Supporting Information.

Bioinspired Methodology to Fabricate Hydrogel Spheres for Multi-applications Using Superhydrophobic Substrates

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Figure S1: Confocal microscopy image of albumin-FITC encapsulated in an alginate hydrogel sphere. Although some protein aggregates may be observed, one can conclude that the protein is well distributed in the entire volume of the particle.

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Figure S2: Contamination experiment on the superhydrophobic surface: (A) typical scheme used in evaluating surface contamination; Fluorescent images of remnant albumin-FITC on the smooth (B) and superhydrophobic (C) polystyrene substrates after removing the chitosan hydrogel containing the fluorescent protein from the surface. These results show that there is no visible contamination on the superhydrophobic substrate by the encapsulated protein.
Figure S3: FTIR spectrum of the prepared chitosan particle. As expected the chitosan particles produced by this mild method presented the typical bands presented in chitosan. The band at 3416cm\(^{-1}\) corresponds to the combined peaks of the NH\(_2\) and OH group stretching vibration in chitosan. The band at 2927cm\(^{-1}\) is attributed to the symmetric or asymmetric CH\(_2\) stretching vibration. The band at 1659cm\(^{-1}\) is attributed to the CONH\(_2\) group. The band at 1546cm\(^{-1}\) is attributed to the NH-bending vibration in amide group. The band at 1415cm\(^{-1}\) is attributed to the vibrations of OH. The band from 1150-1040cm\(^{-1}\) is attributed to –C-O-C- in glycosidic linkage.
Figure S4: Scanning electron microscopy images (SEM) of chitosan particle surface untreated (A, B, C) and treated (D, E, F) by Ar plasma for 40min. Three different magnifications of each particle are shown.
Figure S5: SEM images of the inner structure of a chitosan particle. The porous structure is uniform and similar to the surface microstructure.