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Supporting Information

for *Small*, DOI: 10.1002/smll.201201098

Microfabricated Nanotopological Surfaces for Study of Adhesion-Dependent Cell Mechanosensitivity

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Submitted to small NANO MICRO

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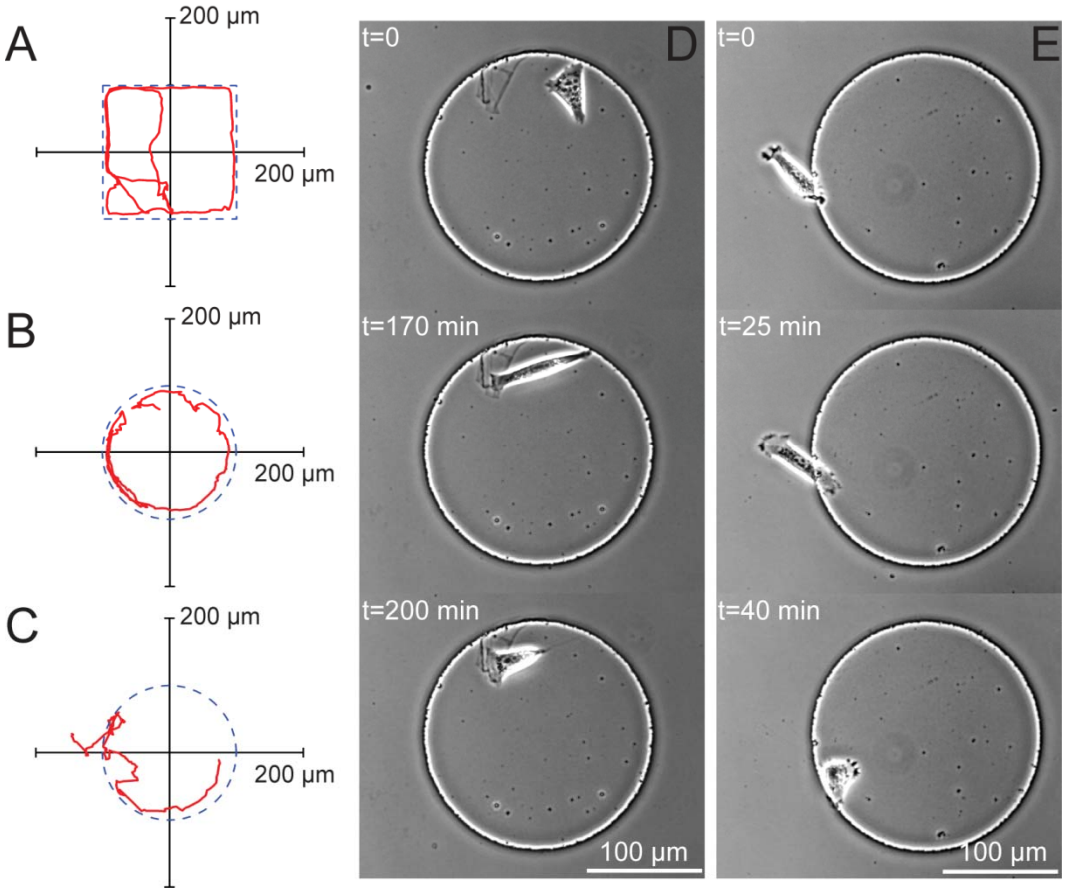
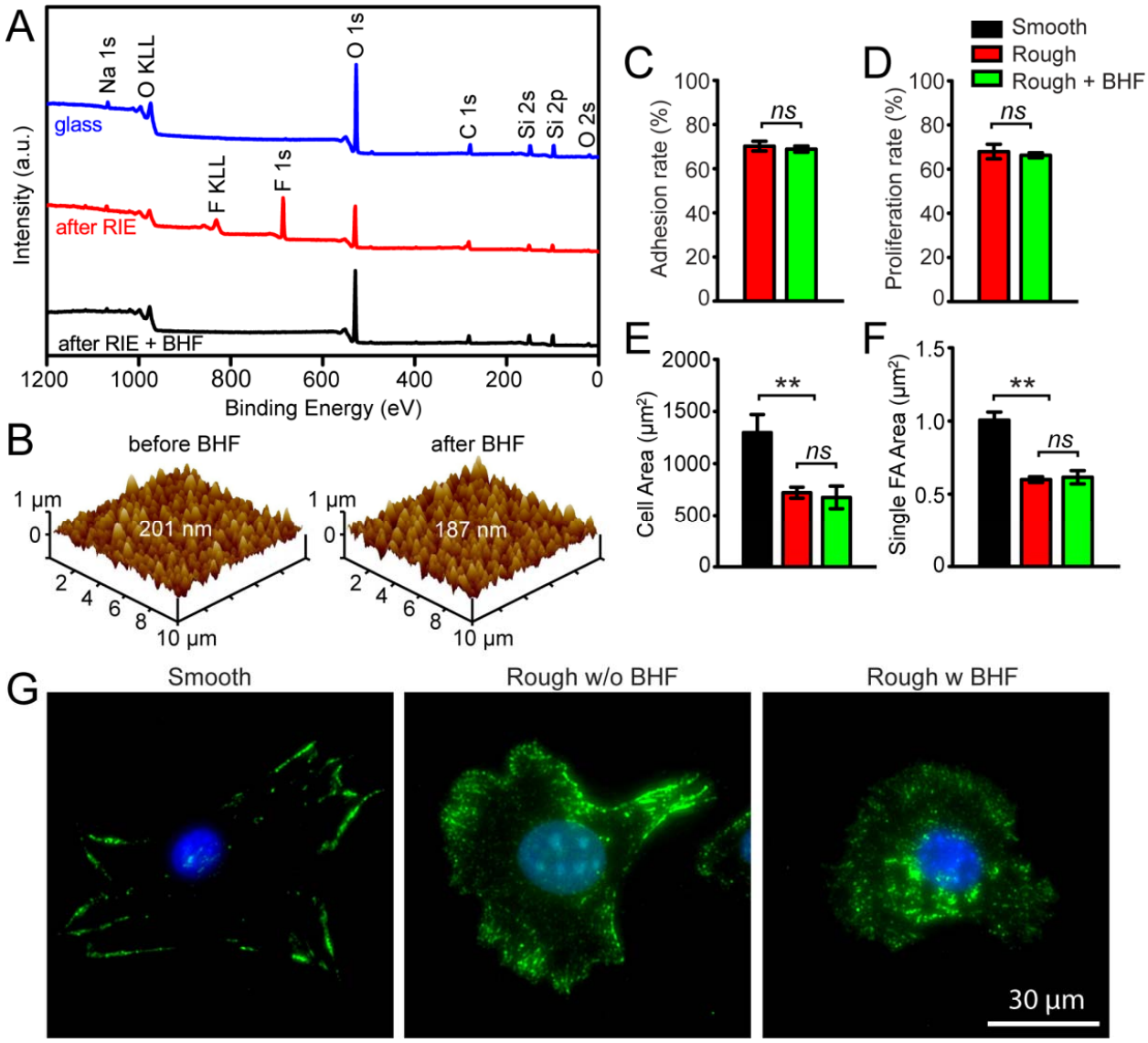
Supporting Information

Supporting videos see separate files.

Supporting Figures



Supporting Figure S1: (A-C) Migration trajectories of NIH/3T3 fibroblasts initially inside (A-B) and outside (C) a patterned nanorough island. (D-E) Snapshot images showing individual migrating NIH/3T3 fibroblasts on the patterned nanorough surface.



Supporting Figure S2: (A) XPS survey spectra measured for unprocessed flat (control with R_q = 1 nm; *blue* curve) and RIE-etched nanorough glass surfaces (*red* and *black* curves). RIE-processed glass surfaces were treated with (*black* curve; R_q = 187 nm) or without (*red* curve; R_q = 201 nm) brief buffered hydrofluoric acid (BHF) etching. (B) AFM topographs of RIE-processed glass substrates with (*right*; R_q = 201 nm) or without (*left*; R_q = 187 nm) brief treatment with BHF. (C&D) Cell adhesion (C) and proliferation rate (D) of NIH/3T3 fibroblasts on RIE-processed nanorough glass surfaces with or without BHF etching. Data in C was collected 4 hr after initial cell seeding. Proliferation rate in D were measured after 6 hr of culture

on nanorough glass surfaces. Data in C&D represents the means ± standard error of mean (s.e.m) from three independent experiments. (E&F) Quantitative analysis of cell apread area (E) and average single FA area (F) of NIH/3T3 fibroblasts on smooth (R_q = 1 nm), RIE-processed (R_q = 181 nm) and RIE + BHF treated (R_q = 187 nm) glass substrates after 24 hr of culture. Data in E&F represents the means ± standard error of mean (s.e.m). For each data point, the cell number n > 30. (G) Representative immunofluorescence images of NIH/3T3 fibroblasts on smooth (R_q = 1 nm), RIE-processed (R_q = 181 nm), and RIE + BHF treated (R_q = 187 nm) glass substrates after 24 hr of culture. Cells were co-stained for nuclei (DAPI; *blue*) and vinculin (*green*).