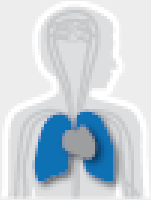
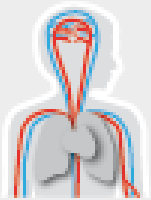


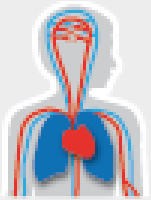
Heart Failure & Arrhythmias



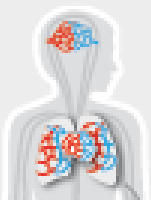
Pulmonary Hypertension
& Thrombosis



Atherosclerosis
& Ischemic Syndromes



Diabetes & Metabolism



Microcirculation

Focus of research line

Name: Jeffrey Kroon (j.kroon@amc.uva.nl)
Department: (Experimental) Vascular Medicine, location AMC
Supervising: 4 PhDs, 2 Technicians, 1 Msc.

Current mission, vision and aims

Mission

To identify new potential therapeutic leads in order to treat- in particular- Lp(a)-induced atherosclerosis. We focus on the endothelium and the heart valve (valve interstitial cells).

Vision

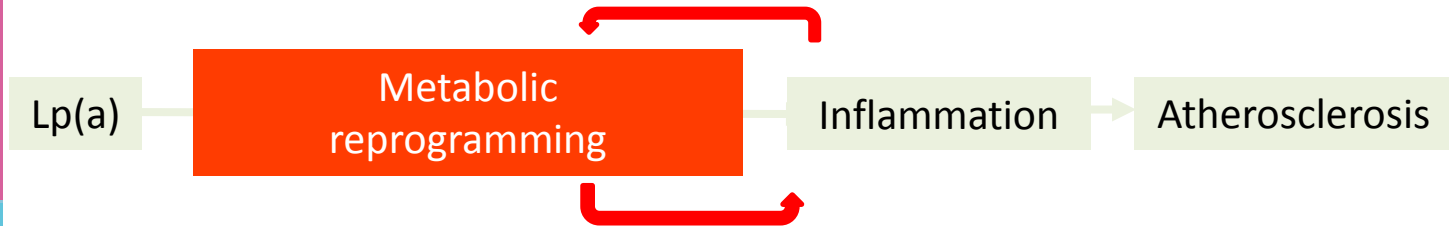
By **steering metabolic reprogramming** of the vessel wall and the aortic valve, **inflammation** and eventually atherogenesis can be reduced.

Aim

Elucidate the molecular mechanisms and cross-talk between inflammation, metabolic alterations and leukocyte migration.

Current research focus

“Elucidate and target cell metabolism to decrease the pro-inflammatory state in high CV-risk patients”



Current expertise

- Experimental models to study inflammatory pathways *in-vitro*:
 - Confocal and live cell imaging
 - Leukocyte transendothelial migration under flow assays
 - Standard cell biology techniques, endothelial barrier function
- Atherogenic pathway detection using ‘omics’ and machine learning
- Metabolic flux assays

Topics of interest:

- Lipid-induced metabolic (re)programming
- Atherogenic pathways of Lp(a) leading to increased monocyte influx



Lp(a) research

Steer blood vessel metabolism against atherosclerosis

Lp(a) patient



How?

In-vivo validation:

- Mouse models
- AtheroExpress (UMCU)

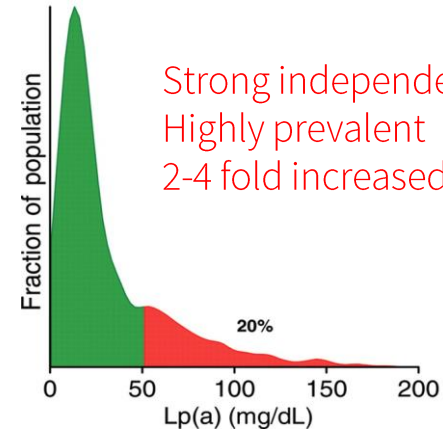
Functional models:

- *in-vitro*
- *ex-vivo*

Pathway analysis:

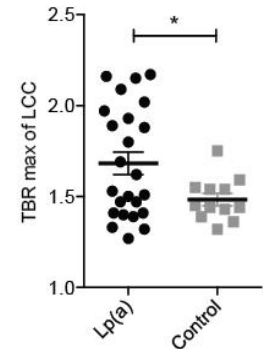
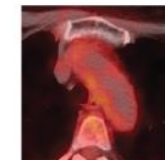
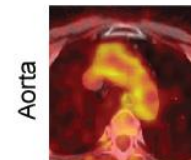
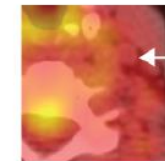
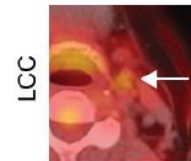
- RNAseq
- ¹³C-flux

Inhibitory/reversibility expts



Lp(a) subject

Control subject



Collaborations in ACS

Prof. M. de Winther, Dr. K. Prange

Prof. R. Houtkooper, Dr. M. van Weeghel

Prof. E. Lutgens, Dr. T. Seijkens

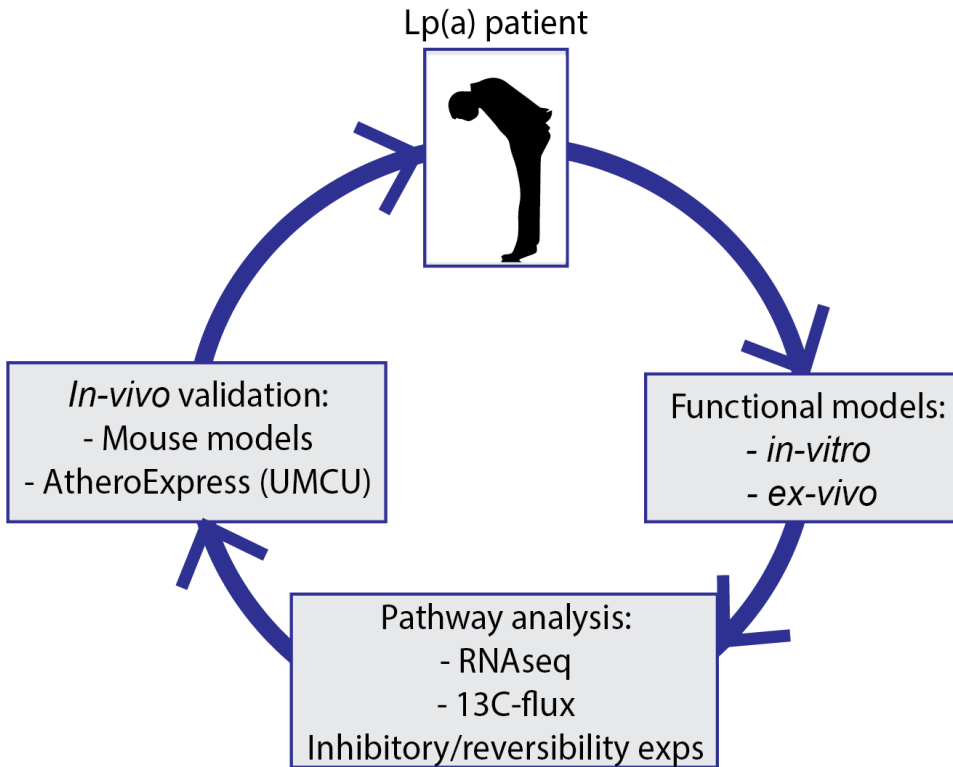
Profs. M. Nieuwdorp, K. Hovingh, E. Stroes

Prof. P. Hordijk

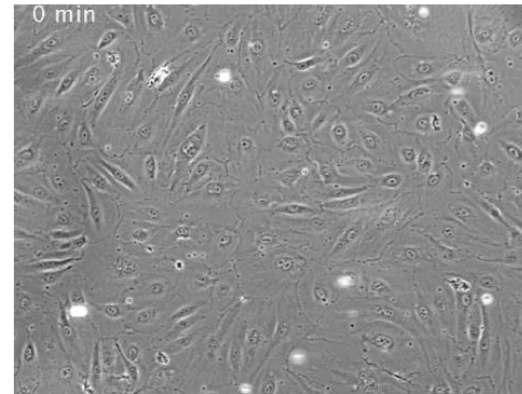
Dr. L. Vogt

Lp(a) research

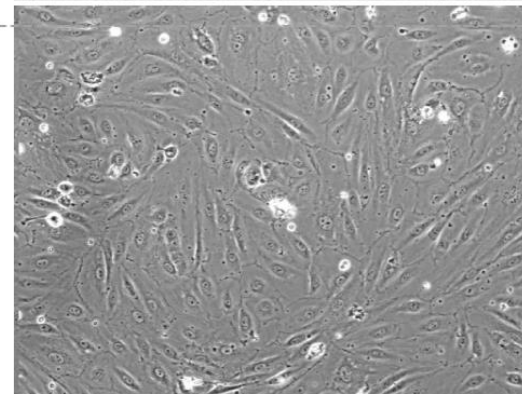
Steer blood vessel metabolism against atherosclerosis



Healthy donor monocyte migration under flow



Arterial ECs +
20 mg/dl Lp(a)
(18 h)



Arterial ECs +
100 mg/dl Lp(a)
(18 h)

Collaborations in ACS

Prof. M. de Winther, Dr. K. Prange

Prof. R. Houtkooper, Dr. M. van Weeghel

Prof. E. Lutgens, Dr. T. Seijkens

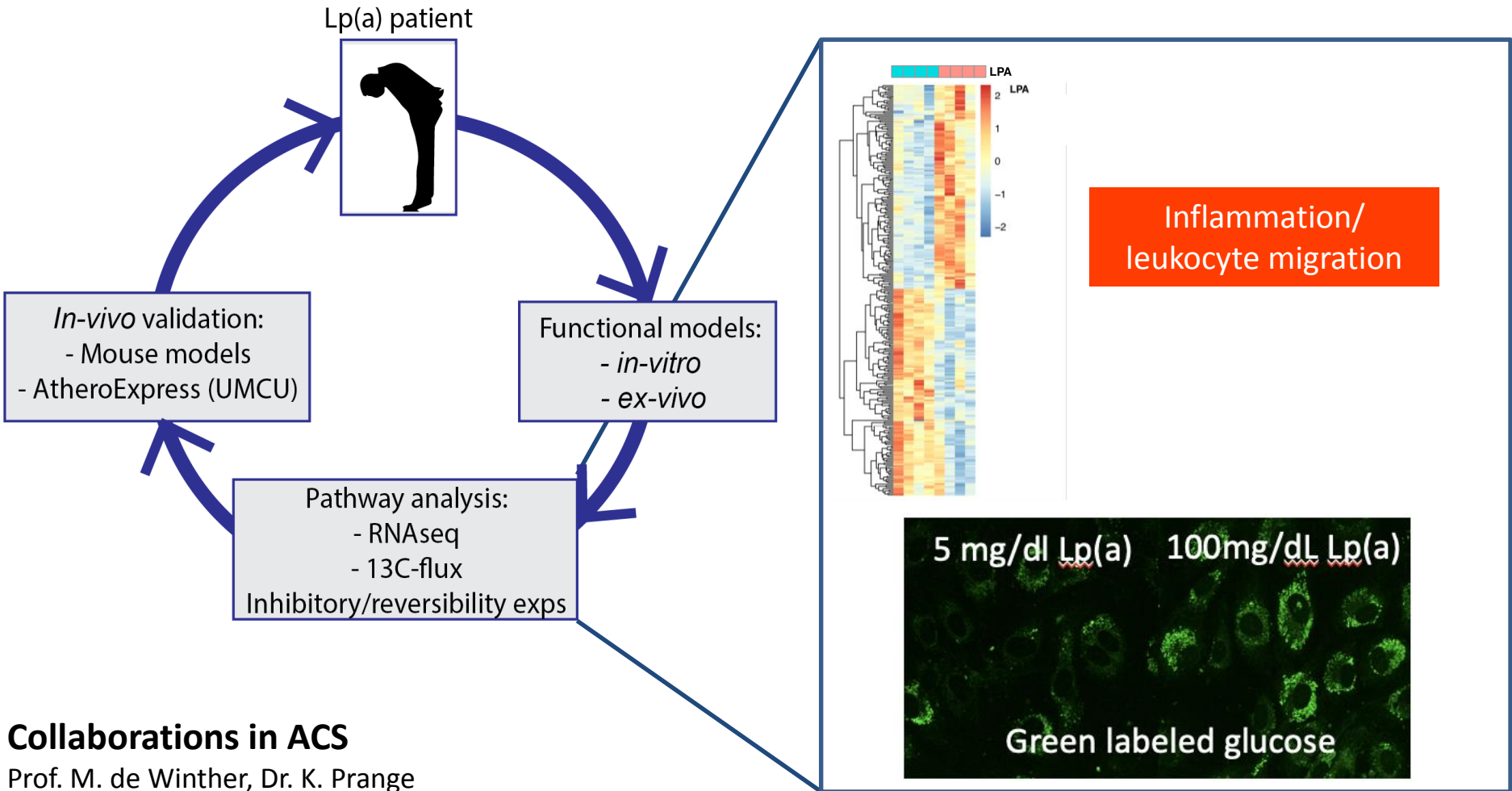
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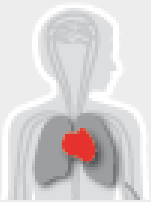
Lp(a) research

Steer blood vessel metabolism against atherosclerosis

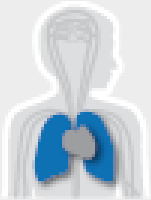


Collaborations in ACS

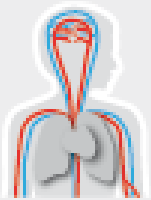
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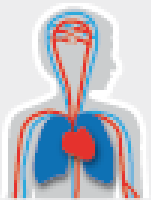
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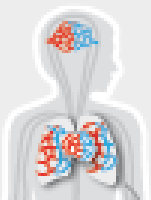
Pulmonary Hypertension
& Thrombosis



Atherosclerosis
& Ischemic Syndromes



Diabetes & Metabolism



Microcirculation

Future plans

Current funding

VENI (NWO/ZonMW), ACS-postdoc 2017, Industrial grant

Short term (1-2 year) plan

Validation of our *in-vitro* pathways in *ex-vivo* setting

Implement inflammatory lab-models in clinical trials

Long term (>2 year) plan

Expand translational research in Amsterdam UMC

Acquire VIDI

Further identify attractive targets to improve endothelial and valve function in atherosclerosis