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Mechanics of blastocyst morphogenesis

During pre-implantation development, the mammalian embryo forms the blastocyst. The architecture of the blastocyst is essential to the specification of the first mammalian lineages and to the implantation of the embryo. Consisting of an epithelium enveloping a fluid-filled lumen and the inner cell mass, the blastocyst is sculpted by a succession of morphogenetic events. These deformations result from the changes in the forces and mechanical properties of the tissue composing the embryo. Combining microscopy, image analysis, biophysical tools and genetics, we study the mechanical and cellular changes leading to the formation of the blastocyst. In particular, we uncover the distinct mechanical strategies adopted by human and mouse embryos to become compacted, how spindle instabilities can trigger cell fragmentation, and how hydraulic fracturing and active coarsening position the lumen of the blastocyst.

Host: Melina Schuh



Thursday / 23.09.2021 / 13:00

zoom access data will be mailed before the seminar!

