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Cell elasticity as a function of actin expression CARSTEN STÜBER, JOSEF KÄS — The deformation response to an external force of an eurkaryotic cell mainly depends on its cytoskeletal composition. Theoretical models have been introduced to quantify the concentration dependence of the different cytoskeletal components to the elastic strength of cells. Verifying the models experimentally, the optical stretcher, a two beam optical trap, is used to elongate fibroblast cells. These fibroblasts are transfected with GFP-actin, which leads to an overexpression of actin within the cell and allows to determine the actin concentration using fluorescence image analysis. The dependence of the elasticity on the actin concentration of fibroblasts shows a softening of the cell with increasing number of actin filaments.

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