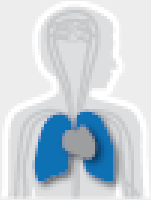
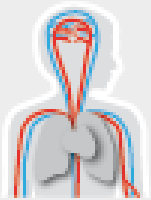


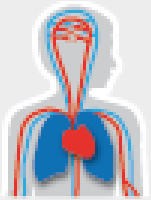
Heart Failure & Arrhythmias



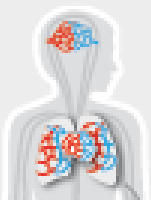
Pulmonary Hypertension & Thrombosis



Atherosclerosis & Ischemic Syndromes



Diabetes & Metabolism



Microcirculation

Focus of research group (I)

Name PI: **Jan Van den Bossche**

Department, UMC: **Molecular Cell Biology and Immunology, VUmc**

Size of research group:

4



Jeroen Baardman



Sanne Verberk



Kyra de Goede
(CCA)

Karl Harber

Current mission, ^{PhD's:} vision and aims :

“Understanding and targeting macrophage immunometabolism”

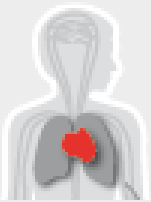


- Glycolysis
- PPP
- Fast ATP
- Biosynthesis

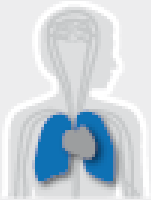


- OXPHOS
- Sustained ATP
- Long-lived

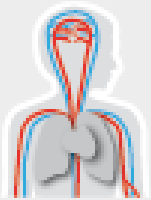




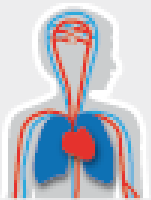
Heart Failure & Arrhythmias



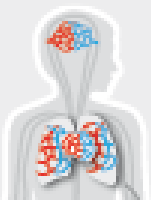
Pulmonary Hypertension & Thrombosis



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Diabetes & Metabolism



Microcirculation

Focus of research group (II)

Current expertise : Macrophage (& monocyte) biology:

- Metabolic characterization
- Functional profiling
- In-dept phenotyping
- Reprogramming

Seahorse metabolic flux analysis,
high-end cytometry,
primary macrophage cultures



*Acly fl/fl * LysM-Cre*

Current funding :

- Hartstichting senior postdoc grant (2018-2022)
- CCA PhD grant (2018-2022)
- ACS PhD grant (2019-2022)
- Hartstichting junior postdoc grant & VENI (2013-2018)

Cell Reports

Report

A Defective Pentose Phosphate Pathway Reduces Inflammatory Macrophage Responses during Hypercholesterolemia

Graphical Abstract

Authors

High cholesterol

LPS

Nrf2

PPP

Desmosterol

LXR activation

Inflammatory MΦ response

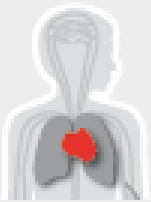
Jeroen Baardman, Sanne G.S. Verberk, Koen H.M. Prange, ..., Esther Lutgens, Menno P.J. de Winther, Jan Van den Bossche

Correspondence
j.vandenbossche@vumc.nl

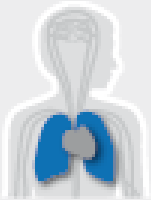
In Brief

The link between systemic and cellular metabolism is a neglected aspect in immunometabolism. Baardman et al. show that hypercholesterolemia alters macrophage metabolism and phenotype. The suppressed pentose phosphate pathway (PPP) in those "foam cell" macrophages attenuates inflammatory responses, signifying that systemic and cellular metabolism together regulate macrophage function.

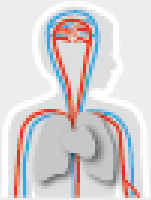
2018



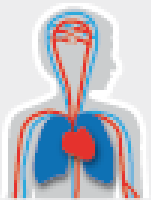
Heart Failure & Arrhythmias



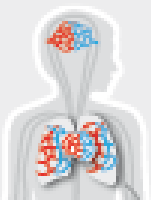
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Diabetes & Metabolism

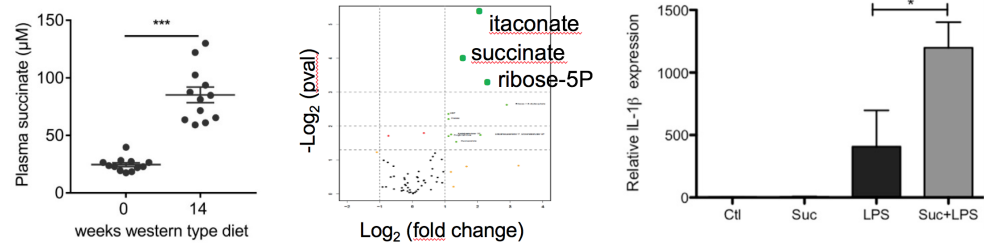


Microcirculation

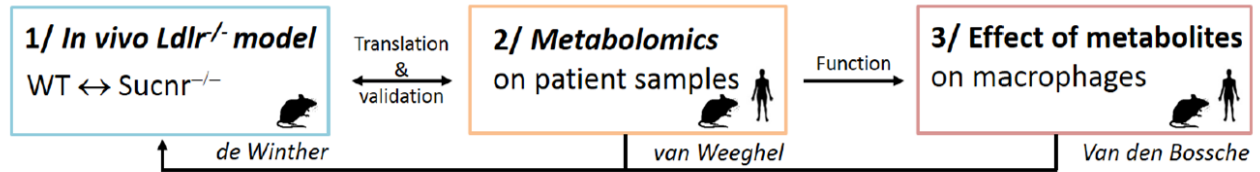
Future plans : ACS PhD project - Local immunometabolites shape inflammatory macrophages and atherosclerosis progression

Focus on succinate:

Pilot data:



Project outline:



New targets for intervention | biomarkers for diagnosis | follow-up collaborative projects & funding

Necessary “infrastructure”:

Patient samples : (fresh) plaques, blood samples

Collaborations in ACS :

- Liffert Vogt (Nephrology) : Effect of high salt on monocytes/macrophages
- Lab of Genetic Metabolic Diseases / Gepke Visser : Effect of FAO deficiencies on monocytes/macrophages



Fatty Acid Oxidation in Macrophages and T Cells: Time for Reassessment? Cell Metabolism **Previews**

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<https://doi.org/10.1016/j.cmet.2018.09.018>