

Measures of cell forces in vitro

Single-molecule techniques (force- or fluorescence-based) are appealing techniques that allow to probe reaction-intermediates, which are difficult, if not impossible, to observe when performing experiments on a large ensemble of molecules. Here, we propose to give a short introduction on Magnetic Tweezers, which consists of attaching a single-molecule (e.g. DNA) between a glass surface and a magnetic bead and recording the x,y,z movement of a micron-sized bead. By varying the strength of the magnetic force (e.g. adjusting the distance between the magnetic bead and the glass slide), one can monitor the mechanical response of single DNA molecules. We will perform such experiments and discuss how relevant physical parameters (e.g. persistence length of the molecule) can be obtained.