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(54) Title: MICROFLUIDIC DEVICE FOR SINGLE CELL PROCESSING AND METHOD AND SYSTEM FOR SINGLE CELL BIOPHYSICAL PHENOTYPING USING THE MICROFLUIDIC DEVICE

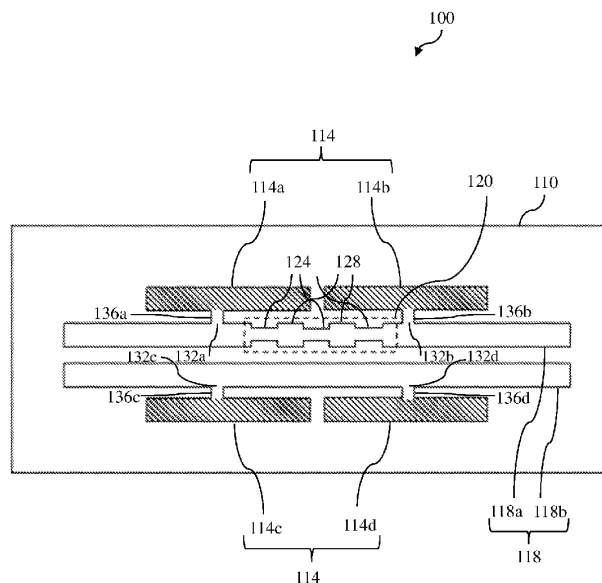


FIG. 1A

(57) Abstract: It provides a microfluidic device for single cell processing comprising a substrate, a plurality of electrode channels each containing an electrode material to form an electrode, and a plurality of fluidic channels each being configured to form a fluid pathway for allowing a fluid sample to flow through and at least one of a first and a second fluidic channels including a cell manipulation portion having a plurality of constriction portions. A first and a second electrode channels is each coupled to the first fluidic channel, and the third and fourth electrode channels is each coupled to the second fluidic channel, wherein the respective electrodes are configured to measure an electrical impedance therebetween via the first and the second fluidic channels, and an electrical conduction path is formed between the corresponding electrodes through the cell manipulation portion for measuring an electrical impedance therebetween. It

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also provides a method of manufacturing the microfluidic device, and a method and a system for single cell biophysical phenotyping using the microfluidic device.