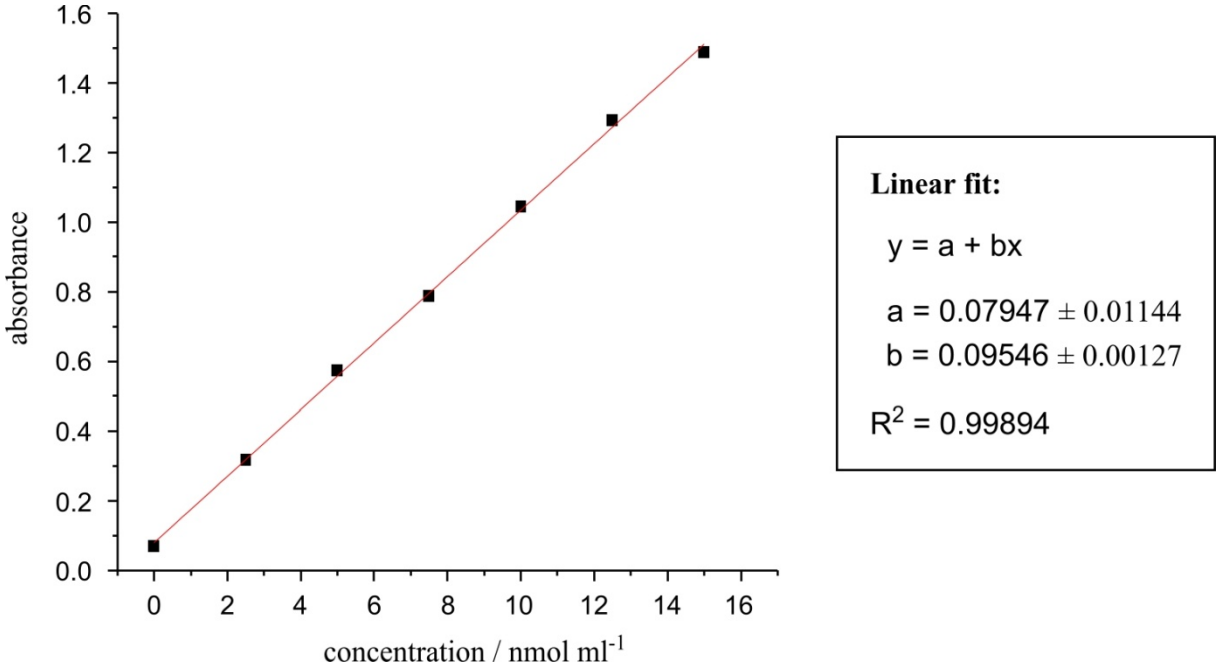
Electronic Supplementary Material (ESI) for Journal of Materials Chemistry

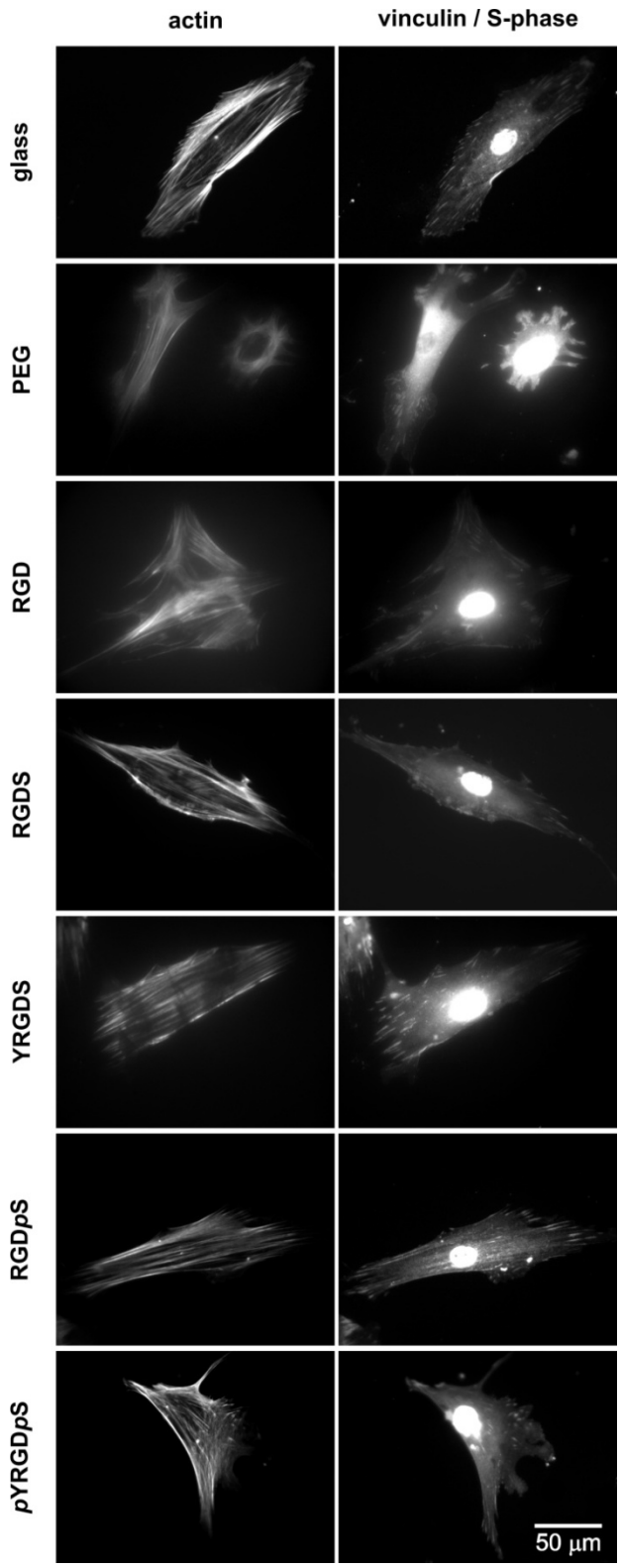
Supporting Information for

Phosphatase responsive peptide surfaces

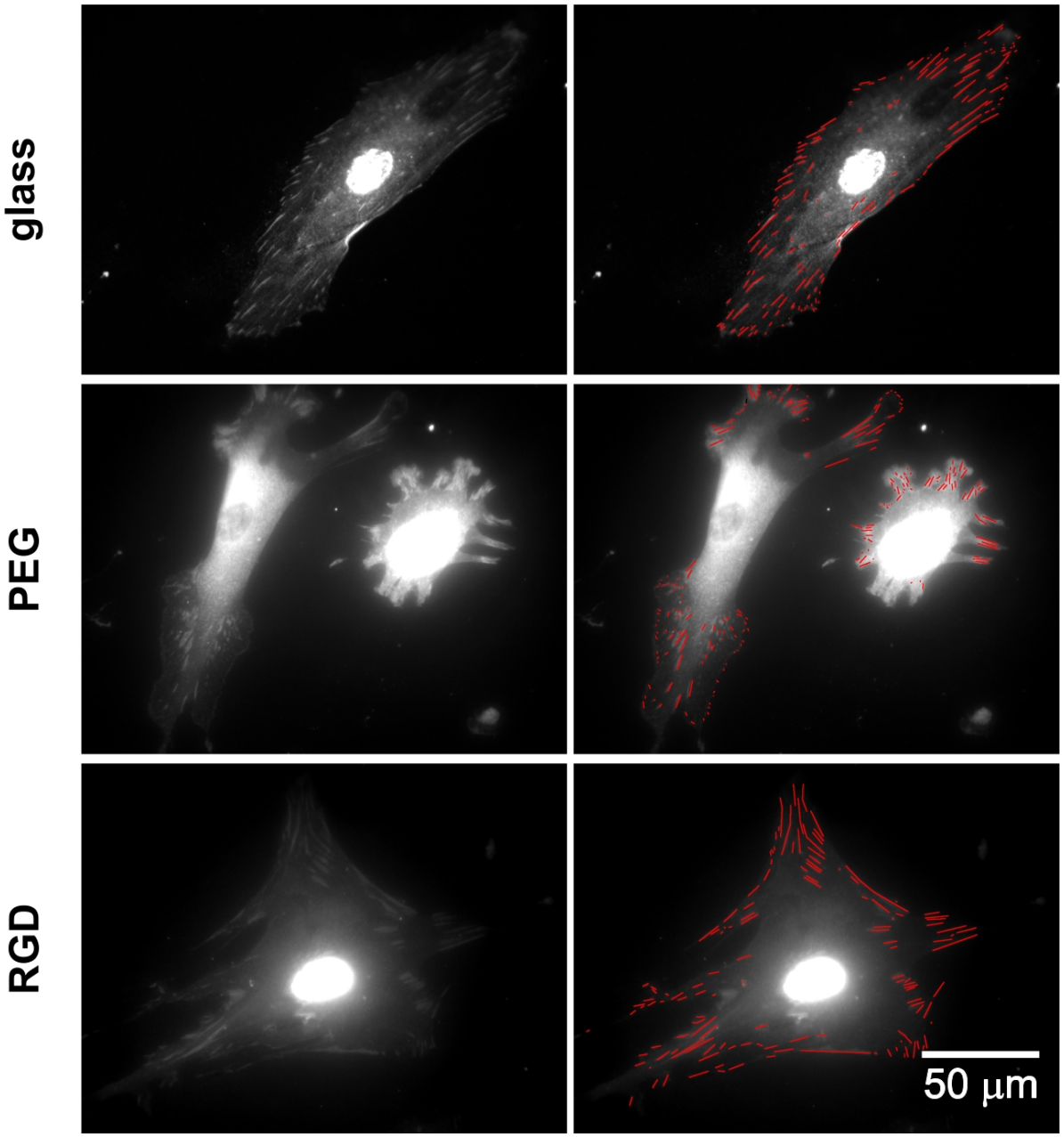
Mischa Zelzer,[a] Laura E. McNamara,[b] David J. Scurr,[c] Morgan R. Alexander,[c] Mathew J. Dalby[b] and Rein V. Ulijn[a]*



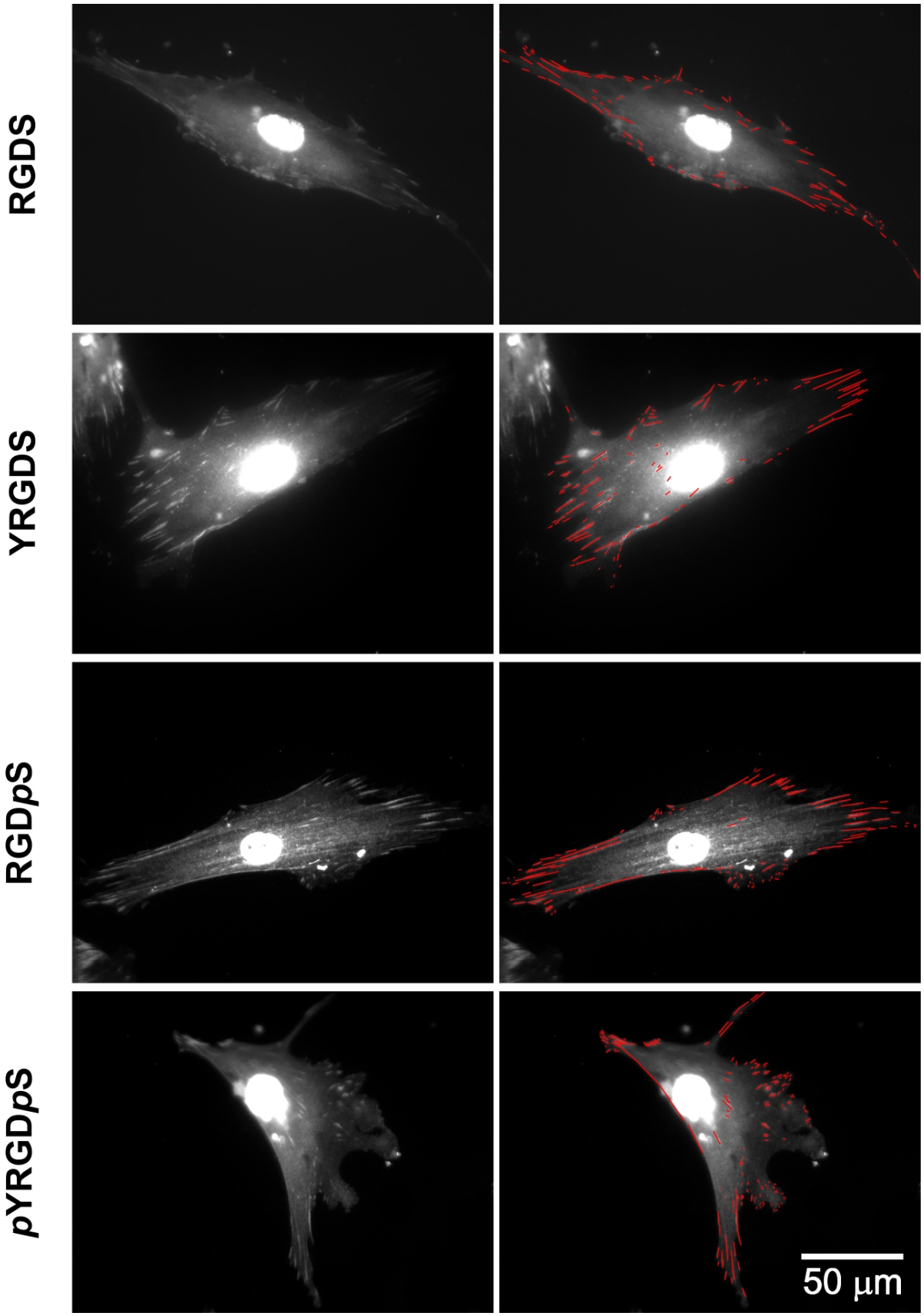
Supplementary Figure 1. Calibration curve of phosphate standard solutions for the phosphate assay.



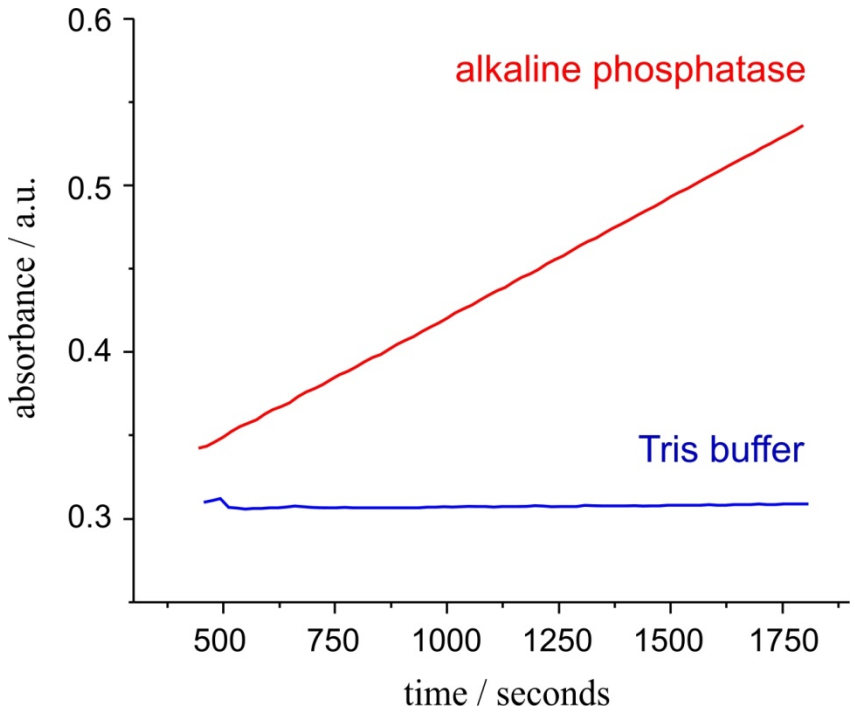
Supplementary Figure 2. Representative images of MSCs on peptide surfaces and control samples after 3 days of culture, stained for actin (left panel) and vinculin (focal adhesions) (right panel). S-phase cells showed brightly fluorescent nuclei following BrdU labelling and immunodetection (right panel).



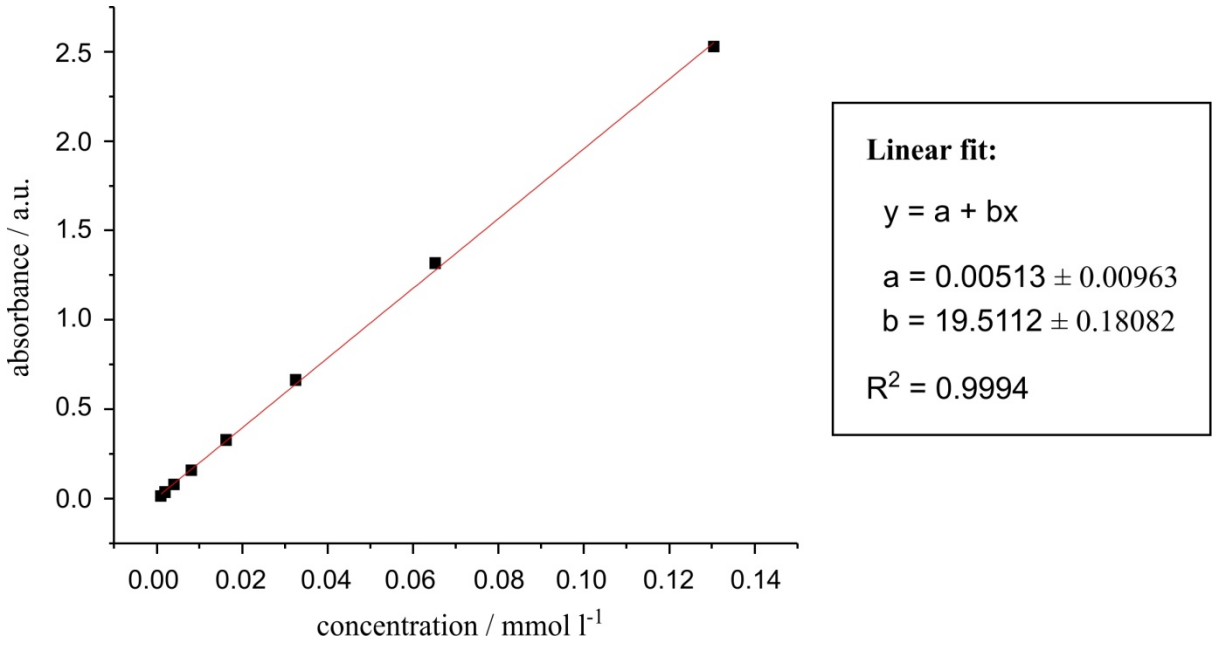
Supplementary Figure 3. Typical actin stained samples (left) and lines marking the adhesions (red lines in right hand images) used for the quantification on the control samples.



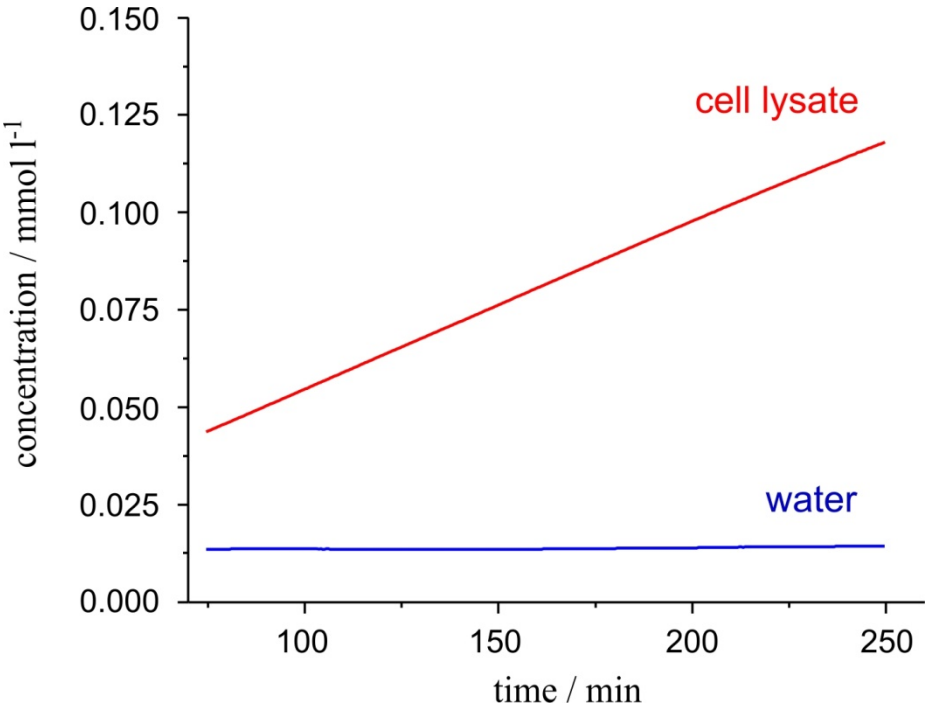
Supplementary Figure 4. Typical actin stained samples (left) and lines marking the adhesions (red lines in right hand images) used for the quantification on the peptide surfaces.



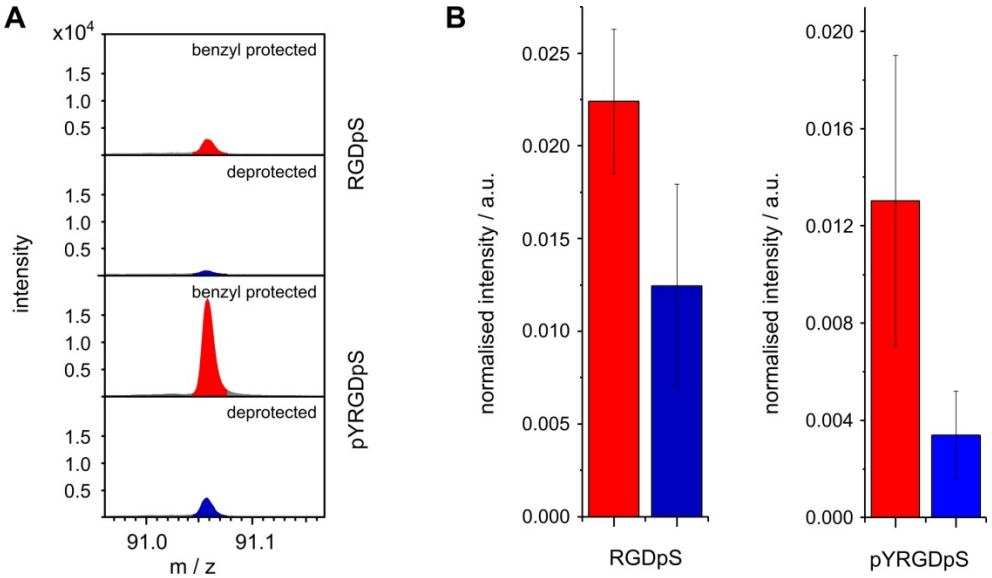
Supplementary Figure 5. Activity assay for alkaline phosphatase. The conversion of 4-nitrophenyl phosphate to 4-nitrphenol was followed via UV/Vis absorption at 405 nm.



Supplementary Figure 6. Calibration curve of p-nitrophenol solutions for the phosphatase assay on the cell lysate.



Supplementary Figure 7. Activity assay for phosphatase in the cell lysate. The conversion of 4-nitrophenyl phosphate to 4-nitrophenol was followed via UV/Vis absorption at 405 nm. The absorbance was converted into concentration via the calibration curve from Supplementary Figure 5. (Note: A separate assay on the lyophilised cell culture media was also performed but despite the noticeable development of a yellow colour, the absorption could not be used for quantitative analysis due to interference by the high amounts of proteins and salts in the medium).



Supplementary Figure 8. Detection of the mass fragment m/z = 91 associated with the benzyl protection group by ToF-SIMS. A) ToF-SIMS mass spectra of protected and deprotected RGD*p*S and *p*YRGD*p*S normalised to the total ion count. B) Intensity of the m/z = 91 mass fragment on the surface before and after deprotection. The values are corrected for the background signal observed on non-phosphorylated RGDS and YRGDS samples.