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Early detection of cervical cancer

Snoek, B.C.

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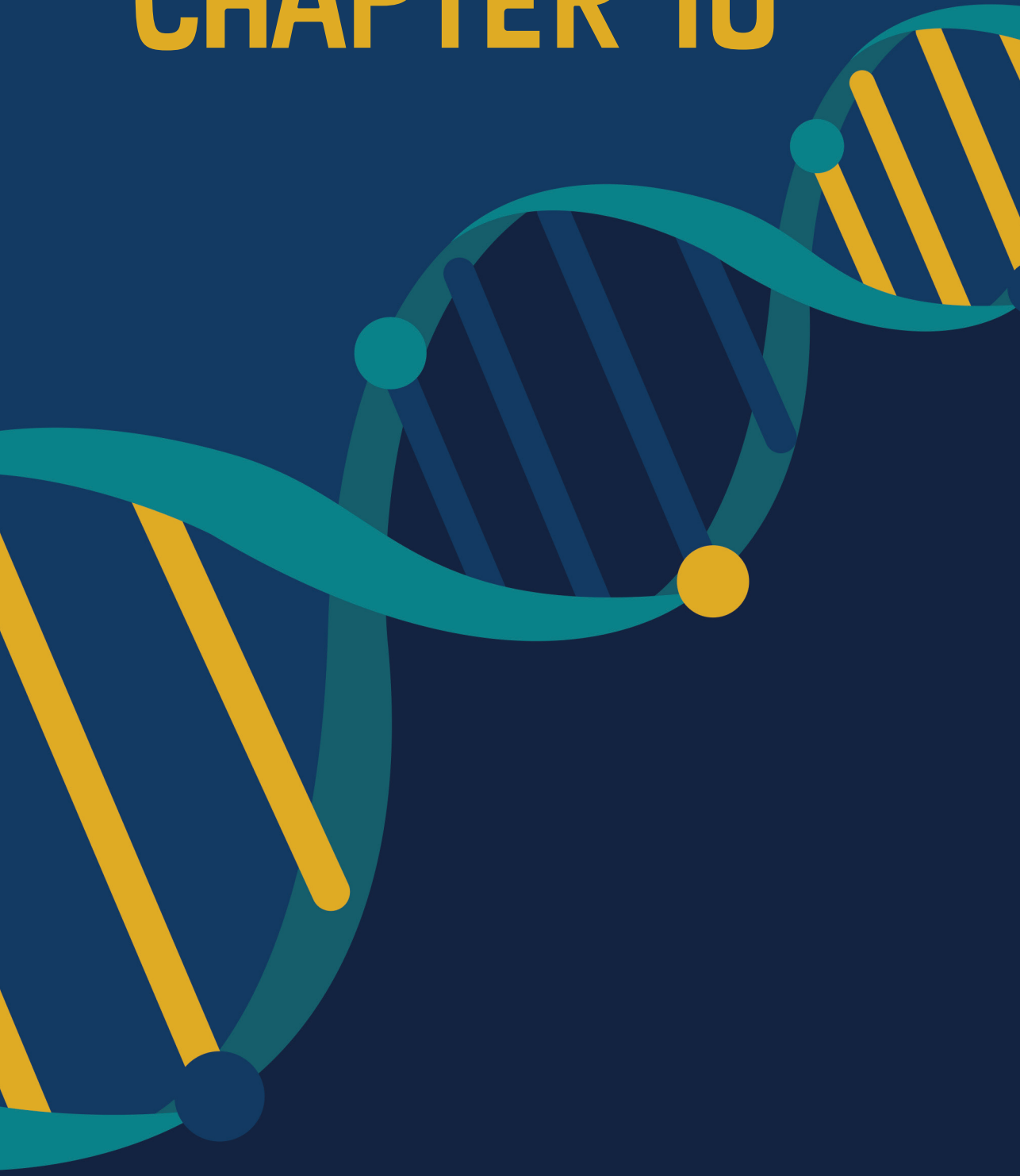
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CHAPTER 10



The image features a dark blue background with a stylized DNA double helix in the upper left, rendered in teal and yellow. A large, light teal shape resembling a speech bubble or a large bracket encompasses the central text. At the bottom, there is a circular diagram with teal and yellow segments, connected to a series of vertical bars of varying heights, suggesting a bar chart or data visualization.

PHD PORTFOLIO
LIST OF PUBLICATIONS
CURRICULUM VITAE

PHD PORTFOLIO

Name PhD student: Barbara Snoek
PhD period: November 2013 – April 2019
PhD supervisors: Dr. Renske D.M. Steenbergen
 Prof.dr. Chris J.L.M. Meijer
 Prof.dr. Peter J.F. Snijders †
 Dr. Daniëlle A.M. Heideman

Presentations

- 2019
 - Invited speaker at Eurogin (International multidisciplinary HPV congress) Monaco, France
 - Cancer Center Amsterdam Retreat Noordwijk, The Netherlands
- 2017
 - Eurogin Amsterdam, The Netherlands
- 2015
 - Research Retreat Oncology Graduate School Amsterdam Texel, The Netherlands

International work visit

- 2017
 - Four month work visit at the group of Prof.dr. Greg Goodall and Dr. Cameron Bracken from the Gene Regulation Networks Laboratory, Centre for Cancer Biology, University of South Australia, Adelaide

Prices

- 2016
 - VUmc CCA Travel Grant
 - VUmc Science Exchange Day, Winner of second price 'Best Poster & Abstract'

Mentorship

- 2019 • Supervision Master student (1st year), 6 months
- 2016 • Supervision medical student (4rd year), 8 months
- 2014-2015 • Supervision Bachelor student (3rd year), 5 months
- 2013-2014 • Supervision Bachelor student (3rd year), 5 months

Courses

- 2018 • Histopathology of human tumours
Oncology Graduate School Amsterdam
- Introduction course on genome editing through CRISPR/Cas
Amsterdam UMC, location VUmc, Amsterdam
- 2015 • Epigenetics and non-coding RNA: from mechanism to disease
Netherlands Cancer Institute, Amsterdam
- How to write high impact papers and what to do when your manuscript
is rejected
Cancer Center Amsterdam, Amsterdam UMC, location Vumc, Amsterdam
- 2014 • Introduction to Next Generation Sequencing Technologies, applications,
and data analysis
University of Avans, Breda
- Biostatistics in Genomic Data Analysis
Department of Epidemiology and Biostatistics from Amsterdam UMC,
location VUmc, Amsterdam
- R course
Department of Epidemiology and Biostatistics from Amsterdam UMC,
location VUmc, Amsterdam
- 2013 • Basic Medical Statistics
Netherlands Cancer Institute, Amsterdam
- Early detection of cancer
Cancer Center Amsterdam, Amsterdam UMC, location VUmc,
Amsterdam

LIST OF PUBLICATIONS

1. **Barbara C. Snoek**, Iris Babion, Danijela Koppers-Lalic, Michiel Pegtel, and Renske D.M. Steenbergen. Altered microRNA processing proteins in HPV-induced cancers. *Current Opinion in Virology* 2019; 39:23-32.
2. **Barbara C. Snoek**, Annina P. van Splunter, Maaïke C.G. Bleeker, Maartje C. van Ruiten, Daniëlle A.M. Heideman, Willem Frederik Rurup, Wina Verlaat, Hans Schotman, Mignon van Gent, Nienke E. van Trommel, and Renske D.M. Steenbergen. Cervical cancer detection by DNA methylation analysis in urine. *Scientific Reports* 2019; 9(1):3088.
3. **Barbara C. Snoek**, Wina Verlaat*, Iris Babion*, Putri W. Novianti, Mark A. van de Wiel, Saskia M. Wilting, Nienke E. van Trommel, Maaïke C.G. Bleeker, Leon F.A.G. Massuger, Willem J.G. Melchers, Daoud Sie, Daniëlle A.M. Heideman, Peter J.F. Snijders, Chris J.L.M. Meijer, and Renske D.M. Steenbergen. Genome-wide microRNA analysis of hrHPV-positive self-samples yields novel triage markers for early detection of cervical cancer. *International Journal of Cancer* 2019; 144(2):372-379. *Equal contribution
4. Iris Babion, **Barbara C. Snoek**, Putri W. Novianti, Annelieke Jaspers, Nienke E. van Trommel, Daniëlle A.M. Heideman, Chris J.L.M. Meijer, Peter J.F. Snijders, Renske D.M. Steenbergen, and Saskia M. Wilting. Triage of high-risk HPV-positive women in population-based screening by miRNA expression analysis in cervical scrapes; a feasibility study. *Clinical Epigenetics* 2018; 10:76 doi.org/10.1186/s13148-018-0509-9.
5. Wina Verlaat, **Barbara C. Snoek**, Daniëlle A.M. Heideman, Saskia M. Wilting, Peter J.F. Snijders, Putri W. Novianti, Annina P. van Splunter, Carel F.W. Peeters, Nienke E. van Trommel, Leon F.A.G. Massuger, Ruud L.M. Bekkers, Willem J.G. Melchers, Folkert J. van Kemenade, Johannes Berkhof, Mark A. van de Wiel, Chris J.L.M. Meijer, and Renske D.M. Steenbergen. Identification and validation of a 3-gene methylation classifier for HPV-based cervical screening on self-samples. *Clinical Cancer Research* 2018; 24(14): 3456-3464.
6. **Barbara C. Snoek***, Iris Babion*, Mark A. van de Wiel, Saskia M. Wilting, and Renske D.M. Steenbergen. A strategy to find suitable reference genes for miRNA quantitative PCR analysis and its application to cervical specimens. *Journal of Molecular Diagnostics* 2017; 19(5):625-637. *Equal contribution
7. Putri W. Novianti, **Barbara C. Snoek**, Saskia M. Wilting, and Mark A. van de Wiel. Better diagnostic signatures from RNAseq data through use of auxiliary co-data. *Bioinformatics* 2017; 33(10): 1572-1574.

8. Saskia M. Wilting, Viktorian Miok, Annelieke Jaspers, Debbie Boon, Hanne Sörgård, Malin Lando, **Barbara C. Snoek**, Wessel N. van Wieringen, Chris J.L.M. Meijer, Heidi Lyng, Peter J.F. Snijders, and Renske D.M. Steenbergen. Aberrant methylation-mediated silencing of microRNAs contributes to HPV-induced anchorage independence. *Oncotarget* 2016; 7(28): 43805-43819.
9. Malin Lando, Christina S. Fjeldbo, Saskia M. Wilting, **Barbara C. Snoek**, Eva-Katrine Aarnes, Malin F. Forsberg, Gunnar B. Kristensen, Renske D.M. Steenbergen, and Heidi Lyng. Interplay between promoter methylation and chromosomal loss in gene silencing at 3p11-p14 in cervical cancer. *Epigenetics* 2015; 10(10): 970-980.
10. **Barbara C. Snoek**, Leonie H.A.M. de Wilt, Gerrit Jansen, and Godefridus J. Peters. The role of E3 ubiquitin ligases in lung cancer. *World Journal of Clinical Oncology* 2013; 4(3): 58-69.
11. Micha Nethe, Bart-Jan de Kreuk, Daniele V.F. Tauriello, Eloise C. Anthony, **Barbara C. Snoek**, Thomas Stumpel, Patricia C. Salinas, Madelon M. Maurice, Dirk Geerts, André M. Deelder, Paul J. Hensbergen, and Peter L. Hordijk. Rac1 acts in conjunction with Nedd4 and dishevelled-1 to promote maturation of cell-cell contacts. *Journal of Cell Science* 2012; 125(Pt 14): 3430-3442.
12. Lisa G.M. van Baarsen, Maria Cristina Lebre, Dennis van der Coelen, **Barbara C. Snoek**, Daan M. Gerlag, and Paul P. Tak. IL-17 levels in synovium of patients with rheumatoid arthritis, psoriatic arthritis and osteoarthritis: Target validation in various forms of arthritis. *Annals of the Rheumatic Diseases* 2011; 70(2) doi.org/10.1136/ard.2010.149013.27.

CURRICULUM VITAE

Barbara Snoek was born in Zaandam on November 18, 1986. She went to secondary school at the Sint Michael College in Zaandam and graduated (havo) in 2006. In the same year she started her bachelor Biology and Medical Laboratory Research at Inholland in Alkmaar. During this study, she did her first internship at the department of Cell Biology of the Netherlands Cancer Institute (NKI), under supervision of Dr. John Collard and Rob van der Kammen. She investigated the functional effect of Tiam1 phosphorylation and its role on Rac activation. She did her second internship at the department of Molecular Cell Biology of Sanquin, where she was supervised by Dr. Peter Hordijk and MSc. Micha Nethe. For this project she investigated whether Rac1 is subjected to ubiquitination driven by the E3 ligase Nedd4-1. In 2009, she graduated for her Bachelor of Science degree. After working as a research technician at the department of Rheumatology of the Academic Medical Center (AMC) in Amsterdam for one year, she started her master Oncology at the VU University Medical Center (VUmc) Amsterdam in 2010. In the first year, she did an internship at the department of Medical Oncology of the VUmc, under supervision of Prof.dr. Frits Peters and Drs. Leonie de Wilt. During this project she investigated whether the drug Obatoclox could sensitise lung cancer cells to TRAIL-induced apoptosis. Her second internship was at the Division of Molecular Oncology of the NKI, under supervision of Prof.dr. Daniel Peeper, Dr. Marjon Smit and Dr. Patricia Possik. For this project she tested the effect of fibroblasts on the response of melanoma cells to ERK inhibition. In 2012, she received her Master of Science degree. Afterwards, she started her PhD at the department of Pathology, unit Molecular Pathology of the VUmc, under supervision of Dr. Renske Steenbergen, Prof.dr. Chris Meijer, Prof.dr. Peter Snijders†, and Dr. Daniëlle Heideman, which resulted in this thesis. During her PhD she visited the research group of Prof.dr. Greg Goodall and Dr. Cameron Bracken at the University of South Australia in Adelaide for 4 months. During this visit she gained experience with the Argonaute high-throughput sequencing crosslinking immunoprecipitation method (AGO-HITS-CLIP). The results of this visit are currently being validated. She now works as a postdoctoral researcher at the department of Pathology, where she is investigating the involvement of microRNA processing proteins in the development of cancer and isomiR generation.