Cell Émigré assay chip coating protocol

This protocol allows the internal glass surface of the Cell Émigré assay chip to be coated by adsorption of molecules such as Poly-Lysine, Laminin, Collagen or Fibronectin.

1. Aseptically transfer Cell Émigré migration chip from its sterile packaging within a Laminar flow cabinet.

2. Using a micropipette **add *30 µl*** of Priming Solution to the reservoir(s) labelled **[i]**. Allow 30 seconds for the fluid to fill the microchannels.

3. Now add ***60 µl*** of **Coating solution** (see guidelines below) to the reservoir(s) labelled **[ii].** Allow 10 minutes for the displacement of the Priming Solution from the microfluidic network.

4. Remove all solution from the reservoir(s) labelled **[i]** and dispose this fluid to waste. Immediately replace with ***30 µl*** of **Coating solution**.

5. Incubate the chip at 4ºC to allow surface coating. This will typically require 2-24 hours.

6. Following incubation, the excess Coating Solution must be removed from the chip: Remove all fluid from reservoir **[ii]** and replace with ***60 µl*** of Culture Medium or Phosphate buffered Saline. Then remove all fluid from reservoir **[i]** and replace with ***30 µl*** of Culture Medium or Phosphate buffered Saline. Incubate at room temperature for 10 minutes to allow rinsing to occur.

Chips coated under aseptic conditions may be stored for several days at 4ºC in a covered humidity chamber (see p7 of the manual). Stored chips should contain Phosphate buffered Saline.

7. Cells may be added to coated chips by following the cell loading protocol from **Step.6** onwards (see inside back cover of assay manual).

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Guidelines for preparing coating solutions:

a. Aseptically prepare in Culture medium or other suitable biological buffer. Non-biological buffers or solutions are not recommended.

b. Coating solutions should not take the form of a high viscosity fluid or gel as these can prevent cell loading by blocking the measurement microchannels.

c. Some surface coatings may cause excessive adhesion of cells to the glass base of the chip. This will be observed as a reduction in the number of cells flowing (in single-cell suspension) into the chip supply channel, the result being inconsistent chip loading performance. In such cases a reduced coating concentration should be trialled.

d. We do not recommend covalent attachment of molecules to the glass surface of the chip since the chemicals required can be absorbed into the Silicone material of the chip. These may be subsequently released into culture medium with potential effects on cell viability.