

Walk my way: Collective migration in development and cancer

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Understanding tissue dynamics is a key element for new insights into cancer cell invasion, development and wound healing. Tissues mechanics is commonly described in analogy to liquids, sharing many properties like relaxation of shear forces and collective flows as response to mechanical stress. However, the fact that active forces are generated on the single cell level increases complexity of the description considerably. While individual cells are the source of active forces, they couple to each other in a collective fashion, thus leading to global effects on the tissue level which eventually drives tissue flow and morphogenesis. Here we study to which extend hydrodynamics approaches and simple wetting ideas can be used to explain the early collective migration in zebrafish epiboly. In a second direction we present a new collective bursting growth mechanism found as a striking, invasion like phenotype of cancer cell spheroids.