



Cerebral Vascular Biology Meeting

18-22 June, 2023

Uppsala, Sweden

Conference Agenda

18 June 2023, Uppsala University Main Building

3:30 pm - 5:00 pm

Registration

Uppsala University Main Building, Foyer

1. Opening session, Grand Auditorium

Discussion leaders: **Christer Betsholtz** (Uppsala University/Karolinska Institutet, Sweden), **Maarja Andaloussi Mäe** (Uppsala University, Sweden)

CVB2023 Organizing Committee (Uppsala University, Sweden)

Welcome greetings

5:00 pm - 7:10 pm

Mats Larhed (Vice-rector, Uppsala University, Sweden)

Welcome to Uppsala University

Christer Betsholtz (Uppsala University/Karolinska Institutet, Sweden)

Acknowledgement of research achievements of Prof. Elisabetta Dejana

Keynote speakers

Elizabeth Tournier-Lasserre (University of Paris, France)

Genetic basis of small arteries disease from fetal life to adulthood

	<p>Maria Lehtinen (Harvard Medical School, USA) Illuminating the choroid plexus brain barrier and its functions</p> <p>Annika Windahl Pontén (Uppsala University, Sweden) History of Uppsala University</p>
7:10 pm - 9:00 pm	<p>Reception Faculty Chambers, 2nd Floor, Uppsala University Main Building</p>

19 June 2023, UKK, Hall B

	<p>2. Fluid transport and vascular networks</p> <p>Discussion leaders: Jean-François Gherzi-Egea (Lyon Neurosciences Research Center, INSERM, France), Maria Ascencion Globisch (Uppsala University, Sweden)</p> <p><u>Keynote speaker</u></p> <p>Gou Young Koh (Center for Vascular Research, South Korea) Exploring novel routes of cerebrospinal fluid drainage</p> <p><u>Invited speakers</u></p> <p>Kari Alitalo (University of Helsinki, Finland) Meningeal lymphatics in health and in brain disorders</p> <p>Christer Betsholtz (Uppsala University/Karolinska Institutet, Sweden) Multiple cell types make brain barriers – new insights into the arachnoid membrane and its barrier</p>
8:30 am – 10:05 am	
10:05 am – 10:35 am	Coffee/tea break
10:35 am – 12:05 pm	<p>Chenghua Gu (Harvard Medical School, USA) The intra- and inter-cellular communication at the blood-brain barrier</p> <p>Ralf Adams (Max Planck Institute for Molecular Biomedicine, Germany)</p>

	<p>Cellular and molecular mechanisms controlling mural cell specification</p> <p>Martin Dichgans (Ludwig-Maximilians-University Munich, Germany) Brain Endothelium: A Nexus for Small Vessel Disease</p> <p><u>Selected based on a submitted abstract</u></p> <p>Jin-Hui Yoon (Center for Vascular Research, South Korea) The nasopharyngeal lymphatic plexus serves as a central hub for the drainage of cerebrospinal fluid</p>
12:05 pm – 1:00 pm	<p>Lunch</p> <p>3. Brain tumor barriers: from molecular mechanisms to treatment opportunities (Sponsored by Cancerfonden)</p> <p>Discussion leaders: William Elmquist (University of Minnesota, USA), Roberta Lugano (Uppsala University, Sweden)</p> <p><u>Keynote speaker</u></p> <p>Rakesh Jain (Harvard Medical School, USA) Improving treatment of primary and metastatic brain tumors: Emerging Insights and strategies</p> <p><u>Invited speaker</u></p>
1:00 pm – 2:35 pm	<p>Anna Dimberg (Uppsala University, Sweden) Vascular regulation of the tumor microenvironment in glioblastoma</p> <p><u>Rapid fire poster session</u></p> <p>Ya'el Courtney (Harvard University, USA) Signals making a splash: how the choroid plexus harnesses cerebrospinal fluid for developmental communication</p> <p>Adrian Madarasz (Theodor Kocher Institute, University of Bern, Switzerland) Subarachnoid erythrocytes clear rapidly along cranial nerves to cervical lymphatic vessels</p>

	<p>Katalin Todorov-Völgyi (Institute for Stroke and Dementia Research, Germany) The stroke risk gene Foxf2 maintains brain endothelial cell function via Tie2 signaling</p> <p>Erik Bakker (Amsterdam University Medical Center, Netherlands) Perivascular clearance of blood proteins after blood-brain barrier disruption in a rat model of micro-infarcts</p> <p>Virginie Lam (Curtin University, Australia) Plasmalogen supplementation attenuates doxorubicin-induced cognitive impairment and neurodegenerative changes in mice</p>
2:35 pm – 4:00 pm	<p>Coffee/tea break Poster Session I (Poster number: 1-98), Hall C</p>
4:00 pm – 5:50 pm	<p><u>Invited speakers</u></p> <p>Patricia Steeg (Centre for Cancer Research, National Cancer Institute, USA) Brain Metastases of Breast Cancer</p> <p>Matthia Karreman (German Cancer Research Center, Germany) Entry into the brain: Mechanisms of cancer cell extravasation and T cell recruitment in brain metastases</p> <p>Benoit Vanhollebeke (Université libre de Bruxelles, Belgium) Single-cell control mechanism of brain angiogenesis and blood-brain barrier formation</p> <p><u>Selected based on submitted abstracts</u></p> <p>Imola Wilhelm (Biological Research Centre, Szeged, Hungary) Pericytes promote breast cancer brain metastasis formation</p> <p>A cavernoma patient story - Mia Caderas</p> <p>Hua Huang (Uppsala University, Sweden) CCM3 is essential in sprouting angiogenesis</p>

4. The BBB and drug delivery

Discussion leaders: **Stina Syvänen** (Uppsala University, Sweden),
David Brody (NIH, NINDS, US)

Keynote speaker

Robert Thorne (Denali, US)

The path to the brain: transporting biotherapeutics across the BBB

Invited speakers

Maarten Dewilde (KU Luven, Belgium)

Nanobodies to Cross the Blood-Brain Barrier

Yasuo Uchida (Hiroshima University, Japan)

Next generation quantitative proteomics opens up the new fields of
CNS barrier studies

8:30 am – 10:05 am

10:05 am – 10:35 am

Invited speaker

Won-Suk Chung (Korea Advanced Institute of Science and
Technology, South Korea)

Anti-inflammatory clearance of amyloid beta by a chimeric Gas6 fusion
protein

Selected based on submitted abstracts

10:35 am – 12:00

Danica Stanimirovic National Research Institute of Canada, Canada)

Brain delivery of therapeutics using IGF1R5, a single-domain antibody
targeting insulin-like growth factor-1 receptor

Urs Langren (Roche, Switzerland)

Beyond the shuttle: Advances in brain delivery of biologics and novel
tools for further optimization

	<p>Helena Karlström (Karolinska Institutet, Sweden) Active immunotherapy reduces NOTCH3 deposition in brain capillaries in a CADASIL mouse model</p> <p>Quentin Smith (Texas Tech University Health Sciences Center, USA) Blood-brain barrier permeability for highly lipophilic solutes greatly exceeds prior estimates: three case studies that illustrate significance</p>
12:00 pm – 1:00 pm	<p>Lunch</p> <p>5. Brain imaging: from visualization to function</p> <p>Discussion leaders: Ruiqing Ni (University of Zurich, Switzerland), Ayal Ben-Zvi (Hebrew University of Jerusalem, Israel)</p> <p><u>Invited speakers</u></p> <p>Dag Sehlin (Uppsala University, Sweden) Brain PET imaging with BBB penetrating antibody ligands</p> <p>Nicolas Tournier (Université Paris-Saclay, France) Imaging the neuro-vascular transport and coupling for translational pharmacology</p>
1:00 pm – 2:30 pm	<p>Martin Thunemann (Boston University, USA) Mechanistic underpinning of human neuroimaging – cortical interneurons in CBF regulation</p> <p><u>Rapid fire poster session</u></p> <p>Krzysztof Kucharz (University of Copenhagen, Denmark) Two-photon microscopy in vivo reveals brain vessel type-specific loss of glycocalyx caused by apoM/S1P signaling impairment</p> <p>Frida Bällgren (Uppsala University, Sweden) Profound influence of lipopolysaccharide-induced inflammation on oxycodone active transport across blood-brain interfaces: a rat microdialysis study</p> <p>Elin Wik (Uppsala University, Sweden)</p>

	Brain pharmacokinetics of mono- and bispecific amyloid-beta and alpha-synuclein antibodies in mice measured by high cut-off microdialysis
2:30 pm – 3:00 pm	Coffee/tea break
	<u>Invited speakers</u> Martin Lauritzen (University of Copenhagen, Denmark) Two-photon microscopy imaging of neurovascular functions Laura Bojarskaite (Oslo University, Norway) Gliovascular dynamics in mice across sleep cycle
3:00 pm – 4:05 pm	<u>Selected based on a submitted abstract</u> Pilhan Kim (Korea Advanced Institute of Science and Technology, South Korea) Longitudinal intravital imaging of cerebral microinfarction with disruption of neurovascular unit and blood brain barrier
6:00 pm – 01:00 am	Conference dinner Uppsala Castle

21 June 2023, UKK, Hall B

6. Neurodegeneration and vascular ageing

	Discussion leaders: Francesca Cicchetti (Université Laval, Canada), Lester Drewes (University of Minnesota Medical School Duluth, USA)
9:00 am – 10:10 am	<u>Keynote speaker</u> Katerina Akassoglou (University of California San Francisco, USA) Blood Drivers of Neurodegeneration <u>Invited speakers</u> Dritan Agalliu (Columbia University, USA) Unraveling the cellular sources and mechanisms of neo-

	angiogenesis in neuroinflammatory diseases
10:10 am – 10:40 am	Coffee/tea break
	<p>Anuska Andjelkovic (University of Michigan, USA) Epigenetic signatures associated with blood-brain barrier in aging and neurodegeneration</p> <p><u>Selected based on submitted abstracts</u></p> <p>Sophia Shi (Stanford University, USA) Cerebrovascular glycocalyx degeneration during aging and neurodegenerative disease promotes blood-brain barrier dysfunction and brain bleeds</p> <p>Jennifer Gamble (Centenary Institute, Australia) Vascular senescence and leak as potential targets for mending the blood-brain barrier in Alzheimer's disease</p> <p>Saverio Francesco Retta (University of Torino, Italy) Identification of novel biomarkers of prognostic and predictive value for risk stratification and treatment of Cerebral Cavernous Malformation disease</p> <p>Yao Yao (University of South Florida Morsani College of Medicine, USA) Fibroblasts repair blood-brain barrier damage and hemorrhagic brain injury via TIMP2</p>
12:05 pm – 1:00 pm	Lunch
	<p>7. Reconstruction of CNS barriers in vitro: from development to application</p>
1:00 pm – 2:30 pm	<p>Discussion leaders: Maria Deli (Biological Research Centre, Hungary), Sumio Ohtsuki (Kumamoto University, Japan)</p> <p><u>Invited speakers</u></p> <p>Birger Brodin (Copenhagen University, Denmark)</p>

In vitro modeling of the brain capillary endothelium: Opportunities and pitfalls

Maxime Culot (University of Artois, France)

Evaluation of human stem cells-derived BBB models for repeated dose toxicity testing

Joel Blanchard (MIT, USA)

Reconstruction of the Human Blood-Brain Barrier in vitro to investigate and therapeutically target Alzheimer's disease

Rapid fire poster session

Magdalena Kurtyka (University Medical Center Mainz, Germany)

SLC7A1 is a novel candidate for the transport of therapeutics across the blood-brain barrier

Roeben Munji (University of California San Diego, USA)

Monoamine neurotransmitter metabolism by brain vascular endothelial cells regulates behavior

Hamidreza Sadegh (University of Technology Sydney, Australia)

Investigation of gut microbiome modification as a potential therapeutic option for Cerebral Cavernous Malformation (CCM)

2:30 pm – 4:00 pm

Coffee/tea break

Poster Session II (Poster number: 101-198), Hall C

3:30 pm – 4:00 pm

IBBS meeting, Hall B

4:00 pm – 5:10 pm

Dominik Paquet (Ludwig-Maximilians-University Munich, Germany)

Exploring the role of FOXF2 in small vessel disease in a novel human iPSC-derived model of the neurovascular unit

Selected based on submitted abstracts

Britta Engelhardt (University of Bern, Switzerland)

VE-cadherin identifies arachnoid and pia mater cells: a missing landmark for in vivo imaging of CNS immune surveillance

Pelin Kasap (University of Bern, Switzerland)

An isogenic in vitro model of the human neurovascular unit to explore blood-brain barrier dysfunction in neuroinflammation

Hideaki Nishihara (Yamaguchi University, Japan)

Modeling blood-brain barrier dysfunction in amyotrophic lateral sclerosis

22 June 2023, UKK, Hall B

7. Neuroimmune axis: the regulatory role of CNS barriers

Discussion leaders: **Sandrine Bourdoulous** (Institut Cochin, France), **Brandon Kim** (University of Alabama, USA)

Keynote speaker

Caroline Menard (CERVO Brain Research Centre, Canada)

Adaptations of the blood-brain barrier driving resilience to stress vs depression

Invited speakers

Janet Cunningham (Uppsala University, Sweden)

Clinical and biological findings from a patient cohort enriched for suspected autoimmune psychiatric disease

Jonathan Kipnis (University of Washington, USA)

Bridging veins “bridging” the brain and the periphery

8:30 am – 10:05 am

10:05 am – 10:35 am

Michelle Erickson (University of Washington, USA)

Interactions of chemokines with the vascular blood-brain barrier

10:35 am – 12:10

Roosmarijn Vandenbroucke (Ghent University, Belgium)

tbd

Selected based on submitted abstracts

	<p>Gayel Duran (Hasselt University, Belgium) Migration into the central nervous system triggers inflammasome activation in Th lymphocytes during neuroinflammation</p> <p>Aaron Johnson (Mayo Clinic, USA) MHC class I antigen presentation by brain endothelium regulates CD8 T-cell mediated blood-brain barrier disruption in experimental cerebral malaria</p> <p>Ana Rita Brás (Institute of Experimental Medicine, Hungary) Role of microglia-endothelial interactions in systemic inflammation-induced vascular and leukocyte responses</p>
12:10 pm – 1:10 pm	Lunch
	<p>8. Brain barriers milieu: from pathophysiology to predictions</p> <p>Discussion leaders: Anika Hartz (University of Kentucky, USA), Roeben Munji (University of California San Diego, USA)</p> <p><u>Keynote speaker</u></p> <p>Richard Daneman (University of California, USA) Blood-brain barrier regulation of brain function and behavior</p> <p><u>Invited speakers</u></p> <p>Lydia Sorokin (University of Münster, Germany) Mechanisms of leukocyte extravasation across cerebral vessel</p> <p>Elisabeth De Lange (Leiden University, the Netherlands) Adding the 3rd dimension: Spatial aspects of BBB transport and intrabrain distribution of drugs</p>
2:45 pm – 3:15 pm	Awards and Closing ceremony

