Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics

Supporting information to:

Direct AFM force mapping of surface nanoscale organization and protein adsorption on aluminum substrate

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1. PM-IRRAS analyses

PM-IRRAS spectra were recorded on a commercial Thermo-scientific (France) Nexus spectrometer. The external beam was focused on the sample with a mirror, at an optimal grazing incident angle. A ZnSe grid polarizer and a ZnSe photoelastic modulator, modulating the incident beam between *p*- and *s*-polarizations (HINDS Instruments, PEM 90, modulation frequency = 37 kHz), were placed prior to the sample. The light reflected at the sample was then focused onto a nitrogen-cooled MCT detector. All presented spectra were obtained from the sum of 128 scans recorded with 8 cm^{-1} resolution.

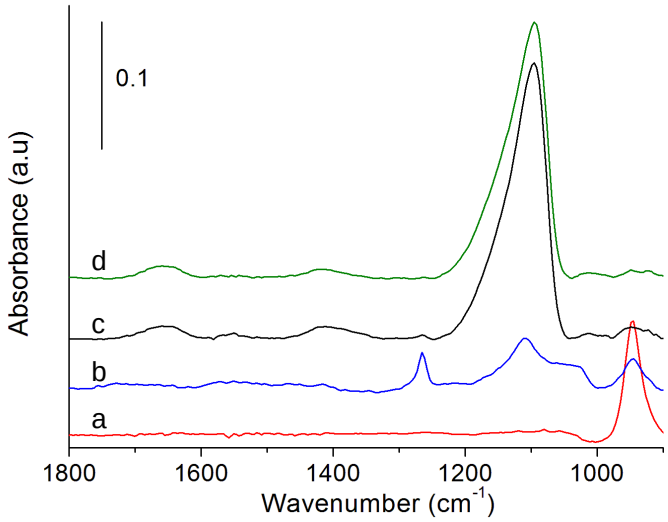

Figure S1. PM-IRRAS spectra recorded on aluminum substrate (a) prior to and after hydroxylation treatment in boiling water during (b) 30s or (c) 2 min. Spectrum (d) was obtained on a sample hydroxylated in boiling water for 2 min and further incubated in hydrogen peroxide solution (H_2O_2, 10 mM).

2. AFM images recorded in the dried state

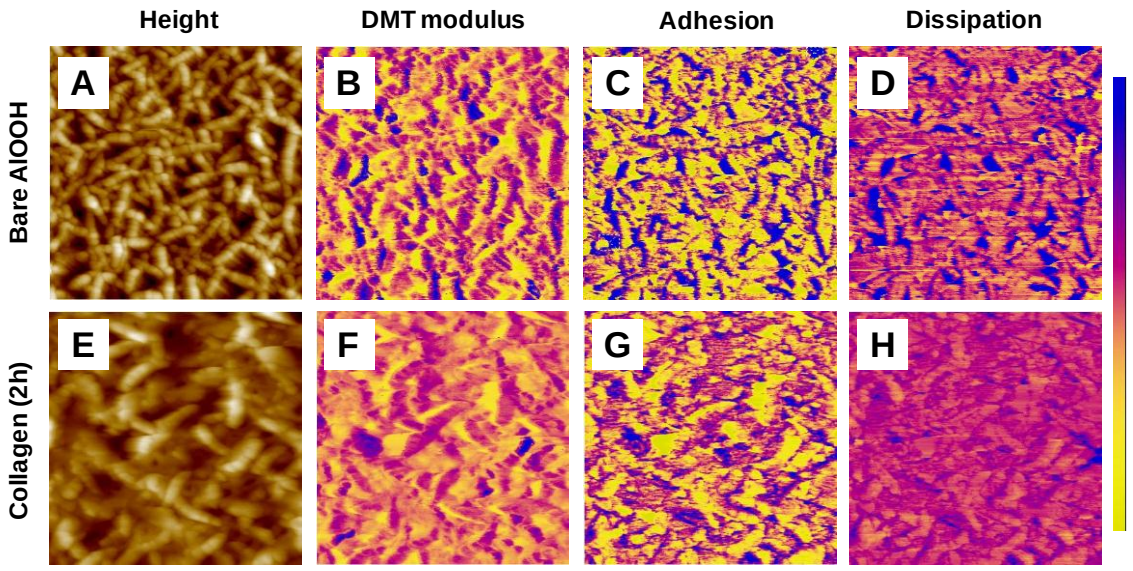

Figure S2. AFM height images (1 × 1 μm^2, peak force tapping, in air) and the corresponding DMT modulus, adhesion and dissipation maps recorded on AlOOH surface (A, B, C, D) prior to and (E, F, G, H) after adsorption of collagen (40 μg/mL, PBS) for 2h. z scales are defined after the calibration of the probe: (A,E) height 140 nm, (B, F) DMT modulus 200 MPa, (C, G) adhesion 1.5 nN and (D,H) dissipation 500 eV.