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Unravelling cell fate decisions through single cell methods and mathematical models

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LIST OF PUBLICATIONS

-  (1) **Maria Mircea**, Mazène Hochane, Xueying Fan, Susana M. Chuva De Sousa Lopes, Diego Garlaschelli, Stefan Semrau. Phiclust: a clusterability measure for single-cell transcriptomics reveals phenotypic subpopulations. *Genome Biology* (2021). <https://doi.org/10.1186/s13059-021-02590-x>.
-  (2) **Maria Mircea** and Stefan Semrau. How a cell decides its own fate: A single-cell view of molecular mechanisms and dynamics of cell type specification. *Biochemical Society Transactions* (2021). <https://doi.org/10.1042/BST20210135>.
- (3) Elisa Giacomelli, Viviana Meraviglia, Giulia Campostrini, Amy Cochrane, Xu Cao, Ruben W.J. van Helden, Ana Krotenberg Garcia, **Maria Mircea** et al. Human-iPSC-Derived Cardiac Stromal Cells Enhance Maturation in 3D Cardiac Microtissues and Reveal Non-cardiomyocyte Contributions to Heart Disease. *Cell Stem Cell* 26, 862-879 (2020). <https://doi.org/10.1016/j.stem.2020.05.004>.
-  (4) Noémie M. L. P. Bérenger-Currias, **Maria Mircea** et al. Early neurulation recapitulated in assemblies of embryonic and extraembryonic cells. *bioRxiv* (2020). <https://doi.org/10.1101/2020.02.13.947655>.
- (5) Gökçen Eraslan, Lukas M. Simon, **Maria Mircea**, Nikola S. Mueller and Fabian J. Theis. Single-cell RNA-seq denoising using a deep count autoencoder. *Nat Commun* 10, 390 (2019). <https://doi.org/10.1038/s41467-018-07931-2>.
- (6) **Maria Mircea** and Jürgen Pfeffer. Galois Lattice and Positional Dominance. *Italian Journal of Applied Statistics*. <https://doi.org/10.26398/IJAS.0030-001> .
-  (7) Xu Cao*, **Maria Mircea*** et al. Tissue microenvironment partially removes signatures of developmental origin in a 3D in vitro model of cardiac endothelial cell differentiation. Manuscript in preparation.
-  (8) Xu Cao, **Maria Mircea**. ETV2 upregulation marks lineage-restricted cardiomyocyte and endothelial cell precursors during their co-differentiation from hiPSCs. Manuscript submitted.

 Included in this thesis.

* equal contribution

CURRICULUM VITÆ

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EDUCATION

2000 - 2012	High school Gymnasium Dorfen, Germany
2012 - 2015	Bachelor in Mathematics Technical University Munich, Germany <i>Thesis:</i> Comparison of dimensionality reduction methods. <i>Supervisor:</i> Prof. Dr. Frank Filbir.
2015	Master Exchange Program Mathematics National University of Colombia, Colombia
2015 - 2018	Master in Mathematics Technical University Munich, Germany <i>Thesis:</i> Single-cell RNA-seq denoising using a deep count autoencoder. <i>Supervisors:</i> Dr. Lukas Simon and Prof. Dr. Fabian Theis.
2018 - 2022	Ph.D. Biophysics Leiden University, Netherlands <i>Thesis:</i> Unravelling cell fate decisions through single cell high throughput methods and mathematical models <i>Supervisors:</i> Dr. Stefan Semrau and Dr. Diego Garlaschelli.
2022 - present	PostDoc Mathematics in Life Science University Bonn, Germany <i>Topic:</i> Parameters of dynamical systems estimated by Deep Neural Networks to understand the effects of meta-inflammation. <i>Supervisor:</i> Prof. Dr. Jan Hasenauer.