Translation on Demand

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Declaration of originality

I hereby declare that this thesis is my own work and that no other sources and tools than stated were used.

Cologne, May 9, 2025 Elias Schwall

Acknowledgement

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Abstract

Introduction

Mouse embryonic stem cells

Mouse embryonic stem cells (mESCs) are notable for their self-renewal capabilities and pluripotency, allowing them to differentiate into any cell type from the three germ layers. While this differentiation process is limited in vivo, pluripotent stem cells (PSCs) cultivated in vitro can self-renew indefinitely under specific culture conditions (Nichols and Smith 2009). One such condition is the 2i+LIF (two inhibitors with leukemia inhibitory factor) medium, which maintains the naive pluripotent state of ESCs, closely mimicking the inner cell mass of pre-implantation mouse embryos.

References

Nichols, Jennifer, and Austin Smith. 2009. “Naive and Primed Pluripotent States.” *Cell Stem Cell* 4 (6): 487–92. https://doi.org/10.1016/j.stem.2009.05.015.

Appendices

Supplementary figures

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Code and Data availability

Abbreviations

Table 1: List of abbreviations

Abbreviation	Definition
mESCs	Mouse embryonic stem cells
PSCs	Pluripotent stem cells