



Universiteit
Leiden
The Netherlands

Monogenic models of migraine : from clinical phenotypes to pathophysiological mechanisms

Pelzer, N.

Citation

Pelzer, N. (2018, November 28). *Monogenic models of migraine : from clinical phenotypes to pathophysiological mechanisms*. Retrieved from <https://hdl.handle.net/1887/67103>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/67103>

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

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/67103> holds various files of this Leiden University dissertation.

Author: Pelzer, N.

Title: Monogenic models of migraine : from clinical phenotypes to pathophysiological mechanisms

Issue Date: 2018-11-28

Monogenic models of migraine
from clinical phenotypes to pathophysiological mechanisms

Nadine Pelzer

Nadine Pelzer
Monogenic models of migraine: from clinical phenotypes to pathophysiological mechanisms
PhD Thesis, Leiden University, Leiden, the Netherlands, 2018

ISBN:978-94-6332-408-3

© Nadine Pelzer, 2018

Cover-design: Nadine Pelzer
Layout and printed by: GVO drukkers & vormgevers B.V., Ede

Copyright of published material in chapters 2-7, 9 and 10 lies with the publisher of the journal listed at the beginning of each chapter. No part of this thesis may be reproduced in any form, by print, photocopy, digital file, internet, or any other means without written permission of the copyright holder.

The research presented in this thesis was supported by grants of the Netherlands Organization for Scientific Research (NWO) (903.52.291, M.D.F., VICI 918.56.602, M.D.F.; 907.00.217, G.M.T.; 920.03.473, A.H.S.; VIDI 917.11.319, G.M.T.), the European Community (EC) (FP7-EUROHEADPAIN no. 602633, A.v.d.M., M.D.F. and G.M.T.; FP7-NIMBL no. 241779, A.v.d.M.); and the Centre for Medical Systems Biology (CMSB) in the framework of the Netherlands Genomics Initiative/ Netherlands Organization for Scientific Research (NGI/NWO) (CMSB no. 050.060.409, A.v.d.M, M.D.F.). The funding agencies had no role in the design or conduct of any of the studies.

Financial support for publication of this thesis has been provided by the Nederlandse Hoofdpijn Vereniging.

Monogenic models of migraine: from clinical phenotypes to pathophysiological mechanisms

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

te verdedigen op woensdag 28 november 2018

klokke 15:00 uur

door

Nadine Pelzer

geboren te Brunssum

in 1986

Promotores:

Prof. dr. M.D. Ferrari

Prof. dr. A.M.J.M. van den Maagdenberg

Co-promotor:

Dr. G.M. Terwindt

Promotiecommissie:

Prof. dr. J.J.G.M. Verschuuren

Prof. dr. C.M. van Duijn, Erasmus MC Rotterdam

Prof. dr. H.C.J. Eikenboom

Prof. dr. M.E.J. Reinders

Dr. A. van Haren - Maassen van den Brink, Erasmus MC Rotterdam

Voor mijn ouders

Contents

Chapter 1.	General introduction	9
Part I:	Hemiplegic Migraine – a neuronal and glial monogenic migraine model	37
Chapter 2.	Familial and sporadic hemiplegic migraine: diagnosis and treatment <i>Curr Treat Options Neurol</i> 2013;15:13–27.	39
Chapter 3.	Familial hemiplegic migraine treated by sodium valproate and lamotrigine <i>Cephalalgia</i> 2014;34:708–711.	59
Chapter 4.	Recurrent coma and fever in familial hemiplegic migraine Type 2. A prospective 15-year follow-up of a large family with a novel <i>ATP1A2</i> mutation <i>Cephalalgia</i> 2017;37:737–755.	67
Chapter 5.	Two novel <i>SCN1A</i> mutations identified in families with familial hemiplegic migraine <i>Cephalalgia</i> 2014;34:1062–1069.	91
Chapter 6.	<i>PRRT2</i> and hemiplegic migraine – a complex association <i>Neurology</i> 2014;83:288–290.	105
Chapter 7.	The clinical spectrum of hemiplegic migraine and chances of finding a pathogenic mutation <i>Neurology</i> 2018;90:e575–e582.	111
Part II:	Retinal Vasculopathy with Cerebral Leukoencephalopathy and Systemic manifestations – a vascular monogenic migraine model	135
Chapter 8.	Systemic features of retinal vasculopathy with cerebral leukoencephalopathy and systemic manifestations: a monogenic late-onset small vessel disease <i>Submitted</i>	137
Chapter 9.	Circulating endothelial markers in retinal vasculopathy with cerebral leukoencephalopathy and systemic manifestations <i>Stroke</i> 2017;48:3301–3307.	159
Chapter 10.	Heterozygous <i>TREX1</i> mutations in early-onset cerebrovascular disease <i>J Neurol</i> 2013;260:2188–2190.	175
Chapter 11.	General discussion	179

Addendum	Summary	201
	Nederlandse samenvatting	207
	List of abbreviations	211
	List of publications	213
	Dankwoord	216
	Curriculum vitae	218