

Supporting information

Bio-inspired Nanozyme: Hydratase Mimic in Zeolitic Imidazolate Framework

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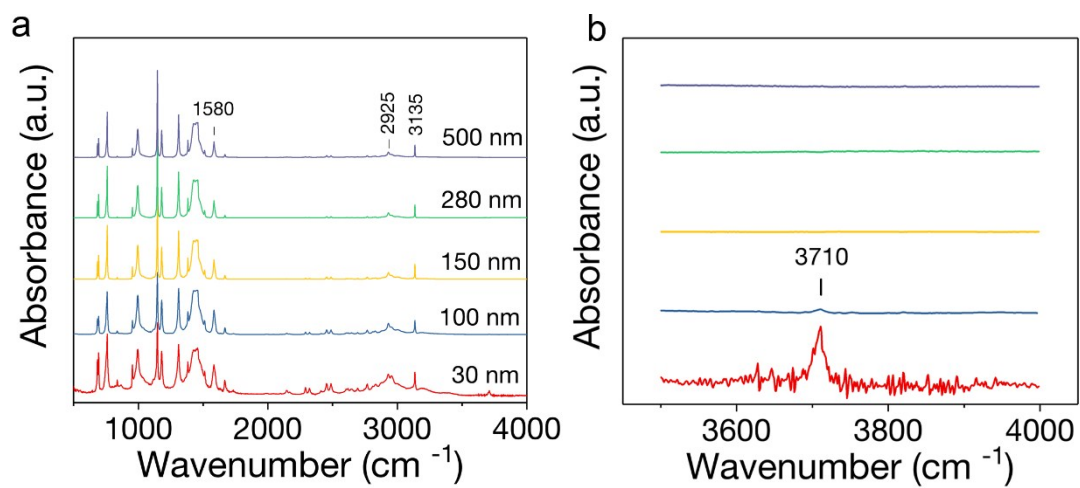


Figure s1. DRIFTS spectrum of ZIF-8 with different sizes.

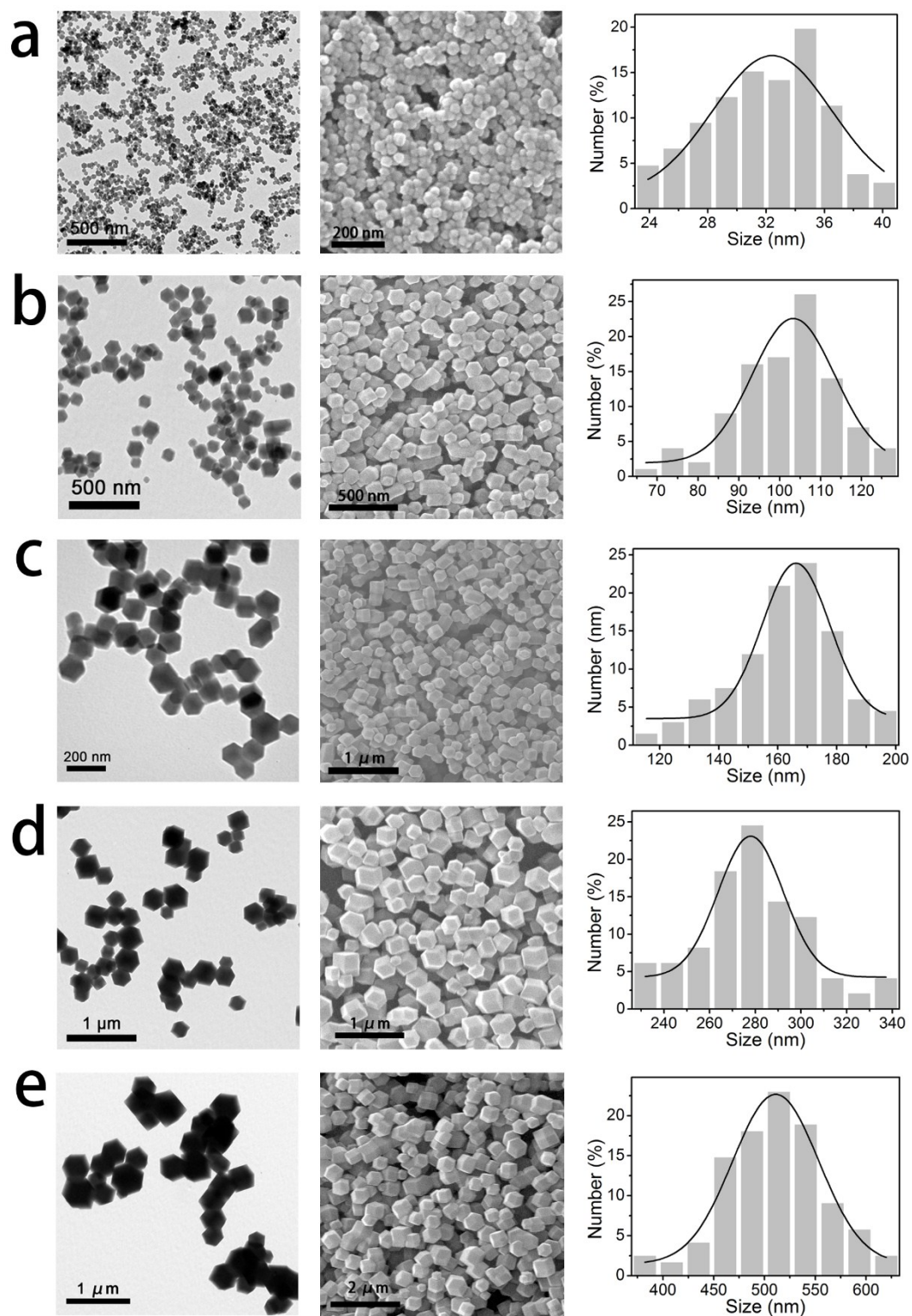


Figure s2. TEM images, SEM images and size distribution histograms of ZIF-8 nanoparticles with different sizes.

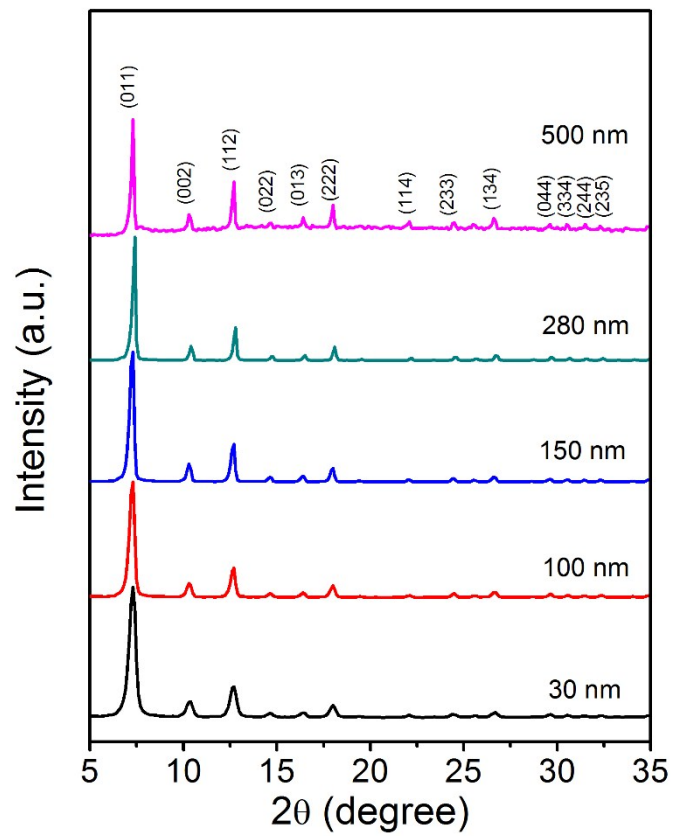


Figure s3. XRD patterns of the as-prepared ZIF-8 with different sizes.

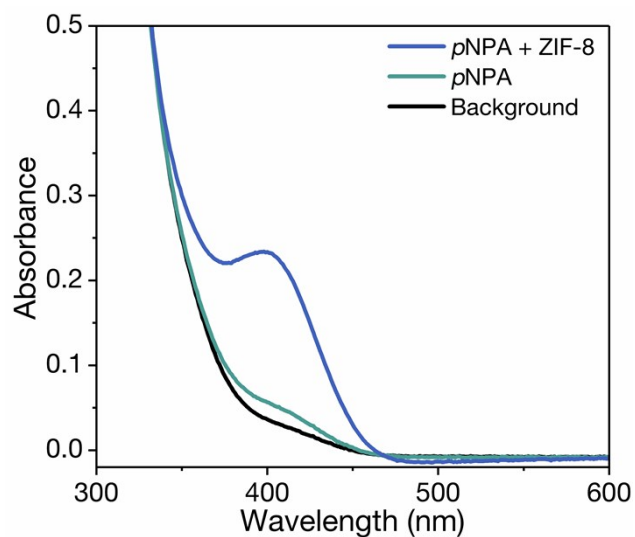


Figure s4. UV-vis spectra of *p*NPA with or without the addition of ZIF-8.

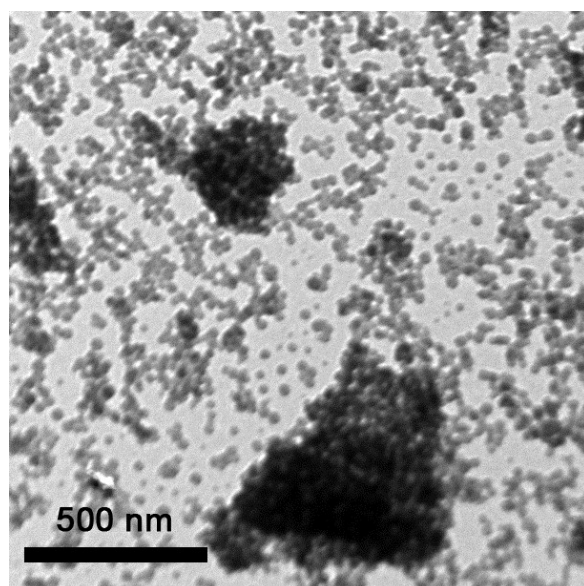


Figure s5. The TEM image of the re-dispersed ZIF-8 (30 nm) nanoparticles.

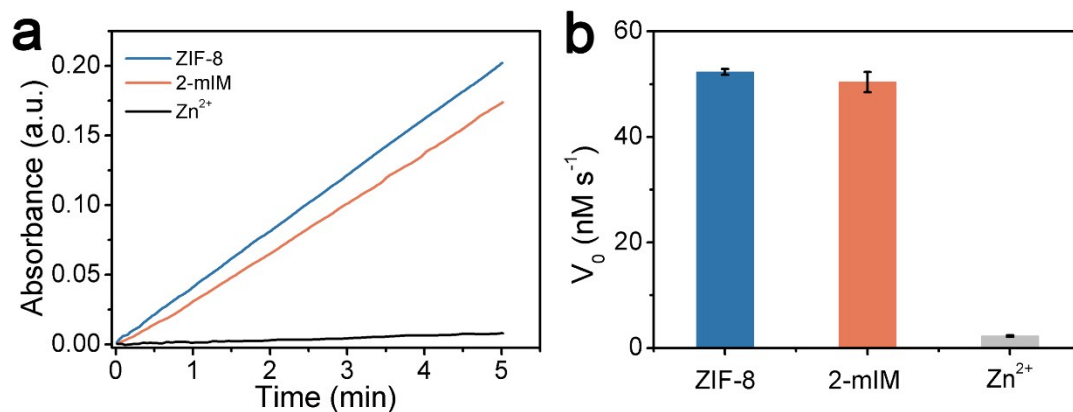


Figure s6. (a) Time-dependent absorbance of *p*NPA solutions in the presence of different catalysts. (b) Initial hydrolysis rate (V_0) of *p*NPA in the presence of different catalysts.

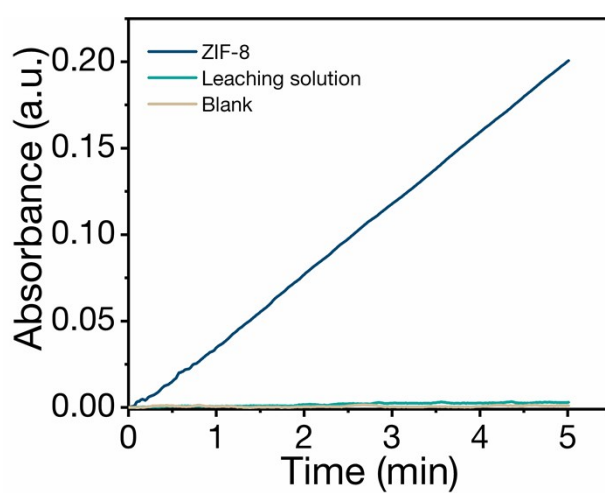


Figure s7. Time dependent absorbance of *p*NPA hydrolysis in the presence of different catalysts.

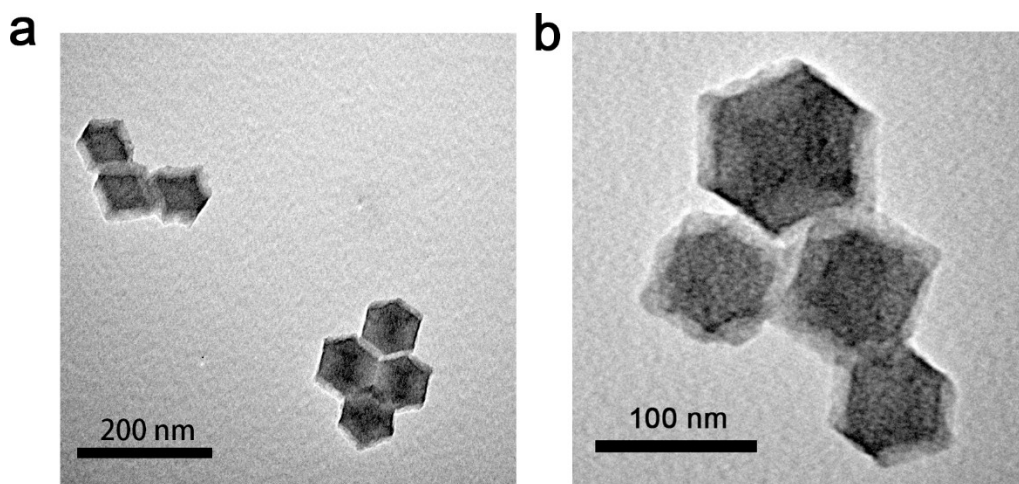


Figure s8. TEM images of ZIF(700) at different magnifications.

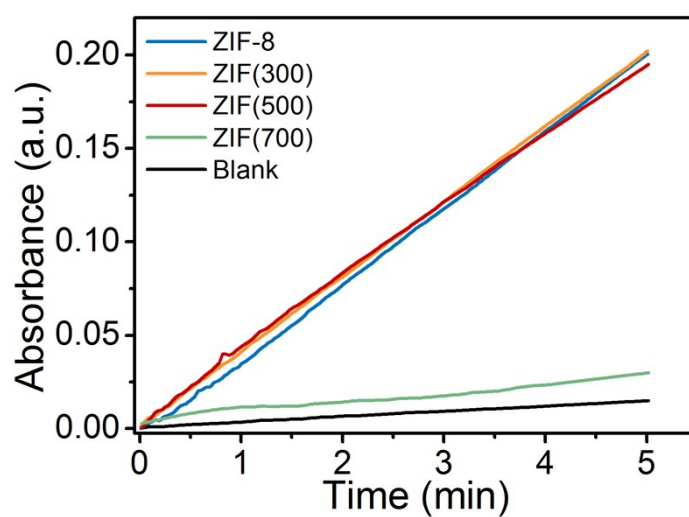


Figure s9. Time-dependent absorbance of pNPA solutions with ZIF-8 catalysts calcined at different temperatures.

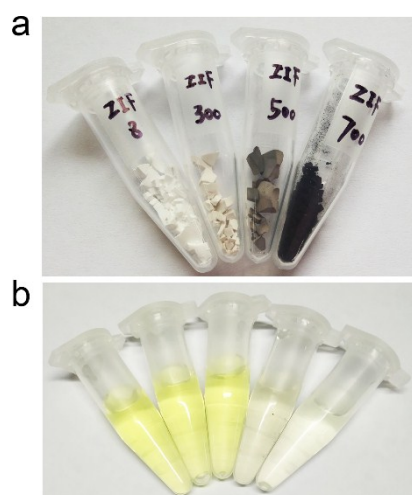


Figure s10. (a) Photographs of ZIF-8, ZIF(300), ZIF(500) and ZIF(700). (b) Photographs of hydrolysis products catalysis by ZIF-8, ZIF(300), ZIF(500), and ZIF(700) (from left to right ending with a blank sample).

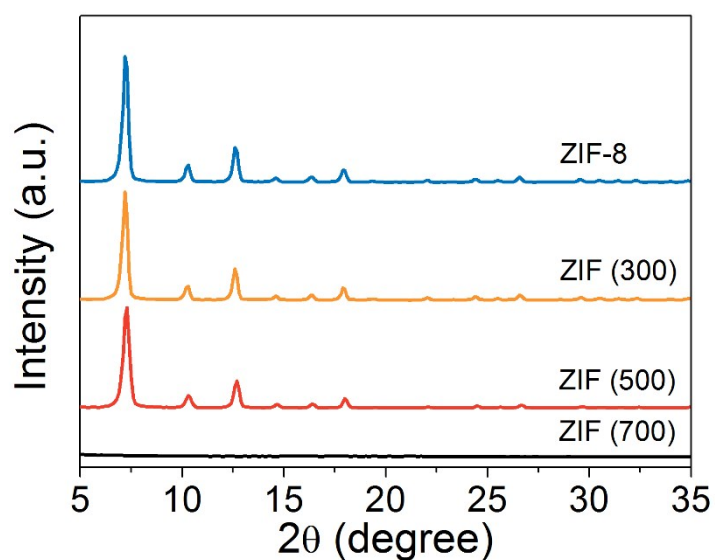


Figure s11. XRD patterns of ZIF-8, ZIF(300), ZIF(500) and ZIF(700)

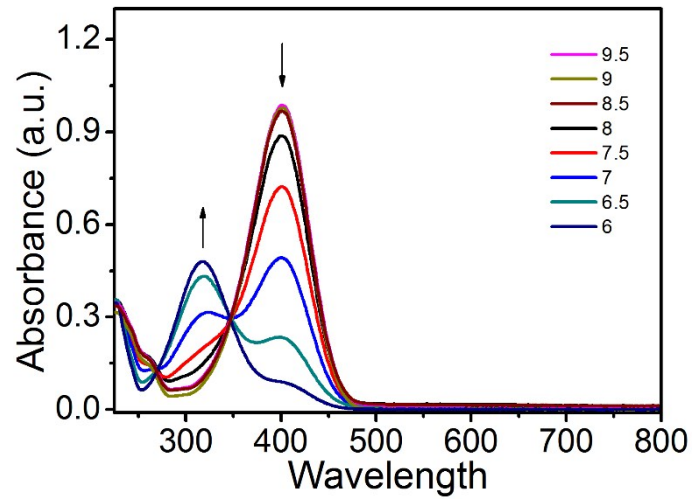


Figure s12. UV-vis spectra of *p*NP in PBS buffer with different pH values.

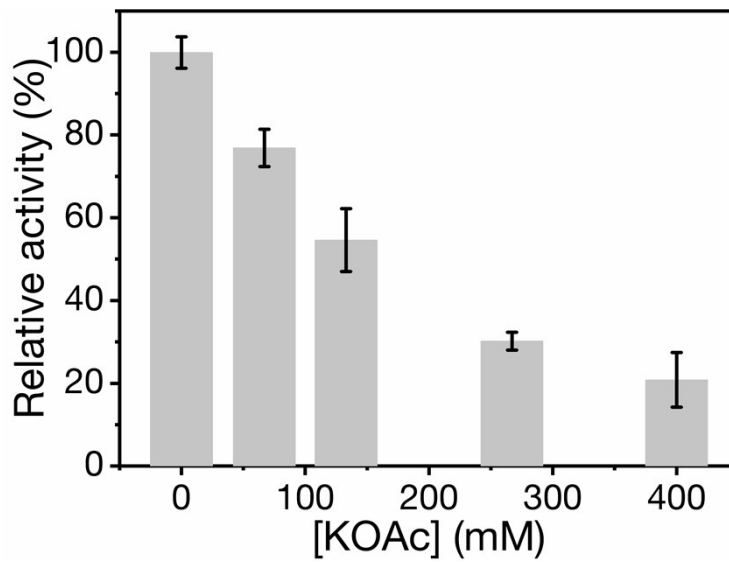


Figure s13. Inhibition of *p*NPA hydrolysis by acetate.

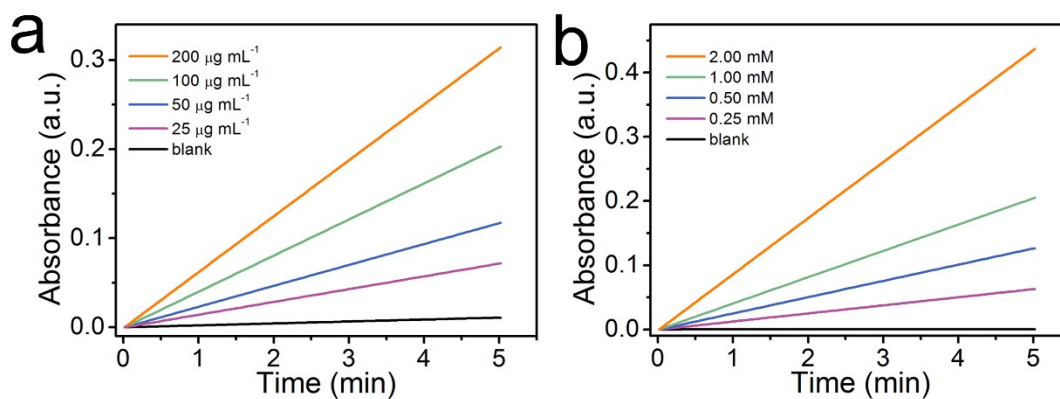


Figure s14. (a) Time dependent absorbance of *p*NPA hydrolysis in the presence of different doses of ZIF-8. (b) Time dependent absorbance of *p*NPA hydrolysis with different initial concentrations of *p*NPA.

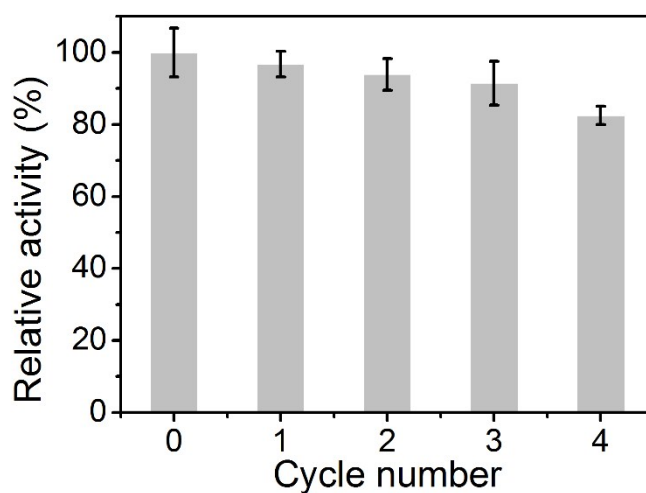


Figure s15. Reusability of ZIF-8 for *p*NPA hydrolysis reaction.

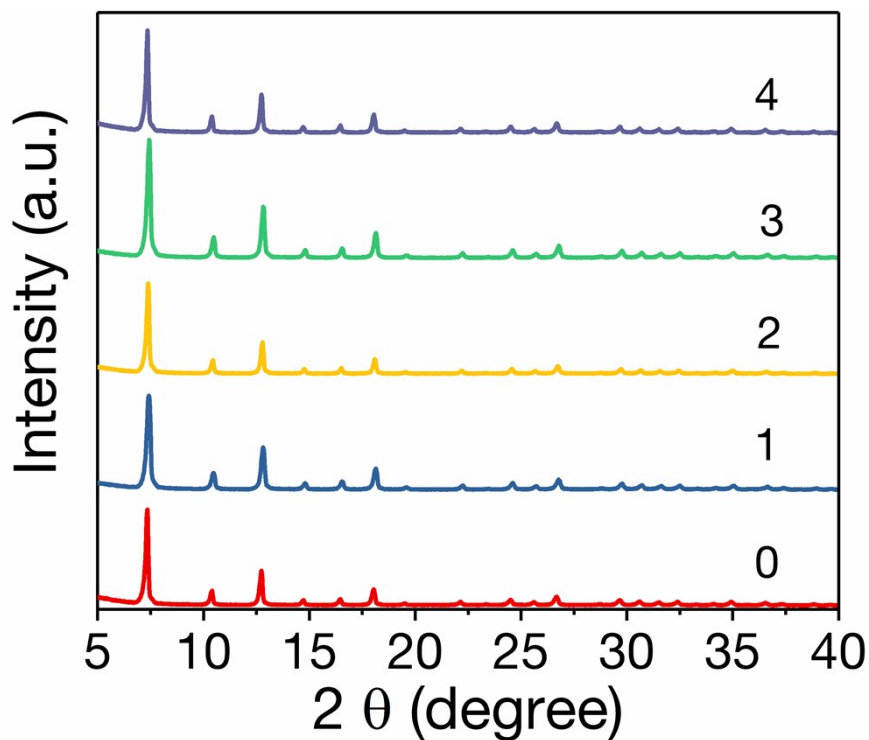


Figure s16. XRD patterns of ZIF-8 after recycling used.

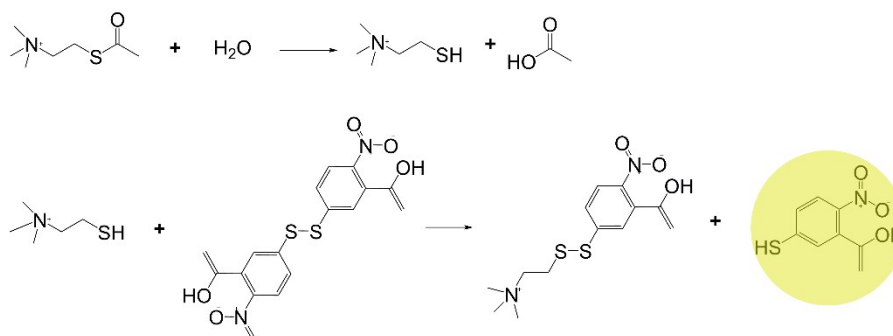


Figure s17. Schematic illustration of the AChE activity determination use Ellman method.

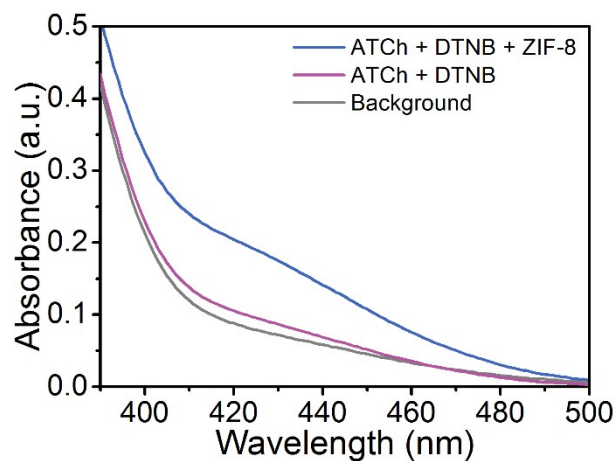


Figure s18. Absorbance spectra of 5-thio-2-nitrobenzoate upon hydrolysis of ATCh.

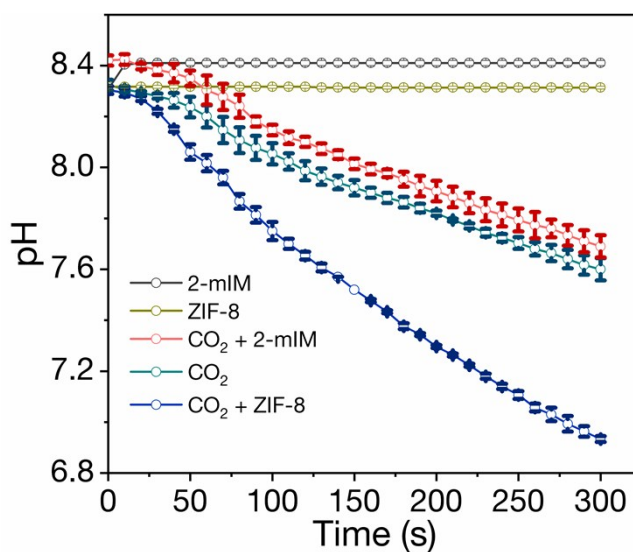


Figure s19. The pH decay in 100 mM HEPES buffer solution with continuous flow of CO₂ gas.

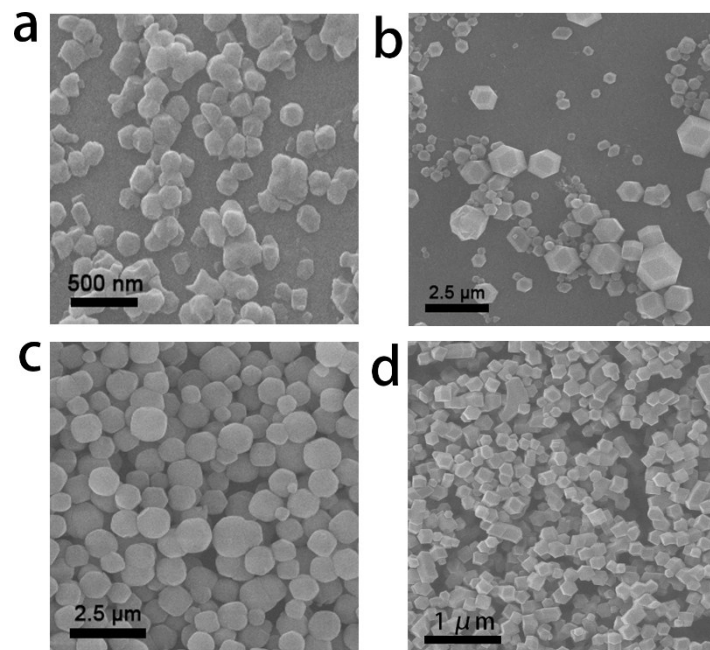


Figure s20. SEM images of the prepared ZIF-7 (a), ZIF-90 (b), ZIF-65(Zn) (c), and ZIF-67 (d).