



Universiteit
Leiden
The Netherlands

The roles of dystrophin and dystrobrevin : in synaptic signaling in drosophila

Potikanond, S.

Citation

Potikanond, S. (2012, January 19). *The roles of dystrophin and dystrobrevin : in synaptic signaling in drosophila*. Retrieved from <https://hdl.handle.net/1887/18388>

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/1887/18388>

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

**The Roles of Dystrophin and Dystrobrevin
in Synaptic Signaling in *Drosophila***

Saranyapin Potikanond

ศรัณยภิญ โปธิกานนท์

The studies described in this thesis were performed at the Department of Molecular Cell Biology, Leiden University Medical Center, Leiden, The Netherlands and were supported by grants from the Netherlands Organization for Scientific Research (N.W.O., #900-02-003) and the Muscular Dystrophy Association (USA).

ISBN: 978-90-8570-796-7

Cover

Design by: D. & S. Potikanond

Printed by: CPI/Wohrmann Print Service, Zutphen

**The Roles of Dystrophin and Dystrobrevin
in Synaptic Signaling in *Drosophila***

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 donderdag 19 januari 2012

klokke 11:15 uur

door

Saranyapin Potikanond

geboren te Khonkaen (Thailand)

in 1976

Promotiecommissie

Promotor: Prof. Dr. J. N. Noordermeer

Co-promotor: Dr. L. G. Fradkin

Overige leden: Prof. Dr. H. J. Tanke

Dr. J. J. Plomp

Prof. Dr. R. A. Baines¹

Prof. Dr. B. A. Hassan²

¹Faculty of Life Sciences, University of Manchester, Manchester, United Kingdom.

²Department of Molecular and Developmental Genetics, KU Leuven School of Medicine, Belgium.

“Everyone must correct his own self;
this is something more difficult to cope with,
but it is not impossible.”

King Bhumibol Adulyadej

Contents

Chapter 1	Introduction	9
	Part 1: The Roles of the Dystrophin-Associated Glycoprotein Complex at the synapse	
	Part 2: General Introduction to the use of <i>Drosophila</i>	36
	Part 3: Outline of the thesis	44
Chapter 2	RhoGAP <i>crossveinless-c</i> Interacts with <i>Dystrophin</i> and is Required for Synaptic Homeostasis at the <i>Drosophila</i> Neuromuscular Junction	57
Chapter 3.1	A Postsynaptic Dystrophin Glycoprotein Complex/Rho-GTPase Pathway acting through CaMKII Controls the Homeostatic Endpoint at the <i>Drosophila</i> Neuromuscular Junction	83
Chapter 3.2	Association of Protein Kinase A and Dystrobrevin at the <i>Drosophila</i> Neuromuscular Junction	119
Chapter 4	The Pre- and Postsynaptic roles of Dystroglycan at the <i>Drosophila</i> Neuromuscular Junction	131
Chapter 5	The Dp186 Dystrophin Isoform is Required for Wildtype Synaptic Gain in the <i>Drosophila</i> Olfactory Circuit	151
Chapter 6	Discussion	171
	Summary	182
	Nederlandse Samenvatting	184
	Abbreviations	186
	Curriculum Vitae	188
	List of publications	189
	Acknowledgements	190

