Sonja Nowotschin, PhD

Senior Research Scientist

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Education & Training

2014-present: Senior Research Scientist, Developmental Biology Program, Sloan Kettering Institute (lab of Kat Hadjantonakis)

2011–2014: Research Associate, Developmental Biology Program, Sloan Kettering Institute (lab of Kat Hadjantonakis)

2006–2011: Postdoctoral Fellow, Developmental Biology Program, Sloan Kettering Institute (lab of Kat Hadjantonakis)

2005–2006: Postdoctoral Fellow, Albert Einstein College of Medicine (lab of Bernice Morrow)

2002–2005: Graduate studies, University of Karlsruhe, Germany and Albert Einstein College of Medicine, New York (lab of Bernice Morrow)

Research Interests

My research interests are centered on investigating mechanisms of tissue morphogenesis and cell lineage patterning at the time of gastrulation. I use the mouse embryo, embryo-derived and pluripotent stem cells as mammalian model systems. The goal of my work is to formulate a blueprint for understanding analogous events in human development.

My studies specifically focus on the mechanisms driving cell fate decisions towards mesoderm and/or endoderm, the transitions between epithelial and mesenchymal (EMT & MET) states, and how these events are coordinated during embryonic development at gastrulation.

Optical imaging, single-cell transcriptomics, mouse genetics and embryology, and stem cell methods are central approaches that I use.

Publications

Recent and Selected Publications

Nowotschin S, Hadjantonakis AK*, Campbell K*. (2019) The endoderm: a divergent cell lineage with many commonalities . Development 146(11). pii: dev150920. doi: 10.1242/dev.150920. PMID: 31160415 PMCID: PMC6589075

Nowotschin S*, Setty M*, Kuo YY, Liu V, Garg V, Sharma R, Simon CS, Saiz N, Gardner R, Boutet SC, Church DM, Hoodless PA, Hadjantonakis AK*, Pe'er D*. (2019) The emergent landscape of the mouse gut endoderm at single-cell resolution . Nature, 1. Apr 8. doi: 10.1038/s41586-019-1127-1. PMID: 30959515 PMCID: PMC6724221

Nowotschin S, Garg V, Piliszek A, Hadjantonakis AK. (2019) Ex utero culture and imaging of mouse embryos. Vertebrate Embryogenesis: Methods & Protocols 2nd edition. Methods in Molecular Biology, Pellegri, F. Ed. PMID: 30737692 PMCID: PMC3298811

Nowotschin S, Hadjantonakis AK. (2018) Lights, Camera, Action! Visualizing the Cellular Choreography of Mouse Gastrulation . Developmental Cell 47(6):684-685. doi: 10.1016/j.devcel.2018.11.049. PMID: 30562508

Simon CS, Zhang L, Wu T, Saiz N, Nowotschin S, Cai C, Hadjantonakis AK. (2018) A Gata4 nuclear GFP transcriptional reporter to study endoderm and cardiac development in mouse . Biology Open 2018 Dec 10;7(12). pii: bio036517. doi:10.1242/bio.036517. PMID: 30530745 PMCID: PMC6310872

Freyer L, Hsu CW, Nowotschin S, Pauli A, Ishida J, Kuba K, Fukamizu A, Schier AF, Hoodless P, Dickinson ME, Hadjantonakis AK. (2017) Loss of Apela peptide in mice causes low penetrance embryonic lethality and defects in early mesodermal derivatives . Cell Reports 20(9):2116-2130. doi: 10.1016/j.celrep.2017.08.014. PMID: 28854362 PMCID: PMC5580402

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