Novel modes of epithelial bending: signals, mechanics and cell behaviours

Friday 13th October 2017 1pm
June Lloyd Room (PUW4)

Abstract
Epithelial bending is a fundamental process of developmental morphogenesis from the earliest stages of gastrulation to the final stages of organogenesis. Classically, epithelia bend by apical constriction in which apical actin contraction forces cells to become wedge-shaped. In principle, this is not the only way a sheet of cells can bend itself. We have investigated invagination of epithelia to form mouse tooth buds, hair follicles, mammary ducts and salivary glands. A novel family of epithelial bending mechanisms will be presented, including some of the signals and forces that drive them, and a broader set of principles relevant to tissue morphogenesis as a whole.

Biosketch
Jeremy Green is Professor of Developmental Biology at King’s College London. After a PhD at Imperial College London on yeast gene regulation, he discovered dose-dependency “French Flag” thresholds and the ratchet effect for morphogen cell-type specification. He was a Miller Fellow at UC Berkeley for two years before becoming a Principal Investigator at the Dana Farber Cancer Institute and Harvard Medical School Department of Genetics in Boston where he focused on Wnt signalling and cell polarity. Recent interests include apicobasal and planar cell polarity in Xenopus and Turing patterning systems as well as physical morphogenesis of mammalian tissue.