Supplementary Material (ESI) for Chemical Communications

Electric Supplementary Information for:

Morphology Control of Calcium Phosphate by Mineralization on the β-sheet Peptide Template

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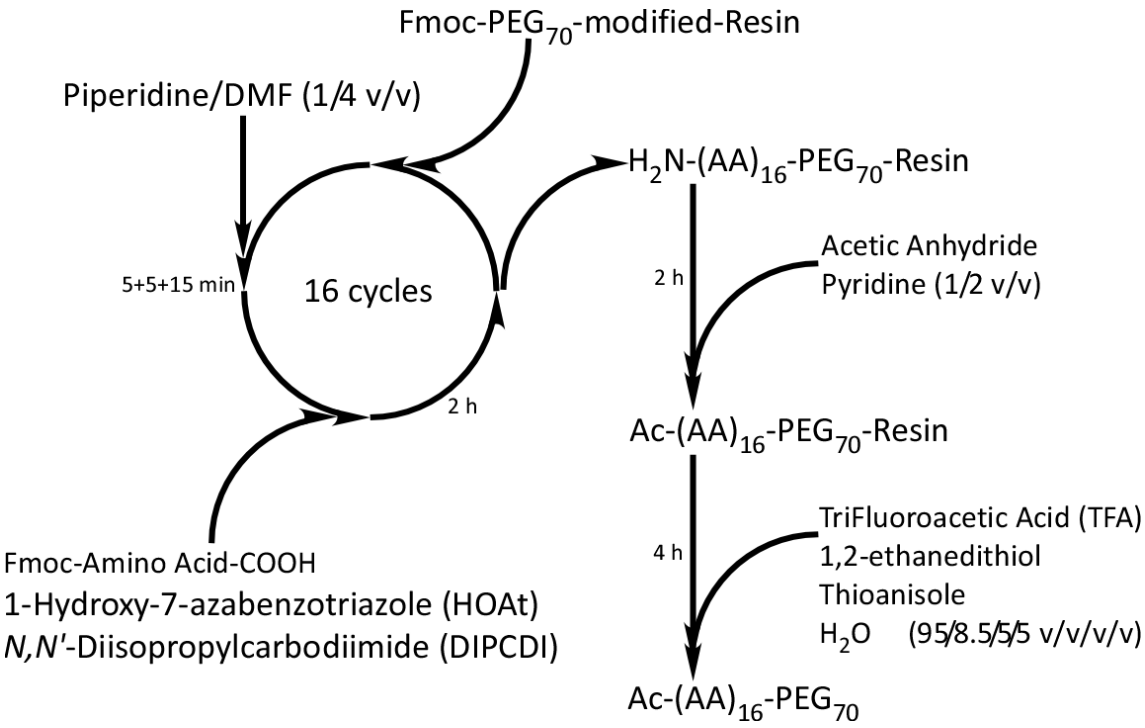
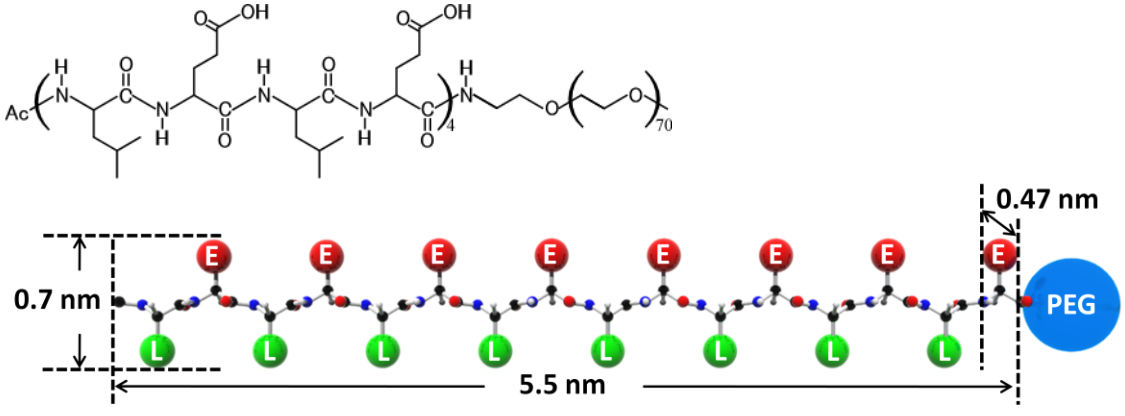
S1. Peptide synthesis by Fmoc solid phase peptide synthesis

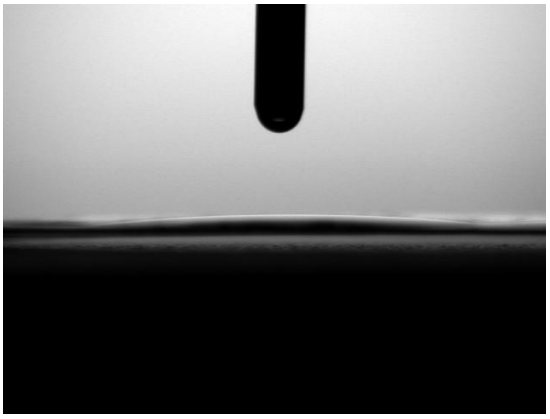


S2. β-sheet peptide – PEG copolymer (LE)$_8$-PEG$_{70}$ model



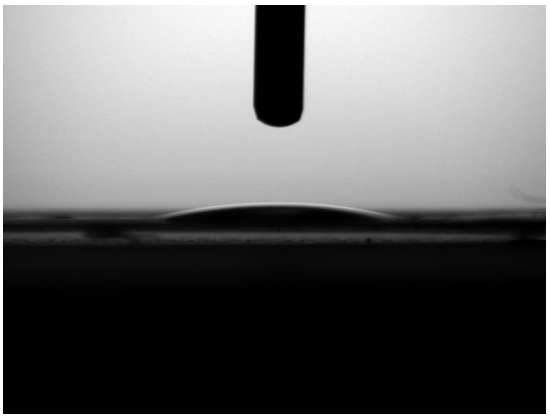
S3. Contact angle measurement

Mica surface



$(LE)_8$-PEG_{70} LB monolayer (Leucine is surface side)

$(LE)_8$-PEG_{70} LB monolayer (Glutamic acid is surface side)

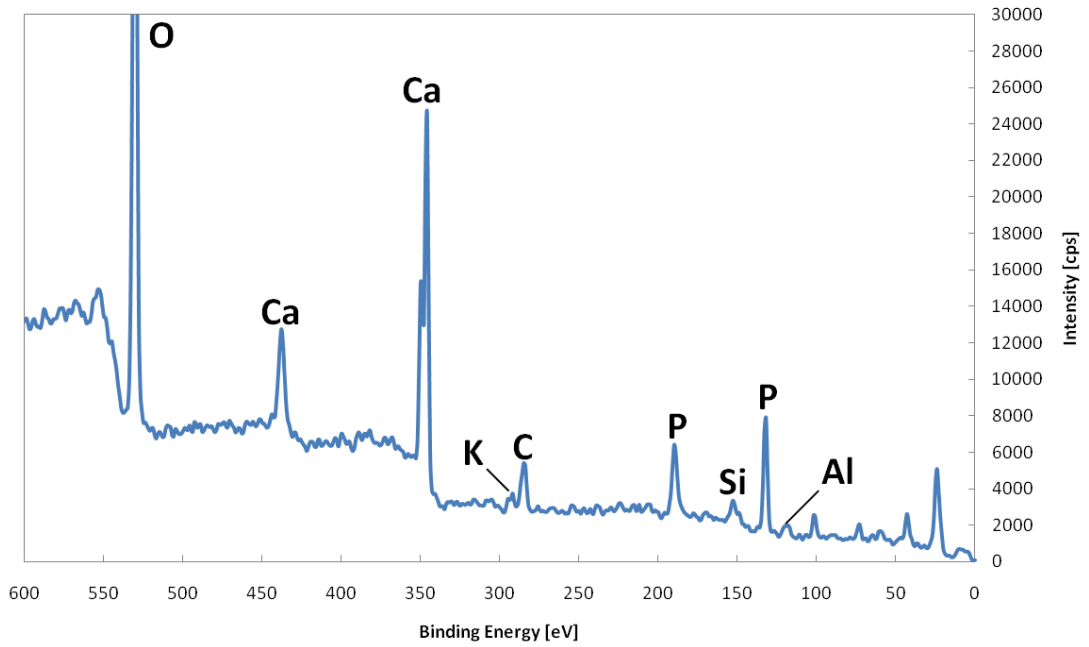


Adsorption monolayer

Surface	Contact angle [deg]
Mica surface	8.1
$(LE)_8$-PEG_{70} LB monolayer (Leucine is surface side)	43.5
$(LE)_8$-PEG_{70} LB monolayer (Glutamic acid is surface side)	13.9
Adsorption monolayer	17.6

The Langmuir-Blodgett method can control a molecular direction precisely. The two types of the $(LE)_8$-PEG_{70} monolayer of the leucine surface (hydrophobic side) and the glutamic acid surface (hydrophilic side) were prepared, and an adsorption film was compared with the LB films. A contact angle value of the adsorption film was similar to the glutamic acid surface one.

S4. XPS spectrum of precipitate on peptide scaffold



Mica : $KAl_2(Si_3Al)O_{10}(OH)_2$

Element	Atom [%]
K	15.0
Al	43.9
Si	41.1

CaP

Element	Atom [%]
Ca	54.2
P	45.8

Element	Binding Energy
C	284(1.00) $1S_{1/2}$
O	532(2.93) $1S_{1/2}$
Al	118(.753) $2S_{1/2}$
Si	149(.955) $2S_{1/2}$
P	189(1.18) $2S_{1/2}$
	135(.789) $2P_{3/2}$
K	294(2.62) $2P_{3/2}$
	438(2.59) $2S_{1/2}$
Ca	350(1.72) $2P_{1/2}$
	347(3.35) $2P_{3/2}$

S5. AFM image of calcium phosphate nanofiber