

University of Groningen

Myelin biogenesis

Ozgen, Hande

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:

2014

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

Citation for published version (APA):

Ozgen, H. (2014). Myelin biogenesis: Dynamics of MBP, PLP and galactolipids [S.l.]: [S.n.]

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.

Myelin biogenesis

Dynamics of MBP, PLP and galactolipids

Hande Ozgen

The research described in this thesis was conducted at the Department of Cell Biology, Faculty of Medical Sciences, University Medical Center Groningen (UMCG), University of Groningen, The Netherlands. The projects were financially supported by the University of Groningen, the Research School of Behaviour and Cognitive Neuroscience (BCN) , the Dutch Foundation for the Support of MS Research (Stichting MS Research) and EMBO Short Term Fellowship.

The printing of the thesis was financially supported by University of Groningen, University Medical Center Groningen and the Graduate School of Medical Sciences.

Cover design and layout by H. Ozgen and C. Unsal
Printed by NetzoDruk Groningen

ISBN (print) : 978-90-367-7236-8
ISBN (electronic): 978-90-367-7236-5

Copyright © 2014 H. Ozgen. All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means without permission of the author.



university of
 groningen

Myelin biogenesis

Dynamics of MBP, PLP and galactolipids

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 15 September 2014 at 12.45 hours

by

Hande Ozgen

born on 21 January 1987
 in Kadikoy, Turkey

Supervisor

Prof. dr. D. Hoekstra

Co-supervisors

Dr. W. Baron

Dr. N. Kahya

Assessment committee

Prof. dr. F.G.M. Kroese

Prof. dr. U.L.M. Eisel

Prof. dr. M. Ameloot

Paranymphs

Jing Qin
İlke Şen

Sevgili Anne ve Babama...

Table of Content

Chapter 1	Introduction and scope of the thesis	11
Chapter 2	Oligodendroglial Membrane Dynamics in Relation to Myelin Biogenesis	23
Chapter 3	The major myelin-resident protein PLP is transported to myelin membranes via a transcytotic mechanism: involvement of sulfatide	51
Chapter 4	The lateral membrane organization and dynamics of myelin proteins PLP and MBP are dictated by distinct galactolipids and the extracellular matrix	87
Chapter 5	TNF α induces actin cytoskeletal rearrangements in mature oligodendrocytes and reallocates MBP; consequences for (re) myelination	113
Chapter 6	Regulation of cell proliferation by nucleocytoplasmic dynamics of postnatal and embryonic exon-II-containing MBP isoforms	141
Chapter 7	Summary and Perspectives	175
	Nederlandse Samenvatting	182
Abbreviations		189
Acknowledgements		190

