

Electronic Supplemental Information

for

**New Journal of Chemistry**

**Ultra-fast self-healing PVA organogels based on dynamic covalent chemistry for dye selective adsorption**

Shujing Ren<sup>a</sup>, Panpan Sun<sup>a</sup>, Aoli Wu<sup>a</sup>, Na Sun<sup>a</sup>, Lixin Sun<sup>\*a</sup>, Bin Dong<sup>\*b</sup> and Liqiang Zheng<sup>\*a</sup>

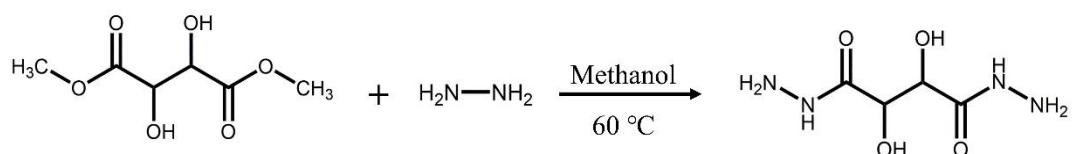
<sup>a</sup> Key Laboratory of Colloid and Interface Chemistry, Shandong University, Ministry of Education, Jinan 250100, P.R. China. E-mail: lqzheng@sdu.edu.cn

sunlixin@sdu.edu.cn

<sup>b</sup> School of Chemical Engineering and Technology, China University of Mining and Technology, Xuzhou 221116, P.R. China. E-mail: cumtdong@cumt.edu.cn

**Experimental Section**

Synthesis of tartaric acid dihydrazide (TDH)



Scheme S1. The synthesis route for TDH.

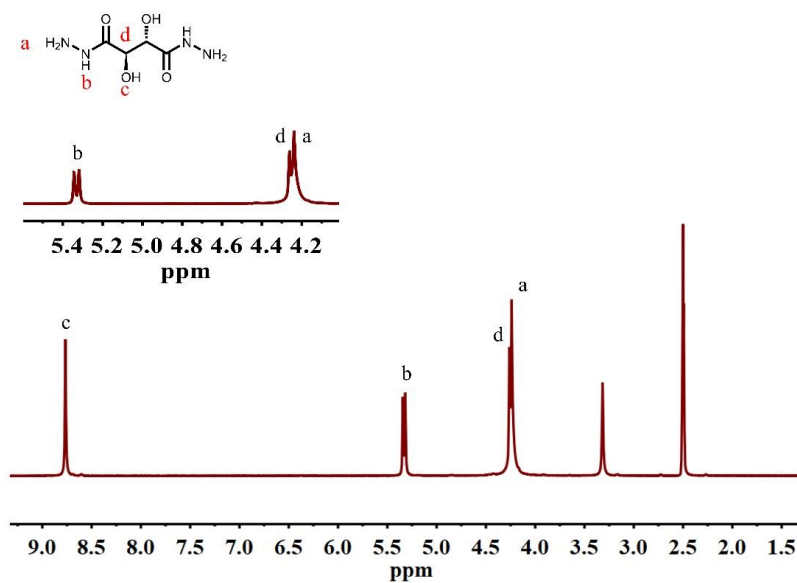


Figure S1.  $^1\text{H}$  NRM spectrum of TDH in DMSO- $d_6$ .

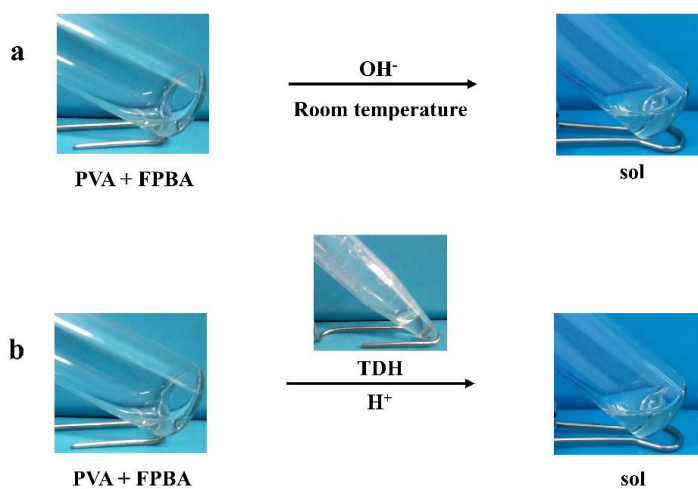
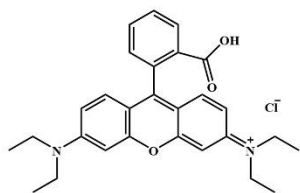
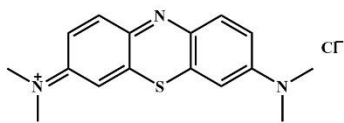


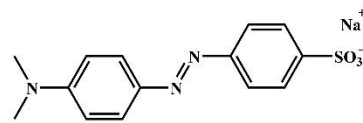
Figure S2 (a) Photographs of solution of PVA and FPBA, and the resultant sol under alkaline environment; (b) pictures of solution of PVA and FPBA, and the sol obtained after adding TDH under acid environment.



**Rhodamine B (RhB)**



**Methylene Blue (MB)**



**Methyl Orange (MO)**

Figure S3. Molecular structures of studied dyes.

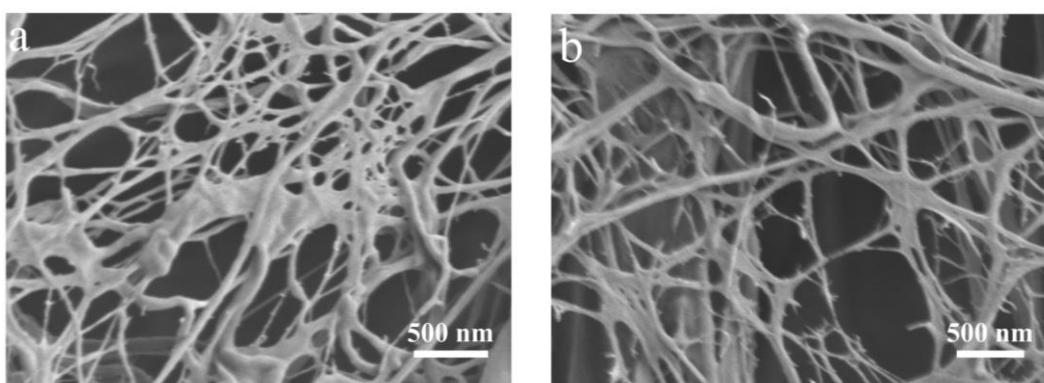


Figure S4. SEM images of (a) D-gel<sub>331</sub> and (b) L-gel<sub>331</sub>.