ECIS® TIPS

Applied BioPhysics
Quantifying Cell Behavior

Pre-Coating Electrodes with Defined Protein Coats

ECIS electrodes shipped from Applied BioPhysics have no macromolecular coatings. When culture medium is added to the arrays proteins and other large molecules in the medium immediately adsorb to the very wettable gold surface as they do with any uncoated tissue culture dish.

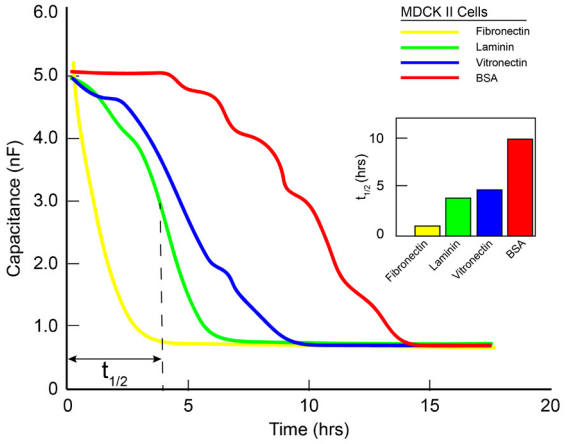
Often it is desirable to alter cell behavior by pre-coating the electrodes with fibronectin, laminin or other extracellular matrix proteins. To do so we suggest using the following protocol:

Prepare a solution of the desired protein at 100 micrograms per ml or more in 0.15M NaCl. We have found that the use of phosphate buffer (PBS) can seriously interfere with the adsorption of some proteins, so if a buffer is required, a mild Tris solution (e.g. 0.01M) is recommended. The electrode arrays are stable under acidic conditions, so when coating with collagen there is no problem using solutions containing acetic acid.

To coat the electrode, place the protein solution in the bottom of the well for 10 minutes or more. If the protein is valuable, lower protein concentrations can be used with increased times for adsorption. In addition, when using a 1E array it is only necessary to coat the small active electrode (250 micrometer diameter). Just a few microliters can be carefully applied to this small spot, as only cells upon the active electrode are observed in the ECIS measurement.

Once adsorption has taken place, an approximate mono-molecular layer of the protein will coat the surface. You can safely rinse the protein solution from the well with sterile medium, saline or water without concern of removing the adsorbed layer. Medium can now be added and inoculation begun.

Note: Drying protein solutions in place may damage the electrodes.



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