Supporting Information

Nonsteroidal Anti-inflammatory Drugs Monitor in Serum: a Tb-MOFs based Luminescent Mixed Matrix Membranes Detector with High Sensibility and Reliability

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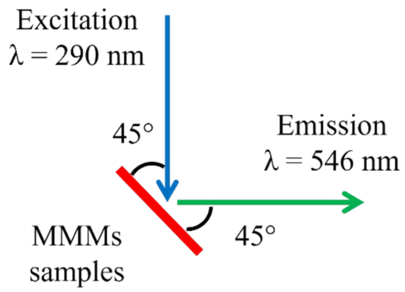

Figure S1. Schematic diagram of the light path in the luminescence experiments.

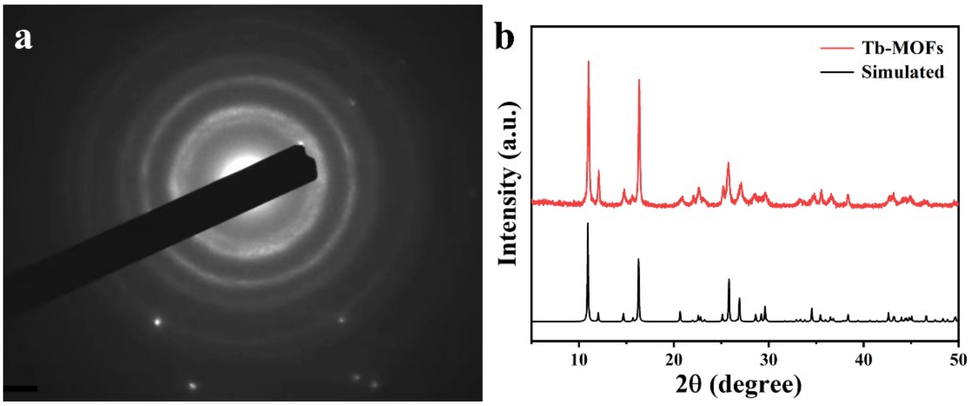

Figure S2. (a) Electron diffraction pattern of Tb-MOFs; (b) XRD pattern of Tb-MOFs.

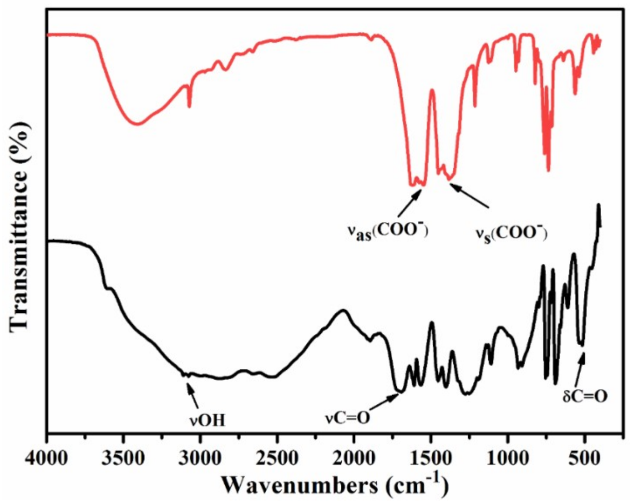

Figure S3. FT-IR of BTC (Blank) and ultrasonically prepared MOF (Red).

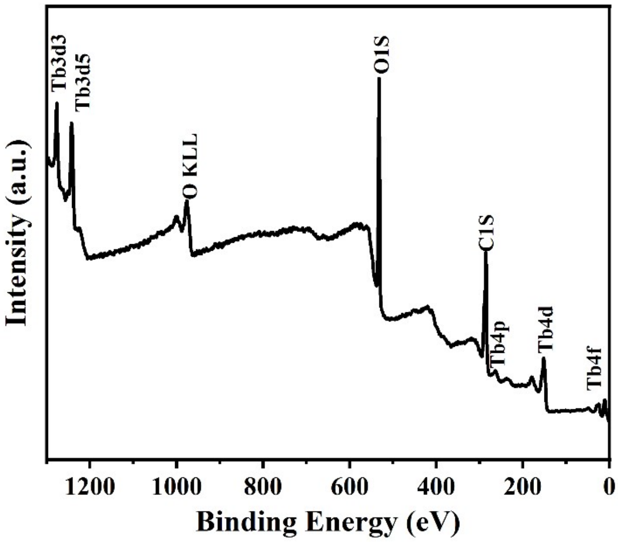

Figure S4. XPS spectrum of Tb-MOFs.

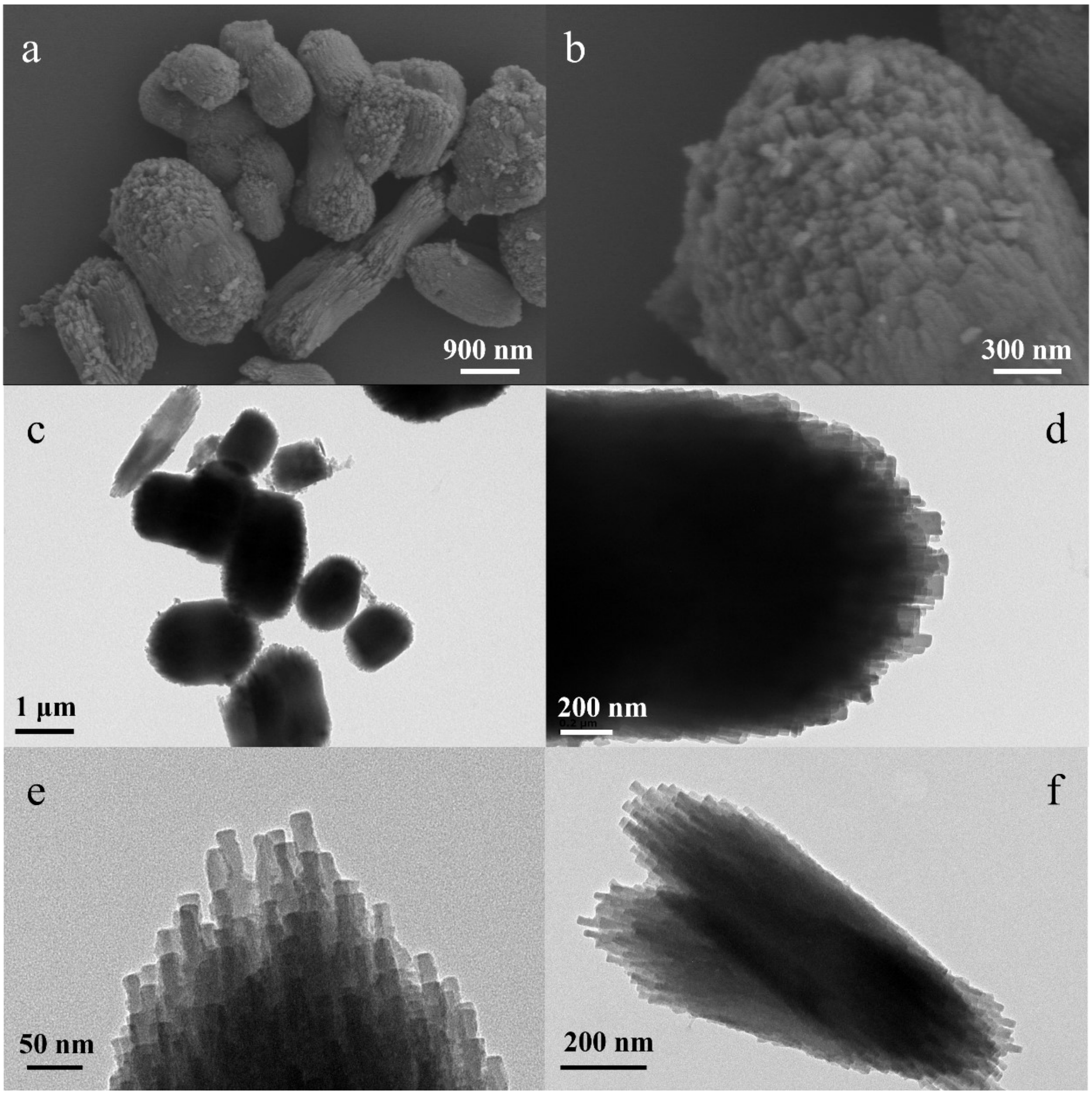

Figure S5. (a-b) SEM images of the prepared Tb-MOFs, (c-f) TEM images of the prepared Tb-MOFs.

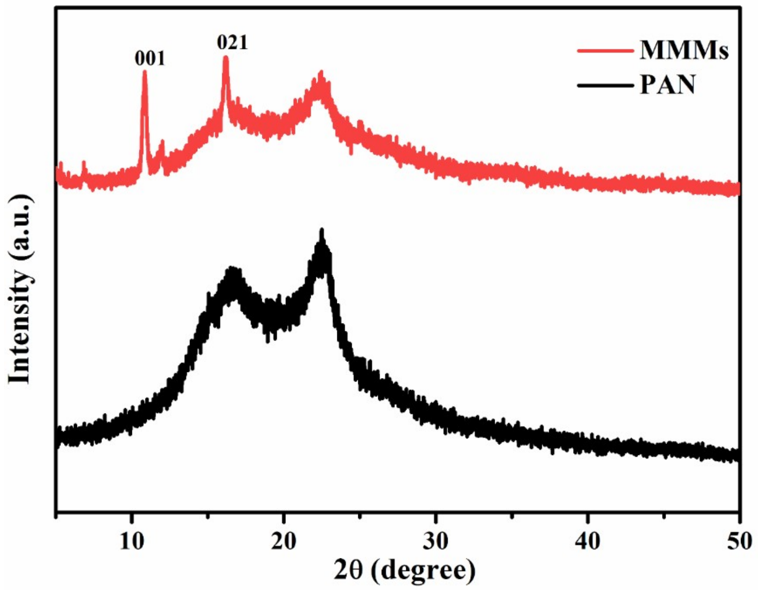

Figure S6. XRD patterns of PAN nanofiber membranes and MMMs.

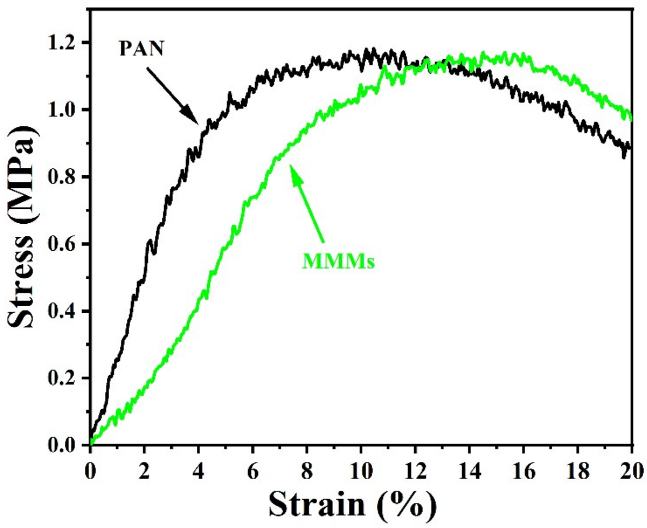

Figure S7. Tensile stress-strain curves of PAN nanofiber membranes and MMMs.

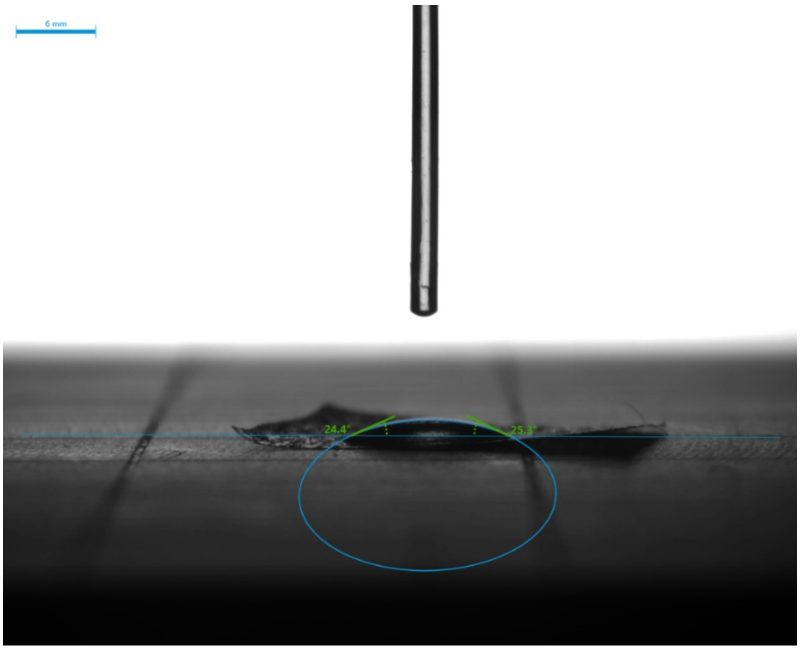

Figure S8. The picture of static contact angle test between water and MMMs.

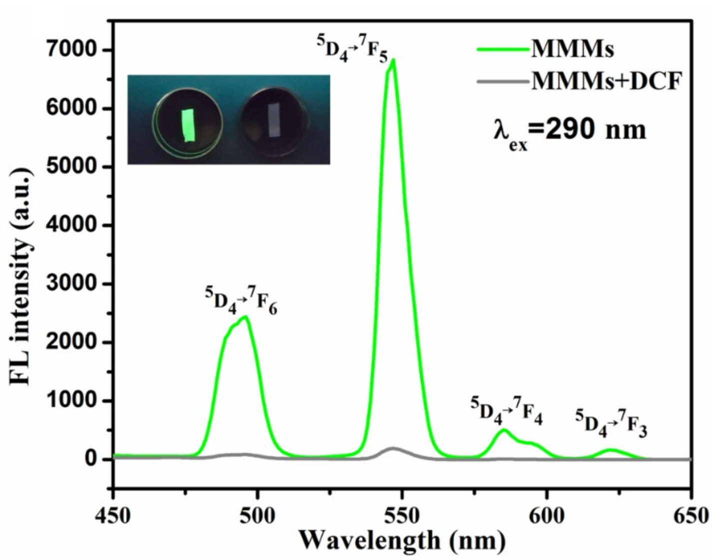

Figure S9. Emission spectra of Tb-MOFs without (green) or with (gray) DCF; the photograph of Tb-MOFs under UV radiation without or with DCF (insert).

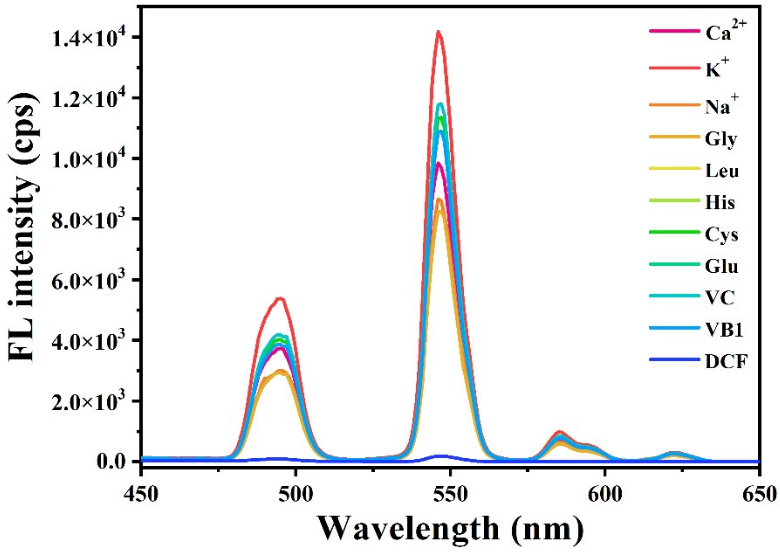

Figure S10. Emission spectra of Tb-MOFs in the solution of various chemicals.

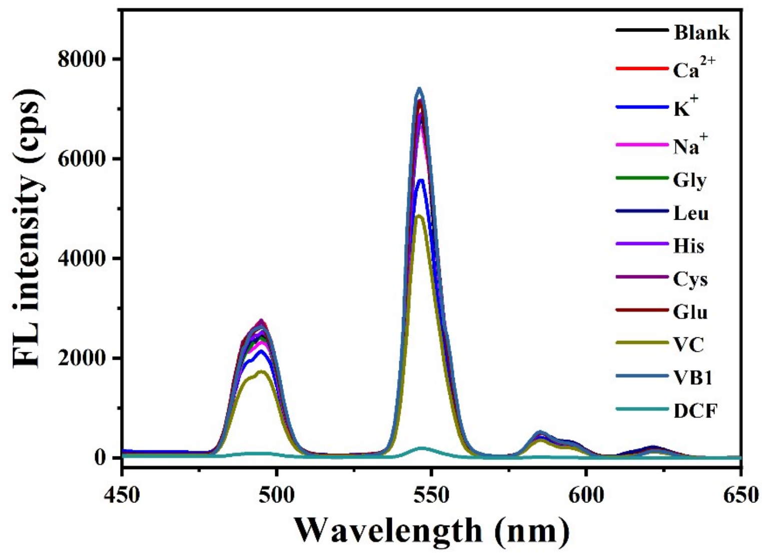

Figure S11. Emission spectra of MMMs in the solution of various chemicals.

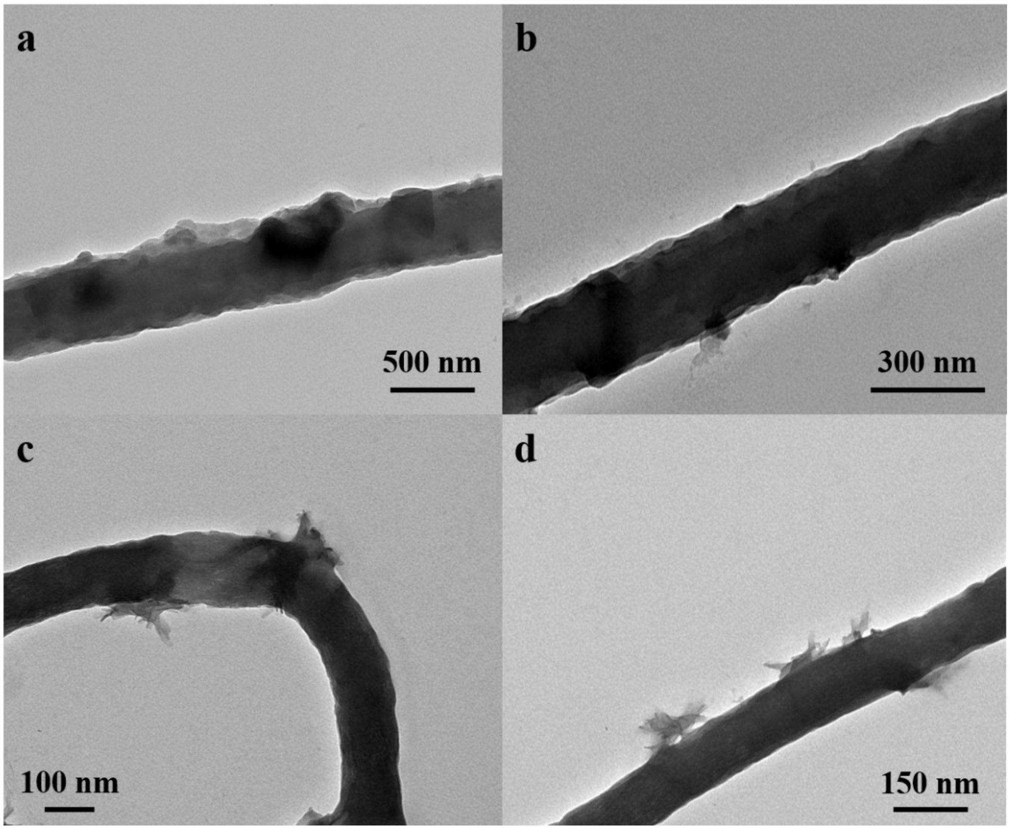

Figure S12. TEM images of electrospun nanofibers in the MMMs with different sizes: (a) 500 nm; (b) 200 nm; (c-d) <150 nm.

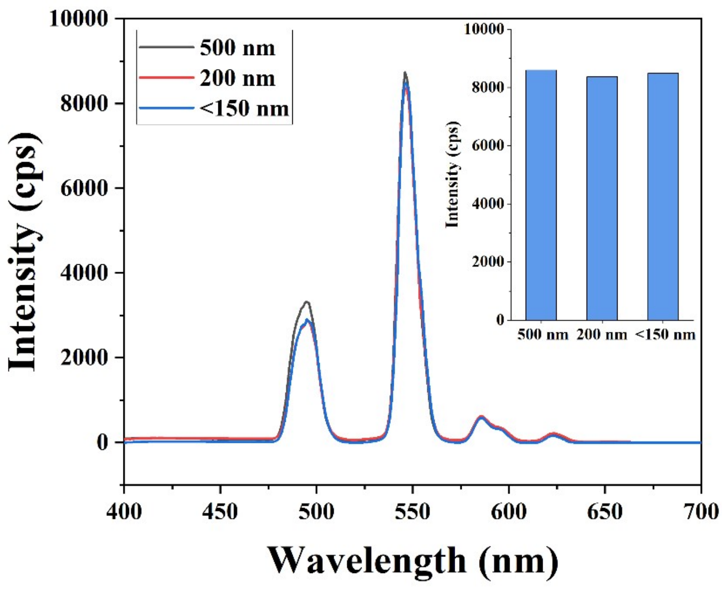

Figure S13. Emission spectra (insert: luminescent intensity) of MMMs with various diameters of nanofibers.

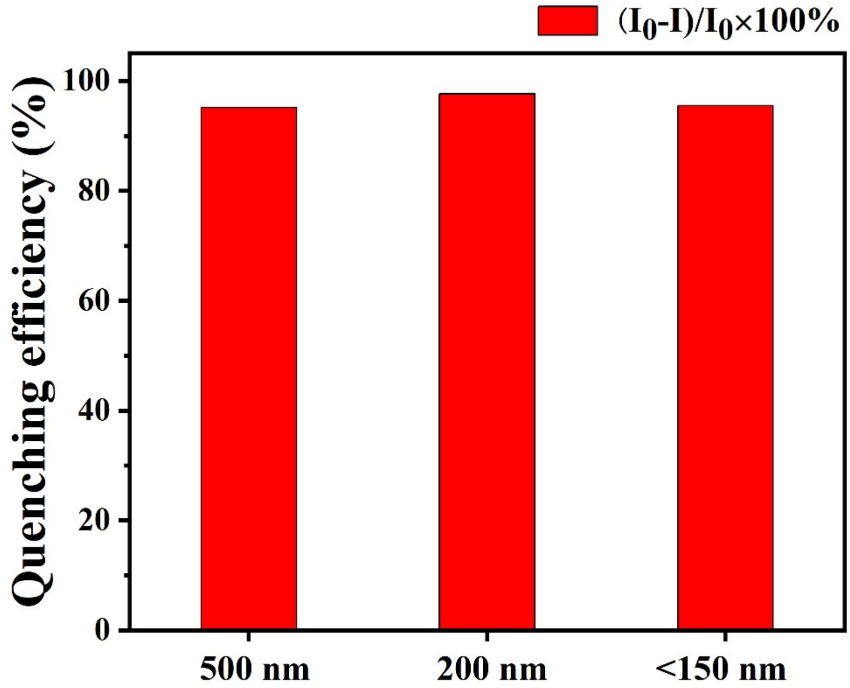

Figure S14. Quenching experiment of the MMMs with various diameters of nanofibers.

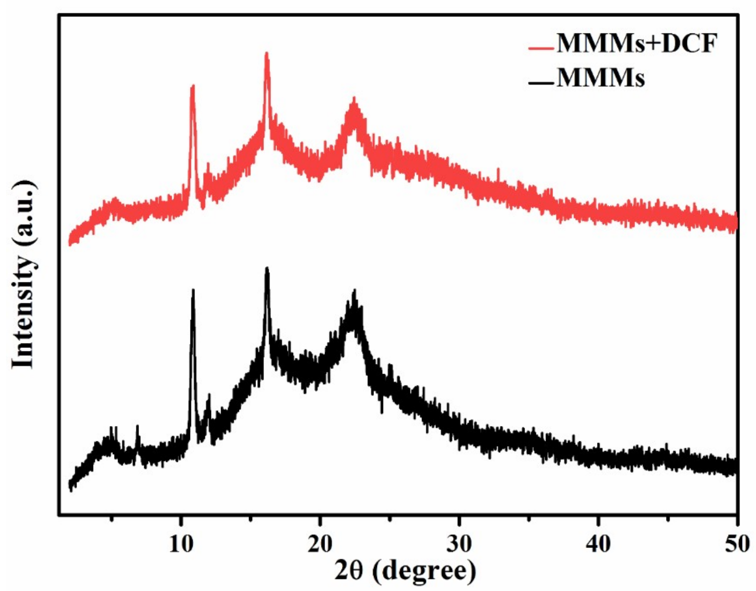

Figure S15. XRD patterns of MMMs before and after quenching.

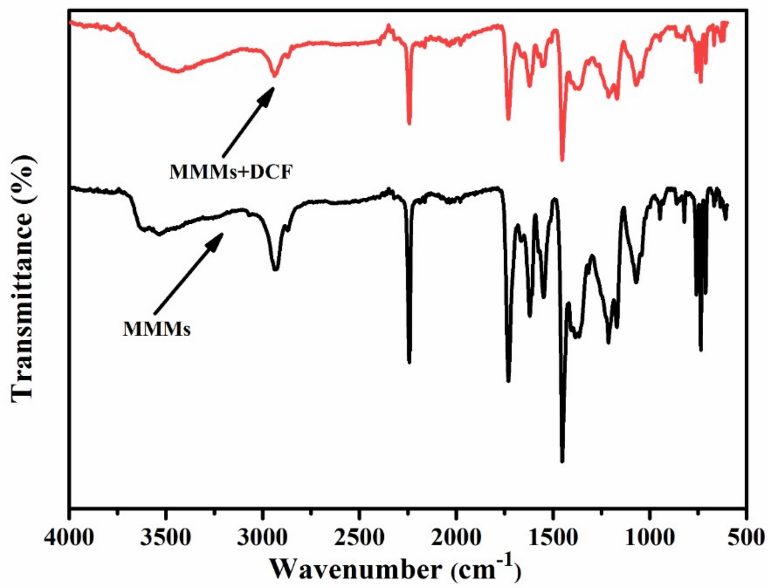

Figure S16. FT-IR spectra of MMMs before and after quenching.

Table S1. Soak MMMs in diclofenac sodium solution for 12 hours, the content of Tb element in the solution.

Samples	Tb content
Blank	Not detected
Solution	6.1×10^{-10} g/l

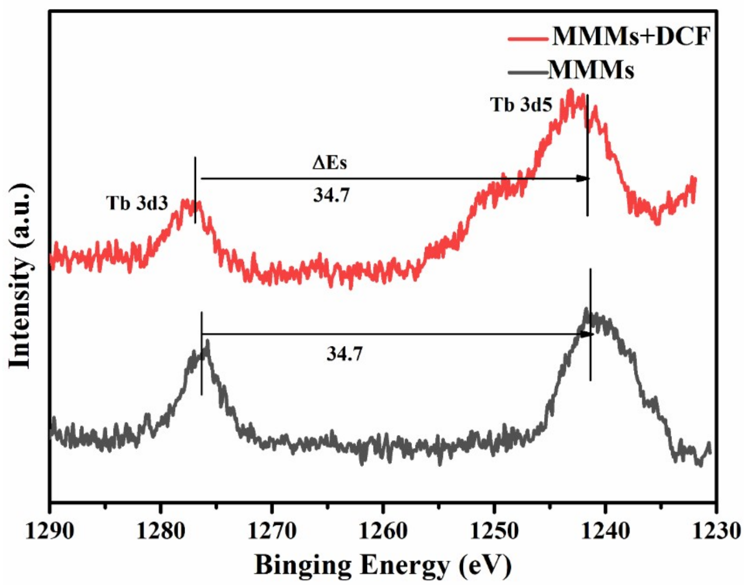

Figure S17. Tb 3d electron XPS spectra of MMMs before and after quenching.

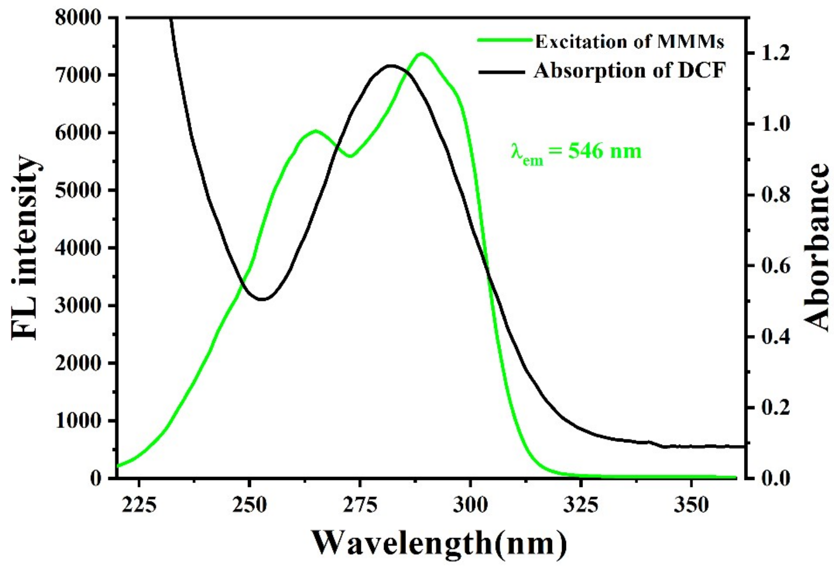

Figure S18. Excitation spectrum of MMMs (green, λ_{em} = 546 nm) and UV absorption spectrum (black) of DCF.

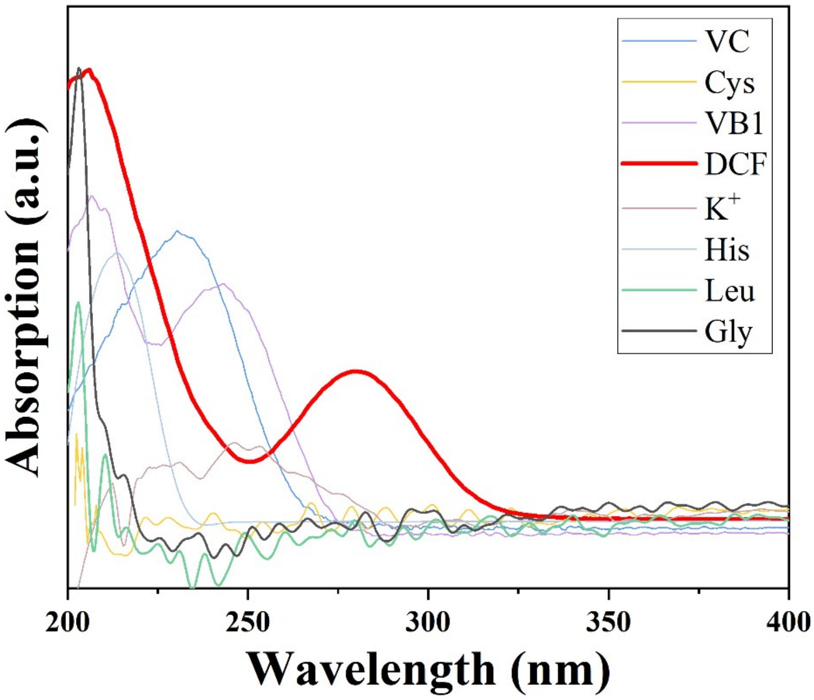

Figure S19. Ultraviolet absorption of different substances.

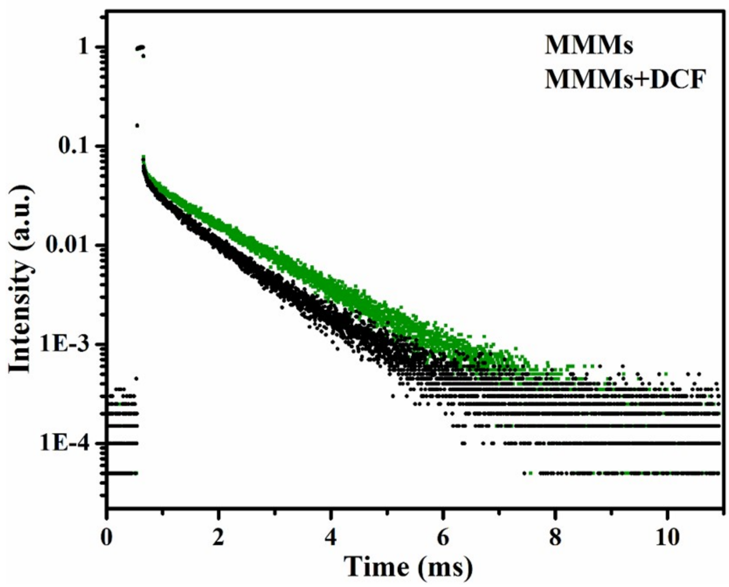

Figure S20. Fluorescence lifetime decay curves of MMMs before and after detection of DCF.

Table S2. Fluorescence lifetime of MMMs before and after detection of DCF.

Sample	Lifetime
Before	77 μs
After	52 μs

Table S3. The calculation results of singlet and triplet energy levels of H_3BTC and DCF molecules.

Molecules	S_1 level (e.v.)	T_1 level (e.v.)
H_3BTC	5.0919	4.5850
DCF	4.7106	4.5628

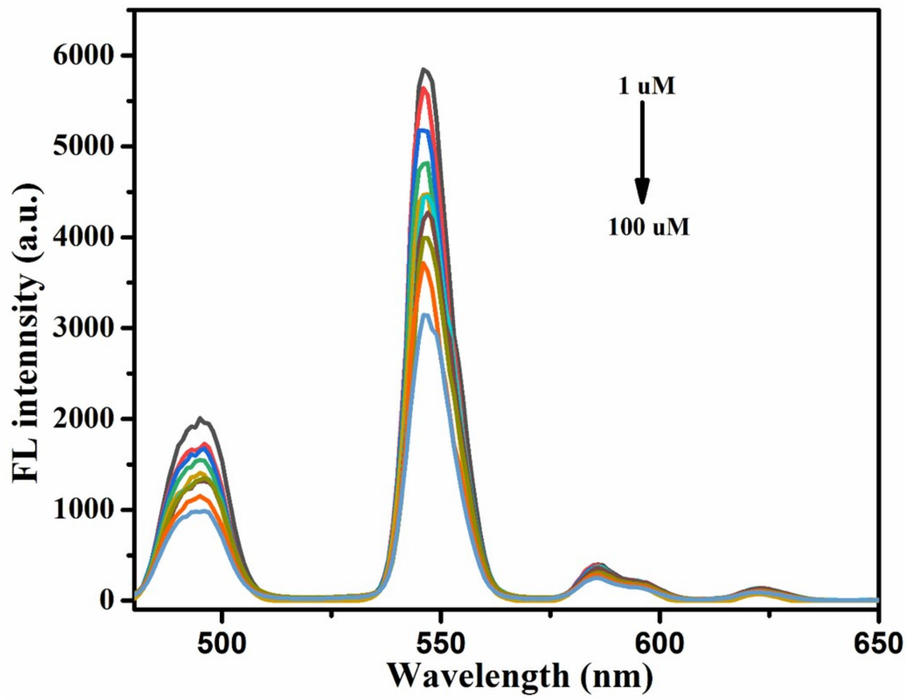

Figure S21. Fluorescence emission spectra of MMMs in DCF solutions with different concentrations.

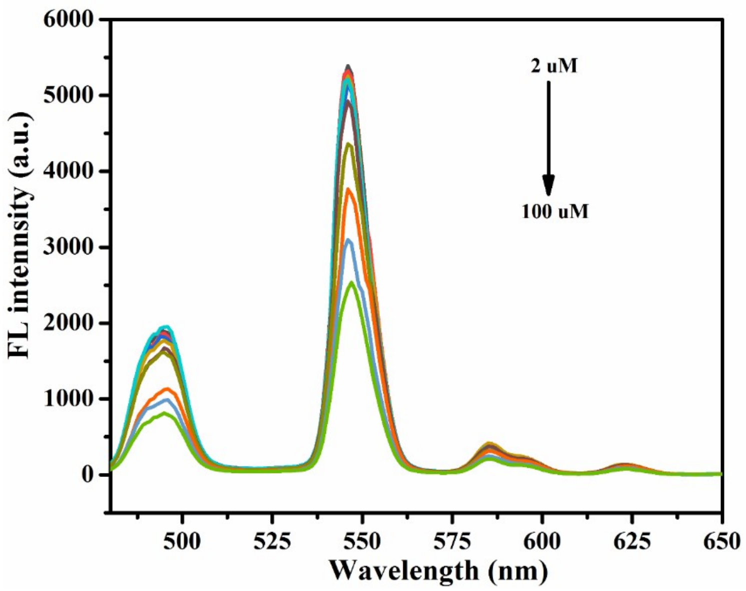

Figure S22. Fluorescence emission spectra of MMMs in serum containing DCF with different concentrations.

Table S4. Determination of DCF in pig serum.

Sample	**Amount added (10^{-6} M)**	**Amount found (10^{-6} M)**	**Recovery (%)**	**RSD (%) (n=3)**
1	5	4.97 ± 0.45	99.4	9.05
2	20	19.38 ± 0.21	96.9	1.08
3	40	40.44 ± 0.24	10.11	0.59

Figure S23. (a) MMMs after detecting DCF; (b) MMMs before detecting DCF; (c) MMMs before detecting DCF and washed with deionized water.

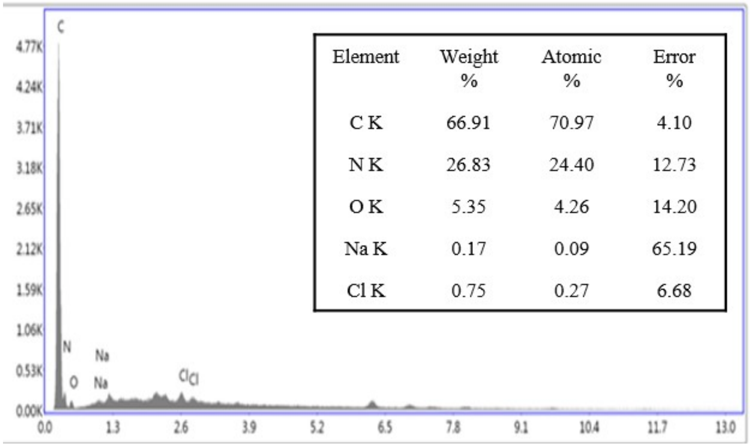

Figure S24. EDS spectrum of MMMs quenched and cleaned again (Inset: Analysis of crystal element content).

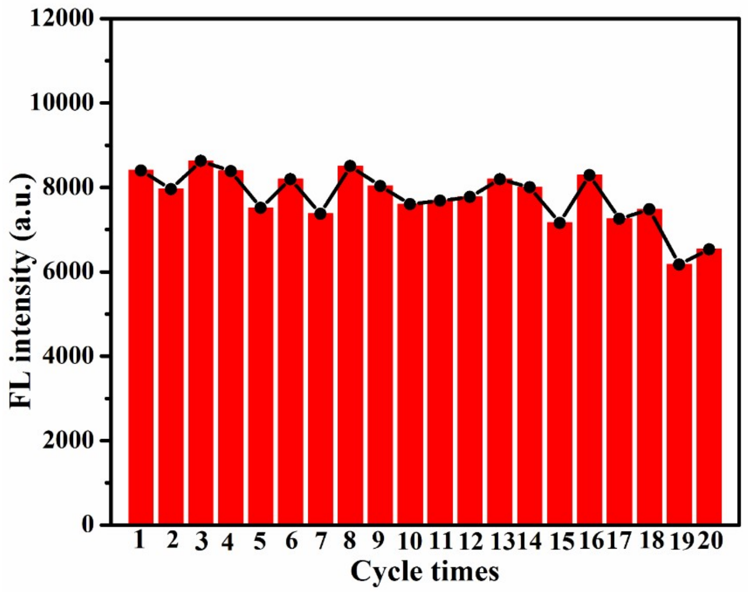

Figure S25. The repeated determination of DCF in serum using the as-prepared MMMs.