

Abstract Submitted
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The effects of out-of-plane curvature on the growth of epithelia

HANNAH YEVICK, GUILLAUME DUCLOS, Instiut Curie, ISABELLE BONNET, Institut Curie, PASCAL SILBERZAN, Instiut Curie — Collective cell migration is at play in many well documented in vivo processes for example, wound re-epithelialization, cancer metastasis and dorsal closure. We present a study describing the effect of out of plane curvature on the collective properties of epithelial tissue. Microfabricated environments are used to deconstruct a monolayer's response to geometry. Specifically, fibers with a radius of curvature between 1 μ m-100 μ m are populated with MDCK cells, a model epithelial, kidney-derived, cell line. Migration dynamics as well as cell architecture are quantified and the effects of curvature compared with confinement alone. Large curvatures trigger specific cellular behaviors and organization that may shed light on tubulogenesis.

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