



Universiteit  
Leiden

The Netherlands

## **Innate immune response and regulation of human life-histories under adverse conditions**

May, L.

### **Citation**

May, L. (2010, April 13). *Innate immune response and regulation of human life-histories under adverse conditions*. Retrieved from <https://hdl.handle.net/1887/15212>

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/1887/15212>

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

INNATE IMMUNE RESPONSE  
AND REGULATION OF  
HUMAN LIFE-HISTORIES  
UNDER ADVERSE CONDITIONS

Linda May

Innate immune response and regulation of human life-histories under adverse conditions, by Linda May. Leiden University Medical Center, Department of Gerontology and Geriatrics, Albinusdreef 2, 2300 RC Leiden, The Netherlands

Lay-out: Linda May

Printed by: Ipskamp Printpartners

This research was supported by the Netherlands Foundation for the Advancements of Tropical Research (grant number WOTRO 93-467), the Netherlands Organization for Scientific Research (NWO 051-14-050), the EU funded Network of Excellence LifeSpan (FP6 036894), the Netherlands Genomics Initiative/Netherlands Organisation for Scientific Research (NWO 050-60810) and the Stichting Dioraphte.

# INNATE IMMUNE RESPONSE AND REGULATION OF HUMAN LIFE-HISTORIES UNDER ADVERSE CONDITIONS

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 13 april 2010

klokke 15.00 uur

door

Linda May

geboren te Alkmaar

in 1978

# PROMOTIECOMMISSIE

**Promoter:**

Prof. Dr. R.G.J. Westendorp

**Co-promoter:**

Dr. M. Kuningas

**Overige leden:**

Prof. Dr. M.G. Netea, Radboud University, Nijmegen

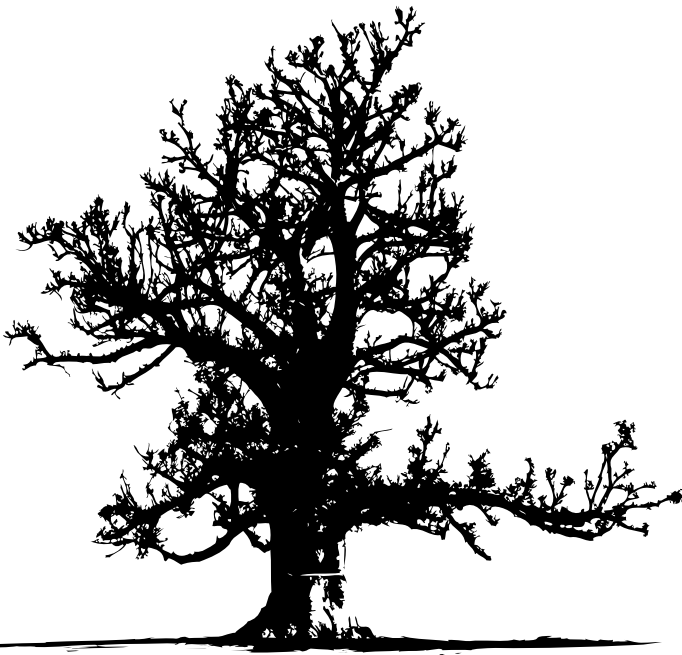
Prof. Dr. M. Yazdanbakhsh

Prof. Dr. P.E. Slagboom

Dr. B.J. Zwaan

*"When a baobab bears bad fruits,  
question is whether you blame the fruits  
or the baobab"*

One of the elders in Karyata,  
Garu-Tempene District, Ghana



# CONTENTS

Chapter 1	General introduction	3
Chapter 2	Regulation of human life-histories: the role of the inflammatory host response	17
Chapter 3	Performance of the whole-blood stimulation assay for assessing innate immune activation under field conditions	35
Chapter 4	Adverse environmental conditions influence age-related innate immune responsiveness	51
Chapter 5	Polymorphisms in <i>TLR4</i> and <i>TLR2</i> genes, cytokine production and survival in rural Ghana	65
Chapter 6	Genetic variation in Pentraxin (PTX)-3 gene associates with PTX3 production and fertility in women	81
Chapter 7	Selection for genetic variation inducing pro-inflammatory responses under adverse environmental conditions in a Ghanaian population	97
Chapter 8	General discussion	113
	Summary	125
	Nederlandse samenvatting	128
	Dankwoord	132
	Curriculum vitae	134
	List of publications	135