

University of Groningen

Childhood-onset movement disorders

Lambrechts, Roald Alexander

DOI:
[10.33612/diss.101316004](https://doi.org/10.33612/diss.101316004)

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:
2019

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

Citation for published version (APA):

Lambrechts, R. A. (2019). *Childhood-onset movement disorders: mechanistic and therapeutic insights from Drosophila melanogaster*. [Thesis fully internal (DIV), University of Groningen]. Rijksuniversiteit Groningen. <https://doi.org/10.33612/diss.101316004>

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).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

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.

CHILDHOOD-ONSET MOVEMENT DISORDERS:

mechanistic and therapeutic insights
from *Drosophila melanogaster*

Roald Alexander Lambrechts

The research described in this thesis was performed at the Department of Cell Biology and the Department of Neurology of the University Medical Center Groningen, the Netherlands

ISBN (print): 978-94-6323-916-5

ISBN (electronic): 978-94-6323-930-1

Copyright © 2019 R.A. Lambrechts, Groningen, The Netherlands. All rights reserved. No part of this thesis may be reproduced or transmitted in any form or by any means without prior written permission of the author.

Cover and layout design by ThesisExpert.nl

Printed by Gildeprint, Enschede, the Netherlands



**rijksuniversiteit
 groningen**

CHILDHOOD-ONSET MOVEMENT DISORDERS:

mechanistic and therapeutic insights
from *Drosophila melanogaster*

Proefschrift

ter verkrijging van de graad van doctor aan de
Rijksuniversiteit Groningen
op gezag van de
rector magnificus prof. dr. C. Wijmenga
en volgens besluit van het College voor Promoties.

De openbare verdediging zal plaatsvinden op

woensdag 13 november 2019 om 14.30 uur

door

Roald Alexander Lambrechts

geboren op 4 april 1990
te Lelystad

Promotores

Prof. dr. O.C.M. Sibon

Prof. dr. M.A.J. de Koning-Tijssen

Copromotor

Dr. T.J. de Koning

Beoordelingscommissie

Prof. dr. H.P.H. Kremer

Prof. dr. J.C. Billeter

Prof. dr. E. Strauss

What a piece of work is man!
How noble in reason! How infinite in faculty!
In form and moving how express and admirable!

(Hamlet; Act II, Scene ii 307-310)

TABLE OF CONTENTS

		Chapter 1	
		Introduction to the thesis	9
		Chapter 2	
		Modelling in miniature: using <i>Drosophila melanogaster</i> to study human neurodegeneration	25
		Chapter 3	
		Synthesis and characterization of 4-thiobutyl-triphenylphosphoniumpantetheine, a pantetheine derivative	37
		Chapter 4	
		Extracellular 4'-phosphopantetheine is a source for intracellular coenzyme A synthesis	51
		Chapter 5	
		Decreased pyruvate dehydrogenase activity confers detrimental effects of coenzyme A deprivation, outlining a pathway underlying several neurodegenerative diseases	99
		Chapter 6	
		North Sea Progressive Myoclonus Epilepsy is exacerbated by heat, a phenotype primarily associated with affected glia	137
		Chapter 7	
		General discussion and future perspectives	153
		Appendices	
		Lekensamenvatting van dit proefschrift	172
		Nederlandse samenvatting	178
		Acknowledgements	182
		List of publications	186

	Pantothenate kinase-associated neurodegeneration
	North Sea progressive myoclonus epilepsy

