

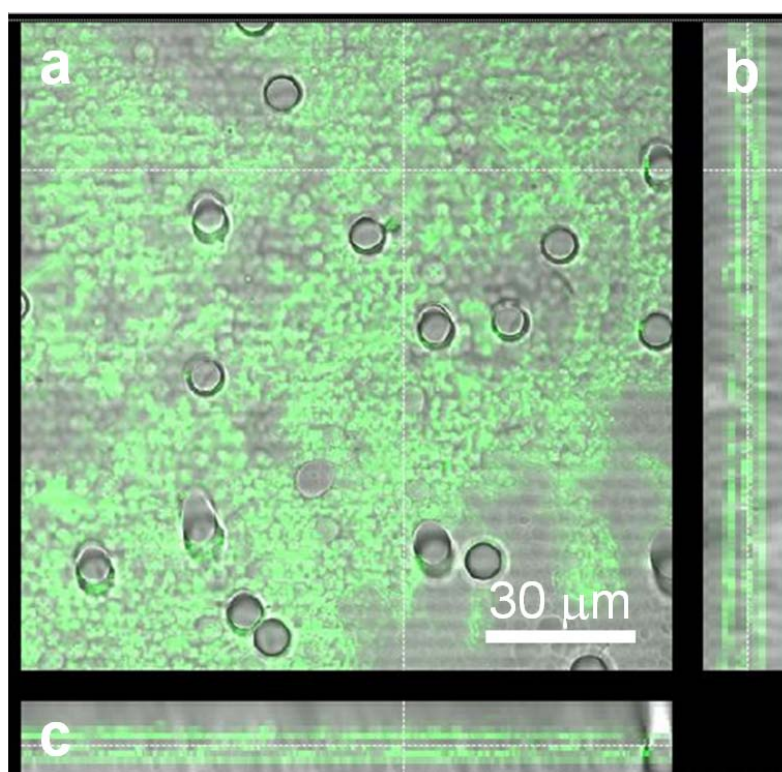
Automatic transwell assay by an EIS cell chip to monitor cell migration

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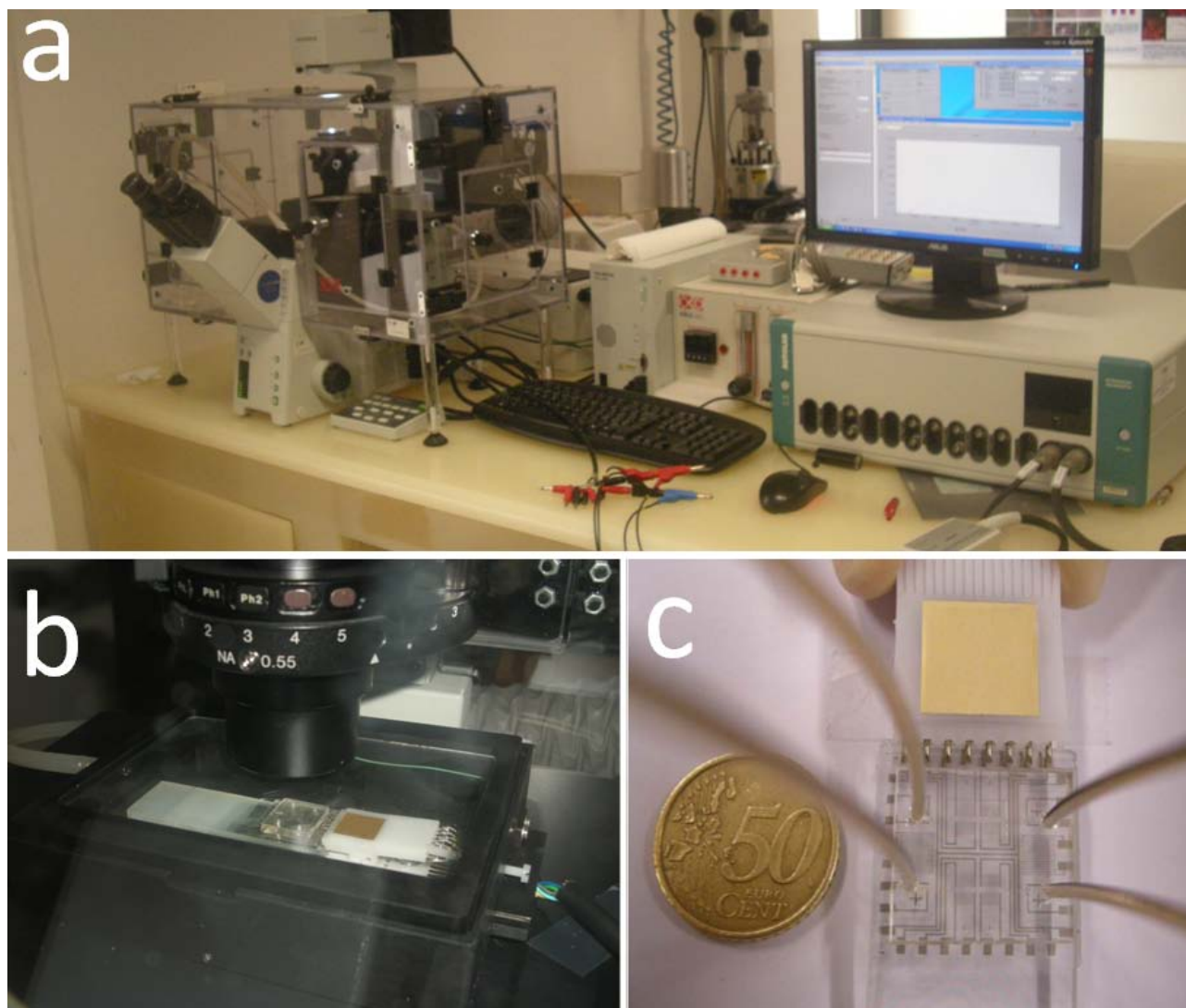
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Supplementary Materials

Membrane functionalization. To investigate membrane functionalization, Laminin 1 (Ln-1) was functionalized with fluorescein isothiocyanate (FICT). Specifically, 2.8 mg of FITC were dissolved in 1 ml of Dimethyl sulfoxide (DMSO) and then Ln-1 was added to a final concentration of 40 µg/ml and incubated 24h. Unreacted FITC molecules were removed by dialysis with a membrane with a molecular weight cut-off (MWCO) of 12-14 kDa. An additional purification step was performed by sephadex coloumn G25 in ammoniac buffer pH 8.5. The Ln1-FITC solution (about 10 µg/ml) was then injected in the device and incubated for 2 hour at room temperature, then the devices were washed in PBS 1X-TWEEN 0.2% for 10 minutes and dried under nitrogen flow. Finally, the membrane was removed from the device and analyzed through confocal microscopy. In **Supplementary Fig. 1**, superimposed optical and fluorescent images of membrane bottom side and cross sections are reported to show that the membrane was functionalized through its whole thickness.



Supplementary Figure 1: membrane functionalization. (a) Superimposed optical and fluorescent images of membrane bottom side and (b-c) cross sections.



Supplementary Figure 2: (a) View of the experimental set up used for EIS measurements composed of an impedance analyzer Autolab PGSTAT30 (EcoChemie) with a FRA2 and an incubator (OKO Lab) integrated on an inverted microscope (Olympus) to control the external environmental conditions (37° C in 5% CO₂). (b) Detail of the experimental setup. The chips are electrically connected by a compatible clamp. (c) Front view of a device connected by a clamp.