



Life Sciences Seminar

Establishment and self-organisation of trophectoderm-like cells into artificial embryos

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Host: Carl-Philipp Heisenberg

The mouse blastocyst consists of three lineages: epiblast that will form the foetus and two extraembryonic lineages trophectoderm (TE) and primitive endoderm (PE) that support the development of the embryo. Here, we established novel extraembryonic cell lines (TE-like cells) that show extended developmental potential, capturing features of both TE and PE lineages. These cells were derived directly from blastocyst stage embryos or established in vitro via chemical reprogramming of XEN state cells. We deciphered the mechanism of conversion, as well as the developmental potential and the self-organization properties of the TE-like cells. We found that these cells are specified following the same morphogenetic and signalling cues that determine the TE fate during pre-implantation embryogenesis. Moreover, upon aggregation with embryonic stem cells, they form blastocyst-like structures that initiate implantation when transferred into a recipient mother. Thus, the self-organization properties of the TE-like cells can provide an in vitro platform for dissecting the processes of early lineage self-assembly, mechanisms of cell-cell recognition and sorting, blastocoel cavity formation and cell fate transitions in the early mammalian embryo.

Wednesday, December 18, 2019 11:00am - 12:30pm

IST Austria Campus Meeting room 3rd floor / Central Bldg. (I01.3OG.Meeting Room)



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