



Universiteit
Leiden

The Netherlands

Enhancement of host defense against pathogens by antimicrobial peptides : a new approach to combat microbial drug resistance

Does, A.M. van der

Citation

Does, A. M. van der. (2011, March 29). *Enhancement of host defense against pathogens by antimicrobial peptides : a new approach to combat microbial drug resistance*. Retrieved from <https://hdl.handle.net/1887/16658>

Version: Corrected 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/1887/16658>

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

Enhancement of host defense against pathogens by antimicrobial peptides

A new approach to combat microbial drug resistance

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof.mr. P.F. van der Heijden,
volgens besluit van het College voor Promoties
te verdedigen op dinsdag 29 maart 2011
klokke 15:00 uur

door

Anne Margaretha van der Does
geboren te 's-Gravenhage in 1982

Promotiecommissie

Promotor:

Prof.dr. J.T. van Dissel

Co-promotor:

Dr. P.H. Nibbering

Overige leden:

Prof.dr. P.S. Hiemstra

Prof.dr. T.B.H. Geijtenbeek (Universiteit van Amsterdam)

Dr. A. Lupetti (Università di Pisa, Italië)

Copyright © 2011 A.M. van der Does.

All rights reserved. No part of this publication may be reproduced in any form or by any means, by print, photocopy, electronically or any other means without permission of the author.

ISBN: 9789461081391

Cover illustration:

A field of tulips represents the flourishing state of antimicrobial peptide research

Cover design by Anne van der Does and Gildeprint Drukkerijen.

Printed by: Gildeprint Drukkerijen – Enschede, The Netherlands.

The research presented in this thesis was performed at the Department of Infectious Diseases, Leiden University Medical Center, Leiden, The Netherlands.

The work presented in this thesis was financially supported by SenterNovem ISO44096

Publication of this thesis was financially supported by Greiner Bio-One and J.E. Jurriaanse Stichting.

"One sometimes finds what one is not looking for"

Sir Alexander Fleming (1881-1955)

Voor Pap, Mam en Fenna

Table of contents

Chapter 1	General introduction & outline of the thesis	8
Chapter 2	The human lactoferrin-derived peptide hLF1-11 primes monocytes for an enhanced TLR-mediated immune response	28
Chapter 3	Antimicrobial peptide hLF1-11 directs granulocyte-macrophage colony-stimulating factor-driven monocyte differentiation toward macrophages with enhanced recognition and clearance of pathogens	48
Chapter 4	LL-37 directs macrophage differentiation toward macrophages with a proinflammatory signature	62
Chapter 5	The human lactoferrin-derived antimicrobial peptide hLF1-11 drives monocyte-dendritic cell differentiation toward dendritic cells that promote antifungal responses and induce Th17 polarization	82
Chapter 6	The human lactoferrin-derived peptide hLF1-11 exerts immunomodulatory effects by specific inhibition of myeloperoxidase activity	100
Chapter 7	Summary and general discussion	118
	Nederlandse samenvatting	134
	Curriculum Vitae	142
	List of publications	144