ME Seminar

Cell movements, and surface wetting guide the formation of multi-layered biological tissues

Lakshmi Balasubramaniam, EMBO-Herschel Smith Research Fellow, Gurdon Institute, University of Cambridge, UK

ABSTRACT

Embryos grow in response to their extracellular environment through sensing of their biophysical environment. I will describe two processes of how cells within a growing embryo respond to mechanical properties of the surrounding environment in order to build complex tissues. In the first part, I will describe a collective migration process where cells movements enable the remodelling of extracellular matrix thereby providing cells with the structural support required. This facilitates the formation of a second tissue layer during embryonic growth. In the second part, I will describe how such interactions help in building the shape of blood vessels into an interconnected network from cell aggregates that coalesce. This work uses a combination of biophysical measurements, soft matter, mechanical manipulation, biological experiments and graph based network quantifications.

ABOUT THE SPEAKER

I am a trained engineer and did my PhD in the group of Benoit Ladoux and Rene-Marc Mege to study how collective cells organize themselves nematically in response to substrate stiffness and cell-cell adhesion strength. Currently, I am a EMBO- Herchel Smith Research Fellow at the Gurdon Institute working in the group of Dr. Fengzhu Xiong exploring how nematic properties and cell shapes regulate various process such as cell migration, tissue shape emergence and blood vessel formation during embryogenesis.

2nd November 2026, 04.00 PM, Online Seminar,

Teams Meeting ID: 412 786 595 812 908

Passcode: UR9V4mj2



Link: https://teams.microsoft.com/meet/412786595812908?p=nKXLMhQ9Pa8qXx9EqD