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Confocal Microscopy Indentation for Hydrogel[1] DONGHEE LEE, MD. MAHMUDUR RAHMAN, YOU ZHOU, SANGJIN RYU, University of Nebraska-Lincoln — It is well known that the stiffness of extracellular matrix affects cellular behaviors, and such effects were observed by culturing cells on hydrogel substrates. Thus it is required to measure the elasticity of the hydrogel substrate rigorously and efficiently. Here we propose a confocal microscopy indentation method for hydrogels. We indented fluorescently stained polyacrylamide gel with a sub-mm-sized ball indenter, and imaged the indented gel using confocal microscopy. Having formed a three-dimensional image stack of the gel, we measured the indentation depth based on automated image processing, and then evaluated the elasticity of the gel. We also validated our method using other well established indentation methods.

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