Electrochemically Stimulated Release of Lysozyme from Alginate Matrix Cross-Linked with Iron Cations

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Electronic Supplementary Information

Atomic force microscopy (AFM) was used to visualize film morphology and to perform the scratch analysis of a film thickness. A Dimension 3100 microscope (Veeco Instruments, USA) operating in the tapping mode and BAS-Tap300 Silicon probes (Budget Sensors), having a tip radius of 10 nm, a spring constant of 40 $N \cdot m^{-1}$, and a resonance frequency of 300 kHz, were employed for the analysis. Commercial software supplied with the instrument was used for the image analysis. The composite alginate film for the AFM characterization was prepared electrochemically on a graphite electrode and then delaminated from the conducting support by applying potential of -2.0 V for 5 s. A freely floating polymer film was obtained after the electrode was transferred to a plastic tube and gently vortexed. For the AFM measurements the polymer film was placed on a glass slide.

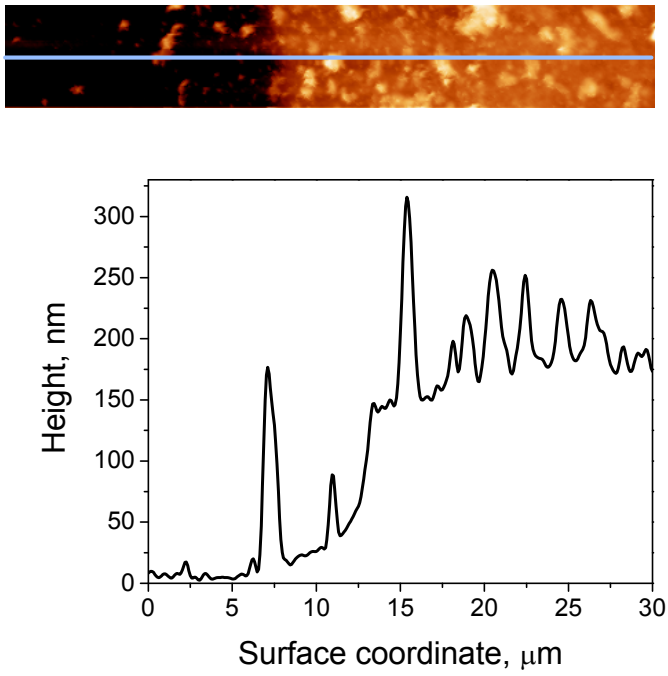

Figure S1. AFM topography image (top) and the corresponding cross-sectional profile of the lysozyme-loaded iron-ion-cross-linked alginate thin-film electrodeposited for 60 s (bottom). The film was measured near the edge of a needle scratch (the dark region on the image). The blue line shows the location where the cross-sectional profile was obtained. The average film thickness was found to be 192±35 nm.

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