Electronic Supplementary Material (ESI) for Lab on a Chip

Electrochemistry-enabled fabrication of orthogonal nanotopography and surface chemistry gradients for high-throughput screening

Lauren R. Clements, Peng-Yuan Wang, Wei-Bor Tsai, Helmut Thissen and Nicolas H. Voelcker*

Supplementary Figures

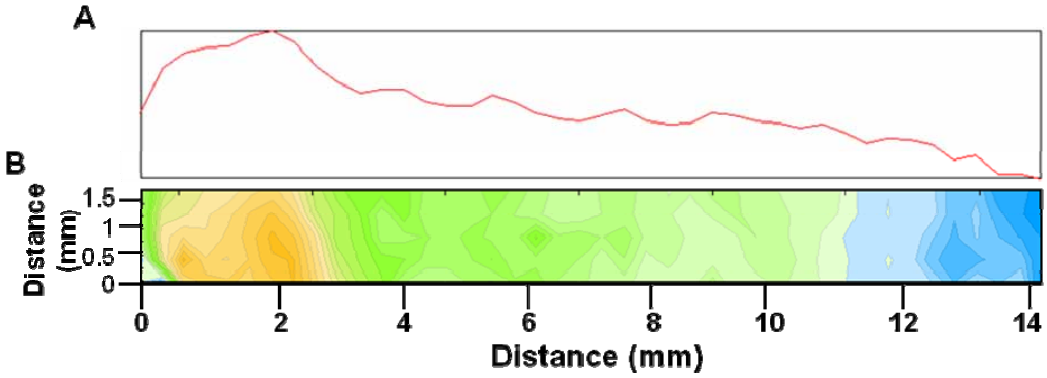

Fig. S1: IRm maps of EBH gradient produced via electrografting of ethyl-6-bromohexanoate (EBH) on a uniform pore size pSi surface (p-type, <1-0-0>, 1-5 Ω·cm, 28 mA·cm^{-2}, pore size = 25 ± 7 nm) and backfilling with MI. A) Line map for the area under the peak at 1738 cm^{-1}, B) 2D map of intensity of the C=O stretching peak (~1738 cm^{-1}).

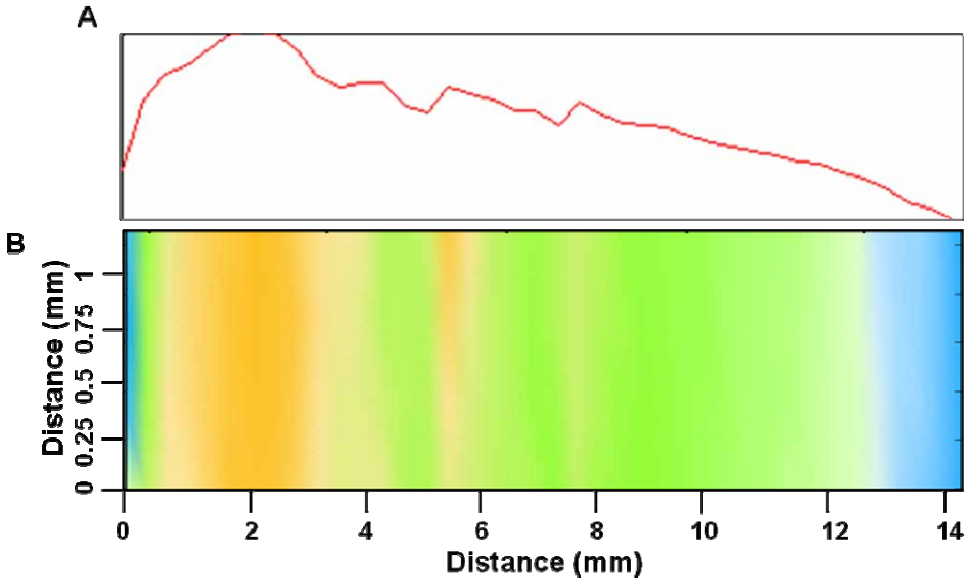

Fig. S2: IRm maps of hexanoic acid (HA) gradient produced via electrografting of EBH on a uniform pore size pSi surface (p-type, <1-0-0>, 1-5 Ω·cm, 28 mA·cm^{-2}, pore size = 25 ± 7 nm) and ester hydrolysis. A) IRm line map in transmission mode for the area under the peak at 1715 cm^{-1}, B) 2D map of intensity of the C=O stretching peak (~1715 cm^{-1}).

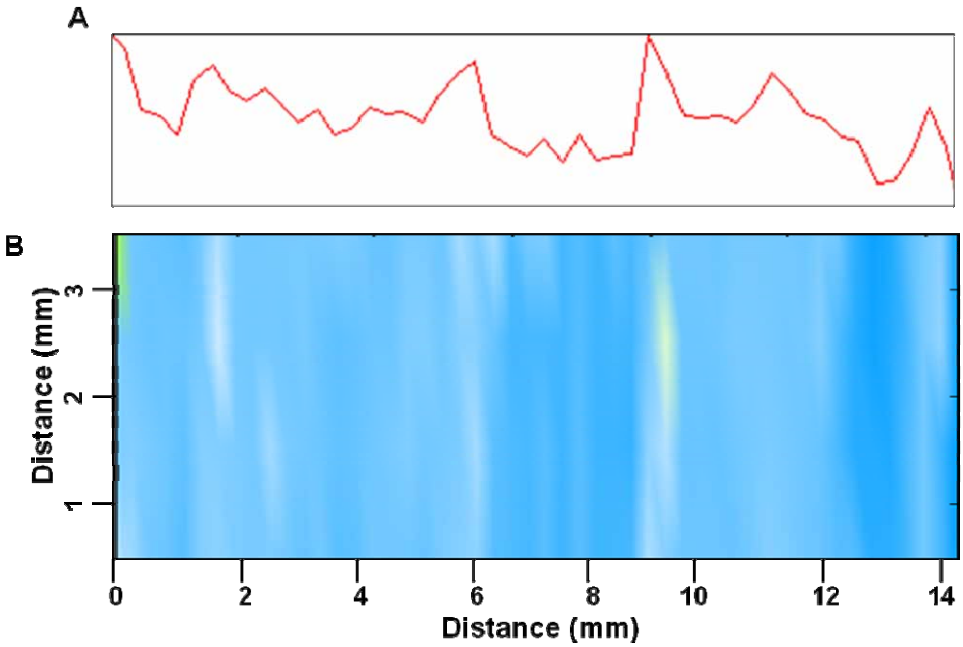

Fig. S3: IRm maps in transmission mode on a c(RGDfK) gradient produced via electrografting of EBH on a uniform pore size pSi surface (p-type, <1-0-0>, 1-5 Ω·cm, 28 $mA \cdot cm^{-2}$, pore size = 25 ± 7 nm) ester hydrolysis and adsorption of c(RGDfK) in the absence of carbodiimide. A) IRm line map for the area under the peak at 1535 cm^{-1}, B) 2D map of intensity of the amide II stretching peak (~1535 cm^{-1}),

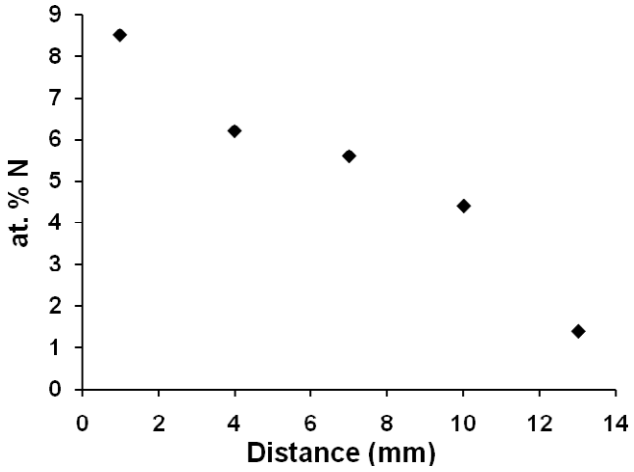

Fig S4: At. % nitrogen calculated from XPS spectra acquired along a 1D c(RGDfK) gradient on a uniform pSi substrate (pore size approximately 20 nm).

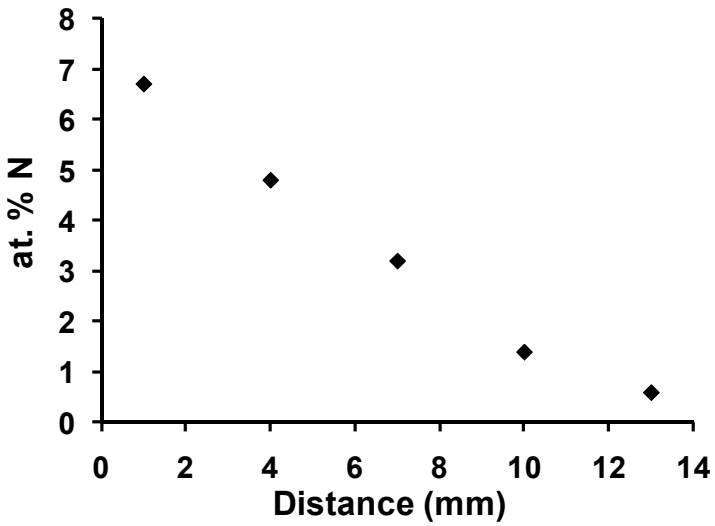

Fig. S5: At. % nitrogen calculated from XPS spectra acquired along the c(RGDfK) gradient on a 2D gradient substrate. Spectra were acquired along the centre of the gradient (pore size approximately 118 nm).

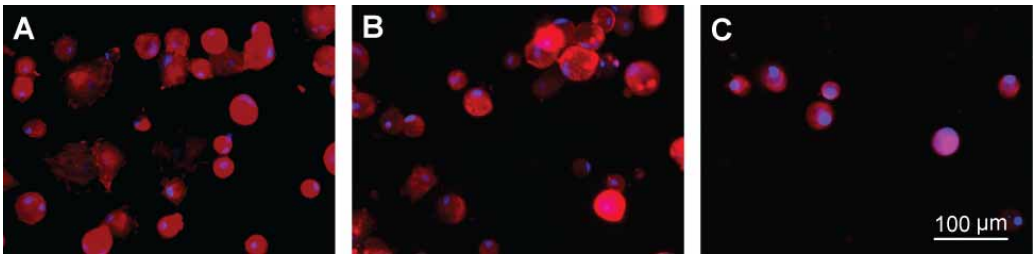

Fig. S6: Representative fluorescence microscopy images for A) region 1, B) Region 2, C) region 3, with respect to Fig. 5. Cell nuclei were stained by Hoechst 33342 and the cytoskeleton was stained by Alexa Fluor® 594 phalloidin).