

Supplementary Materials

Article

A Sustainable Biomineralization Approach for the Synthesis of Highly Fluorescent Ultra-Small Pt Nanoclusters

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Consensus  GGRPSDSYGAPGGGN
MHHHHHHPEP  PVNSYLP
              PSDSYGAPGQSGP
              GGRPSDSYGAPGGGN
              GGRPSDSYGAPGQGQGQGQGQGGYAGK
              PSDSYGAPGGGNGN
              GGRPSSSYGAPGGGN
              GGRPSDTYGAPGGGN
              GGRPSDTYGAPGGGGNGN
              GGRPSSSYGAPGQGQGNGN
              GGRPSSSYGAPGSGN
              GGRPSDTYGAPGGGN
              GGRPSDTYGAPGGGNN
              GGRPSSSYGAPGGGN
              GGRPSDTYGAPGGGNGNGS
              GGRPSSSYGAPGQGQGGF
              GGRPSDSYGAPGQNQK
              PSDSYGAPGSGNGN
              GGRPSSSYGAPGSGP
              GGRPSDSYGPPASG

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Figure S1. Structural consensus and alignment of amino acid (single-letter code) repeat sequence in Rec1-resilin.

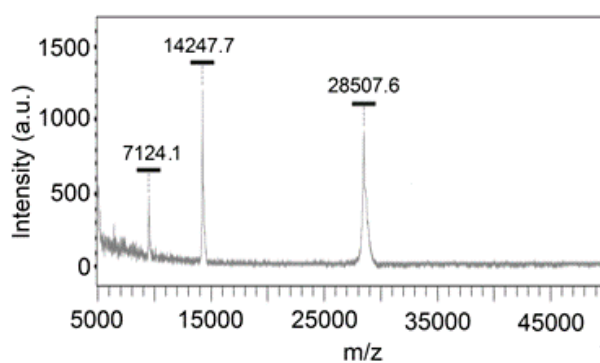


Figure S2. MALDI-TOF mass spectra of synthesized Rec1-resilin. The three m/z species (left to right) detected are the $[M+H]^+$, $[M+2H]^{2+}$ and $[M+3H]^{3+}$ species of the protein.

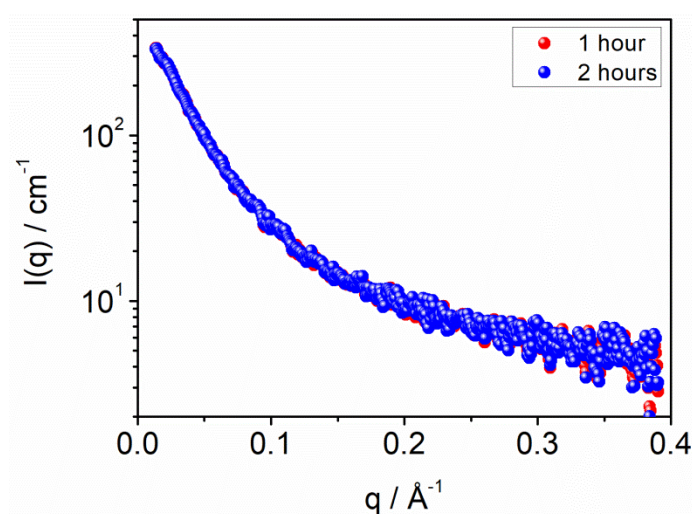


Figure S3. Effect of SAXS radiation time on scattering pattern of blue fluorescent Pt-NMQCs-Rec1-resilin nanobioconjugates.

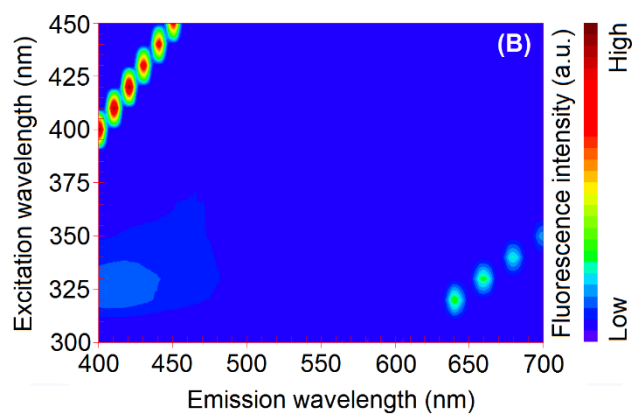


Figure S4. 3D-fluorescence contour plot of pristine Rec1-resilin (at pH > 10.5) equilibrated at 50 °C for 10 days.

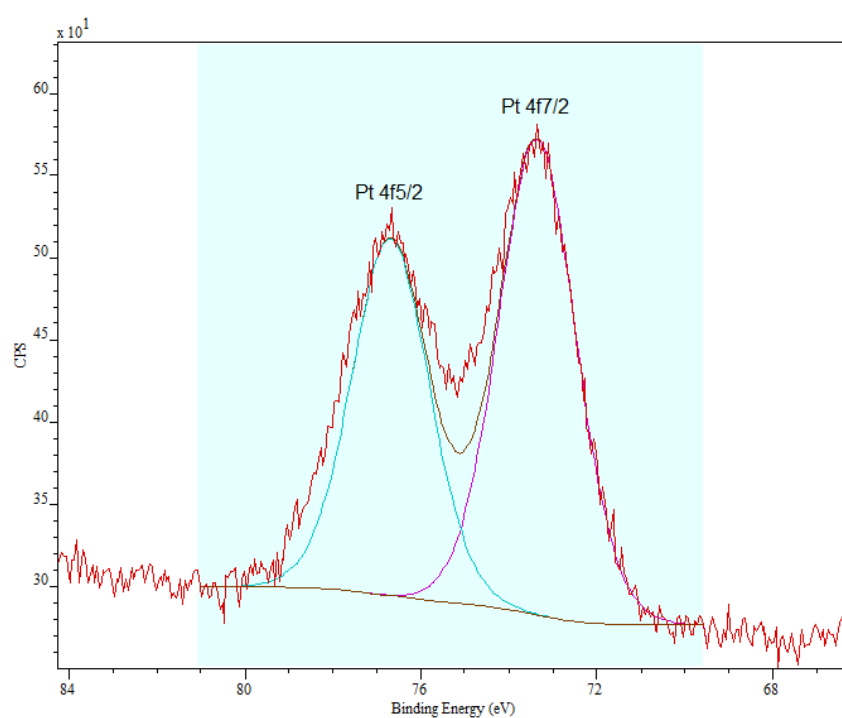


Figure S5. Pt 4f XPS spectrum and unimodel peak fit of blue fluorescent Pt-NMQCs-Rec1-resilin nanobioconjugates.

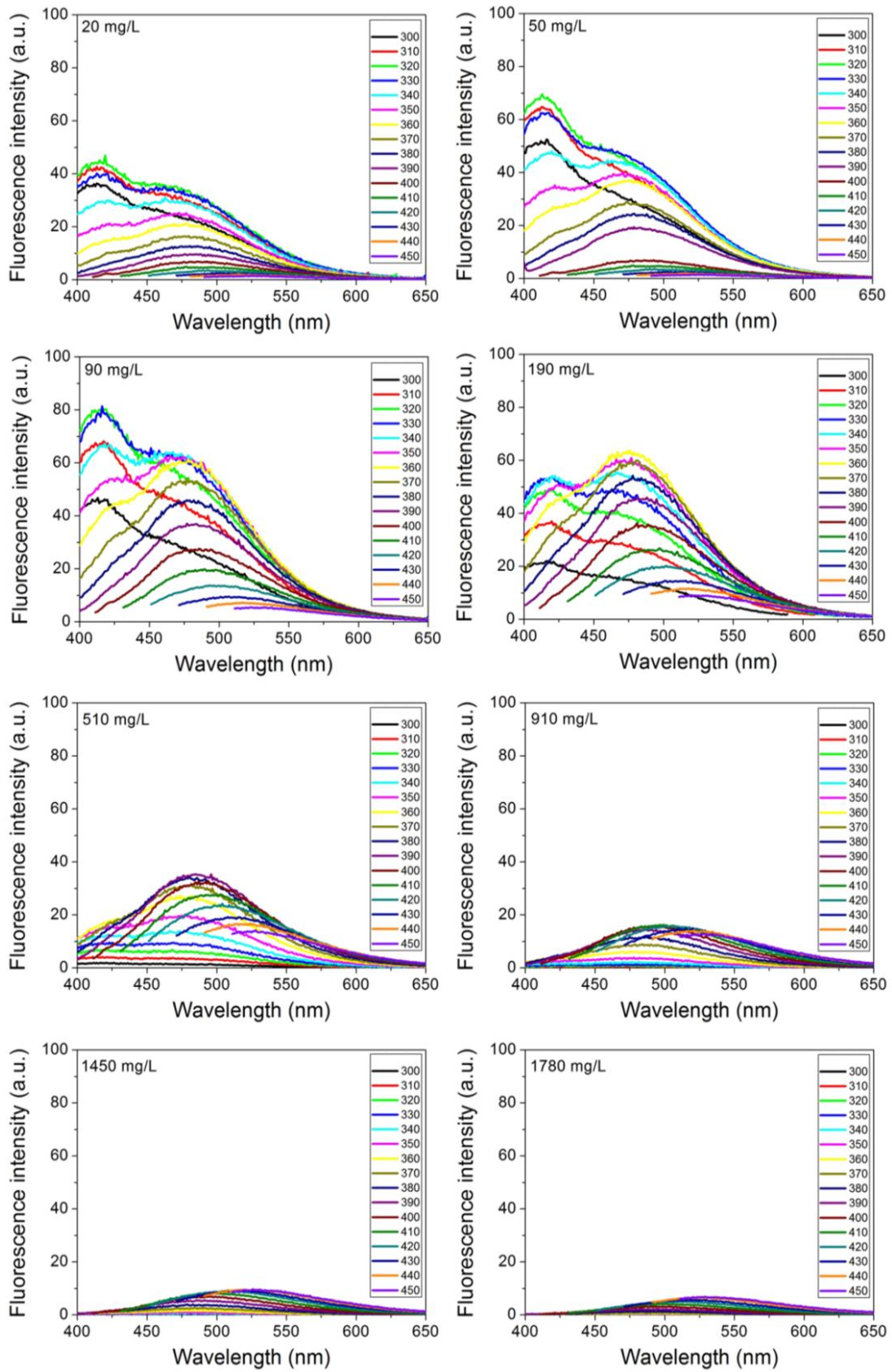


Figure S6. Fluorescence emission spectra of Pt-NMOCs-Rec1-resilin nanobioconjugates measured as a function of Pt concentration at different excitation wavelength (colour legends).

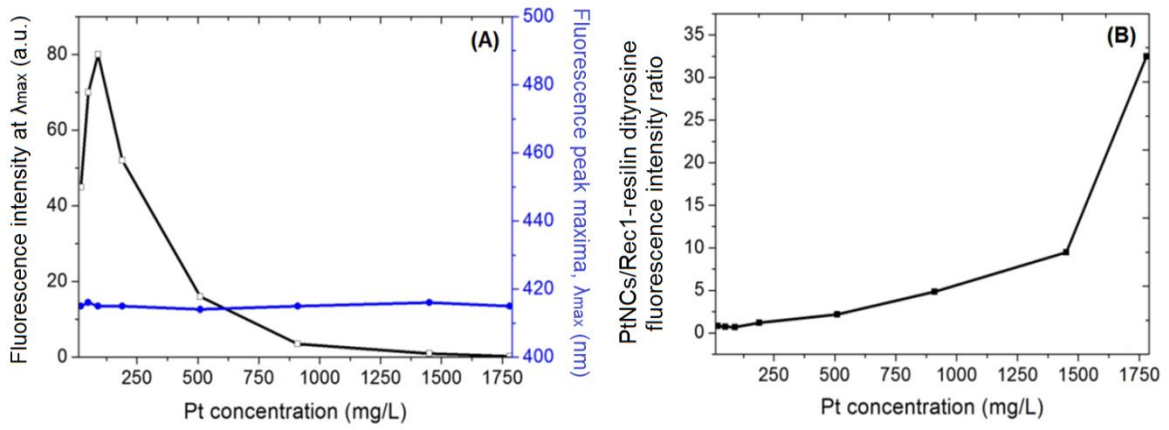


Figure S7. (A) Dityrosine fluorescence peak position (blue) and intensity (black) of Rec1-resilin at different Pt concentration. (B) Dityrosine fluorescence intensity ratio of Pt-NMQCs-Rec1-resilin nanobioconjugates to Rec1-resilin at different Pt concentration.



Figure S8. Photograph of green fluorescent Pt-NMQCs-Rec1-resilin nanobioconjugate dispersion under 365 nm UV light after storage at ambient temperature for almost a year.