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**The physics of a cell doublet: a minimal system to study early embryo morphogenesis** HERVE TURLIER, JEAN-LEON MAITRE, TAKASHI HIIRAGI, FRANCOIS NEDELEC, European Molecular Biology Laboratory — In early embryos, the shape of cells is determined in part by the actomyosin cortex and in part by interactions with the surrounding environment. Cell-cell adhesion, in particular, is determinant for the overall embryo organization. This complex interplay between cell autonomous mechanical properties and cell-cell interactions can advantageously be analyzed in pairs of isolated cells. We study theoretically and experimentally shape changes in doublets of mouse embryo blastomeres. Simple scaling analysis and numerical simulations can predict the various configurations adopted by blastomere doublets over different stages of embryo development. Our study provides a simple and robust physical framework to understand and characterize quantitatively diverse morphogenetic events such as compaction, entosis and cell internalization.

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