

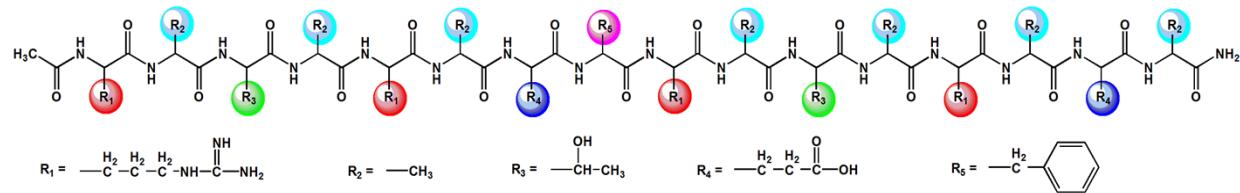
Supplementary Information of

**Phenylalanine containing self assembling peptide nanofibrous hydrogel for  
the controlled release of 5-fluorouracil and Leucovorin**

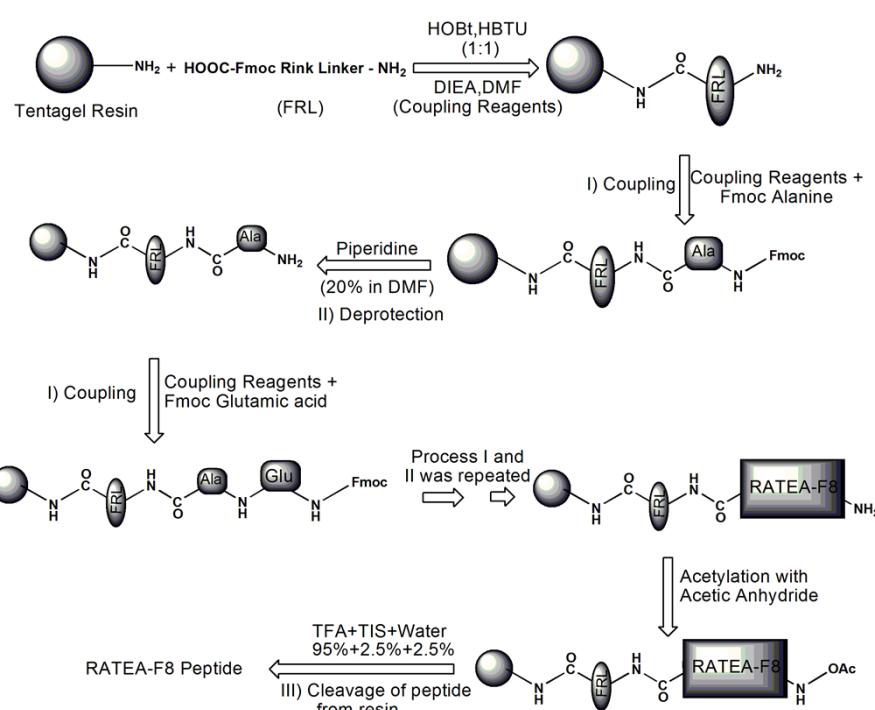
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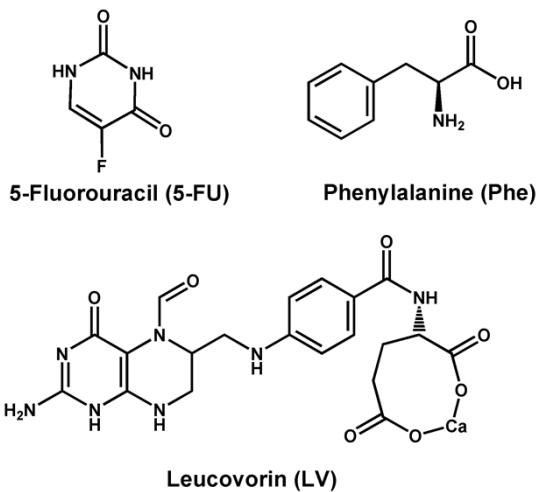
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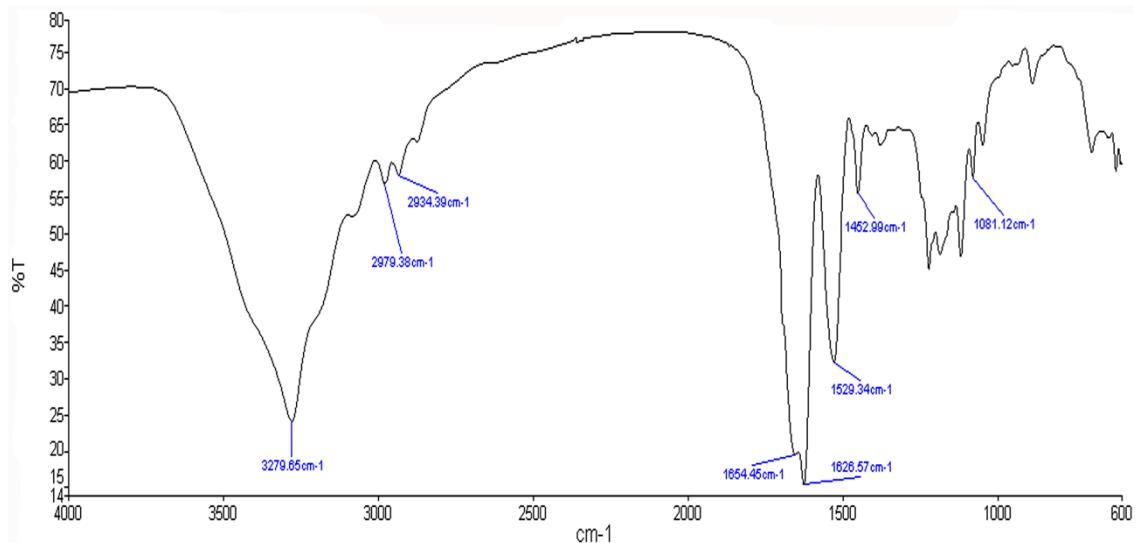
**Fig.1.** Structural representation of RATEA-F8 peptide sequence.



**Fig 2.** Schematic representation of synthesis of RATEA-F8 by Standard Fmoc SPPS Strategy.

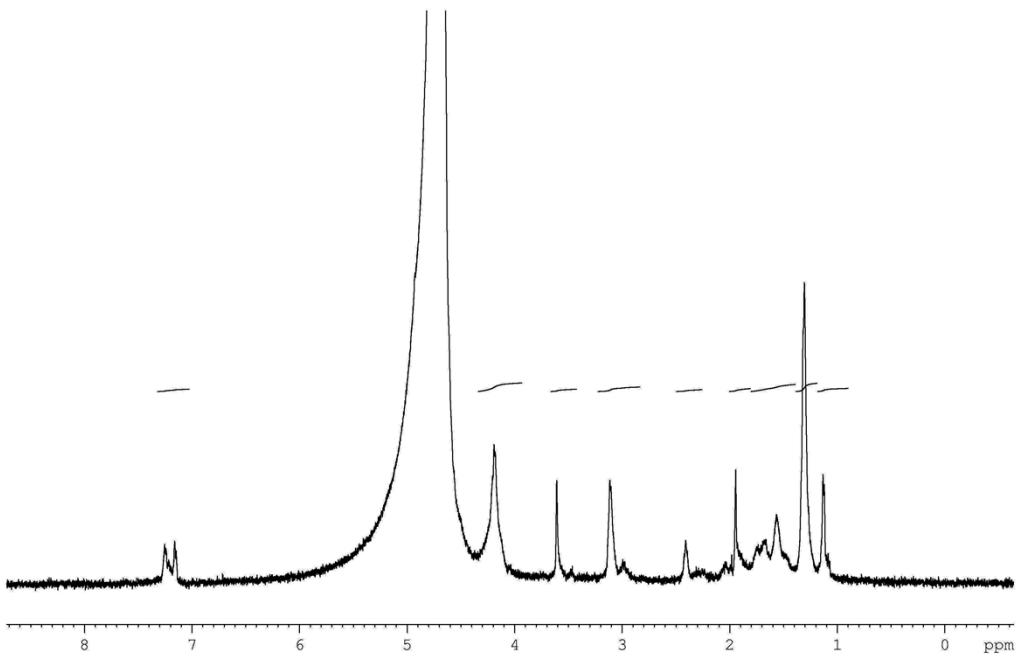


**Fig. 3.** Structure of different guest molecules loaded inside RATEA-F8 peptide hydrogel.



**Fig 4.** FT-IR spectra of RATEA-F8 peptide

The IR bands at  $3279.65\text{ cm}^{-1}$  shows the presence of N-H stretching band of RATEA-F8. Bands at  $1626.57\text{ cm}^{-1}$  and  $1529.34\text{ cm}^{-1}$  indicates Amide I and amide II respectively. The amide I band is having a shoulder peak at  $1654.45\text{ cm}^{-1}$  which can be attributed to the antiparallel beta sheet geometry of the peptide. The peak at  $1452.99\text{ cm}^{-1}$  indicates the presence of aromatic C=C stretching of phenyl alanine. Further  $1081.12\text{ cm}^{-1}$  band may be attributed to the N-H bending vibrations of the Arginine residue.<sup>1</sup>



**Fig 5.**  $^1\text{H}$ -NMR spectra of RATEA-F8 peptide

$^1\text{H}$ -NMR (500 MHz,  $\text{D}_2\text{O}$ )  $\delta$  7.14-7.25 (m, 5H, Aromatic -C-H of Phe), 4.693 (m, 16H, -CH of peptide backbone), 4.189 (m, 2H, -CH of Thr), 3.606 (t, 2H, -CH<sub>2</sub> of Phe), 3.11 (t, 8H, -CH<sub>2</sub> of Arg), 2.4 (d, 4H, -CH<sub>2</sub> of Glu), 1.94 (s, 3H, -CH<sub>3</sub> of Acetyl group), 1.56-1.73 (m, -CH<sub>2</sub> and -CH<sub>3</sub> of Arg and Ala respectively) 1.12-1.3 (d, 3H, -CH<sub>3</sub> of Ala).



**Fig 6.** Self supporting hydrogel formation RATEA-F8 peptide in Tris. HCl buffer (pH =7.4). Rhodamine-B Dye was loaded inside the hydrogel which imparts the pink colour to the hydrogel.

## Notes and References

1. Y. Zhao, M. Tanaka, T. Kinoshita, M. Higuchi and T. Tan, *J Control Release*, **2010**, *142*, 354-360.
2. B.R. Liu , M.D. Lin, H. J.Chiang and H.J. Lee. *Gene*. 2012, **505**, 37-45.