

7.342 How to Build an Animal: Cell Fate and Identity in Development and Disease Week Two

Martin, 1981

Terms and concepts of note:

- Teratocarcinoma vs. teratoma
- Differentiated vs. undifferentiated
- Cell culture and conditioned media
- Neoplastic conversion
- Athymic mice

Takahashi & Yamanaka, 2006

Terms and concepts of note:

- Selection assays using antibiotic resistance
- Mouse embryonic fibroblasts as feeder cells
- DNA methylation and histone modifications
- SSEA-1 and alkaline phosphatase
- The three germ layers: mesoderm, endoderm, ectoderm

Looking Ahead:

Silva et al, 2009: Nanog is the Gateway to the Pluripotent Ground State

- What is meant by the "pluripotent ground state"?
- What's the distinction between ES cells, iPS cells, and epiSCs?
- How is Nanog's function distinct from the "canonical quartet of transcription factors" from Takahashi and Yamanaka?
- What is the significance of X chromosome in-/re-activation as it relates to pluripotency?

Ang et al, 2011: Wdr5 Mediates Self-Renewal and Reprogramming via the Embryonic Stem Cell Core Transcriptional Network

- What are different types of epigenetic marks, and what does each indicate?
- What are "bivalent domains"?
- How does ChIP-Seq work?

MIT OpenCourseWare
<https://ocw.mit.edu>

7.342 How To Build An Animal: Cell Fate and Identity in Development and Disease
Fall 2017

For information about citing these materials or our Terms of Use, visit: <https://ocw.mit.edu/terms>.