



University of Groningen

The role of cAMP-dependent protein kinase A in bile canalicular plasma membrane biogenesis in hepatocytes

Wojtal, Kacper Andrze

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: 2007

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA): Wojtal, K. A. (2007). The role of cAMP-dependent protein kinase A in bile canalicular plasma membrane biogenesis in hepatocytes 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.

The role of cAMP-dependent protein kinase A in bile canalicular plasma membrane biogenesis in hepatocytes

Kacper A. Wojtal

This research was supported by University of Groningen

This research was performed in the Department of Cell Biology/Section Membrane Cell Biology of University Medical Center Groningen, The Netherlands

This thesis is available at the Library of the University of Groningen

The financial support for printing costs of the thesis was provided by:

Rijksuniversiteit Groningen Groningen University for Drug Exploration (GUIDE)



Printed by: Wohrmann Print Service

©2007 by K.A.Wojtal

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means without written permission of the author and the publisher holding the copyright of the publisher articles.

Cover: Immunofluorescent picture of HepG2 cells stained against PKA RIIa processed with the software using artistic filter

ISBN: 9789036729475



RIJKSUNIVERSITEIT GRONINGEN

The role of cAMP-dependent protein kinase A in bile canalicular plasma membrane biogenesis in hepatocytes

Proefschrift

ter verkrijging van het doctoraat in de Medische Wetenschappen aan de Rijksuniversiteit Groningen op gezag van de Rector Magnificus, dr. F. Zwarts, in het openbaar te verdedigen op maandag 26 februari 2007 om 16.15 uur

door

Kacper Andrzej Wojtal

geboren op 3 juli 1977 te Dzierzoniow, Polen Promotor:

Prof. dr. D. Hoekstra

Copromotor:

Dr. S.C.D. van IJzendoorn

Beoordelingscommissie:

Prof. dr. H. Moshage Prof. dr. E. Vellenga Prof. dr. M. Peppelenbosch Paranimfen:

Krzysztof Rembacz Andrzej Lulko

Contents

Chapter 1	An introduction to the role of cAMP-dependent protein kinase A in epithelial polarity: moving membranes to keep in shape.	10
Chapter 2	Efficient trafficking of MDR1/P-Glycoprotein to apical canalicular plasma membranes in HepG2 cells requires PKA-RIIα anchoring and glucosylceramide.	34
Chapter 3	The PKA regulatory subunit $II\alpha$ and its anchoring protein BIG2 are necessary to maintain a cisternal Golgi structure.	72
Chapter 4	Anchoring of PKA-RIIa to subapically positioned centrosomes mediates apical bile canalicular lumen development in response to oncostatin M but not cAMP.	106
Chapter 5	Oncostatin M and cAMP differently utilize protein kinase A for stimulating apical bile canalicular plasma membrane development.	142
Chapter 6	Summary and perspectives.	168
Nederlandse sammenvating		174
References		180
Acknowledgements		202