leverage preclinical models for clinical applications. The identification of biomarkers for clinical trials is one key application. This talk will focus on the translation of preclinical models to develop mechanistic biomarkers for clinical applications..

2:05 Systems Biology in Translational Medicine: Parallel or Orthogonal to Pharma's Needs?

Michael N. Liebman, Ph.D., Managing Director, Strategic Medicine, Inc.

Although much progress continues to support the development and implementation of new technologies in systems biology, its role in translational medicine has not yet evolved to maturity. This is further complicated by the conventional association of translational medicine with the movement of academic research into clinical application. The critical missing link is a focus on the needs of the patient and clinician as the principal drivers for the research. Pharma remains caught in the middle, needing to improve the translation of therapeutics (and diagnostics) into clinical utilization while maintaining patient safety and efficacy.

2:35 Translational Systems Biology: Bridging Gaps for Genome Medicine

Jake Chen, Ph.D., Assistant Professor, Informatics, Indiana University; Computer Science, Purdue University; Director, Indiana Center for Systems Biology and Personalized Medicine; Founder and Chief Executive Officer, MedeoLinx, LLC

In translational systems biology, there is an emerging demand for building multi-scale disease-relevant molecular network and pathway models to shorten the gap between drug discovery research and biomedical applications. We demonstrate how computational systems biology techniques and tools could be developed to address translational medicine problems. C-maps is a new application software tool that integrates network data mining and literature data mining.

3:05 Close of Conference

TUESDAY, FEBRUARY 24

PRE-CONFERENCE SHORT COURSES*

(SC5) CIRCULATING TUMOR CELLS AND CANCER STEM CELLS
2:00 – 5:00pm

(SC9) NOVEL APPROACHES TO CANCER BIOMARKERS
9:00 am – 5:00 pm

(See page 3 for details and a complete list of short courses)
*Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:15am Registration Open and Morning Coffee

8:45 Plenary Keynote Introduction
Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.
A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

KEYNOTE PRESENTATIONS

11:00 Chairperson's Remarks

11:10 A Single Cell Based Understanding of Cancer Multiclonality Using Network Architectures Predicts Mechanism, Therapy, and Clinical Outcomes
Garry P. Nolan, Ph.D., Director, Stanford NHLBI Proteomics Center, Microbiology & Immunology, Stanford University
We have demonstrated the ability to simultaneously detect activated kinases and phosphoproteins in pathways in subpopulations of complex cells by multi-parameter flow cytometric analysis. We have applied this technology to the study of Myelogenous Leukemia, and Follicular Lymphoma, colon cancer and infiltrating immune cells of cancers among others. We have initiated the generation of comprehensive network topology maps of signaling in primary immune subsets and cancers. This brings single cell analysis of multiple kinase pathways together to allow diagnostic measures of single cells in relation to drug action, disease course, and predicting patient outcomes.

11:40 Applying Broad Pathway Analysis and Deep Pathway Analysis to Biology and Medicine
Roger Brent, Ph.D., President and Research Director, Molecular Sciences Institute
I will review work that uses genetic, proteomic, and single cell methods to study the quantitative function (ie, physiology) of a model yeast cell signaling system. These results complement those from the broad approach and define widely conserved "systems level" quantitative phenotypes that give insight into the function of many cell signaling systems. These concepts will be useful for understanding disease, and may identify potential avenues for drug discovery efforts aimed at therapeutic intervention.

12:10pm A Systems Approach to Breast Cancer Treatment
Joe W. Gray, Ph.D., Director, Life Sciences Division, Lawrence Berkeley National Laboratory

12:40 Function and Relevance of microRNAs in Cancer Biology: microRNA Mimic/Inhibitors and Expression Profiling
Sponsored by Thermo Scientific
Queta Smith, Ph.D., Associate Director, Technical Communications, Thermo Scientific Genomics
MicroRNAs are unique regulators of cellular processes representing molecular biomarkers of the etiology and therapeutic response in disease states. We will review microRNA biology and address experimental approaches to decipher their roles using gain-of function microRNA mimics, loss-of-function microRNA inhibitors and a unique microRNA expression profiling platform. This seminar will demonstrate the utility of these tools to ultimately decode microRNA function that can be applied to the investigation of many different cancer biologies.

1:10 Walk & Talk Luncheon in the Exhibit Hall

INTEGRATING NEXT-GEN TECHNOLOGIES FOR RISK ASSESSMENT

2:15 Chairperson's Remarks

2:20 Genomic Analysis of Cancer with Next Generation DNA Sequencing Technologies
Robert L. Strausberg, Ph.D., Deputy Director, J. Craig Venter Institute
Emerging DNA sequencing technologies are enabling comprehensive views of cancer genes and genomes, thereby providing unprecedented opportunities toward understanding the features of biological pathways in cancer development and progression. This presentation will highlight the new technologies and specific applications in cancer research. Potential approaches toward improved disease intervention will be discussed.

2:50 Multi-Dimensional Pathways in Cancer
Michael Liebman, Ph.D., Managing Director, Strategic Medicine, Inc
Breast cancer is a complex set of disorders whose characterization requires integration and analysis of data spanning clinical, physiological and molecular dimensions. We have begun to represent the biological complexity of breast disease in a model that incorporates protein, metabolite and gene regulation dimensions, and which is being analyzed using complex pathway simulation and optimization methods. This is providing unique insight into the role of SNP's, mutations, PTM's, and the underlying physiology in the disease process.

3:20 Target Selection from DNA Copy Number and Expression Analyses of Breast and Ovarian Tumors
Zemin Zhang, Ph.D., Acting Director, Department of Bioinformatics, Genentech, Inc.
Genomic alterations are commonly observed in cancers but it remains a challenge to distinguish driver from passenger genes. We studied the genomic landscape of breast and ovarian cancers using high-resolution 500K SNP arrays and defined minimal regions with statistical significance based on the prevalence of level of copy number alterations. Coupled with expression analyses, the refined regions with amplification led to much increased precision in cancer target identification.

3:50 DNA Copy Number Variation and Cancer Susceptibility: Modifying the Two-Hit Hypothesis
David Malkin, M.D., Co-Director of the Cancer Genetics Program, University of Toronto's Hospital for Sick Children
This talk will discuss recent observations of genome wide copy number variation in individuals with Li-Fraumeni syndrome that is associated with a wide spectrum of childhood and adult-onset cancers, in the setting of germline p53 mutation. A model of genome wide variation in human cancer, extrapolated from these findings, will be presented and discussed.

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:20am Plenary Keynote Introduction

7:30 PLENARY KEYNOTE

Tissue Engineering Strategies for Musculoskeletal Regenerative Medicine in Civilian and Military Applications
Michael J. Yaszemski, M.D., Ph.D., Brigadier General, United States Air Force Reserves; Professor, Orthopedic Surgery and Biomedical Engineering, College of Medicine, Mayo Clinic

EPIGENETICS AND MICRORNA: FINDING PATHWAYS TO TREATMENT

8:25 Chairperson's Remarks
Dalia Cohen, Ph.D., Chief Scientific Officer, Rosetta Genomics Inc. and Enal Razvi, Ph.D., System Biosciences SBI

8:30 MicroRNAs in Development and Cancer
Frank J. Slack, Ph.D., Associate Professor, Molecular Cellular & Developmental Biology, Yale University
let-7 is expressed in the developing mammalian lung and regulates the expression of important oncogenes implicated in lung cancer, suggesting a mechanism for let-7's involvement in cancer. We are focused on the role of let-7 and other oncomirs in regulating proto-oncogene expression during development and cancer, and on using miRNAs to suppress tumorigenesis.

9:00 Integrative Genomics and Epigenomics; Markers and Mechanisms
Joseph F. Costello, Ph.D., Associate Professor, Karen Osney Brownstein Endowed Chair in Molecular Neuro-Oncology, University of California San Francisco
Epigenetic mechanisms can cause genomic alterations, and genomic aberrations also can influence the cancer epigenome. Given the extensive genetic and epigenetic alterations in any given tumor, integrative analyses thus represent a new kind of filtering approach to cull passenger alterations from those that are drivers of tumorigenesis, and an improved approach to identify predictive DNA markers with clinical utility. Emerging technologies for increasingly comprehensive analyses of tumor genomes and epigenomes will be essential in these efforts.

9:30 Computational Methods for Analysis of Cellular Functions and Pathways Collectively Targeted by Differentially Expressed microRNA
Yuriy Gusev, Ph.D., Assistant Professor, Surgery & Adjunct Assistant Professor, Institute for Breast Health, University of Oklahoma
The OUHSC team has developed and tested computational strategy for doing in-depth

analysis of genes that are collectively targeted by aberrantly expressed miRNAs in six human cancers. This analysis revealed possible functional links between cancer-related processes and miRNA expression, identified miRNA targets that are known tissue-specific biomarkers of cancer, and narrowed in on pathways specifically to each type of cancer that were enriched for miRNA targets.

10:00 Identifying Functional Consequences of Molecular Profiles of Cancer through Pathway Analysis

Sponsored by INGENUITY SYSTEMS

Megan Laurance, Ph.D., Senior Scientist, Ingenuity Systems

The adoption of technologies that detect transcript and microRNA levels, as well as methylation patterns in cancer presents researchers with the challenge of translating those molecular profiles into clear understanding the core pathways and processes altered in cancer. Understanding the functional consequences of molecular alterations ultimately provides a strategy for impacting the physiological processes affected by those pathways. In this session, we will present a case study in which IPA has been used as a target and biomarker discovery tool to identify paths linking molecular profiles to cancer-specific phenotypes and physiological responses.

10:30 TBA

Sponsored by BIOBASE

10:45 Poster Competition Refreshment Break & Raffles in the Exhibit Hall

11:30 Epigenetic Silencing of miR-342 in Colorectal Cancer

Muneesh Tewari, M.D., Ph.D., Assistant Member, Human Biology Division, Fred Hutchinson Cancer Research Center

MicroRNAs (miRNAs) are small (approximately 22 nt in size) regulatory RNAs that play important roles in cancer development and progression. We discovered that miR-342, an intronic miRNA, is suppressed in colorectal cancer via epigenetic silencing of its host gene's promoter. Furthermore, re-expression of miR-342 in colorectal cells in culture triggered apoptosis, suggesting that a function of miR-342 silencing during carcinogenesis is suppression of programmed cell death. The talk will present these results and discuss potential directions for future research.

12:00pm Diagnostic and Therapeutic MicroRNA Strategies in Ovarian Cancer

Lin Zhang, Center for Research on Early Detection and Cure of Ovarian Cancer, University of Pennsylvania School of Medicine

We have reported that miRNAs exhibit genomic alterations at high frequency and their expression is remarkably deregulated in ovarian cancer, strongly suggesting that miRNAs are involved in the initiation and progression of this disease. Indeed, our recent studies indicate that miRNA-based method is a novel strategy with strong potential application to human ovarian cancer in early detection, diagnosis and treatment.

12:30 Luncheon Presentation
The NanoString nCounter System: A Highly Sensitive, Digital Technology for Multiplexed Measurement of Gene Expression Without Reverse Transcription or PCR

Sponsored by nanoString TECHNOLOGIES

Gary Geiss Ph.D., Principal Scientist, NanoString Technologies

1:00 Luncheon Presentation
Analysis of Genome-wide Genotyping Data for Copy Number Variation in Breast Cancer

Sponsored by ROSETTA BIOSOFTWARE

Aubree Hoover, Senior Product Manager, Rosetta Biosoftware

1:30 Plenary Keynote Introduction

1:40 PLENARY KEYNOTE

Engineering Cells to Death

James A. Wells, Ph.D., Professor and Chair of Pharmaceutical Chemistry, and Professor of Cellular & Molecular Pharmacology, University of California, San Francisco

Apoptosis, or programmed cell death, represents an ultimate fate decision in cell biology. This process is critical for cellular differentiation and remodeling of tissues, and for anti-viral and anti-tumor defense. The study of apoptotic pathways has important ramifications for determining what is critical for cellular homeostasis, and for the development of potential anti-cancer therapeutics. A distinct molecular feature of apoptosis is the widespread but controlled cellular proteolysis, that is predominantly mediated by eight members of the caspase family of cysteine proteases. These enzymes are like demolition experts that cleave protein targets critical for cellular life. We have designed new enzymes, and antibodies, and small molecules to study and activate individual caspases and the proteins they cleave. For example, a robust proteomic method for global profiling of proteolysis ("degradomics") in cells has been developed. Key to this is an engineered enzyme, subtiligase, that permits selective labeling and enrichment for the protein N-termini created as a result of proteolysis. Using this approach we have already identified >300 caspase substrates from Jurkat cells that were induced to undergo apoptosis by treatment with the chemotherapeutic agent etoposide. The proteins fall into a wide range of functional classes, and reveal much about the molecular components, logic, and timed sequence of events that drive a cell from life to death. We believe these engineered enzymes and proteomic approaches will be useful for characterizing the proteolysis of apoptosis induced by various agents or in different cell types, and will be generally useful for dissecting protease signaling pathways.

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole.

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCTS AWARDS *(Last Chance for Viewing Exhibits & Posters)*

EVALUATING TARGETS FOR CANCER

3:55 Chairperson's Remarks

4:00 Systems Optimization of ErbB-Targeted Therapeutics: Development of an Anti-ErbB3 Monoclonal Antibody

Ulrik B. Nielsen, Ph.D., Vice President, Research, Merrimack Pharmaceuticals

Using very large biological datasets of cell signaling, we have constructed detailed, mechanistic models. These may be used to predict network responses to targeted therapeutics such as monoclonal antibodies and small molecule inhibitors. Using the ErbB signaling network as an example, we will present how simulation proposed MM-121, a monoclonal anti-ErbB3 antibody, as a potentially superior approach current therapies.

4:30 Oncology Target-Disease Linkage through Pathway Profiling

Lihua Yu, Principal Scientist, Cancer Bioscience, AstraZeneca PLC

One of the key challenges to the successful development of novel oncology agents is to identify disease settings most likely to see patient response. The explosion of molecular profiling data has provided us unprecedented opportunity to further our understanding of diseases at molecular level and to associate cancer pathways with disease subtypes. We will discuss several recent examples to illustrate how we use pathway-based approaches to establish oncology target-disease linkage.

5:00 Evaluation of Molecular Pathway Biomarkers of Novel Cancer Therapeutics

Sherry X. Yang, M.D., Ph.D, Chief of Nat'l Clinical Target Validation Laboratory, Division of Cancer Treatment and Diagnosis, National Cancer Institute

The talk will focus on the use of gene expression profiling approach for identification of molecular pathways in response to small molecule inhibitor of poly(ADP-ribose) polymerases in combination with chemotherapeutics, and to anti-angiogenesis agents. How the approach that was utilized for evaluation of cancer targets will be discussed and reviewed. In addition, validation and potential application of the identified pathway biomarkers will be discussed.

5:30 To be Announced

6:00 Close of Day

FRIDAY, FEBRUARY 27

WHOLE GENOME EXPRESSION PROFILING

8:30 Chairperson's Remarks

Goli Samimi, Ph.D., MPH, Cancer Prevention Fellow, Cell and Cancer Biology Branch, National Cancer Institute

8:35 Whole Genome Expression Profiling of Ovarian Cancer: Heading Toward Individualized Care

Goli Samimi, Ph.D., MPH, Cancer Prevention Fellow, Cell and Cancer Biology Branch, National Cancer Institute

Whole genome expression profiling has the potential to stratify patients by identifying previously unrecognized tumor subsets. We applied this technology to over 300 ovarian cancers activated pathways which contain new and novel therapeutic targets. Although presently, all epithelial ovarian cancers are treated essentially the same with surgery and chemotherapy, integrating these new genomic findings can point to a more tailored approach for this disease. Patients will be stratified according to prognosis, tumor grade and histology and ultimately specific pathways.

9:05 Personalized Cancer Therapy in the Light of Associative Learning: A Systematic Approach to Remove Technical and Analytical Difficulties from its Path

Zoltan Szallasi, M.D., Senior Research Scientist, Children's Hospital, Boston, USA, Professor, Danish Technical Uiniversity, Lyngby, Denmark

We will address several important issues deeply rooted in the high-throughput nature of genome scale profiling and highly relevant for the meaningful analysis of clinical microarray data: systematic bias and normal tissue contamination in clinical cancer microarray data, and the difficult task of extracting robust, convergent and clinically useful information from multiple cancer data sets. We will also provide evidence from a clinical cohort that an appropriately selected, biologically motivated robust gene expression signature can determine which of two widely used chemotherapeutic agents will be more effective for a given ovarian cancer patient.

9:35 An Approach to Understanding the Functional Consequences of Susceptibility Alleles Discovered In Genome Wide Association Scans

Matthew Freedman M.D., Assistant Professor, Harvard Medical School, Associate Physician, Dana-Farber Cancer Institute, Associate Member, Broad Institute of Harvard and MIT

A rapid cancer biomarker and pathway discovery program will be described utilizing novel ChIP-on Chip and next generation-sequencing-based ChIP-Seq promoter array technologies, in conjunction with an antibody collection to the entire family of human and mouse Transcription Factor (TF) proteins.

10:20 Coffee Break

11:00 Genome-Wide Epigenetic Profiling To Identify Oncology Biomarkers For Diagnostic and Theranostic Applications

Prof. Wim Van Criekinge, Vice President, Biomarker Research and Pharmacogenomics, OncoMethylome Sciences; and Professor, University Ghent, Belgium

A multi-faceted technological approach has been developed based on a proprietary Methylation-Specific PCR (MSP) platform to identify DNA methylation-based oncology biomarkers for early disease detection and theranostic applications. OncoMethylome utilizes epigenetic sensitization, aka pharmacological unmasking and next –generation sequencing methods together with a pathway-based real-time MSP array approach to exhaustively mine the epigenome and identify relevant biomarkers. This approach combines a sensitive and specific discovery phase with a smooth transition to analytically validated assays for clinical trial testing. Applying these approaches in high throughput mode on samples ranging from model systems like cell-line panels and xenografts to primary patient material revealed novel epigenetic insights in cancer progression, efficiently translated in biomarkers for early detection and prediction to response to therapy.11:30 Panel Discussion

12:00pm Luncheon Workshop *(Opportunity Available)* **or Lunch on your own**

PATHWAY ANALYSIS – Mapping Pathways & Identifying the Intervention Points

1:00 Chairperson's Remarks

Stephen J. Chanock, M.D., Director, Core Genotyping Facility Section Head, Translational Genomics Lab, National Cancer Institute

1:05 Genotype Wide Association Studies in Cancer

Stephen J. Chanock, M.D., Director, Core Genotyping Facility Section Head, Translational Genomics Lab, National Cancer Institute

1:35 Expression Profiles for Individual Tumors: Systems Level Modeling and Pathway Analysis

Craig Giroux, Ph.D., Director of Systems and Computational Biology, Karmanos Cancer Institute, Wayne State University

Using graphical network based methods, we demonstrate that the gene expression activity patterns of individual tumor types can be mapped to the global cellular interaction network, thus revealing the presumptive state specific pathways and determinative processes underlying clinically distinct cancer subtypes. We are applying this systems level approach to the analysis of individual breast tumors.

2:05 Roadmap Toward Personalized Medicine

Craig Webb, Ph.D., Director, Program of Translational Medicine, Van Andel Research Institute

There has been a great deal of excitement and optimism surrounding the era of individualized molecular-based medicine across therapeutic areas, including oncology. In reality, the efficient discovery and practical implementation of biomarkers for optimal therapeutic selection requires a multi-disciplinary approach that includes clinical, laboratory and informatics expertise, as well as knowledge of the major drivers and hurdles to success. This presentation will outline our current efforts to utilize molecular information derived from patient tumors in conjunction with systems biology and knowledge of biomarker-drug interaction to predict treatments with improved therapeutic index.

2:35 Cancer Pathways Analysis Through Inhibitor Profiling

Fei Hua, Ph.D., Senior Scientist, Systems Biology, Pfizer Inc.

The PI3K/AKT pathway regulates many basic cellular functions including growth, proliferation and apoptosis, and therefore it is heavily targeted as cancer therapy. To better understand this pathway and inhibitors targeting this pathway, we used different inhibitors to perturb this pathway at various points. Effects on protein levels and phosphorylation status were profiled for a single cell line. Current understanding of the pathway and the inhibitors is insufficient to explain many of the experimental observations.

3:05 Close of Conference

TUESDAY, FEBRUARY 24

PRE-CONFERENCE SHORT COURSE*

Recommended Short Course(s)*

(SC6) Best Practices in Translational Medicine, Drug Discovery, and Informatics

2:00 – 5:00pm

(See page 3 for details and a complete list of short courses)

*Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:30am Registration Open and Morning Coffee

8:45 Plenary Keynote Introduction

Edward G. Heidig, General Counsel and Deputy Secretary, Business, Transportation and Housing Agency

8:55 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

INTEGRATED R&D – DRIVING PRODUCTIVITY, INNOVATION & MANAGING RESOURCES & COSTS

11:00 Chairperson's Remarks

Kevin Davies, Ph.D., Chief Editor, Bio-IT World

11:10 Scientific Workflows as Productivity Tools for Drug Discovery

John Shon, M.D., Ph.D., Site Head, In Silico Sciences, Roche

Traditionally, most informatics investments are made to increase the efficiency of drug discovery. The introduction of do-it-yourself scientific workflow platforms enables research informatics organizations to shift their efforts towards scientific innovation. Unlike most scientific data and application integration approaches, researchers apply scientific workflows for *in silico* experimentation and exploration, leading to scientific hypotheses and discoveries. Productive scientific workflow environments enable researchers to share their scientific workflows, further increasing productivity. Examples of applications of scientific workflows in pharmaceutical research will be shown.

11:40 The Role of Informatics and Genomics to Drive Innovation in Pharma

Jakob DeVlieg, Ph.D., Global Head Molecular Design & Informatics, Molecular Design & Informatics, Schering-Plough

Bioinformatics and genomics are well-established scientific disciplines in pharmaceutical research. The availability of complete genome sequences and vast amounts of structural information on targets and target-ligand complexes have stimulated many efforts to rationalize the drug design process. It is believed that 'omics' and informatics may create many opportunities to speed up the multidisciplinary drug discovery process, and provide novel approaches to the design of drugs otherwise not possible. However, low productivity and high late stage attrition continue to challenge the pharmaceutical industry. Integrated R&D research approaches and genomics-based methods are needed to address the attrition problem and to increase productivity.

12:10pm Evolution of an Innovation Model to Support Pharma R&D

Martin D. Leach, Ph.D., Executive Director, MRL IT Basic Research & Biomarkers, Merck & Co. Inc.

There is a constant thirst for new technology for use in Pharma R&D. In a number of cases the technology is adopted before the problem it is solving is fully defined. We will describe the culture of innovation in Merck IT and the innovation process that identifies the needs and the process that fosters and transitions innovative IT technologies into the Merck Research Laboratories.

12:40 RISé – Research Informatics System at RISé

Ajay Shah, Ph.D., MBA, PMP, Director, Research Informatics, Elan Pharmaceuticals Inc.

Research Informatics System at Elan (RISé) is a de novo implementation of Research Informatics platform and data strategy which seeks to integrate experimental chem istry and biology databases, computational tools, workflow systems, and knowledge management tools using a coherent platform and database architecture. The RISé architecture also enables us to integrate data from multiple vendors and in-house sources. The .Net technology used for clients enables integration of various commercial clients with a collaborative environment.

1:10 Walk & Talk Luncheon in the Exhibit Hall

INTEGRATED R&D cont.

2:15 Chairperson's Remarks

Kevin Davies, Ph.D., Chief Editor, Bio-IT World

2:20 Resource Management Strategies Impacting Systems Integration in R&D

David M. Sedlock, Ph.D. Senior Director, R&D Systems, Millennium Pharmaceuticals The TAKEDA Oncology Company

The development of integrated data management systems creates considerable cost related to systems documentation, support and maintenance, and changes to the environment. We have developed several approaches to deal with these costs in a systematic way, including architectural network mapping, system lifecycle management, development of a non-GLP validation strategy, and service catalog creation. These approaches have allowed us to reduce system costs significantly during the past several years as we have increased our data integration network.

2:50 Democratized Serendipity: Leveraging Consumer-Oriented Technologies into Better R&D and Better Health Care Decisions

Joseph A. Cerro, President, The Schooner Group, LLC

The combination of (1) ubiquitous consumer electronic devices, (2) flexible, inexpensive manufacturing capabilities, (3) easy to use "Web 2.0" interfaces, and (4) an increasing willingness of individuals to manage aspects of their own health care creates an unprecedented opportunity to collect patient data in the field in near real time. Analyzing such data has the potential to transform the way pharmaceutical companies manage clinical development programs and may create new opportunities for theranostic development, biomarker validation, and, most importantly, individualized care management. Several such projects will be discussed in this session.

3:20 Executive Panel: Integrated R&D, How Far Have We Come?

Moderator: Susan Ward, Ph.D.,Executive Advisor, Biotechnology & Pharma

Panelists: All of the above speakers

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:00 Registration Open and Morning Coffee

7:20 Plenary Keynote Introduction and Plenary Keynote Presentation

TRANSLATIONAL RESEARCH INFORMATICS

8:25am Chairperson's Remarks

Ken Buetow, Ph.D., NCI Associate Director, Bioinformatics and Information Technology and Director, Center for Biomedical Informatics and Information Technology, National Cancer Institute

8:30 Enterprise Information Integration to Inform Biomarker Discovery and Development: Clinical Patient, Biosample and Omics Data

Brenda Yanak, Lead, Translational Medicine Informatics and IT, Merck Research Laboratories

In Spring, 2008 Merck received the 2008 Bio-IT Best Practices award in the Translational & Personalized Medicine category for creating an information pipeline bringing clinical patient data into Merck from its collaboration partner, the H. Lee Moffitt Cancer Center & Research Institute. This presentation will describe the next step in the evolution of systems at Merck which support translational informatics – providing an integration portal for querying data from many sources to inform analyses aimed at biomarker discovery.

9:00 A Nationwide Network to Enable Translational Research

Ken Buetow, Ph.D., NCI Associate Director, Bioinformatics and Information Technology and Director, Center for Biomedical Informatics and Information Technology, National Cancer Institute

caBIG® is a national network of interconnected data, individuals, and organizations, designed to share data and knowledge, simplify collaboration, and speed research to move new diagnostics and therapeutics from bench to bedside faster and more cost-effectively. Today, caBIG® tools and infrastructure are enabling biomarker discovery studies, molecularly-driven clinical trials, integration of images with genomic and clinical outcomes data, and management and analysis of data from high-throughput genomic technologies.

9:30 Translating between Pre-clinical Data and Clinical Outcomes: Successes and Challenges

Anastasia M. Khoury Christianson, Ph.D., Senior Director and Global Discipline Leader, Biomedical Informatics, AstraZeneca R&D Wilmington

10:00 How to get the Most Out of Published Findings: Improving Information Flow and Knowledge Enrichment Throughout Discovery

Sponsored by ARIADNE GENOMICS

Ilya Mazo, Ph.D., President, Ariadne

An integrative framework that organizes, analyzes and visualizes external (>3000 abstracts/day) and internal published findings can support research critical decision making and experimental designs throughout the drug development pipeline. This discussion will focus on how to use published findings to further elucidate knowledge on existing drugs, and to find potentially novel targets and their effects.

Educational Needs/Learning Objectives:

- Understand how to extract biological relationships from immense data warehouses such as PubMed
- Learn how experimental data (gene expression/proteomic) can be integrated into your knowledge-base
- Obtain answers to hypothetical questions from the combined findings
- View results in visual, interactive, pathways that are easy to analyze and interpret using experimental data

10:15 Scientific Informatics - The Integration of Information and Process to Achieve Knowledge Re-Use

Sponsored by accelrys

Frank K. Brown, Ph.D., VP & Chief Science Officer, Accelrys

10:30 Poster Competition Refreshment Break & Raffles in the Exhibit Hall

11:30 Integrated Informatics - Are We There Yet?

Sandor Szalma, Ph.D., Director, R&D Informatics, Centocor R&D Inc.

In this presentation I will discuss how Centocor has been approaching the integrated informatics challenge connecting preclinical and clinical data. I will present the methodology followed and the solution developed which is used for translational research encompassing such areas of strategic importance as biomarker discovery, personalized medicine and indication selection.

12:00pm Panel: Bridging the Divide

Moderator: Kevin Davies, Ph.D., Chief Editor, Bio-IT World

Panelists: All of the above speakers

12:30 Luncheon Presentation *(Sponsorship Opportunity Available)*

1:00 Luncheon Presentation *(Opportunity Available)*

1:30 Plenary Keynote Introduction

1:40 PLENARY KEYNOTE

Engineering Cells to Death

James A. Wells, Ph.D., Professor and Chair of Pharmaceutical Chemistry, and Professor of Cellular & Molecular Pharmacology, University of California, San Francisco

Apoptosis, or programmed cell death, represents an ultimate fate decision in cell biology. This process is critical for cellular differentiation and remodeling of tissues, and for anti-viral and anti-tumor defense. The study of apoptotic pathways has important ramifications for determining what is critical for cellular homeostasis, and for the development of potential anti-cancer therapeutics. A distinct molecular feature of apoptosis is the widespread but controlled cellular proteolysis, that is predominantly mediated by eight members of the caspase family of cysteine proteases. These enzymes are like demolition experts that cleave protein targets critical for cellular life. We have designed new enzymes, and antibodies, and small molecules to study and activate individual caspases and the proteins they cleave. For example, a robust proteomic method for global profiling of proteolysis ("degradomics") in cells has been developed. Key to this is an engineered enzyme, subtiligase, that permits selective labeling and enrichment for the protein N-termini created as a result of proteolysis. Using this approach we have already identified >300 caspase substrates from Jurkat cells that were induced to undergo apoptosis by treatment with the chemotherapeutic agent etoposide. The proteins fall into a wide range of functional classes, and reveal much about the molecular components, logic, and timed sequence of events that drive a cell from life to death. We believe these engineered enzymes and proteomic approaches will be useful for characterizing the proteolysis of apoptosis induced by various agents or in different cell types, and will be generally useful for dissecting protease signaling pathways.

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole. 3:05 Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS *(Last chance for viewing posters and exhibits)*

DATA, INFORMATION AND KNOWLEDGE MANAGEMENT

3:55 Chairperson's Remarks

4:00 Techniques for Effective Integrated Access to Large Compound-oriented Drug Discovery Databases

Michael, Lajiness, Ph.D., Research Scientist, Structural & Computation Sciences, Eli Lilly & Co

4:30 A Strategy for Internal-External Data and Information Integration

Jason M. Johnson, Ph.D., Senior Director, Molecular Informatics, Merck & Co., Inc.

The volume of data and information relevant to scientific decision-making within Merck is growing exponentially, both in the public domain and internally, far outpacing our ability to capture, integrate, and make it accessible when and to whom it is needed. This is due in part to the rapid growth of the relevant biomedical literature, the proliferation of high-throughput methods in genomics and other fields, and dynamic state of biological knowledge and vocabulary. This presentation will discuss a strategy used at Merck to capture and integrate gene-related information, and to distribute the data across the company using custom software tools that have helped increase the efficiency of basic research at Merck.

5:00 Accelerating ResearchThrough Information Exploitation

Leslie S. Sloan, Ph.D., Senior Program Manager, Chemistry Research Informatics, Pfizer, inc.

In a typical pharmaceutical research and development operation, it is difficult to measure metrics around compound design, compound progression, integrity of biological data, relevance of biological data, quality of project decisions and decision outcomes. All of these data are critical to our ability to baseline the current state of the research and development processes as a means toward improving them. Understanding how a business unit (project team) arrives at an optimal or realistic decision based on existing data will drive our ability to baseline our current state and identify opportunities to improve the outcomes. It is commonplace for project team leaders to make decisions, based on past experiences, rules of thumb, quantitative or qualitative data and information, or any combination of these. When data is involved this process is considered analytics, and there are few, if any, useful tools available to facilitate this process. Of particular interest are the tacit data, including decisions and outcomes, which are not generally captured in oracle databases or other searchable formats for future use. This presentation will highlight our efforts to accelerate the research process by providing teams with data and analytical tools to enable them to go beyond the actual availability of data, to the facilitation of data interpretation and decision making, accountability and team learning.

5:30 Integrating Public and Private Data

Reece Hart, Ph.D., Scientific Manager, Research Computing & Informatics, Genentech Inc.

6:00 Close of Day

FRIDAY, FEBRUARY 27

8:00 Registration Open and Morning Coffee

INTEGRATING GENOMIC DATA

8:30 Chairperson's Remarks

Shree Nath, Ph.D., Director, Product Technology, PointCross Inc.

8:35 The Genomic Data Pipeline: Collecting, Cleaning, Analyzing, Integrating, Sharing

Jeanette Papp, Ph.D., Associate Professor, Human Genetics, University of California, Los Angeles

In this talk I will cover the evolution of genomic data management and integration systems and outline some of our solutions in data collection and management, data merging and integration, statistical and network analysis, and data sharing.

9:05 Surviving the Data Deluge: Informatics for Next Generation Sequencing

Toby Bloom, Ph.D, Director of Informatics, Genome Sequencing Platform, The Broad Institute

9:35 Integrating Public Genomics Data into Pharmaceutical R&D

Hans-Martin Will, Ph.D., Senior Director, Genomics R&D, Rosetta Biosoftware

Over the past few years, more and more comprehensive genomics data sets have been generated by academic and publicly-funded consortia and made accessible-notable examples are the Framingham Heart Study and the data released by the Wellcome Trust Case Control Consortium. This abundance of data is creating a new reality for pharmaceutical R&D, whereby a large number of data sets relevant to internal R&D projects are generated from publicly-funded, academic and governmental organizations. With this insight, many organizations are in the process of devising strategies for making best use of these data, and implementing approaches for effectively bringing the data sets in-house and integrating them into the context of their on-going scientific research efforts. In this talk, we will discuss the various types of challenges pharmaceutical R&D organizations are facing when bringing in public data sets. Starting with mundane data formatting problems, unknown data quality and varying taxonomies, we will conclude our discussion with a brief survey of approaches and opportunities for mining these data.

10:05 Search Strategies for Correlating Combined Public and Internal Large-Scale Studies

Sponsored by NEXTBIO

Ilya Kupershmidt, Cofounder and VP Products, NextBio

10:20 Coffee Break

11:00 Platform for the FDA Genetic Data Submission and Review Process

Weida Tong, Ph.D., Director, Center for Toxicoinformatics, National Center for Toxicological Research, U.S. Food and Drug Administration

Rapidly developing technologies for genetic analysis are driving the emergence of the new research fields of personalized medicine and targeted therapeutics. In order to guide effective development and regulation of pharmacogenomics and medical devices resulting from this research, the expertise, tools, and processes for utilizing genetic data are needed in the FDA. To this end, the FDA's Critical Path Initiative created the Voluntary eXploratory Data Submission (VXDS) mechanism to provide a collaborative environment in which the research community, sponsors and the FDA can work together on data management, analysis and interpretation outside normal regulatory interactions. With the increasing number of submissions based on genetic data, a parallel informatics platform has been conceived. This talk will introduce this new initiative, SNPTrack, being undertaken by the NCTR/FDA in collaboration with Rosetta Biosoftware, for development of FDA regulatory capability for analyzing VXDS and formal submissions of genotyping data. The goal is a system which enables FDA reviewers to reconstruct sponsor analysis of genetic variation data, explore alternative analysis methodologies and respond to the sponsor with the agency's understanding and recommendations. It is envisioned that the outcome of this initiative will drive adoption of industry best practices and standards for formal data submissions.

11:30 Unifying Disparate Information Contextually to Orchestrate R&D Processes

Shree Nath, Ph.D., Director, Product Technology, PointCross Inc.

Pharmaceuticals and Biotech R&D processes involve high levels of tacit interactions around knowledge and insights on the basis of which high risk/high reward decisions have to be made. There are no mechanisms to readily contextualize the large information base of in vitro and in situ study data, and even larger quantities of "-omics" datasets from biotechnology research, along with rich metadata from collaboration, analysis, reporting, and submissions. This talk will cover the need to contextually unify, classify, and relate disparate unstructured (emails, meeting notes, decisions, and documents) and structured information (from trial data, LIMS, and data warehouses). Information contextualization allows scientists to readily conduct meta-analysis; and enables search, orienteering and semantically guided navigation for hidden nuggets of insights within layers of metadata that in turn can lead to new discoveries and concepts well beyond the limits of simple structured data mining. Contexts become meaningful representations of every aspect of R&D, regulatory compliance and collaboration, while providing essential controls to assure information security and IP protection. We will present a practical ontology-based platform on which these capabilities are being delivered not only to sponsor companies, but also extended to multi-party R&D partner and CRO environments.

12:00pm Luncheon Workshop *(Opportunity Available)* or Lunch on your own

DATA INTEGRATION AND MANAGEMENT FOR EARLY AND LATE CHEMISTRY

1:00 Chairperson's Remarks

Shree Nath, Ph.D., Director, Product Technology, PointCross Inc.

1:05 Lilly's Transition from Paper to Electronic Lab Notebooks

Jeffrey D. Christoffersen, Product R&D, Eli Lilly & Co.

Lilly began evaluating electronic lab notebooks in 2003. By 2005, the Process Chemistry group had fully implemented a paper-less system. The planned deployment of a single electronic lab notebook solution across the entire company will be described, as well as various challenges related to quality and legal concerns and end-user uptake. The benefits to Lilly derived from a shift from paper to electronic lab notebooks will be shared, in addition to our recent efforts to transition our third party partners to electronic lab notebooks.

1:35 Knowledge-Based Expert Systems, (Quantitative) Structure Activity Relationship Tools and Modeling Approaches in Preclinical Safety Studies

Wolfgang Muster, PhD, Head of In silico and In vitro Screens, F. Hoffmann-La Roche Ltd.

This presentation will illustrate how computation tools, deployed in the early drug development process, can help predicting toxicity and thereby optimize and select the best clinical candidates to move forward. A focus will be on *in silico* prediction methods roughly classified into so-called "expert systems" and "data driven systems."

2:05 Compound Cytotoxicity Profiling and Characterization of Toxicity Mechanisms Using Quantitative High-Throughput Screening

Ruili Huang, Ph.D., Research Scientist, Informatics, NIH Chemical Genomics Center

A large library of compounds previously tested in traditional toxicological assays were profiled for cytotoxicity using quantitative high-throughput screening (qHTS). Combining data generated from these assays we designed a broader array of in vitro cell-based assays in order to screen large sets of compounds. Such assays should also elucidate mechanism of toxicity, prioritize compounds for further toxicological evaluation and predict in vivo biological response. As a proof of principle, we applied an unsupervised clustering method to this data set to identify mechanisms of action and evaluated the performance of this method by comparing the results against literature annotations of compound mechanisms.

2:35 Integration of Chemical Genomics and Structural Biology Informatics: Novel Insights into the Kinase Gene Family?

Stephan Schürer, Ph.D., Department of Pharmacology, Miller School of Medicine & Center for Computational Science, University of Miami

We developed integrated data analysis pipelines to quantify similarity relationships among the protein kinase complement of the human genome (the "kinome") from different perspectives: domain sequences, small molecule kinase activity data, and structure-based physicochemical properties of the ATP binding sites. While we gain insight into differences and synergies of chemogenomics- and structural biology-informatics based approaches to identify and utilize gene-family-wide similarity relationships we also investigate the differences of active and inactive kinase conformations in the same context. Integrating large chemical genomics data sets and high-quality experimental and modeled structures covering almost the entire Kinome we developed discovery pipelines allowing receptor-site information and small molecule activity data from entire target families to be used in the rational design of compounds with desirable selectivity profiles.

3:05 Close of Conference

TUESDAY, FEBRUARY 24

PRE-CONFERENCE SHORT COURSES*

(SC4) CIRCULATING TUMOR CELLS AND CANCER STEM CELLS
2:00 – 5:00pm

(SC9) NOVEL APPROACHES TO CANCER BIOMARKERS
9:00 – 5:00

(See page 3 for details and a complete list of short courses) *Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:15am Registration Open and Morning Coffee

8:45 Plenary Keynote Introduction
Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 PLENARY KEYNOTE

Therapy Development in a Networked World

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

A new paradigm for translational research will be described that combines the integrative and collaborative power of the Internet with personalized molecular analysis to slash the time and cost of therapy development. A key element is the creation of Health Commons, an open web-based ecosystem of researchers, clinicians, patients, pharma/biotechs, and service/technology providers that can be rapidly mobilized to develop targeted therapies for disease subclasses. This ecosystem will stimulate the same radical increase in efficiency for therapy development that ecommerce brought to business in the 1990s, ushering in a new age of collaborative, personalized medicine where every patient can afford custom therapies and discovery is driven by collectively interpreting the outcomes across all patients.

9:40 Grand Opening Refreshment Break in the Exhibit Hall

KEYNOTE PRESENTATIONS

11:00 Chairperson's Remarks

11:10 A Single Cell Based Understanding of Cancer Multiclonality Using Network Architectures Predicts Mechanism, Therapy, and Clinical Outcomes
Garry P. Nolan, Ph.D., Director, Stanford NHLBI Proteomics Center, Microbiology & Immunology, Stanford University

11:40 Applying Broad Pathway Analysis and Deep Pathway Analysis to Biology and Medicine
Roger Brent, Ph.D., President and Research Director, Molecular Sciences Institute

12:10pm A Systems Approach to Breast Cancer Treatment
Joe W. Gray, Ph.D., Director, Life Sciences Division, Lawrence Berkeley National Laboratory

12:40 Function and Relevance of microRNAs in Cancer Biology: microRNA Mimic/Inhibitors and Expression Profiling
Sponsored by Thermo SCIENTIFIC
Queta Smith, Ph.D., Associate Director, Technical Communications, Thermo Scientific Genomics

1:10 Walk & Talk Luncheon in the Exhibit Hall

INTEGRATING NEXT GEN TECHNOLOGIES FOR RISK ASSESSMENT

2:15 Chairperson's Remarks

2:20 Genomic Analysis of Cancer with Next Generation DNA Sequencing Technologies
Robert L. Strausberg, Ph.D., Deputy Director, J. Craig Venter Institute

2:50 Multi-Dimensional Pathways in Cancer
Michael Liebman, Ph.D., Managing Director, Strategic Medicine, Inc

3:20 Target Selection from DNA Copy Number and Expression Analyses of Breast and Ovarian Tumors
Zemin Zhang, Ph.D., Acting Director, Department of Bioinformatics, Genentech, Inc.
Genomic alterations are commonly observed in cancers but it remains a challenge to distinguish driver from passenger genes. We studied the genomic landscape of breast and ovarian cancers using high-resolution 500K SNP arrays and defined minimal regions with statistical significance based on the prevalence of level of copy number alterations. Coupled with expression analyses, the refined regions with amplification led to much increased precision in cancer target identification.

3:50 DNA Copy Number Variation and Cancer Susceptibility: Modifying the Two-Hit Hypothesis
David Malkin, M.D., Co-Director of the Cancer Genetics Program, University of Toronto's Hospital for Sick Children

4:20 Reception in the Exhibit Hall

5:00 Breakout Discussions in the Exhibit Hall

6:00 Close of Day

THURSDAY, FEBRUARY 26

7:00am Registration Open and Morning Coffee

7:20 Plenary Keynote Introduction

7:30 PLENARY KEYNOTE

DEVELOPMENT OF DIAGNOSTICS FOR STANDARD OF CARE

8:25am Chairperson's Remarks
David S. Lester, Ph.D., Senior Vice President, Strategy & Corporate Development, Gene Express, Inc.

8:30 KEYNOTE PRESENTATION

Bringing the Promise of Genomics to Clinical Practice: Development and Commercialization of the Oncotype DX Breast Cancer Assay
Steve Shak, M.D., Chief Medical Officer, Genomic Health Inc.

9:00 The BCR-ABL qRT-PCR Assay: Status of a Molecular Diagnostic that is a Current Standard of Care
J. Milburn Jessup, M.D., Chief, Diagnostics Evaluation Branch, Cancer Diagnosis Program, DCTD, National Cancer Institute

9:30 Moving Biomarkers into Applications
Raymond L. Woosley, M.D., Ph.D., President & Chief Executive Officer, Critical Path Institute

10:00 Sponsored Presentations *(Opportunity Available)*

10:30 Poster Competition Refreshment Break & Raffles in the Exhibit Hall

11:30 Quantitative Imaging as a Biomarker of Drug Response in Lung Cancer
James L. Mulshine, M.D., Professor, Associate Provost for Research and Vice President, Director, Rush Translational Sciences Consortium, Internal Medicine, Rush University Medical Center, Chicago

12:00pm Personalized Medicine – Towards an Integrated Approach to Health Care
J.W. (Hans) Hofstraat, Ph.D., Vice President Philips Research, Healthcare Strategic Partnerships

12:30 Luncheon Presentation *(Opportunity Available)* **or Lunch on your own**

1:30 Plenary Keynotes

1:40 PLENARY KEYNOTE

Engineering Cells to Death

James A. Wells, Ph.D., Professor and Chair of Pharmaceutical Chemistry, and Professor of Cellular & Molecular Pharmacology, University of California, San Francisco
Apoptosis, or programmed cell death, represents an ultimate fate decision in cell biology. This process is critical for cellular differentiation and remodeling of tissues, and for anti-viral and anti-tumor defense. The study of apoptotic pathways has important ramifications for determining what is critical for cellular homeostasis, and for the development of potential anti-cancer therapeutics. A distinct molecular feature of apoptosis is the widespread but controlled cellular proteolysis, that is predominantly mediated by eight members of the caspase family of cysteine proteases. These enzymes are like demolition experts that cleave protein targets critical for cellular life. We have designed new enzymes, and antibodies, and small molecules to study and activate individual caspases and the proteins they cleave. For example, a robust proteomic method for global profiling of proteolysis ("degradomics") in cells has been developed. Key to this is an engineered enzyme, subtiligase, that permits selective labeling and enrichment for the protein N-termini created as a result of proteolysis. Using this approach we have already identified >300 caspase substrates from Jurkat cells that were induced to undergo apoptosis by treatment with the chemotherapeutic agent etoposide. The proteins fall into a wide range of functional classes, and reveal much about the molecular components, logic, and timed sequence of events that drive a cell from life to death. We believe these engineered enzymes and proteomic approaches will be useful for characterizing the proteolysis of apoptosis induced by various agents or in different cell types, and will be generally useful for dissecting protease signaling pathways.

2:25 PLENARY KEYNOTE

The Brave New World of Personalized Medicine: The Experimental Man Project, One Man Takes the Ultimate High-Tech Exam

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"
This focus of this presentation will be on "Creative Disruptions", and will demonstrate the walking scientific response to the question: "Can they really do that?" The most important and controversial topics of today's scientific research will be discussed, from stem cells and synthetic biology, to rising drug prices and reforming the FDA. Recently, there has been attention on science's most significant story: a species' potential to self-evolve. As the founder of the independent BioAgenda Institute for Life Science Studies and, more recently, as the founder of the new Center for Life Science Policy at UC Berkeley, the passion for what comes next after new technologies appear will be explored – what happens in business, politics, science, philosophy, the media, the arts, and to society as a whole.

3:05 Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS *(Last Chance for Viewing Exhibits & Posters)*

EVALUATING TARGETS FOR CANCER

3:55 **Chairperson's Remarks**

4:00 **Systems Optimization of ErbB-Targeted Therapeutics: Development of an Anti-ErbB3 Monoclonal Antibody**

Ulrik B. Nielsen, Ph.D., Vice President, Research, Merrimack Pharmaceuticals

4:30 **Oncology Target-Disease Linkage through Pathway Profiling**

Lihua Yu, Ph.D., Principal Scientist, Cancer Bioscience, AstraZeneca PLC

5:00 **Evaluation of Molecular Pathway Biomarkers of Novel Cancer Therapeutics**

Sherry X. Yang, M.D., Ph.D, Chief of Nat'l Clinical Target Validation Laboratory, Division of Cancer Treatment and Diagnosis, National Cancer Institute

5:30 **TBA**

6:00 **Close of Day**

FRIDAY, FEBRUARY 27

WHOLE GENOME EXPRESSION PROFILING

8:30 **Chairperson's Remarks**

Michael Birrer, M.D., Ph.D., Deputy Branch Chief & Cell & Cancer Biology Head, Center for Cancer Research, National Cancer Institute

8:35 **Whole Genome Expression Profiling of Ovarian Cancer: Heading Toward Individualized Care**

Goli Samimi, Ph.D., MPH, Cancer Prevention Fellow, Cell and Cancer Biology Branch, National Cancer Institute

9:05 **Personalized Cancer Therapy in the Light of Associative Learning: A Systematic Approach to Remove Technical and Analytical Difficulties from its Path**

Zoltan Szallasi, M.D., Senior Research Scientist, Children's Hospital, Boston, USA, Professor, Danish Technical University, Lyngby, Denmark

9:35 **Approach to Understanding the Functional Consequences of Susceptibility Alleles Discovered In Genome Wide Association Scans**

Matthew Freedman M.D., Assistant Professor, Harvard Medical School, Associate Physician, Dana-Farber Cancer Institute, Associate Member, Broad Institute of Harvard and MIT

Genome wide association studies have delivered on the promise of finding risk variants for a large number of clinical traits. Interestingly, the majority of variants discovered to date are located in non-protein coding regions of the genome presenting a considerable challenge to understanding the mechanism by which risk is increased. The talk will outline a multi-disciplinary approach to tackling this question.

10:05 **Rapid Cancer Pathway and Biomarker Discovery Using ChIP-Seq and ChIP-DSL Technologies to Map Cancer Transcriptional Networks**

Sponsored by

Jeffrey Falk, Ph.D., Director Technology & Business Applications, Aviva Systems Biology

10:20 **Coffee Break**

11:00 **Genome-Wide Epigenetic Profiling To Identify Oncology Biomarkers For Diagnostic and Theranostic Applications**

Prof. Wim Van Criekinge, Vice President, Biomarker Research and Pharmacogenomics, OncoMethylome Sciences; and Professor, University Ghent, Belgium

A multi-faceted technological approach has been developed based on a proprietary Methylation-Specific PCR (MSP) platform to identify DNA methylation-based oncology biomarkers for early disease detection and theranostic applications. OncoMethylome utilizes epigenetic sensitization, aka pharmacological unmasking and next –generation sequencing methods together with a pathway-based real-time MSP array approach to exhaustively mine the epigenome and identify relevant biomarkers. This approach combines a sensitive and specific discovery phase with a smooth transition to analytically validated assays for clinical trial testing. Applying these approaches in high throughput mode on samples ranging from model systems like cell-line panels and xenografts to primary patient material revealed novel epigenetic insights in cancer progression, efficiently translated in biomarkers for early detection and prediction to response to therapy.

11:30 **Panel Discussion**

12:00pm **Luncheon Presentation** *(Opportunity Available)*
or Lunch on your own

PATHWAY ANALYSIS – MAPPING PATHWAYS & IDENTIFYING THE INTERVENTION POINTS

1:00 **Chairperson's Remarks**

Stephen J. Chanock, M.D., Director, Core Genotyping Facility Section Head, Translational Genomics Lab, National Cancer Institute

1:05 **Genotype Wide Association Studies in Cancer**

Stephen J. Chanock, M.D., Director, Core Genotyping Facility Section Head, Translational Genomics Lab, National Cancer Institute

1:35 **Expression Profiles for Individual Tumors: Systems Level Modeling and Pathway Analysis**

Craig Giroux, Ph.D., Director of Systems and Computational Biology, Karmanos Cancer Institute, Wayne State University

2:05 **Roadmap Toward Personalized Medicine**

Craig Webb, Ph.D., Director, Program of Translational Medicine, Van Andel Research Institute

2:35 **Cancer Pathways Analysis Through Inhibitor Profiling**

Fei Hua, Ph.D., Senior Scientist, Systems Biology, Pfizer Inc.

3:05 **Close of Conference**

***Speaker abstracts available on-line at www.Tri-Conference.com**

Inaugural Companion Diagnostics

Track 11

TUESDAY, FEBRUARY 24

PRE-CONFERENCE SHORT COURSE*

Recommended Short Course(s)*

(SC3) REALITY CHECK ON COMPANION DIAGNOSTICS

9:00am – 12:00pm

(See page 3 for details and a complete list of short courses)

*Separate Registration Required

WEDNESDAY, FEBRUARY 25

7:15am **Registration Open**

8:45 **Plenary Keynote Introduction**

Kathryn Lowell, Deputy Secretary, Life Sciences, California Business Transportation & Housing Agency

8:55 **PLENARY KEYNOTE**

Using Molecular Medicine to do Therapeutic Development in the Network Age

Jay M. Tenenbaum, Ph.D., Chairman and Chief Scientist, CollabRx, Inc.

9:40 **Grand Opening Refreshment Break in the Exhibit Hall**

KEYNOTE SESSION

11:00 **Chairperson's Remarks**

Paul Billings, M.D., Ph.D., President and Chief Executive Officer, CELLective Dx Corporation

11:10 *William J. Rutter, Ph.D., Chairman, Synergenics LLC*

11:40 **Genes for Common Disease: But What Next?**

John A. Todd, Ph.D., University Chair, Medical Genetics, University of Cambridge

12:10pm **MDx--From Revolution to Mainstream to Personalized Medicine**

Daniel H. Farkas, Ph.D., HCLD, Executive Director, Center for Molecular Medicine

12:40 **Sponsored Presentation** *(Opportunity Available)*

1:10 **Walk & Talk Luncheon in the Exhibit Hall**

SUCCESS STORIES OF NOVEL TEST ADOPTION

2:15 **Chairperson's Remarks**

Daniel H. Farkas, Ph.D., HCLD, Executive Director, Center for Molecular Medicine

2:20 **Molecular Diagnostic Tests That Affect Diagnosis and Therapy in Myeloid Leukemias**

Adam Bagg, M.D., Director, Hematology, Department of Pathology and Laboratory Medicine, University of Pennsylvania

2:50 **Molecular Chimerism Analysis in Hematopoietic Cell Transplantation**

Christopher Watt, M.D., Ph.D., Molecular Pathology Fellow, Department of Pathology and Laboratory Medicine, Hospital of the University of Pennsylvania

3:20 **Reimbursement Considerations and Strategies**

Jeffrey A. Kant, M.D., Ph.D., Director, Molecular Diagnostics, Department of Pathology, University of Pittsburgh

3:50 **Molecular Diagnostic Tests to Detect, Characterize and Monitor Viral Agents of Infection and Disease**

Daniel Amsterdam, M.D., School of Medicine and Biomedical Sciences, University of Buffalo

4:20 **Reception in the Exhibit Hall**

5:00 **Breakout Discussions in the Exhibit Hall**

Overcoming Integration Hurdles for Rapid Testing

Moderator: Katherine Tynan, Consultant

Value-Based Pricing for Molecular Diagnostics

Moderator: Michael Stocum, MS, Managing Director, Personalized Medicine Partners, LLC

Preventive Genomic Medicine

Moderator: Vance Vanier, M.D., Chief Medical Officer, Navigenics and Partner, Mohr Davidow Ventures

Biomarker Partnerships in Companion Diagnostics

Moderator: Brian T. Edmonds, Ph.D., Principal Investigator, Integrative Biology/ Global External Research & Development, Lilly Corporate Center

Advanced Screening Protocols for Early Detection of Lung Cancer

Moderator: Paul Billings, M.D., Ph.D., President and Chief Executive Officer, CELLective Dx Corporation

Future of Point-of-Care Testing

Moderator: Shuqi Chen, Ph.D., President, CEO, and Chairman of the Board, IQuum

6:00 **Close of Day**

SPEAKER ABSTRACTS AVAILABLE ONLINE AT WWW.TRI-CONFERENCE.COM

THURSDAY, FEBRUARY 26

7:00am **Registration Open and Morning Coffee**

7:20 **Plenary Keynote Introduction**

7:30 **PLENARY KEYNOTE**

Michael J. Yaszemski, Ph.D., M.D., Brigadier General, United States Air Force, and Professor, Orthopaedic Surgery and Biomedical Engineering, Mayo Clinic College of Medicine

DEVELOPMENT OF DIAGNOSTICS FOR STANDARD OF CARE

8:25am **Chairperson's Remarks**

David S. Lester, Ph.D., Senior Vice President, Strategy & Corporate Development, Gene Express, Inc.

8:30 **KEYNOTE PRESENTATION**

Bringing the Promise of Genomics to Clinical Practice: Development and Commercialization of the Oncotype DX Breast Cancer Assay

Steve Shak, M.D., Chief Medical Officer, Genomic Health Inc.

9:00 **The BCR-ABL qRT-PCR Assay: Status of a Molecular Diagnostic that is a Current Standard of Care**

J. Milburn Jessup, M.D., Chief, Diagnostics Evaluation Branch, Cancer Diagnosis Program, DCTD, National Cancer Institute

9:30 **Moving Biomarkers into Applications**

Elizabeth Gribble Walker, Ph.D., Assistant Director, Toxicology, Predictive Safety Testing Consortium, Critical Path Institute

10:00 **Pathwork® Tissue of Origin Test: Identify Tumors with Uncertain Origins Using FFPE Specimens** *Sponsored by* Pathwork Diagnostics

Raji Pillai, Ph.D., Director, Clinical Programs, Pathwork Diagnostics

10:30 **Poster Competition Refreshment Break & Raffles in the Exhibit Hall**

11:30 **Quantitative Imaging as a Biomarker of Drug Response in Lung Cancer**

James L. Mulshine, M.D., Professor, Associate Provost for Research and Vice President, Director, Rush Translational Sciences Consortium, Internal Medicine, Rush University Medical Center, Chicago

12:00pm **Personalized Medicine – Towards an Integrated Approach to Health Care**

J.W. (Hans) Hofstraat, Ph.D., Vice President Philips Research, Healthcare Strategic Partnerships

12:30 **Luncheon Presentation** *(Opportunity Available)* **or Lunch on your own**

1:30 **Plenary Keynote Introduction**

1:40 **PLENARY KEYNOTE**

Engineering Cells to Death

James A. Wells, Ph.D., Professor and Chair of Pharmaceutical Chemistry, and Professor or Cellular & Molecular Pharmacology, University of California, San Francisco

2:25 **PLENARY KEYNOTE**

Brave New Age of Personalized Medicine

David Ewing Duncan, Chief Correspondent, NPR Talk's "Biotech Nation" and Best Selling Author "Masterminds"

3:05 **Ice Cream Refreshment Break in the Exhibit Hall with BEST NEW PRODUCT AWARDS**

(Last Chance for Viewing Exhibits & Posters)

NEXT WAVE OF ASSAYS FOR PERSONALIZED MEDICINE: Implementing Novel Technologies

3:55 **Chairperson's Remarks**

4:00 **New Generation Predictive Multiplexed Gene Expression Diagnostics: Case Studies in Non-Hodgkin's Lymphoma**

Bruce Seligmann, Ph.D., Founder, Board Member and Chief Science Officer, R&D, High Throughput Genomics

4:25 **A Simple Colorimetric "Dipstick" Test for Molecular Diagnosis of a Broad Range Of Molecules Based on Functional DNA Nanotechnology**

Yi Lu, Ph.D., Professor, Chemistry, University of Illinois at Urbana-Champaign

4:50 **Improving Early Disease Detection with Single Molecule Counting Technology**

John Todd, Ph.D., Vice President, R&D, Singulex, Inc.

5:15 **Comprehensive Highly Multiplexed Single-Tube Liquid Bead Microarray Assay for Constitutively Activated Tyrosine Kinases enables personalized therapy in Chronic Myeloproliferative Disorders**

German Pihan, M.D., Director, Hematopathology, Pathology, Beth Israel Deaconess Medical Center

5:40 **Integration of Clinical and Pan-Omic Findings to Predict Course of Disease**

Marti Jett, Ph.D., Chief, Department of Molecular Pathology, Walter Reed Army Institute of Research

6:05 **Close of Day**

FRIDAY, FEBRUARY 27

CASE STUDIES: REAL DATA ON IMPLEMENTATION OF COMPANION DIAGNOSTICS

8:30am Chairperson's Remarks

Moderator: Linda McAllister, M.D., Ph.D., Vice President, Diagnostics, Arbor Vita Corp.

8:35 Developing Models for Companion Diagnostics

Peter Alperin, M.D., Medical Director, Archimedes, Inc.

9:05 Assessing the Efficacy of Antiplatelet Therapy via Point-of-Care Testing.

Brian T. Edmonds, Ph.D., Principal Investigator, Integrative Biology/ Global External Research & Development, Lilly Corporate Center

9:35 From Drug Target to Patient Selection: Opportunities and Challenges of Developing Companion Diagnostic Test in Clinical Drug Development

Lin Wu, Ph.D., Research Leader, Pharmacogenetics, Roche Molecular Systems Inc

10:05 Technology Spotlight *(Opportunity Available)*

10:20 Coffee Break

11:00 Companion Diagnostics: Personalized Medicine in the Pharmaceutical Industry

Andrea H. Lauber, Ph.D., Strategic Transactions Group, Bristol-Myers Squibb Company

11:30 Does Your Indication Have the Right DNA for a Stratified Medicine Approach?

Mark Trusheim, Visiting Scholar, Sloan School of Management, MIT

12:00pm Luncheon Workshop *(Opportunity Available)* **or Lunch on your own**

INCORPORATING COMPANION DIAGNOSTICS INTO DRUG DEVELOPMENT

1:00 Chairperson's Remarks

Jan Trøst Jørgensen, M. Sc. Pharm., Ph.D., Director, Clinical Research, CMC Contrast AB and Henrik Winther, DVM, Ph.D., Research Director, Dako Denmark A/S

1:05 From Blockbuster Medicine to Personalized Medicine

Jan Trøst Jørgensen, M. Sc. Pharm., Ph.D., Director, Clinical Research, CMC Contrast AB

1:35 Ensuring the Safety and Utility of Companion Diagnostic Tests

Alberto Gutierrez, Ph.D., Deputy Director of OIVD, Office of In Vitro Diagnostic Device Evaluation and Safety, Food & Drug Administration

2:05 Integrating Companion Diagnostic Development into Drug Programs - A Pharma Viewpoint

Duncan McHale, M.D., Medical Director, Personalized Healthcare, AstraZeneca

2:35 Clinical Validation of Companion Diagnostics in Breast Cancer

Christos Hatzis, Ph.D., Founder & Vice President, Nuvera Biosciences

3:05 Close of Conference

SPEAKER ABSTRACTS AVAILABLE ONLINE AT WWW.TRI-CONFERENCE.COM

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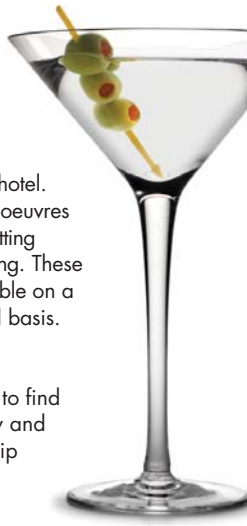

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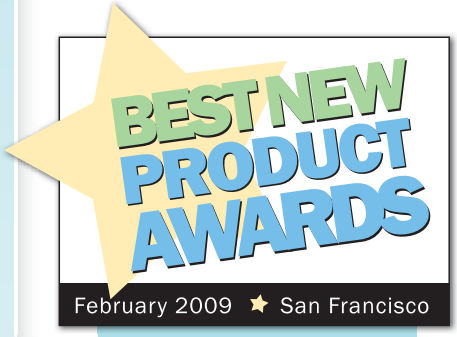

Best New Product Awards

The Best New Product Award honors company's new products at the 2009 Molecular Medicine Tri-Conference. Attendees are invited to vote on products in one of five categories and winners are announced at a ceremony hosted on the expo floor. Look for the Best New Product logo designating this year's contenders, grab a ballot, and then come and see if your favorite product takes the prize.

Molecular Medicine
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Shaping Future Medicine

Conference Dates: February 25-27, 2009
Exhibit Dates: February 25-26, 2009

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2. PRICING INFORMATION:

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❒ $695 • Commercial
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Choose 2 Short Courses:
❒ $995 • Commercial
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MORNING SHORT COURSES:
❒ SC1 Development of Monoclonal Antibodies from Discovery to the Clinic – Part 1
❒ SC3 Companion Diagnostics
❒ SC5 Fragment Inspired Medicinal Chemistry
❒ SC8 Assessing Mitochondrial Function In Drug Discovery And Safety

AFTERNOON SHORT COURSES:
❒ SC2 Development of Monoclonal Antibodies from Discovery to the Clinic – Part 2
❒ SC4 Circulating Tumor Cells and Cancer Stem Cells
❒ SC6 Best Practices in Translational Medicine, Drug Discovery, and Informatics
❒ SC10 Collaborating to Accelerate the Adoption of Novel Technologies in the Preclinical R&D Process

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TRACK SELECTION: (REQUIRED)
CHOOSE ONE: Please indicate the ONE track you are most likely to attend.

❒ Track 1: Molecular Diagnostics
❒ Track 2: Mastering Medicinal Chemistry
❒ Track 3: Stem Cells Congress
❒ Track 4: Executive Summit on Strategy and Innovation *Qualified Attendance*
❒ Track 5: Preclinical Drug Safety
❒ Track 6: Preclinical Development of Biologics
❒ Track 7: Translational Medicine
❒ Track 8: Cancer Profiling & Pathways
❒ Track 9: Adopting Integrated R&D Informatics Systems
❒ Track 10: Cancer Molecular Markers
❒ Track 11: Companion Diagnostics

DISCOUNTS*

❒ Poster ($50 off) ❒ Alumni (25% off) ❒ BayBio (25% off)

* See page 3 for Alumni details • Alumni and Bay Bio Discount cannot be combined Discounts not applicable on Pre-Conference Events, (Conference registrations only)

❒ Yes, I want to take advantage of the hotel incentive offer* at $75 off
❒ Grand Hyatt San Francisco Hotel ❒ Intercontinental San Francisco Hotel My confirmation number is _____
* Must be under the Molecular Medicine Tri-Conference room block for a minimum of three nights.

Multi-pack Discount: Purchase presentation materials for the entire event for only $750.
CD Includes presentation material from all eleven tracks, poster abstracts and more.
❒ I cannot attend but would like to purchase the event CD for $750 (plus shipping) (Massachusetts delivery will include 5% sales tax).

3. PAYMENT INFORMATION:

❒ Enclosed is a check or money order payable to Cambridge Healthtech Institute, drawn on a U.S. bank, in U.S. currency.
❒ Invoice me, but reserve my space with credit card information listed below.
Invoices unpaid two weeks prior to conference will be billed to credit card at full registration rate. Invoices must be paid in full and checks received by the deadline date to retain registration discount. If you plan to register on site, please check with CHI beforehand for space availability.
❒ Please charge: ❒ AMEX (15 digits) ❒ Visa (13-16 digits) ❒ MasterCard (16 digits)

Card # Exp. Date

Cardholder

Signature

Cardholder's Address (if different from above)

City/State/Postal Code

Country

4. FAX OR MAIL REGISTRATION TO:

Cambridge Healthtech Institute, 250 First Avenue, Suite 300, Needham, MA 02494
Phone: 781-972-5400 or Toll-free in the U.S. 888-999-6288 • Fax: 781-972-5425 • Tri-Conference.com

Please refer to the Registration Code below:

PRESENT A POSTER AND SAVE $50

Cambridge Healthtech Institute encourages attendees to gain further exposure by presenting their work in the poster sessions. To secure a poster board and inclusion in the conference CD, your abstract must be submitted, accepted and registration paid in full by **January 23, 2009**. Register online to use the Poster Abstract Submission form or, if you register by phone, fax, or mail, you will receive Poster Abstract Submission guidelines via email. I am interested in presenting a poster at:

❒ **Molecular Medicine Tri-Conference**
and will submit a completed one-page abstract by **January 23, 2009**.
(Please Note: Registration must be paid in full to present a poster.)

Title _____

Yes! I would like to receive a FREE subscription to:

❒ Weekly Update — *The latest industry news, commentary and highlights from Bio•IT World*
❒ Predictive Biomedicine — *Informatics tools and strategies driving decisions*
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CHI'S INSIGHT PHARMA REPORTS

A series of reports that evaluate the salient trends in pharmaceutical technology, business, and therapy markets. Keep abreast of the latest advances in pharmaceutical R&D, their potential applications and business impacts, and their current and future position in the marketplace. For a list of reports, visit InsightPharmaReports.com, or contact Rose LaRaia, rlaraia@healthtech.com, 781-972-5444

ADDITIONAL REGISTRATION DETAILS

Each registration includes all conference sessions, posters and exhibits, food functions, and a copy of the conference CD.

GROUP DISCOUNTS

Special rates are available for multiple attendees from the same organization. Contact David Cunningham at 781-972-5472 to discuss your options and take advantage of the savings.

HANDICAPPED EQUAL ACCESS

In accordance with the ADA, Cambridge Healthtech Institute is pleased to arrange special accommodations for attendees with special needs. All requests for such assistance must be submitted in writing to CHI at least 30 days prior to the start of the meeting.

SUBSTITUTION/CANCELLATION POLICY

In the event that you need to cancel a registration, you may:
- Transfer your registration to a colleague within your organization
- Credit your registration to another Cambridge Healthtech Institute program
- Request a refund minus a $100 processing fee per conference
- Request a refund minus the cost ($750) of ordering a copy of the CD

NOTE: Cancellations will only be accepted up to two weeks prior to the conference.

Program and speakers are subject to change.

Video and or audio recording of any kind is prohibited onsite at all CHI events.