

Supplementary Information

Metal-Organic Framework-Interfaced ELISA Probe Affords Ultrasensitive Detection of Extracellular Vesicle Biomarkers

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Table of Content

Figure S1	NTA data of MAF-7 and HRP@MAF-7	Pg. S2
Figure S2	EDX mapping of elemental distributions for MAF-7	Pg. S2
Figure S3	77 K N ₂ adsorption isotherms for MAF-7.	Pg. S3
Figure S4	Enzymatic activity of free-HRP and HRP@MAF-7 after thermal treatment	Pg. S4
Table S1	Detection of CD147 spiked in human plasma samples by MELISA	Pg. S5
Table S2	Plasma samples used in this research	Pg. S5

Methods

Nanoparticles Tracking Analysis (NTA). NTA data was obtained using Particle Metrix particle tracking analyzer from ZetaView equipped with a sample chamber with a 640-nm laser and a Viton fluor elastomer O-ring. The samples were diluted 1000 times and injected in the sample chamber with sterile syringes (BD Discardit II) until the liquid reached the tip of the nozzle. All measurements were performed at room temperature.

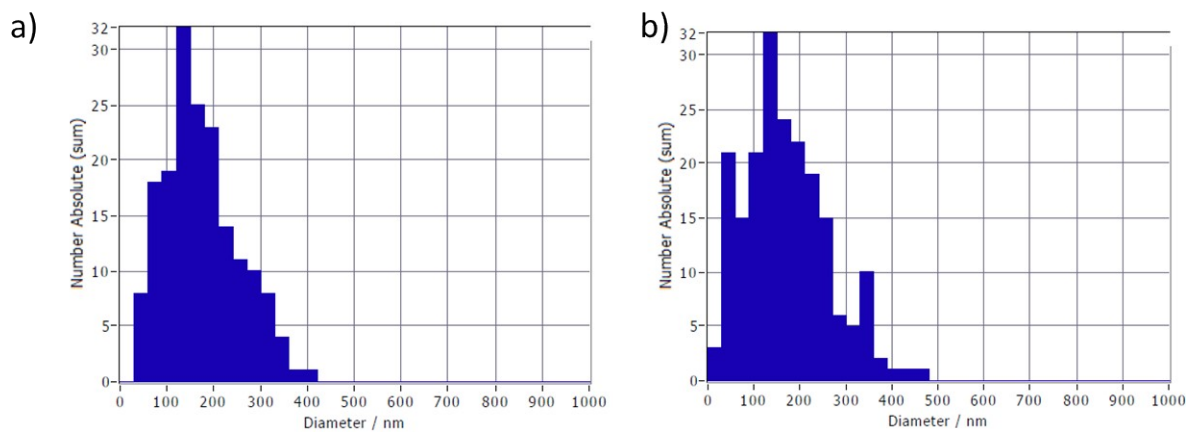


Figure S1. NTA data of MAF-7 (left) and HRP@MAF-7 (right)

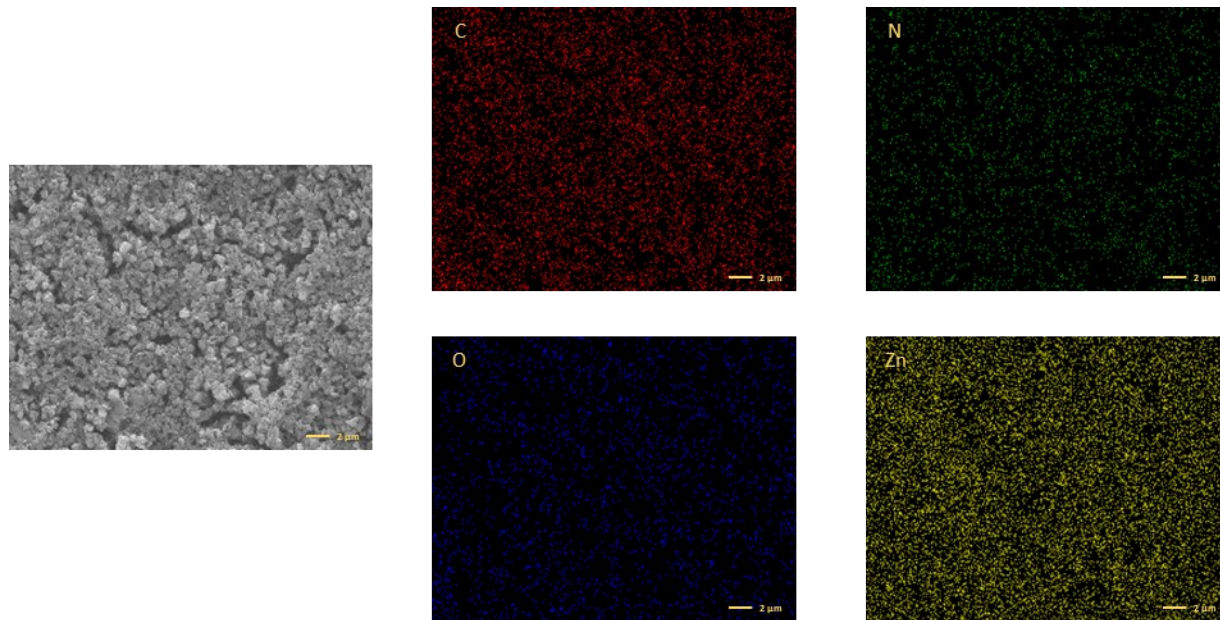


Figure S2. SEM (left) of MAF-7 and corresponding EDX mapping of elemental distributions for Carbon, Nitrogen, Oxygen, and Zinc (right).

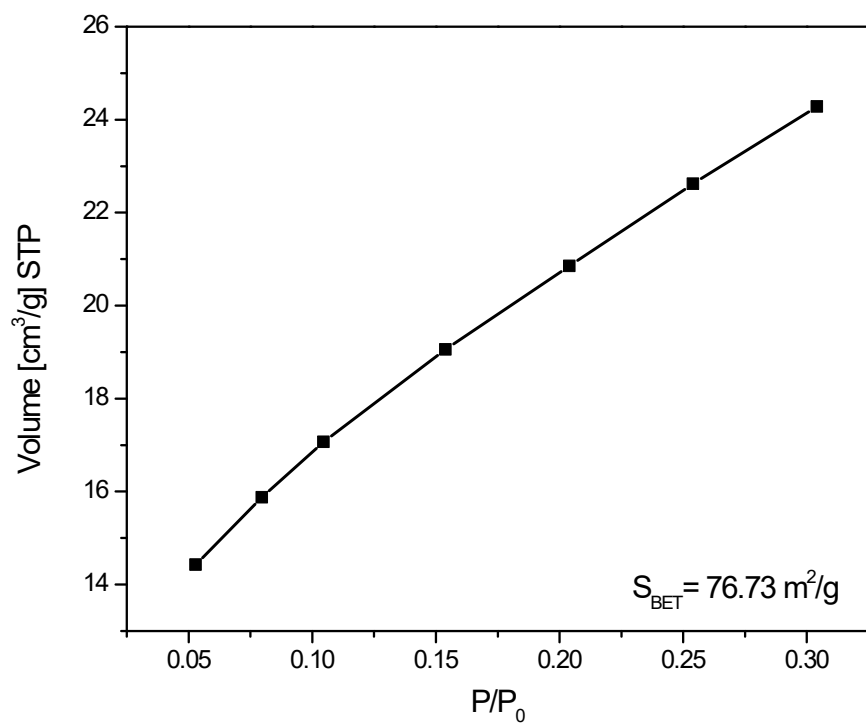


Figure S3. 77 K N₂ adsorption isotherms for MAF-7. The calculated BET surface area was listed in the inset.

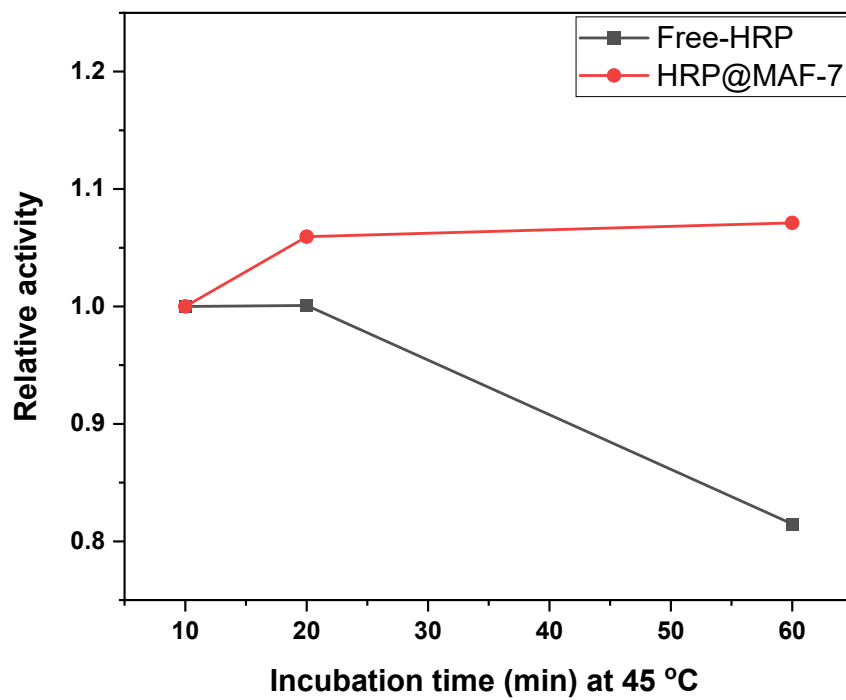


Figure S4. The enzymatic activity of free-HRP and HRP@MAF-7 after subjecting them to thermal treatment at 45 °C for varying durations.

Table S1: Detection of CD147 spiked in human plasma samples by MELISA

Sample	Added (pg/mL)	Found (pg/mL)	Recovery (%)	RSD (%)
1	1	1.10	110	4.6
2	10	9.08	90.8	7.9
3	100	110.1	110.1	1.6

Table S2: Plasma samples used in Figure 6.

Breast Cancer Patients	Age	Pathology Status	Histologic Type	Specimen Type
1	61	Primary Cancer	Ductal carcinoma	Plasma
2	57	Primary Cancer	Carcinoma, NOS	Plasma
3	30	Primary Cancer	Carcinoma, NOS	Plasma
4	36	Primary Cancer	Ductal carcinoma	Plasma
5	69	Primary Cancer	Ductal carcinoma	Plasma
Non-cancer control	Age	Pathology Status	Histologic Type	Specimen Type
6	/	Healthy Control	No history of cancer	Plasma
7	/	Healthy Control	No history of cancer	Plasma
8	/	Healthy Control	No history of cancer	Plasma
9	/	Healthy Control	No history of cancer	Plasma
10	/	Healthy Control	No history of cancer	Plasma