Cells are material objects with specific mechanical properties, which are important for proper function. For human or mammalian cells in particular, cells of each type seem to have a characteristic stiffness, which is dis-regulated in diseases like cancer. Several recent studies have shown that many types of cancer cells are softer than the normal tissue cells from which they arose, and invasive cancers are softer still. However, cells are viscoelastic materials and simple bulk elasticity is not enough to characterize their mechanical properties. To add to the complexity, the cellular interior is an energy-consuming active material, and thus characterizing the active forces that are generated within it is also necessary for characterizing its material properties. Characterizing viscoelasticity along with active force generation has been done previously using a combination of passive particle-tracking microrheology (PMR) and active microrheology using laser or magnetic tweezers. In this talk I will discuss our attempts to develop simpler single-cell assays of cellular mechanical properties based on PMR alone, using mitochondria as well as fluorescent beads as probe particles. Our experiments show that mitochondria can be used as a probe of intracellular viscoelasticity, but the heterogeneity of the cellular cytoskeleton is a significant factor that needs to be taken into account when interpreting local rheological measures.