Electronic Supplementary Information

The micropost array gradients fabrication and preparation process is shown in Fig. S1. The positive photoresist, SPR-220 (*Rohm and Haas Electronic Materials, Philadelphia, PA*), was spin-coated onto clean Silicon wafers. Microfeatures were photolithographically defined using projection photolithography (*GCA-6200 Wafer Stepper, General Signal Corporation, Stamford, CT*) (Fig. S1a). Using the developed photoresist as a negative master, the silicone elastomer, poly(dimethylsiloxane) (PDMS) (*Sylgard 184, Dow Corning, Corning, NY),* was poured onto the wafer at a 10:1 ratio and cured at room temperature (Fig. S1b). The fabricated microtopographic substrates were removed from the negative master (Fig. S1c). To remove residual photoresist, the substrates were submerged in ethanol and sonicated for 10 minutes. The microtopographic substrates were treated with O_2 plasma (*RTE73 AMNS-500-E, Plasma Therm, Kresson, NJ*) for 5 minutes to render the surfaces hydrophilic. The surface of PDMS stamps were incubated with fibronectin (50 µg ml^{-1}; *Sigma-Aldrich, St. Louis, MO*) for one hour to allow for protein adsorption (Fig. S1d - *inset*). Fibronectin-coated stamps were brought into contact with the microtopographic substrates for 15 minutes to facilitate the adsorption of fibronectin at the tops of the microposts (Fig. S1d). After the stamps were removed, the microtopographic substrates were sterilized and submerged in 0.2% Pluronics F127 (*Sigma Aldrich*) for 30 minutes to limit cell attachment and protein adsorption at locations other than the top surfaces of the microposts (Fig. S1e). The substrates were stored in sterile phosphate-buffered saline (PBS) (*Sigma Aldrich*) at 37 °C.

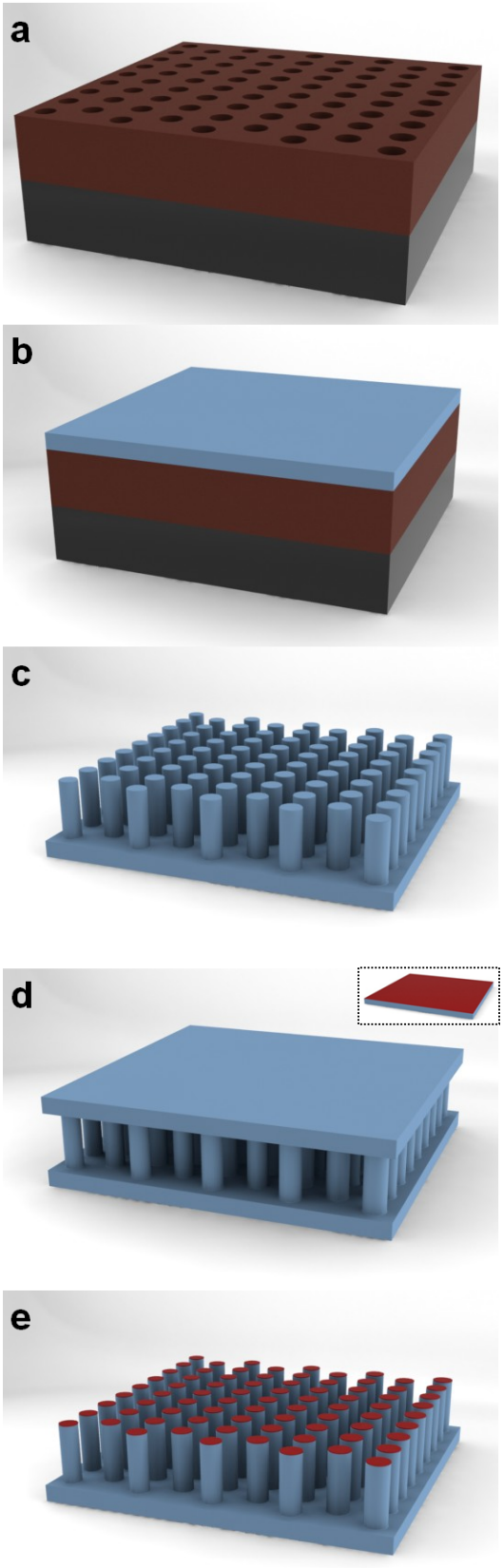

Fig. S1 Micropost array gradient microfabrication process.