Orthogonal Barcoding Enabled Smart Nanodevice for Highly Efficient Isolation and Proteomic Profiling of Tumor-Derived Extracellular Vesicles

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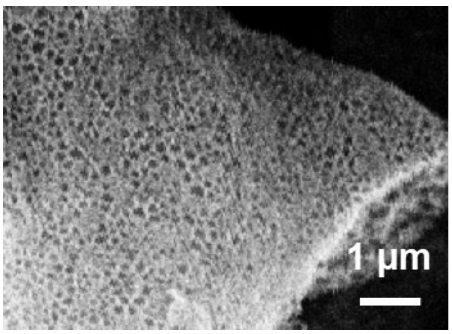

Fig. S1 SEM image of MOSF.

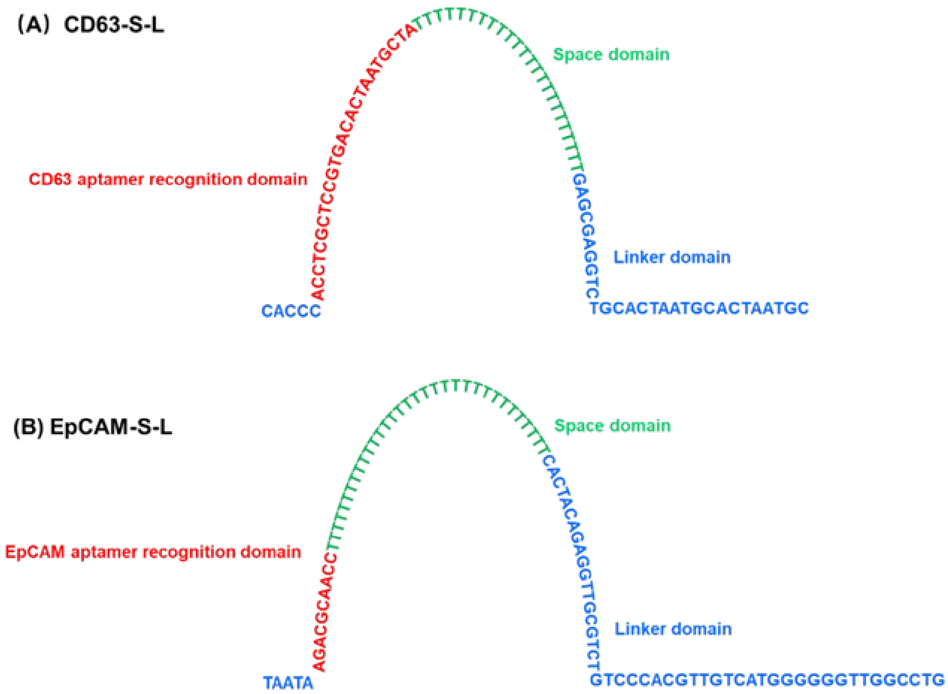

Fig. S2 Structure of dual-allosteric-aptamer probes CD63-S-L and EpCAM-S-L.

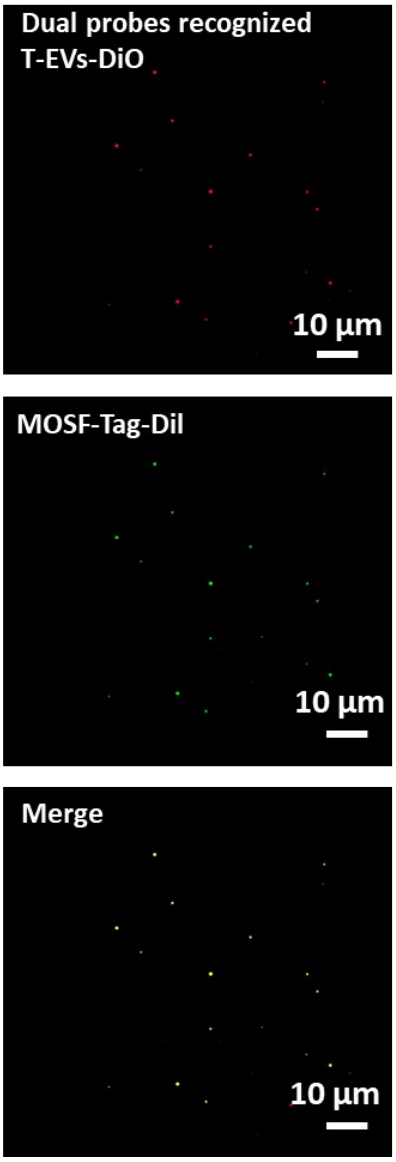

Fig. S3 TIRFM images demonstrate the orthogonal binding between the dual probes recognized T-EVs and MOSF-Tag.

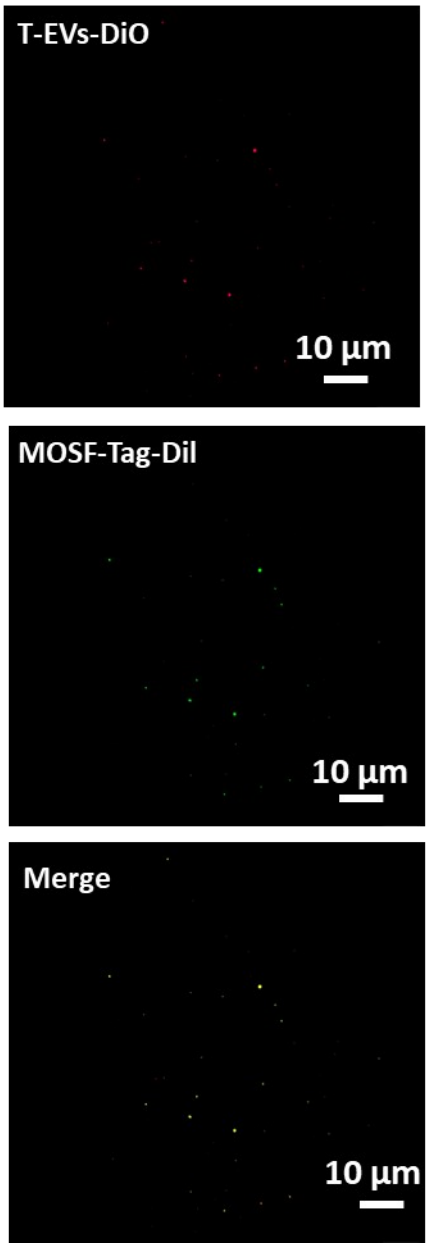

Fig. S4 TIRFM images demonstrate the non-target binding between the T-EVs and MOSF-Tag.

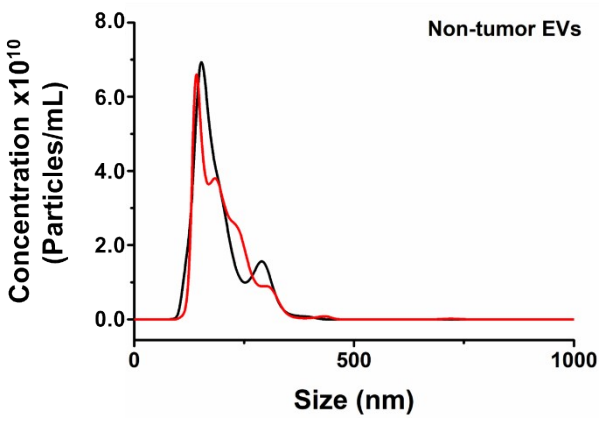

Fig. S5 NTA characterization of EVs from the non -tumor cell culture medium before and after the smart nanodevice isolation.

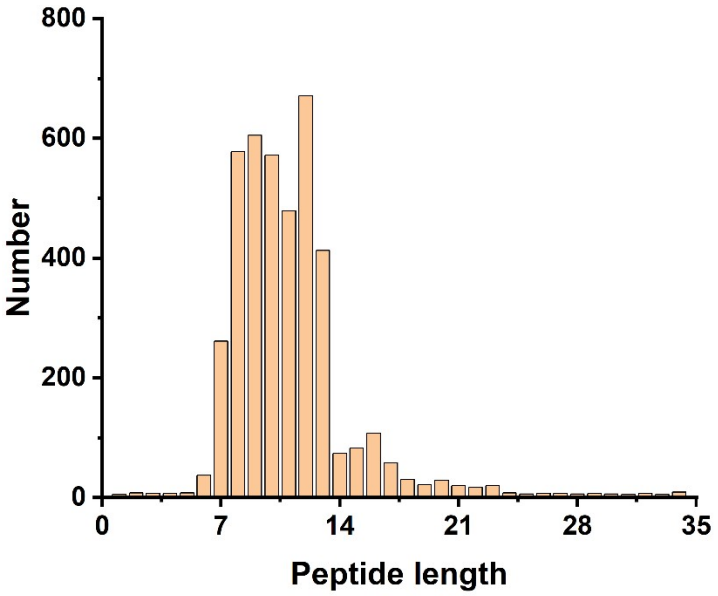

Fig. S6 The histogram of peptide length (number of amino acid residues) distribution of identified peptides from the cell culture medium by the smart nanodevice.

Table S1. The 12 PCa patients used for the T-EVs proteins assay by the four methods.

Sample No.	Age	PSA (ng/mL)	Clinical Investigation
1	57	23	PCa
2	63	67	PCa
3	65	39	PCa
4	70	123	PCa
5	74	96	PCa
6	68	57	PCa
7	56	83	PCa
8	53	53	PCa
9	61	46	PCa
10	79	72	PCa
11	68	80	PCa
12	73	26	PCa

Table S2. The clinical information of the 20 PCa patients and 10 HD used for the biomarker screening by the smart nanodevices.

Sample No.	Age	PSA (ng/mL)	Clinical Investigation
1	49	46	PCa
2	55	75	PCa
3	60	130	PCa
4	63	115	PCa
5	81	68	PCa
6	69	45	PCa
7	57	92	PCa
8	53	48	PCa
9	59	53	PCa
10	65	46	PCa
11	73	74	PCa
12	72	35	PCa
13	79	38	PCa
14	64	103	PCa
15	68	67	PCa
16	57	46	PCa
17	53	71	PCa
18	58	63	PCa
19	50	37	PCa
20	67	58	PCa
21	59	/	HD
22	65	/	HD
23	74	/	HD
24	59	/	HD
25	68	/	HD
26	73	/	HD
27	56	/	HD
28	57	/	HD
29	63	/	HD
30	68	/	HD