Supplementary Information

# Peptide coating applied on the spot improves titanium implants osseointegration

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A. Figure 1S- Mass spectrum of DapSer peptide:
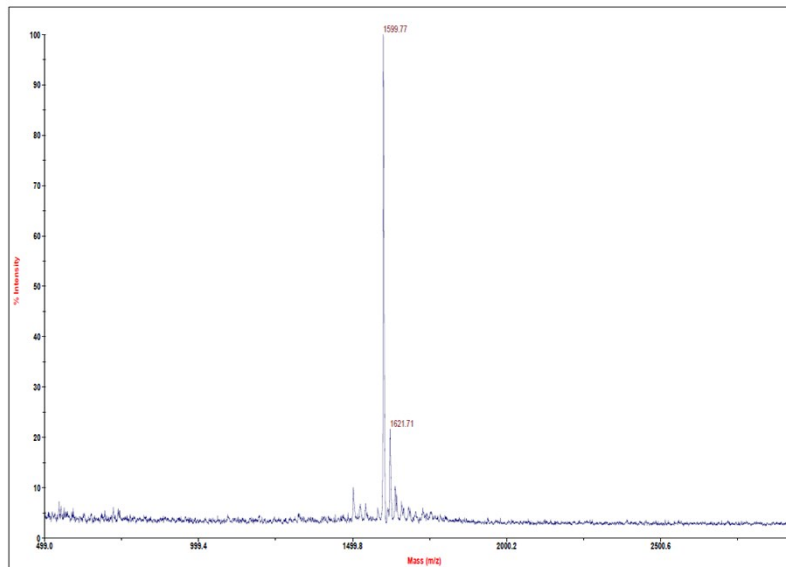
Provided by Caslo (Lyngby, Denmark)

Method: MALDI-TOF

Main Peak: 1599.77

MW [M+H+]: 1599.77

MW: 1598.77

Theoretical MW: 1599.38

Match: Approved Z=1

B. hFOB focal adhesion sites on TiO$_2$ surfaces:

The effect of TiO$_2$ peptide coated surfaces on human fetal osteoblast (hFOB) 1.19 cell line (ATCC, Manassas, VA) was studied by focal adhesion. The peptide coated and uncoated surfaces were seeded with a total of $3 \cdot 10^4$ cells for 1 day at 39.5 °C (These cells have been immortalized using a temperature-sensitive mutant of the SV40 large T antigen that enables cells to proliferate at 33.5 °C and differentiate upon shifting the temperature to 39.5 °C). Cells were next stained for the filamentous actin (F-actin), vinculin, and for nuclei. Focal contact point quantifications were analyzed by evaluation of vinculin spots area. Based on the images analysis (Fig. 1E), the average area of the focal adhesion points per cell on coated surfaces was found to be significantly higher than for uncoated surfaces.
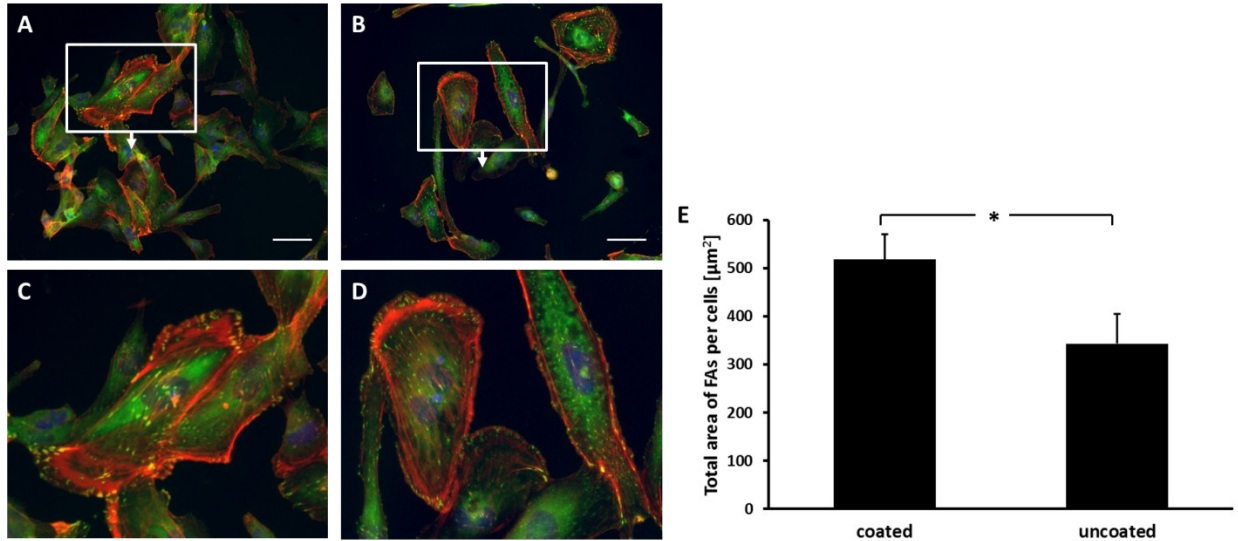
Figure 2S- Immunofluorescence staining showing focal adhesion points of hFOB cells cultured on (A,C) DapSer peptide coated TiO_2 surface and (B,D) uncoated TiO_2 surface (green-Vinculin, blue-Dapi, red-Actin). Dots localized at the end of actin fibers form focal contacts. Focal contact point analysis (E) values represent means ± SD (n = 3). Asterisks denote significant difference (according to ANOVA): *$p<0.05$. Scale bar 100 μm.

C. Figure 3S- The set up used to obtain the pull-out test: