

Supporting Information

Mesoscale crystallization of calcium phosphate nanostructures in protein (casein) micelles

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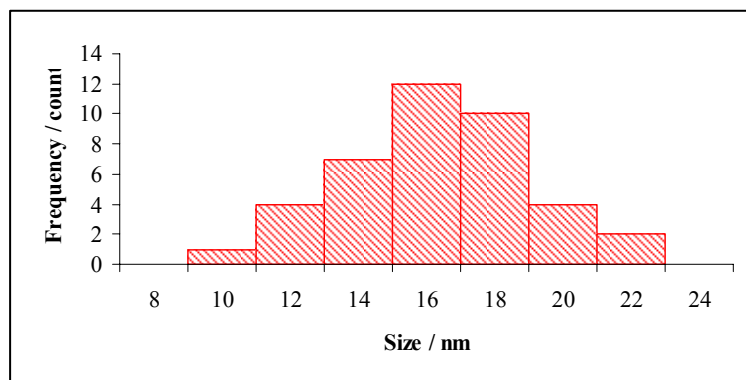


Figure S1. Particle size distribution of electron-dense nanoparticles released from casein micelles after heating for 2 days at 60 °C.

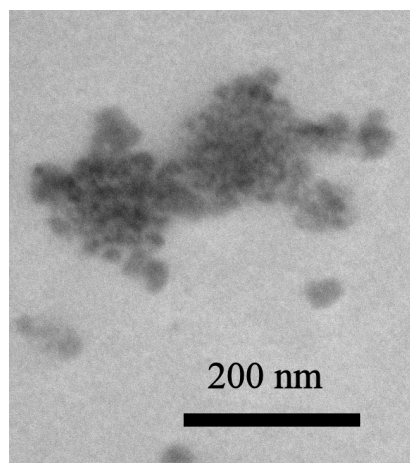


Figure S2 TEM image of casein micelles after incubation at 60 °C for 3 weeks showing distinct change in internal texture.

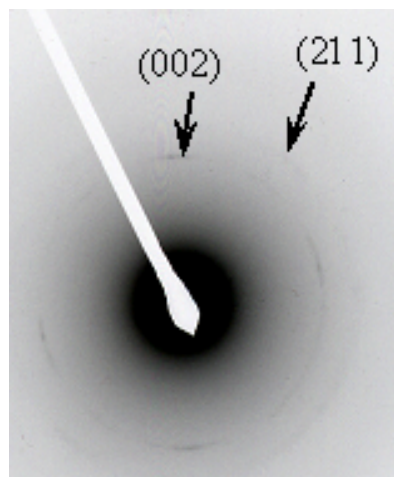


Figure S3 Electron diffraction pattern recorded on casein micelles after 12 weeks showing HAP electron diffraction pattern with (211) and (002).

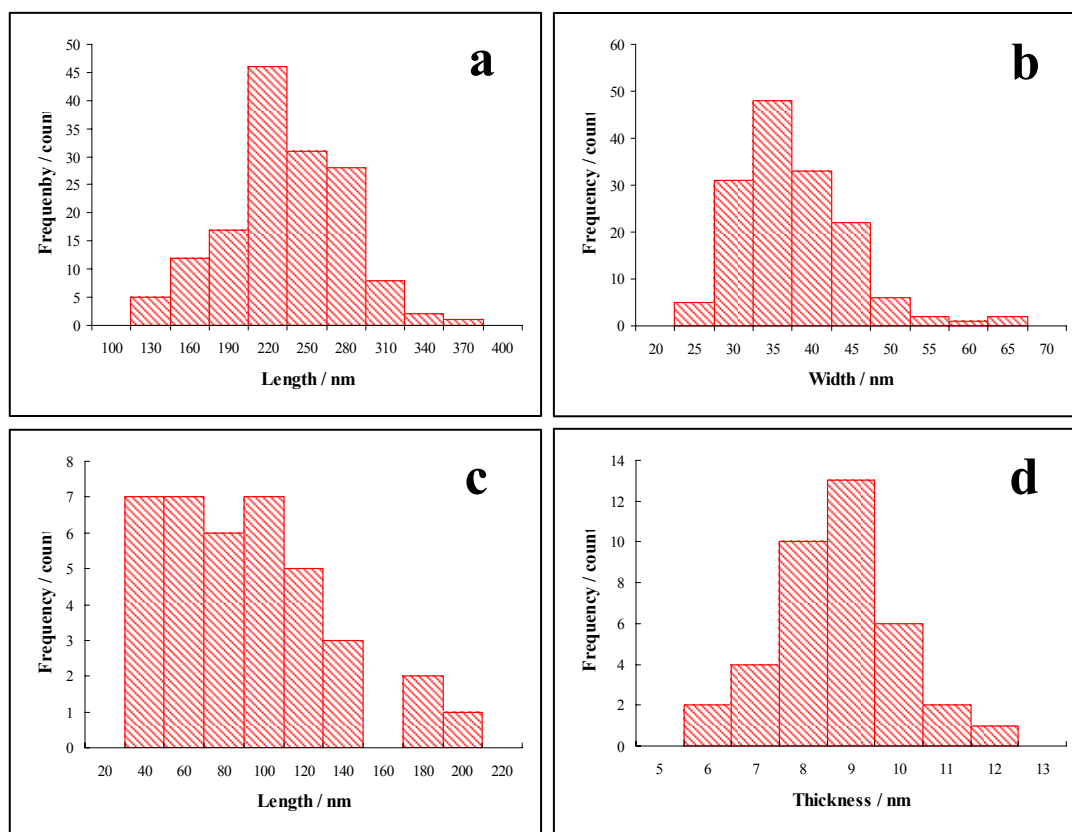


Figure S4 Histograms of (a) length and (b) width of filament bundles, and (c) length and (d) width of individual filaments produced after thermal treatment of casein micelles for 12 weeks.

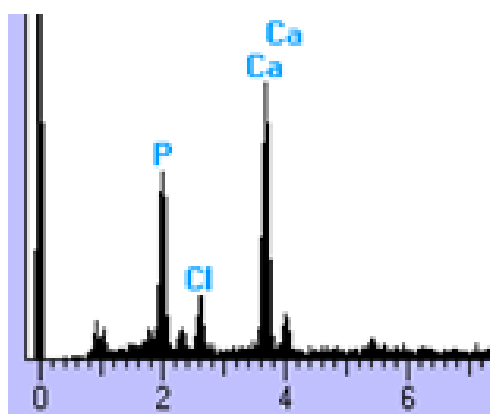


Figure S5. EDX spectrum of calcium phosphate/protein nanoparticles produced by mineralization of β -casein micelles.

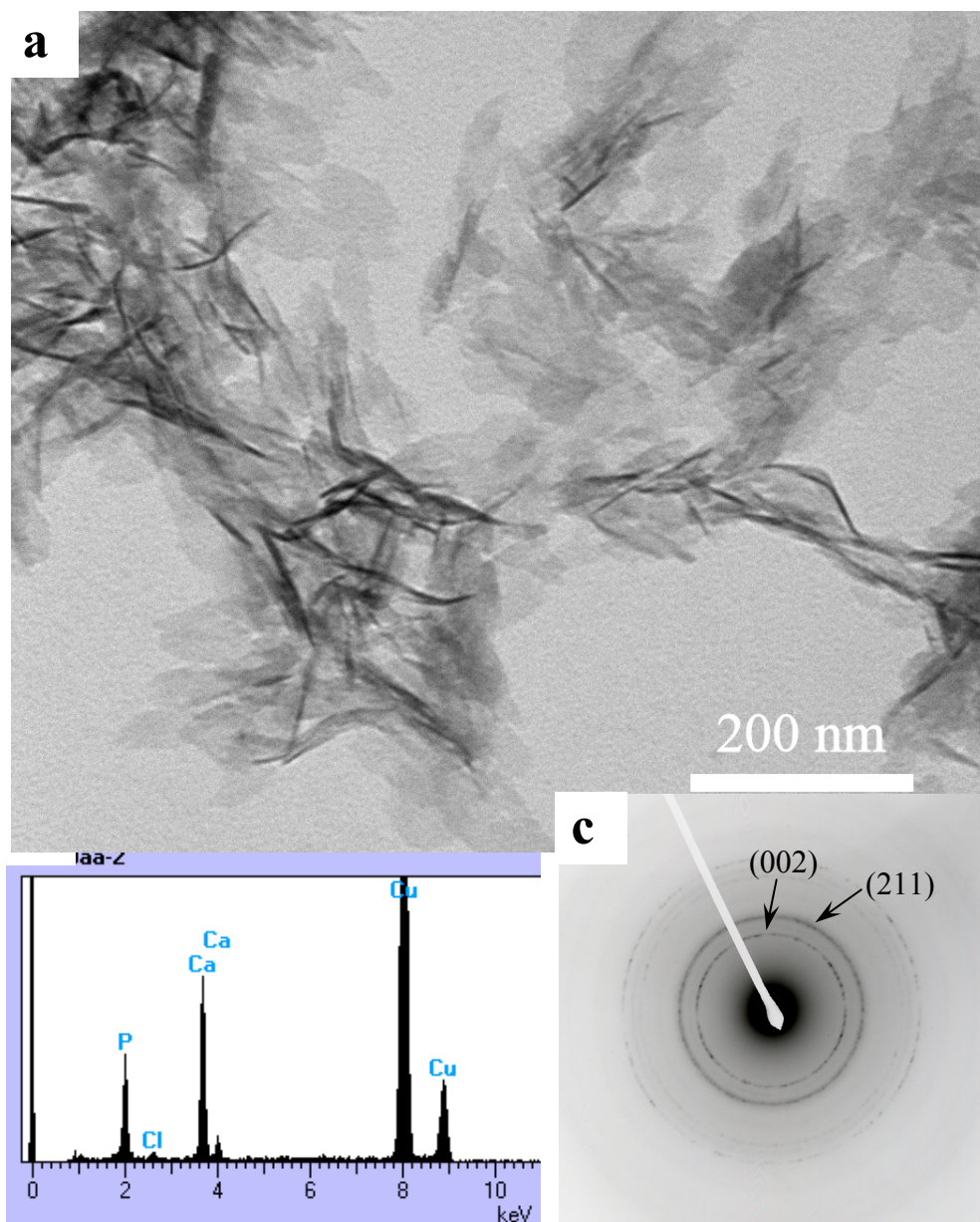


Figure S6 (a) TEM image of the control sample prepared in absence of β -casein at room temperature after 24 hrs, showing aggregates of plate-like particles, (b) corresponding EDX spectrum and (c) SAED pattern, showing powder ring pattern with d spacings at (hkl) indices corresponding to 3.46 (002), 2.81 (211), 1.96 (222), 1.85 (213) and 1.71 Å (004) planes of crystalline hydroxyapatite (HAP).

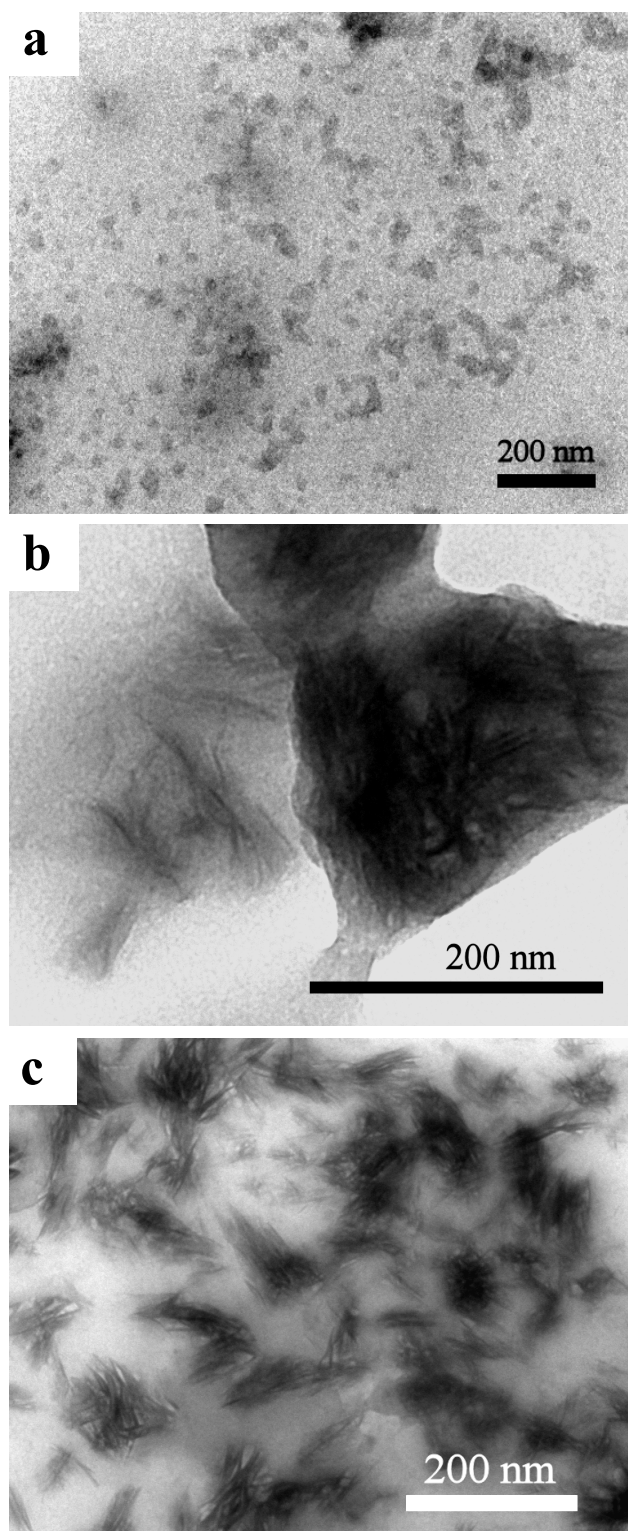


Figure S7 TEM images of calcium phosphate-containing β -casein micelles. (a) after 24 hours at 4°C showing discrete nanoparticles. (b) after 24 hours at 4°C, then 24 hours at 35 °C, showing large electron dense aggregates with internal HAP nanofilaments. (c) after 24 hours at 4°C, then 24 hours at 60 °C showing large numbers of micelles with internally located HAP nanofilament bundles.