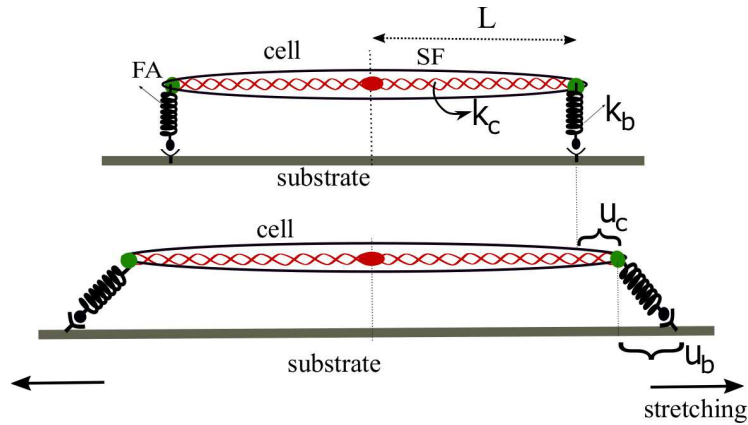**Supplementary Information**

Supplementary Figure 1

Supplementary Figure 1. Schematic diagram of the cell and the stress fiber (SF) adhering through two focal adhesions (FAs) under substrate stretching. The ligand-receptor bond is modelled as Hookian spring of spring constant k_b and the elasticity of the cell/stress fiber is represented by a spring of rigidity k_c. The bond displacement along the stretch direction is denoted by u_b and the cell spring displacement by u_c.