

Support information for:
Multistep Growth Mechanism of Calcium Phosphate in the Earliest
Stage of Morphology-Controlled Biomineralization

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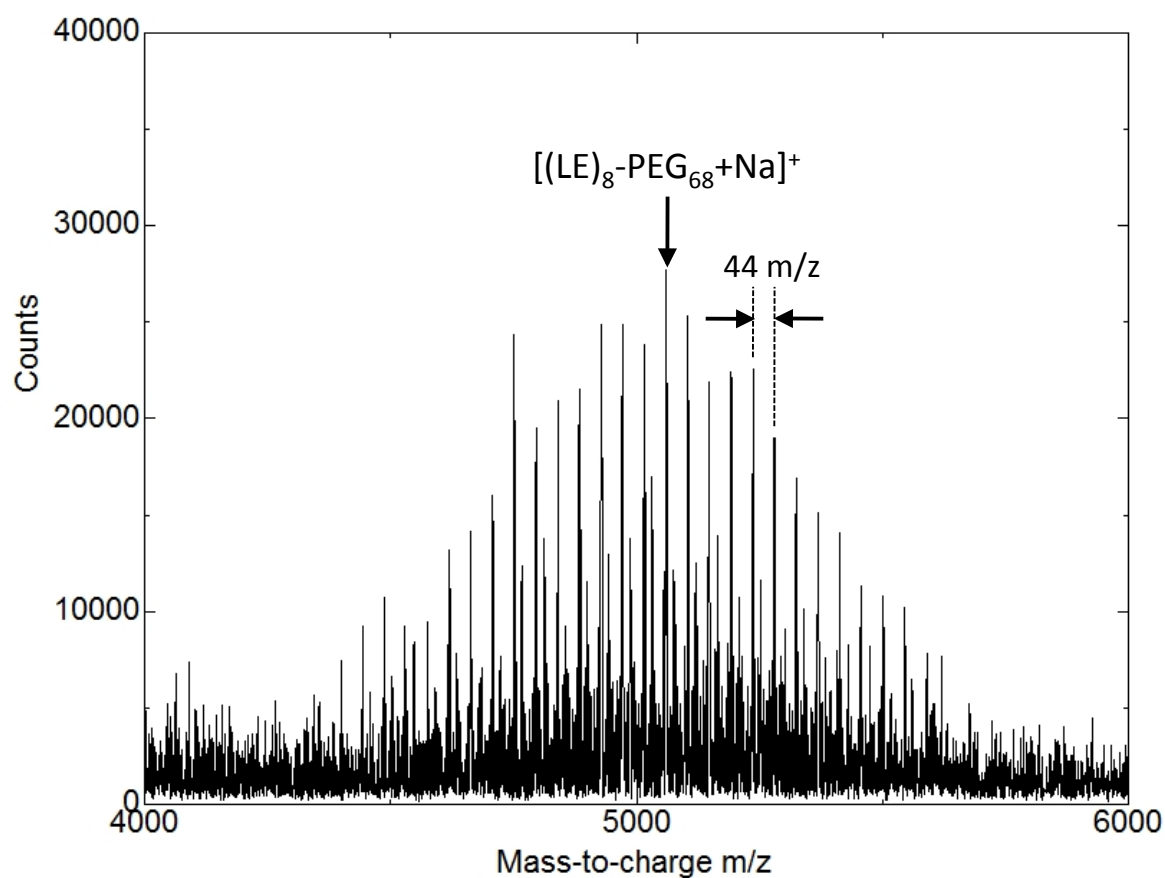
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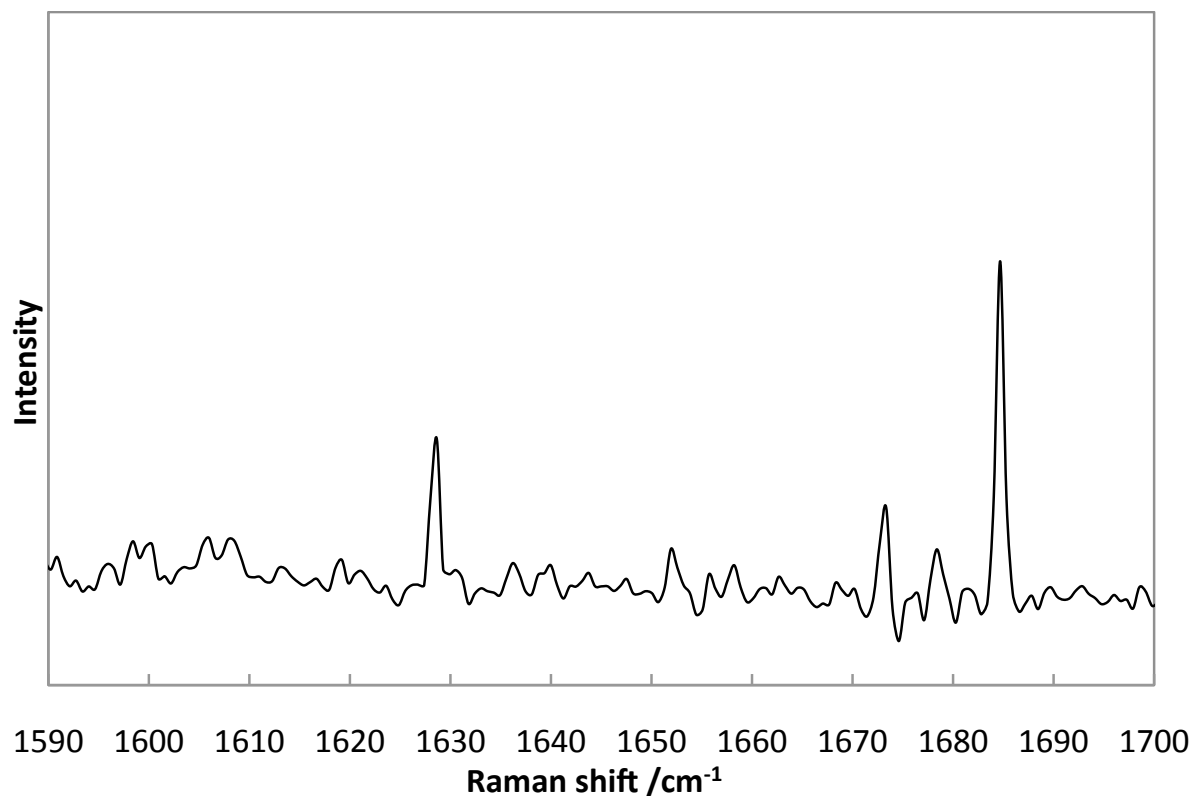
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S1. MALDI-TOF-MS spectrum of (LE)₈-PEG₇₀



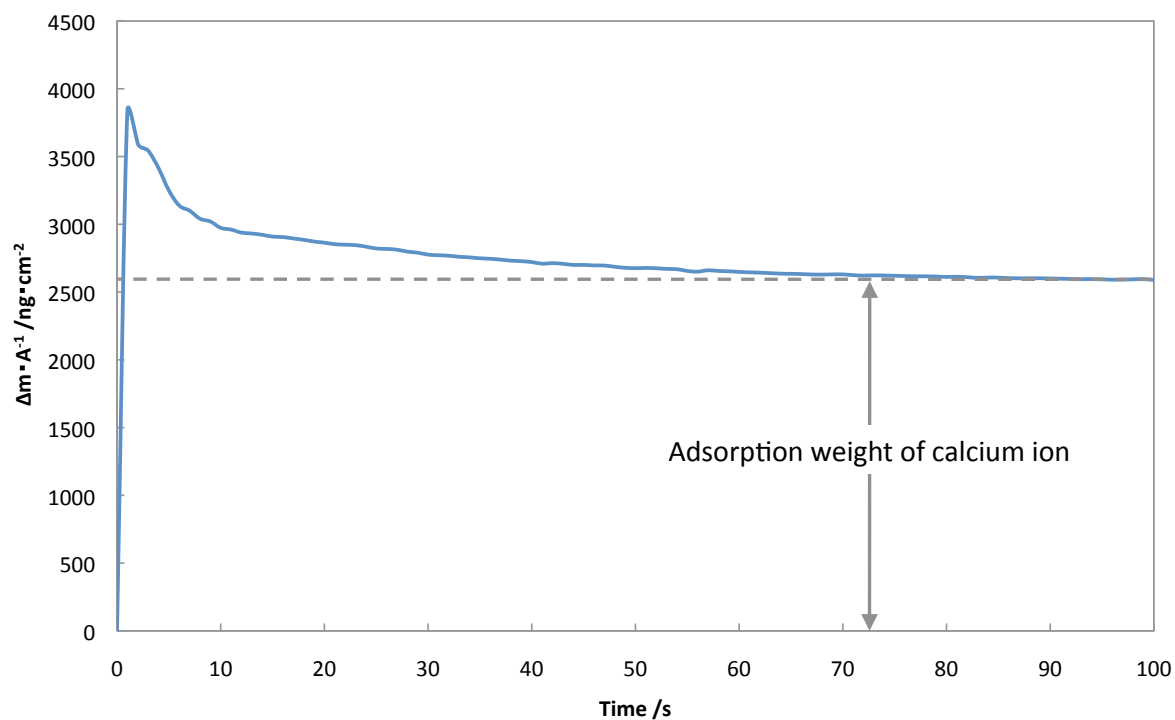
Peptide synthesis was confirmed by MALDI-TOF-MS. α -Cyano-4-hydroxycinnamic acid and 3-aminoquinoline were used as the matrix. The molecular weight distribution based on polyethylene glycol was observed from 4000 to 6000 m/z. The maximum peak is consistent with the mass of $(LE)_8-PEG_{68}+Na$.

S2. SERS spectrum of a (LE)₈-PEG₇₀ monolayer



The secondary structure of the (LE)₈-PEG₇₀ peptide monolayer was measured by SERS spectroscopy. The monolayer was formed on a gold-nanoparticle-coated glass substrate. The excitation wavelength was 532.1 nm. The peaks at 1628 and 1685 cm⁻¹ were assigned to amide I of the antiparallel β -sheet and the β -plated sheet, respectively.

S3. QCM isotherm of calcium-ion adsorption on a $(LE)_8\text{-PEG}_{70}$ monolayer



The weight of calcium ions onto the $(LE)_8\text{-PEG}_{70}$ monolayer was estimated from the difference between the zero base weight and the weight at adsorption equilibrium. If the weight increase in Figure 4 is solely caused by the adsorbed PO_4 , then, the Ca/P ratio is 0.97 as calculated from Ca and PO_4 adsorption measurement. This value is consistent with the value of 1.01 determined by EDX measurement.