Seminar/Talk

Symmetry breaking and self-organisation in mouse development

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Host:

A defining feature of living systems is the capacity to break symmetry and generate well-defined forms and patterns through self-organisation. Our group aims to understand the principle of multi-cellular self-organisation using a well-suited model system: early mouse embryos. Mammalian eggs lack polarity and thus symmetry is broken during early embryogenesis. This symmetry breaking results in the formation of a blastocyst consisting of two major cell types, the inner cell mass and the trophectoderm, each distinct in its position and gene expression. Our recent studies unexpectedly revealed that morphogenesis and gene expression are highly dynamic and stochastically variable during this process. Determining which signal breaks the symmetry and how the blastocyst establishes a reproducible shape and pattern despite the preceding variability remains fundamental open questions in mammalian development. We have recently developed a unique set of experimental frameworks that integrate biology and physics. With this we aim to understand how molecular, cellular and physical signals are dynamically coupled across the scales for self-organisation during early mammalian development.

Monday, February 13, 2017 09:45am - 10:45am
Seminar room Big Ground floor / Office Bldg West (I21.EG.101)

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