



Universiteit
Leiden
The Netherlands

Bioorthogonal antigens as tool for investigation of antigen processing and presentation

Pieper Pournara, L.

Citation

Pieper Pournara, L. (2021, November 16). *Bioorthogonal antigens as tool for investigation of antigen processing and presentation*. Retrieved from <https://hdl.handle.net/1887/3239301>

Version: 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/1887/3239301>

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

Bioorthogonal Antigens as Tool for Investigation of Antigen Processing and Presentation

Linda Pieper Pournara
Leiden University

Bioorthogonal Antigens as Tool for Investigation of Antigen Processing and Presentation

Proefschrift

ter verkrijging van
de graad van doctor aan de Universiteit Leiden,
op gezag van rector magnificus prof. dr. ir. H. Bijl,
volgens besluit van het college voor promoties
te verdedigen op dinsdag 16 november 2021
klokke 10.00 uur
door

Linda Pieper Pournara

geboren te Aalen, Duitsland
in 1985.

Dit proefschrift is goedgekeurd door de promotor:

Promotor: Prof. dr. H.S. Overkleef

Copromotor: Dr. S.I. van Kasteren

Promotiecommissie:

Prof. dr. J. Brouwer, Universiteit Leiden, Leiden, voorzitter

Prof. dr. M. van der Stelt, Universiteit Leiden, Leiden, secretaris

Overige commissieleden:

Prof. dr. J.M.F.G. Aerts, Universiteit Leiden, Leiden

Dr. M.C. van Eijk, Universiteit Leiden, Leiden

Dr. S.I. Buschow, Erasmus Medisch Centrum, Rotterdam

Prof. dr. F.A. Ossendorp, Leids Universitair Medisch Centrum, Leiden

Cover concept by Linda Pieper Pournara & Evangelos Pournaras:

Cover design by Stephanie Konnerth

Typeset with L^AT_EX₂ ϵ

Layout by Evangelos Pournaras

Kerkis © Department of Mathematics, University of the Aegean, Greece

Printed by IPSKAMP printing: www.ipskampprinting.nl,

Published by IPSKAMP printing, Amsterdam, the Netherlands

Copyright © 2021 by Linda Pieper Pournara

E-mail: lindapieper.mail@gmail.com

All rights reserved. No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without the prior permission of the author.

ISBN: 978-94-6421-510-6

Life means learning - not only achievement

Dedicated to my family

Acknowledgements

The past years of my PhD studies were, without a doubt, an inimitable experience. During this enlightening, sometimes demanding journey involving the carry out of work in 3 different countries and growing my family, several people made my travel a lot easier and reminded me that actually the journey itself matters the most, rather than only the final outcome. This makes me conclude, that no matter what role these people played, they helped me to progress when I thought there is no way forward. For that I would like to use this opportunity to thank several of these people.

First and foremost, special thanks for Dr. Sander van Kasteren, my supervisor and co-promotor, who guided me throughout this time and from whom I received a lot of support in research as well as personal matters, since our very first meeting on a typical rainy autumn day in the Netherlands. Your impulsive creativity often plunged me into uncharted waters where I learned how to swim. Thank you for all your support. I am also beholden to my promoter Prof. Dr Hermen Overkleef. Thank you for giving me the chance to continue and finish my PhD research as a biologist in the Leiden Institute of Chemistry and for supporting this unconventional and interdisciplinary research. I furthermore would like to thank all members of my promotion and opposition committee for their feedback to this work.

Daily research routine would not be the same without all the colleagues, who worked by my side during all these long years of my PhD with all the frustration, disappointments, failures and scarce lucky moments. Therefore, I would like to thank first of all the alumni members of the van Kasteren group for feedback, help and time-out fun we had together. Special thanks go to Can Araman, who significantly contributed to the second half of my PhD that completed this work. You were a big mental support and a good friend. Without you, my PhD, our paper and this thesis would not have been the same. Thank you!

I would especially like to thank Dimitris Poucharidis for all these PhD years together from the start, suffering and celebrating with me, trying with so much patience to make an organic chemist out of me and always having an open ear for everything as a faithful friend. Thanks also to Mikkel Marqvorsen for being help and host for me. I hope we will stay in touch beyond this time. Furthermore, I would like to thank Clarissa Rodrigues Nascimento and Anouk van der Gracht for their contribution to this work, our Alumni Joanna Pawlak and Daphne van Elsland for their preceding hard work, which paved the way of the group, Sanne Kampstra and Marcel Camps for lab support and my BSc/MSc students for their commitment. It was a pleasure to spend moments in and out of work, in the Science Club, at lunch or at coffee breaks with Lale & Dimitris, Britta & Can, Camilla & Mikkel, Marta & Francesco, Kassy & Dimitris, Francesca & Jacopo, Maria,

Acknowledgements

Saskia, Sara, Clarissa and many others. Expatriate life was more enjoyable with you all. Teaching practical courses was more fun with Backey, Dimitris, Maddy, Mira and Gabriela and will remain in good memory.

I would also like to thank my friends Judith, Anne, Isabella, Maria, Anna and Anna for your time and support in good and bad times. Maria, thank you very much for your patience and supportive discussions. Judith and Anna, thank you for your precious time to review and comment on this thesis.

Moreover, the support of my family throughout my PhD studies was indispensable. Therefore, I would like to say some personal words at this point.

To begin with, I would like to especially thank Vangelis, Laura and Asterios. Asterako, you did not always make the work on this book easy, but I hope this will make you one day even more proud of your mum. May reading something out of this book inspire you and Laura to appreciate science! Vangeli, without you as my devoted friend and husband, I would maybe never have started this venture. Your knowledge, experience and support significantly contributed to this book in many ways. I am proud to have made it that far and you were an essential part of this. Βαγγέλη μου, σε ευχαριστώ πολύ για όλα!

I heartily thank you, Mama! Your engagement, advice and patience, your down-to-earth attitude and your worldly wisdom, are indispensable in my life and without your help I would have never been able to finish my PhD studies and write this book. Mama, du bist und bleibst der wichtigste Mensch in meinem Leben bleiben.

To my parents Monika & Jürgen, Erwin & Monika, to my brothers Timm with Rebekka, Benjamin & Lucas, Julian with Nadja, Amelie & Jonah and Philipp with Heike, Annabelle, Robin & Hanna: Zu wissen, dass ihr mir immer den Rücken stärkt und mich unterstützt war noch nie so wichtig, wie in den letzten Jahren.

Fanouria, your delicious Greek food and motherly care was often my boost to fight and finish this book. I always enjoy and appreciate this! To Sterios, Katerina, Ilias, Yannis and Fanouritsa: Ελληνική μου οικογένεια, σας ευχαριστώ!!

*Linda Pieper Pournara
20th October 2021
Leeds, United Kingdom*