

Supplementary Information

Peng et al. – Lab on a Chip - A New Oil/Membrane Approach for Integrated Sweat Sampling and Sensing: Sample Volumes Reduced from μL 's to nL 's and Reduction of Analyte Contamination from Skin

This supplementary file is for Figure 7. Please see the text for description. The 1st data set is for Figure 7 as shown in the paper. After that, the raw data for all 7 subjects is plotted. No tests and data sets were excluded.

Subject A

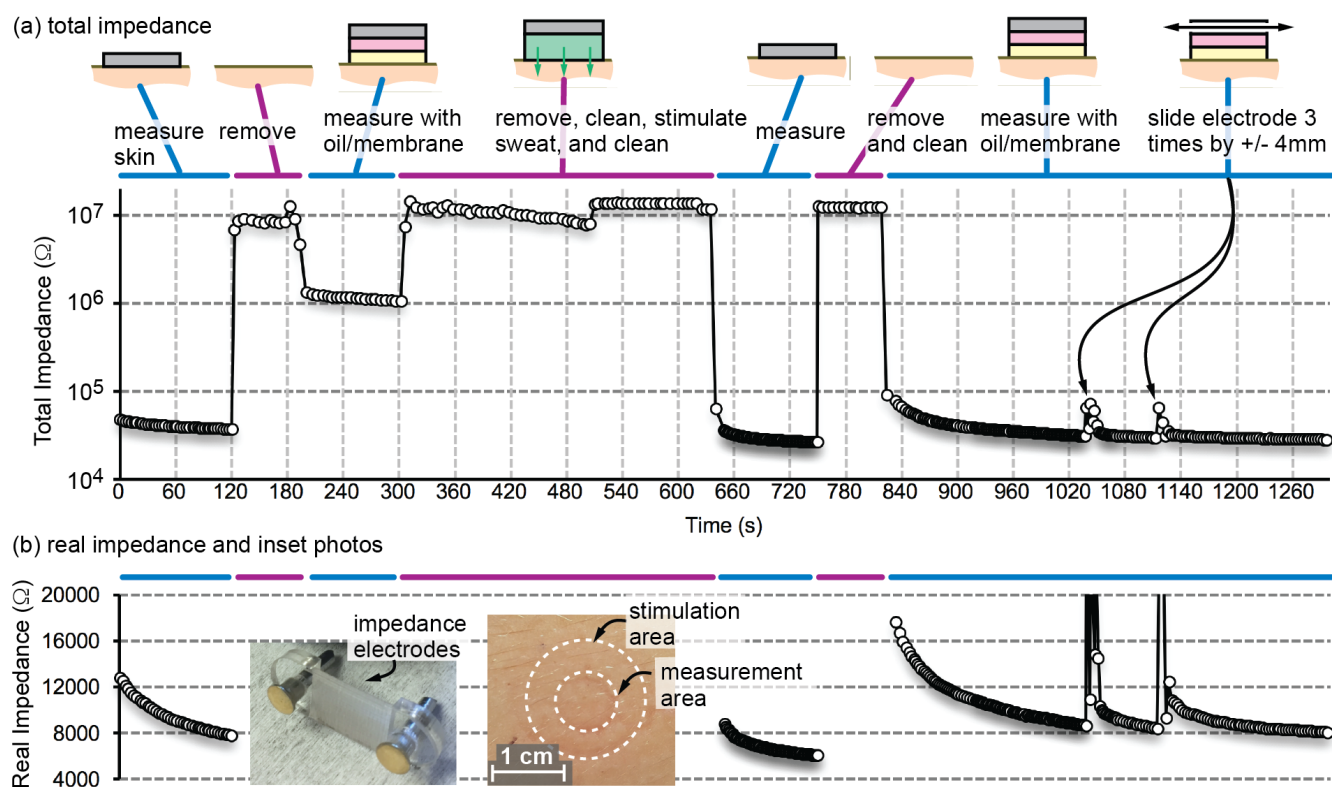
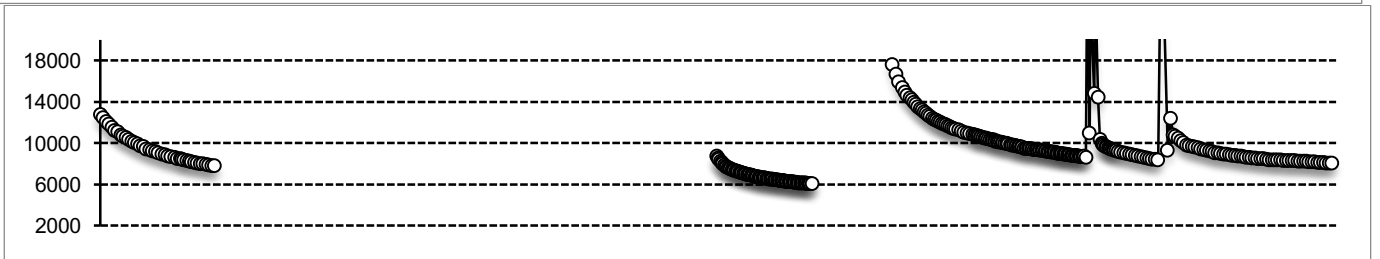
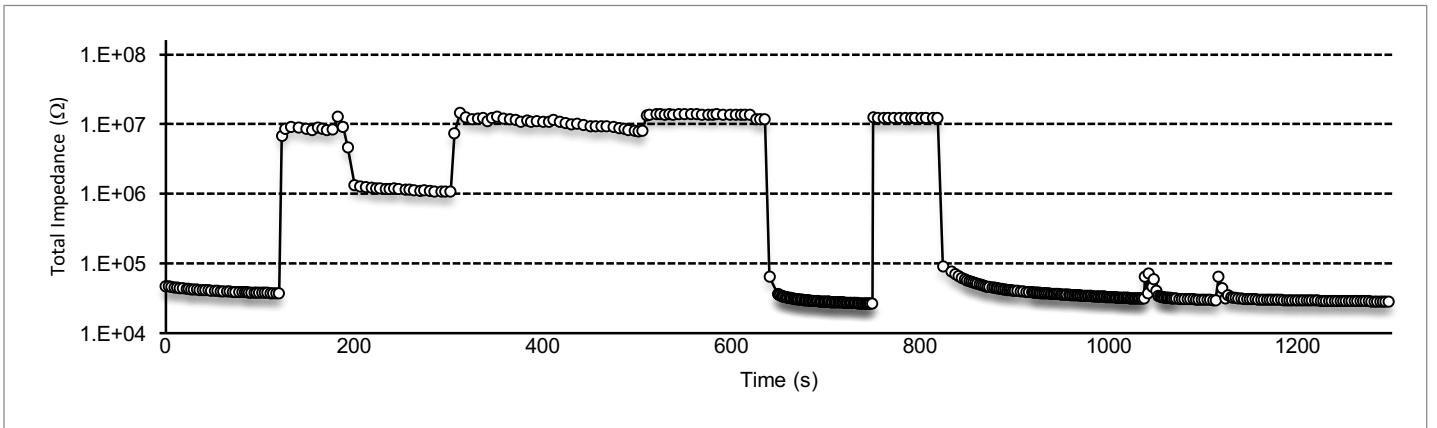


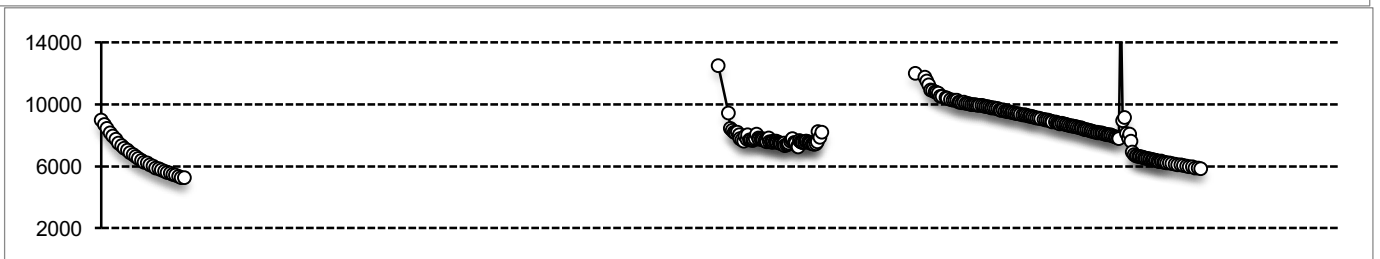
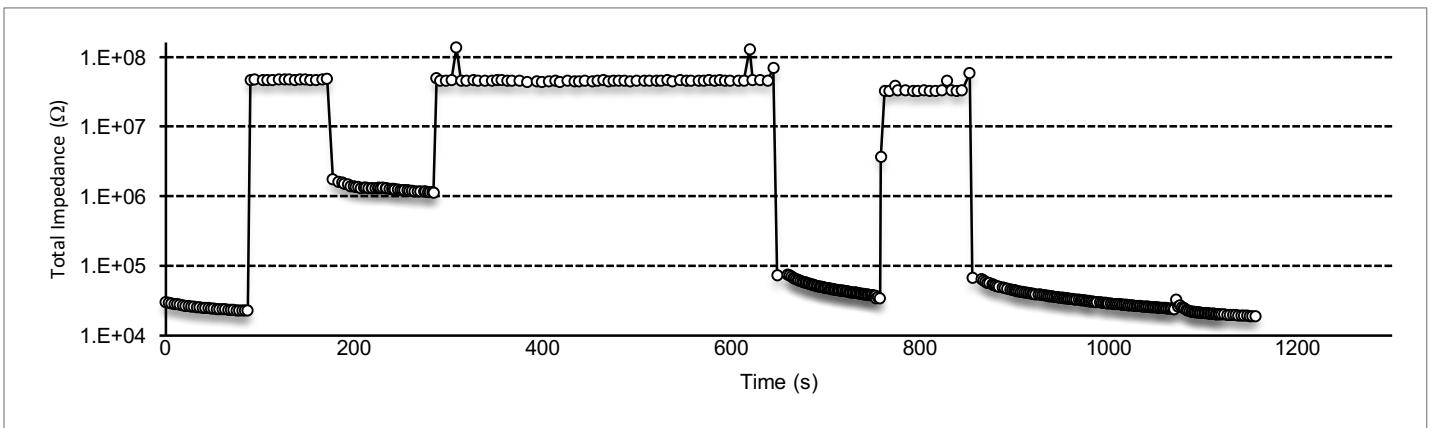
Figure 7 – In-vivo testing results including (a) total impedance vs. time and (b) real impedance vs. time. Actions taken are marked with colored segments above each plot with descriptions of actions above the segments in (a). Total impedance includes imaginary (capacitance) and real (resistance), and is used in (a) because it can provide measurement which reveals the presence of the membrane and oil without sweat (i.e. very large resistance and capacitance dominant). Real impedance is plotted in (b) which directly measures the conduction through the eccrine ducts. Inset photos of the test apparatus and of the test site is provided in (b). The in-vivo validation of this figure was repeated several times (see online supplementary material), with strikingly similar results each time.

As can be seen in the plots on the next page, the same trends are visible. The magnitudes are very consistent, and some deviation from person to person is of course expected due to differences in skin, in natural thermal sweat points (unstimulated sweat), and in stimulated sweat generation rates. In every case, the wetting through the membrane by sweat is very fast. Also, in every case, after sliding the measuring electrode, the impedance rapidly recovers.

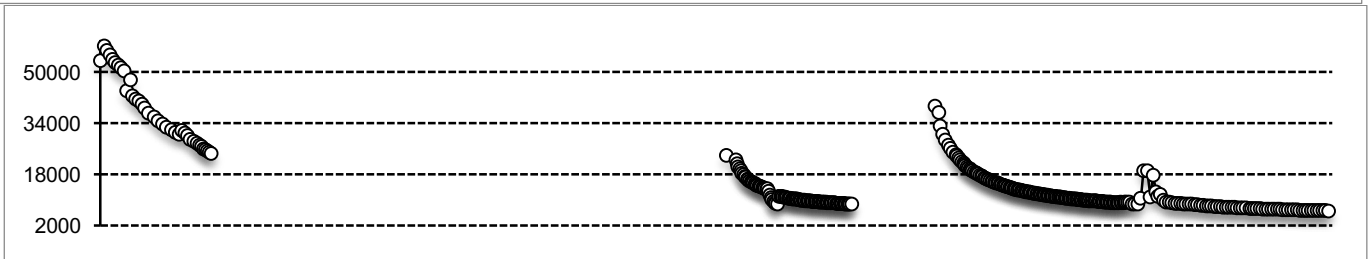
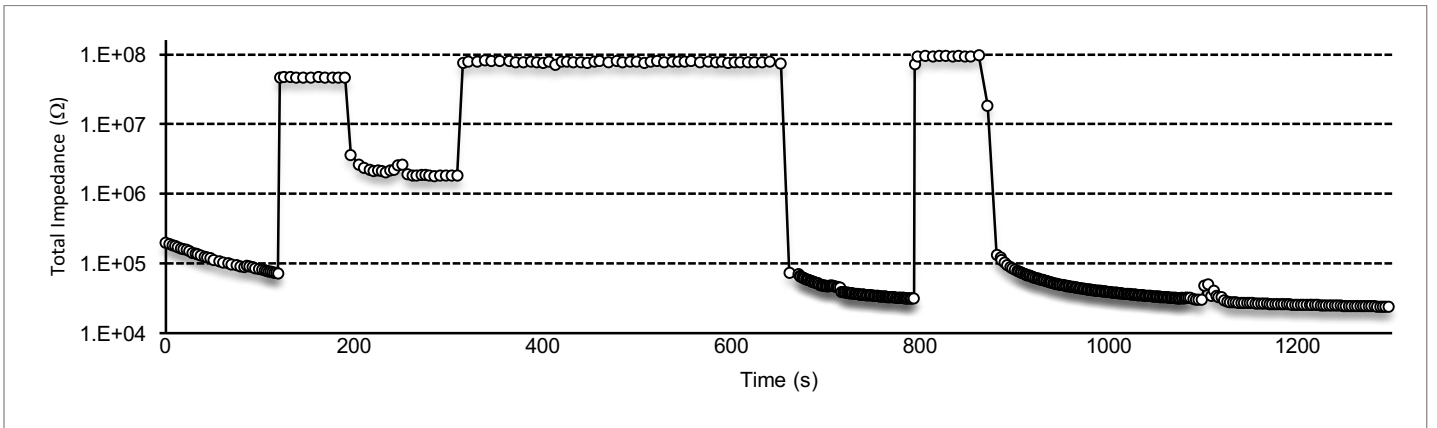
Subject A



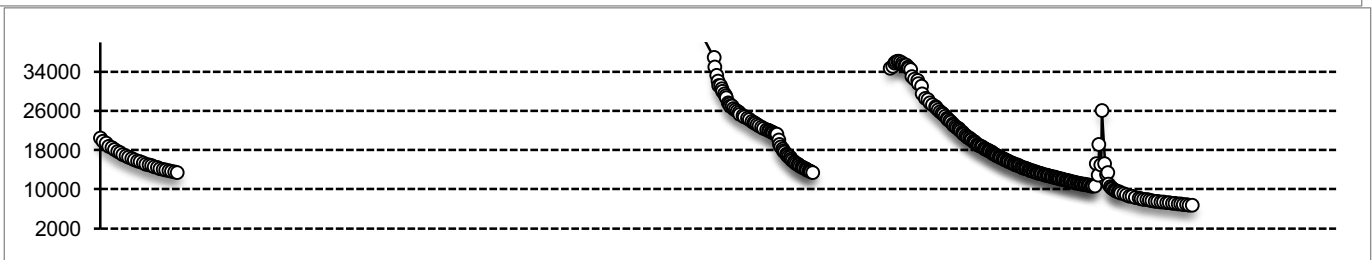
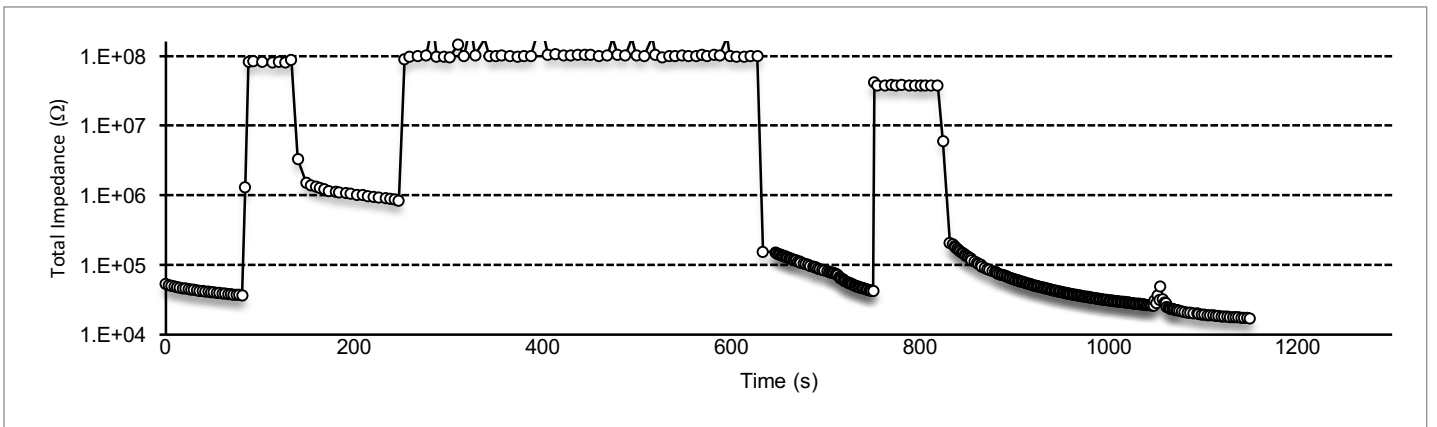
Subject B (in the following tests, the electrode was only slid once over skin)



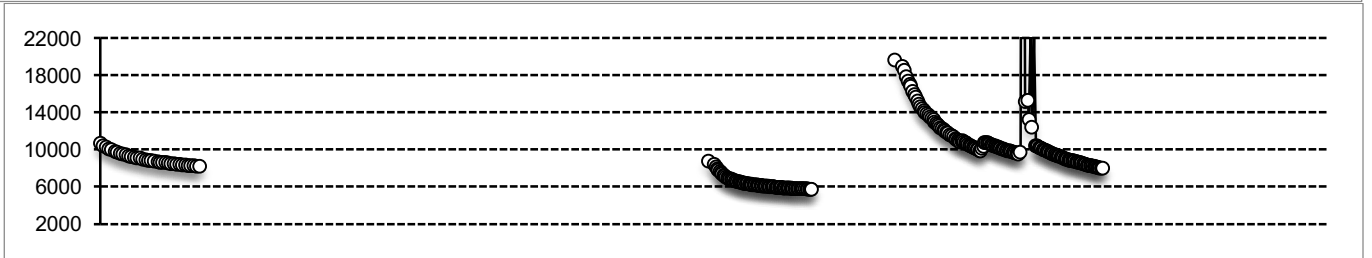
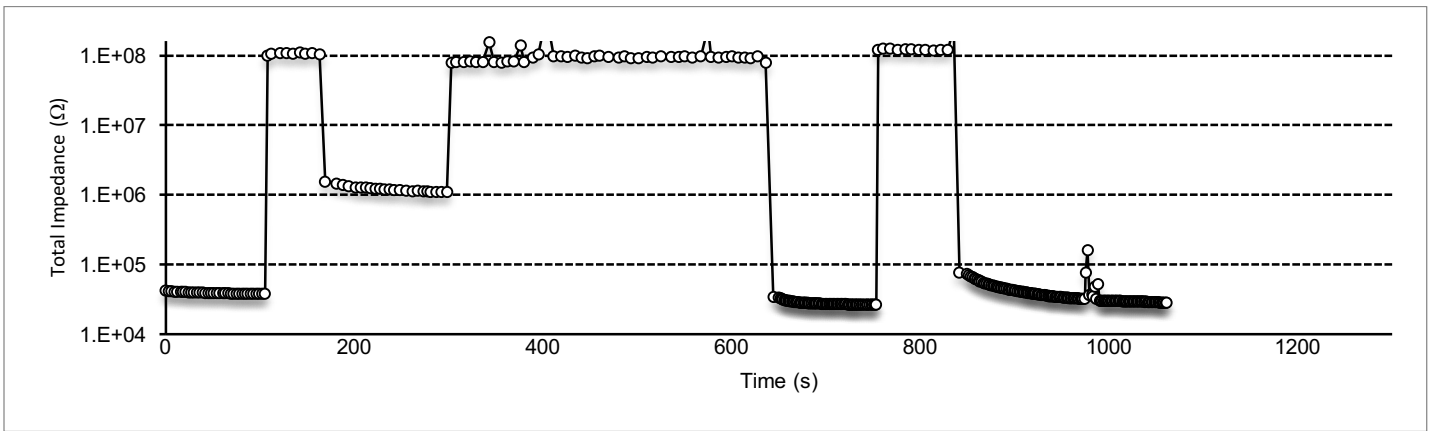
Subject C



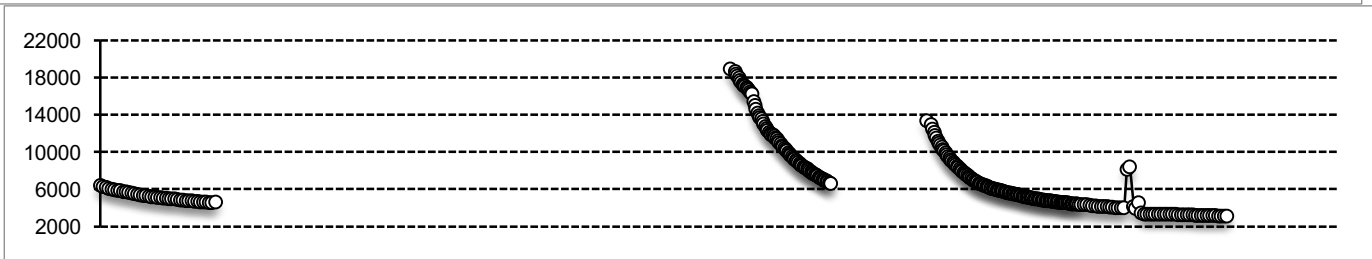
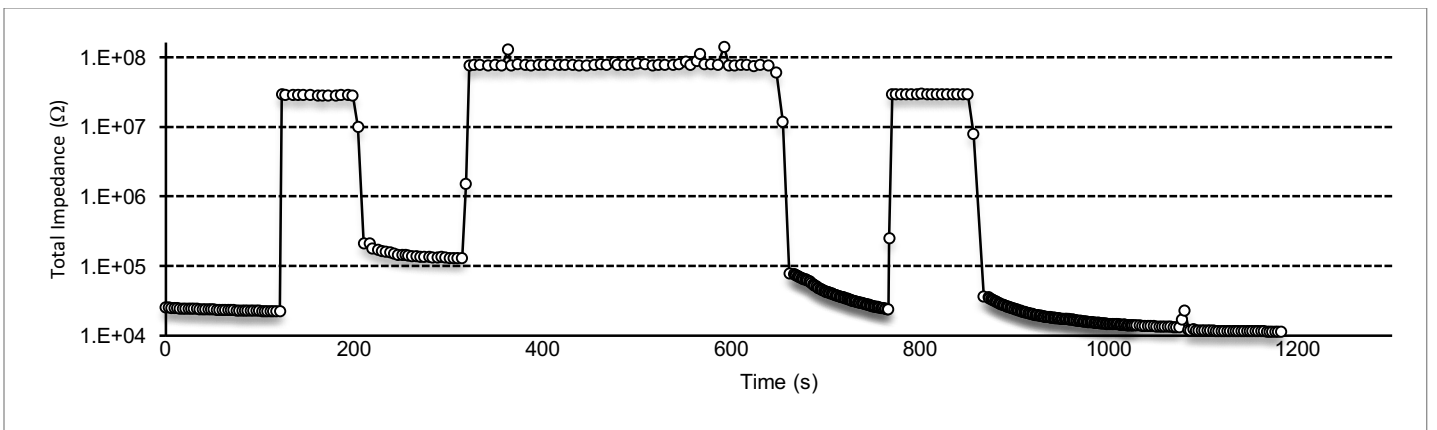
Subject D



Subject E



Subject F



Subject G

