Supporting Information

Nano- and micro-patterned polycaprolactone cellulose composite surfaces with tunable protein adsorption, fibrin clot formation and endothelial cellular response

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Removal of TMSC or PCL from blend films

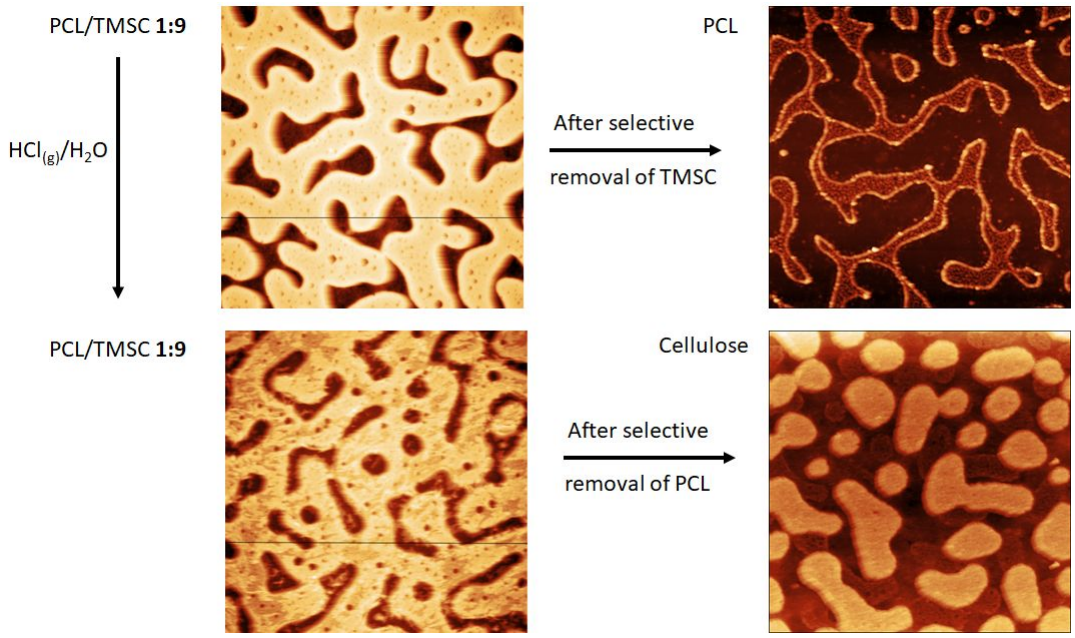

Figure S1. AFM topographical image (10 x 10 µm^2) of a PCL/TMSC film (top left) after the removal of TMSC with hexamethyldisiloxane (HMDSO) (top right) and a PCL/Cellulose film (bottom left) after the removal of PCL with chloroform (bottom right) (image size 10 µm x 10 µm).

ATR-IR spectra of PCL/TMSC films

An increased R-OH band at 3400 cm^{-1} and a decreased R-Si band at 845 and 753 cm^{-1} is evidence for the regeneration of TMSC into cellulose (Figure S2 and S3). The usual R-Si band at 1252 cm^{-1} is very close to the 1240 cm^{-1} R-O-C band from PCL. However careful evaluation of the regenerated films shows that the band at 1252 cm^{-1} decreases while the band at 1240 cm^{-1} is retained.

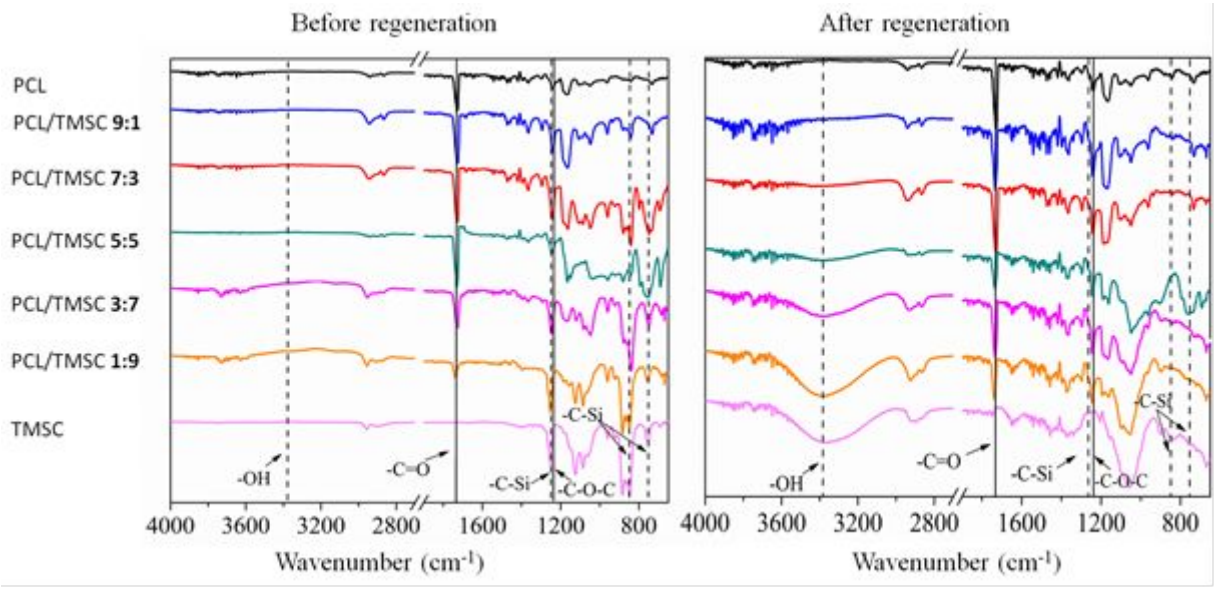

Figure S2. ATR-IR spectra of PCL/TMSC films, before and after regeneration with HCl vapors. The lines show the peaks assigned to the functional groups of either TMSC/Cellulose (dotted) or PCL (straight).

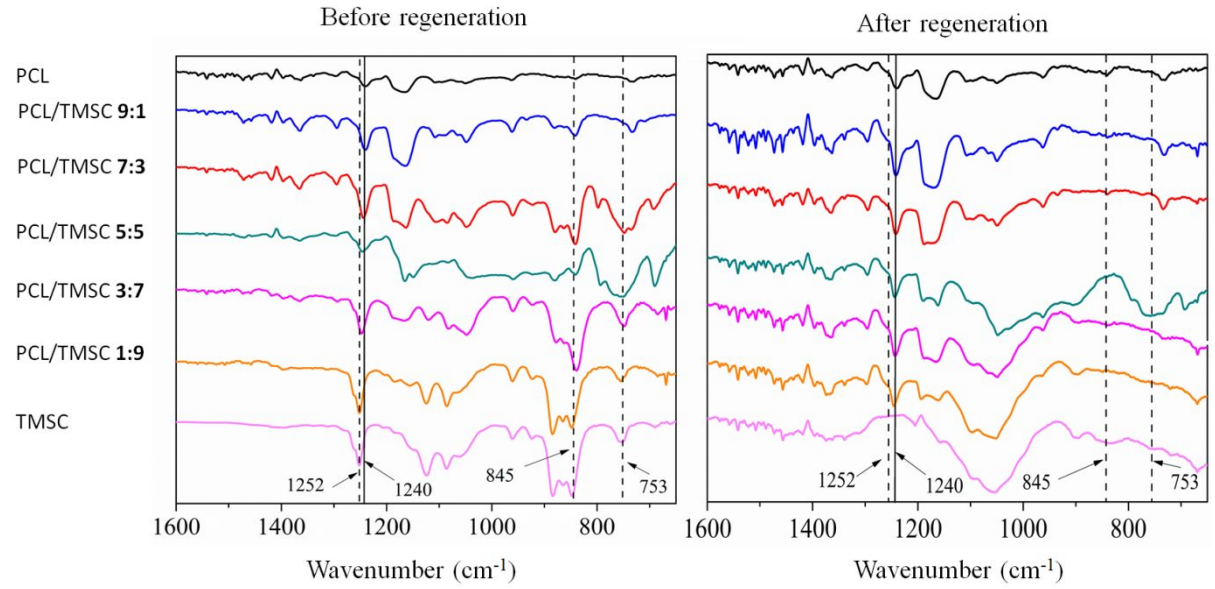

Figure S3. ATR-IR spectra of PCL/TMSC films for the region 650 – 1600 cm^{-1}. The lines show the peaks assigned to TMSC/Cellulose (dotted, C-Si rocking vibrations at 1252, 845 and 753 cm^{-1}) and PCL (straight, asymmetric C-O-C stretching at 1240 cm^{-1}) before and after regeneration.

Interaction of cell growth media with thin films in QCM-D

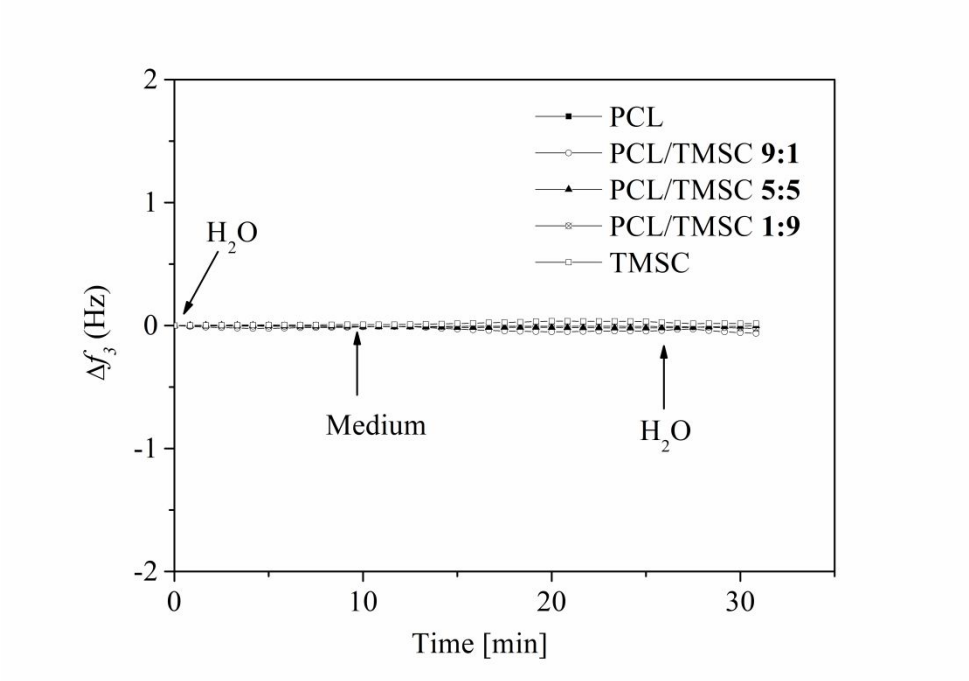

Figure S4. QCM-D frequency changes for the adsorption of the cell growth media EBM-2, Lonza, on PCL/TMSC surfaces after regeneration.

zeta potential measurements

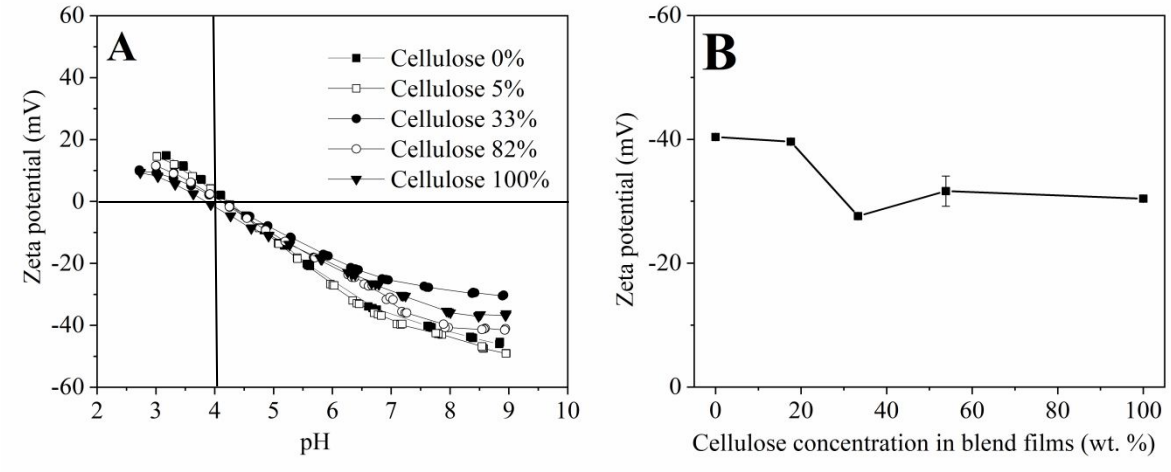

Figure S5. A) zeta potential of blend films containing increasing amounts of cellulose. B) zeta potential at pH 7.4.

pH-potentiometric titrations of proteins

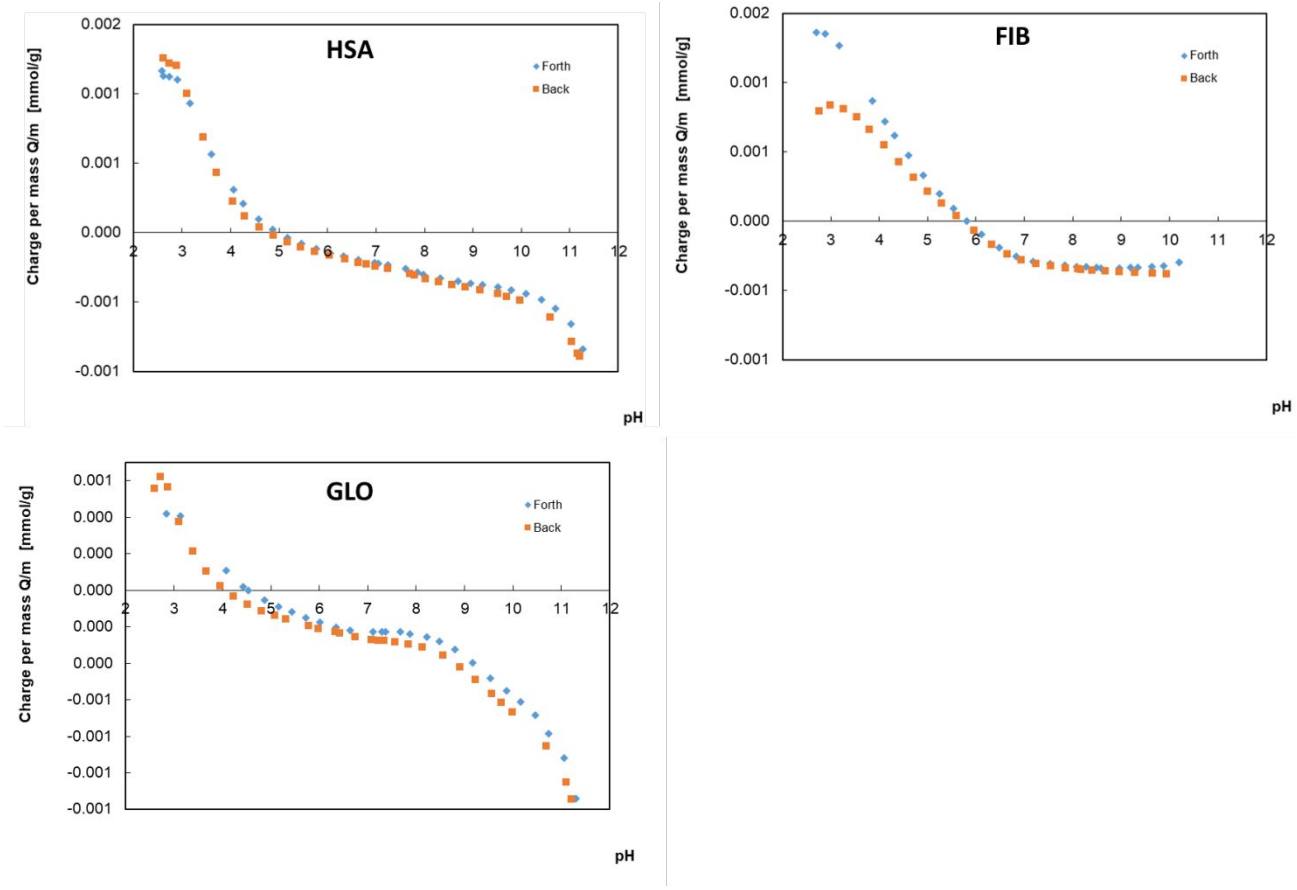

Figure S6. Charges of different proteins as a function of pH