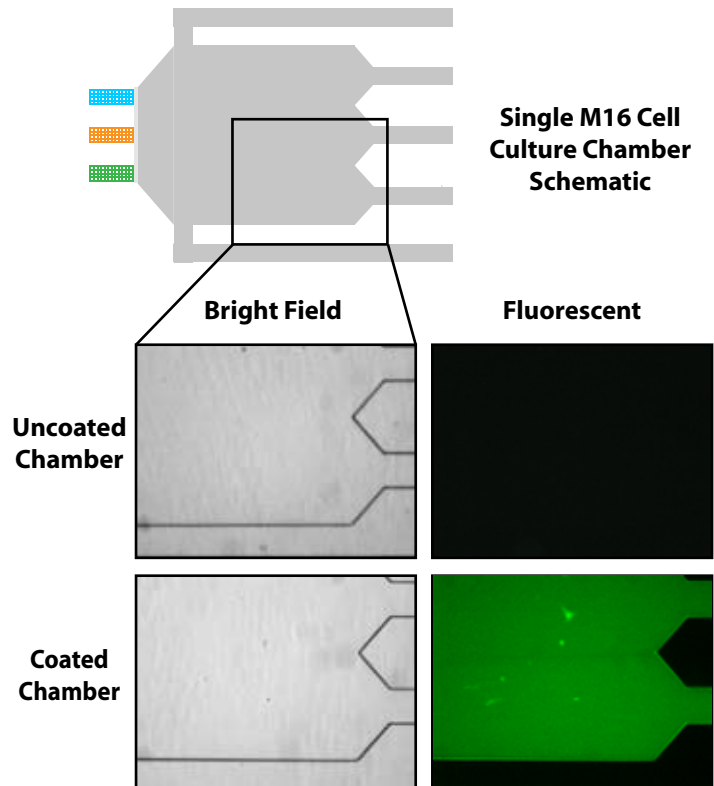


# Surface Coating the Cell Chamber

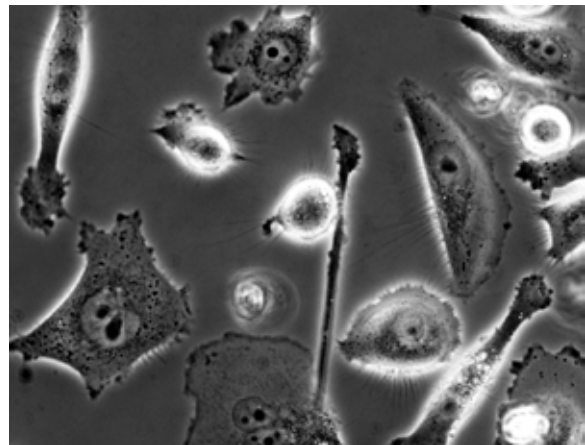
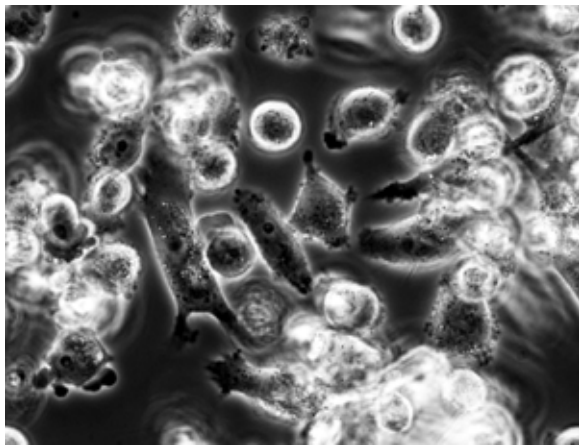
Similar to traditional cell culture plates, our glass bottom cell culture chamber surface can be coated with cell adhesion factors like collagen type I prior to cell loading. Each of the 16 chambers per M16 plate can be coated independently, allowing for coatings of up to 16 different cell adhesion factors to be applied simultaneously. Below is an example procedure for coating a given cell culture chamber with collagen I.



**Figure 1** Bright field and fluorescent images (10x) of M16 microfluidic cell culture chambers with or without coating of collagen I-FITC conjugate from bovine skin (Sigma Aldrich).

## Protocol

1. Prepare a 0.01 mg/ml solution of collagen type I in 0.01 M acetic acid.
2. Completely aspirate the cell loading well (E) and outlet well (F), **making sure to remove the liquid from the 2mm diameter inner holes at the bottom of the wells.**
3. Pipet 5  $\mu$ l of the collagen type I solution into the **left** 2mm hole at the bottom of the cell inlet well (E). Wait approximately **5 minutes** for capillary force to pull the liquid through the culture chamber and towards the right hole in well E.
4. Completely aspirate well F. Replenish well E with 250-300  $\mu$ l fresh collagen type I solution, and add 50  $\mu$ l PBS to well F to ensure continuous flow. Wait **30-45 minutes** for gravity to drive the liquid in well E towards the outlet well (F).
5. Repeat step 4, replenishing well E with PBS instead of the collagen type I solution. This step will wash out the excess collagen and prepare the chamber for cell loading.
6. See M16 Microfluidic Plate Instructions for information on cell loading, culturing and flow-switching experiments.



**Figure 2** Phase contrast images (40x) of PC-3 (human prostate cancer) cells 24 hours after being loaded into M16 microfluidic cell culture chambers (left) without coating, and (right) with collagen I coating. As previously shown using traditional culture methods, the collagen I results in an increase in surface adhesion as well as major changes in morphology of PC-3 cells.