ADVANCED MATERIALS

Supporting Information

Facile Conjugation of Biomolecules onto Surfaces via Mussel Adhesive Protein Inspired Coatings

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Figure S1. Photographs of trypsin immobilized polydopamine-coated cellulose paper after incubation in the presence of BAPNA for 120 min. The development of yellow color indicates the presence of active trypsin. Samples shown in the photo are trypsin/polydopamine/cellulose (left), polydopamine/cellulose (middle) and unmodified cellulose incubated in trypsin solution and then rinsed with water before the enzymatic reaction (right).

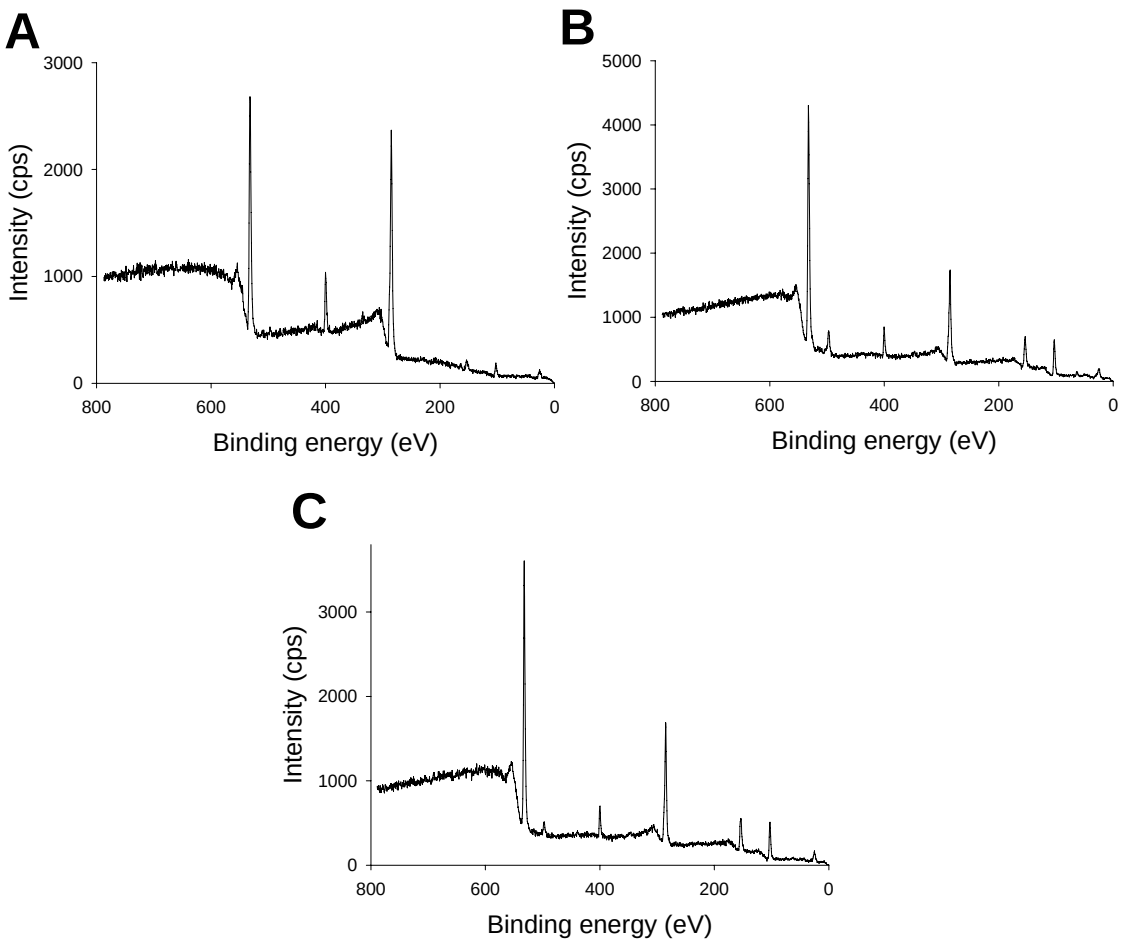

Figure S2. XPS spectra of NHS-functionalized glass substrates pre-incubated in buffer (50mM sodium phosphate, 100mM NaCl, pH 7.5) before conjugation with trypsin as described in the experimental section. Samples were incubated in buffer for 0 hr (A), 3 hr (B) and 20 hr (C) prior to the trypsin immobilization reaction. The decrease in N 1s and C 1s peak intensities in B and C are indicative of NHS hydrolysis and decreased trypsin immobilization.

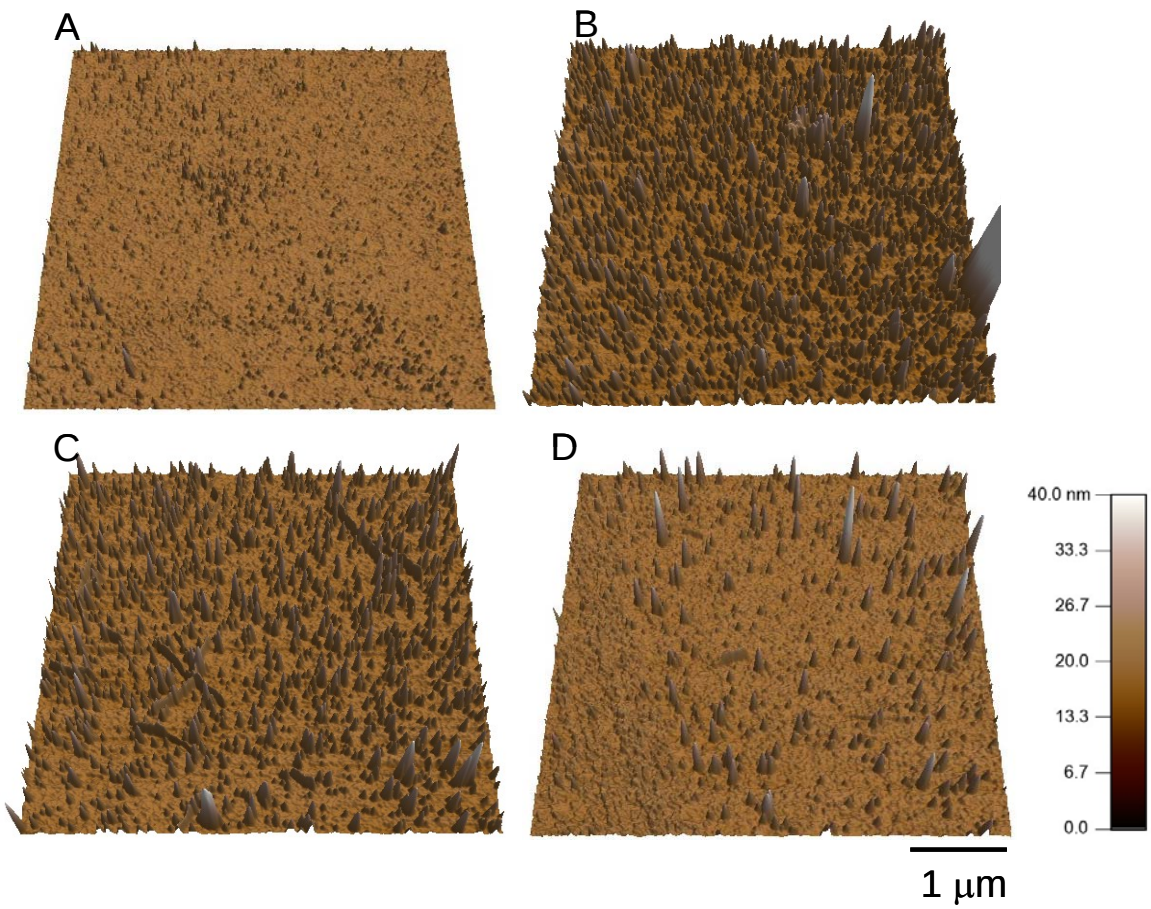

Figure S3. AFM surface topographic images of NHS-glass substrates pre-incubated in buffer (50mM sodium phosphate, 100mM NaCl, pH 7.5) before conjugation with trypsin as described in the experimental section. A. NHS-glass before hydrolysis. B. Trypsin immobilized onto unhydrolyzed NHS-glass. C. Trypsin immobilized onto NHS-glass after 1 hr hydrolysis in buffer. D. Trypsin immobilized onto NHS-glass after 5 hr hydrolysis in buffer.

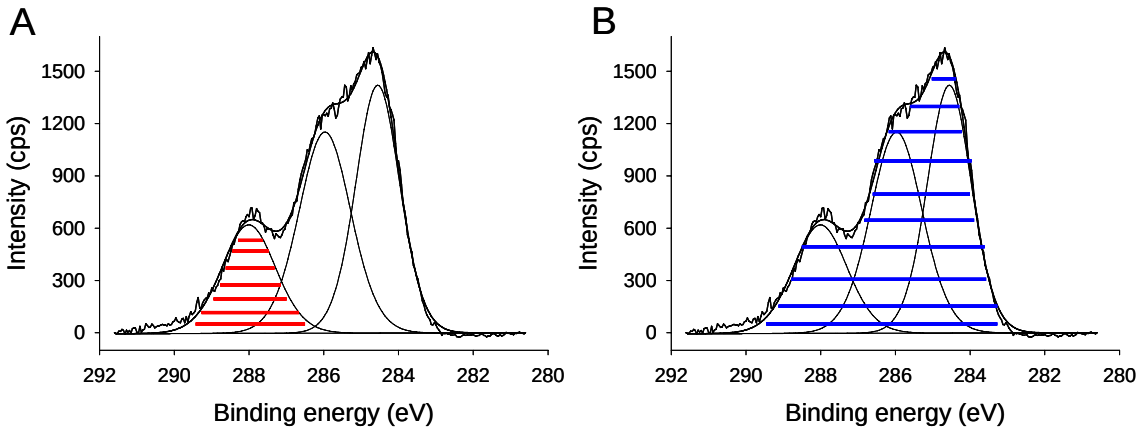

Figure S4. High resolution C1s XPS spectrum of a polydopamine coated Si substrate pre-incubated for 1 hr in hydrolysis buffer (50mM sodium phosphate, 100mM NaCl, pH 7.5) before conjugation with trypsin as described in the experimental section. The same spectrum is shown in A and B. The peak area highlighted in red represents the carbonyl carbon (C=O) signal originating primarily from immobilized trypsin (polydopamine has negligible carbonyl signal), which was ratioed to the total C1s signal (blue area) to calculate the relative activity data shown in Figure 2C (circles).