

65. Stem Cells from Early Mammalian Embryos & Stem Cell-Derived Embryo Models

1 unit, Kat Hadjantonakis, December 4th, 2025

Stem cells from postimplantation stage mammalian embryos

- ESC, TSC, XEN, EpiLC & EpiSC

Stem cell-derived embryo models

Background reviews:

Three-dimensional stem cell models of mammalian gastrulation.

Turner DA, **Martinez Arias A**. Bioessays. 2024 Aug 28:e2400123. doi: 10.1002/bies.202400123.

Online ahead of print.PMID: 39194406

Criteria for the standardization of stem-cell-based embryo models.

Martinez Arias A, Rivron N, Moris N, Tam P, Alev C, Fu J, Hadjantonakis AK, Hanna JH, Minchiotti G, Pourquie O, Sheng G, Solnica Krezel L, Veenvliet JV, Warmflash A. Nat Cell Biol. 2024 Sep 2. doi: 10.1038/s41556-024-01492-x. Online ahead of print.PMID: 39223372

Papers for Discussion:

Pluripotent stem cell-derived model of the post-implantation human embryo.

Weatherbee BAT, Gantner CW, Iwamoto-Stohl LK, Daza RM, Hamazaki N, Shendure J, Zernicka-Goetz M. Nature. 2023 Jun 27. doi: 10.1038/s41586-023-06368-y. Online ahead of print.PMID: 37369347

Self-patterning of human stem cells into post-implantation lineages.

Pedroza M, Gassaloglu SI, Dias N, Zhong L, Hou TJ, Kretzmer H, Smith ZD, Sozen B. Nature. 2023 Jun 27. doi: 10.1038/s41586-023-06354-4. Online ahead of print.PMID: 37369348

Students should read both papers and be ready to argue “court style” – arguments for/against and what was done well, and not so well.

Group A – “FOR”

McIlhenny, Lauren

Li, Faye

Mutaher, Mohammed

Pope, Eleanor

Volpe, Christina – group leader

Group B – “AGAINST”

Magnus, Karina

Afroz, Jalwa

Ahmed, Nibras

Beattie, Kai

Styers, Hannah

Sussman, Carleigh – group leader