

# 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.

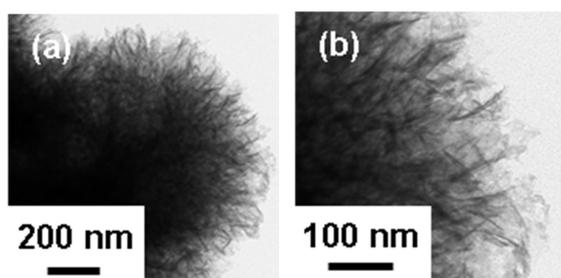
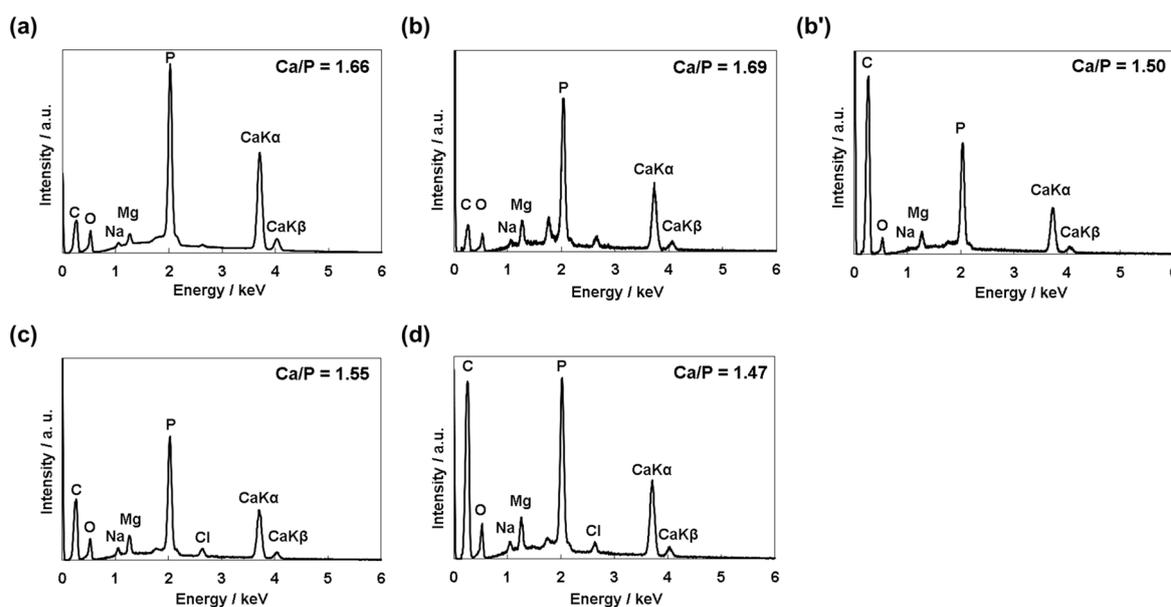
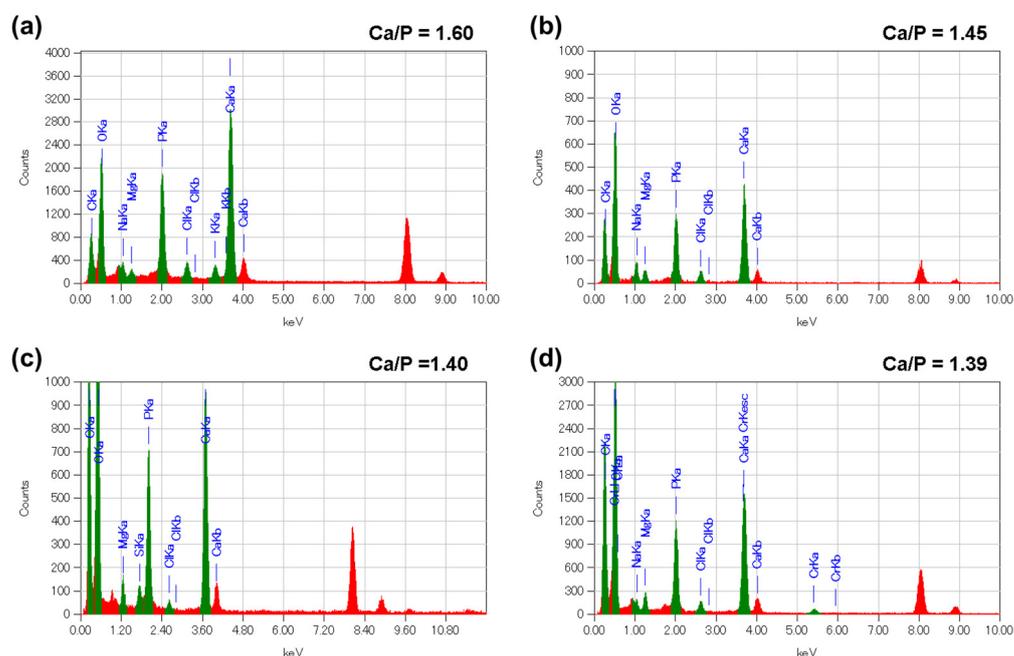


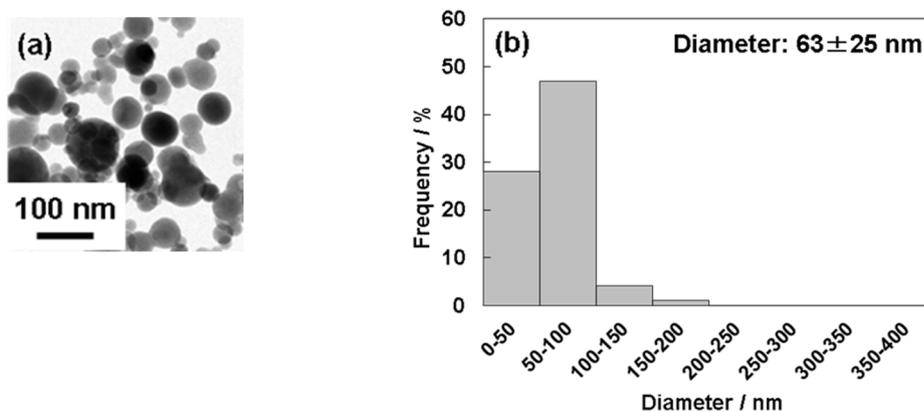
Figure S1. TEM images of the precipitates from 1.5SBF at pH 7.4. Scale bar: 200 nm (a), and 100 nm (b).



**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 <sup>2+</sup> ] from ICP / mg L <sup>-1</sup>	Estimated [Ca <sup>2+</sup> ] from yield / mg L <sup>-1</sup>
7.4	43.2	51.2
7.7	21.5	28.4
8.0	45.0	34.7
8.4	68.2	75.4