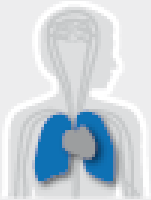
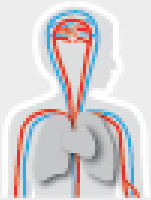


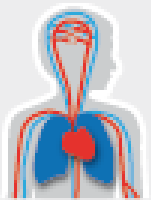
Heart Failure & Arrhythmias



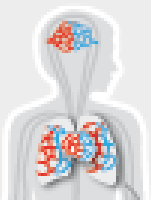
Pulmonary Hypertension & Thrombosis



Atherosclerosis & Ischemic Syndromes



Diabetes & Metabolism



Microcirculation

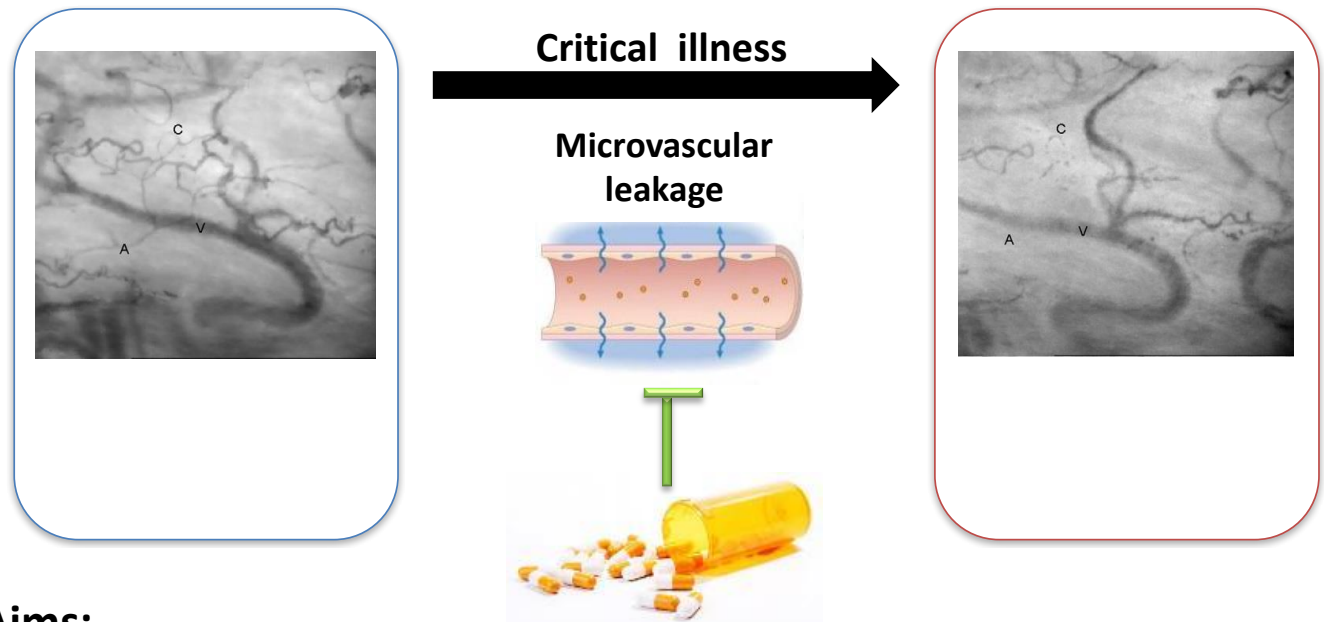
Focus of research group (I)

Name PI: Charissa van den Brom

Department, UMC: Anesthesiology, VUmc

Size of research group: 4 PhD students, 1 research technician

Current mission & vision: Targeting microvascular leakage to prevent/restore microcirculatory perfusion disturbances in critical illness to prevent organ failure



Aims:

- 1) Unravel molecular mechanisms involved in microvascular leakage
- 2) Target these mechanisms to restore microcirculatory perfusion

Focus of research group (II)

Current expertise:

Preclinical

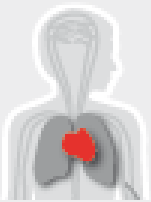
- Animal models: cardiopulmonary bypass (rat), hemorrhagic shock (rat, mouse), Tie2 knockdown mouse line
- Intubation, mechanical ventilation, venous and arterial lines (continuous registration MAP, CVP, HR and temperature)
- Intravital microscopy of cremaster (rat, mouse)
- Contrast enhanced ultrasonography of heart and kidney (rat, mouse)
- Two-photon microscopy for renal perfusion/leakage (rat, mouse)
- Evans blue dye leakage
- In vitro endothelial barrier measurements in human endothelial cells

Clinical

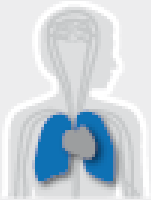
- Patients undergoing cardiac surgery or following hemorrhagic shock
- Side-stream Dark Field imaging (sublingual capillary bed)
- Contrast enhanced ultrasonography (heart, kidney)
- Near-infrared spectroscopy (brain)
- Hyperspectral imaging (kidney)

Current funding:

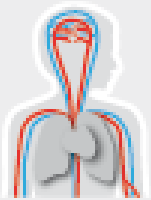
European Society for Intensive Care Medicine (ESICM), Dutch Heart foundation (Dekker), Dutch Society for Anesthesiology (NvA), European Society for Anaesthesia (ESA)



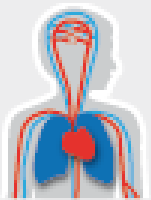
Heart Failure & Arrhythmias



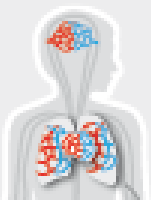
Pulmonary Hypertension
& Thrombosis



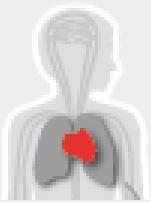
Atherosclerosis
& Ischemic Syndromes



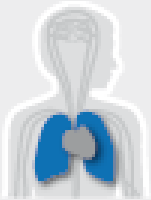
Diabetes & Metabolism



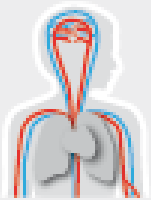
Microcirculation



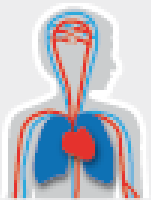
Heart Failure & Arrhythmias



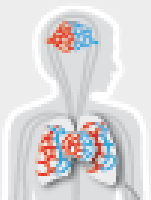
Pulmonary Hypertension
& Thrombosis



Atherosclerosis
& Ischemic Syndromes



Diabetes & Metabolism



Microcirculation

Future plans

Short term (1-2 year) plan

Plan: Optimize techniques to determine disturbances in perfusion and oxygenation of vital organs

Necessary infrastructure:

Long term (>2 year) plan

Plan: Targeting microvascular leakage to prevent/restore microcirculatory perfusion disturbances in critically ill **patients**

Necessary infrastructure:

Collaboration in ACS

- AMC: ICU (Prof Juffermans)
- Vumc: physiology (Prof Hordijk, Dr Musters), nephrology (Dr Vervloet), cardiothoracic surgery (Dr Vonk), ICU (Dr Elbers)
- Sanquin (Dr van Buul)