

## SAMPLE PREP

# Poseidon: Streamlined Processing of Whole Mount Cells

### E-CHIP SURFACE PREPARATION

Poseidon sample supports, called E-chips are composed of a thin film of silicon nitride, supported by a silicon frame. Poseidon E-chip is a cell culture compatible support substrate that mimics the smoothness and rigidity of a glass coverslip, resulting in improved cellular attachment compared to traditional formvar coated metal TEM grids.

### PRE-TREATMENT

Poseidon E-chip sample supports are stable to both chemical and glow discharge tissue culture. Bio-compatible coatings, such as poly-L-lysine, may be applied to the surface to promote cellular adherence.

1. Briefly treat the E-chip with a glow discharge plasma to render the surface hydrophilic and to sterilize for tissue culture.
2. Immerse the sample supports in the coating solution according to the manufacturer's specifications. 0.01% poly-L-lysine for five minutes works well.
3. Briefly dip the coated sample supports in HPLC grade water to remove unbound material.

The E-chips are now ready for cell seeding.

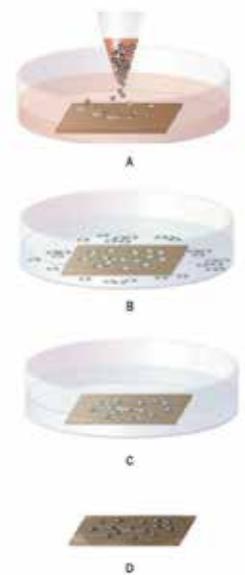
### WHOLE MOUNT CELL PREPARATION

The dimensions of Poseidon E-chips are such that a single E-chip fits easily into a single well of a 96-well plate. Hence, multiple samples can be processed simultaneously under identical conditions. These samples can be used for liquid-EM and light microscopy, or additional processing can be performed for SEM and whole mount TEM applications

1. Place each E-chip into a well containing cell growth media. The E-chip must be oriented such that the

flat surface of the support is facing upwards. Next, deposit a droplet of cell suspension into the well over the E-chip.

2. Allow the cells to adhere and grow under normal incubation conditions (dependent upon cell line). Note that for liquid-EM applications, chips should have no more than 4 or 5 cells attached to the window.
3. Transfer the E-chips between wells to rinse, label, fix, or stain as desired. Samples can be imaged directly with light microscopy and liquid-EM, or dehydrated and processed further for SEM and TEM imaging.
4. For conventional SEM and whole mount TEM samples the E-chip can be dried using a standard critical point dryer or hexadimethylsilane. After drying, the E-chip supported samples can be coated with evaporated carbon or metal shadowing.



### BENEFITS

- Precision diced edges for ease of handling
- Compatible with standard EM stains and drying processes
- Autoclavable for use in sterile tissue culture environments
- Reduced sample preparation artifacts
- Correlative imaging enables rapid screening and more comprehensive data sets

**Reference:** J. of Microsc. (2011) doi: 10.1111/j. 1365-2818.2011.03501.x