ECIS® TIPS

Applied BioPhysics
Quantifying Cell Behavior

Improving Experiment Repeatability with Cysteine

Either electrical stabilization or cysteine treatment is strongly recommended to enhance experimental repeatability and to minimize variation between ECIS® wells. The electrical stabilization method is very convenient as it is built into the ECIS® software and stabilization is actuated with a simple click of the mouse. That being said, it is necessary to allow 30 minutes or longer after electrical stabilization before the electrodes will settle into their final equilibration values.

The use of cysteine can accomplish the stabilization of the electrodes quickly, with relatively little effort and does not require the equilibration period following treatment. To accomplish this, the well should be flooded with a 10 mM sterile solution of cysteine in water.* The cysteine will form a covalent sulfur-gold linkage with the electrode surface displacing small molecules that have adsorbed to gold surface over time and stabilizing the impedance. After exposure (15 minutes or more), the cysteine solution can be rinsed out of the well, proteins adsorbed if desired, and the wells inoculated with cells. This cysteine layer provides a hydrophilic substrate that is excellent for protein adsorption and ultimately cell attachment and spreading. The following table lists the desired values for ECIS® arrays that have been fully stabilized. For more information on improving experiment repeatability, please visit the ECIS® FAQ page of our website.

*Available from Applied BioPhysics

Cell-Free Wells	Resistance @ 4,000 Hz	Capacitance @ 4,000 Hz
8W1E	1700-1800	5-6
8W10E	350-400	50-60
8W10E+	200-250	50-60
8W20IDF	80	100-120
96W1E+	1700-1800	5-6
96W10IDF	200-250	50-60
96W20IDF	80	100-120

185 Jordan Road, Troy NY 12180 Ph: 518-880-6860 1-866-301-ECIS (3247) Fax: 518-880-6865

Email: info@biophysics.com