June 7 - 9, 2011
Sheraton Philadelphia City Center
Philadelphia, PA

Register by April 29 and
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Drug Discovery Summit
Advancing Pre-Clinical Knowledge and Translating to Clinical Applications

SCIENTIFIC PROGRAMS

Targeting Pain with Novel Therapeutics

In Vivo Molecular Imaging

Successful Targeting of Alzheimer’s Disease

Targeting Parkinson’s Disease

KEYNOTE SPEAKERS

Ceri H. Davies, Ph.D.
Vice President, External Alliance & Development, GlaxoSmithKline

Jeffrey Evelhoch, Ph.D.
Vice President, Exploratory & Translational Sciences; Head, Imaging, Merck Research Laboratories

Juri G. Gelovani, M.D., Ph.D.
President, Academy of Molecular Imaging; Professor and Chairman, Experimental Diagnostic Imaging; Director, Center for Advanced Biomedical Imaging Research, University of Texas MD Anderson Cancer Center

Frank Porreca, Ph.D.
Professor of Pharmacology and Anesthesiology, University of Arizona

David Weiner, M.D.
Vice President, Head, Early Clinical Development & Neurology Global Clinical Development Unit; U.S. Site Head, Medical Science and Innovation, EMD Serono, Inc.

Garth Whiteside, Ph.D.
Director, Discovery, Purdue Pharma

RECOMMENDED SHORT COURSES

Monday, June 6
- Animals Models of Pain: Progress and Challenges

Wednesday, June 8
- Molecular Imaging in Drug Discovery and Development: Back to Basics

Cambridge Healthtech Institute’s
WPC
10th Annual World Pharma Congress

Promising Assays and Technologies for Better Pre-Clinical Predictions

Organized by Cambridge Healthtech Institute
250 First Avenue Suite 300 Needham, MA 02494 781.972.5400 healthtech.com

WorldPharmaCongress.com
CHI’s World Pharma Congress 2011 encompasses a broad spectrum of topics that are very important and relevant to scientists in academia as well as those in the pharmaceutical and biotechnology industry. Building on last year’s focus on the pre-clinical aspects of drug discovery and development, the congress has now expanded the coverage of each of its three summits by adding two new conferences to the program. The conferences all offer informative and pragmatic viewpoints for tackling issues relevant to chemists, biologists, pharmacologists, toxicologists and clinicians alike. Each conference features presentations, interactive panels and technology talks that cover the very latest on the topic, both on the scientific and the technical side. The World Pharma Congress continues to offer attendees and exhibitors ample opportunity to network, brain-storm and collaborate on various fronts.

**WORLD PHARMA CONGRESS CONFERENCE-AT-A-GLANCE**

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*Separate registration required, please see page 3 for details.

**SPONSORSHIP AND EXHIBITOR INFORMATION**

CHI offers comprehensive sponsorship packages which include presentation opportunities, exhibit space, branding, as well as the use of the pre and post show delegate list.

Sponsorships allow you to achieve your objectives before, during, and long after the event. Any sponsorship can be customized to meet with your company’s needs and budget.

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Invite session attendees to enjoy breakfast or lunch on your company’s behalf while you give your talk. Includes a 30-minute presentation and concludes with a 15-minute Q&A session.

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Sponsor will select invitees from the conference pre-registration list for an evening of networking at the hotel or a top local venue. CHI will extend invitations, conduct follow-up and monitor responses. Reminder cards will be placed in the badges of those delegates who will be attending.

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- Badge Lanyards Sponsor (exclusive)
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- Hotel Room Drop
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- Refreshment Break
- Tote Bag Sponsor
- Tote Bag Insert
- Program & Exhibit Guide Sponsor (exclusive)

**Exhibits**

Exhibitors at the World Pharmaceutical Congress will enjoy facilitated networking opportunities with over 500 high-level decision-makers. Speak face to face with prospective clients and showcase your latest product, service or solution.

**For information, contact:**

Suzanne Carroll  
Manager, Business Development  
781-972-5452  
scarroll@healthtech.com
WPC Short Courses*

MONDAY, JUNE 6 (9 AM - 12 PM)

ANIMAL MODELS OF PAIN: PROGRESS AND CHALLENGES
Due to frustration with translational progress, animal models of pain are currently being reconsidered. This course will cover:
- Implementation of classical models of acute, tonic and chronic pain
- Limitations of these classical models
- Refinement of classical models via a consideration of modulatory factors (sex, genetics, testing environment, social modulation)
- Development of new animal models (e.g., operant methods, spontaneous behaviors)
Course Instructor:
Jeffrey S. Mogil, Ph.D., E. P. Taylor Professor of Pain Studies, McGill University

USE OF STEM CELLS FOR SAFETY SCREENING
The course provides new insights into the use of embryonic and pluripotent stem cells for drug safety testing, especially cardiac safety.
- Differentiation of human stem cells into cardiac myocytes
- Comparison of electrophysiology and pharmacology
- Overcoming technical challenges related to working with stem cells
- Methodologies to maintain and use stem cells for predictive safety testing
Course Instructor:
Emile Nkwanyisir, VP and COO, Cellular Dynamic Intl.

ADVANCED TOPICS IN DRUG METABOLISM
The purpose of this course is to cover advanced topics related to drug metabolism with a focus on newer developments in the field.
- In vitro tools to study drug metabolism
- New biotransformation pathways including some that lead to reactive metabolites
- Evidence linking reactive metabolites and idiosyncratic drug toxicity
- In silico tools to predict metabolism
Course Instructor:
John C. Erve, Ph.D., Investigator III, Analytical Sciences, Novartis Institutes for Biomedical Research

MONDAY, JUNE 6 (2 PM - 5 PM)

TRANSLATING SAFETY BIOMARKERS FROM THE LAB TO THE CLINIC
The course offers a unique and practical perspective for successfully translating the pre-clinical work done for testing and validating safety biomarkers to the clinic.
- Design and implementation of studies to identify new biomarkers
- Designing clinical studies to test and validate biomarkers
- Clinical methodologies for cost-effective and reliable decision-making
- Bridging the gap between pre-clinical and clinical findings
- Practical considerations when using biomarkers in the clinic
Points to consider for a successful transfer from the lab to the clinic
Course Instructors:
William B. Mattes, Ph.D., DABT, Independent Consultant, PharmPoint Consulting

ADDRESSING SAFETY CONCERNS FOR BIOLOGICAL DRUGS
The course offers guidance from experts in the field on what is being used and looked at for early safety assessments for biological molecules, and how these early predictions are then being applied for clinical testing.
- Overview of challenges pertaining to the safety of biologics
- Tools, markers and assays for early safety predictions
- Assessing immunogenicity and off-target effects
- Regulatory guidelines and their interpretations
- Criteria for determining what needs to be tested and when
Course Instructors:
Lisa M. Plitnick, Ph.D., Senior Investigator, Safety Assessment, Merck & Co., Inc.
Noël Dybdal, Ph.D., D.VM., Associate Director, Principal Scientist, Safety Assessment, Genentech, Inc.
Vivek Kadambi, Ph.D., Senior Director, Drug Safety Evaluation, Millennium, The Takeda Oncology Company
Lauren E. Black, Ph.D., Senior Scientific Advisor, Navigators, Charles River Laboratories

WEDNESDAY, JUNE 8 (6 PM - 9 PM)

MOLECULAR IMAGING IN DRUG DISCOVERY AND DEVELOPMENT: BACK TO BASICSSponsored by Carestream Molecular Imaging
This course will provide knowledge needed to choose the appropriate imaging modality for a pre-clinical study and the basic requirements for generation of imaging agents for optical, MR, and nuclear imaging. It will consist of two parts:
- Strengths and limitations of imaging modalities
- Imaging agent design and synthesis
Chairperson: Dr. Matthew Leevy, Carestream Molecular Imaging
Course instructors:
Thomas Krucker, Ph.D., Head, Molecular Imaging, Global Imaging Group, Novartis Institutes for Biomedical Research, Inc.
Hisatake Kobayashi, M.D., Ph.D., Chief Scientist, Molecular Imaging Program, NCI/NIH
Vania Kenanova, Ph.D., Head, Pre-clinical PET/SPECT/CT Imaging Laboratory, Novartis Institutes for Biomedical Research, Inc.

MECHANISTIC INSIGHTS INTO HEPATOTOXICITY
The course is designed for both pre-clinical and clinical scientists looking to better understand the mechanisms underlying drug-induced liver injury or DILI, to help in the development of early predictive technologies for hepatotoxicity including mechanism-based assays. It provides an overview of cellular pathways involved in:
- Mitochondrial dysfunction and oxidative stress
- Inflammation
- Excessive generation of reactive metabolites
- Inhibition of bile salt efflux protein and involvement of hepatic transporters in drug-induced hepatotoxicity
Course Instructors:
Dylan P. Hartley, Ph.D., Senior Scientist, Investigative Toxicology, Genentech, Inc.
José E. Manautou, Ph.D., Associate Professor of Toxicology, Department of Pharmaceutical Sciences, University of Connecticut
Robert A. Roth, Ph.D., DABT, Professor, Pharmacology and Toxicology, Director, Graduate Program in Environmental and Integrative Toxicological Sciences, Michigan State University
Yvonne Will, Ph.D., Associate Research Fellow, Compound Safety Prediction, Pfizer Global R&D

*Sponsor Registration Required
8:05 am Registration and Morning Coffee

8:15 Chairperson’s Opening Remarks

8:55 KEYNOTE PRESENTATION
Frank Porreca, Ph.D., Professor of Pharmacology and Anesthesiology, University of Arizona

10:25 Animal Models of Pain: Back Translating from Veterinary and Human Clinical Pain States
Edward Bilsky, Ph.D., Professor, Pharmacology & Director, Center of Excellence in the Neurosciences, University of New England

10:55 ED_{50}s, Responder Rates and Number Needed to Treat: Can Animal Studies and Clinical Trials Speak the Same Language?
Jim Pomonis, Ph.D., Director, Technical Development, Algos Preclinical Services

11:25 PANEL DISCUSSION: Animal Models of Pain
Panelists to include:
Edward Bilsky, Ph.D., Professor, Pharmacology & Director, Center of Excellence in the Neurosciences, University of New England
Jeffrey D. Kennedy, Ph.D., Senior Research Fellow, Neuroscience Discovery Research, Eli Lilly and Company
Jeffrey S. Mogil, Ph.D., E.P. Taylor Professor, Pain Studies, McGill University
Jim Pomonis, Ph.D., Director, Technical Development, Algos Preclinical Services
Garth Whiteside, Ph.D., Director, Discovery, Purdue Pharma

11:55 Luncheon Presentations (Sponsorship Opportunities Available) or Lunch on Your Own

12:30 Chairperson’s Remarks
Mark R. Bowlby, Ph.D., Neurophysiology & Pain Lead, Merck Research Labs

12:45 Panel Discussion: The Promise of Biologic Drugs for the Treatment of Pain
Iain Chessel, Ph.D., Head, Neuroscience Centre of Excellence, MedImmune

4:35 The Promise of Biologic Drugs for the Treatment of Pain
Iain Chessel, Ph.D., Head, Neuroscience Centre of Excellence, MedImmune

5:05 Roles for Innate Alarmins, Cytokines and Chemokines in Neuropathic Pain
Fletcher White, Ph.D., V.K. Stoelting Professor, Anesthesia, Indiana University School of Medicine

5:35 Happy Hour in the Exhibit Hall

6:30 End of Day
WEDNESDAY, JUNE 8

7:30 am Continental Breakfast Breakout Discussions
Breakout Discussion Topics:
- Animal Models
- Biologics for Pain
- Peripherally Restricted Therapeutics

THE ENDOCANNABINOID SYSTEM & PERIPHERALLY RESTRICTED TARGETS

8:30 Chairperson’s Remarks
Tim Young, Ph.D., Associate Research Fellow, Pfizer

8:40 Discovery and Clinical Development of PF-04457845, an Irreversible Inhibitor of Fatty Acid Amide Hydrolase
Tim Young, Ph.D., Associate Research Fellow, Pfizer
FAAH is a serine hydrolase that degrades the fatty acid amide family of signaling lipids, including the endocannabinoid anandamide. Genetic or pharmacological inactivation of FAAH leads to analgesic and anti-inflammatory phenotypes in rodents, indicating that FAAH may represent an attractive therapeutic target for the treatment of inflammatory pain. This talk will describe the discovery of the FAAH inhibitor PF-04457845, and the clinical characterization in healthy volunteers and in patients with pain associated with osteoarthritis.

9:10 Peripheral CB1/CB2 Agonist for the Treatment of Pain and Inflammation
Robert Spencer, Ph.D., Senior Director, Pre-Clinical Development, Cara Therapeutics
Cannabinoid (CB) agonists have analgesic and anti-inflammatory properties, but produce undesirable side-effects which restrict their clinical use. We have developed a novel series of CB agonists that have minimal CNS penetration with a substantially improved pharmacological profile over other CB ligands developed to date. These molecules are soluble, “druggable”, do not elicit CNS side-effects and are efficacious in rodent models of inflammatory and neuropathic pain. A representative of these novel peripherally-acting CB agonists will be presented.

9:40 Targeting Low Brain Penetrant CB1 Receptor Agonists for the Treatment of Chronic Neuropathic Pain
Paul Ratcliffe, Ph.D., Director, Global Drug Discovery & Head, Medicinal Chemistry 1, Grünenthal

10:10 Networking Coffee Break in the Exhibit Hall

TARGETING ION CHANNELS

10:50 Sodium Channels as Therapeutic Targets in Pain: Many Isomers, Many Actions, Many Opportunities
Stephen G. Waxman, M.D., Ph.D., Bridget Marie Flaherty Professor of Neurology, Neurobiology and Pharmacology, Yale University School of Medicine
Sodium channels have emerged over the past decade as major players in electrogensis within pain-signaling pathways, and it is clear that they contribute in important ways to nociceptive, neuropathic, and inflammatory pain. This lecture will review the contributions of specific sodium channel isoforms to pain signaling, and will discuss the attributes of these sodium channel isoforms that make them attractive therapeutic targets, or that raise cautionary notes.

11:20 Design and Pre-Clinical Development of Novel T-Type and N-Type Calcium Channel Blockers for Pain Intervention
Terrance P. Snutch, Ph.D., FCAHS, FRSC, Vice President & CSO, Zalicus, Inc.
Distinct types of voltage-gated calcium channels play crucial roles in nociceptive signaling and represent strong candidates as pain therapeutic targets. High voltage-activated N-type channels mediate nociceptive neurotransmission via primary afferents that terminate in the dorsal horn of the spinal cord. Low voltage-activated T-type channels affect pain signaling by regulating neuronal firing thresholds and bursting behaviors. The presentation will discuss pre-clinical efforts to rationally design and develop high affinity and state-dependent small organic N-type and T-type blockers for pain intervention.

11:50 The Discovery of a Novel Series of Tetrahydroisoquinolines as Potent TRPM8 Antagonists
Nuria A. Tamayo, Ph.D., Principal Scientist, Small Molecule Drug Discovery, Amgen, Inc.
The transient receptor potential channel, melastatin type 8 (TRPM8) is a nonselective cation channel expressed in a subset of sensory neurons and their peripheral terminals. TRPM8 is activated by voltage, mild cold, and exogenous ligands such as menthol and icilin. Mouse knockout studies suggest that TRPM8 may play an important role in certain types of cold-induced pain. Here we will discuss our investigations that led to the identification of potent, selective, and orally bioavailable TRPM8 antagonists.

12:20 pm End of Conference

Maximize your experience on-site at World Pharma Congress 2011!

CHI’s INTRONET Networking at its Best

The Intro-Net offers you the opportunity to set up meetings with selected attendees before, during and after this conference, allowing you to connect to the key people you want to meet. This online system was designed with your privacy in mind and is available only to registered session attendees of this event. Registered conference attendees will receive more information on accessing the Intro-Net in the weeks leading up to the event!
Molecular Liver Targeting for Treatment of metabolism, proliferation, and/or platform biomarkers of disease, e.g., endpoints to assessment of functional changes, e.g., blood flow, modulation. Imaging has evolved from the measurement of structural demonstrate target organ uptake, target binding and pharmacologic Multi-modality, platform, imaging approaches are more widely used to Inc. BioImaging Center, Worldwide Research and Development, Pfizer, Thomas Bocan, Ph.D., Senior Director & Head, Pre-Clinical Discovery and Development Proof-of-Concept in Pharma- and Bio-Therapeutic Drug delivery of Interferon alpha to the liver is significantly enhanced by fusion imaging of radiolabelled bispecific fusion proteins shows that In-vivo Stephen Mather, Ph.D., Professor, Centre for Molecular Oncology, be discussed. Technologies in the field of molecular imaging are evolving rapidly and are readily accessible. The challenge remains to choose and combine imaging modalities, biological, and chemical tools to timely and successfully address the critical questions in early and late drug discovery. Concepts and applications of ways molecular imaging can be used in a unique fashion to accelerate drug discovery and support drug development will be discussed.

2:30 Successfully Integrating Molecular Imaging into Drug Discovery and Development Thomas Krucker, Ph.D., Head, Molecular Imaging, Global Imaging Group, Novartis Institutes for Biomedical Research, Inc. Technologies in the field of molecular imaging are evolving rapidly and are readily accessible. The challenge remains to choose and combine imaging modalities, biological, and chemical tools to timely and successfully address the critical questions in early and late drug discovery. Concepts and applications of ways molecular imaging can be used in a unique fashion to accelerate drug discovery and support drug development will be discussed.

3:00 3:30 NanoSPECT/CT Imaging of Bispecific Molecular Liver Targeting for Treatment of Hepatitis C Stephen Mather, Ph.D., Professor, Centre for Molecular Oncology, Barts Cancer Institute In-vivo imaging of radiolabelled bispecific fusion proteins shows that delivery of Interferon alpha to the liver is significantly enhanced by fusion to a high affinity asialoglycoprotein targeting human domain antibody.

3:30 Networking Refreshment Break in the Exhibit Hall

4:30 The Expanding Role of Imaging for Assessment of Proof-of-Concept in Pharma- and Bio-Therapeutic Drug Discovery and Development Thomas Bocan, Ph.D., Senior Director & Head, Pre-Clinical Biomaging Center, Worldwide Research and Development, Pfizer, Inc. Multi-modality, platform, imaging approaches are more widely used to demonstrate target organ uptake, target binding and pharmacologic modulation. Imaging has evolved from the measurement of structural endpoints to assessment of functional changes, e.g., blood flow, metabolism, proliferation, and/or platform biomarkers of disease, e.g., islet cell/AD marker. With broadening of the pharmacologic tools into novel biologic agents, imaging applications for assessment of proteins, antibodies and antibody fragments, siRNA and stem cells are evolving. Platform imaging tools applied both pre-clinically and clinically have the potential to aid reduce compound attrition.

5:00 Multiplexed Molecular Imaging; Rational Design of the Next Generation of Informative Molecular Imaging Probes Hisataka Kobayashi, M.D., Ph.D., Chief Scientist, Molecular Imaging Program, NCI/NIH Current generation of molecular probes are monochromatic (yielding only one signal per molecule) and always on. Therefore, images are constructed with linear and single parametric data, creating difficulties in achieving adequate target to background ratios. The ability to generate polychromatic and activatable imaging probes will be the next major challenge in optimizing molecular imaging probes. In this talk, designing strategies for new-generation molecular imaging probes will be discussed from two different aspects; wavelength (physics) and physical scale (biology and chemistry).

5:30 End of Day

THURSDAY, JUNE 9

7:20 am Continental Breakfast Breakout Discussions

Topic: In vivo Molecular Imaging in Cancer Drug Development
Moderator: Juri G. Gelovani, M.D., Ph.D., President, Academy of Molecular Imaging; Professor and Chairman, Experimental Diagnostic Imaging; Director, Center for Advanced Biomedical Imaging Research, University of Texas MD Anderson Cancer Center
- What type of in vivo molecular imaging agents and approaches are useful for pre-clinical and clinical phases in cancer drug development?
- How should the development drug and molecular imaging agent or approaches be coordinated?
- What impedes the utilization of molecular imaging agents and approaches in early phase clinical studies of novel cancer drugs?

Topic: Internal vs Outsourced Preclinical In Vivo Molecular Imaging
Moderator: Thomas Bocan, Ph.D., Senior Director & Head, Pre-Clinical Bioimaging Center, Worldwide Research and Development, Pfizer, Inc.
- The scope and need for preclinical imaging outsourcing vendors.
- Barriers and impediments for establishing a preclinical imaging outsourcing service, e.g., cost, qualified technical staff, infrastructure and regulatory issues.
- Design of a preclinical imaging outsource vendor. What types of hardware and infrastructure are needed to meet the needs of Pharma and BioTech?
- Advantages and disadvantages of internal and outsourced preclinical imaging.

Topic: Challenges in collaboration and teamwork between imaging specialists and research scientists
Moderator: Scott Malstrom, Ph.D., Head, Applied Therapeutics & Whole Animal Imaging Core Facility, Koch Institute for Integrative Cancer Research, MIT
In Vivo Molecular Imaging in Drug Discovery and Development

8:20 Chairperson’s Opening Remarks
Peter Conti, M.D., Ph.D., Professor of Radiology, Biomedical Engineering and Pharmacy, University of Southern California

8:30 KEYNOTE PRESENTATION: Molecular Imaging for Selection and Monitoring of Therapies in Oncology
Juri G. Gelovani, M.D., Ph.D., President, Academy of Molecular Imaging; Professor and Chairman, Experimental Diagnostic Imaging; Director, Center for Advanced Biomedical Imaging Research, University of Texas MD Anderson Cancer Center

Non-invasive molecular imaging of drug target expression-activity in tumors and normal tissues can aid the selection of patients who would most likely benefit from an experimental therapy and provide important information about the pharmacokinetics and pharmacodynamics of the drug. Novel clinical trial scenarios can be tested in pre-clinical studies using appropriate tumor models in experimental animals. Even a small improvement in clinical translation of novel drugs (e.g., 10–15%) should lead to a doubling of the number of compounds that will make it to market.

9:00 Molecular Imaging in Clinical Trials: Advancing Drug Development
Peter Conti, M.D., Ph.D., Professor of Radiology, Biomedical Engineering and Pharmacy, University of Southern California

Molecular imaging - the visualization, characterization, and measurement of biological processes in humans and other living systems - has the capacity to greatly assist in the development of new therapeutic agents. Properly applied in early clinical testing, the imaging data can assist in making a go/no go decision. Utilized in late clinical development, molecular imaging can serve as a surrogate endpoint, substituting for a clinical endpoint. Effectively employed, molecular imaging can speed and streamline the development of therapeutics, thereby saving pharmaceutical and biotech companies millions of dollars and significant time.

9:30 Translational Imaging: Applications in Oncology Drug Development
Patrick Chow, Ph.D., Principal Scientist, Research & Development Clinical Biomarkers – Imaging, Bristol-Myers Squibb

Translational efforts can contribute significantly to biological understanding of a drug’s activity in early phase clinical trials. BMS-690514, a small molecule TKI of EGFR, HER2/4 and VEGFR, was studied pre-clinically using FDG-PET to guide the sequence selection in a Phase II trial exploring combination therapy with paclitaxel. BMS-T54807, a small molecule TKI of IGF-1R and IR, was studied pre-clinically using both FDG-PET and FLT-PET which provided valuable guidance to implement these molecular probes in a Phase I trial.

10:00 Networking Coffee Break in the Exhibit Hall

10:45 Novel PET Tracers as Translational Tools in Drug Discovery and Development
Dennis McCarthy, Ph.D., Director, Early Development, AstraZeneca R&D

Drug development is a time-consuming and costly endeavor. We now benefit from the discovery of new PET tracers that can be used to streamline this process. The development of PET tracers requires a multidisciplinary approach combining the expertise of many fields. I will describe the discovery of new PET tracers and how, as translational tools, they can be used to expand our understanding of receptor biology and disease.

11:15 PANEL DISCUSSION
Translating Molecular Imaging from Pre-Clinical to Clinical Stages of Drug Development: Success Rate, Constraints, and Ways to Improve Efficiency
Moderator: Dennis McCarthy, Ph.D., AstraZeneca R&D

11:45 Luncheon Presentations (Sponsorship Opportunities Available) or Lunch on Your Own

MOLECULAR IMAGING UTILIZATION IN VARIOUS THERAPEUTIC AREAS

1:15 pm Chairperson’s Remarks
Paul D. Acton, Ph.D., Team Leader, Molecular Imaging, Johnson & Johnson Pharmaceutical Research and Development

1:25 Role of Molecular Imaging in Large Molecule and Biologic Drug Development
Paul D. Acton, Ph.D., Team Leader, Molecular Imaging, Johnson & Johnson Pharmaceutical Research and Development

Large molecule biologic drugs, such as antibodies, antibody fragments, proteins and peptides, have had a profound impact on many disorders, including cancer, anemia and chronic inflammatory diseases. Molecular imaging plays an important role in the development of novel biologic drugs, including measuring biodistribution and pharmacokinetics, target engagement, and therapeutic efficacy. The challenges of labeling and imaging large molecules will be discussed, with particular reference to fluorescence and radioisotope (PET and SPECT) imaging. Applications in oncology, metabolic disorders, and immunology will be described.

1:55 Pre-Clinical Biomarkers for Translational Neuroscience: Examples from Drug Discovery
Donna L. Maier, Ph.D., Associate Director, Biology, BrainCells, Inc.

In CNS Drug Development, understanding the biological actions of small molecules at a target receptor in the human brain is critical. Pre-clinical data to support safe dosing in humans is essential. Receptor occupancy and molecular imaging technologies provide us with powerful in vivo pre-clinical tools early in the drug discovery process. With these tools, we can investigate brain penetration, localize target engagement to relevant circuitry, confirm receptor binding, test pharmacological selectivity at the target receptor and support compound differentiation and progression.

2:25 Ice Cream Refreshment Break in the Exhibit Hall

3:05 Use of Functional, Structural and Molecular Imaging as Translational Tools to Assess Joint Disease: Efficacy of a Potent FMS-Kinase Inhibitor in a Rat Model of Rheumatoid Arthritis
Lawrence de Garavilla, M.S., Ph.D., Research Fellow, Immunopharmacology, Johnson & Johnson

Pre-clinical in vivo imaging provides powerful and translatable tools to assess the efficacy of novel agents aimed at treating chronic autoimmune-mediated inflammatory diseases such as rheumatoid arthritis. The application of structural, functional and molecular imaging in complex animal models of arthritis can provide pre-clinical and clinical drug discovery and development scientists the confidence to make decisions in the early drug development process. In this case report we demonstrate using imaging the powerful therapeutic effects of a novel FMS-kinase inhibitor in a rodent model of arthritis.

3:35 Characterization of a Water Soluble Z DEVD Aminoluciferin Probe for the Non-Invasive Bioluminescent Imaging of Apoptosis in vivo
Jonathan A. Hickson, Ph.D., Senior Scientist II, Pharmacology, Cancer Research, Global Pharmaceutical R & D, Abbott Laboratories
Apoptosis, or programmed cell death, is essential for homeostasis of multicellular organisms. Dysregulation of apoptosis contributes to the development and progression of a variety of diseases including cancer, neurodegenerative disorders, and chronic heart failure. Quantitative non-invasive imaging of apoptosis in pre-clinical models would allow for dynamic longitudinal screening of candidate apoptosis-restoring or -inducing agents. Here we report in vivo characterization of VivoGlo Caspase-3/7, a bioluminescent probe that provides a sensitive and rapid method for detection of apoptosis and drug efficacy.

4:05 Integration of Molecular Imaging with Basic Research in the Diagnosis, Monitoring and Treatment of Cancer
Scott Malstrom, Ph.D., Head, Applied Therapeutics & Whole Animal Imaging Core Facility, Koch Institute for Integrative Cancer Research, MIT

In vitro and in silico studies at the Koch Institute for Integrative Cancer Research have led to some very exciting hypotheses concerning signaling pathways involved in tumorigenesis and their implications in the diagnosis, monitoring and treatment of cancer. In a collaborative setting with pharmaceutical colleagues, we are using multiple modalities of molecular imaging to test these hypotheses in pre-clinical efficacy studies.

4:35 End of Conference

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 materials, your abstract must be submitted, approved and your registration paid in full by April 22, 2011.

HOTEL & TRAVEL INFORMATION
Conference Hotel:
Sheraton Philadelphia City Center
17th and Race Streets
Philadelphia, PA 19103
www.Sheraton.com
Phone: 215-448-2000

Discounted Room Rate: $159 s/d
Discounted Cut-off Date: May 9, 2011

Please visit our website (worldpharmacongress.com) or call the hotel directly to reserve your sleeping accommodations. Identify yourself as a Cambridge Healthtech Institute conference attendee to receive the discounted room 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.

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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Car Rental Discounts:
Special discount rentals have been established with Hertz for this conference.
• Call Hertz directly at 800-654-3131 and reference Discount Number 04KL0002
Alzheimer's disease (AD) is strongly influenced by inheritance and genetic susceptibility. The four known AD genes, APP, PSEN1, PSEN2, and APOE, account for less than 50% of the genetic variance of AD. We and others have carried out genome-wide association studies to identify novel AD genes. The top results and gene candidates emerging from these studies will be summarized focusing on implications for therapeutic strategies aimed at treating and preventing AD.

8:55 Anti-Abeta Immunotherapy for the Treatment of Alzheimer’s Disease

Gene Kinney, Ph.D., Vice President, Head of Research, Janssen Alzheimer Immunotherapy modifying approaches.

9:25 New Criteria for AD

Bruno Dubois, Ph.D., Director, Institut de la Mémoire et de la Maladie d’Alzheimer (iMMA), Director, INSERM Group (ICM), Hôpital La Salpêtrière, France

9:55 Networking Coffee Break

HUMAN GENETICS

10:25 What can recent Genetic Findings Teach us About Novel Therapeutics for Alzheimer’s Disease?

Rudolph E. Tanzi, Ph.D., Joseph P. and Rose F. Kennedy, Professor of Neurology, Harvard Medical School; Director, Genetics and Aging Research Unit, Mass General Institute for Neurodegenerative Disease

10:55 A TOMM-40 Variable Length Polyt Repeat Polymorphism, Inherited through Evolution, Determines the Age of Onset Distribution of Late-Onset Alzheimer’s Disease

Allen D. Roses, M.D., Director, Deane Drug Discovery Institute, Duke University

We sequenced the linkage disequilibrium region containing TOMM-40 and APOE in multiple AD patients and controls, and analyzed the region with phylogenetic mapping technologies. We found a variable polyT polymorphism [rs10524523, aka “523”] inherited on each allele, with multiple polymorphisms inherited over evolutionary time.

11:25 Genome-Wide Association Analyses of Alzheimer’s Disease in Cohorts: Will it Change AD Prevention and Treatment?

Sudha Seshadri, M.D., Associate Professor of Neurology, Co-Director of Medical Education for the Residency Program, Boston University School of Medicine, Senior Investigator, The Framingham Study

Genome wide association analyses have, in the past two years, identified novel genes besides APOE that alter the risk of late-onset AD. These include CLU, PICALM, CR1 and B1N1. These genes strengthen evidence for involvement of inflammation, lipids and clathrin-mediated endocytosis but also point to novel pathways that merit further study. It is likely the expanded understanding of biology will lead to new drugs and pharmacogenomic targeting of prevention and treatment in AD over the next decade.

11:55 Luncheon Presentations (Sponsorship Opportunities Available) or Lunch on Your Own

IMAGING & BIOMARKERS

1:30 pm Chairperson’s Remarks

Corinne E. Augelli-Szatran, Ph.D., Director, Experimental Alzheimer Drugs (LEAD), Center for Neurologic Diseases, Brigham and Women’s Hospital, Department of Neurology Harvard Medical School

1:35 The Impact of the ADNI on Drug Discovery & Development

William Z. Potter, M.D., Ph.D., Foundation for NIH Biomarkers Consortium

The FDA, academia and industry are near alignment around a path for developing treatments for pre-symptomatic AD, an alignment that has been made possible through the implementation of the Alzheimer’s Disease Neuroimaging Initiative (ADNI). ADNI was based on solid findings from the field that there were alterations in brain structure and function in individuals diagnoses with AD.

2:05 Early Detection of Alzheimer’s Disease: Are CSF Biomarkers Ready for the Challenge?

Leslie Shaw, Ph.D., Director, Toxicology Laboratory, Biomarker Research Laboratory, Pathology & Laboratory Medicine, University of Pennsylvania Medical Center

2:35 Neuroimaging Predictors of Cognitive Change: Findings from the Baltimore Longitudinal Study of Aging

Susan M. Resnick, Ph.D., Senior Investigator, Cognition Section, Laboratory of Personality and Cognition, NIA/NIH

3:05 Novel Tissue and CSF Biomarkers Targeting Causal Pathways and Network Dynamics in Neurodegenerative Disease

Mahalakshmi "Shubha" Shankaran, Ph.D., Director, Neurobiology, Kinemed, Inc.

Biomarkers of causal pathways in neurodegenerative diseases are needed for developing successful therapeutics. Using stable isotope labeling and mass spectrometry, we have developed tissue biomarkers for key neuronal pathways. Our translational CSF biomarkers measure neuronal transport of specific cargo proteins and dynamic changes in the proteome of neurodegenerative disease patients.

3:35 Grand Opening Refreshment Break in the Exhibit Hall

4:35 ASL Perfusion MRI as a Biomarker of Disease Progression and Therapeutic Response in AD

John A. Detre, M.D., Professor, Neurology and Radiology, Director, Center for Functional Neuroimaging, University of Pennsylvania

Arterial spin labeled (ASL) perfusion MRI allows cerebral blood flow (CBF) to be quantified noninvasively and relatively inexpensively using instrumentation that is widely available. A growing body of evidence suggests that cerebral blood changes correlate with neural dysfunction in Alzheimer’s disease, and can be used to predict and monitor disease progression. Changes in regional CBF also appear to reflect pharmacological actions, providing a biomarker of drug target, dose effects, and possibly a predictor of treatment response. Because ASL perfusion MRI quantifies a biological parameter, it is theoretically...
5:05 A Novel Blood Based Biomarker Assay for Alzheimer’s Disease
Muralidhar Reddy Moola, Ph.D., Associate Professor, Department of Chemistry, The Scripps Research Institute
A novel unbiased approach to identifying disease-related antibodies, using combinatorial organic chemistry, involves the production of peptoid microarrays. We believe that the peptoids mimic some aspect of the shape of the (unknown) native antigen(s) recognized by the AD-specific antibodies, and thus serve as relatively high affinity capture agents. Validation of these peptoid biomarkers using a larger sample of AD patients can lead to a useful biomarker for the disease, and the particular peptoids may represent novel small molecule drugs for the treatment of the disease.

5:35 Happy Hour in the Exhibit Hall
6:30 End of Day One

WEDNESDAY, JUNE 8

7:30 am Continental Breakfast Breakout Discussions

ANIMAL MODELS

8:30 Chairperson’s Remarks
Corinne E. Augelli-Szafran, Ph.D., Director, Experimental Alzheimer Drugs (LEAD), Center for Neurologic Diseases, Brigham and Women’s Hospital; Department of Neurology Harvard Medical School

8:40 A Canine Model for Evaluating Gamma Secretase Modulators and Inhibitors
Herman Borghys, Ph.D., Neuroscience, Janssen Pharmaceutica, a division of Johnson & Johnson Pharmaceutical R&D
A model in dogs will be presented in which the effect of gamma secretase inhibitors and gamma secretase modulators on different Abeta isoforms (Abeta 37, 38, 40 and 42) will be shown. In this model, a pharmacokinetic follow up and limited safety evaluation is also possible. Data of two GSIs and two GSMs will be presented.

9:10 Aging Dogs as a Pre-Clinical Model to Test Therapeutics or Preventative Approaches for Alzheimer’s Disease
Elizabeth Head, M.A., Ph.D., Associate Professor, Molecular and Biomedical Pharmacology, Sanders-Brown Center on Aging, University of Kentucky
Aging dogs naturally develop learning and memory decline but also exhibit human-like individual variability in the aging process. The neurobiological basis for cognitive dysfunction may be related to the progressive accumulation of beta-amyloid (Ab), mitochondrial dysfunction and/or cumulative oxidative damage as observed in human brain. Anti-Ab therapies, statins, environmental modulation and dietary interventions have been tested with results that are predictive of human clinical trial outcomes. Thus, aged dogs may complement and provide unique information regarding the potential of an intervention to be clinically efficacious.

9:40 Aged Nonhuman Primate Models of Alzheimer-like Proteopathy
Larry C. Walker, Ph.D., Research Professor, Yerkes Center, Neurology, Emory University
Naturally occurring models of age-related changes in brain and behavior offer important advantages for testing diagnostic and therapeutic approaches to Alzheimer’s disease. Nonhuman primates express human-type sequence Aβ, and with age they develop abundant senile (Aβ) plaques and cerebral β-amyloid angiopathy (CAA). To test the hypothesis that the encephalitic side effects of human Aβ immunization therapy are related to the presence of cerebrovascular amyloidosis, we are studying active Aβ-immunization in the squirrel monkey model of CAA. These studies demonstrate that nonhuman primates can be practical models for testing both the efficacy and safety of new therapeutic approaches. In addition, we are investigating the binding characteristics of the Aβ-imaging agent Pittsburgh compound B (PiB) in several primate species. Our discovery that PiB binds poorly to multimeric Aβ from nonhuman primates compared to patients with Alzheimer’s disease suggests strain-like architectural variation in Aβ aggregates, and supports the view that a comparative analysis of aggregated Aβ in human and nonhuman primates could yield clues to the uniquely human predisposition to Alzheimer’s disease.

10:10 Networking Coffee Break in the Exhibit Hall

TARGETS

10:50 Synaptic Zinc as a Pharmacological Target in Alzheimer’s Disease
Ashley I. Bush, M.D., Ph.D., Director, Oxidation Biology Lab., Mental Health Research Institute, Victoria; Professor of Pathology, University of Melbourne; Lecturer in Psychiatry, Harvard Medical School, MGH; Adjunct Professor of Neuroscience, Cornell University Medical Center
Zinc and copper are released into the glutamatergic synaptic cleft where they both modulate memory substrates, and mediate amyloid pathology. Several ionophoric agents have been shown to redistribute these metals away from amyloid pathology, leading to dramatic improvements in phenotype in AD mouse models. The most advanced agent, PBT2, is heading to phase 2B trials, and has induced rapid cognitive improvement in phase 2A and in pre-clinical models.

11:20 Potential for the Treatment and Prevention of Alzheimer’s Disease with Liver X Receptor Agonist
Celina Zerbinatti, Ph.D., Team Lead, Cognitive Disorders, Neurosymptomatic Disorders, Merck & Co., Inc.
Apolipoprotein E (apoE) is a cholesterol transport protein that binds amyloid-b (Ab) and the b4 allele of apoE is a major genetic risk factor for late-onset Alzheimer’s disease (LOAD). ApoE expression is regulated by the liver X receptor (LXR) and LXR agonist treatment appears to improve an apoE-mediated clearance of Ab via the cerebral spinal fluid in rats and non-human primates. These results support the development of safe LXR agonists as a potential therapeutic approach to prevent and treat LOAD.

11:50 Studies Probing the Mechanism of Action of Allosteric β-Secretase Inhibitors and Modulators
Douglas S. Johnson, Ph.D., Senior Principal Scientist, Medicinal Chemistry, Pfizer, Inc.
Recently, a class of g-secretase modulator (GSM) compounds has been discovered which appear to lower the production of Ab42 without inhibiting proteolysis of other g-secretase substrates such as Notch. Generation of NICD from proteolysis of the Notch receptor is required for many cell differentiation events and inhibition of Notch cleavage can lead to GI toxicities. The target binding site of these GSIs and the mechanism of modulation is currently unknown. Furthermore, a series of Notch1-sparing sulfonamide g-secretase inhibitors (GSIs) have advanced into the clinic as an Ab-lowering therapy, but the mechanism of substrate selectivity is not known.

12:20 pm End of Conference
2:00 KEYNOTE PRESENTATION

David Weiner, M.D., Vice President, Head, Early Clinical Development & Neurology Global Clinical Development Unit; U.S. Site Head, Medical Science and Innovation, EMD Serono, Inc.

MOUSE MODELS

2:30 Mitopark Mice: A Model of Progressive Dopamine Depletion and Parkinsonism

Susan E. Browne, Ph.D., Director, Neuropharmacology, Merck Research Labs

A new player recently entered the arena of Parkinson’s disease (PD) research. MitoPark mice offer several advantages over conventional in vivo models of PD. First, they undergo gradual impairment of the central dopaminergic system, due to mitochondrial damage selectively targeted to dopamine neurons. Consequently, mice develop a series of motor defects resembling those typical of Parkinsonism, including bradykinesia, tremor, and catalepsy. We will discuss the progressive phenotypes that distinguish MitoPark mice, and their potential as tools in PD drug development.

3:00 Alpha-synuclein Overexpressing Mouse Models of Parkinson’s Disease

Anita Sidhu, Ph.D., Professor & Head, Laboratory of Molecular Neurochemistry, Georgetown University

3:30 Networking Refreshment Break in the Exhibit Hall

4:30 The Rotenone Model of Parkinson’s Disease

J. Timothy Greenamyre, M.D., Ph.D., Professor & Vice-Chair of Neurology; Director, Pittsburg Institute for Neurodegenerative Diseases; UPMC Endowed Chair & Chief, Movement Disorders, University of Pittsburgh

While recent genetic studies have provided evidence for systemic mitochondrial impairment in PD, the first proof-of-concept came years earlier from rotenone-treated rats. The rotenone model of PD accurately reproduces many features of the human disease, including nigrostriatal degeneration and DOPA-responsive behavioral deficits, aggregation of endogenous alpha-synuclein with Lewy pathology, and microglial activation. It also recapitulates the gastrointestinal pathology and functional deficits seen in the human disease. Moreover, epidemiological studies have shown that rotenone is a bona fide risk factor for human PD. As such, the rotenone model may have substantial value for pre-clinical testing.

5:00 PD Genetic Mouse Models of LRRK2

Youren Tong, Ph.D., Instructor in Neurology, Center for Neurologic Diseases, Brigham and Women’s Hospital, Harvard Medical School

Dominantly inherited mutations in leucine-rich repeat kinase 2 (LRRK2) are the most common genetic cause of Parkinson’s disease (PD), but how these mutations cause the disease is unclear. To investigate the pathogenic mechanism underlying LRRK2 mutations and the normal physiological role of LRRK2, we generated LRRK2 knockin (R1441C) and knockout mouse models. The results from our multidisciplinary analyses of the LRRK2 mouse models will be discussed.

5:30 End of Day

THURSDAY, JUNE 9

7:20 am Continental Breakfast Breakout Discussions

Breakout Discussion Topics:
- Impact of Using Induced vs. Transgenic Models
- Biomarker Discovery: How Close are we?
- Concomitant Drugs: Will the Next PD Drug be Drugs…?

8:20 Chairperson’s Remarks

8:30 The Biochemistry of LRRK2 Reveals New Opportunities for Regulating Its Activity

Matthew J. LaVoie, Ph.D., Assistant Professor of Neurology, Brigham and Women’s Hospital and Harvard Medical School

We propose a model whereby LRRK2 function is regulated via its membrane localization, dimerization, and the subsequent activation of its kinase function. This model suggests multiple opportunities for the therapeutic modulation of LRRK2 function, independent of kinase inhibition. These data also have implications for the future identification of bona fide LRRK2 substrates, the biochemical composition and nature of active LRRK2, and LRRK2 function within the cell.

9:00 LRRK2 Genetics and the Impact on Parkinson’s Drug Development

Alastair D. Reith, Ph.D., Director, External Alliances & Development, R&D China, Medicines Research Centre, GlaxoSmithKline (INVITED)

9:30 LRRK2 cell biology: Basic Research Towards Parkinson’s Disease Therapeutics

Wani W. Smith, M.D., Ph.D., Assistant Professor, Head, Molecular Neuroscience Laboratory, Pharmaceutical Sciences, University of Maryland School of Pharmacy

We have explored the LRRK2 cell biology and generated the LRRK2 cell and Drosophila models for Parkinson’s disease. We have used these models to screen and test the potential novel small molecules to target LRRK2 activity resulting in neuronal protection and suppression of the PD-like symptoms. Our findings indicate that increased kinase activity of LRRK2 is neurotoxic and that inhibition of LRRK2 activity can have a disease modifying effect, suggesting that inhibition of LRRK2 holds promise as a treatment for PD.

10:00 Networking Coffee Break in the Exhibit Hall

TARGETS

10:45 The Inhibition of a-Synuclein by Regulating its Translation Level

Maria Maccecchini, Ph.D., President & CEO, QR Pharma

We screened a library of 720 natural products (NPs) for their capacity to inhibit SNCA 5’UTR driven luciferase expression. In this screen several compounds selectively blocked SNCA expression in neural cells (Posiphen and the cardiac glycoside, strophanthidine < 1 uM IC50). Thus, Posiphen, a known APP-directed lead, has potential use as a SNCA inhibitor in PD therapy.

11:15 Targeting Nuclear Hormone Receptors to Treat Neurodegenerative Disease

Ethan S. Burstein, Ph.D., Director, Biosciences, ACADIA Pharmaceuticals

We have established a portfolio of assets that address many aspects of neurodegenerative disease ranging from symptomatic relief to neuroprotection. We are developing a group of pre-clinical assets with disease modifying potential in Parkinson’s disease and Alzheimer’s disease including estrogen receptor beta (ERβ) selective agonists, selective androgen receptor modulators (SARMs), and novel Nurr1-RXR agonists. Highlights of these programs will be presented.

11:45 Luncheon Presentations (Sponsorship Opportunities Available) or Lunch on Your Own
1:55 The Discovery and Development of Positive Allosteric Modulators of mGlu4 for the Treatment of Parkinson’s Disease

Corey R. Hopkins, Ph.D., Research Assistant Professor, Associate Director of Medicinal Chemistry, Drug Discovery Program, Vanderbilt Program

Using a functional high-throughput screening and subsequent parallel synthesis approach, we have discovered a novel series of positive allosteric modulators of mGlu4. Optimized compounds provide excellent brain exposure after dosing and have robust in vivo efficacy in reversing haloperidol-induced catalepsy, an anti-Parkinsonian rodent model. This series of selective positive allosteric modulators of mGlu4 provides critical research tools to further probe the mGluR4-mediated effects in Parkinson’s disease.

2:25 Ice Cream Refreshment Break in the Exhibit Hall

3:05 Iron, Tau and DJ-1: Insights into the Mechanism of Action of PBT-434 in Parkinson’s Disease Mouse Models

Ashley I. Bush, M.D., Ph.D., Director, Oxidation Biology Laboratory, Mental Health Research Institute, Victoria, Australia; Professor of Pathology, University of Melbourne; Lecturer in Psychiatry, Harvard Medical School, Massachusetts General Hospital; Adjunct Professor of Neuroscience, Cornell University Medical Center, New York

Iron elevation in the substantia nigra (SN) is a feature of Parkinson’s disease (PD) and animal models, but the cause was uncertain. Genetics and neuropathology implicate tau in PD. We found that tau knockout mice develop a clear parkinsonian phenotype with age, accompanied by elevated SN neuronal iron caused by obtunded APP trafficking. Oral PBT-434 (Prana Biotechnology Ltd) prevents SN iron elevation in MPTP and 6OHDA mouse models, while elevating DJ1 and rescuing the phenotype when administered days after the toxin. PBT-434 is not a strong chelator. These data underscore the value of restoring SN iron homeostasis as a promising therapeutic approach for PD.

3:35 Modulating Synuclein Phosphorylation as a Potential Disease Modifying Approach for Parkinson’s Disease

Marcelle Bergeron, Ph.D., Director, Neuropharmacology, Elan Pharmaceuticals, Inc.

α-Synuclein phosphorylated at Ser129 (Phospho-Syn) is the most prevalent & consistent synuclein modification observed in Parkinson’s disease (PD) pathology & dementia with Lewy bodies. It is also a feature of synuclein inclusions in transgenic mouse & fly PD models. Whether Phospho-Syn promotes or inhibits α-synuclein aggregation & neurotoxicity in vivo is still unknown. Therefore identifying the enzymes responsible for α-synuclein phosphorylation could help develop tools to define the role of Phospho-Syn in PD & other synucleopathies. Aside from the G-protein-coupled receptor kinases (GRKS & GRK6) & casein kinase II, the polo-like kinase (PLK) family members (in particular PLK2 & PLK3) have been proposed as the main enzymes responsible for α-synuclein phosphorylation at Ser129. To better understand the role of PLKs in α-synuclein phosphorylation, this presentation will focus on recent studies evaluating the effect of genetic & pharmacological PLK knockdown on Phospho-Syn levels in brain.

4:05 Animal Model of Presymptomatic Parkinson’s Diseases

Craig Ferris, Ph.D., Professor, Psychology and Pharmaceutical Sciences, Director, Center for Translational Neuromaging, Northeastern University

Data will be presented on a rat model of presymptomatic PD that recapitulates disease progression from early redox stress and microglia activation to Lewy body formation. Animals appear to be healthy yet show a 20% reduction in dopamine neurons in the substantia nigra compacta, loss of tyrosine hydroxylase staining in the dorsal striatum, subtle changes in motor activity and loss of olfactory discrimination as determined by fMRI. SPECT imaging for the dopamine transporter shows a modest increase in binding.

4:35 End of Conference
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**Monday, June 6th (Morning)**  
Animal Models of Pain: Progress and Challenges  
Use of Stem Cells for Safety Screening  
Advanced Topics in Drug Metabolism

**Monday, June 6th (Afternoon)**  
Translating Safety Biomarkers from the Lab to the Clinic  
Addressing Safety Concerns for Biological Drugs

**Wednesday, June 8th (Evening)**  
Molecular Imaging in Drug Discovery and Development: Back to Basics  
Mechanistic Insights into Hepatotoxicity

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