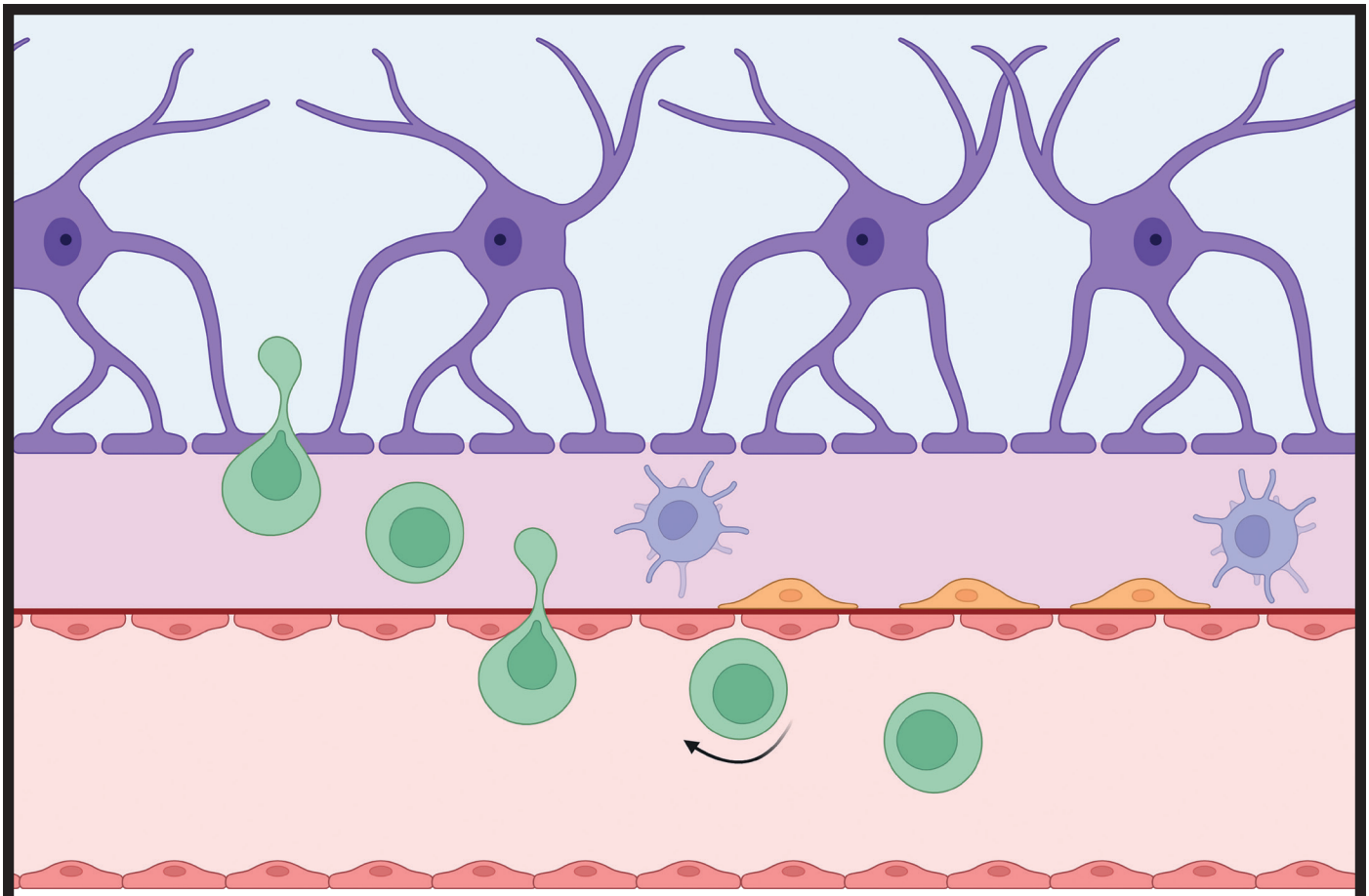


COLLABORATION OPPORTUNITY

Blood-Brain Barrier *in vitro* to *in vivo* models

- Validated models in de blood-brain barrier (BBB)
- Test your neuro compound or cell therapy for targeted treatment in the CNS
- Perform functional testing of your compound or cell therapy for restoring impaired BBB
- Building on our vast expertise in BBB testing, immunology and neurosciences

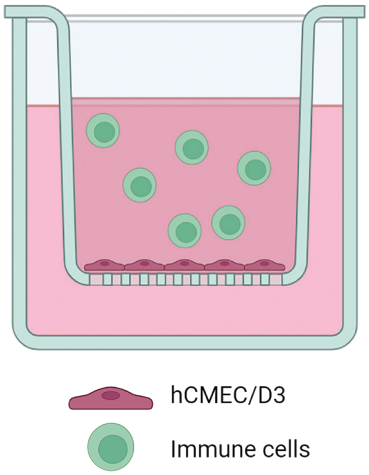
UHASSELT

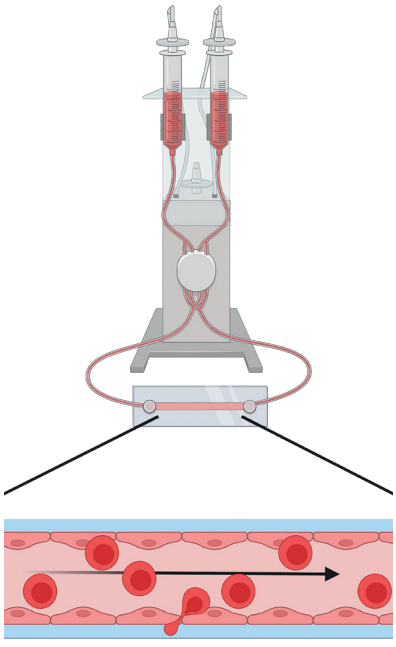
KNOWLEDGE IN ACTION

IN VITRO MODELS

CELLS

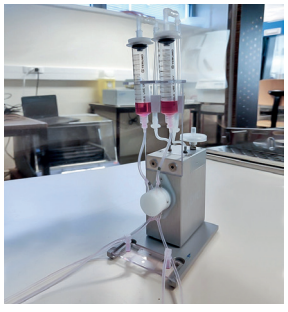
- (Stimulated) human endothelial cell lines
- (Stimulated) mouse endothelial cell lines and primary cells
- (Stimulated) human and mouse choroid plexus epithelial cell lines
- Optional addition of astrocytes/astrocyte-conditioned medium

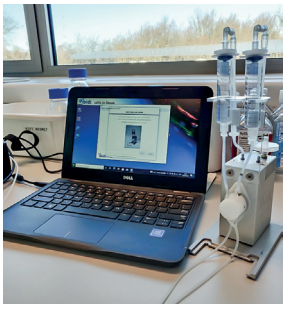




ASSAYS

- **Transendothelial Electrical Resistance (TEER)**
  - Quantify BBB integrity based on membrane potentials
  - Determine tight junction functioning
- **BBB activation assay**
  - Determine endothelial activation by quantification of adhesion molecules, tight junction production, chemokine/cytokine production… by flow cytometry, western blot, immunocytochemistry
- **Boyden chamber diffusion assay**
  - Quantitative determination of BBB integrity by diffusion of fluorescent labelled compounds/ nanoparticles/dextrans/BSA
- **Boyden chamber immune cell migration/ adhesion assay**
  - Determine migration or adhesion of (treated) immune cells over the BBB
  - Quantitative determination of all migrated cells by cell counting
  - Quantitative determination of immune cell subsets by flow cytometry
- **Dynamic cell migration/adhesion assay**
  - Flow system using the Ibidi pump system
  - Real time determination of labelled (treated) immune cell migration or adhesion in physiological flow conditions

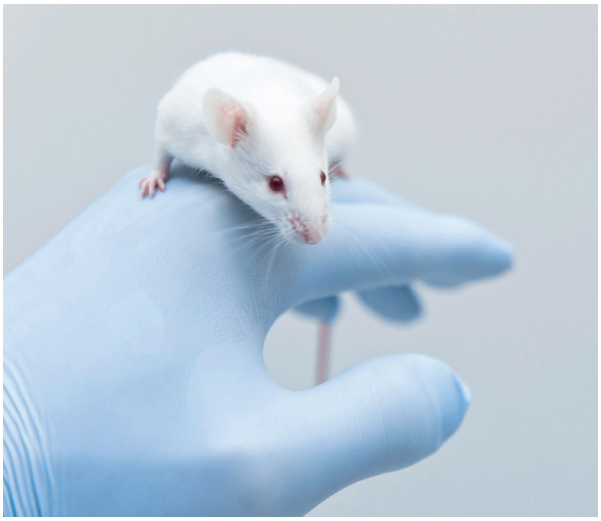




Figuren gemaakt met Biorender

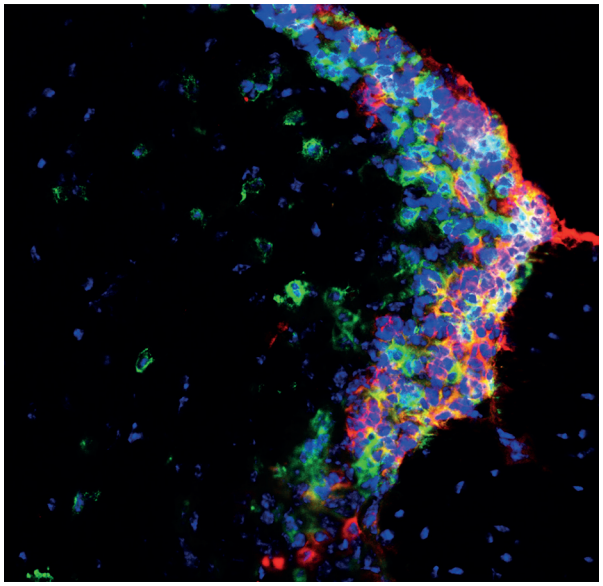
IN VIVO MODELS

Mouse models are treated with your compound or cell therapy, and the central nervous system is subsequently analysed.



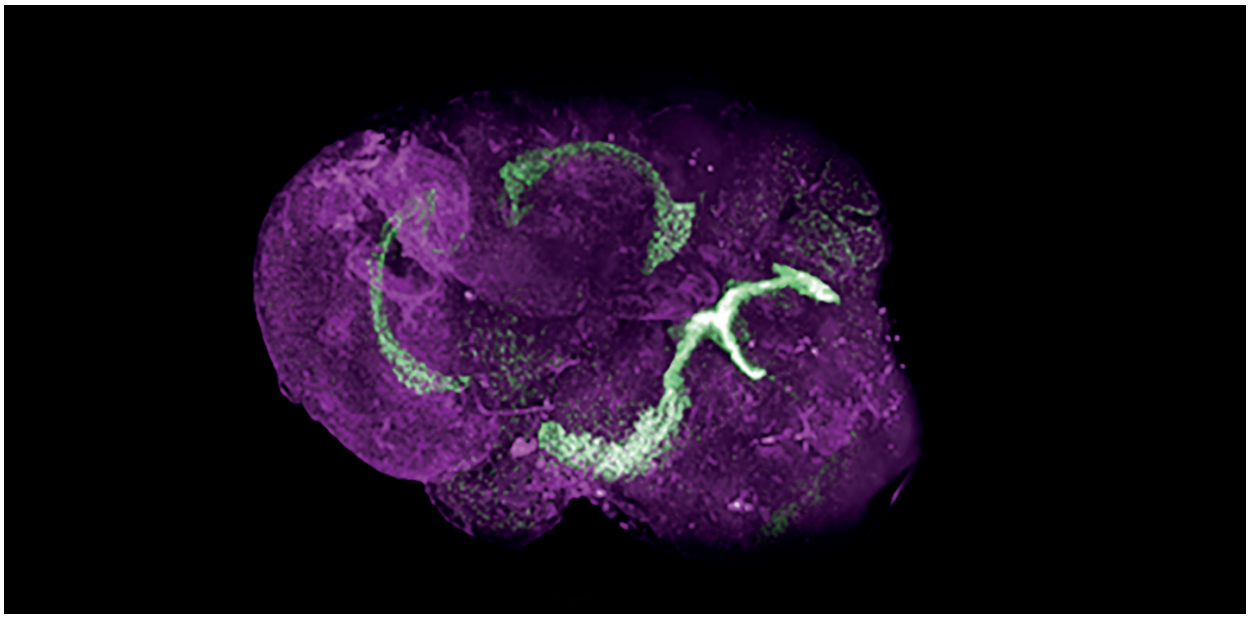
MOUSE MODELS

- Wild-type mice
- EAE mouse models
- Active EAE for testing compounds
- Adoptive transfer EAE for testing cell therapy
- Alzheimer Disease mouse model: APPswePS1dE9
- Several transgenic mouse models in house



ASSAYS

- **Immunohistochemistry**
  - Determine BBB integrity by IgG leakage in CNS
  - Determine BBB migration of a fluorescent labelled compound
  - Regional and whole tissue (light sheet) visualisation
- **Gene or protein expression**
  - Determine BBB activation gene expression by RT-PCR
  - Determine BBB activation protein expression by Western blotting
- **Immune cell infiltration**
  - Identify and quantify infiltrated immune cells (including T cells, B cells and monocytes) by flow cytometry



UHASSELT

The blood-brain barrier (BBB) establishes a physical barrier between the blood and the central nervous system (CNS). It prevents the ingress of small molecules and its integrity can be compromised by eg. inflammation in several conditions, such as Multiple Sclerosis (MS), amyotrophic lateral sclerosis (ALS), Alzheimer's disease (AD),... With our validated models, compounds or cell therapies can be tested on their interaction with the BBB.

COLLABORATION OPTIONS

- Fee-for-Service: performing the relevant experiments for you
- Facility access: once trained, you can perform experiments independently
- Consultancy and training: guiding your experimental set-up and training researchers at your location or at our facilities
- Research collaboration: open for joint grant applications when the project is complementary with our own research lines and goals

COORDINATION

Prof. Dr. Bieke Broux (bieke.broux@uhasselt.be)
www.uhasselt.be/en/instituten-en/biomed-en/immunology/cbn

RECENT PUBLICATIONS

BUSINESS DEVELOPER
Leen Willems, PhD
UHasselt – Biomedical Research Institute

T +32 (0) 497 06 75 34

leen.willems@uhasselt.be
biomed.bd@uhasselt.be