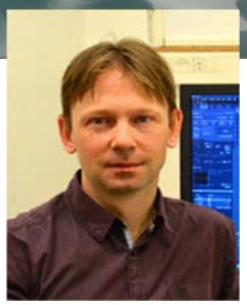
RIBBDD
Research Initiative on Brain Barriers and Drug Delivery



Transport across the Blood Brain Barrier

Neurobiology

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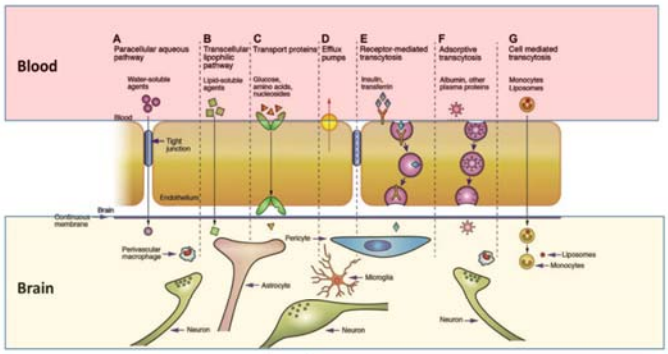
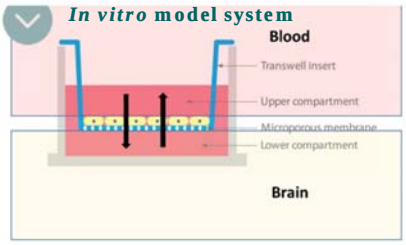
Additional members of the group: 2 postdocs, 2 PhD students and 1 technician

Research Focus

The Blood-Brain Barrier (BBB) imposes a strict control of what molecules from the bloodstream is allowed entry into the brain parenchyma. As such, the BBB protects our fragile brain against toxins and microorganisms that have made it into our bloodstream. However, this is also one of the major challenges for modern medicine aimed for the brain; it cannot pass the gate to its destination.
Previous studies using the transferrin receptor have succeeded in transporting drugs across the BBB, albeit with low efficiency. So far, the mechanisms are far from understood.



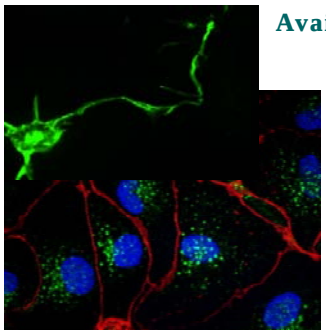


In our group we are characterizing different subcellular trafficking routes of known and novel receptors in brain endothelial cells, in order to find the optimal receptor systems for drug delivery to the brain.
Our work is a part of a Danish Research initiative on Blood barriers and Drug delivery (WWW.RIBBDD.DK)

Methods

Our studies are primarily based on state-of-the-arte imaging system such as confocal, spinning disk, high content screening and TIRF in combination with *in vitro* BBB models using primary cells from mouse and pig brain.

Additional techniques applied in the laboratory include cell culture, transient and stable knockdown, protein/RNA/DNA biochemistry, molecular cloning, radioimmuno-based assays, subcellular fractionation, co-immunoprecipitation, antibody production and purification, Next Generation Sequencing, luciferase validation, qPCR and more.



Available projects

Our work includes a detailed classification of the endo-lysosomal system and functional internalization mechanisms in *in vitro* models of the BBB, testing particle penetrance across the BBB of modified nanoparticles and advancement of fluorescence techniques.

Are you our new student?

...Then you are a responsible and curious person. If you are accepted as a member of our team, we will do our best to give you good laboratory basics as well as teaching you complicated methods and use advanced equipment. On the other hand, we expect you to be reliable, with a positive can-do attitude and, not the least, conscious and self-driven in the daily tasks to keep the laboratory running.

Current members


Susanne Venø
Postdoc


Andrea Tóth
Postdoc


Sarah Christensen
PhD Student


Simone Nielsen
PhD Student


Annemette Marnow
Technician

References SorLA and Sortilin sorting: PMID: 11331584, PMID: 27192064, PMID: 17646382, Bispecific antibodies therapeutics: PMID: 24411731, PMID: 25378646, PMID: 26687840