Engineered coatings for titanium implants to present ultra-low doses of BMP-7

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SUPPORTING INFORMATION

Number of pages: 6

Number of figures: 5

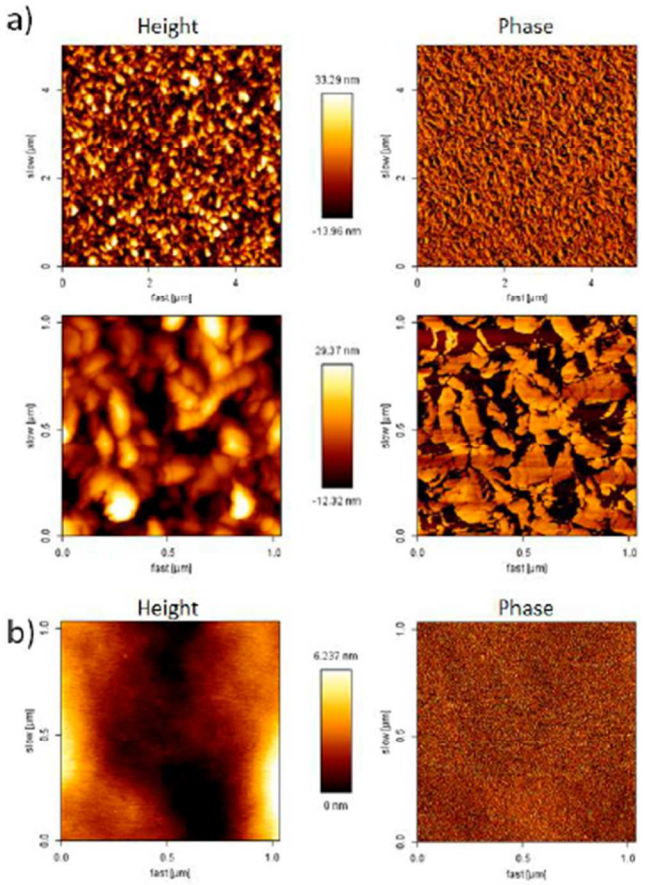

Figure S1. Representative AFM images of Ti surfaces. A) Bare Ti surface; top images are 5x5 μm, the bottom ones 1x1 μm; B) Ti surfaces after coating with PEA (1 μm).

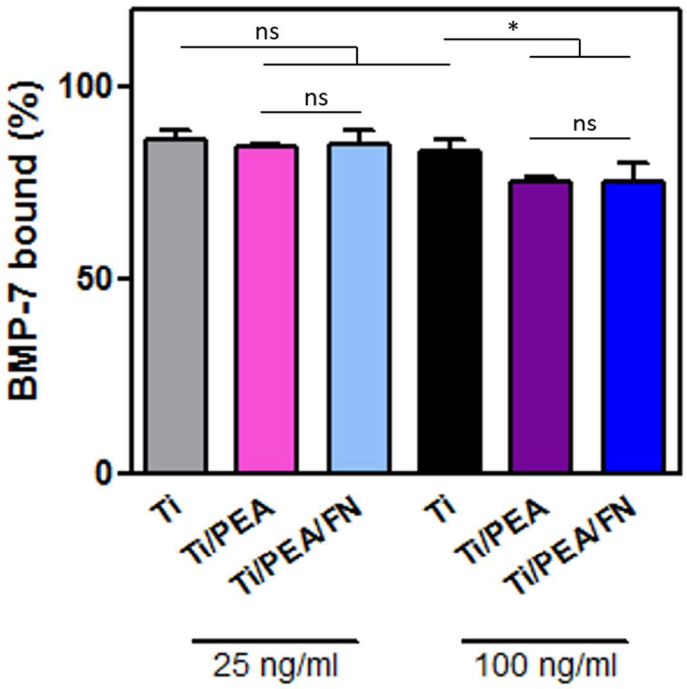

Figure S2. Percentage of the amount of BMP-7 bound to tested surfaces after BMP-7 coating; calculated from the total amount of BMP-7 present in coating solutions. One way ANOVA with Tukey's multiple comparison post-test was performed; ns = non-significant; * $P<0.05$.

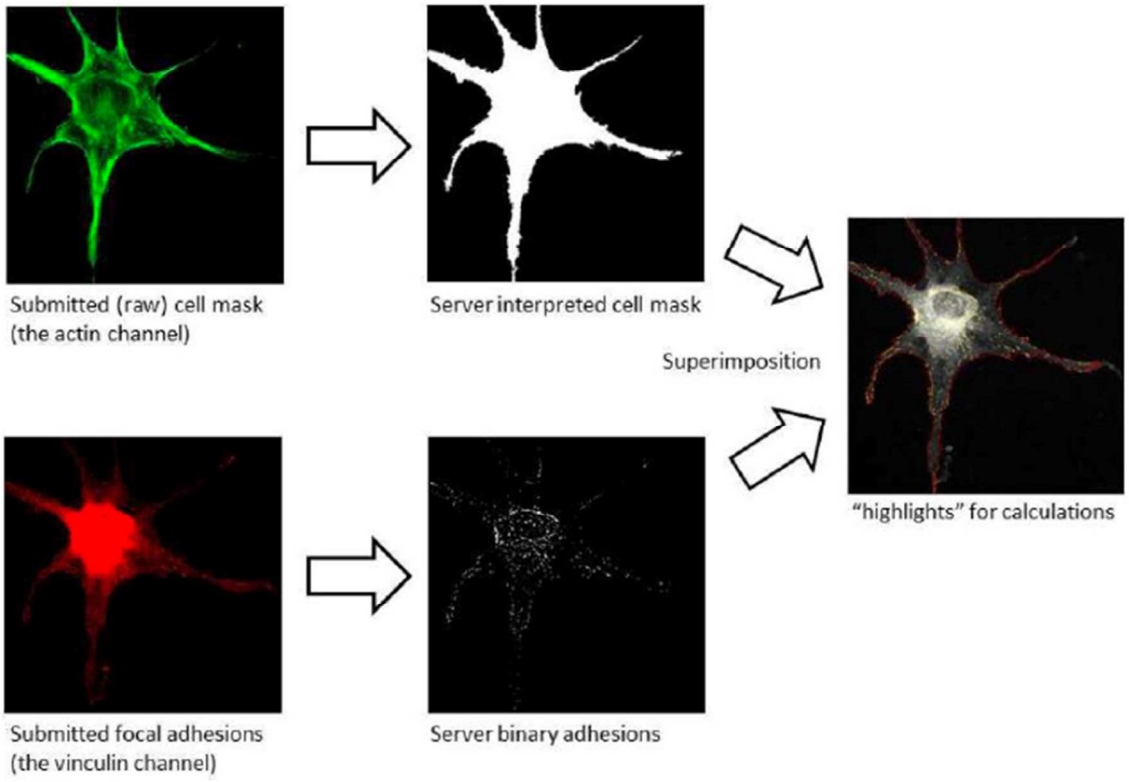

Figure S3. Focal adhesion (FA) analysis process: Two raw images per single cell were uploaded to the FAAS server (http://faas.bme.unc.edu), actin image (green, and vinculin image, red). Both were processed into binary images for cell mask and adhesion areas, and a highlight image was produced depicting all adhesions considered for analysis. Individual parameters for a single cell were calculated (FA length and area as well as averages for FA length, FA area and cell size), and results from at least 30 cells were processed to get final results.

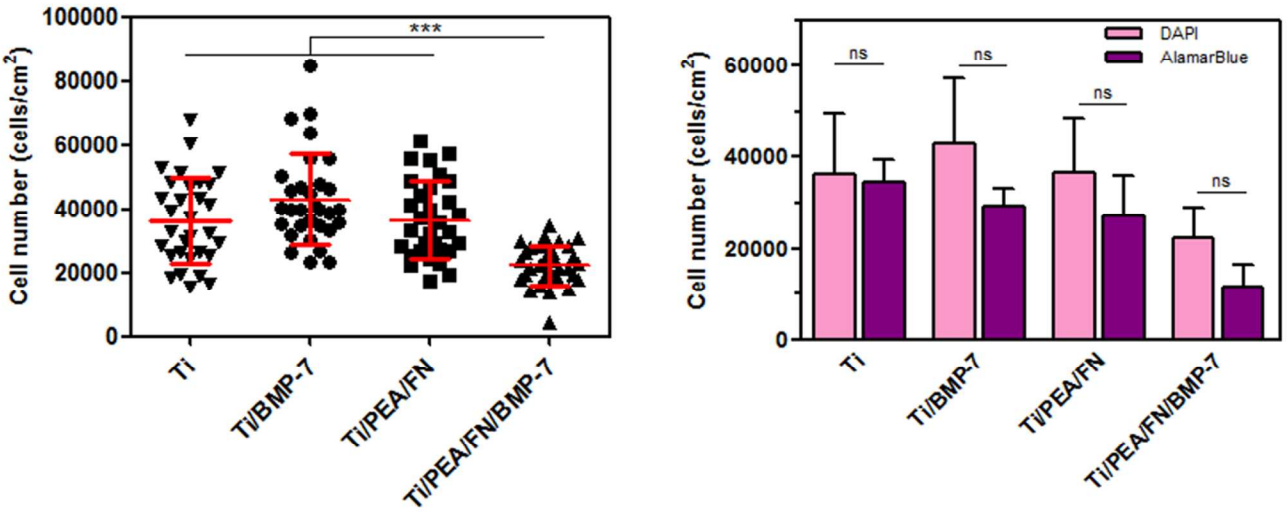

Figure S4. Quantification of cell numbers after 28 days of incubation; quantification using image analysis (calculating the number of nuclei from DAPI staining, graph on the left hand side) showing that only Ti/PEA/FN/BMP-7 condition had significantly lower cell number in comparison to all other conditions confirmed results received from Alamar Blue assay as no significant differences between individual conditions were observed (graph on the right hand side); one way ANOVA with Tukey's multiple comparison post-test was performed for image analysis using DAPI; *** $P<0.001$;); two way ANOVA with Bonferroni post-test was performed for comparison of DAPI and Alamar Blue assay comparison; ns = non-significant.

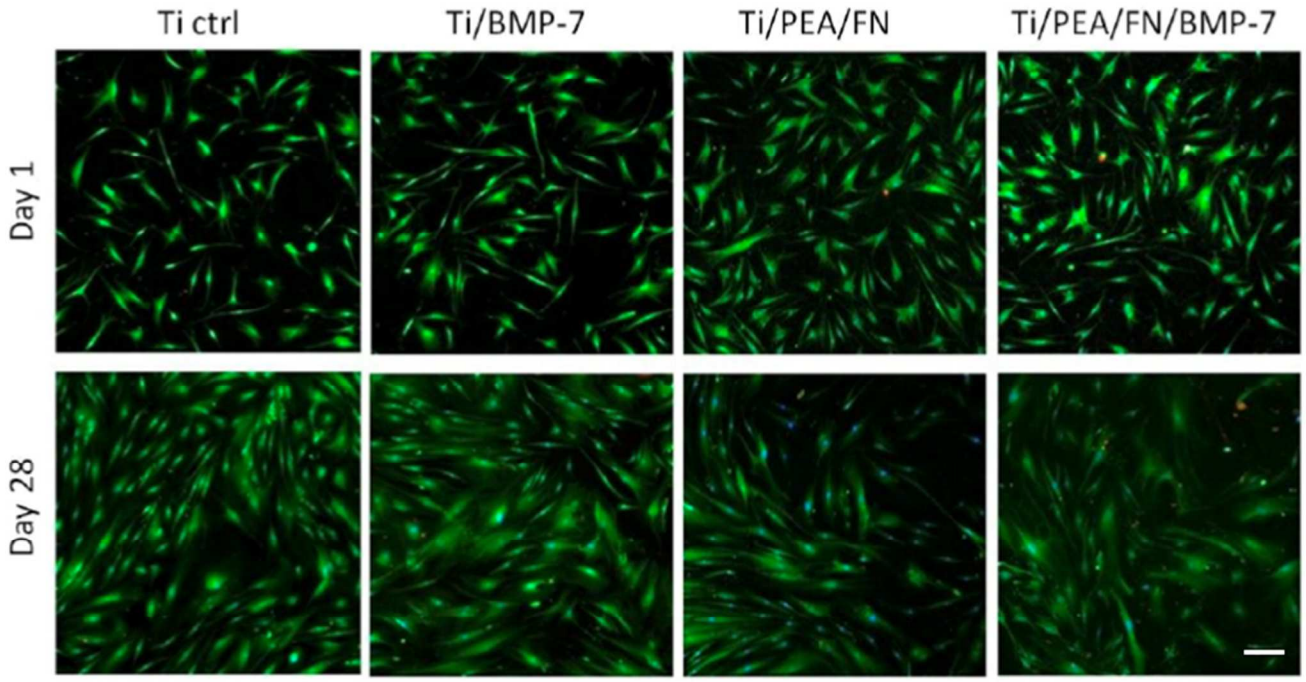

Figure S5. hMSC viability over the 28 day period : Cells at Day 1 and Day 28 were tested with no obvious increase in dead cells on any tested surfaces (live cells in green, dead cells in red); scale bar represents 100 μm.