




SOCIETY FOR IMAGE-GUIDED NEUROINTERVENTIONS (SIGN) AND CHILDREN'S BRAIN TUMOUR DRUG DELIVERY CONSORTIUM (CBTDDC)

DAY 1, June 10, 2019 Baltimore, MD

7:30 -- 8:00 Registration and continental breakfast


Mini Symposium 1 Advances in device navigation | Chair: Paul Bottomley

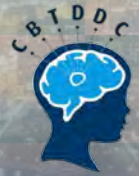
Various devices have been developed to assist in image guided neurointervention. This minisymposium will cover strategies that are exploited to improve precision and safety of navigating devices towards selected target in the brain, including parenchymal needle placement or guiding endovascular catheters.

- 8:00 -- 8:15 Invited: Dr. Zhengchu Tan, Imperial College London, UK
EDEN2020: A Bio-Inspired Robotic Platform for Neurosurgery
- 8:15 -- 8:30 Invited: Dr. Iulian Iordachita, JHU, Baltimore, USA
Shape Sensing Based Navigation of Flexible Medical Devices
- 8:30 -- 8:45 Invited: Dr. Steve Hetts, UCSF, San Francisco USA
Endovascular Interventional MRI: Catheter Development and Navigation
- 8:45 -- 9:00 Invited: Dr. Parag Karmarkar, JHU, Baltimore, USA
Endovascular Devices for MRI Guided Interventions
- 9:00 -- 9:15 Coffee break and discussion 

Mini Symposium 2 Artificial intelligence and virtual reality | Chair: Piotr Dzedzic

Recently there has been an explosion of machine learning applications in biomedicine. Imaging sciences seem to particularly benefit from this development and the application of these technologies is still in its infancy. This minisymposium will focus on the latest advances as applied to imaging drug delivery to the brain.

- 9:15 -- 9:30 Invited: Dr. Marin Kolibarov, JHU, Baltimore, USA
Talk title to be announced soon
- 9:30 -- 9:45 Invited: Dr. Ciprian Ionita, University of Buffalo, USA
Machine Learning to Guide Endovascular Treatment
- 9:45 -- 10:00 Invited: Dr. Elizabeth Vasconcellos, BrainLab
Multifaceted Approach to Optimizing Drug Delivery to the Brain
- 10:00 -- 10:15 Coffee break and discussion 



Opening Ceremony

10:15 -- 10:30 Janowski, Walker

10:30 -- 11:00 **Keynote address: Prof. David Walker**

Why Re-Engineer Drug Delivery to CNS Tumours?

David Walker is a Professor of Pediatric Oncology in the Division of Child Health Obstetrics and Gynaecology, Medical School, University of Nottingham and Director of the Children's Brain Tumour Drug Delivery Consortium. He is a world-renowned expert in the treatment of pediatric brain tumors and who shares the mission of this conference, making him an ideal candidate to deliver the key note address.

Live Webinar 1 Therapeutic Agent Delivery to the Brain: Clinical Perspectives | Chair: Monica Pearl & David Walker


In order to maintain a focused, intimate setting conducive to an open exchange of ideas and networking, the SIGN conference is organized to accommodate approximately 100 participants at the event. After feedback from colleagues in academia, small business and industry, we anticipate a broad global interest in our meeting and thus we plan to broadcast key components of the meeting. The webinar timing at 11:00 EST is to accommodate participants from both The US and Europe.

11:00 -- 11:20 Invited: Dr. Graeme Woodworth, University of Maryland, USA
Sound Power: Using Focused Ultrasound To Unlock Barriers To Drug Delivery In The Brain

11:20 -- 11:40 Invited: Dr. Piotr Walczak, JHU, Baltimore, USA
Imaging Tools To Improve Precision And Reproducibility Of Intra-Arterial Drug Delivery

11:40 -- 12:00 Invited: Dr. Steven Gil, University of Bristol, UK
A System for Intermittent Convection Enhanced Drug Delivery to The Brain

12:00 -- 13:00 Panel discussion with questions from the webinar audience

13:00 -- 14:00 Lunch time 

Lunch time presentation:

Invited: Codrin Lungu, MD
Program Director, Division of Clinical Research,
National Institute of Neurological Disorders and Stroke, NIH
Funding Mechanisms for Training and Early Career

Invited: Chris H. Boshoff, PhD
Program Director, Division of Translational Research,
National Institute of Neurological Disorders and Stroke, NIH
Translational Research Funding for Biologics at NINDS




Mini Symposium 3 Intra-arterial approaches for treatment of stroke

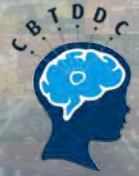
Endovascular mechanical thrombectomy has revolutionized the treatment of stroke over the last several years resulting in improved outcomes. This technology also opens up new opportunities for adjuvant treatment including stem cell-based therapies, local hypothermia and beyond. This session will focus on various approaches exploiting the intra-arterial route for the benefit of stroke patients.

- 14:00 -- 14:15 Invited: Dr. Xunmin Ji, Xuanwu Hospital, China
Selective Intraarterial Hypothermia Treatment For Acute Sschemia Stroke
- 14:15 -- 14:30 Invited: Dr. Dileep Yavagal, University of Miami, USA
Imaging to Determine Dosing in Intra-arterial Cell Delivery for Stroke
- 14:30 -- 14:45 Invited: Dr. Michael E. Maniskas, University of Kentucky, USA
Instilling Healing: Intra-arterial Pharmacotherapy as an Adjunct to Thrombectomy in Ischemic Stroke
- 14:45 -- 15:00 Invited: Dr. Shen Li, Dalian Hospital, China
Talk title to be announced soon
- 15:00 -- 15:15 Invited: Dr. Paulo Henrique Rosado de Castro
Federal University of Rio de Janeiro, Brazil
Imaging of Intravascular Cell Therapies For Stroke

Mini Symposium 4 Intra-arterial route for other neurological disorders | Chair: Ali Fatemi

Direct targeting of therapeutics via the intra-arterial route is attractive for many neurological diseases. Neoplastic disease is a leading target; however, additional applications extend even beyond that and imaging plays a critical role in improving precision. These topics will be covered by the speakers of this symposium.

- 15:15 -- 15:30 Invited: Dr. Monica Pearl, JHU, Baltimore, USA
Intraarterial Chemotherapy For Brainstem Tumors
- 15:30 -- 15:45 Invited: Dr. Michal Zawadzki, CCHMI, Warsaw, Poland
First-in-Human MRI-Guided Neuroendovascular Interventions
- 15:45 -- 16:00 Invited: Dr. Vincent Costalat, University of Montpellier, France
Talk title to be announced soon
- 16:30 -- 18:00 Rapid fire session with short presentations by students for Early Stage Investigator Award (ESIA) competition.
- 18:00 -- 18:30 SIGN business meeting
- 19:00 -- 22:00 Networking event 



DAY 2, June 11, 2019 Baltimore, MD

7:30 -- 8:15 Registration and continental breakfast


Mini Symposium 5 Advances in neuroimaging | Chair: Peter van Zijl

Different modalities applicable to neuroimaging will be a central element of this mini symposium. This will include magnetic resonance imaging, magnetic particle imaging, PET and optical imaging. Particular emphasis will be made on modalities and techniques that aid in improving precision of drug delivery to the brain.

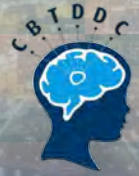
- 8:00 -- 8:15 Invited: Dr. Peter Ludewig, University of Hamburg-Eppendorff, Germany
Magnetic Particle Imaging for Neurological Applications
- 8:15 -- 8:30 Invited: Dr. Michael McMahon, JHU, Baltimore, USA
Organic Theranostic Agents for Interventional MRI
- 8:30 -- 8:45 Invited: Dr. Marcel Daadi, Texas Biomed Institute, USA
Interventional Magnetic Resonance Imaging-Guided Transplantation of Neural Stem Cell Progeny Into The Brain
- 8:45 -- 9:00 Invited: Dr. Wojciech Lesniak, JHU, Baltimore, USA
Radiolabeling of Therapeutic Agents and PET Imaging for Precision Medicine
- 9:15 -- 9:30 Invited: Dr. Qin Qin, JHU, Baltimore, USA
Novel Techniques For Non-Contrast Cerebral MR Angiography

Mini Symposium 6 Preclinical research on animal models

Animal models of neurological disease with improved clinical relevance. Rodent disease models to date dominate preclinical research, however, considering the size of the human brain, these models lack clinical relevance. We will discuss the need and opportunities for introducing large animal models including swine and dogs or companion animals with naturally occurring neurological diseases.


- 9:30 -- 9:45 Invited: Dr. Johannes Boltze, University of Warwick, UK
Stroke Modelling and Neuroimaging in Sheep
- 9:45 -- 10:00 Invited: Dr. Rebecca Krimins, JHU, Baltimore, USA
Learning from Brain Cancer in Pets
- 10:00 -- 10:15 Invited: Dr. Yajie Liang, Janelia Farm, HHMI, VA, USA
Intravital Two-Photon Microscopy: State-Of-The-Art And Prospects For Clinical Applications
- 10:15 -- 10:30 Coffee break 
- 10:30 -- 11:00 **Keynote address: Prof. Sean Savitz, University of Texas**
NeuroImaging: Transforming Personalized Medicine for Neurological Disorders

Sean Savitz is a Professor of Neurology and Director of Stroke Institute at University of Texas. He is a world-renowned expert in the treatment of neurological disorders. He focuses on stroke, a medical field which has greatly benefitted recently from advanced imaging to optimally select patients for neurointerventions; therefore, he is well suited to provide a perspective on clinical needs to further advance image guided neurointerventions.



Live Webinar 2 Technological Advances

This second webinar will continue on the topic of new technologies that are critical for successful drug delivery to the brain.

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| 11:00 -- 11:20 | Invited: Dr. Edward A. Neuwelt, Oregon Health and Science University, USA
<i>The Blood-Brain Barrier in Brain Tumor Therapy: Need for New Drugs and New Approaches</i> |
| 11:20 -- 11:40 | Invited: Dr. Henry Brem, JHU, Baltimore, USA
<i>Novel Approaches to Therapeutic Brain Delivery</i> |
| 11:40 -- 12:00 | Invited: Dr. Mark Souweidane, Weill Cornell, USA
<i>Strategies to Overcome Barriers of Convection Enhanced Delivery (CED) for CNS tumors</i> |
| 12:00 -- 13:00 | Panel discussion |
| 13:00 -- 14:00 | Lunch time  |

Mini Symposium 7 Biomaterials and Nanotechnologies | Chair: Jeff Bulte

Advances in material sciences offer practically unlimited access to biomaterials with customized biomechanical properties and biological activity. These biomaterials can be used for slow release of drugs, structural support or a favorable milieu for transplanted stem cells.

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| 14:00 -- 14:15 | Invited: Dr. Marcin Kortylewski, City of Hope, CA, USA
<i>Optimizing TLR9-Targeted STAT3 Inhibitors for Glioma Immunotherapy</i> |
| 14:15 -- 14:30 | Invited: Dr. Michel Modo, University of Pittsburgh, USA
<i>Magnetic Resonance Imaging-Based Guidance and Monitoring of Biomaterial Implantation Into the Stroke-Damaged Brain</i> |
| 14:30 -- 14:45 | Invited: Dr. Ruman Rahman, University of Nottingham, UK
<i>A Neurosurgically-Applied Thermo-Sensitive Paste For The Delivery of Brain Tumour Chemo- And Nano-Therapies</i> |
| 14:45 -- 15:00 | Invited: Dr. Jaroslaw Maciaczyk, University of Otago, New Zealand
<i>Talk title to be announced soon</i> |
| 15:00 -- 15:15 | Invited: Dr. Khuloud Al-Jamal, Kings College, London, UK
<i>Overcoming the Blood Brain Barrier using Nanomedicines</i> |

Mini Symposium 8 Focused ultrasound | Chair: Peter Searson

Focused ultrasound is a technology that is making significant strides towards clinical applications. After spectacular success with treatment of essential tremor, it is now entering the clinical realm for spatially precise opening of the blood brain barrier to improve delivery of therapeutic agents. It also facilitates removal of potentially toxic agents such as amyloid, opening a new perspective for the treatment of Alzheimer's disease.

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| 15:15 -- 15:30 | Invited: Dr. Victor Frenkel, University of Maryland, Baltimore, USA
<i>The Paradox of Ultrasound Effects on the Extracellular Space: How Expanding These Regions Can Enhance Both Local And Systemic Delivery</i> |
| 15:30 -- 15:45 | Invited: Dr. Hong Chen, Washington University, St. Paul, USA
<i>Image-Guided Focused Ultrasound-Mediated Brain Drug Delivery</i> |
| 15:45 -- 16:00 | Invited: Dr. Raag Airan, Stanford University, USA
<i>Targeted Drug Delivery to the Nervous System With Ultrasonic Drug Uncaging</i> |
| 16:00 -- 16:15 | Invited: Dr. Costas Arvanitis, Georgia Institute of Technology, USA
<i>Controlled Drug Delivery and Release to Brain Tumors With Focused Ultrasound</i> |

Closing Ceremony and Awards

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| 16:15 -- 16:30 | Janowski, Walker |
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