

Electronic supplementary information (ESI)

Facile Patterning of Genetically Engineered M13 Bacteriophage for Directional Growth of Human Fibroblast Cells

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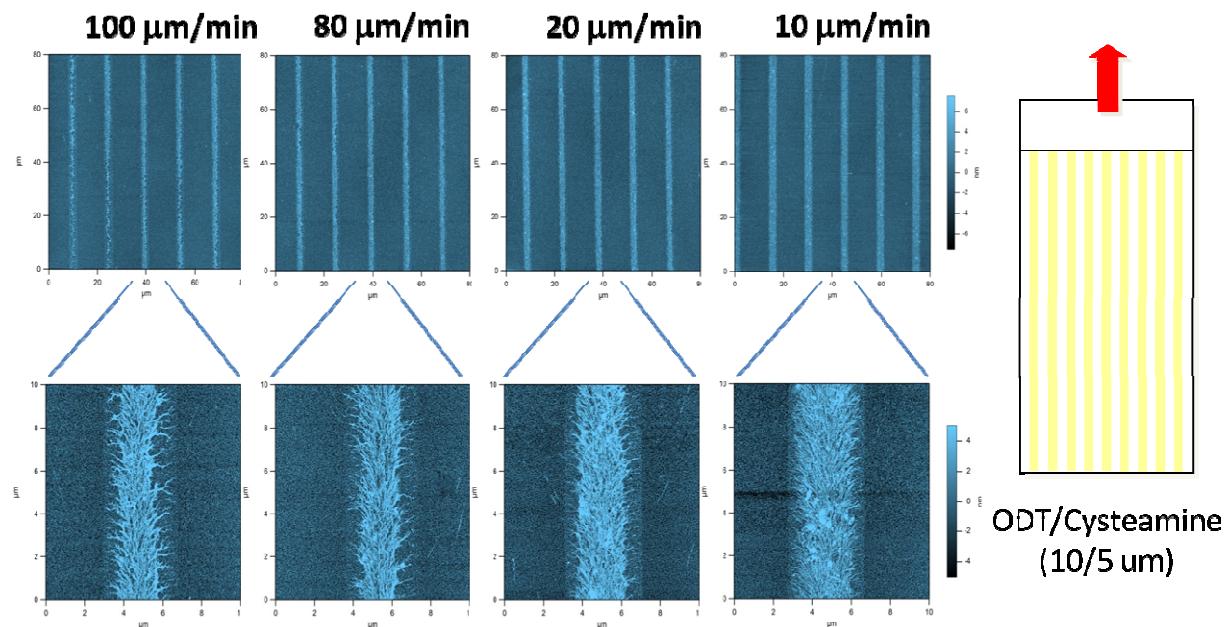


Figure S1. AFM images of phage patterning at different pulling speed (10 ~ 100 µm/min). Phage concentration, incubation time and/or pulling speed can be decided to control phage patterning structure. Higher speed gave narrower patterning whereas lower gave wider patterning on hydrophilic surface area due to hydrophobic repulsion from hydrophobic surfaces. M13 phages with 880 nm in length and 6.6 nm in width can be deposited by hydrophilic and electrostatic interaction to cysteamine area.

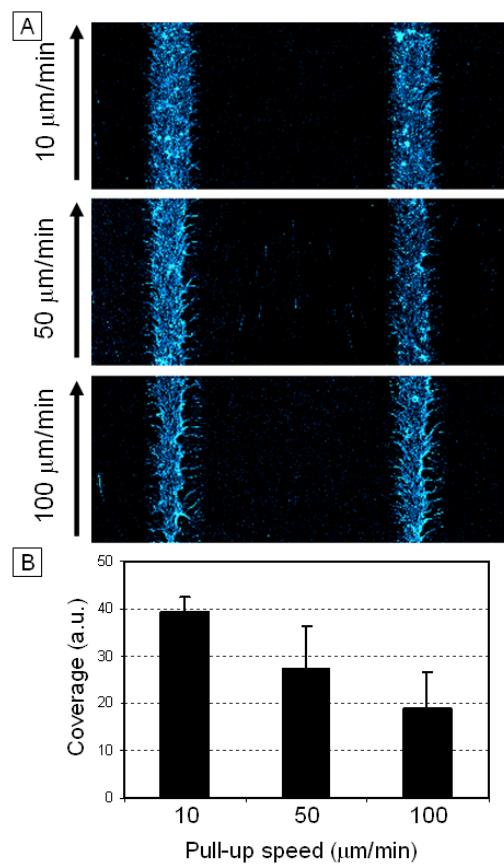


Figure S2. Change of surface topography and coverage in response to pull-up speed. (A) AFM images of phage deposited pattern surfaces prepared by pulling up at speed 10, 50 and 100 $\mu\text{m}/\text{min}$. (B) Relative phage coverage on hydrophilic stripes depending on pull-up speed.

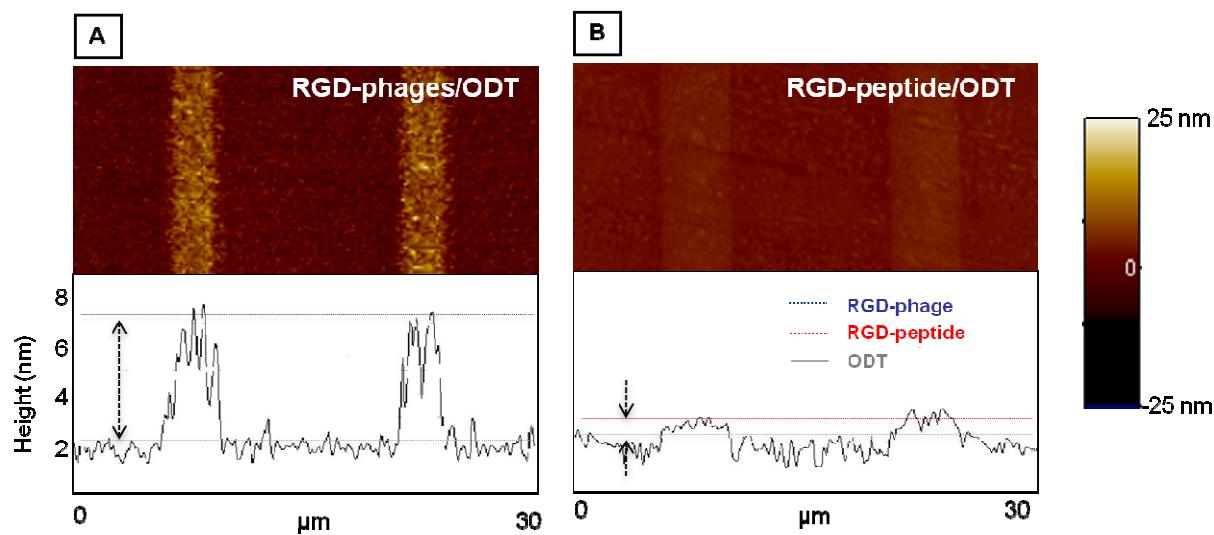


Figure S3. AFM images of patterned surfaces (5/10) coated with RGD-phages (A) or RGD-peptides (B). Cross-sectional height profiles show a rougher and higher topography on the RGD-phage patterned surfaces compared to on the RGD-peptide patterned ones.

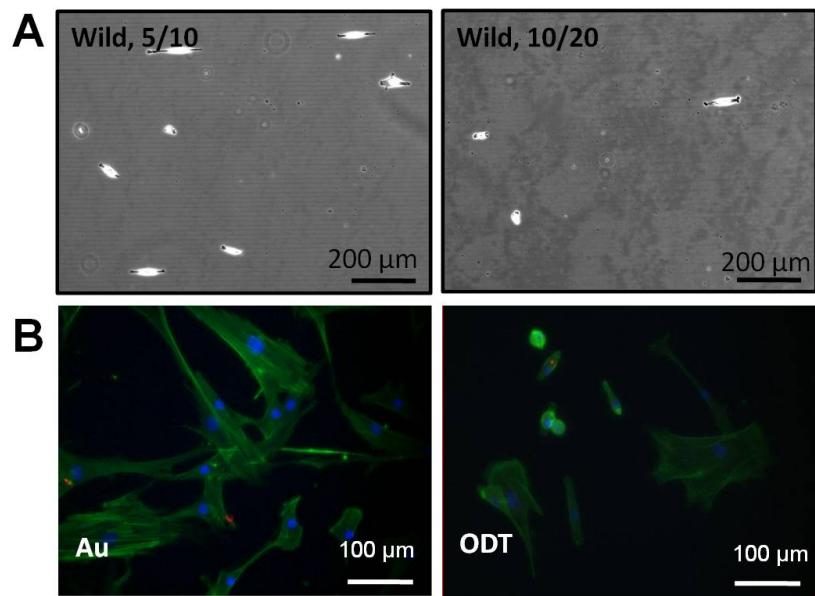


Figure S4. Human fibroblast morphologies on the control substrates. (A) Human fibroblast cell morphologies on the wild type phage-patterned control substrates (Left: 5 μm Cyteamine / 10 μm ODT, Right: 10 μm Au / 20 μm ODT) and (B) Bare gold and ODT surfaces without a pattern (Left: Au, Right: ODT; Green: phalloidin, Red: phage, Blue: DAPI).