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Universidade de Lisboa**iMed.
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Associação da Faculdade de Farmácia
para a Investigação e Desenvolvimento

NEUROVASCULAR LABORATORY

Models of the Blood-Brain Barrier (BBB)

Scientific Tools to Target the Brain

Faculty of Pharmacy, University of Lisbon (FFUL)

June 5-7, 2020

Day 1 – 5th June (Theoretical sessions)

8:45 Welcome session

9:00 BBB: structure, function and dysfunction

10:00 Study the BBB: *in silico*, *in vitro* and *ex vivo* tools10:30 **Coffee-break**11:00 Data mining tools for the study of the BBB *in silico*12:00 *In vitro* models of the BBB: static vs. dynamic13:00 **Lunch**

14:00 Therapeutic strategies to overcome the BBB

14:30 Nanomedicines as a highway to the brain

15:15 Drug conjugation as a tool to overcome the BBB

16:00 **Coffee-break**

16:30 Peptide shuttles for receptor-independent transport across the BBB

17:00 Micro-CT as a preclinical image tool

Hands-on Workshop

Theoretical: 7 h

Practical: 6 h

Laboratory: 4 h

Day 2 – 6th June (Practical and laboratory sessions)

9:00 Primary cultures of brain microvascular endothelial cells (BMEC)

9:30 Cell lines of mouse BMEC: static vs dynamic cultures

10:00 Establishment of an *in vitro* model of the BBB10:30 **Coffee-break**11:00 Assessment of BBB properties in an *in vitro* model (permeability and TEER)

11:30 Evaluation of BBB properties in BMEC cultures

(immunocytochemistry and flow cytometry) –

12:00 Assessment of BBB properties in brain tissue (immunofluorescence)

12:30 **Lunch**

14:00-18:00 Laboratory sessions (small groups)

Primary cultures of BMEC

BMEC cultures under shear stress

Set-up an *in vitro* model of the BBB

Characterization of BBB properties in cell cultures

Characterization of BBB properties in brain sections

Day 3 – 7th June

9:00 Tools for analysis of BBB data (ImageJ and ICY) and discussion

10:30 **Coffee-break**

11:00 Data analysis (permeability, TEER) and discussion

12:30 Closing session and Course assessment

Registration

Regular

Students (proof required)

Until May 2

250 €

150 €

After May 2

300 €

200 €

Organization and Speakers

Coordinator: Alexandra Brito, FFUL

Inês Figueira, FARM-IF

Rui Silva, FFUL

Joana Pereira, FFUL

Rita Garcia, FFUL

Sofia Galego, FFUL

Mafalda Videira, FFUL

André Falcão, FFUL

Vera Neves, FMUL

Margarida Franco, IPL

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