[Supporting Information]

Mechanically Durable and Biologically Favorable Protein Hydrogel Based on Elastic Silk-like Protein Derived from Sea Anemone

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MATERIALS AND METHODS

Circular dichroism analysis of purified recombinant aneroin

For secondary structural analysis using circular dichroism (CD), recombinant aneroin was further highly purified using reverse-phase high-performance liquid chromatography (HPLC). Aneroin was dissolved in 40% (wt/vol) formic acid and injected into reverse-phase HPLC (Shimadzu, Tokyo, Japan) with a C18 column (4.6 mm × 250 mm; Perkin Elmer, Waltham, MA, USA). Samples were eluted using a linear gradient of acetonitrile (0-100%, vol/vol) in 0.1% (vol/vol) trifluoroacetic acid (TFA), and monitored by a photodiode array (PDA) detector at 254 nm. Then, CD analysis of highly purified aneroin was performed for secondary structure estimation. Aneroin sample was dissolved in 10 mM potassium phosphate buffer (pH 3.0) to be a final concentration of 0.2 mg/ml. Spectra of CD (Jasco, Tokyo, Japan) were recorded with scan rate of 20 nm/min between wavelengths 190-240 nm, and 0.2-mm path length of quartz cuvettes was used. Baseline spectrum was subtracted from sample spectra and the graph was smoothed using the software supplied by the manufacturer. Data were collected three times and averaged.

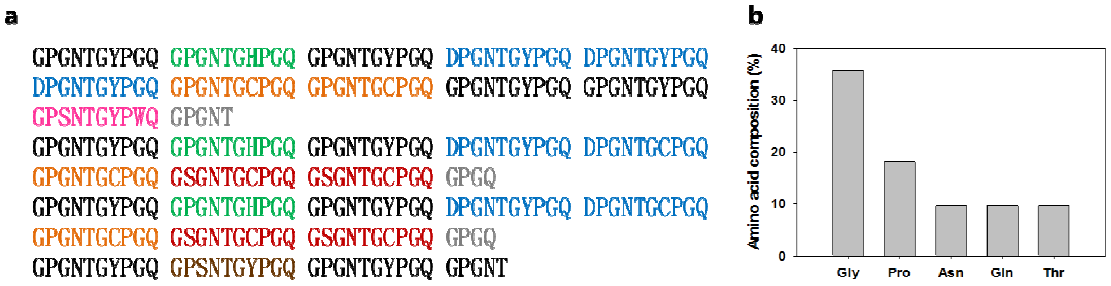

Figure S1. (a) Amino acid sequence and (b) composition of aneroin protein. The same decamers are indicated with same colors.

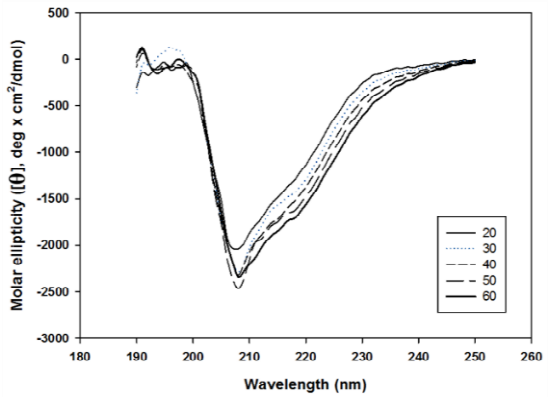

Figure S2. Circular dichroism analysis of recombinant aneroin.