25th Annual Blood-Brain Barrier Consortium Meeting

Hilton Portland Downtown
Portland, OR

Celebrating a Quarter Century of Collaboration and Translational Research on the Blood-Brain Barrier

March · 7 & 8 · 2019
Welcome to Portland!

Thank you for joining us for the 25th Annual Blood-Brain Barrier (BBB) Consortium Meeting, which is organized in collaboration with the International Brain Barriers Society (IBBS). Once again, the Scientific Advisory Board has assembled an outstanding group of speakers from a variety of disciplines, while providing ample time for group discussions and networking opportunities.

This year, we are celebrating a quarter century of collaboration and translational research on the blood-brain barrier. The main session topics include: the role of the BBB in primary and metastatic tumors; imaging and characterization of the neurovascular unit; the role of thiols in otoprotection and chemo enhancement; the BBB in acute care settings; and emerging methodologies and concepts around CNS barriers science. All attendees are invited to participate in the BBB Consortium discussion on Thursday morning, where we will discuss collaborative opportunities in the areas of neuro-imaging, immunotherapy, primary central nervous system lymphoma (PCNSL), and emerging preclinical research.

Please join us on Thursday evening for dinner and the keynote presentation by Dr. Joseph Frank. There will also be a tribute to Dr. Richard (Dick) Traystman. Friday morning will begin with our Funding Opportunities Roundtable, with special guests Dr. Walter Koroshetz (NIH) and Dr. J. Leonard Lichtenfeld (American Cancer Society) and a panel discussion featuring representatives from the NIH, ACS, industry and other sources.

Similar to previous years, travel scholarship awardees will be given the opportunity to present their research orally. These short presentations will occur before lunch on Thursday morning. Also back by popular demand, the “one-on-one” mentor sessions will be on Friday during lunch, providing an opportunity to meet and talk informally with seasoned scientists and clinicians in the fields of BBB and NVU science, neuro-imaging, drug delivery, and neuro-oncology. Please stop by the registration desk to sign up!

We are honored to have so many graduate and post graduate students, and senior scientists gathered together to network, share recent translational advances, and to discuss strategies for moving the field forward with the universal goal of improving clinical outcomes.

We are grateful for your participation and look forward to lively discussions. Last but not least, we hope you have time to enjoy all the great things that Portland has to offer!

Program Committee
Edward Neuwelt
Prakash Ambady
Heather Leon

Scientific Advisory Board
Bjoern Bauer
Elga de Vries
Nancy Doolittle
Les Drewes
Brian Eliceiri
Sadhana Jackson
Ai-Ling Lin
Robert Thorne
THURSDAY, MARCH 7TH

BLOOD-BRAIN BARRIER (BBB) CONSORTIUM DISCUSSION (OPEN SESSION)

8:00—11:00am Atrium Ballroom, Plaza Level

Moderators: Prakash Ambady Nancy Doolittle
Portland, Oregon Portland, Oregon

· Status of Ferumoxytol in CNS Imaging ·

8:00 Ferumoxytol as a Metric of Inflammation and the Tumor Vasculature Ramon Barajas Portland, Oregon
8:10 Potential Clinical Benefits of Ferumoxytol Imaging in the Brain Laszlo Szidonya Portland, Oregon
8:20 Aiming for FDA Approval of Ferumoxytol as an MRI Contrast Agent; Where Are We in 2019? Csanad Varallyay Portland, Oregon
8:30 Discussion/Q & A

· Immunotherapy in CNS Tumors ·

8:35 Primary CNS Lymphoma: Challenges and Controversies David Peereboom Cleveland, Ohio
8:50 Maintenance Obinutuzumab for Primary CNS Lymphoma Complete Responders: An Update (NCT 02498951) Nancy Doolittle Portland, Oregon
9:00 Immunotherapy Clinical Trials for Brain Tumors Prakash Ambady Portland, Oregon
9:10 The Impact of Immunotherapy on the Central Nervous System Joseph Bubalo Portland, Oregon
9:25 Discussion/Q & A

· Neuropathology ·

9:30 Correlation of MR with Brain Slices in CNS Disease Randall Woltjer Portland, Oregon

Break, 9:45—9:55am

· Emerging Preclinical Research ·

9:55 Pathway Analysis after Osmotic BBB Opening Scott Burks Bethesda, Maryland
10:10 Impact of STS on Cisplatin Efficacy in Rat Models of Disseminated Medulloblastoma Leslie Muldoon Portland, Oregon
10:25 Low Dose Radiation Enhances Antisense Knockdown of Specific Protein Expression Jeffrey Wu Portland, Oregon
Morning cont.

10:35 Acetaminophen, STAT3 and Cancer Stem Cells
Alexander Neuwelt
Richmond, Virginia

10:45 Transcriptional Signatures in Histologic Structures within Glioblastoma Tumors may Predict Personalized Drug Sensitivity and Survival
Cymon Kersch
Portland, Oregon

10:55 Discussion/Q & A

NEW INVESTIGATOR PRESENTATIONS: TRAVEL SCHOLARSHIP Awardees
11:00—11:30AM, ATRIUM BALLROOM, PLAZA LEVEL

11:00 Seeing is Believing: In Vivo Imaging of Neonatal Cerebral Vasculature Development
Vanessa Coelho-Santos
Seattle, Washington

11:10 Intratumoral Pharmacokinetics of Systemically Administered Trametinib in Patients with Recurrent High Grade Gliomas: Research in Progress
Carlos G Romo
Baltimore, Maryland

11:20 CNS Distribution of 1st and 2nd Generation Antisense Oligonucleotides after Intrathecal Administration and Factors Influencing Their Delivery
Brynna Wilken-Resman
Madison, Wisconsin

LUNCH AND POSTER SESSION
11:30—1:00PM, BROADWAY ROOMS, PLAZA LEVEL

Afternoon

CELEBRATING A QUARTER CENTURY OF COLLABORATION AND TRANSLATIONAL RESEARCH ON THE BLOOD-BRAIN BARRIER

ROLE OF THE BBB IN PRIMARY AND METASTATIC TUMORS
1:00—2:45PM, ATRIUM BALLROOM, PLAZA LEVEL

Moderator: Bjoern Bauer
Lexington, Kentucky

1:00 Characterization of the Blood-Tumor Barrier
Patricia Steeg
Bethesda, Maryland

1:15 The Effects of Radiotherapy at the Blood-Tumor Barrier
Paul Lockman
Morgantown, West Virginia

1:30 Drugs, Radiation, and Brain Barriers: What Do We Know for Sure?
William Elmquist
Minneapolis, Minnesota

1:45 Impact of the BBB on Delivery and Efficacy of EGFR-Targeted Antibody-Drug Conjugates
Jann Sarkaria
Rochester, Minnesota

2:00 Treating Peripheral and Central Nervous System Tumors Simultaneously: Learnings and Opportunities Based on NF1
Jaishri Blakeley
Baltimore, Maryland

2:15 Panel Discussion/Q & A

BREAK, 2:45—3:00PM
THURSDAY, MARCH 7TH cont.

Afternoon cont.

· IMAGING AND CHARACTERIZATION OF THE NEUROVASCULAR UNIT ·

3:00—4:45PM, ATRIUM BALLROOM, PLAZA LEVEL

Moderators: Robert Thorne Paula Jacobs
South San Francisco, California Bethesda, Maryland

3:00 Imaging Transporters at the Blood-Brain Barrier
Jeanne Link
Portland, Oregon

3:15 Pericyte Structural Plasticity and Cerebrovascular Function
Andy Shih
Seattle, Washington

3:30 MRI and PET-Based Image Guidance for Precise and Predictable Delivery of Antibodies and Nanobodies Across the BBB
Miroslaw Janowski
Baltimore, Maryland

3:45 Pushing the Boundaries of Multiphoton Brain Imaging
Chris Xu
Ithaca, New York

4:00 Organoid Models of the NVU
Choi-Fong Cho
Cambridge, Massachusetts

4:15 Panel Discussion/Q & A

Evening

GROUP PHOTO
5:00PM, SKYLINE I, 23RD FLOOR

DINNER
5:30—7:00PM, SKYLINE II, 23RD FLOOR

5:30 Introductions and International Brain-Barriers Society Update
Robert Thorne
South San Francisco, California

6:00 Tribute to Richard Traystman
Wendy Macklin
Denver, Colorado

6:20 The Current Status of Preclinical and Clinical Studies on Blood-Brain Barrier Disruption
Edward Neuwelt
Portland, Oregon

6:30 Keynote
Opening the Blood-Brain Barrier: The Acute and Chronic Changes in the Molecular Microenvironment
Joseph Frank
Bethesda, Maryland

DESSERT, POSTER VIEWING, NETWORKING
7:00—8:00PM, BROADWAY ROOMS, PLAZA LEVEL
FRIDAY, MARCH 8TH

Morning

BREAKFAST AND REGISTRATION
7:00—8:00AM, ATRIUM FOYER, PLAZA LEVEL

· FUNDING OPPORTUNITIES ROUNDTABLE ·
(Featuring Representatives from the NIH, ACS, Industry, and Other Sources)
8:00—9:50AM, ATRIUM BALLROOM, PLAZA LEVEL

Moderators: Prakash Ambady Portland, Oregon Robert Thorne South San Francisco, California

8:00 Overview and Opportunities: Perspective from the NIH/NINDS Walter Koroshetz Bethesda, Maryland

8:20 Overview and Opportunities: Perspective from the American Cancer Society J. Leonard Lichtenfeld Atlanta, Georgia

8:30 Roundtable Discussion
Robert Andrade Durham, North Carolina Linda MacArthur Bethesda, Maryland Karl Schmidt Summit, New Jersey
Paula Jacobs Bethesda, Maryland Margaret Ochocinska Bethesda, Maryland

9:30 Moving PET Tracers from Bench to FDA Paula Jacobs Bethesda, Maryland

Break, 9:50—10:00AM

· THE ROLE OF THIOLS IN OTOPROTECTION AND CHEMO ENHANCEMENT: ·
FROM THE TEST-TUBE TO FDA APPROVAL ·
10:00—11:00AM, ATRIUM BALLROOM, PLAZA LEVEL

Moderators: Penelope Brock Kristin Knight London, United Kingdom Portland, Oregon

10:00 Short and Long Term Impacts of Cisplatin Induced Ototoxicity Kristin Knight Portland, Oregon
10:15 The Road from Preclinical Trials to FDA Approval Penelope Brock London, United Kingdom
10:30 Prospective Randomized Trial with STS in Localized and Disseminated Disease Sidnei Epelman São Paulo, Brazil
10:45 Panel Discussion/Q & A
Morning cont. — Afternoon

THE BLOOD-BRAIN BARRIER IN ACUTE CARE SETTINGS

11:00—12:00PM, ATRIUM BALLROOM, PLAZA LEVEL

Moderators: Prakash Ambady, Portland, Oregon  
Brian Eliceiri, San Diego, California

11:00 The Impact of Glia on the BBB during Injury  
Wendy Macklin, Denver, Colorado

11:15 Impairment of Signaling within the Neurovascular Unit after Acute Stroke  
Anusha Mishra, Portland, Oregon

11:30 CAR-T Related Encephalopathy Syndrome: Blood-Brain Barrier Compromise?  
Holly Hinson, Portland, Oregon

11:45 Panel Discussion/Q & A

LUNCH AND POSTER VIEWING

12:00—1:30PM, BROADWAY ROOMS, PLAZA LEVEL

ONE-ON-ONE MENTOR SESSIONS

12:15—1:15PM, ATRIUM BALLROOM, PLAZA LEVEL

Nathalie Agar  
Brian Eliceiri  
Walter Koroshetz  
Joseph Quinn

Bjoern Bauer  
Joseph Frank  
J. Leonard Lichtenfeld  
Patricia Steeg

Penelope Brock  
Paula Jacobs  
Wendy Macklin  
Robert Thorne

Lester Drewes

EMERGING METHODOLOGIES AND CONCEPTS AROUND CNS BARRIERS SCIENCE

1:30—4:30PM, ATRIUM BALLROOM, PLAZA LEVEL

Moderators: Lester Drewes, Duluth, Minnesota  
Walter Koroshetz, Bethesda, Maryland

1:30 Intro: Views of CNS Barriers Science from One Hundred Thousand Feet  
Walter Koroshetz, Bethesda, Maryland

1:40 Engineering Transport of Large Molecules across the BBB (Denali)  
Robert Thorne, San Francisco, California

2:05 Mass Spectrometry Imaging and Other Methods for Clinical and Pre-clinical Investigation of the NVU  
Nathalie Agar, Boston, Massachusetts

2:30 Analysis of Cell Types that Make Up the Blood Vessels in the Brain and Eye Using Single Cell RNA Sequencing  
Christer Betsholtz, Uppsala, Sweden

BREAK, 2:55—3:05PM

3:05 BBB Disruption in Alzheimer's Disease: Cause or Cure?  
Joseph Quinn, Portland, Oregon

3:30 The Role of the NVU in Neuropsychiatric Disorders  
Matthew Campbell, Dublin, Ireland

3:55 Panel Discussion/Q & A: led by Walter Koroshetz and Lester Drewes

4:20 Meeting Wrap-up  
Edward Neuwelt, Portland, Oregon

4:30 Adjourn


8. **Coelho-Santos V, Shih A. Seeing is Believing: In Vivo Imaging of Neonatal Cerebral Vasculature Development. Seattle Children's Research Institute, Seattle, Washington; University of Washington, Seattle, Washington


15. Huynh L, Morris D, Muldoon LL. The Effect of Various Dosages of Acetaminophen on Chemotherapeutic Efficacy in an H460 Cell Line. Oregon Health & Science University, Portland, Oregon


22. **Romo C, Rudek M, Ye X, Blakeley J, Grossman S. Intratumoral Pharmacokinetics of Systemically Administered Trametinib in Patients with Recurrent High Grade Gliomas: Research in Progress. Johns Hopkins University, Baltimore, Maryland


24. **Wilken-Resman B, Pizzo M, Thorne R. CNS Distribution of 1st and 2nd Generation Antisense Oligonucleotides after Intrathecal Administration and Factors Influencing Their Delivery. University of Wisconsin-Madison School of Pharmacy, Madison, Wisconsin


** Indicates 2019 Travel Scholarship Award Recipients