Tata Institute of Fundamental Research
Survey No. 36/P, Gopanpally Village, Serilingampally Mandal, Ranga Reddy Dist., Hyderabad – 500 046

Seminar

Spatiotemporal Regulation of Primitive Endoderm Specification in mammalian preimplantation development

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Primitive endoderm (PrE) is an epithelial monolayer that provides nutrient support and acts as an inductive signalling centre for epiblast patterning, including anterior-posterior axis formation via visceral endoderm derivatives. PrE is specified as a single layer of cells facing the developing blastocoel during the formation of the blastocyst. FGF signalling and membrane fluctuations of the cells facing the blastocoels are shown to be essential for the specification of the primitive endoderm. How a single layer of primitive endoderm is specified from the pluripotent cells is unclear. Using embryonic stem cell models and embryos, we demonstrate that the pluripotency signalling network is counteracted by cell position-induced signalling pathways, specifically in the outer layer of cells, to repress pluripotency and induce the primitive endoderm fate, leading to the specification of a unilayer primitive endoderm.

Monday, Jan 5th 2026

11:30 Hrs (Tea / Coffee 11:15 Hrs)

Auditorium, TIFRH