

University of Groningen

## The Severity of Anaphylactic and Systemic Allergic Reactions

Pettersson, Maria Eleonore

**IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.**

*Document Version*

Publisher's PDF, also known as Version of record

*Publication date:*

2018

[Link to publication in University of Groningen/UMCG research database](#)

*Citation for published version (APA):*

Pettersson, M. E. (2018). *The Severity of Anaphylactic and Systemic Allergic Reactions*. [Groningen]: University of Groningen.

### Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

### Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

*Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.*

# **The Severity of Anaphylactic and Systemic Allergic Reactions**

M. Eleonore Pettersson



The author gratefully acknowledges the financial contributions for the printing of this thesis:

Groningen University Institute for Drug Exploration (GUIDE)

University Medical Center Groningen (UMCG)

University of Groningen

Lay-out and print by: ProefschriftMaken // [www.proefschriftmaken.nl](http://www.proefschriftmaken.nl)

ISBN, printed version: 978-94-034-0558-2

ISBN, electronic version: 978-94-034-0559-9

Copyright © by M.E. Pettersson, 2018



university of  
 groningen

# **The Severity of Anaphylactic and Systemic Allergic Reactions**

**PhD Thesis**

to obtain the degree of PhD at the  
 University of Groningen  
 on the authority of the  
 Rector Magnificus Prof. E. Sterken  
 and in accordance with  
 the decision by the College of Deans.

This thesis will be defended in public on

Monday 18 June 2018 at 16.15 hours

By

**Maria Eleonore Pettersson**

born on 16 June 1988  
 in Badelunda, Sweden

**Supervisors**

Prof. A.E.J. Dubois

Prof. G.H. Koppelman

**Assessment committee**

Prof. D.S. Postma

Prof. A.C. Knulst

Prof. G.C. Roberts

## CONTENTS

<b>Chapter 1</b> - General introduction	9
<b>Chapter 2</b> - Is 30 minutes between doses long enough in oral food challenges?	25
<b>Chapter 3</b> - Prediction of the severity of allergic reactions to foods	33
<b>Chapter 4</b> - Greater severity of peanut challenge reactions using a high fat versus low fat matrix vehicle	55
<b>Chapter 5</b> - Clinical reactivity to individual tree nuts and peanut differs among the sensitized pediatric population	63
<b>Chapter 6</b> - Apolipoprotein B: a possible new biomarker for anaphylaxis	77
<b>Chapter 7</b> - Association of <i>STAT6</i> gene variants with food allergy diagnosed by double-blind placebo-controlled food challenges	85
<b>Chapter 8</b> - Mastocytosis and age, but not baseline tryptase, specific IgE or total IgE, independently determine the severity of systemic reactions to yellow jacket stings.	95
<b>Chapter 9</b> - Summary and general discussion	113
<b>Appendices</b>	127
– Nederlandse samenvatting	129
– Svensk sammanfattning	133
– Biography	141



## ABBREVIATIONS

AF - allele frequency

ApoB - apolipoprotein B

BAT - basophil activation test

bsT - baseline serum tryptase

CD - cumulative dose

CI - confidence interval

CMA - cow's milk allergy

DBPCFC - double-blind, placebo-controlled food challenge

ED - eliciting dose

eQTL - expression quantitative trait loci

FBAT - family based association test

ISM - indolent systemic mastocytosis

MH - methylhistamine

MI - myocardial infarction

MIMA - methylimidazole acetic acid

OFC - oral food challenge

PAF - platelet-activating factor

PAF-AH - platelet-activating factor, acetylhydrolase

sIgE - specific immunoglobulin E

SNP - single nucleotide polymorphisms

SPT - skin prick test

STAT6 - signal transducer and activator of transcription 6

UMCG - University Medical Center Groningen

UP - urticaria pigmentosa

YJV - yellow jacket venom

