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Identification and characterization of novel factors in the DNA damage response

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CURRICULUM VITAE

Jenny Kaur Singh werd geboren op 14 september 1991 te Amsterdam. In 2008 behaalde zij haar HAVO diploma aan het Calandlyceum in Amsterdam. Vervolgens startte zij met de opleiding Biologie en Medisch laboratorium onderzoek aan Hogeschool INholland in Amsterdam. Vanwege haar interesse in moleculaire biologie en genetica, en haar leergierigheid om deze vakgebieden in meer detail te begrijpen besloot zij haar opleiding in 2012 te vervolgen met een duale masteropleiding. Deze opleiding bestond uit een samenwerking van de masteropleiding 'Biomolecular Science' aan de Vrije Universiteit in Amsterdam en 'Natural Sciences – Interdisciplinary' at the State University of New York at Buffalo in de Verenigde Staten. In 2014 rondde zij deze opleidingen succesvol af.

In het kader van haar bachelor en master opleiding deed Jenny verschillende stages met een verscheidenheid aan model-organismen om brede ervaring op te doen in moleculaire biologie, genetica en biochemie. In 2011 startte zij een stage onder leiding van Prof. Dr. Niek de Vries, Dr. Paul Klarenbeek en Dr. Marieke Doorenspleet in het Academisch Medisch Centrum (AMC) in Amsterdam, waarin zij werkte aan het karakteriseren van de T-cel en B-cel receptor repertoire in Reumatoïde Artritis patiënten samples en gezonde samples. Na voltooiing van deze stage is Jenny naar London, Verenigd Koninkrijk verhuisd met een Erasmus beurs voor haar tweede bachelor-stage onder leiding van Prof. Dr. Rob de Bruin. Hier heeft zij de rol van het Rpd3 histon de-acetylase complex (HDAC) gekarakteriseerd in gist. Na deze twee stages mocht Jenny haar bachelor diploma in ontvangst nemen. Voor haar masteropleiding heeft zij haar eerste stage volbracht in het lab van Dr. Dirk Bald aan de Vrije Universiteit in Amsterdam, waar zij onderzoek deed naar het testen van medicijnen die het energie metabolisme in de gezonde vorm van Tuberculose kunnen verstoren, om deze vervolgens te kunnen gebruiken tegen Tuberculose. Na het afronden van deze stage heeft Jenny drie maanden een literatuur scriptie geschreven aan de 'Luxembourg Center for Systems Biomedicine' onder leiding van Dr. Jochen Schneider over de rol van integrine eiwitten in macrofagen. Voor de laatste stage van haar master bezocht zij het Roswell Park Cancer Institute in Buffalo, Verenigde Staten. Aldaar werkte zij in het lab van Dr. Xinjiang Wang aan de regulatie van het tumor suppressie eiwit p53 in respons tot DNA schade.

In 2014 begon zij haar promotieonderzoek in het lab van Prof. Dr. Haico van Attikum. Hier heeft zij verschillende nieuwe factoren gevonden die een rol spelen in DNA herstel en DNA replicatie stress. De resultaten van dit onderzoek zijn beschreven in dit proefschrift.

In 2021 vervolgde Jenny haar onderzoek naar het DNA reparatie eiwit BRCA2 in het lab van Dr. Aura Carreira aan het Institut Curie in Parijs. Eind dit jaar zal zij beginnen als Postdoctoraal onderzoeker in het lab van Dr. Annabel Quinet aan het CEA in Parijs. Hier zal zij onderzoeken hoe het PRIMPOL eiwit functioneert tijdens DNA-replicatie stress in de context van chromatine.

PUBLICATIONS

2021 **Zinc finger protein ZNF384 is an adaptor of Ku to DNA during classical non-homologous end-joining**

Jenny Kaur Singh, Rebecca Smith, Magdalena B. Rother, Anton J.L. de Groot, Wouter W. Wiegant, Kees Vreeken, Ostiane D'Augustin, Robbert Q. Kim, Haibin Qian, Przemek M. Krawczyk, Román González-Prieto, Alfred C.O. Vertegaal, Meindert Lamers, Sébastien Huet and Haico van Attikum Zinc finger Protein ZNF384 Is an Adaptor of Ku to DNA during Classical Non-homologous End-Joining.

Nature Communications. 12 (12), 1–21

2020 **DNA double-strand break repair: Putting zinc fingers on the sore spot**
Jenny Kaur Singh and Haico van Attikum DNA double-strand break repair:

putting zinc fingers on the sore spot.

Seminars in Cell and Developmental Biology. **113**, 65–74

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The PhD trajectory is by no doubt the most challenging and overwhelming, but at the same time a very creative and fruitful time of your life. Looking back at this non-linear trajectory, I can now say that these years taught me self-growth, self-awareness and most importantly made me into an independent researcher. This would have never been possible without the help of my family, friends and peers.

I would like to start by thanking my promotor/mentor Haico. Thank you for the scientific and career-related advices, and showing me how to successfully prepare my work for publication.

Secondly, I would like to thank Silvère for giving constructive feedback during the important and sometimes nerve wrecking PhD-evaluation moments.

The ‘van Attikum’ group faced constant change in lab members over the past years, I would like to thank each and every one of them for their constant support. Leonie, my PhD-buddy, thank you for being by my side as a friend from day one and later as an ‘office-roomie’. Wouter, I feel super lucky to have worked with you. Thank you for teaching me everything you know and appreciating my taste in the radio channel. I would like to thank the early members Albert, Madelon, Angela, Peter, Anton, Kees, Martijn, Thomas and Suming for being there when I started my PhD. I would like to thank Chantal and Amandine for the great times. The current members of the lab, Rick my friend, thank you for all the fun times and good conversations. Bert, I will never forget your positive attitude and your creative scientific input which has been of tremendous help. Sylvie, I feel so grateful to have worked with you. Seeing you becoming a group-leader has been very inspirational, and I simply very much look up to you. A successful PhD would have never been possible without a good work/life balance. I would like to thank Fenna, Nandi, Sophie, Jolanthe, Veronica, Marta, Venda, Anne, Romy and Nuria for keeping me in check. Veronica and Romy, I am so blessed to have you as my best friends. Marta, your determination to drag me to the gym kept me sane. During my PhD I had the opportunity to supervise a very talented Master (and now PhD) student Marnix. It was great having you around and I am very happy you stayed in the department for your PhD.

Jiggling between the lab and the office has been great. But not without my different office mates Suming, Bharath, Pierre, Robin, Juliette, Leonie, Anne and Venda. Besides getting a couch and growing vegetables, I have learned so much from our scientific discussions.

The perks of being part of a huge department is the opportunity to make many friends outside the lab and research-line. Maja, Darina, Haoyu and Mara thank you for the occasional chats we had on the third floor. Being in the lab-day out committee with Remko, Chiara, Yvonne and Saeed turned into an awesome travel-group and I can't wait to plan our next trip. Writing this thesis in combination with a Postdoc has been extremely challenging. I could have not done this without my colleagues/friends at Institut Curie Isaac, Anna, Rady, Yasmina, Charlotte, Kamila and Shrena, and my friends from Paris Umberto, Marta, Audrey, Theresa, Frederik and Camille.

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