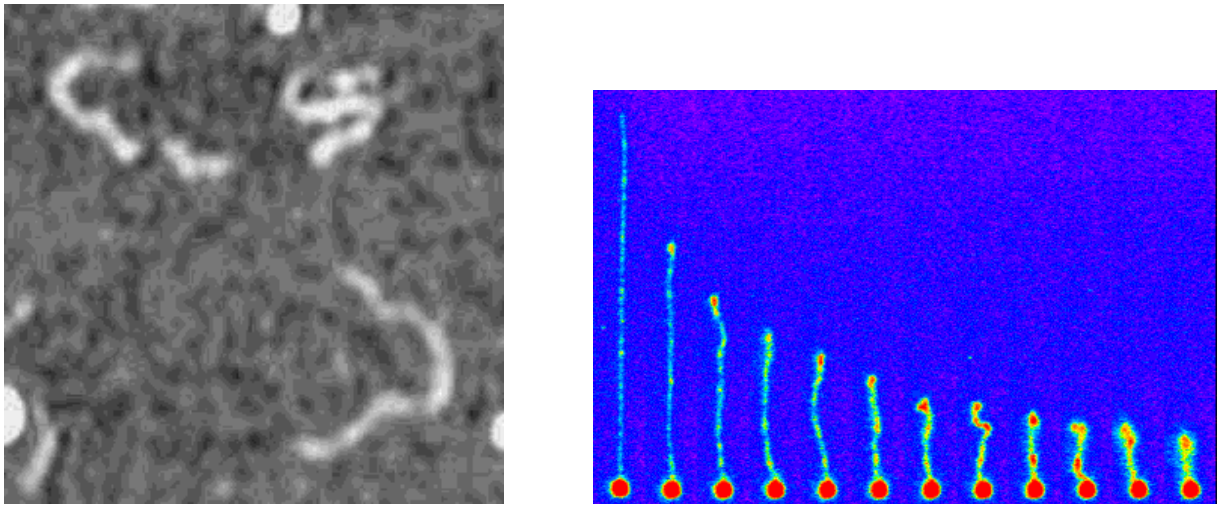

Figure 5: DNA molecules in dilute solutions (left) and stretched by an ambient flow (right). During the last decade there has been a growing interest in the properties of biopolymers supported by both federal agencies (NSF and NIH) and major bioengineering companies. DNA is probably the most studied biopolymer, a flexible molecule with an diameter of a few nm only.

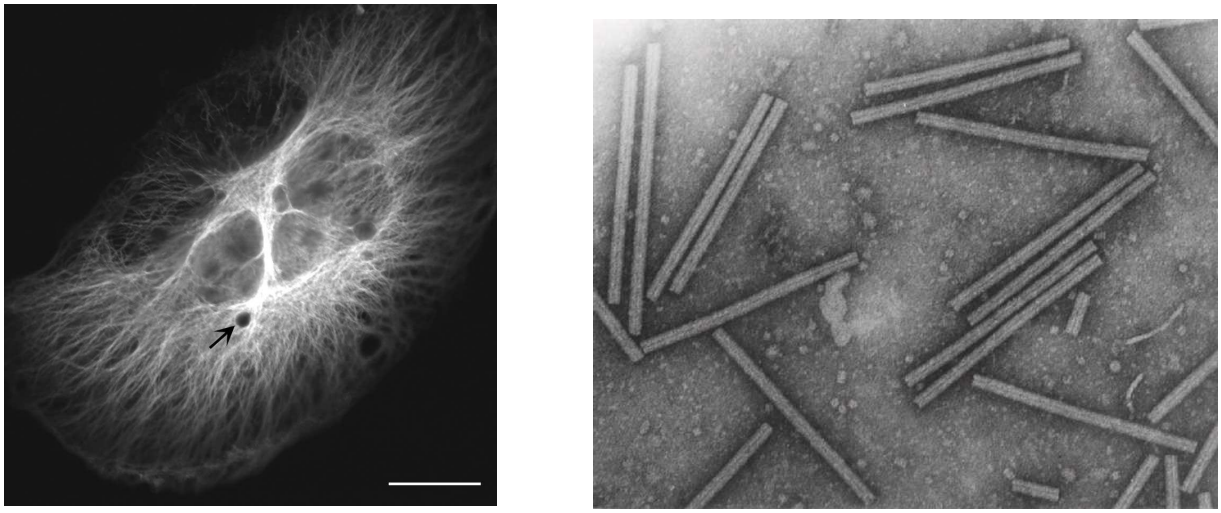

Figure 6: Microtubules (shown at left) and tobacco mosaic viruses (right) are common examples of stiff biopolymers. The former are proteins which provide cells with mechanical strength (the photo at the left is nothing but the network of the microtubules inside a cell). On the other hand, tobacco mosaic virus is a rod-like biopolymer with unique properties. Computational studies of biopolymers (and of stiff synthetic polymers like Kevlar and polyesters) easily provide a wealth of information surpassing the time-consuming and expensive laboratory experiments.