Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Facile Fabrication of Amphiphilic AIE-active Glucan via Formation of Dynamic Bonds: Self Assembly, Stimuli Responsiveness and Biological Imaging

Qing Wan[a,#], Meiying Liu[a,#], Ke Wang[b], Dazhuang Xu[a], Hongye Huang[a], Qingsong Zhang[b], Fengjie Deng[a,*], Xiaoyong Zhang[a,*], Yen Wei[b,*]

a Department of Chemistry and Jiangxi Provincial Key Laboratory of New Energy Chemistry, Nanchang University, 999 Xuefu Avenue, Nanchang 330031, China.

b Department of Chemistry and the Tsinghua Center for Frontier Polymer Research, Tsinghua University, Beijing, 100084, P. R. China.

# These authors contributed equally to this work

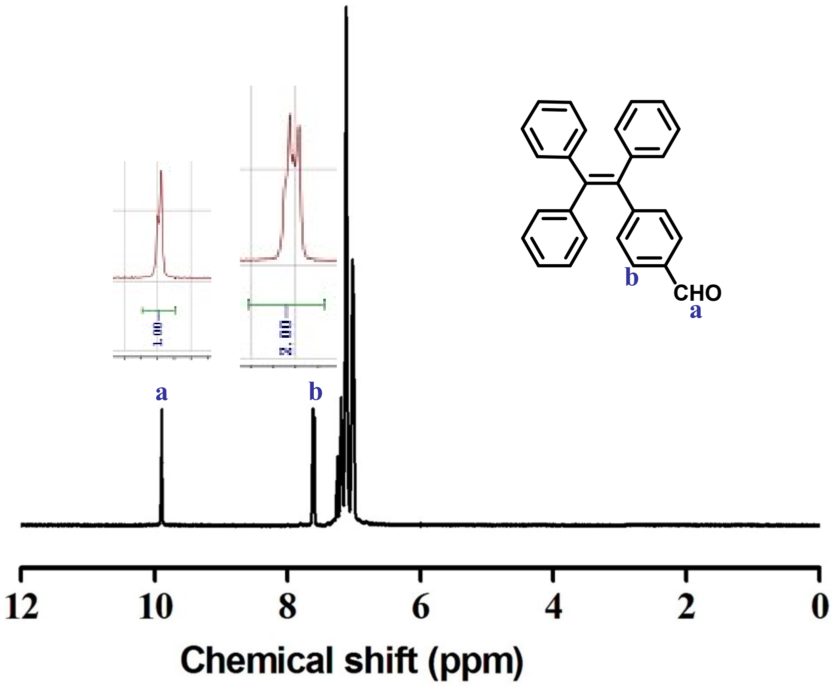

Fig. S1 The ^1H NMR spectrum of TPE-CHO use $CDCl_3$ as solvent

The successful synthesis of AIE dyes (TPE-CHO) could be confirmed by advanced ^1H NMR (Fig. S1). The peak at 9.9 ppm is ascribed to the –CHO group, while the multiplet peaks at 7.6 ppm could be contributed to the vicinal hydrogen of –CHO group. The inset of **Fig. S1** shows the area ratio of b/a, which is calculated that the area of b peak is double to a, which could serve powerful evidence that successful preparation of TPE-CHO dyes.

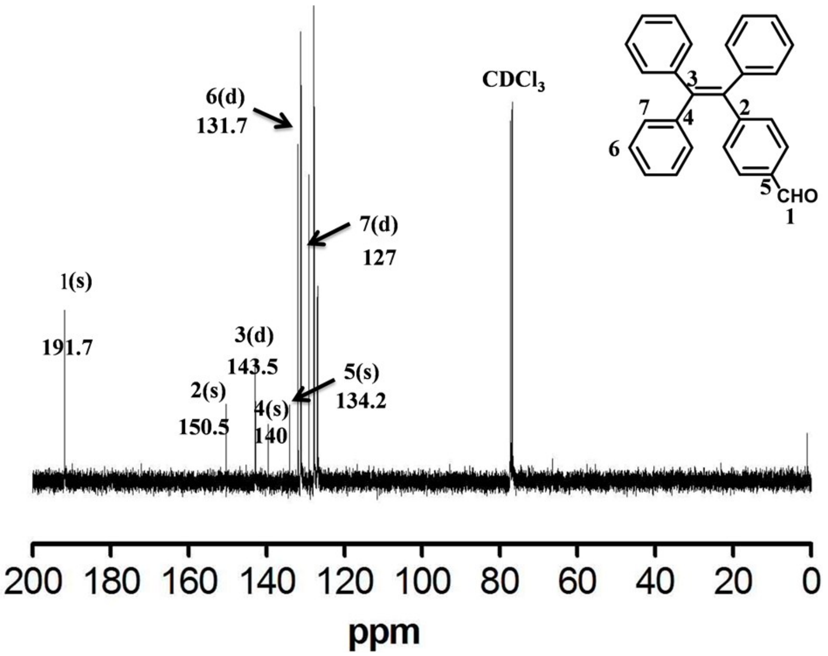

Fig. S2 The ^{13}C-NMR spectrum of TPE-CHO using $CDCl_3$ as solvent.

In addition of ^{1}H NMR spectrum, the ^{13}C-NMR spectrum is also applied to confirm the successful synthesis of TPE-CHO with green emission. As shown in **Fig S2**, a series of incisive and clear peaks located at different position could be observed using $CDCl_3$ as solvent. A obvious single peak at 191.7 ppm is ascribed to –CHO groups in fluorophore, which could serve as powerful evidence that successful preparation of TPE-CHO. On the other hand, other peaks ranging from 130 to 150 ppm could be contributed to the carbon atoms existed in aromatic rings, the specific location of various carbon atoms are clearly labeled in **Fig S2**. Therefore, we can draw a conclusion that successful preparation of TPE-CHO dyes.

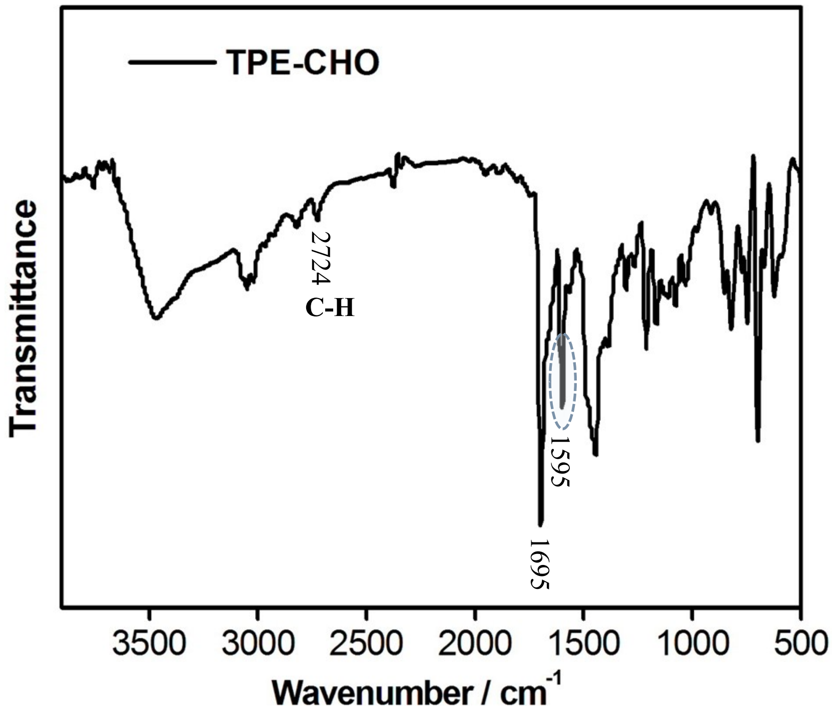

Fig S3 The FT-IR spectrum of TPE-CHO dye.

As shown in FT-IR curve of TPE-CHO (**Fig. S3**), we could also demonstrate the successful synthesis of AIE dyes with green emission. The strong peak at 1695 cm^{-1} is the stretching vibration of C=O, and the stretching vibration at 2724 cm^{-1} is ascribed to proton of –CHO. On the other hand, the split peak at 1596 cm^{-1} is contributed to the absorption peak of ring oscillator for aromatic rings. Therefore, we can confirm successful synthesis of TPE-CHO dyes.

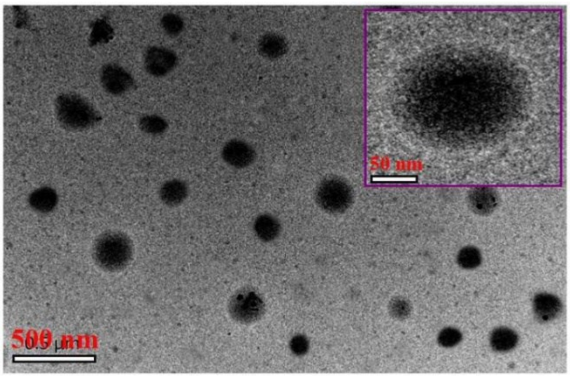

Fig. S4 TEM image of Glu-TPE FONs. The inset is the enlarged TEM image of Glu-TPE FONs.

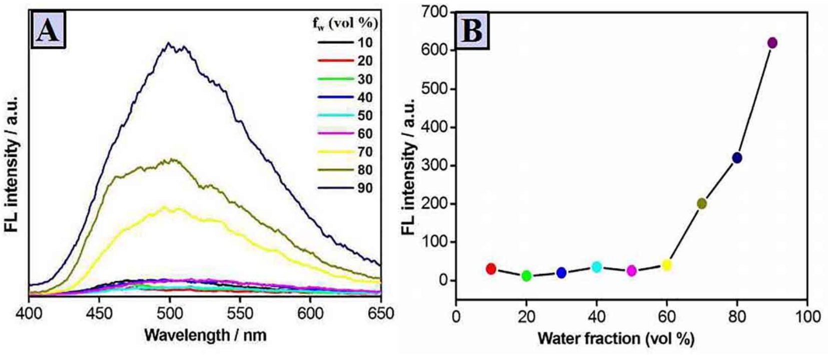

Fig. S5 (A) FL spectra of TPE-CHO dissolved in H_2O/THF mixtures with different content ratio; B) the relationship of FL intensity of TPE-CHO versus water fraction in mixed solution.

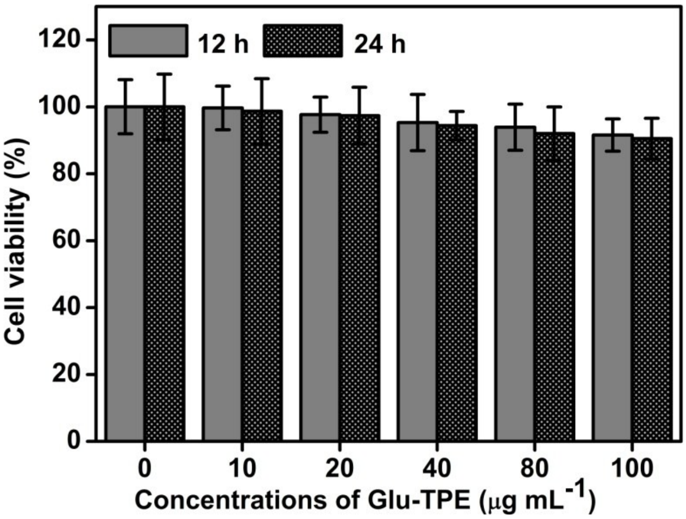

Fig. S6 Cell viability evaluation of Glu-TPE FONs. The HeLa cells were incubated with different concentrations of Glu-TPE FONs for 12 and 24 h.