Supporting Information

Morphology control and surface functionalization of Protein-SiO_2 hybrid capsules

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S1: Interfacial tensiometry

S2: SEM-analysis emulsion templated mineralization using only CTAB

S3: Normalized Absorption of calcein modification

S4: Supernatant analysis of modified structures with calcein

S1: Interfacial tensiometry

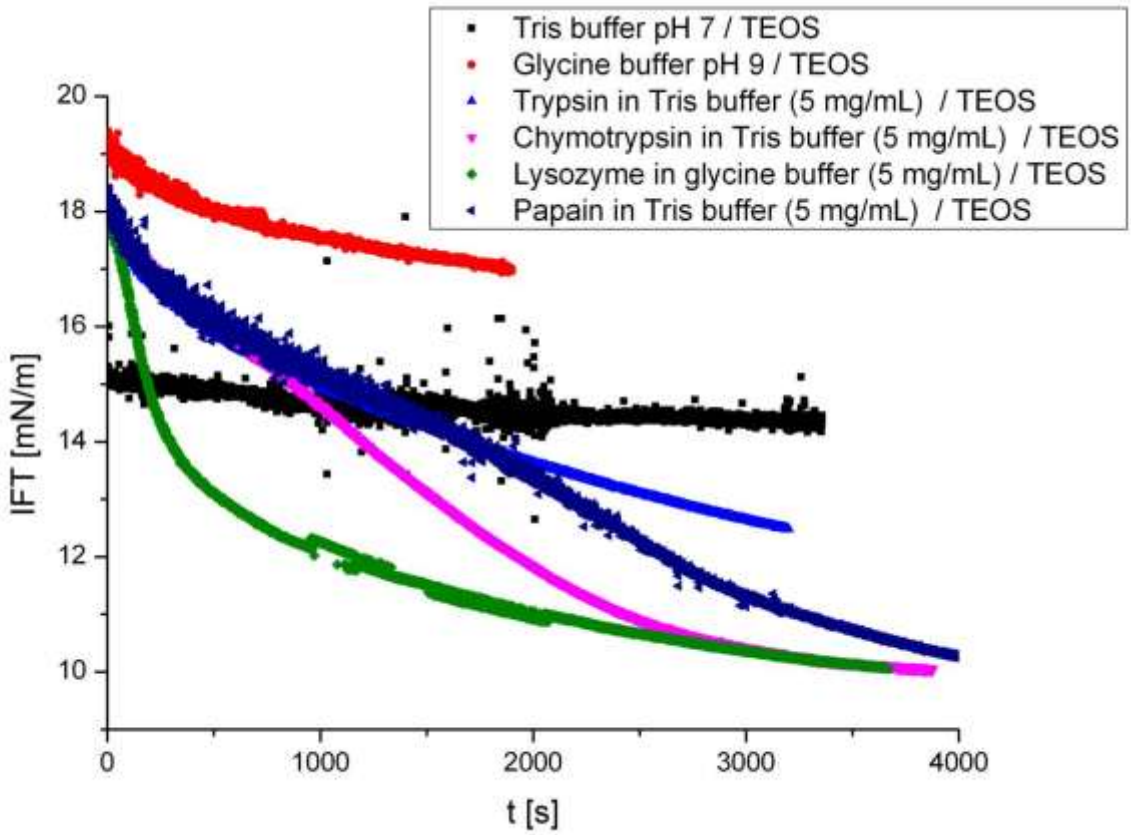

Figure S1: Interfacial tension measurements of interface between pure buffers and TEOS and between different protein solutions and TEOS.

S2: SEM-analysis emulsion templated mineralization using only CTAB

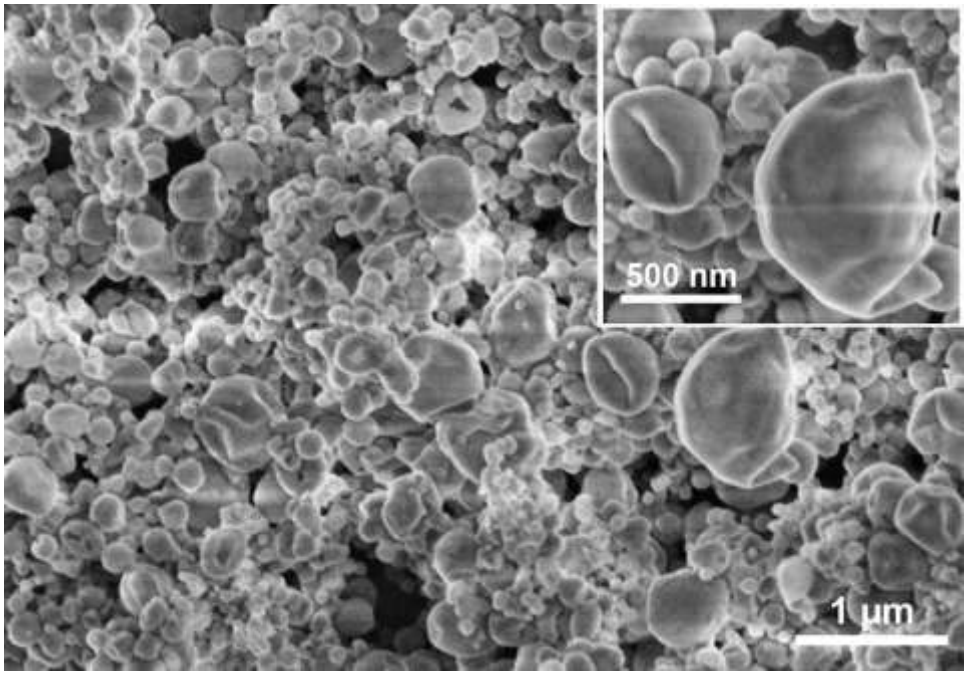

Figure S2: SEM images of SiO_2 capsules prepared via the TSA method using glycine buffer without lysozyme but only with CTAB. This provides insights in the contribution of CTAB with respect to mineralization reactivity and structure formation. Soft shells are found which are smooth and no specific fine-structure. This indicates that the specific combination of lysozyme and CTAB is needed for the folded structures shown in Figure 4 C/F of the main text.

S3: Normalized Absorption of calcein modification

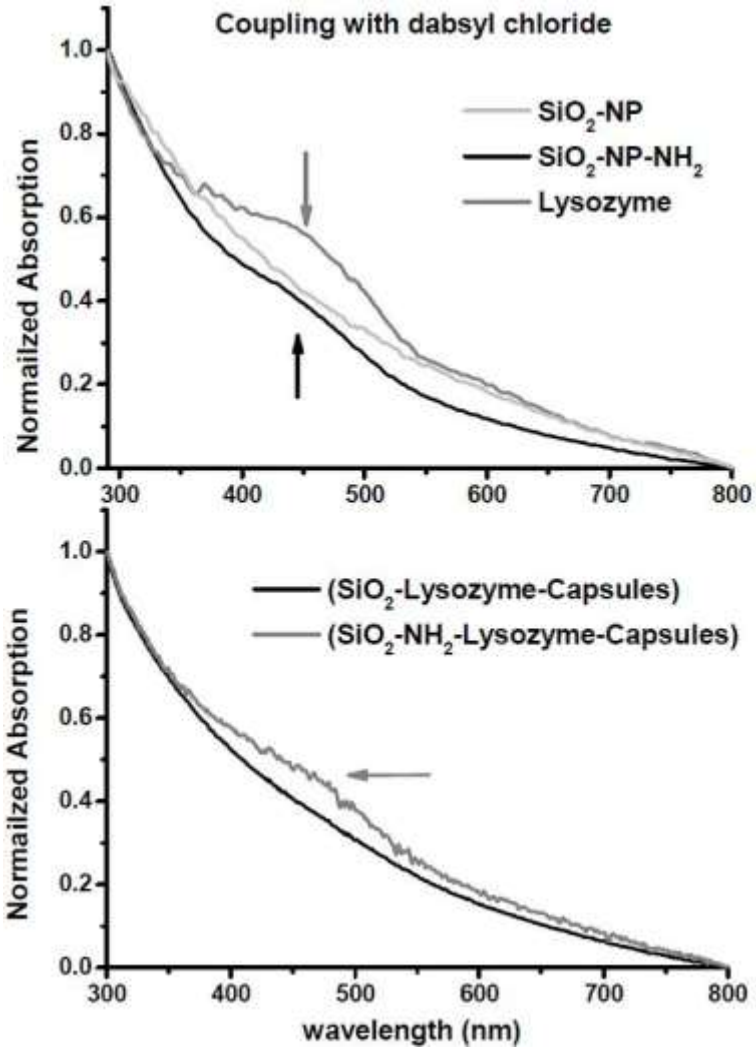

Figure S3: Absorption spectra of with dabsyl chloride modified structures: SiO_2-nanoparticles; SiO_2-NH_2 nanoparticles; Lysozyme (top); SiO_2-lysozyme capsules prepared according to the CA method as described in the main text using only TEOS and SiO_2-NH_2-lysozyme capsules prepared via the same approach but with a TEOS/APTMS mixture of ratio 98/2 (bottom).

S4: Supernatant analysis of modified structures with calcein

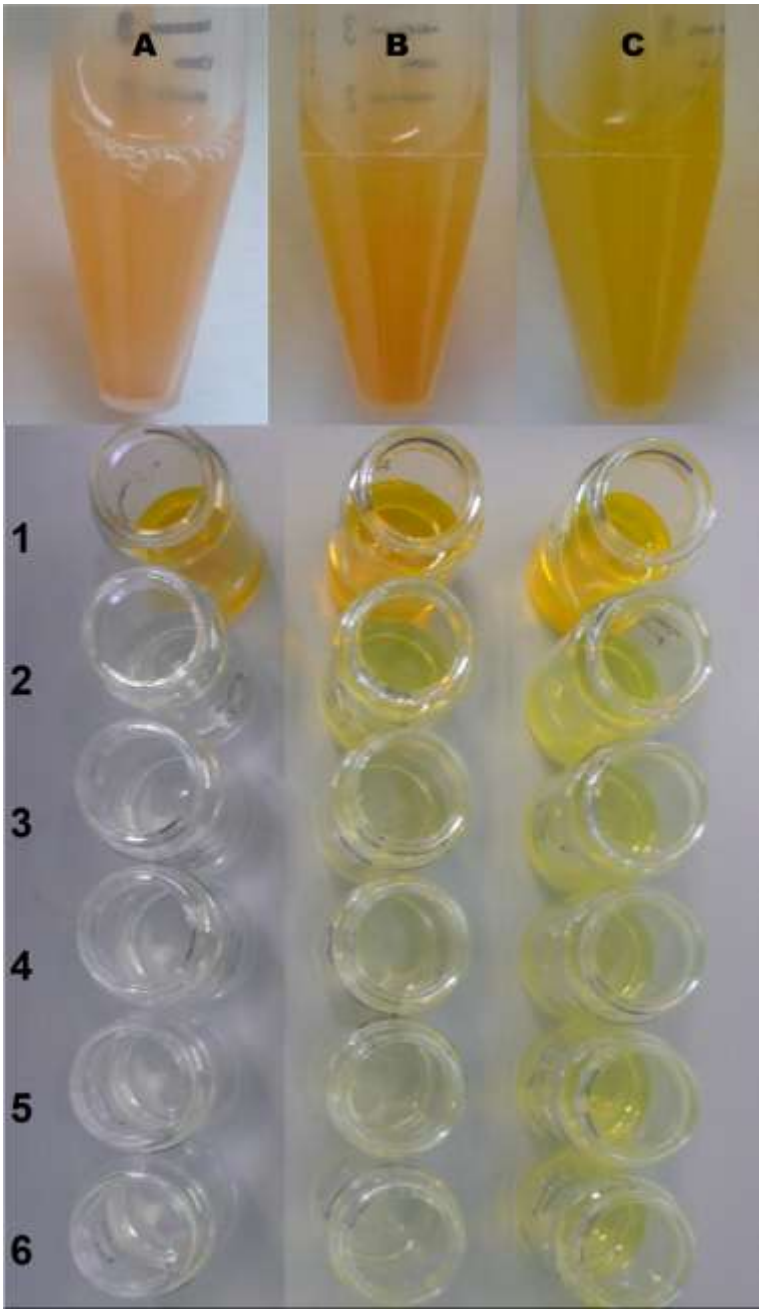

Figure S4: Supernatant collected after each washing step for : A) silica nanoparticle modified with APTMS; B) silica capsules modified with APTMS; C) silica capsules without modification.