Regulation of DNA damage and immune response pathways by post-translational protein modification

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Curriculum vitae

Madelon Dijk was born on June 3, 1988 in Rotterdam, The Netherlands. In 2006 she successfully completed grammar school at Johan de Witt Gymnasium in Dordrecht and started the study of Life Science and Technology at Leiden University (UL) and Delft University of Technology (TU Delft). After studying the behavior of S. cerevisiae at near-zero growth rates during an internship at the department of Industrial Microbiology at TU Delft, she obtained her bachelor's degree cum laude (with honors) in 2009. During her master's education, she investigated catalytic intermediates of cytochrome bd-I oxidases at the former department of Enzymology at TU Delft. Furthermore, she intended to optimize the immobilization of lipases for industrial purposes during an internship at ChiralVision in Leiden. In 2011, the master's degree was obtained cum laude. Subsequently, she joined the former department of Toxicogenetics at Leiden University Medical Center (LUMC) as a PhD student to investigate the regulation of the nucleotide excision DNA repair pathway under the supervision of Prof. dr. Leon H. Mullenders. In addition, she worked with Dr. Navraj S. Pannu at the department of Biophysical Structural Chemistry at UL on a project on C1-inhibitor. From 2014 on, the research on protein regulation during DNA damage repair was continued at the department of Human Genetics at the LUMC under the supervision of Prof. dr. Haico van Attikum. After finishing the practical part of the PhD project, she started working in the field of data analysis at the National Office for Identity Data (Rijksdienst voor Identiteitsgegevens) in Den Haag.

Publications

2018 **TRiC controls transcription resumption after UV damage by regulating Cockayne syndrome protein A**
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*co-first authors, +co-corresponding authors
Nature Communications; 9(1): 1040

2016 **How dextran sulfate affects C1-inhibitor activity: a model for polysaccharide potentiation**
Madelon Dijk, Jolande Holkers, Patrick Voskamp, Bruno M. Giannetti, Willem-Jan Waterreus, Harrie A. van Veen and Navraj S. Pannu
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Biochimica et Biophysica Acta - Molecular Cell Research; 1813(12): 2133-2144

Acknowledgements

In this thesis I have addressed the importance of regulatory proteins. Without them, pathways would never be properly activated, correctly executed and timely completed. In fact, they may stall halfway or totally derail. I found that the same holds true for a PhD track. Although to the PhD student it may sometimes feel like a solitary expedition, there are some indispensable cofactors that safeguard both the trajectory and the student. On the road to this thesis, I experienced the significance of such factors, embodied by colleagues, friends and family.

Leon, thank you for initiating the pathway and always believing in its successful completion. I appreciate both your scientific enthusiasm and your interest in my personal well-being. Raj, coactivator, I also value your guidance along the way.

As illustrated by many aspects of the DNA damage response, alternative pathways are crucial. Haico, thank you for welcoming me in your lab, providing such routes and being willing to coordinate them as my promotor. Silvère, the adjustment to the friendly, inspiring working environment of your department was easy.

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While this thesis only describes a fine selection of regulatory mechanisms, it is the combination of all modulating factors that directs successful protein and pathway functioning. Likewise, I owe a big thanks to all colleagues, lab mates, students, staff members, roommates, friends and family that either crossed my path occasionally or supported me for longer. Together, you contributed significantly to this accomplishment.