Mechanical models of motile single cells

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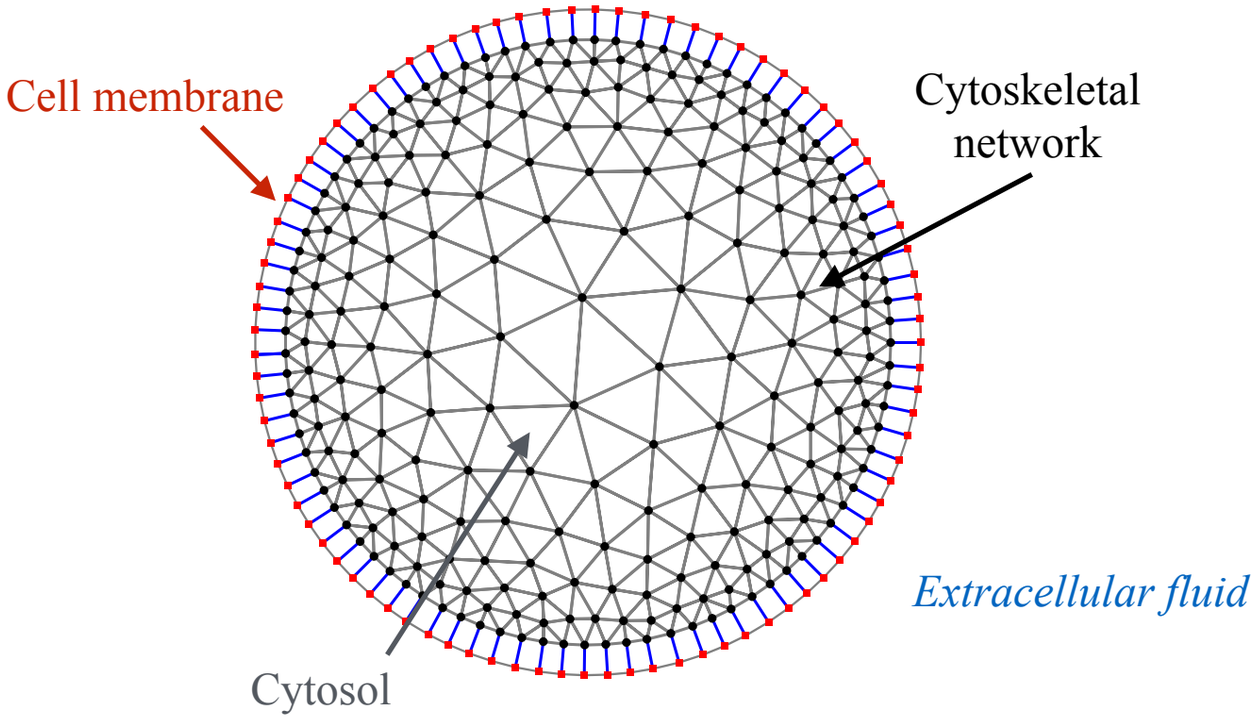
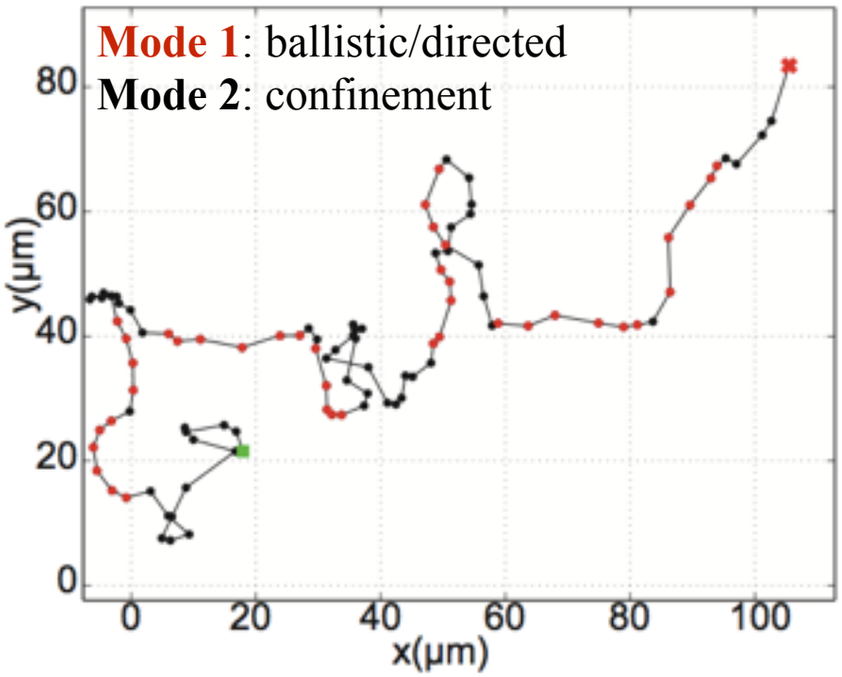
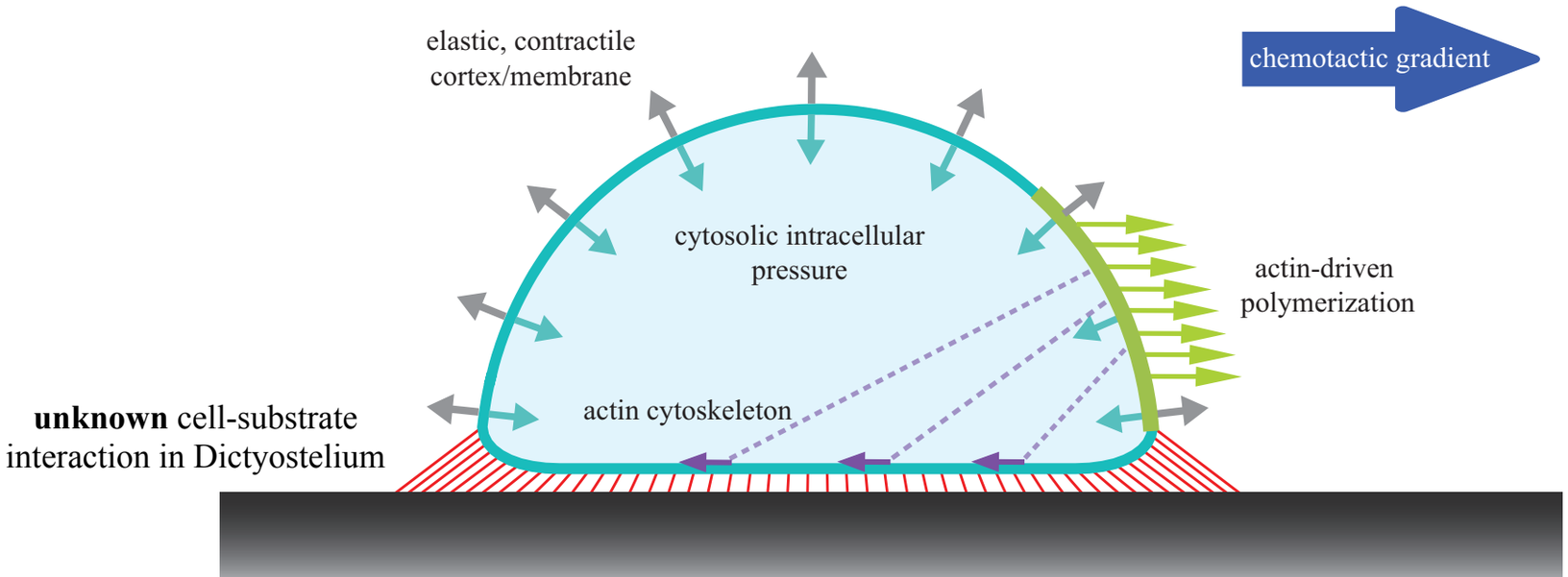
Fluid-structure models for cytoplasm rheology



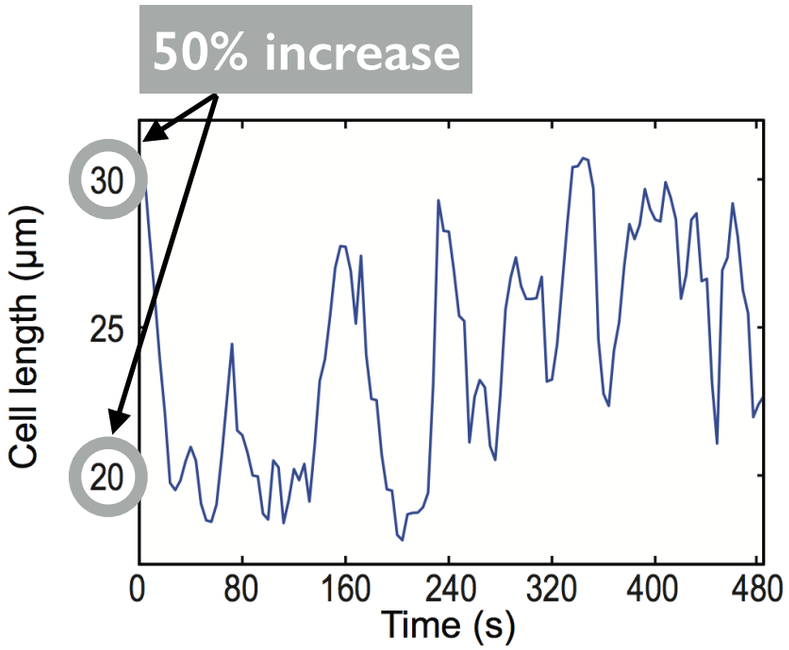
Macroscopic properties of amoeboid motility
in collaboration with J.P. Rieu (C. Bernard Lyon 1)

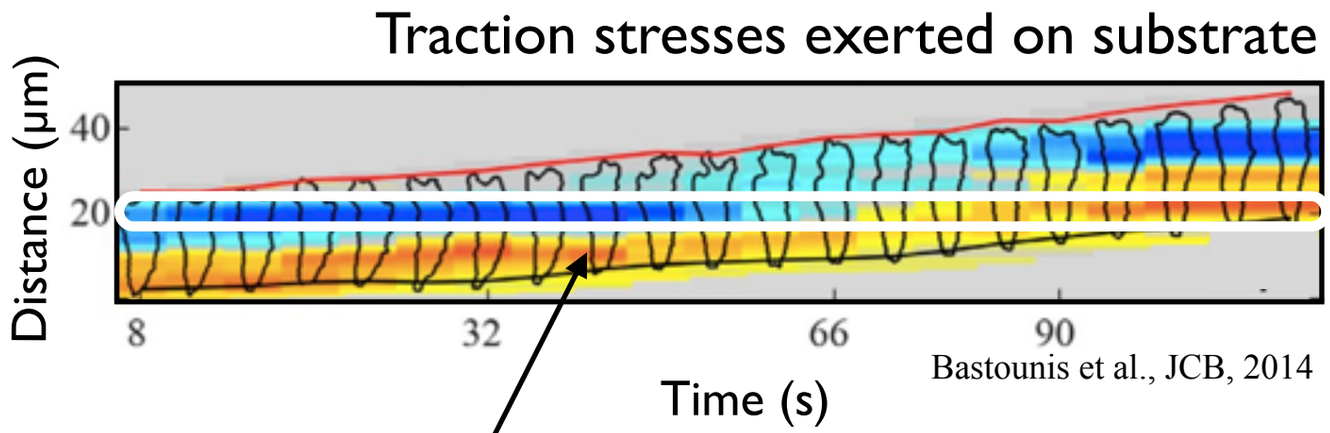


Multi-scale model of amoeboid motility
in collaboration with J.C. del Alamo (UCSD)



Stepping motility reported in Dictyostelium discoideum amoeba

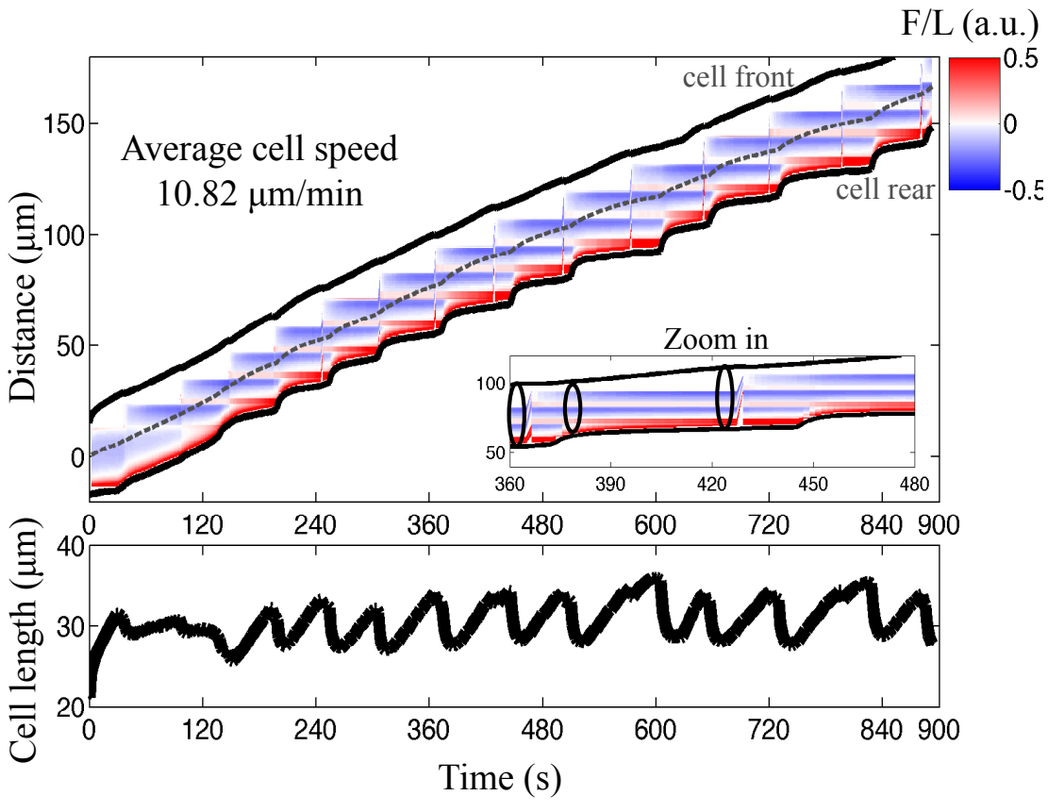


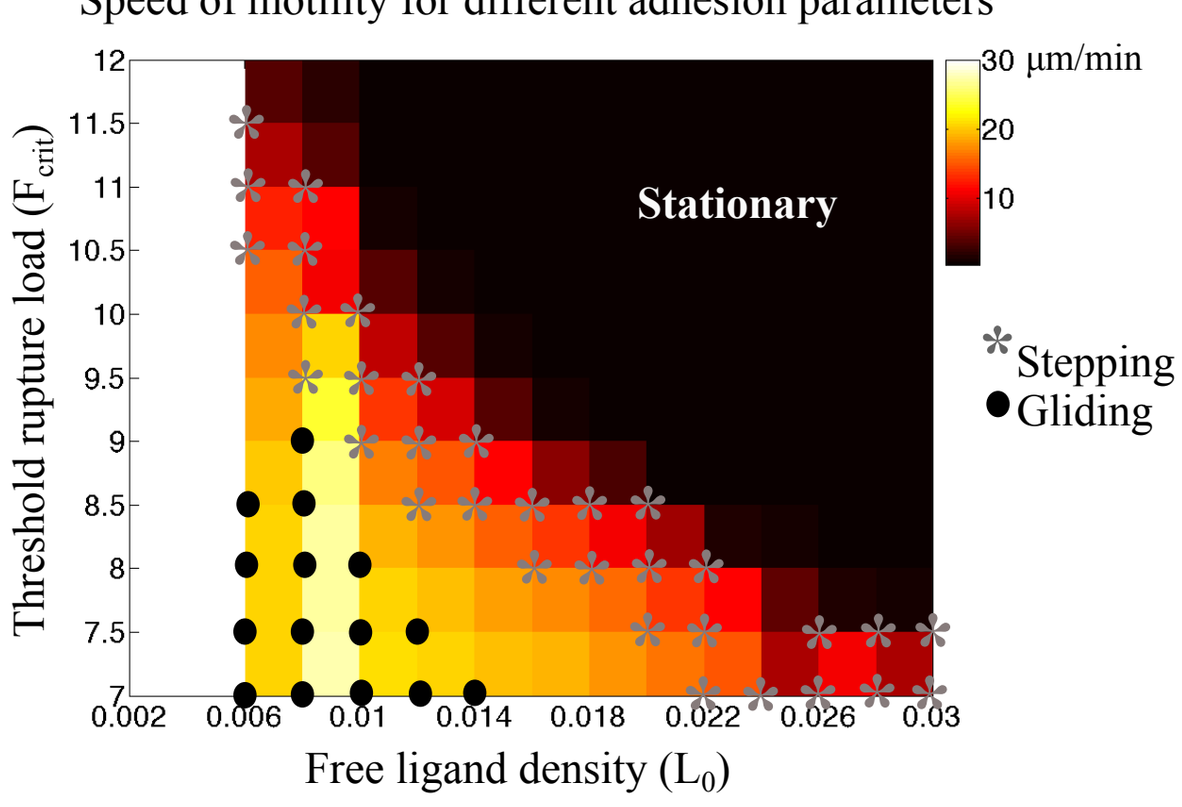


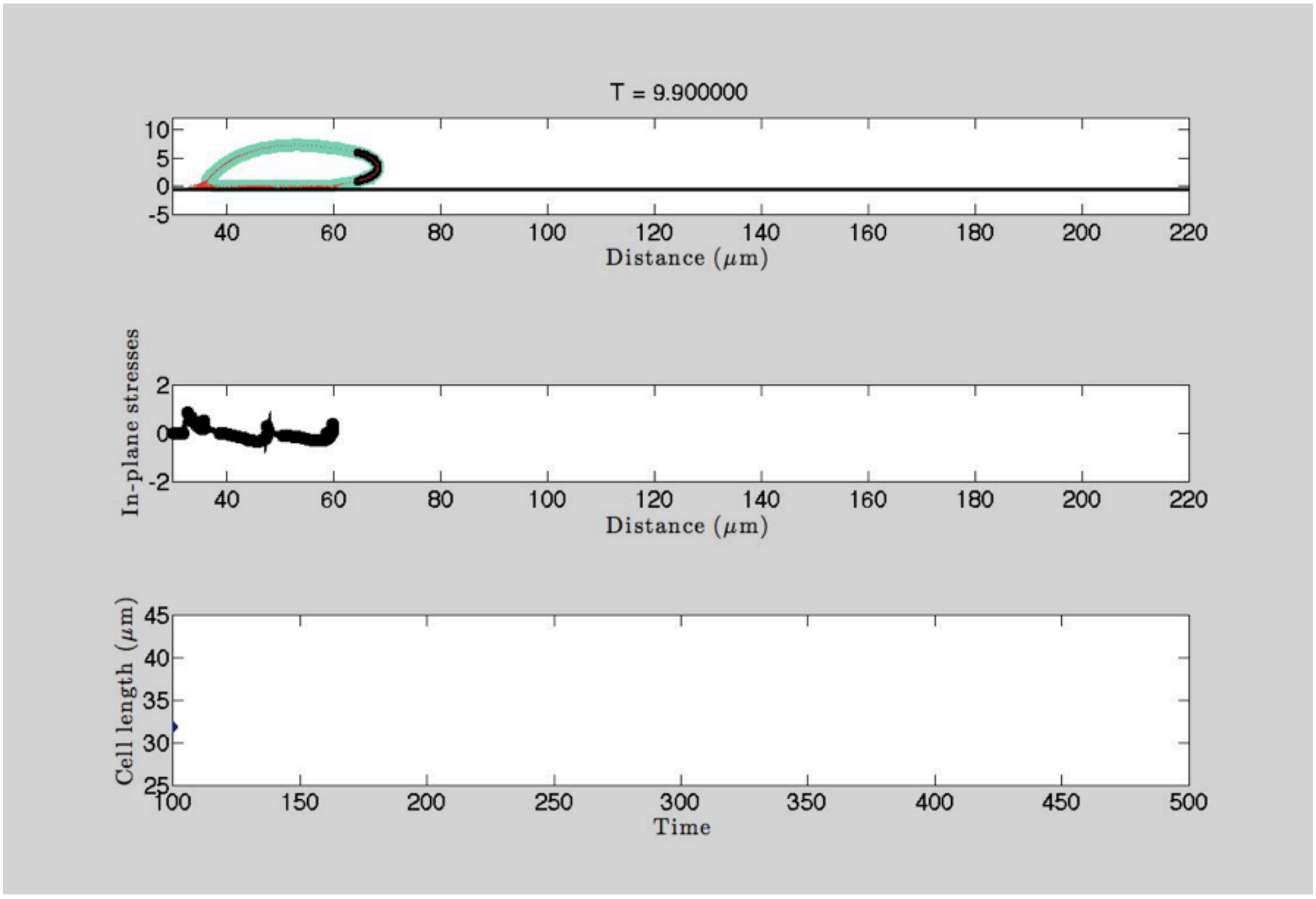
Cell pulls on the substrate in same physical region

Mechanochemical model explains stepping motility in amoeboid cells

* mechanosensitive cell-substrate adhesion *







Simulation of crawling single-cell *Dictyostelium discoideum* amoeba on a flat surface. The cell outline is shown at different time instances along with in-plane traction stresses and cell length.