

Creating a Stable Concentration Gradient in the M1 Plate

A concentration gradient can be maintained by flowing different concentrations of solution through each of the flow inlets on the M1S plate. The gradient profile differs based on flow pressure and position along the cell culture chamber, and can be maintained throughout an experiment.

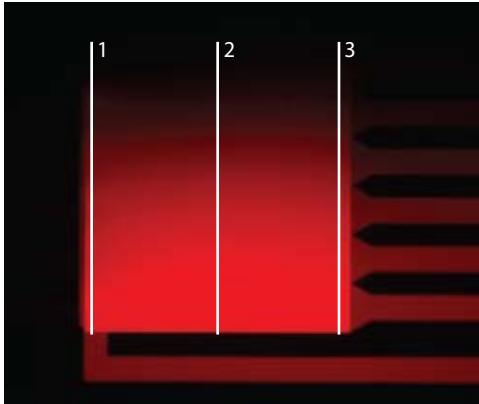


Figure 1: Gradient generated by flow at 0.5 psi in M1S chamber. (40x) Flow inlets contain six incremented concentrations of fluorescent dye in PBS concentrations. Intensity profile measurements are taken at the three positions shown above.

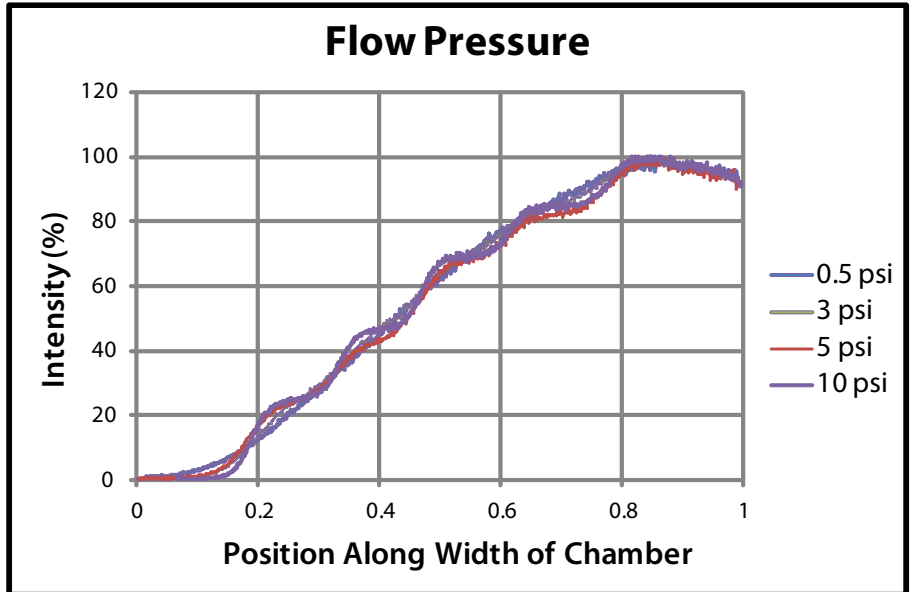


Figure 2: Fluorescence line intensities at position 2 of gradients generated by flow pressures from 0.5 psi to 10 psi. Slower flow rates create smoother gradient profiles.

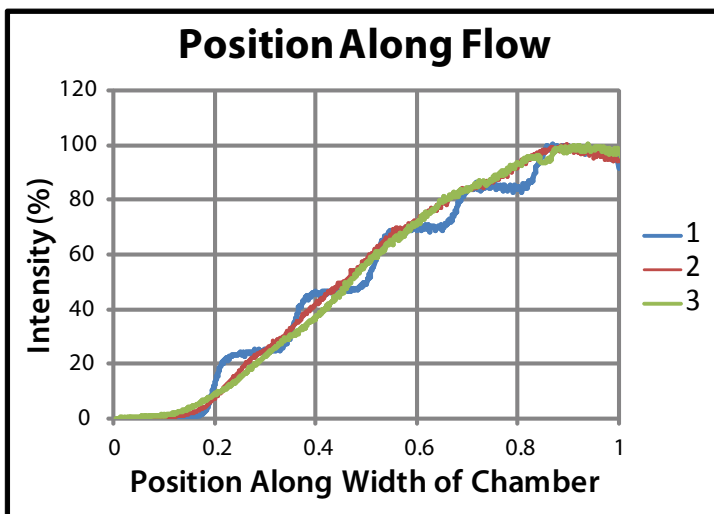


Figure 3: A comparison of fluorescence line intensity profiles under 3.0 psi flow at position 1, 2, and 3 in the cell culture chamber.

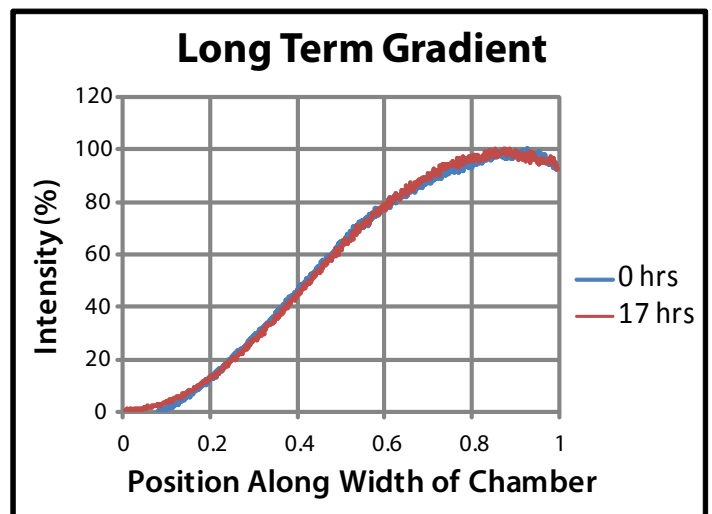


Figure 4: Gradient profiles under 0.5 psi flow at position 2 in the cell culture chamber at t=0 hours and t=17 hours. Gradient is maintained after extended duration of flow.