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Supporting Information

Functionalized luminescent covalent organic frameworks hybrid material as smart nose for the diagnosis of Huanglongbing

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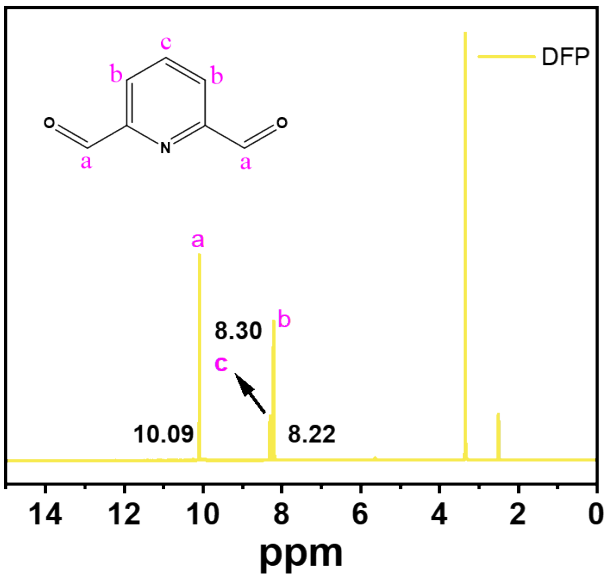

Figure S1. ^{1}H NMR spectrum of monomer DFP in DMSO-d_6.

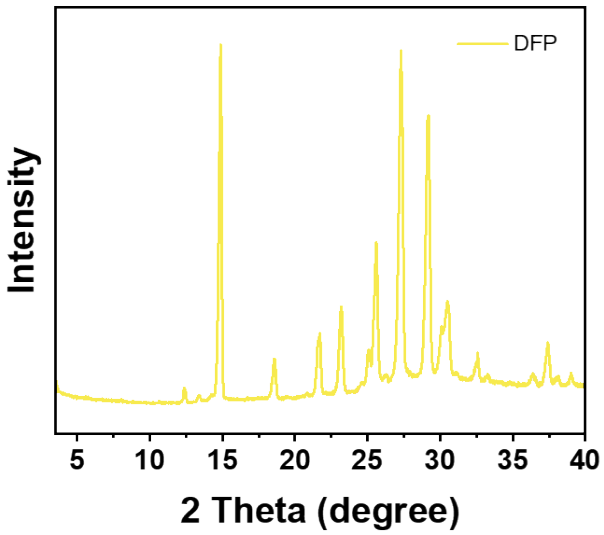

Figure S2. PXRD pattern of monomer DFP.

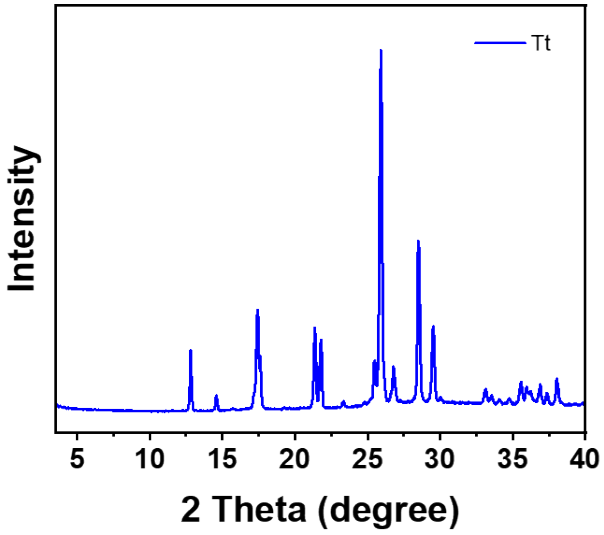

Figure S3. PXRD pattern of monomer Tt.

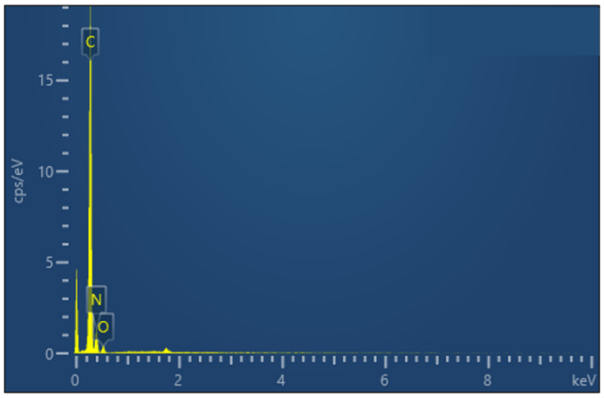

Figure S4. The EDS spectrum of TtDFP.

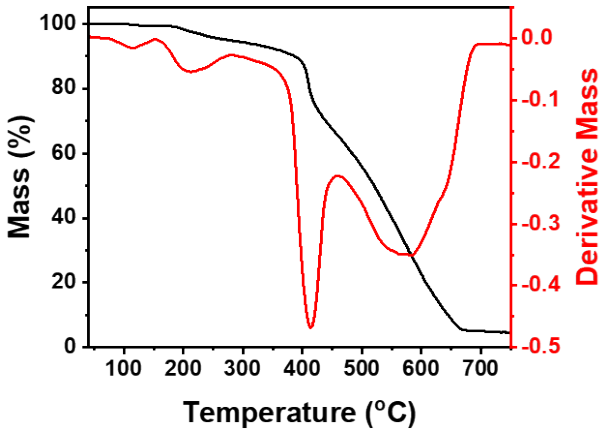

Figure S5. The TG and DTG curve of TtDFP at temperature range of 40–750 ℃.

Table S1. The weight percentage of all elements in TtDFP and Eu^{3+}@TtDFP determined by EDS.

Element	Percentage by weight	
	TtDFP	Eu^{3+}@TtDFP
C	69.99	38.28
N	20.89	27.79
O	9.12	18.77
Eu		15.16

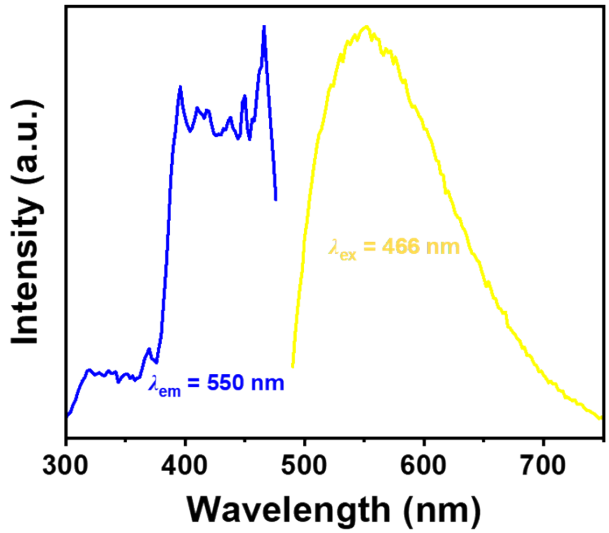

Figure S6. Excitation and emission spectra of solid DFP.

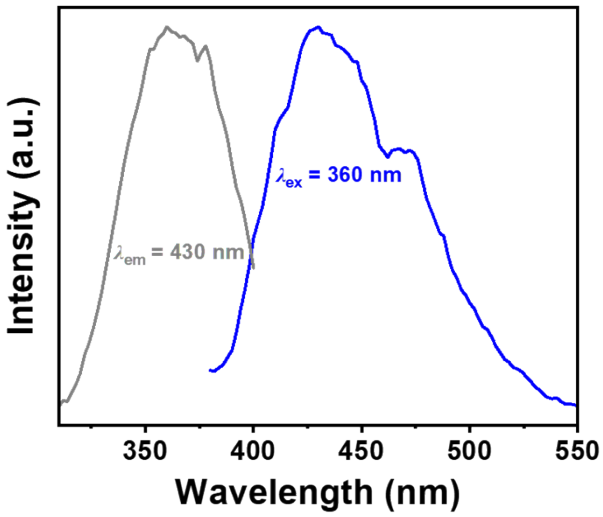

Figure S7. Excitation and emission spectra of solid Tt.

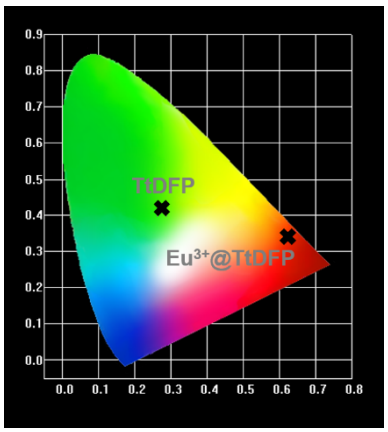

Figure S8. CIE coordinates of solid TtDFP and Eu^{3+}@TtDFP.

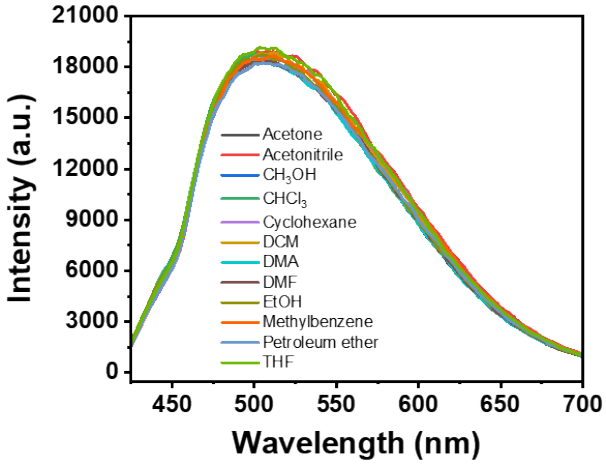

Figure S9. Fluorescence spectra of TtDFP in different common organic solvents.

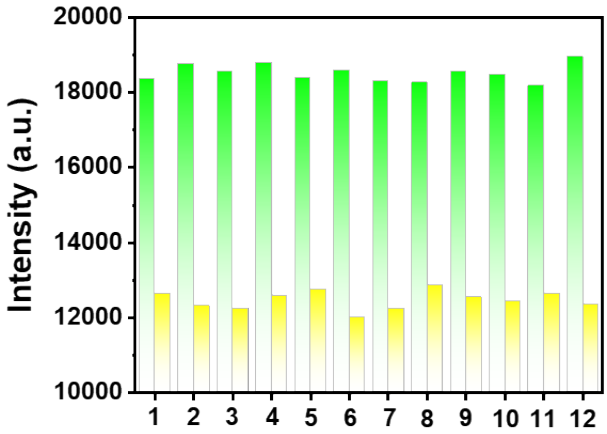

Figure S10. The histogram (I_{500}) of TtDFP in different solvents (green bar) and after added 3.0 wt% water (yellow bar) (Solvents 1–12: Acetone, Acetonitrile, CH_3OH, $CHCl_3$, Cyclohexane, DCM, DMA, DMF, EtOH, Methylbenzene, Petroleum ether, THF).

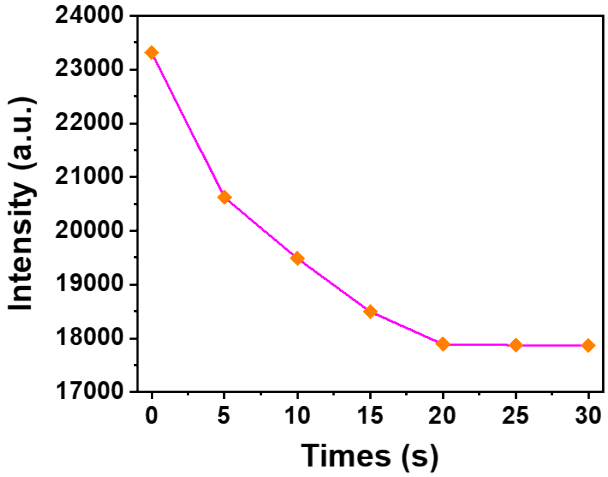

Figure S11. Time-dependent luminescence intensity of TtDFP at 500 nm in EtOH with 3.0 wt% water (λ_{ex} = 397 nm).

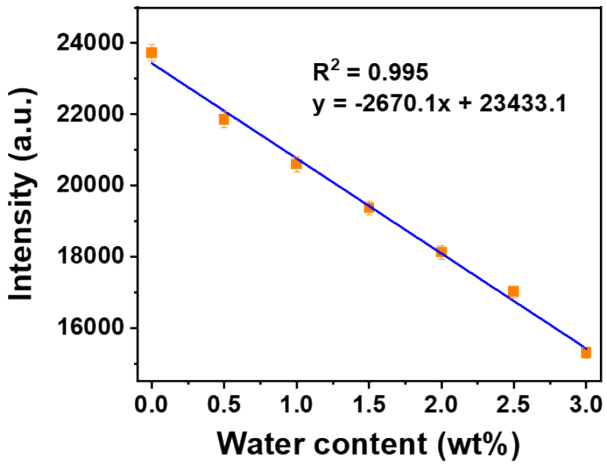

Figure S12. Calibration curves of TtDFP added water in EtOH with different content (0–3.0 wt %) (λ_{ex} = 397 nm, λ_{em} = 500 nm).

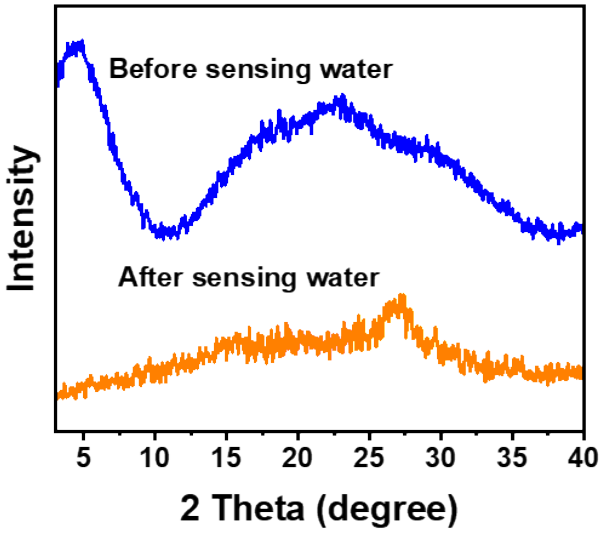

Figure S13. PXRD patterns of TtDFP before and after sensing water.

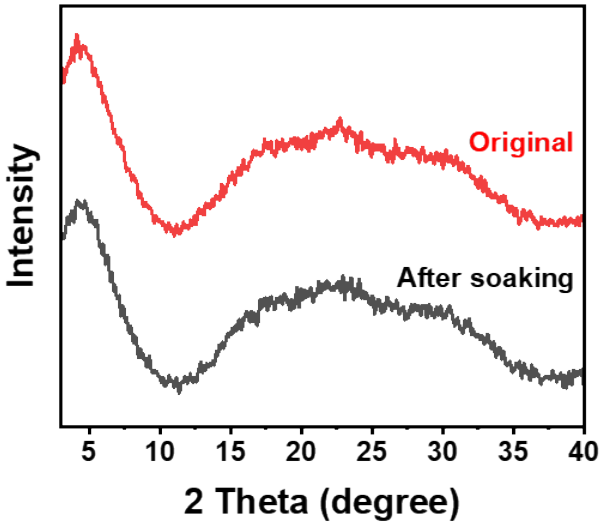

Figure S14. PXRD patterns of original TtDFP and after soaking TtDFP in EtOH for 48 h.

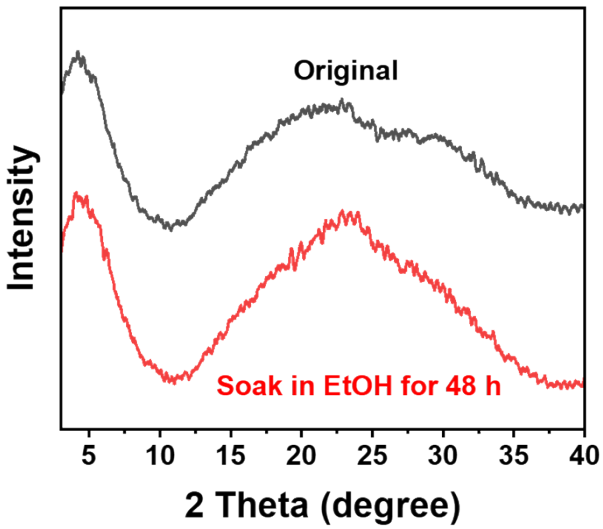

Figure S15. PXRD patterns of Eu^{3+}@TtDFP before and after soaking in EtOH for 48 h.

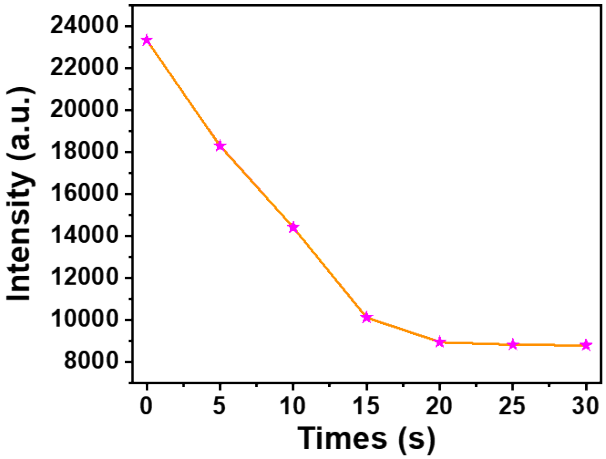

Figure S16. Time-dependent luminescence intensity of Eu^{3+}@TtDFP at 614 nm toward 25 ppm PhA vapor (λ_{ex} = 322 nm).

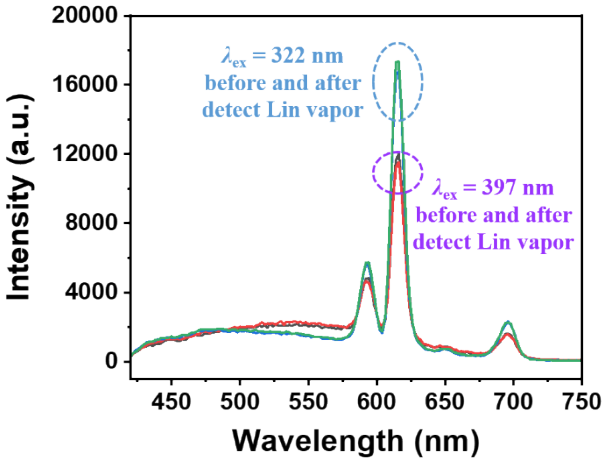

Figure S17. Luminescence spectra of Eu^{3+}@TtDFP detect 30 ppm Lin vapor with different excitation wavelengths.

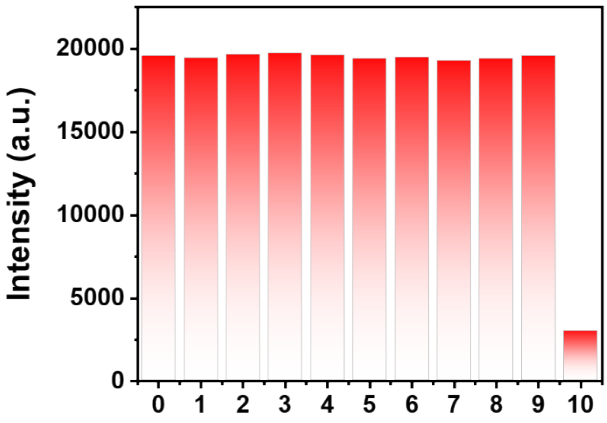

Figure S18. The histogram (I_{614}) of Eu^{3+}@TtDFP EVA film dealt with different VOCs (0–10: Blank, formaldehyde, acetaldehyde, methylamine, ammonia, toluene, ethyl acetate, DCM, GA, Lin, PhA).

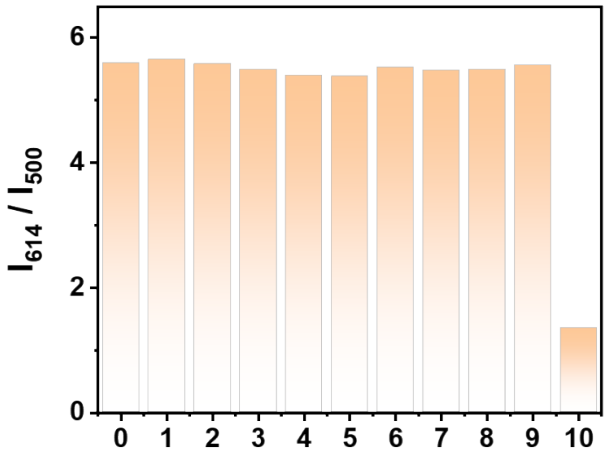

Figure S19. The histogram (I_{614} / I_{500}) of Eu^{3+}@TtDFP EVA film dealt with different VOCs (0–10: Blank, formaldehyde, acetaldehyde, methylamine, ammonia, toluene, ethyl acetate, DCM, Lin, PhA, GA).

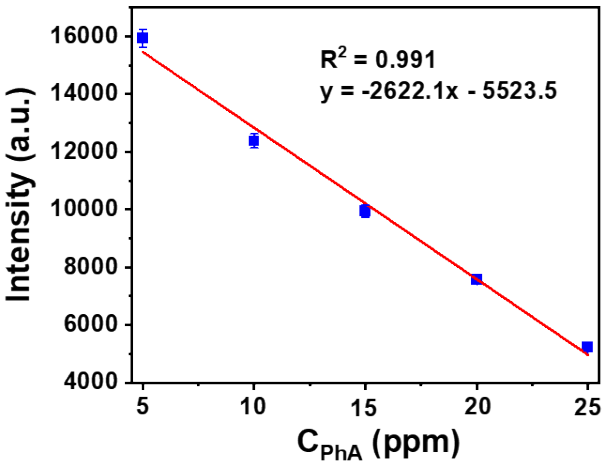

Figure S20. Calibration curves of Eu^{3+}@TtDFP sensing PhA vapor with different concentrations (5–25 ppm) (λ_{ex} = 322 nm).

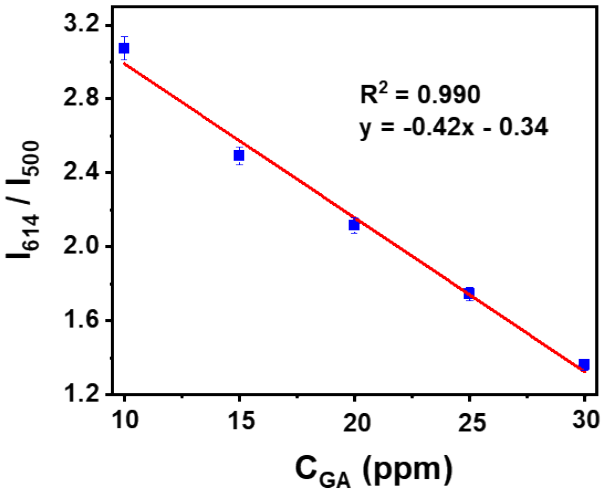

Figure S21. Calibration curves of Eu^{3+}@TtDFP sensing GA vapor with different concentrations (10–30 ppm) (λ_{ex} = 397 nm).

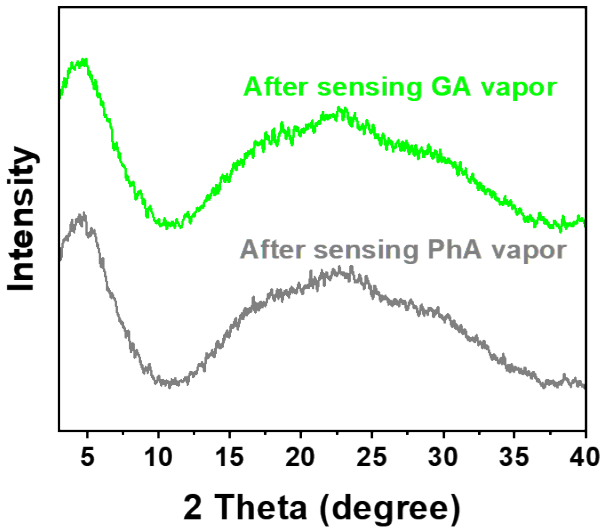

Figure S22. PXRD patterns of Eu^{3+}@TtDFP after sensing GA and PhA vapors.

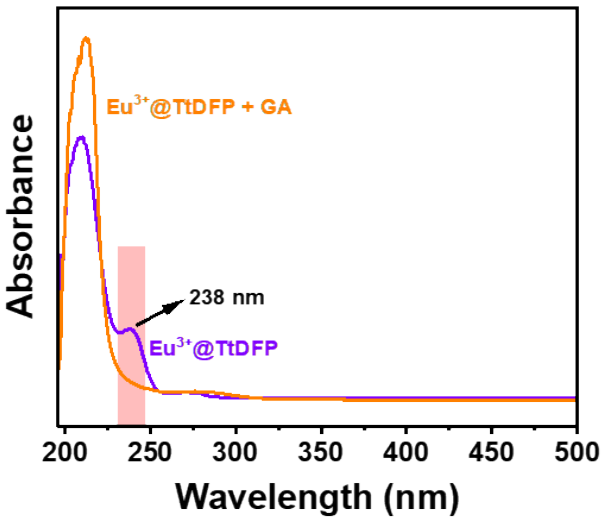

Figure S23. The UV-vis absorption spectra of Eu^{3+}@TtDFP before and after treatment of GA.