



Universiteit
Leiden
The Netherlands

Immune modulation by schistosomes : mechanisms of T helper 2 polarization and implications for metabolic disorders

Hussaarts, L.

Citation

Hussaarts, L. (2015, September 10). *Immune modulation by schistosomes : mechanisms of T helper 2 polarization and implications for metabolic disorders*. Retrieved from <https://hdl.handle.net/1887/35155>

Version: Not Applicable (or Unknown)

License: [Leiden University Non-exclusive license](#)

Downloaded from: <https://hdl.handle.net/1887/35155>

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

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/35155> holds various files of this Leiden University dissertation.

Author: Hussaarts, Leonie

Title: Immune modulation by schistosomes : mechanisms of T helper 2 polarization and implications for metabolic disorders

Issue Date: 2015-09-10

IMMUNE MODULATION BY SCHISTOSOMES:

mechanisms of T helper 2 polarization and implications for metabolic disorders

ISBN: 978-94-6182-556-8

© 2015 Leonie Hissaarts

The work presented in this thesis was performed at the Department of Parasitology,
at the Leiden University Medical Center in the Netherlands.

Printing of this thesis was financially supported by ChipSoft and BD Biosciences.

Cover design and artwork: Martijn den Ouden (www.martijndenouden.nl)

Layout and Printing: Off Page (www.offpage.nl)

IMMUNE MODULATION BY SCHISTOSOMES:

mechanisms of T helper 2 polarization and implications for metabolic disorders

Proefschrift

ter verkrijging van
de graad van Doctor aan de Universiteit Leiden,
op gezag van Rector Magnificus prof.mr. C.J.J.M. Stolker,
volgens besluit van het College voor Promoties
ter verdedigen op donderdag 10 september 2015
klokke 11.15 uur

door

Leonie Hussaarts
geboren te Delft in 1987

PROMOTIECOMMISSIE

Promotor: Prof. Dr. M. Yazdanbakhsh

Co-promotor: Dr. B. Guigas

Overige leden: Dr. D. Jankovic (National Institutes of Health, Bethesda, MD, USA)

Prof. Dr. C. van Kooten

Prof. Dr. M.P.J. de Winther (Academic Medical Center, Amsterdam)

TABLE OF CONTENTS

Chapter 1	General introduction	7
Chapter 2	Schistosome-derived omega-1 drives Th2 polarization by suppressing protein synthesis following internalization by the mannose receptor	25
Chapter 3	Rapamycin and omega-1: mTOR-dependent and -independent Th2 skewing by human dendritic cells	51
Chapter 4	Analysis of human dendritic cell maturation and polarization using label-free quantitative proteomics	63
Chapter 5	Chronic helminth infection and helminth-derived egg antigens promote adipose tissue M2 macrophages and improve insulin sensitivity in obese mice	87
Chapter 6	Mannose receptor deficiency protects against high-fat diet-induced insulin resistance and decreases classical activation of liver and adipose tissue macrophages	111
Chapter 7	Summarizing discussion	133
Addendum	Nederlandse samenvatting	149
	Dankwoord / Acknowledgements	153
	Curriculum Vitae	155
	List of publications	157

