



Universiteit
Leiden
The Netherlands

A bioorthogonal chemistry approach to the study of biomolecules in their ultrastructural cellular context

Elsland, D.M. van

Citation

Elsland, D. M. van. (2018, January 11). *A bioorthogonal chemistry approach to the study of biomolecules in their ultrastructural cellular context*. Retrieved from <https://hdl.handle.net/1887/61131>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/61131>

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

Cover Page



Universiteit Leiden



The following handle holds various files of this Leiden University dissertation:

<http://hdl.handle.net/1887/61131>

Author: Elsland, D.M. van

Title: A bioorthogonal chemistry approach to the study of biomolecules in their ultrastructural cellular context

Issue Date: 2018-01-11

A Bioorthogonal Chemistry approach to the study of Biomolecules in their Ultrastructural Cellular Context

PROEFSCHRIFT

ter verkrijging van

de graad van Doctor aan de Universiteit Leiden,

op gezag van Rector Magnificus prof. mr. C.J.J. Stolker,

volgens het besluit van het College voor Promoties

te verdedigen op donderdag 11 Januari 2018

klokke 13.45

door

Daphne Marjoleine van Elsland

geboren te Zaandam in 1989

Promotiecommissie

Promotor Prof.dr. H. S. Overkleeft

Co-promotor Dr. S. I. van Kasteren

Overige leden Dr. I. Berlin (LUMC)

Prof.dr. A. Briegel (LU)

Prof.dr.ir. A.J. Koster (LUMC)

Prof.dr. J. Klumperman (UMC Utrecht)

Prof.dr. M.H.M. Noteborn (LU)

Dr. M. van der Stelt (LU)

ISBN: 978-94-6299-806-3

Printed by: Ridderprint BV, Ridderkerk

Cover design: D. M. van Elsland

All rights reserved. No part of this book may be reproduced in any manner or by any means without permission.

“The important thing is not to stop questioning.
Curiosity has its own reason for existing.”

- Albert Einstein

Table of contents

Scope of the Thesis	7
 Chapter 1 Electron Microscopy for Biochemical Research	 13
 Chapter 2 The Potential of Bioorthogonal Chemistry for Correlative Light and Electron Microscopy	 27
 Chapter 3 Electron Microscopy of Bioorthogonally-Labelled Biomolecules	 37
 Chapter 4 Correlative Light and Electron Microscopy reveals Discrepancy between Gold and Fluorescence Labelling	 57
 Chapter 5 Detection of Bioorthogonal Groups by Correlative Light and Electron Microscopy allows Imaging of Degraded Bacteria in Phagocytes	 75

Chapter 6	91
Towards Ultrastructural Imaging of <i>Salmonella</i> -Host Interactions using Bioorthogonal Labelling and Super-Resolution CLEM	
Chapter 7	111
Towards Ultrastructural Imaging of Enzyme Activity with Correlative Light and Electron Microscopy	
Chapter 8	133
Summary and Future Prospects	
Nederlandse Samenvatting	139
List of publications	143
Curriculum Vitae <i>English</i>	145
Curriculum Vitae <i>Nederlands</i>	147

