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CELL MOTILITY -  FROM THE INDIVIDUAL TO THE COLLECTIVE

Cell motility is essential for many biological processes including wound

healing, immune response, and cancer metastasis. For cells crawling on

surfaces, motility involves a complex interplay between acto-myosin

based force generation, adhesion to the substrate and chemical-based

polarization to determine a direction. Here, we discuss our work aimed

at developing integrative computational models of cell motility, ranging

in complexity from simple geometrical models to complex phase-field

approaches coupled to cytoskeletal mechanics. We also discuss efforts at

using single cell models to understand the collective behavior of motile

cells when they interact.