Electronic Supplementary Material

Thin platelet- like COF Nanocomposites for Blood Brain Barrier Transport and Inhibition of Brain Metastasis from Renal Cancer

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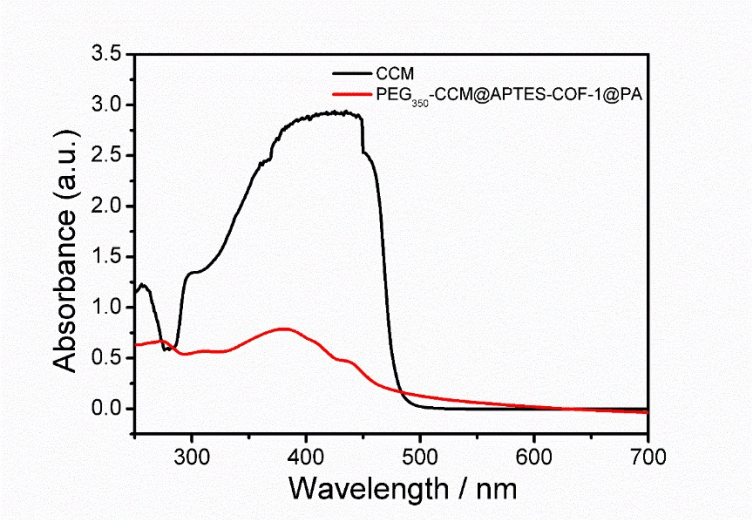

Figure S1. UV−vis spectra of the COF-based materials in methanol solution.

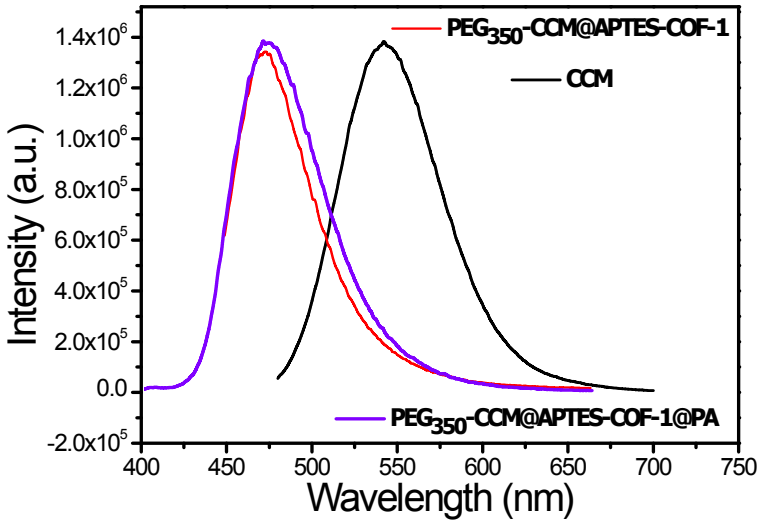

Figure S2. PL spectra of free CCM (black solid line) and PEG_{350}-CCM@APTES-COF-1@PA (red solid line).

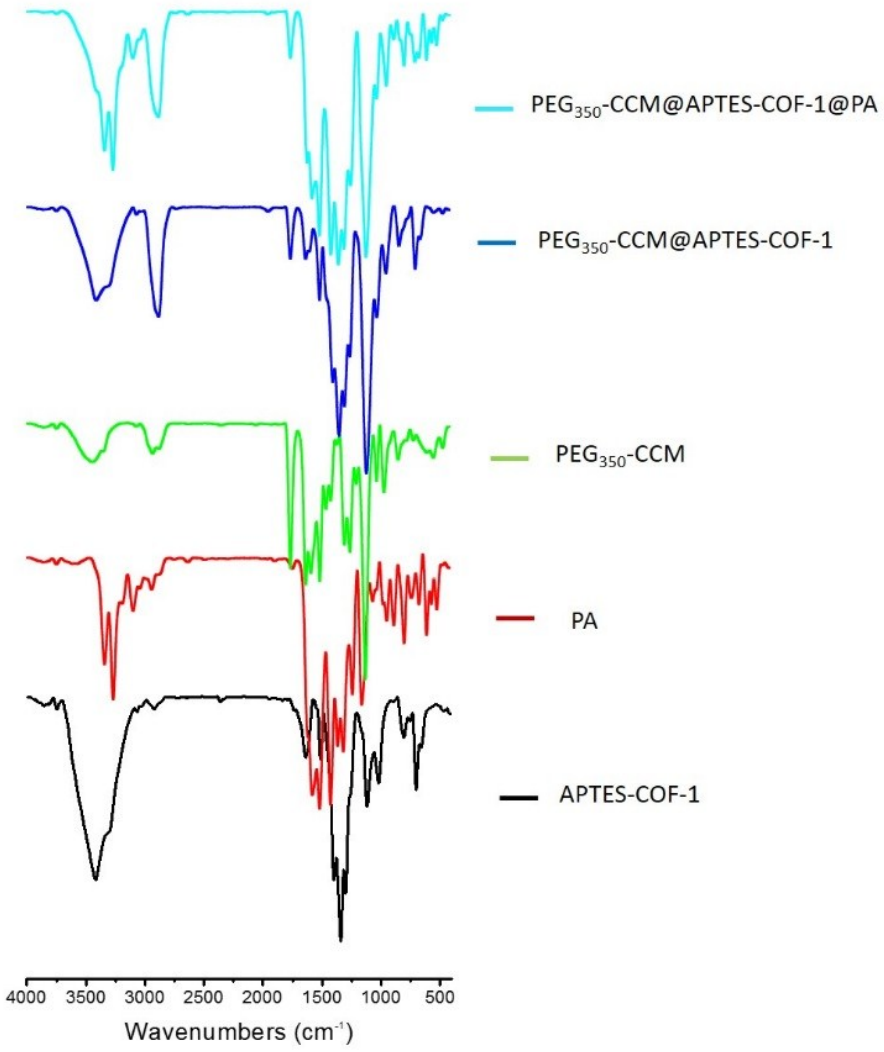

Figure S3. FT-IR spectra of APTES-COF-1, PA, PEG_{350}-CCM, PEG_{350}-CCM@APTES-COF-1, and PEG_{350}-CCM@APTES-COF-1@PA.

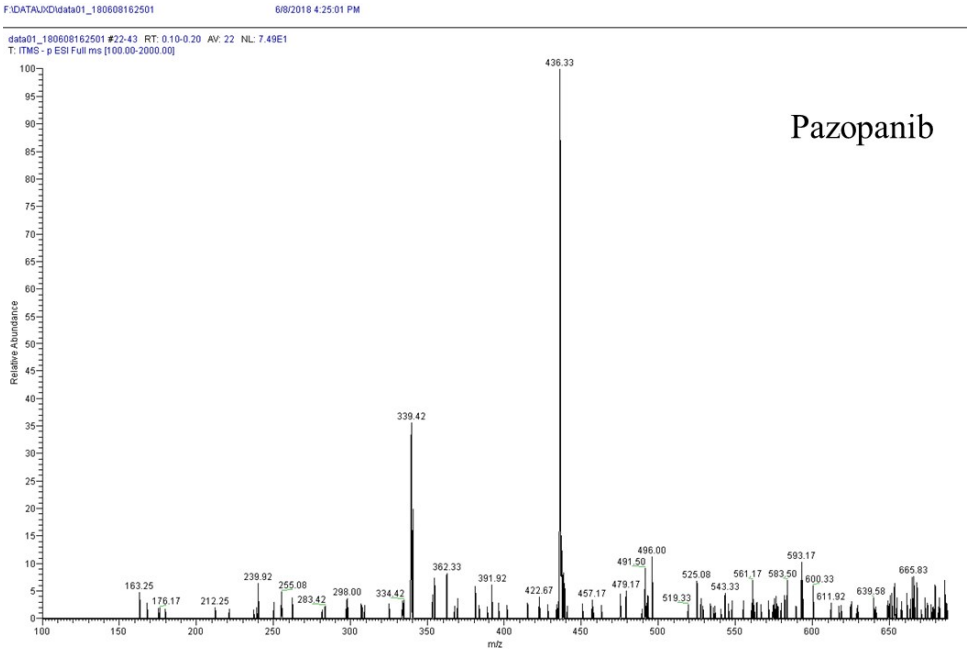

Figure S4. ESI-MS spectra of PA monomer.

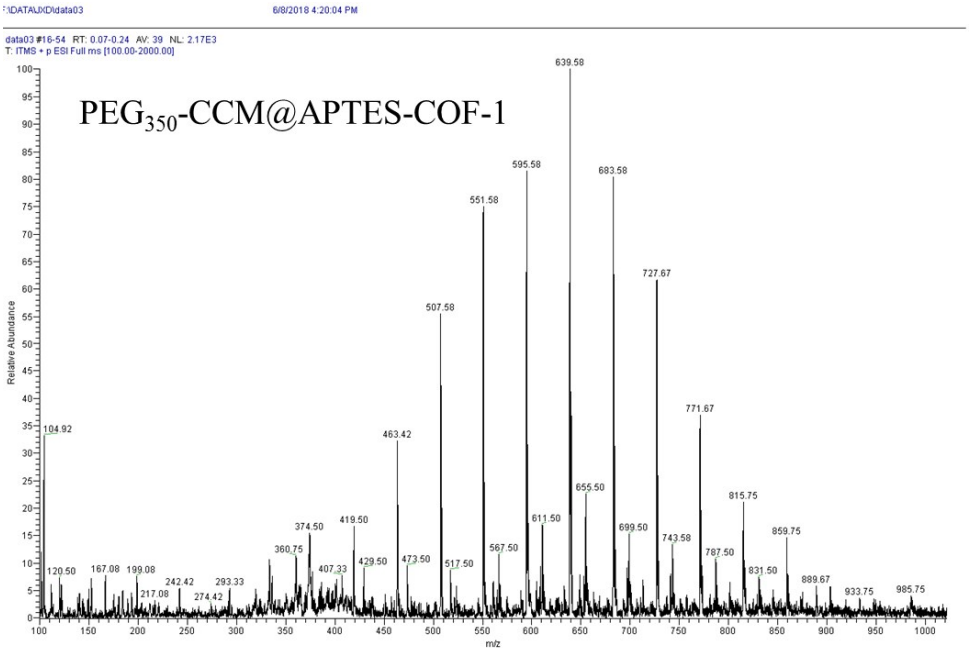

Figure S5. ESI-MS spectra of PEG_{350}-CCM@APTES-COF-1 monomer.

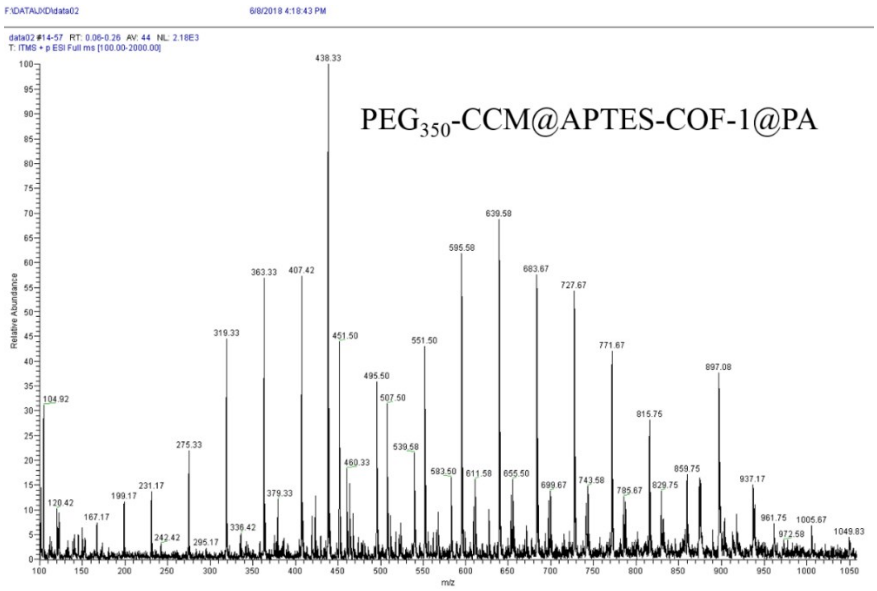

Figure S6. ESI-MS spectra of PEG_{350}-CCM@APTES-COF-1@PA monomer.

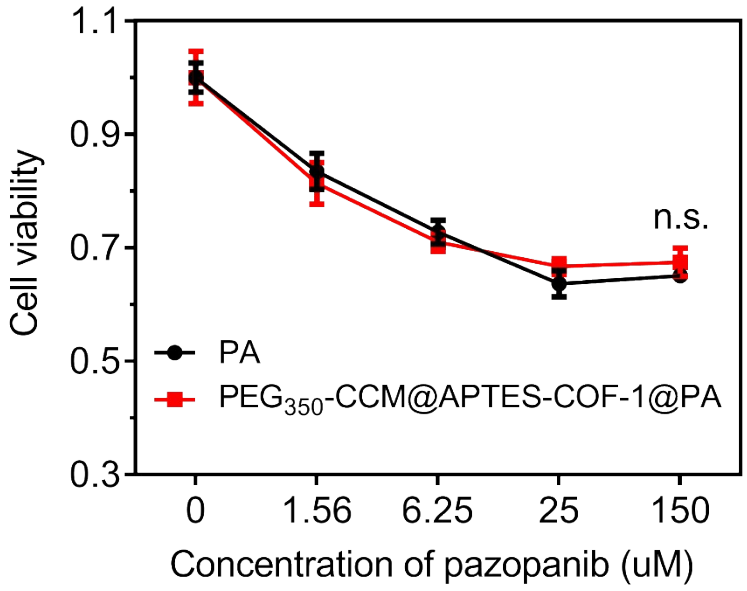

Figure S7. Cytotoxicity of PEG_{350}-CCM@APTES-COF-1@PA against renal cells (Renca) after 48 h- incubation at different concentrations. Error bars indicate s.d. (n=4). n.s. P>0.05.

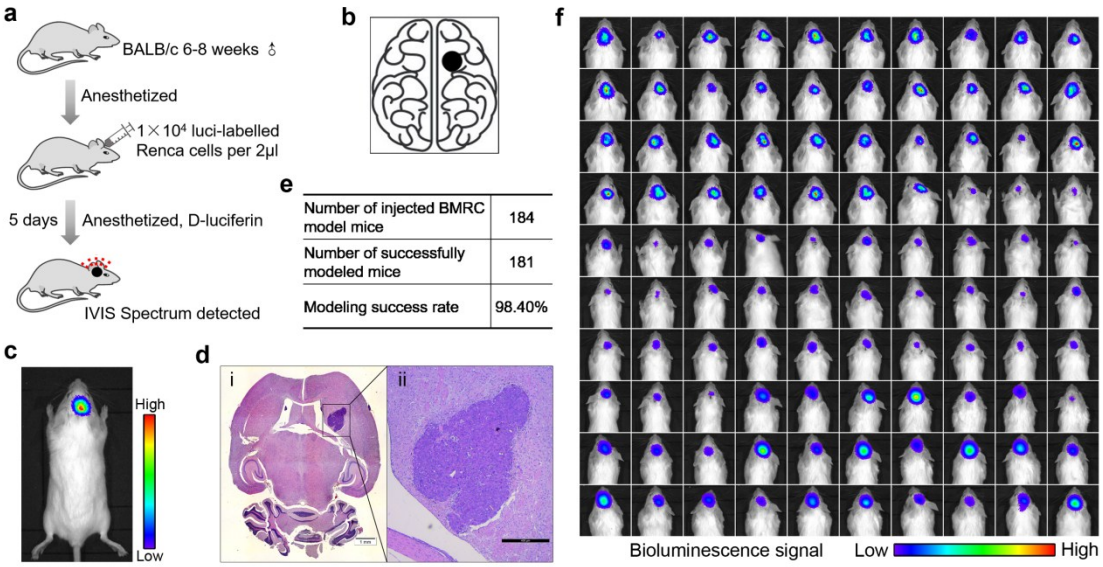

Figure S8. Establishment and verification of the intracranial BMRC model. a Schematic illustration of the construction of the intracranial BMRC model; **b** schematic diagram of the puncture point in the mouse brain; **c** representative bioluminescence image of one successfully established BMRC model five days after intracranial injection; **d** histopathological (H&E-stained) section of renal cancer cell growth in brain on the cross section (scale bars: (i) 1000 μm and (ii) 400 μm); **e** statistical results of the BMRC model established in this study; **f** One hundred different representative *in vivo* bioluminescence images of successfully established BMRC mice (Statistics of 100 mice).

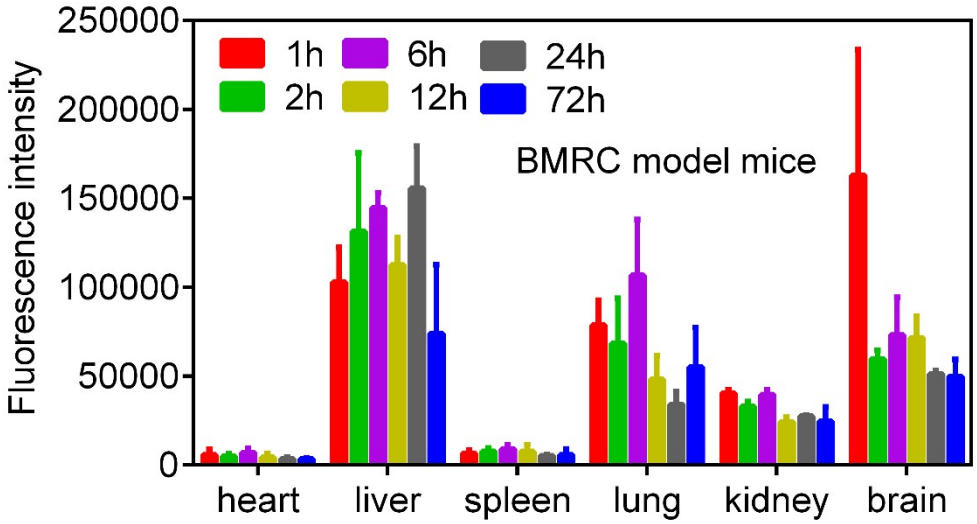

Figure S9. Region-of-interest analyses of absolute fluorescent signals from the BMRC mice. Tail injection into the mice was at a single sample dose of 50 mg kg^{-1} in PBS. Error bars indicate s.d. (n=2-3 independent experiments).

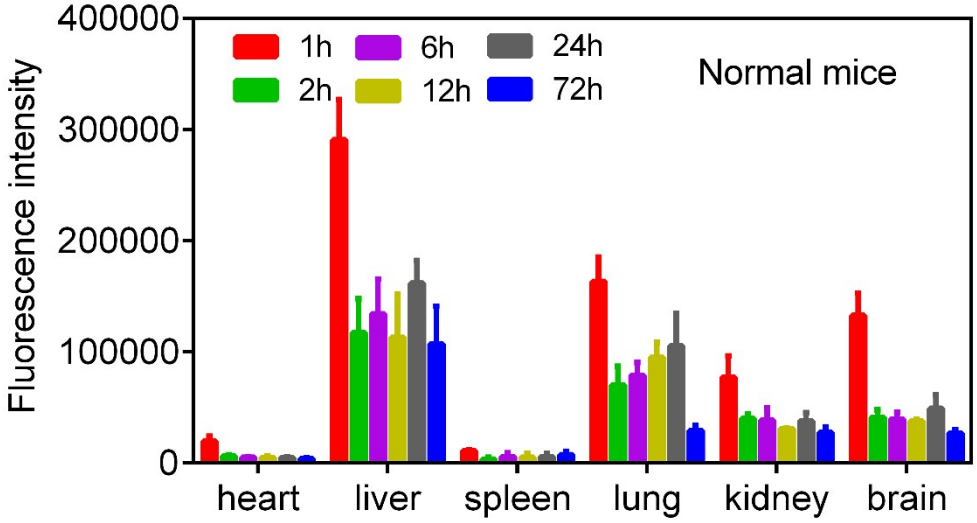

Figure S10. Region-of-interest analyses of absolute fluorescent signals from the normal mice. Tail injection into the mice was at a single sample dose of 50 mg kg^{-1} in PBS. Error bars indicate s.d. (n=2-3 independent experiments).

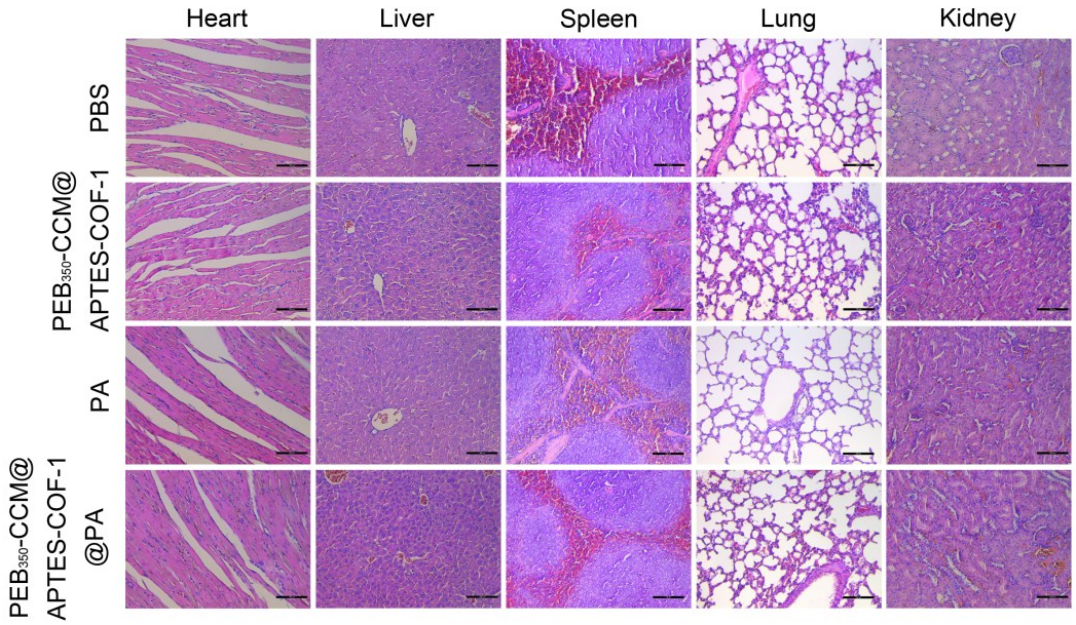

Figure S11. Biosafety analysis of PA-loaded naocomposites in tumor-bearing mice. Pathological analysis of the H&E-stained main organs sections of mice treated with PBS, PEG_{350}-CCM@APTES-COF-1, PA, and PEG_{350}-CCM@APTES-COF-1@PA. No significant pathological change was observed in all of the organs. For all images: scale bar represents 100 μm.

Figure S12. Assay of PEG_{350}-CCM@APTES-COF-1@PA

	Sample Name	Internal standard peak area (Ai)	API peak area (As)	As/Ai	Average	Sample weight (g)	Injection concentration (μg ml^{-1})	PA content calculation	Average
Samples	PEG_{350}-CCM@APTES-COF-1@PA-1-1	496014	3993540	8.05	-	0.0100	-	46.05%	45.83%
	PEG_{350}-CCM@APTES-COF-1@PA-1-2	495851	3984327	8.04		0.0100	-	45.96%	
	PEG_{350}-CCM@APTES-COF-1@PA-2-1	497942	3979699	7.99		0.0100	-	45.72%	
	PEG_{350}-CCM@APTES-COF-1@PA-2-2	498436	3974442	7.97		0.0100	-	45.61%	
Control	PA-1-1	502213	4407382	8.78	8.74	0.0100	50	-	-
	PA-1-2	502289	4401708	8.76		0.0100	50	-	-
	PA-2-1	504576	4398433	8.72		0.0100	50	-	-
	PA-2-2	505471	4402298	8.71		0.0100	50	-	-