

# ASHBi / CiRA JOINT DISTINGUISHED SEMINAR

## Early mammalian lineages and stem cell lines

Lecturer: **Jennifer Nichols PhD**

Professor, MRC Human Genetics Unit,  
Institute of Genetics and Cancer, The University of Edinburgh



Date: **Monday, 4 December 2023**

Time: **17:20 - 18:20**

Venue: **CiRA Auditorium**

1F Center for iPS Cell Research and Application Bldg. #1

Eligibility: **Academic Researchers and Students**

Register here /



*This seminar will be followed by the ASHBi/CiRA Joint Seminar by Dr. Takuya Azami at 17:00.*

To enable implantation in the uterus, mammalian embryos form blastocysts comprising trophoblast surrounding epiblast and hypoblast. The mode of implantation varies considerably between species. Mouse embryos are initially cushioned by thick deciduum, whereas human blastocysts attach directly to the uterine wall via polar trophoblast. We observed multi-layering of human trophoblast before implantation, presumably required for rapid invasion to secure the developing embryo and initiate formation of the placenta. We used sequential fluorescent labelling to investigate the source of the extra trophoblast. Preliminary results implicate that division and inward displacement from the polar region contributes substantially to trophoblast thickening. Interestingly, some embryos donated to our project exhibit disproportionate growth of trophoblast. We hypothesise that these represent embryos in which the rapid proliferation has become out of control and that such structures may implant, but either fail to develop or cause molar pregnancies. In mouse embryos or embryonic stem cells ectopic trophoblast formation requires Oct4 deletion. We recently showed that in Oct4 null mouse embryos Stat3 signalling is the most significant pluripotency-associated pathway to be affected during the transition to trophoblast, but it remains to be determined if a similar mechanism exists in the context of human naïve pluripotency.

Hosted by Institute for the Advanced Study of Human Biology (WPI-ASHBi)

Co-organized by Center for iPS Cell Research and Application

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