

Planar cell polarity and cell flows in epithelia

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Epithelia are two dimensional sheets of cells which are patterned and dynamically remodeled during development. An important model system for the dynamic organization of epithelia is the development of the fly wing. In the adult wing, a pattern of wing hairs emerges which reveals an underlying organization of planar cell polarity. We discuss the dynamic reorientation of this cell polarity during pupal stages of fly development. We use both a vertex model and a hydrodynamic description to study the basic mechanisms underlying flow induced reorientation of planar order.