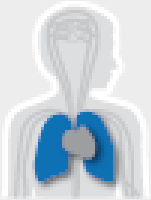
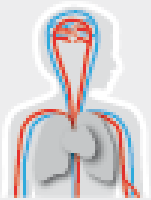


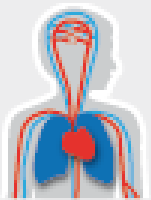
Heart Failure & Arrhythmias



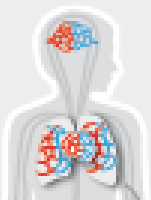
Pulmonary Hypertension  
& Thrombosis



Atherosclerosis  
& Ischemic Syndromes



Diabetes & Metabolism



Microcirculation

# Focus of research group (I)

Name PI: Elga de Vries

Department, UMC: Molecular Cell Biology and Immunology

Size of research group: 10 fte;

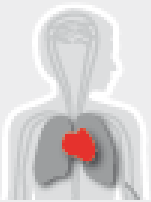
## Current mission and aims

*Dedicated to investigating **the role of alterations of the neurovascular unit in neurological disorders** in order to better understand their pathophysiology and enable novel diagnostic and therapeutic applications*

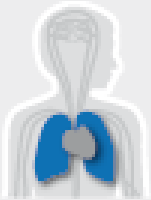
**Current vision:** *Understand and restore impaired neurovascular function to reinstate brain homeostasis*

## Current aims:

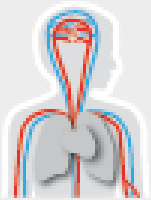
- *Unravel molecular control brain barrier endothelium / CSF epithelium: function and immune quiescence*
- *Define contribution of altered cell –cell interaction – neuro-inflammation / neurdegeneration*
- *Therapeutic validity in in vivo models*
- *Translate findings to clinic (imaging, biomarkers)*



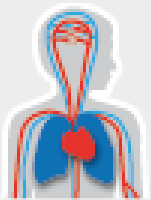
Heart Failure & Arrhythmias



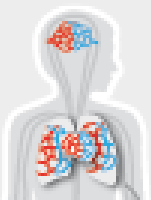
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Diabetes & Metabolism



Microcirculation

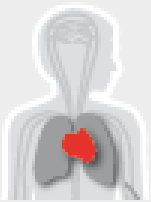
# Focus of research group (II)

## Current expertise

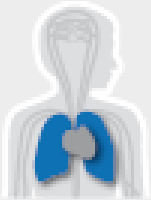
- 1) Understanding function of CNS barrier endothelial / epithelial cells (miRNA, integrity, transmigration)
- 2) CNS cell – cell interactions (primary CNS cells human / rodent: endothelium, astrocytes, microglia, neurons, pericytes: iPSC)
- 3) Animal models: marmoset & cortical, EAE, transgenic AD models, MCAO (stroke model)
- 4) Biological samples: MS & AD brain tissue/CSF/blood

## Current funding

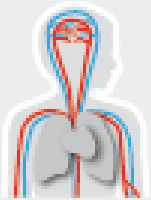
Dutch MS research foundation, IMI, GMSI (industrial grant)  
Horizon2020, Marie-Curie ITN, ZonMW (Memorabel)



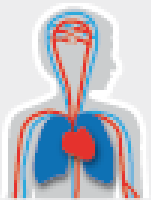
Heart Failure & Arrhythmias



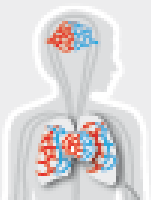
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Diabetes & Metabolism



Microcirculation

# Future plans

## Short term (1-2 year) plan

Plan: - molecular controllers of brain endothelial function (i.e. nuclear receptors)

Necessary infrastructure:

- iPSC derived BBB endothelial and CNS cells: iPSC unit
- 3D co-culture models
- Accesible in vivo models (zebrafish?)
- Deep seq plus analysis

## Long term (>2 year) plan

Plan: translate finding to in vivo models: counteracting disease?

Necessary infrastructure:

- Transgenic cell specific animal unit
- Imaging (high field MRI – mice)

## Collaboration in ACS

Many: (a.o. Ed van Bavel/Erik Bakker, Jonathan Coutinho, Mat Daemen, Peter Hordijk, Noam Zelcer, .....