

Figure S2. FTIR spectrum of the [RF]<sub>4</sub> octapeptide.

### 3. Potentiometric Titration

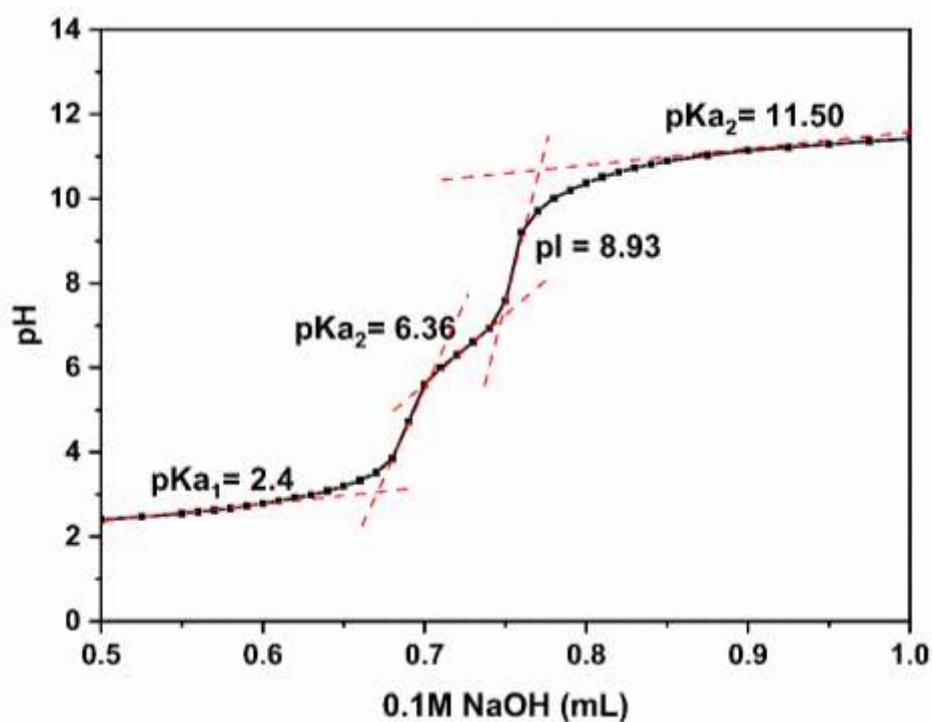


Figure S3. Titration curve of the [RF]<sub>4</sub>-NPs after dissolution showing changes in pH in function of OH<sup>-</sup> content in aqueous solution.

### 4. Dynamic Light Scattering Analysis

Table S2. Hydrodynamic diameter of [RF]<sub>4</sub>-NPs in PBS solution over time.

Measurement Day	1	2	3	4
Hydrodynamic Diameter	250 ± 8	256 ± 3	254 ± 6	256 ± 8

## 5. Absorbance Spectra

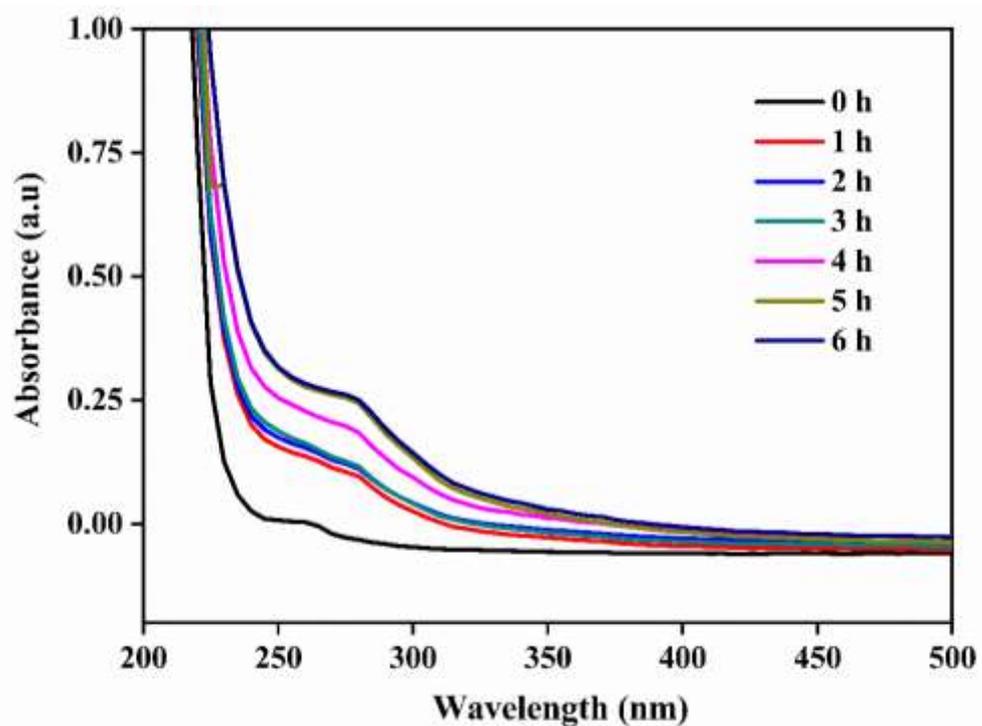


Figure S4. The absorption spectra of the [RF]<sub>4</sub> solution, acquired as a function of sonication time.

## 6. Size-Exclusion Chromatographic Analysis

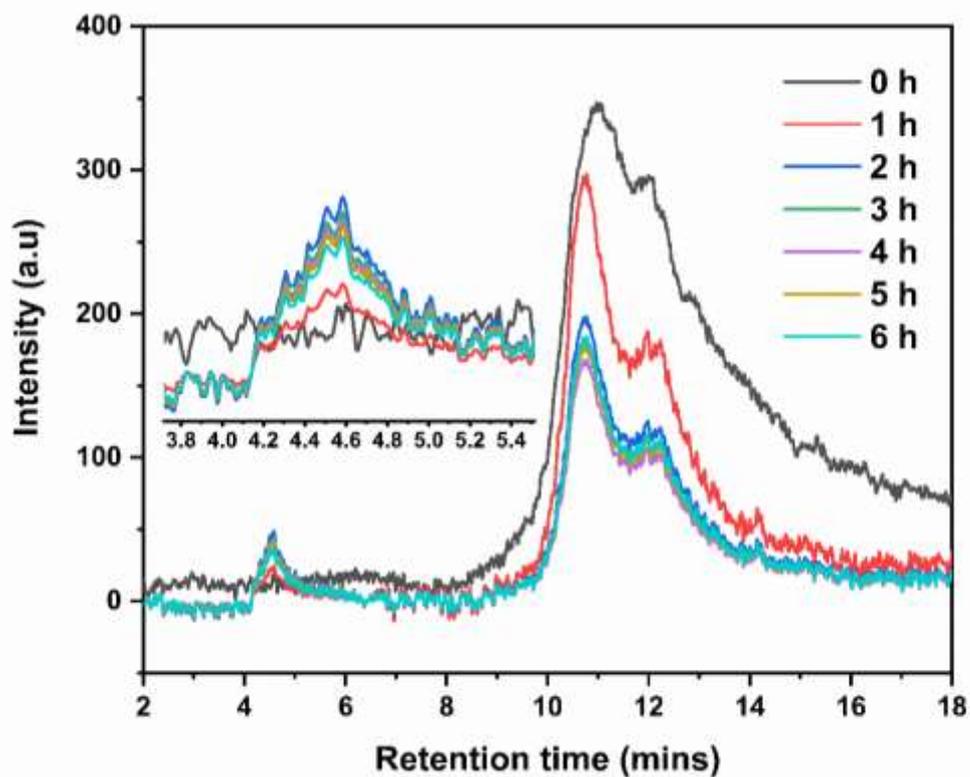


Figure S5. SEC curve of the sonicated [RF]<sub>4</sub> octapeptide as a function of sonication time.

7. <sup>1</sup>H NMR Analysis

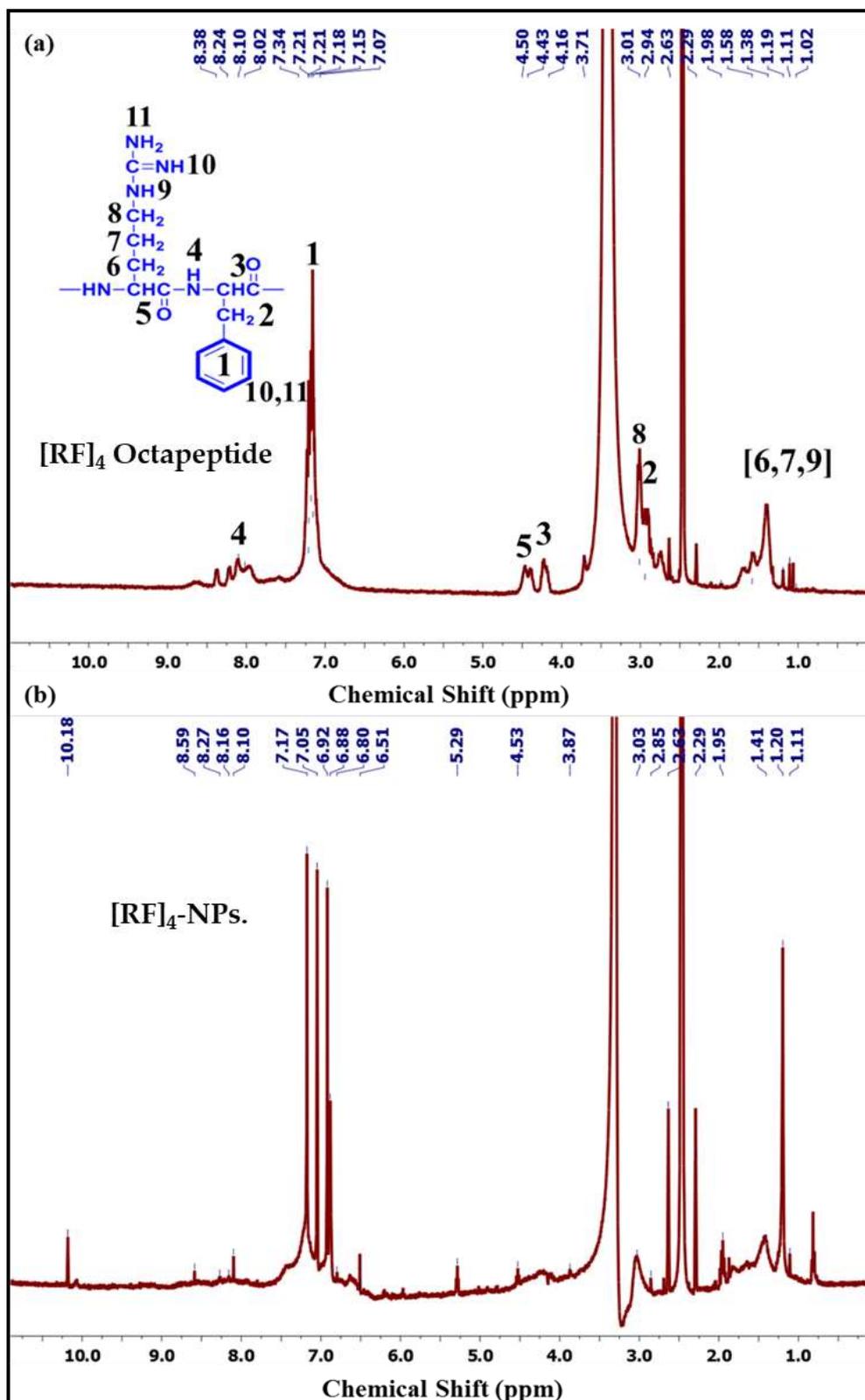


Figure S6. <sup>1</sup>H NMR plot of (a) [RF]<sub>4</sub> peptide, and (b) sonicated [RF]<sub>4</sub> peptide.

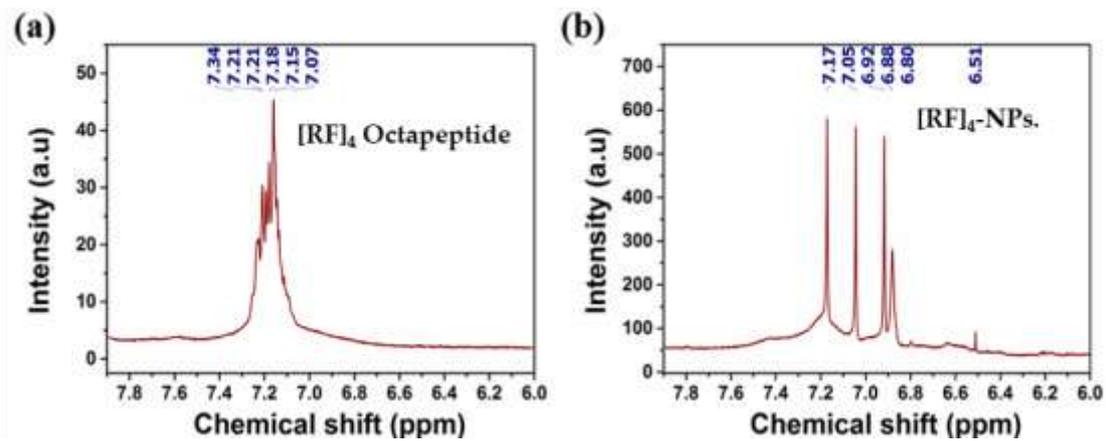


Figure S7. <sup>1</sup>H NMR chemical shifts in the aromatic region for (a) [RF]<sub>4</sub> octapeptide, and (b) [RF]<sub>4</sub>-NPs.

### 8. PEGylated [RF]<sub>4</sub>-NPs

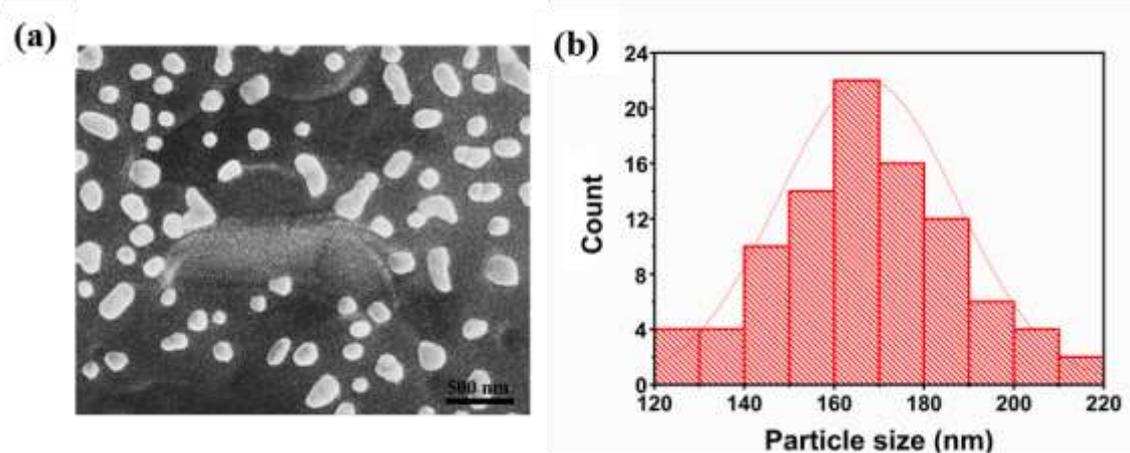


Figure S8. (a) SEM image, and (b) particle size distribution curve for the PEGylated [RF]<sub>4</sub>-NPs

### 9. Dissolution Kinetics

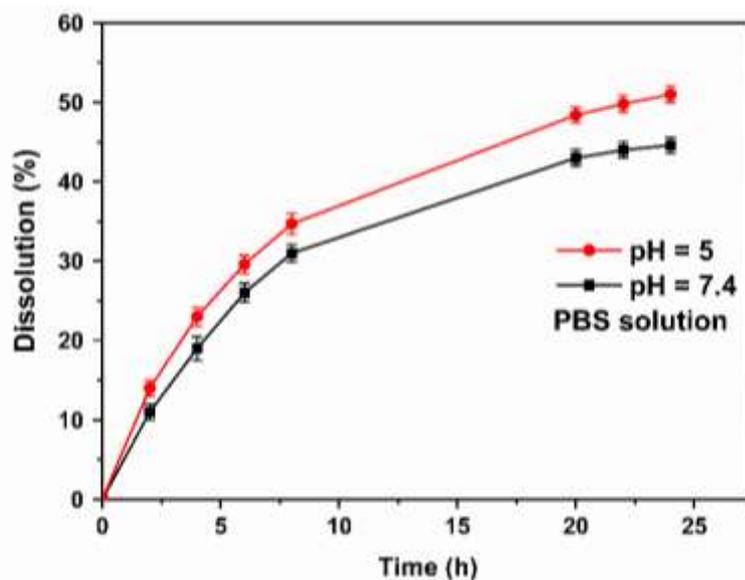


Figure S9. Dissolution kinetics of [RF]<sub>4</sub>-NPs at 37 °C at different pH values as a function of time suggesting slow dissolution of [RF]<sub>4</sub>-NPs at pH 5.0 and pH 7.4.

## References

1. Adochitei, A.; Drochioiu, G. Rapid characterization of peptide secondary structure by ft-ir spectroscopy. *Rev. Roum. Chim* **2011**, *56*, 783-791.



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