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(54) Title: DEVICE AND METHOD FOR DETERMINING A MECHANICAL PROPERTY OF A PARTICLE

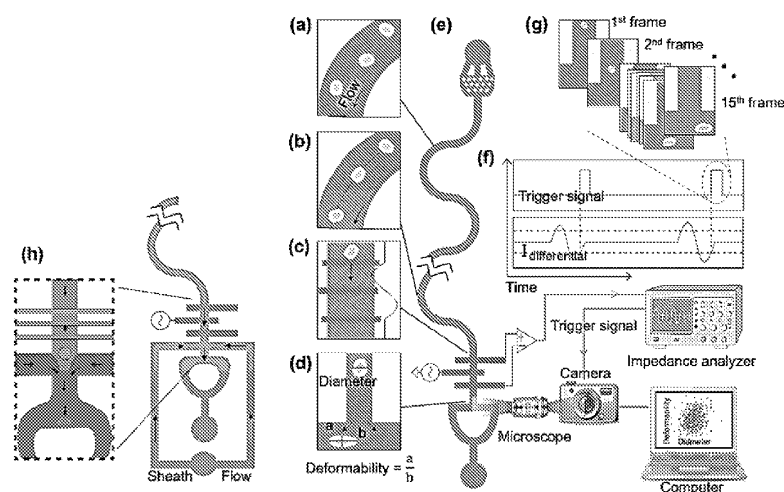


Figure 2

(57) Abstract: The present invention relates to a device and method for high-throughput single cell stretching with the hydrodynamic force for assessing cellular mechanical properties. In an aspect of the invention, there is provided a uniquely designed microfluidic channel flowing with viscoelastic fluids, sensing electrodes integrated with the microchannel and a high-speed imaging and processing system. Cells are continuously pumped in the device, aligned and stretched. The arrival of individual cells prior to the cell stretching site can be detected by the electrical sensing unit, which produces a triggering signal to activate a high-speed camera for on-demand imaging of the cell motion and deformation. Cellular mechanical properties including cell size and cell deformability are extracted from the analysis of these captured single cell images.

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