



Universiteit
Leiden

The Netherlands

Safeguarding genome integrity with small ubiquitin-like modifiers

Claessens, L.A.

Citation

Claessens, L. A. (2024, June 27). *Safeguarding genome integrity with small ubiquitin-like modifiers*. Retrieved from <https://hdl.handle.net/1887/3765377>

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/1887/3765377>

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

**Safeguarding genome integrity
with small ubiquitin-like modifiers**

Laura A. Claessens

The research presented in this thesis was performed at the Department of Cell and Chemical Biology, Leiden University Medical Center, Leiden, The Netherlands. This research was supported by the Dutch Research Council (NWO) (724.016.003).

Cover design: Laura Claessens

Layout: Laura Claessens

Printing: Ridderprint

ISBN: 978-94-6506-079-8

Copyright © 2024 by Laura A. Claessens. All rights reserved. No part of this book may be reproduced, stored or transmitted in any form or by any means without prior permission of the author. The copyright of the publications remains with the publishers.

Safeguarding genome integrity with small ubiquitin-like modifiers

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 donderdag 27 juni 2024
klokke 10:00 uur

door

Laura Agnes Claessens
geboren te 's-Gravenhage
in 1992

Promotor

Prof. dr. A.C.O. Vertegaal

Prof. dr. P. ten Dijke

Promotiecommissie

Prof. dr. J.J.C. Neefjes

Prof. dr. P. Knipscheer

Prof. dr. T.K. Sixma

Prof. dr. S. Müller

Netherlands Cancer Insitute

IBC II - Goethe-Universität Frankfurt am Main

Er zijn
dagen
dat je
door
de bomen
het bos
niet meer
wilt zien ;
maar
misschien
verdwaal
je wel
geweldig .

// kleinstukjeversheid

TABLE OF CONTENTS

Chapter 1	General introduction	8
Chapter 2	SUMO proteases: from cellular functions to disease	18
Chapter 3	SEN6 regulates localization and nuclear condensation of DNA damage response proteins by group deSUMOylation	42
Chapter 4	Global non-covalent SUMO interaction networks reveal SUMO-dependent stabilization of the non-homologous end joining complex	96
Chapter 5	Interaction networks of SIM-binding groove SUMO mutants reveal alternate modes of noncovalent SUMO binding and profound impact on SUMO conjugation	140
Chapter 6	General discussion	182
Appendix		
	Nederlandse samenvatting	198
	List of publications	201
	Curriculum Vitae	202
	Acknowledgements	203

