

Hydroxyapatite Particles from Simulated Body Fluids with Different pH and Their Effects on Mesenchymal Stem Cells

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1. Characterization of precipitates from 1.5SBFs

Surface of micro-sized particles obtained from 1.5SBF at pH 7.4 were observed by transmission electron microscopy (TEM) (Figure S1). Energy dispersive X-ray (EDX) spectra of precipitates were obtained using Esprit 1.9 (Bruker Nano GmbH, Berlin, Germany) with scanning electron microscopy (SEM) (SU8010) (Figure S2) and JED-2300T (JEOL Ltd., Tokyo, Japan) equipped with TEM (JEM-2100F) (Figure S3). Ca/P ratios were calculated from the detected results of peaks.

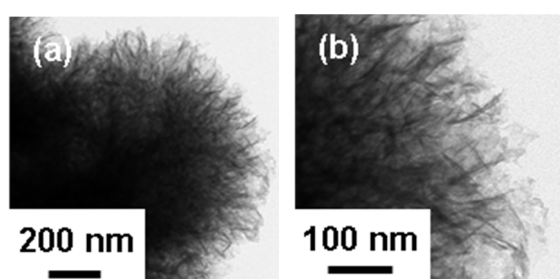


Figure S1. TEM images of the precipitates from 1.5SBF at pH 7.4. Scale bar: 200 nm (a), and 100 nm (b).

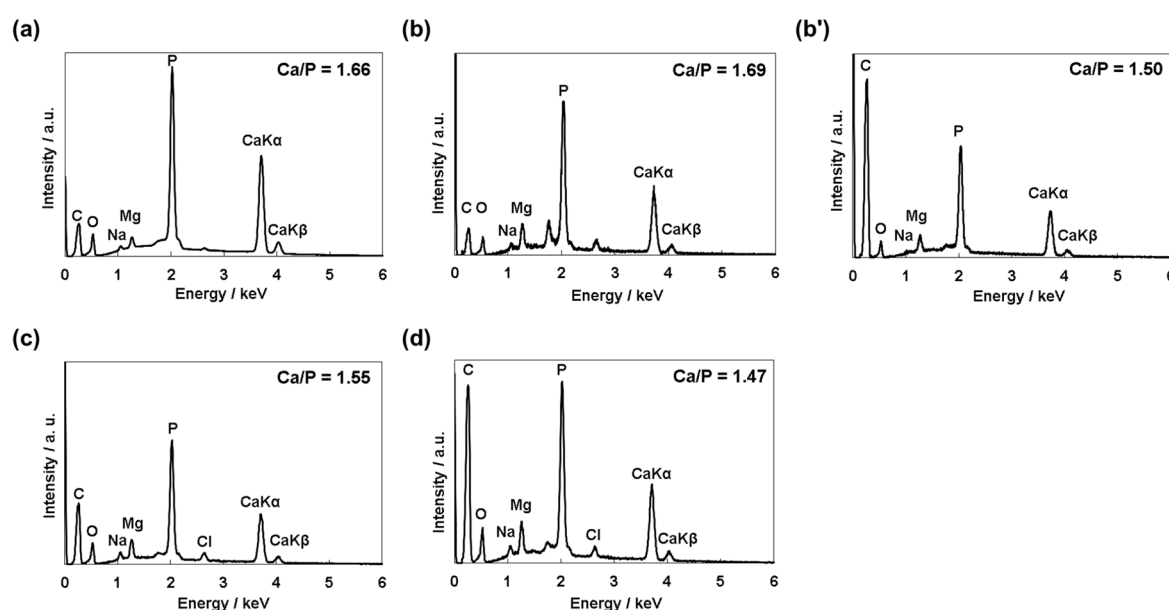


Figure S2. SEM-EDX profiles of precipitates obtained from 1.5SBF at pH 7.4 (a), pH 7.7 (micro-sized particles, (b), nano-sized particles, (b'), pH 8.0 (c), and pH 8.4 (d).

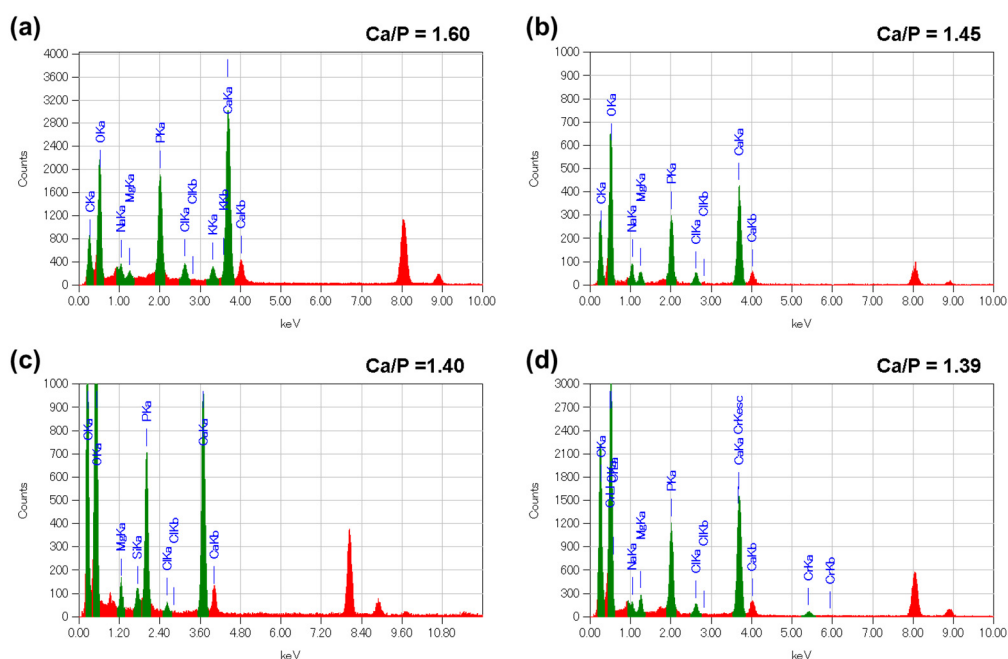


Figure S3. TEM-EDX spectra of precipitates obtained from 1.5SBF at pH 7.4 (a), pH 7.7 (nano-sized particles, (b), pH 8.0 (c), and pH 8.4 (d).

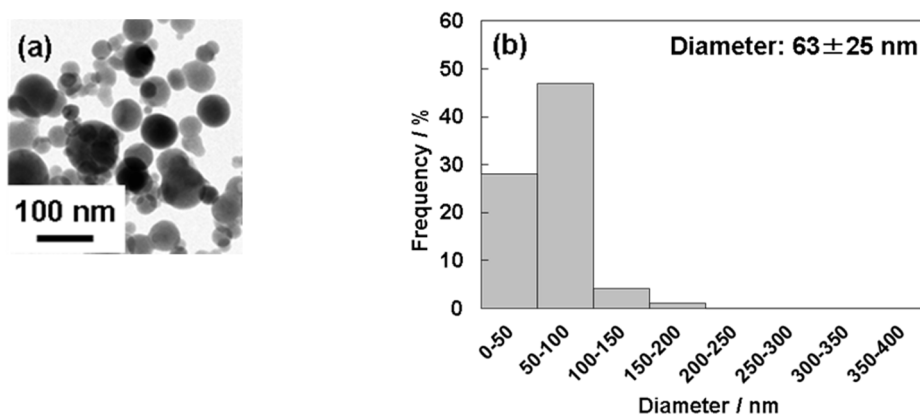


Figure S4. (a) TEM images of synthetic HAp particles. (b) Particles size distribution of chemically synthesized HAp particles. Diameters of particles were measured from TEM images.

Table S1. Calcium ion concentration measured by ICP-AES and estimates from yield in each pH of 1.5SBF after 24-h incubation.

pH	Measured [Ca ²⁺] from ICP / mg L ⁻¹	Estimated [Ca ²⁺] from yield / mg L ⁻¹
7.4	43.2	51.2
7.7	21.5	28.4
8.0	45.0	34.7
8.4	68.2	75.4