Nils Eling

Employment

2019–present **Postdoctoral fellow**, *DQBM*, *University of Zurich*.

Education

2015–2019 **Computational Biology, PhD**, *EMBL-EBI*, *University of Cambridge*.

2012–2015 **Molecular Biotechnology, M.Sc.**, *University of Heidelberg*, *Grade: 1.0*.

2009–2012 **Molecular Biotechnology, B.Sc.**, *University of Heidelberg*, *Grade: 1.1*.

Projects

Postdoc *Profiling the emergence of cellular heterogeneity in breast cancer organoids.*

Supervisor Bernd Bodenmiller, Single cell systems biology of cancer, DQBM, University of Zurich

Description My postodoctoral work focuses on understanding the emergence of phenotypic heterogeneity in breast cancer and how this relates to treatment efficiency. I choose breast cancer organoids as model system to capture spatial expression patterns during organoid formation.

PhD *Quantifying expression variability in single-cell RNA sequencing data.*

Supervisor John Marioni, Single-cell and computational biology, EMBL-EBI and CRUK CI, Cambridge

Description During my PhD I focused on quantifying and understanding the functional role of transcriptional variability in immune responses and development. For this, I developed a statistical approach to correct the confounding effect of mean expression on transcriptional variability.

M.Sc. *Characterization of programmed cell death modalities induced by piperlongumine and artesunate in pancreatic cancer cells.*

Supervisor Dr. Anne Hamacher-Brady, Lysosomal Systems Biology, DKFZ, Heidelberg

B.Sc. *Modelling the Nrf2-Keap1 signalling pathway in human pancreatic carcinoma cells.*

Supervisor Dr. Nathan Brady, Systems Biology of cell death mechanisms, DKFZ, Heidelberg

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Research Experience

Internships

2013–2014 **Research Internship**, The Garvan Institute of Medical Research, Sydney, Australia.
Defining the role of Sirtuin 1 in the onset of Pancreatic Ductal Adenocarcinoma.

2012 **Research Internship**, The Scripps Research Institute, La Jolla, CA.
Activation of $CD8^+$ T cells *in vitro* as well as *in vivo* in order to specifically target pancreatic tumors in 8–14 week old mice.

2011 **Industrial Internship**, Merck KGaA, Darmstadt, Germany.
Proliferation induction in human cancer stem cells using different cytokines.

2009 **Research Internship**, University of Duisburg-Essen, Duisburg, Germany.
Collaboration with the SulfoSYS project in order to analyse the central carbohydrate metabolism of *S. solfataricus*.

2005 **High School Intern**, Evonik Goldschmidt GmbH, Essen, Germany.
Characterisation of polyurethane foam properties.

Research Assistances

2012–2014 **Research Assistant**, *Max Planck Institute for Medical Research*.
Django/MySQL based website development to process spatially annotated electron imaging data.

2011–2012 **Research Assistant**, *Complex biological systems group*, IWR, Heidelberg.
ODE based modelling of the chemotactic pathway of *E. coli*.

2010–2011 **Research Assistant**, *Signal transduction in cancer and metabolism*, DKFZ, Heidelberg.
Using *D. melanogaster* as model organism for analysing caloric restriction and the Akt/mTOR signalling pathway.

Publications

2019 *IL-7-dependent compositional changes within the $\gamma\delta$ T cell pool in lymph nodes during ageing lead to an unbalanced anti-tumour response*, Chen, H.C., Eling, N., Martinez-Jimenez, C.P., McNeill, L., O'Brien, Carbonaro, V., Marioni, J.C., Odom, D.T., de la Roche, M., *EMBO Reports*.

2019 *Challenges in measuring and understanding biological noise*, Eling, N., Michael Morgan, John Marioni, *Nature Reviews Genetics*.

2019 *Staged developmental mapping and X chromosome transcriptional dynamics during mouse spermatogenesis*, Ernst, C.*, Eling, N.* *et al.*, *Nature Communications*, *Co-first authors.

2018 *Correcting the mean-variance dependency for differential variability testing using single-cell RNA sequencing data*, Eling, N. *et al.*, *Cell Systems*.

2018 *Whole-Body Single-Cell Sequencing Reveals Transcriptional Domains in the Annelid Larval Body*, Achim, K.*, Eling, N.* *et al.*, *Molecular Biology and Evolution*, *Co-first authors.

2017 *Aging increases cell-to-cell transcriptional variability upon immune stimulation*, Martinez-Jimenez, C.P.*, Eling, N.* *et al.*, *Science*, *Co-first authors.

2016 *Successful transmission and transcriptional deployment of a human chromosome via mouse male meiosis*, Ernst, C., Pike, J., Aitken, S.J., Long, H.K., Eling, N., Stojic, L., Ward, M.C., Connor, F., Rayner, T.F., Lukk, M., Klose, R.J., Kutter, C., Odom, D.T., *eLife*, 5, e20235.

2016 *Sirtuin 1 stimulates the proliferation and the expression of glycolysis genes in pancreatic neoplastic lesions*, Pinho, A.V., Mawson, A., Gill, A., Arshi, M., Warmerdam, M., Giry-Laterriere, M., Eling, N., Lie, T., Kuster, E., Camargo, S., Biankin, A.V., Wu, J., Rooman, I., *Oncotarget*, 7(46), 74768.

2015 *Identification of artesunate as a specific activator of ferroptosis in pancreatic cancer cells*, Eling, N. *et al.*, *Oncoscience*, 2(5), 517-532.

Scholarships and awards

2021-present Marie Skłodowska-Curie Actions Individual Fellowship

2019-2020 EMBO Long-Term Fellowship

2017 Kurt Hahn Award for German nationals in Cambridge

Since 2015 EMBL international PhD fellowship

2011-2015 Scholar of the foundation of German business

2011-2015 Scholar of e-fellows.net

Conferences and workshops

Talk

2018 Francis Crick institute artificial intelligence seminar

2018 EBI Sanger Cambridge PhD Symposium

2017 EMBL Lab Day

2015 EMBL PhD Symposium

Poster

2020 BioC 2020

2015-2017 Single Cell Genomics

2016 Single Cell Biology

2016 Quantitative Genomics

Workshop

2016-2017 Academy for PhD Training in Statistics

2015 Statistics and Computing in Genome Data Science (CSAMA)

Conference organiser

2018 Quantitative Genomics

2017 Science and Society: Gut feeling

2016 Science and Society: Rewriting the Code of Life

2015 EBI Sanger Cambridge PhD Symposium

Teaching

2020 DQBM online course: Introduction to data analysis

2016 EMBL: Bioinformatics Teaching Module

2015 Machine Learning for Personalised Medicine summer school (assistant)

Supervision

2020 Computational rotation student

Hackathon

2017 Human Cell Atlas

2017 MLH Prime

2017 Hack Cambridge Recurse

Technical skills

Basic Adobe Photoshop, Matlab, Django, C++

Intermediate Python, html/css

Advanced R, git, Adobe Illustrator, LaTeX, bash

Languages

German Mother tongue

English Advanced *Conversationally and scientifically fluent*

French Basic *Basic words and phrases*

Interests

- Rowing, Hiking
- Travelling, Bouldering

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