Supplementary materials for

Fabrication of hierarchical bioinspired superstructures bearing different charges and tunable ability to promote protein crystallization

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Figure S4. DSC results of the diblock copolymers.
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![AFM images of PNAG-g-COOH-b-PNOG](image1)

**Figure S10.** Influence of DP of PNAG-g-NH$_2$-b-PNOG on $L_n$. AFM images of (a) PNAG$_{16}$-g-NH$_2$-b-PNOG$_{72}$ and (b) PNAG$_{13}$-g-NH$_2$-b-PNOG$_{40}$ in 1 % (v/v) chloroform in methanol incubated at 25 °C.

![AFM images of PNAG-g-NH$_2$-b-PNOG](image2)
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**Figure S13.** Plots of the height of core versus the number of branches. The red line represents the plot of the height of core versus the number of branches of PNAG$_{16}$-g-NH$_2$-b-PNOG$_{72}$ assemblies. The black line represents the plot of the height of core versus the number of branches of PNAG$_{16}$-g-COOH-b-PNOG$_{72}$ assemblies.
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![AFM images of PNAG$_{16}$-g-NH$_2$-b-PNOG$_{72}$](image)

**Figure S16.** The star-like assemblies of (a) PNAG$_{16}$-g-NH$_2$-b-PNOG$_{72}$ and (b) PNAG$_{16}$-g-COOH-b-PNOG$_{72}$ upon re-dispersion in water.

![AFM images of star-like assemblies](image)
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**Figure S20.** FTIR spectra of lysozyme crystals grown at 4 °C for 48 h. The black line represents the sample without additives. The blue line and the brown line represent the samples in the presence of PNAG-g-COOH-b-PNOG and PNAG-g-NH$_2$-b-PNOG, respectively. The red line and the green line represent the samples in the presence of the star-like assemblies and the nanosheets from PEG-b-PNOG.
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**Figure S26.** FTIR spectra of the thaumatin crystals grown at 10 °C for 48 h. The black line represents the sample without additives. The blue line and the brown line represent the samples in the presence of PNAG-\textit{g}-COOH-\textit{b}-PNOG and PNAG-\textit{g}-NH\textsubscript{2}-\textit{b}-PNOG, respectively. The red line and the green line represent the samples in the presence of the star-like assemblies and the nanosheets from PEG-\textit{b}-PNOG.
**Figure S27** CD spectra of the thaumatin solution. The black line represents the sample without additives. The blue line and the brown line represent the samples in the presence of PNAG-g-COOH-b-PNOG and PNAG-g-NH$_2$-b-PNOG, respectively. The red line represents the star-like assemblies from PEG-b-PNOG.
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![Photographs of the concanavalin A crystals](image)

**Figure S29.** Photographs of the bovine insulin crystals crystallized at 18 °C for 72 h in the absence, (a) and presence of (b) 0.5 mg/mL PNAG-\(g\)-COOH-\(b\)-PNOG and (c) 0.5 mg/mL PNAG-\(g\)-NH\(_2\)-\(b\)-PNOG, respectively.

![Photographs of the bovine insulin crystals](image)
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**Figure S31.** (a) Concanavalin A crystal percentage over a period of 2 days and (b) the bovine insulin crystal percentage over a period of 3 days. The black line represents the sample without additives. The red line and the blue line represent the samples in the presence of PNAG-\(g\)-COOH-\(b\)-PNOG and PNAG-\(g\)-NH\(_2\)-\(b\)-PNOG, respectively.
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