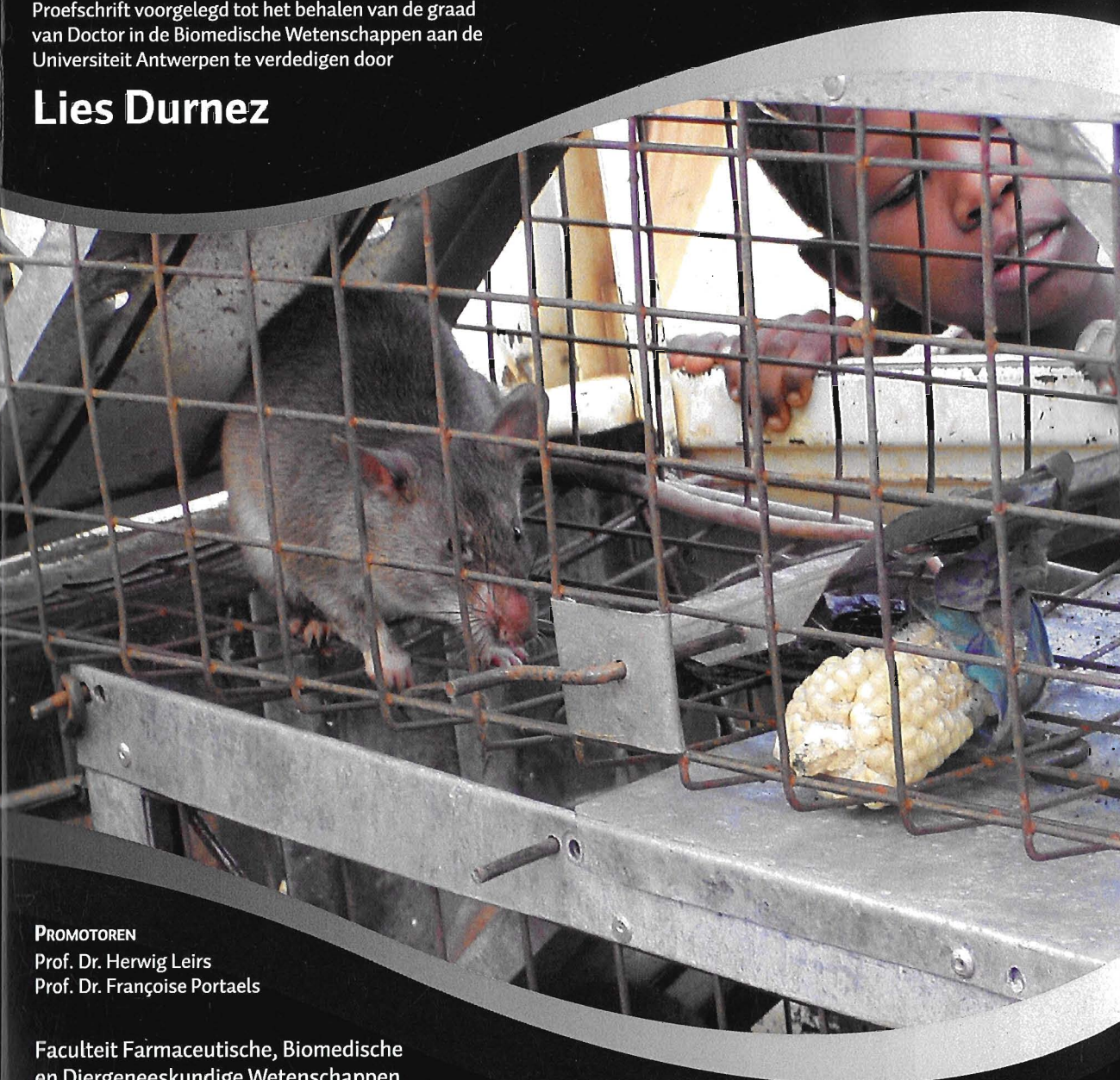


# The role of rodents and insectivores in the epidemiology of mycobacterial infections in Africa

Proefschrift voorgelegd tot het behalen van de graad van Doctor in de Biomedische Wetenschappen aan de Universiteit Antwerpen te verdedigen door

**Lies Durnez**



## PROMOTOREN

Prof. Dr. Herwig Leirs

Prof. Dr. Françoise Portaels

Faculteit Farmaceutische, Biomedische  
en Diergeneeskundige Wetenschappen  
Biomedische Wetenschappen

Antwerpen 2010

**Universiteit Antwerpen**

Instituut voor Tropische Geneeskunde





Faculteit Farmaceutische, Biomedische en Diergeneeskundige Wetenschappen  
Biomedische Wetenschappen

**The role of rodents and insectivores in the epidemiology of  
mycobacterial infections in Africa**

De rol van knaagdieren en insectivoren in de epidemiologie van  
mycobacteriële infecties in Afrika

Proefschrift voorgelegd tot het behalen van de graad van  
Doctor in de Biomedische Wetenschappen  
aan de Universiteit Antwerpen  
te verdedigen door

**Lies Durnez**

**Promotoren:**

Prof. Dr. Herwig Leirs

Prof. Dr. Françoise Portaels

Antwerpen, 2010

---

**Table of contents**

List of abbreviations	vii	
Summary	xi	
Samenvatting	xvii	
<b>Chapter 1</b>	<b>Introduction</b>	<b>1</b>
<b>Chapter 2</b>	<b>Aims and hypotheses</b>	<b>35</b>
<b>Chapter 3</b>	<b>Project outline</b>	<b>41</b>
<b>Chapter 4</b>	<b>A comparison of DNA extraction procedures for the detection of <i>Mycobacterium ulcerans</i>, the causative agent of Buruli ulcer, in clinical and environmental specimens</b>	<b>51</b>
<b>Chapter 5</b>	<b>VNTR analysis differentiates <i>Mycobacterium ulcerans</i> and IS2404 positive mycobacteria</b>	<b>73</b>
<b>Chapter 6</b>	<b>Application of real-time PCR in Ghana, a Buruli ulcer-endemic country, confirms the presence of <i>Mycobacterium ulcerans</i> in the environment</b>	<b>89</b>
<b>Chapter 7</b>	<b>First detection of mycobacteria in African rodents and insectivores, using stratified pool screening</b>	<b>101</b>
<b>Chapter 8</b>	<b>The prevalence of <i>Mycobacterium bovis</i>-infection and atypical mycobacterioses in cattle in and around Morogoro, Tanzania</b>	<b>123</b>
<b>Chapter 9</b>	<b>Rodents and insectivores as reservoirs of mycobacteria for cattle, a longitudinal study in Tanzania</b>	<b>139</b>
<b>Chapter 10</b>	<b>The role of terrestrial small mammals as reservoir of <i>Mycobacterium ulcerans</i> in Benin</b>	<b>161</b>

---

Table of contents

---

<b>Chapter 11</b>	<b>Mycobacteria in ectoparasites of rodents and insectivores in an area endemic for Buruli ulcer (<i>Mycobacterium ulcerans</i> Disease)</b>	<b>177</b>
<b>Chapter 12</b>	<b>General discussion</b>	<b>195</b>
<b>Chapter 13</b>	<b>Future perspectives</b>	<b>221</b>
Annex 1		225
Dankwoord		235

---