

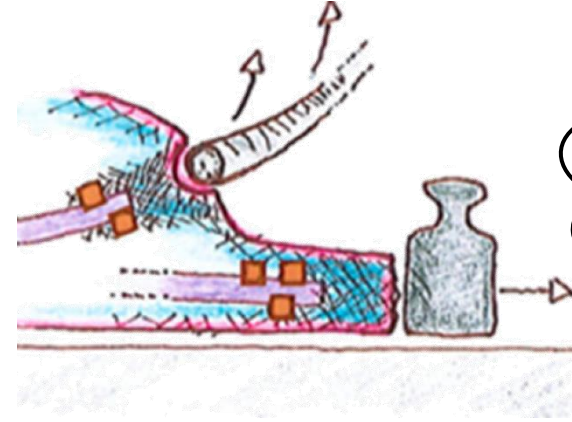
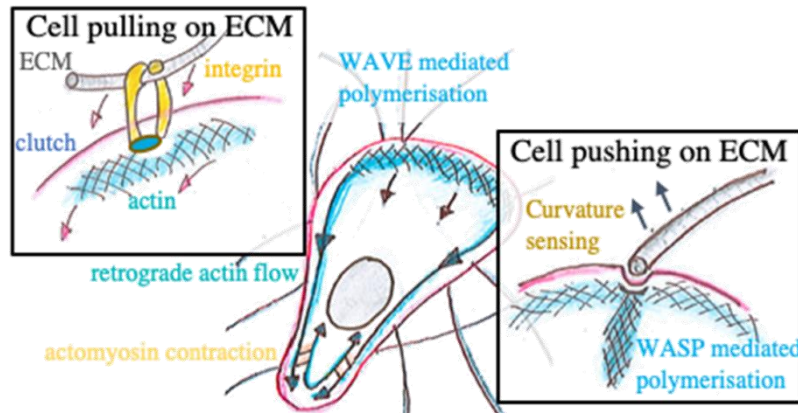
Measuring cytoskeletal forces using optical tweezers

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¹: PCC (Physics of Cells and Cancer): Institut Curie, Université PSL, Sorbonne Université, CNRS UMR168

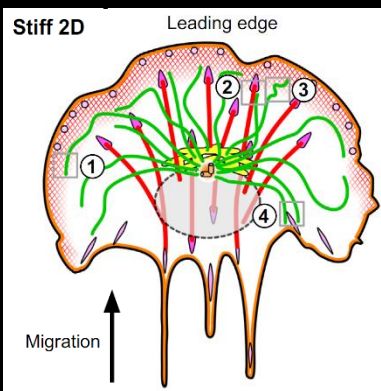
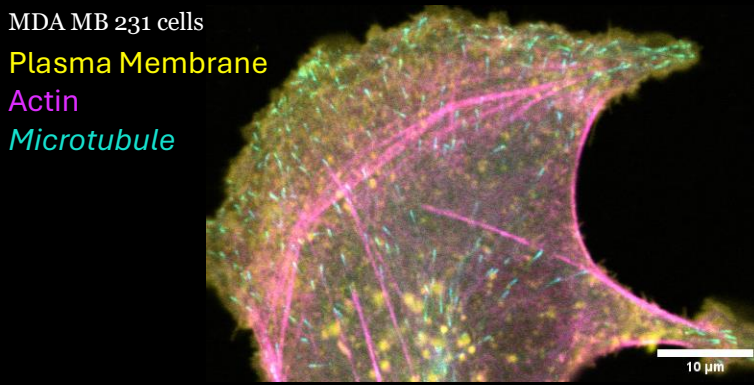
²: Cell Biology, Department of Biology, Faculty of Science, Utrecht University, Utrecht

Motivation:

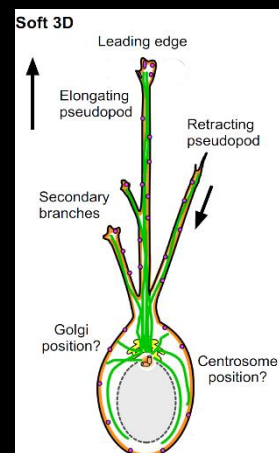
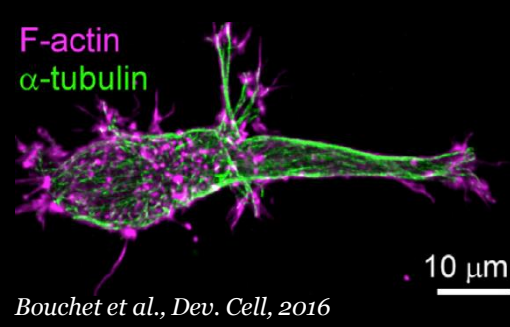


How do cells push on their environment?

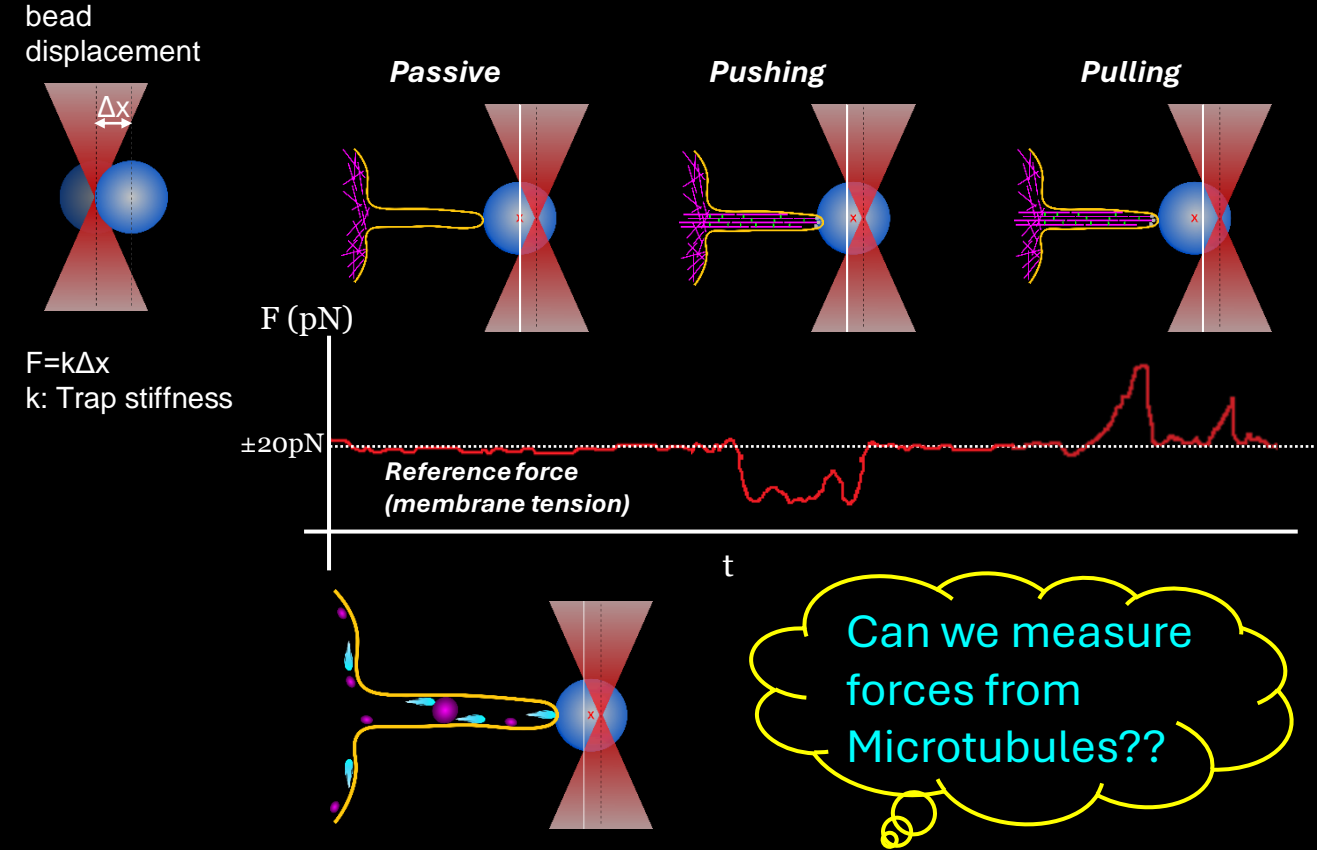
Lamellipodia



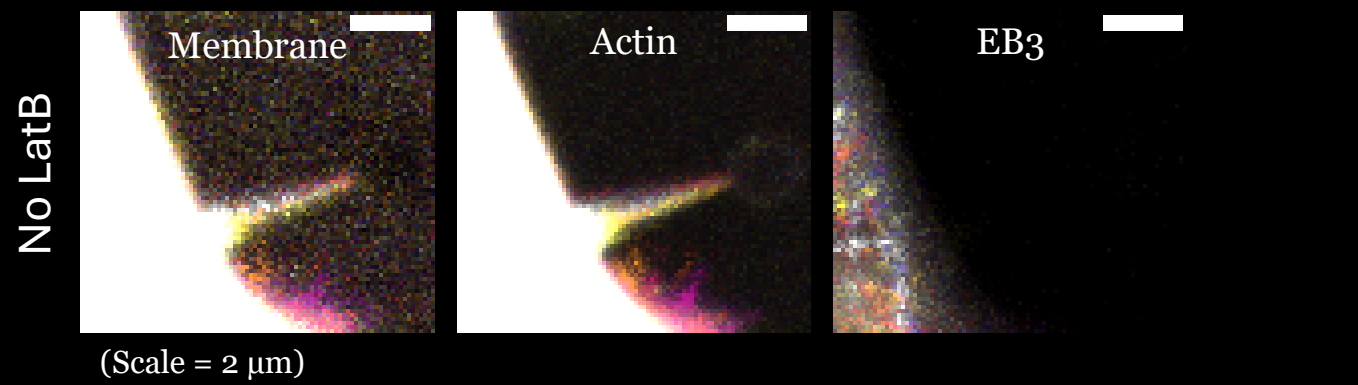
Pseudopodia



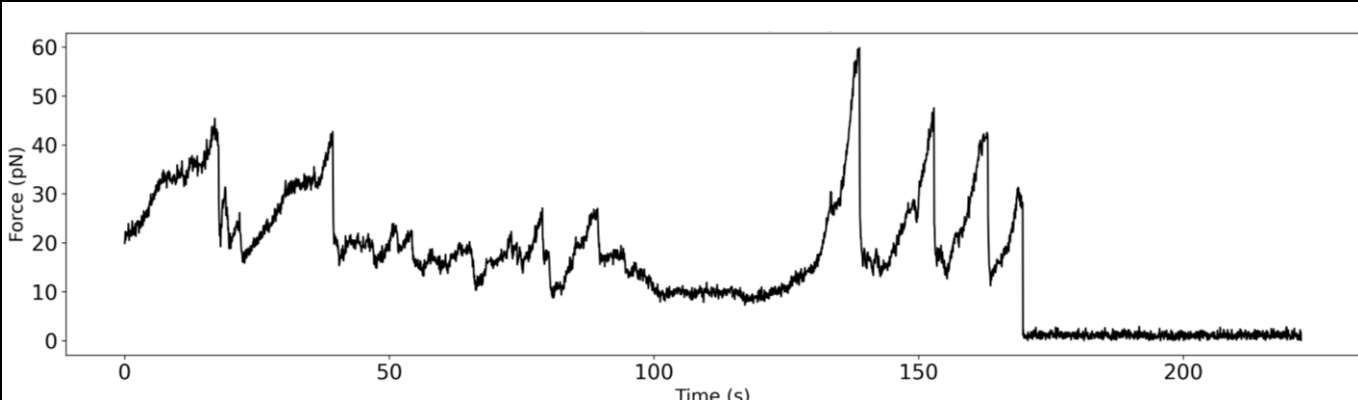
Force measurements using optical traps



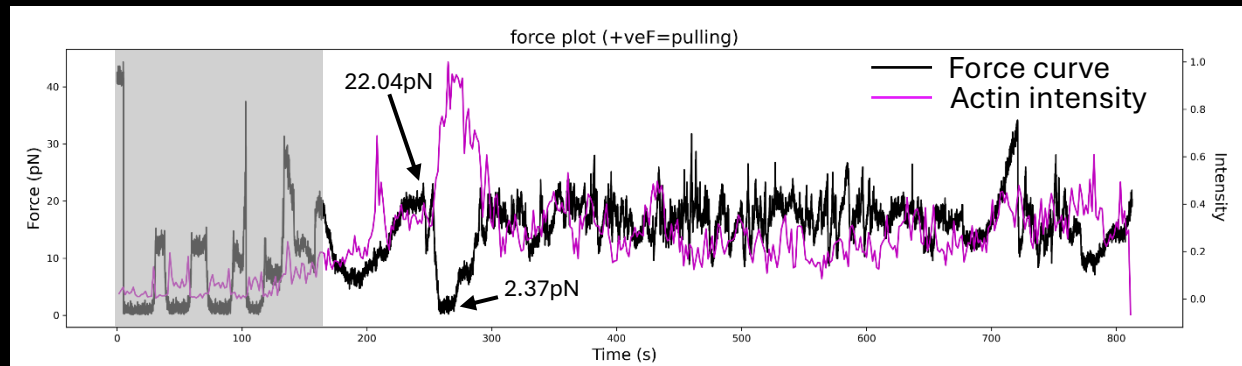
Actin Forces



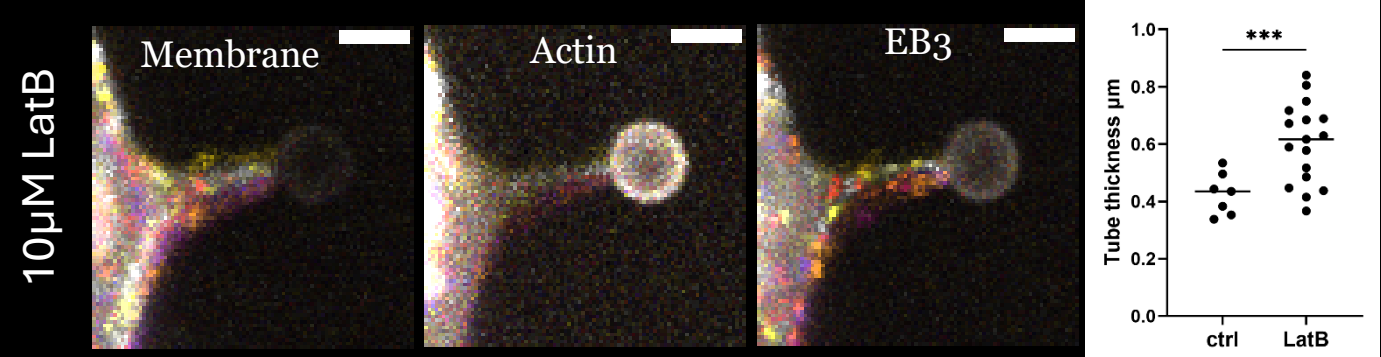
Actin pulls on the bead



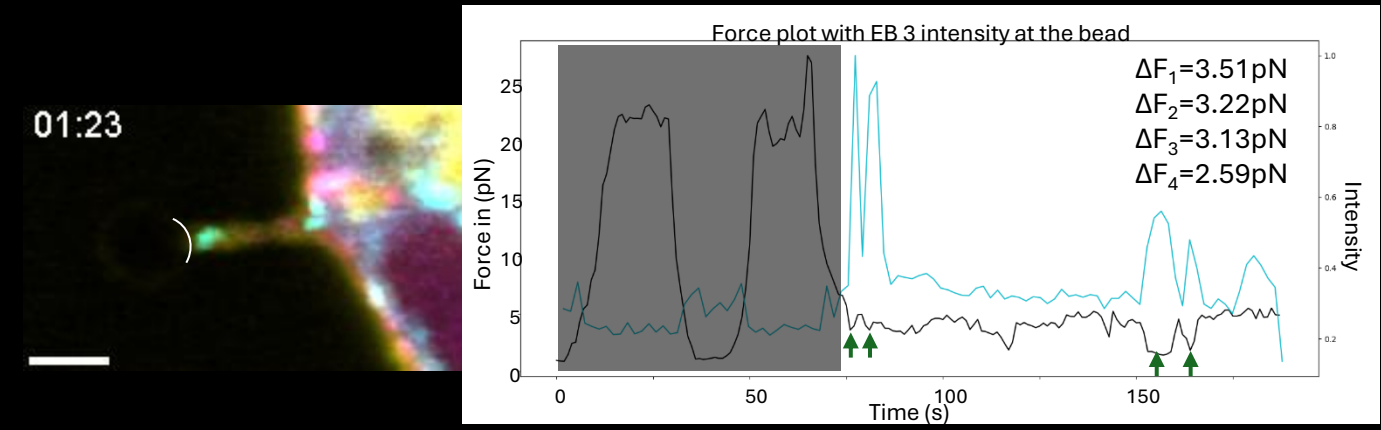
Actin pushes on the bead



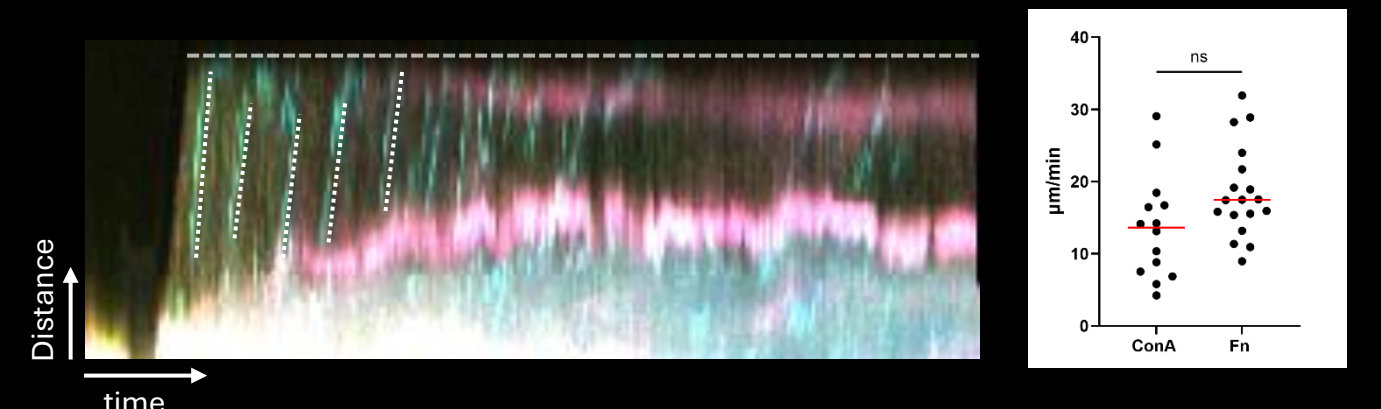
Microtubule Forces



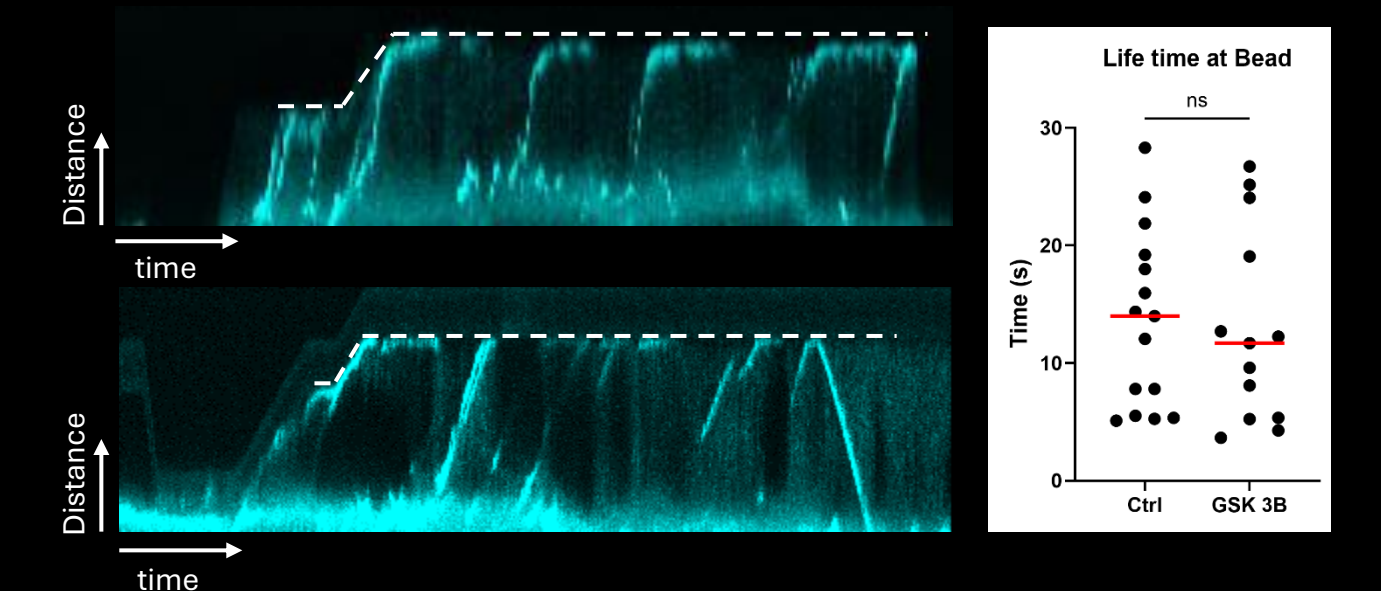
Microtubules push on the bead



Microtubule growth rate independent of bead coating:



Persistence at an obstacle:



References

1) Bouchet et al., Dev. Cell, 2016, 2) Bouchet et al., Journal of Cell Science, 2017