

## **Description of Additional Supplementary Files**

File Name: Supplementary Movie 1

Description: Time lapse of cell transfected with LifeAct-GFP and plated on a polyacrylamide gel of 0.6 kPa in stiffness.

File Name: Supplementary Movie 2

Description: Time lapse of cell transfected with LifeAct-GFP and plated on fibronectin-coated glass.

File Name: Supplementary Software 1

Description: Codes employed for the computational clutch model, and to analyze AFM and optical tweezers data.