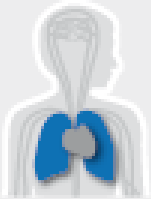
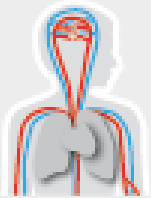


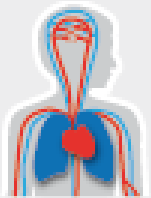
Heart Failure & Arrhythmias



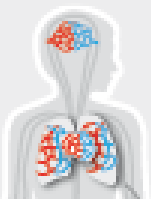
Pulmonary Hypertension
& Thrombosis



Atherosclerosis
& Ischemic Syndromes



Diabetes & Metabolism



Microcirculation

Focus of research group (I)

Ed van Bavel

Professor of Vascular Biophysics

Biomedical Engineering and Physics, Amsterdam UMC-MBD

Research group:

1 UD (Erik Bakker)

2 technicians

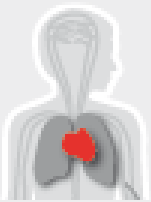
2 post-docs

10 PhD students

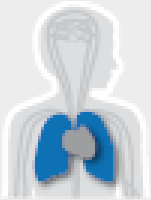
Current mission, vision and aims

To understand the control of arterial structure and function in relation to tissue (mal)perfusion

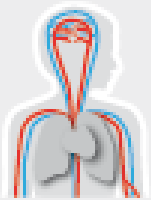
- Biomechanics and mechanobiology
- Focus on resistance arteries and vascular networks
- Focus on brain
- Experimental / clinical imaging / modeling



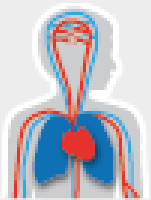
Heart Failure & Arrhythmias



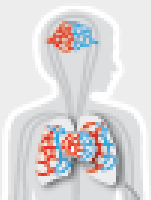
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Diabetes & Metabolism



Microcirculation

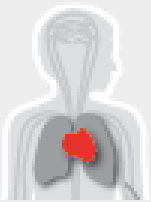
Focus of research group (I)

Current expertise

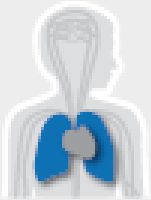
- Vascular biomechanics, mechanobiology, physiology
- In vivo/in vitro/in silico

Main current funding

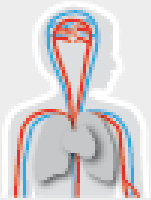
- Smarter (small artery remodeling) (FP7 Marie Curie ITN, 4 Meuro, coordinator, just finished)
- INSIST (In silico stroke trial, H2020, 5 Meuro, co-coordinator, H2020)



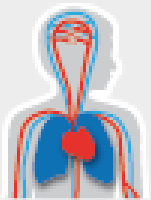
Heart Failure & Arrhythmias



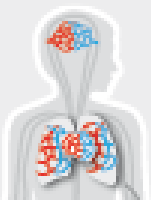
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Microcirculation

Future plans

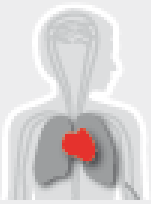
Short term:

- Setting up experimental acute stroke lab with Neurology, Neuroradiology
 - First post-doc starts November (Amsterdam Neuroscience)
 - Submitting: H2020 Marie Curie ETN on no-reflow after thrombectomy in acute ischemic stroke
- Intensifying clinical research in vascular engineering/biophysics/microcirculation
 - (new) collaborations with clinical groups in ACS, AMC or VUMC location
 - Not only brain perfusion

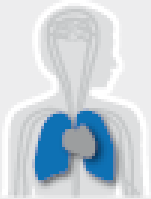
Long term:

- Maintenance and strengthening research line within ACS/microcirculation and atherosclerosis & ischemic syndromes, and within Amsterdam neuroscience

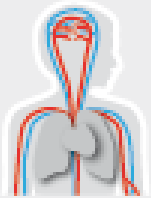
Infrastructure needed: imaging imaging imaging



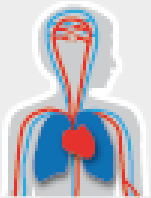
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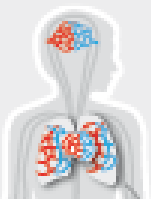
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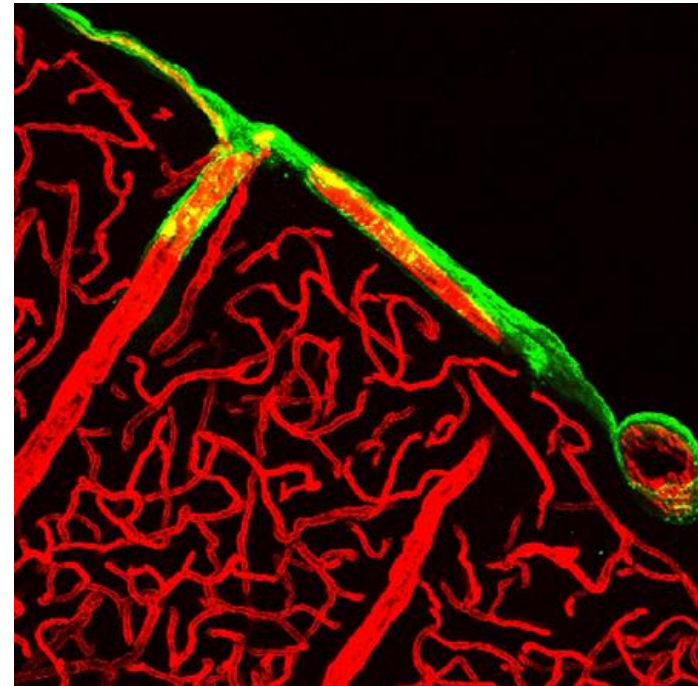
Microcirculation

Focus of research group (II)

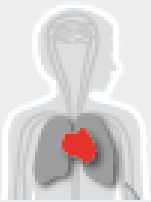
Paravascular system (glymphatic clearance from the brain)

Lymph-like function; supposed to work during sleep; clearance of amyloid-beta

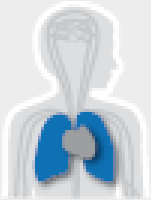
- ? Anatomical features
- ? Driving forces
- ? Direction of flow
- ? Source of fluid
- ? Diffusion or flow in Interstitium
- ? BBB dysfunction
- ? Aging, etc.



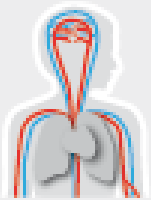
Focus of research group (III)



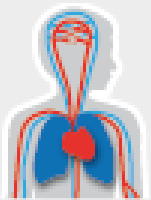
Heart Failure & Arrhythmias



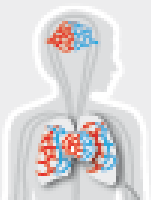
Pulmonary Hypertension
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Diabetes & Metabolism



Microcirculation

Angiophagy (extravasation of microspheres and blood clots) ACS (with Peter Hordijk; Anne-Eva van der Wijk)

Silent brain infarcts; Gradual decline in cognitive function
Associated with aging

- ? Exacerbated by cardiovascular disease (hypertension)
- ? Mechanisms, driving forces
- ? Means to get drugs into the brain

