UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

SCUOLA DI MEDICINA

UNIVERSITÀ DEGLI STUDI DI BARI ALDO MORO

24th International Symposium

on Signal Transduction at the Blood-Brain Barriers

Bari (ITALY)
September, 21-23 2022

Aula Magna "G. De Benedictis"
Building Polifunzionale - Policlinico Hospital
University of Bari Aldo Moro - School of Medicine

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Dept. of Basic Medical Sciences, Neurosciences, and Sensory Organs, University of Bari School of Medicine, Bari, Italy

12.00 - 13.30 Registration, attachment of posters

13.30 - 13.45 Introductory remarks and welcome by local representatives

Opening *Lectio Magistralis*

***Chairs*: Britta Engelhardt (Switzerland), Reiner Haseloff (Germany)**

Omolara Ogunshola (Switzerland)
13.45 - 14.45 Pericytes at the BBB - Progress, Promises and Challenges

SESSION 1
14.45 - 16.15
The Neurovascular Unit: Cellular, Subcellular and Molecular Components

***Chairs:* Daniela Virgintino (Italy), Nicola Marchi (France)**

14.45 - 15.15 ***Plenary Lecture***
Maria A. Deli (Hungary)
Brain endothelial surface charge, glycocalyx, and blood-brain barrier function

O1 15.15 - 15.30 TNFα alters human brain pericytes cholesterol metabolism and Aβ uptake
Dib Shiraz (France)

O2 15.30 - 15.45 Extracellular vesicle-mediated intercellular communication at the blood-brain barrier
Michal Toborek (USA)

O3 15.45 - 16.00 Characterization of human blood-brain barrier receptor-mediated antibody cargo paths using a human primary astrocytes and induced pluripotent stem cell based *in-vitro* model system
Mikkel R. Holst (Denmark)

O4 16.00 - 16.15 Tunneling nanotube-based supercellularity between human blood-brain barrier cells and the post-ischemic repairing process
Francesco Pisani (Italy)

16.15 - 16.45 *Coffee break*

SESSION 2
16.45 - 18.30
Cellular and Molecular Modelling of the Brain Barriers

Chairs: **Maria A. Deli (Hungary), Britta Engelhardt (Switzerland)**

16.45 - 17.15 ***Plenary Lecture***
Roberto Villaseñor Solorio (Switzerland)
Developing next-generation brain delivery shuttles with a toolbox of human *in vitro* BBB models

O5 17.15 - 17.30 Arterial vasodilation drives convective fluid flow in the brain: a poroelastic model
Francesco Costanzo (USA)

O6 17.30 - 17.45 Blood-brain barrier organoids and brain diseases - modelling cerebral malaria and Lyme neuroborreliosis induced barrier dysfunction
Yvonne Adams, Anja R. Jensen (Denmark)

O7 17.45 - 18.00 cARLA: a small molecular cocktail for robust induction of blood-brain barrier properties
Gergo Porkolab (Hungary)

O8 18.00 - 18.15 iPSC-Derived neurovascular unit model to study neuroinvasion of parechovirus A3
Pamela E. Capendale (The Netherlands)

O9 18.15 - 18.30 From DNA methylation to protein function: Selection and evaluation of regulated targets in human cerebral ischemia *in vitro* models of the blood-brain barrier
Winfried Neuhaus (Austria)

18.30 - 19.30 POSTER SESSION

19.30 Welcome Aperitivo

SESSION 3
08.30 - 10.15
The Brain Barriers in Neuroinflammatory and Neuroinfectious Diseases

Chairs: **Elga de Vries (The Netherlands), Egle Solito (United Kingdom)**

08.30 - 09.00 ***Plenary Lecture***
Sara Salinas (France)
Viral interactions with brain barriers: a focus on emerging neurotropic viruses

O10 09.00 - 09.15 B-cells and where to find them in multiple sclerosis
Carla Rodriguez-Mogeda (The Netherlands)

O11 09.15 - 09.30 Interaction of the hypervirulent CC17 Group B *Streptococcus* with choroid plexus cells of the blood-cerebrospinal fluid barrier
Julie Guignot (France)

O12 09.30 - 09.45 Rapamycin rescues loss-of-function in blood-brain barrier transmigrated regulatory T cells
Paulien Baeten (Belgium)

O13 09.45 - 10.00 Tick-borne encephalitis - mouse and human research model
Martin Palus (Czech Republic)

O14 10.00 - 10.15 The effect of astrocyte-derived fatty acid-binding protein 7 on blood-brain barrier breakdown in LPS-induced sepsis in mice
Deniz Altunsu (Turkey)

10.15 - 10.45 *Coffee break*

SESSION 4
10.45 - 12.15
The Brain Barriers in Neurodegenerative and Psychiatric Diseases

Chairs: **Malgorzata Burek (Germany), Pierre-Olivier Couraud (France)**

10.45 - 11.15 ***Plenary Lecture***
Matthew Campbell (Ireland)
Regulation of the BBB in epilepsy

O15 11.15 - 11.30 Electronic cigarettes and alcohol cause mitochondrial stress via P2X7r in brain microvascular endothelial cells
Yuri Persidsky (USA)

O16 11.30 - 11.45 Novel therapeutic targets to repair blood-brain barrier dysfunction in epilepsy
Bjoern Bauer (USA)

O17	11.45 - 12.00	A novel promising approach to target gut-brain axis and treat Alzheimer's disease **Carolina Pellegrini (Italy)**
O18	12.00 - 12.15	Vascular and blood-brain barrier-related changes underlie stress responses and resilience in female mice and depression in human tissue **Laurence Dion-Albert (Canada)**
	12.15 - 13.15	*Lunch and* POSTER SESSION

SESSION 5
13.15 - 14.30
New Insights from Advanced CNS Microscopy Imaging

Chairs: **Katerina Akassoglou (USA), Daniela Virgintino (Italy)**

	13.15 - 13.45	***Plenary Lecture*** **Robert G. Thorne (USA)** Delivering therapeutic proteins across the blood-brain barrier: Imaging biodistribution pathways and efficacy with multiple methods
O19	13.45 - 14.00	*In vivo* imaging of the glia limitans with a new aquaporin-4-mruby3 knock-in reporter mouse **Pauline Hélie (Switzerland)**
O20	14.00 - 14.15	New insights on barrier function and discoveries of atypical NVU structures made with super-resolution microscopy applications **Ayal Ben-Zvi (Israel)**
O21	14.15 - 14.30	Plasmin causes loss of barrier function and remodelling of key junctional molecules in brain microvascular monolayers **James JW Hucklesby (New Zealand)**

SESSION 6
14.30 - 16.15
Structural and Regulative Molecules at the Brain Barriers

Chairs: **Ingolf Blasig (Germany), Reiner Haseloff (Germany)**

	14.30 - 15.00	***Plenary Lecture*** **Caroline Ménard (Canada)** Alterations of blood-brain barrier integrity and signaling underlie sex-specific stress responses in mice and human depression

PROGRAM

Thursday, September 22, 2022

O22	15.00 - 15.15	Mutated in colon cancer protein (MCC): role in maintaining blood-brain barrier integrity through Wnt signaling **Valentin Delobel (France)**
O23	15.15 - 15.30	Epigentic regulation of the blood-brain barrier recovery after stroke **Anuska V. Andjelkovic (USA)**
O24	15.30 - 15.45	Occludin regulates the antiviral RIG-1-like receptor signaling in human brain pericytes **Silvia Torices (USA)**
O25	15.45 - 16.00	Protocadherin gamma C3 in breast cancer and melanoma and its role in interaction with brain microvascular endothelial cells **Malgorzata Burek (Germany)**
O26	16.00 - 16.15	Liver X receptor alpha promotes blood-brain barrier function by counteracting hypoxia induced endothelial dedifferentiation **Davide Vacondio (The Netherlands)**
	16.15 - 16.45	*Coffee break*

SESSION 7
16.45 - 18.15
The Brain Barriers in Tumors and Stroke

Chairs: **Istvan Krizbai (Hungary), Stefan Liebner (Germany)**

	16.45 - 17.15	***Plenary Lecture*** **Timothy Phoenix (USA)** Delineating vascular heterogeneity across brain tumors
O27	17.15 - 17.30	The differentiation degree of glioblastoma impacts on blood-brain barrier permeability **Sabrina Digiovanni (Italy)**
O28	17.30 - 17.45	Impact of HER2+ brain-tropic breast cancer cells in blood-brain barrier permeability **Liliana Santos (Portugal)**
O29	17.45 - 18.00	Blood-brain barrier opening by Tumor Treating Fields (TTFields) is due to Claudin-5 phosphorylation **Ellaine Salvador (Germany)**
O30	18.00 - 18.15	Identification of Dickkopf-1 as a potent modulator of post-stroke recovery **Romain Menet, Ayman ElAli (Canada)**
	19.00	"Bari Vecchia" guided tour
	20.30	Conference dinner

SESSION 8
09.00 - 11.00
CNS Drug Delivery and Extracellular Vesicles Transport

In collaboration with the Controlled Release Society and the Australasian Pharmaceutical Science Association

Chairs: **Birger Brodin Larsen (Denmark), Michal Toborek (USA)**

09.00 - 09.30 ***Plenary Lecture***
Chiara Riganti (Italy)
Lessons from multidrug resistant tumors: new pharmacological tools to improve drug delivery at the BBB/glioblastoma interface

O31 09.30 - 09.45 Improving brain delivery of the peptide-drug NA-1 through stabilization and conjugation to the "BBB homing" peptide BR1
Mie Kristensen (Denmark)

O32 09.45 - 10.00 Accessing brain space using controlled release engineered nanomaterials
Shanta Dhar (USA)

O33 10.00 - 10.15 Fatty acid binding proteins at the blood-brain barrier and microglia: Involvement in CNS trafficking and neuroinflammation
Joseph Nicolazzo (Australia)

O34 10.15 - 10.30 Venlafaxine transport involves a solute carrier at the blood-brain barrier
Laetitia Federici (France)

O35 10.30 - 10.45 Brain endothelium derived extracellular vesicles containing amyloid-beta induce mitochondrial alterations in neural progenitor cells
Olivia M. Osborne (USA)

O36 10.45 - 11.00 Investigation of the Wykyw pentapeptide as a biomolecule carrier on the blood-brain barrier
Ilona Gróf (Hungary)

11.00 - 12.00 *Coffee break and IBBS Members Meeting*

Closing *Lectio Magistralis*

Chairs: **Egle Solito (United Kingdom), Elga de Vries (The Netherlands)**

Katerina Akassoglou (USA)
12.00 - 13.00 Neurovascular Interactions: Mechanisms, Imaging, Therapeutics

13.00 - 13.30 Oral Presentation and Poster Awards

Closing remarks

NOTES

Organizational Support and Main Sponsors

International Brain Barriers Society

FLUIDS AND BARRIERS OF THE CNS

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