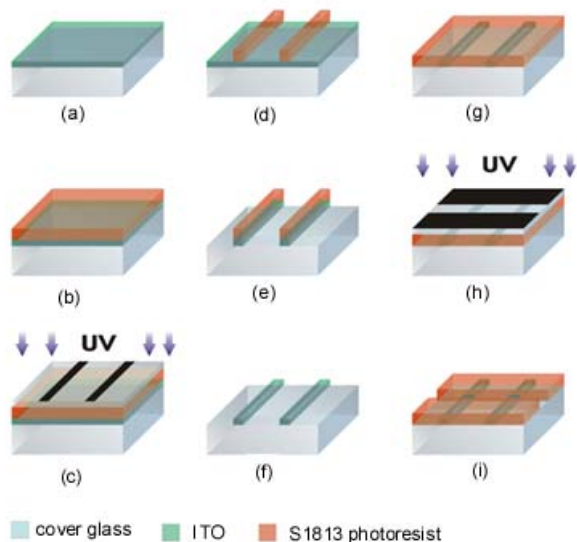


**Electronic Supplementary Information.**

**Fig. S1**



**Fig. S1.** Process flow for fabrication of ITO electrochemical microelectrode array. (a). A 110 nm-thick ITO film was sputtered onto a borosilicate #2 cover glass; (b). Shipley S1813 positive photoresist was spincoated onto the ITO-coated cover glass; (c). Photoresist-covered ITO cover glass was exposed to UV light through a high-resolution (20,000 dpi) transparency mask; (d). Development leads to patterning of the photoresist; (e). An acidic solution was used to wet etch the portion of the ITO film that was not protected by photoresist, leaving 20  $\mu\text{m}$ -wide ITO stripes; (f). The photoresist protection layer was then removed with an acetone wash; (g)  $\sim 2$   $\mu\text{m}$ -thick Shipley S1813 positive photoresist was spincoated onto the patterned ITO cover glass and it was then baked on a hotplate; (h). Similar as in step (c), the photoresist-covered ITO cover glass was exposed to UV light through another transparency mask; (i) After developing, a 20  $\mu\text{m}$ -wide opening orthogonal to the ITO stripes resulted in an array of 24 working electrodes with dimensions of 20  $\mu\text{m}$  by 20  $\mu\text{m}$ , whereas the bulk of the ITO stripes was insulated by the photoresist.