

Supplementary Information:

Protein Patterning

Prior to the patterning process, wetting of the hydrophobic PDMS microbump stamps was achieved by rendering the surface temporarily hydrophilic through the process of O₂ plasma treatment (SPI Supplies) for 15 seconds. Stamps were then dipped into a solution of primary rabbit IgG (Molecular Probes) (50 µg/mL, dissolved in Na-phosphate buffer, pH 7.4). Next, the stamps were gently placed onto a clean 2x2 cm sheet of PO shrink film, which was sonicated for 5 minutes (Branson), and incubated at room temperature in a humidified chamber for approximately 4 hours.²² Next, the stamps were removed, and the substrate was consecutively rinsed with 0.05% Tween 20 in DI water and DI water. To prevent non-specific binding of secondary antibodies, dye-conjugated anti-rabbit IgG, the samples were treated with a blocking solution (1% BSA, 1% sucrose, 0.05% NaN₃ and 0.05% Tween 20 in 50 mM Tris-HCl buffer, pH 7.5) overnight.²⁴ For the end-point assay, the PO samples were coated with dye (Alexa Fluor 555) conjugated anti-rabbit IgG (diluted to 50 µg/mL in Na-phosphate buffer, pH 7.4) and incubated at room temperature in a humidified chamber for approximately 2 hours.²⁴ Comparison of microarray density and fluorescent intensity was performed through fluorescent microscopy of pre- and post-shrink antibody-labeled PO substrates.