



Universiteit
Leiden
The Netherlands

The glycoalyx: a diagnostic and therapeutic target in cardiometabolic diseases

Velden, A.I.M. van der

Citation

Velden, A. I. M. van der. (2024, September 3). *The glycoalyx: a diagnostic and therapeutic target in cardiometabolic diseases*. Retrieved from <https://hdl.handle.net/1887/4039604>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4039604>

Note: To cite this publication please use the final published version (if applicable).

The glycocalyx; a diagnostic and therapeutic target in cardiometabolic diseases

Anouk van der Velden

ISBN 978-94-6510-036-4

Cover design: Anouk van der Velden

Lay-out and printing: ProefschriftMaken | www.proefschriftmaken.nl

© A.I.M van der Velden, 2024

All rights reserved. No parts of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronically, mechanically, by photocopying, recording or otherwise, without prior permission of the author.

The glycoalyx; a diagnostic and therapeutic target in cardiometabolic diseases

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof.dr.ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op dinsdag 3 september 2024
klokke 16.00 uur

door
Anouk Ilse Maria van der Velden
geboren te Egmond a/d Hoef
in 1991

Promotor:

Prof. dr. A.J. Rabelink

Co-promotores:

Dr. B.M. van den Berg

Manuscriptcommissie:

Prof. dr. A.J. van Zonneveld

Prof. dr. H. Pijl

Prof. dr. W.J.W. Bos

Prof. dr. J. van der Vlag *Radboud Universitair Medisch Centrum, Nijmegen*

Dr. D.H.T. Ijpelaar *Groene Hart Ziekenhuis, Gouda*

The studies presented in this thesis were performed at the Eindhoven Laboratory for Vascular and Regenerative Medicine, Leiden University Medical Centre, Leiden, The Netherlands, and were financially supported by: Consortium grant LSHM16058-SGF (GLYCOTREAT; a collaboration project financed by the PPP allowance made available by Top Sector Life Sciences & Health to the Dutch Kidney Foundation to stimulate public-private partnerships).

Contents

Chapter 1	General Introduction	7
Chapter 2	Microvascular differences in individuals with obesity at risk of developing cardiovascular diseases	21
Chapter 3	Ethnic differences in urinary monocyte chemoattractant protein-1 and heparanase-1 levels in individuals with type 2 diabetes, the HELIUS study	31
Chapter 4	Role of dietary interventions on microvascular health in South-Asian Surinamese people with type 2 diabetes in the Netherlands; a randomized controlled trial	51
Chapter 5	Supplementation with Endocalyx™ preserves glomerular endothelial glycocalyx and capillary stability in experimental diabetes	81
Chapter 6	Fasting mimicking diet in diabetic mice partially preserves glomerular endothelial glycocalyx coverage, without changing the diabetic metabolic environment	105
Chapter 7	Summary & General Discussion	131
Chapter 8	Nederlandse samenvatting	145
	List of publications	156
	Curriculum Vitae	158
	Dankwoord	159

