

Preliminary Workshop Agenda:

NIAID Conference Center, 5601 Fishers Lane, 1D13, Rockville, MD

August 21-22, 2018

Organizing Committee:

NIAID/NIH: Helen Schiltz, Mindy Davis, Ann Eakin, Robin Broughton, Bill Dowling, Tam Nguyen, Anita Sheoran, Nancy Ernst, and Christina McCormick

NINDS/NIH: Avindra Nath; NHLBI/NIH: Margaret Ochocinska; NCATS/NIH: Matthew Hall

DTRA/DoD: Michael Johnson, Howard Haimes, and Jonathan Phillips

Objectives

- To understand the basic biology of the blood-brain barrier (BBB) and the role of the BBB in infectious disease pathogenesis
- To understand the novel and state of the art research and development tools and systems available for use
- To review current therapeutic strategies and challenges in developing therapeutics that cross the BBB to target infectious diseases
- To forge public and private collaboration on research and product development

DAY 1 – August 21, 2018

Time	Session/Topic	Speakers
Opening		
08.00-09.00	Registration (Front Lobby)	
09.00-09.10	Welcome	
09.10-09.40	Keynote: Overview of the Blood-Brain Barrier and Drug Delivery	Robert Thorne (U. Wisconsin-Madison)
Session One: Role of BBB in Viral Pathogenesis		
09.40-10.00	Talk 1: Herpes Viral Encephalitis	Rich Whitley (U of Alabama-Birmingham)
10.00-10.20	Talk 2: Encephalitic Alphaviruses	Robyn Klein (Washington U)
10.20-10.35	Coffee Break	
10.35-10.55	Talk 3: Epidemiology, clinical manifestations and outcome of infections of the CNS such as WNV	Jim Sejvar (CDC)

10.55-11.15	Talk 4: Vascular dynamics following CNS infection	Dorian McGavern (NINDS/NIH)
11.15-11.35	Talk 5: Zika neuro-infection	Carlos Pardo (Johns Hopkins U)
11.35-11.55	Talk 6: Immune cell regulation– filovirus privileged sites in the CNS	Lisa Hensley (NIAID/NIH)
11.55-12.15	Discussion—Q&A	Chair:
12.20-1.15	Lunch	
Session Two: Role of BBB in Bacterial, Fungal, and Parasitic Diseases		
1.15-1.35	Talk 1: New paradigms in microbial penetration of the blood-brain barrier	Kwang Sik Kim (Johns Hopkins U)
1.35-1.55	Talk 2: Mechanisms of <i>Listeria monocytogenes</i> crossing the blood-brain barrier	Darren Higgins (Harvard Med School)
1.55.-2.15	Talk 3: CNS penetration studies for TB and TB-HIV drugs	Kelly Dooley (Johns Hopkins U)
2.15-2.30	Coffee break	
2.30-2.50	Talk 4: Cryptococcosis: A model into understanding the BBB and the importance of the subarachnoid space to disease	John Perfect (Duke)
2.50-3.10	Talk 5: Aspergillus and Candida	Tom Walsh (Cornell U)
3.10-3.30	Talk 6: Strengthening endothelial junctions as therapy for cerebral malaria	Ana Rodriguez (New York U)
3.30-3.50	Discussion—Q&A	Chair:
Session Three: In vitro Models for Studying the BBB		
3.50-4.10	Talk 1: Model Systems to Evaluate the Modulation of the BBB in Response to Inflammatory Stimuli	Jacquelyn Brown (Vanderbilt)
4.10-4.30	Talk 2: BBB Organs-on-Chips	Geraldine Hamilton (Emulate)
4.30-4.50	Talk 3: Microfluidic models	Peter Searson (Johns Hopkins U)
4.50-5.15	Discussion—Q&A	Chair:

DAY 2 – August 22, 2018

Time	Session/Topic	Speakers
Session Four: In Vivo Models for Studying the BBB		
9.00-9.15	Review of discussions from Day 1	
9.15-9.35	Talk 1: Predictive Understanding of Encephalitic Virus Exposure on the Blood Brain Barrier	William Klimstra (U Pittsburgh)
9.35-9.55	Talk 2: Imaging to study pathogenesis of and develop countermeasures bacterial and viral infection	Thomas Bocan (USAMRIID)
9.55-10.15	Talk 3: Animal models for alpha virus pathogenesis and therapeutic development	Pam Glass (USAMRIID)
10.15-10.45	Discussion—Q&A	Chair:
10.45-11.00	Coffee Break	
Session Five: Therapeutics Strategies for CNS delivery Across the BBB		
11-11.20	Talk 1: Challenges and principles of the CNS drug design	Zoran Rankovic (St Jude Hospital)
11.20-11.40	Talk 2: RNA polymerase inhibitor ribonucleoside antivirals for VEEV infection	George Painter (Emory U)
11.40-12.00	Talk 3: Therapeutic Treatment of Zika Virus Infection Using a Brain-Penetrating Antiviral Peptide	Namjoon Cho (Nanyang U and TSG Therapeutics)
12.00-1.00	LUNCH	
1.00-1.20	Talk 4: TBA (Rabies Virus and brain delivery of therapeutics)	Priti Kumar (Yale)
1.20 – 1.40	Talk 5: Gene therapies delivered into the brain	Beverley Davidson (U Pennsylvania)
1.40- 2.00	Talk 6: Bispecific antibodies for targeted delivery across the BBB	Joy Zuchero (Denali)
2.00- 2.30	Discussion—Q&A	
2.30-3.00	Resources and Funding Opportunities	
3.00-3.30	Conclusions and Recommendations	Chairs and Organizers
-END OF SESSION -		