Supplementary Information (SI) for Journal of Materials Chemistry B.

Supplementary Data

Liposome-encapsulated lambda exonuclease-based amplification system for enhanced detection of miRNA in platelet-derived microvesicles of non-small cell lung cancer

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Chemicals and reagents

1,2-distearoyl-sn-glycero-3-phosphocholine (DPPC), PEGylated 1,2-dipalmitoyl-rac-glycero-3-phosphoethanolamine-Biotin [DPPE-PEG (2000)-Biotin], cholesterol, bovine serum albumin (BSA) and streptavidin protein were purchased from Sigma-Aldrich Ltd (Shanghai, China). Lambda exonuclease enzyme (λ EXO) and lambda exonuclease buffer were purchased from the New England Biolabs Ltd (Beijing, China). DiD (1,10-Dioctadecyl-3,3,30,30-Tetramethylindodicarbocyanine,4-Chlorobenzenesulfonate Salt), DiI (1,10-dioctadecyl-3,3,30,30-tetramethylindocarbocyanine perchlorate), DIO (3,30-dioctadecyloxacarbocyanine perchlorate) and biotinylated CD41a antibody were obtained from Beyotime Biotech Inc (Shanghai, China). The CD41a antibody labeled with FITC was sourced from Biolegend (Beijing, China). Additionally, the SanPrep Column MicroRNA Mini-Prep Kit, MicroRNA First Strand cDNA Synthesis Kit, and MicroRNA qPCR Kit (SYBR Green Method) were acquired from Sangon Biotech (Shanghai, China). All other chemicals utilized in the experiment were analytical grade and were used without further purification. Throughout the experimental procedures, ultrapure water with a resistivity of 18.2 MΩ cm, obtained from the microporous filtration system (Billerica, USA), was employed for the preparation of solutions.

The oligonucleotide sequences were synthesized and HPLC-purified by Sangon Biotech Co., Ltd (Shanghai, China), which is listed in **Table S1**.

Table S1 Oligonucleotide sequences.

Name	Sequence (5'→3')	F-Primer
miRNA-1246	AAUGGAUUUUUGGAGCAGG	CGCAATGGATTTTTGGAGCAGG
miRNA-21	UAGCUUAUCAGACUGAUGUUGA	CGGTAGCTTATCAGACTGATGTTGA
miRNA-223	UGUCAGUUUGUCAAAUACCCCA	CGCTGTCAGTTTGTCAAATACCCCA
miRNA-141	UAACACUGUCUGGUAAAGAUGG	CGCCTAACACTGTCTGGTAAAGATGG
P1	**P-** TCAACATCAGTCTGATAAGCTAG AAC- **BHQ1**	/
P2	**FAM-** GTTCTAGGTGTACCAGACTGATG	/

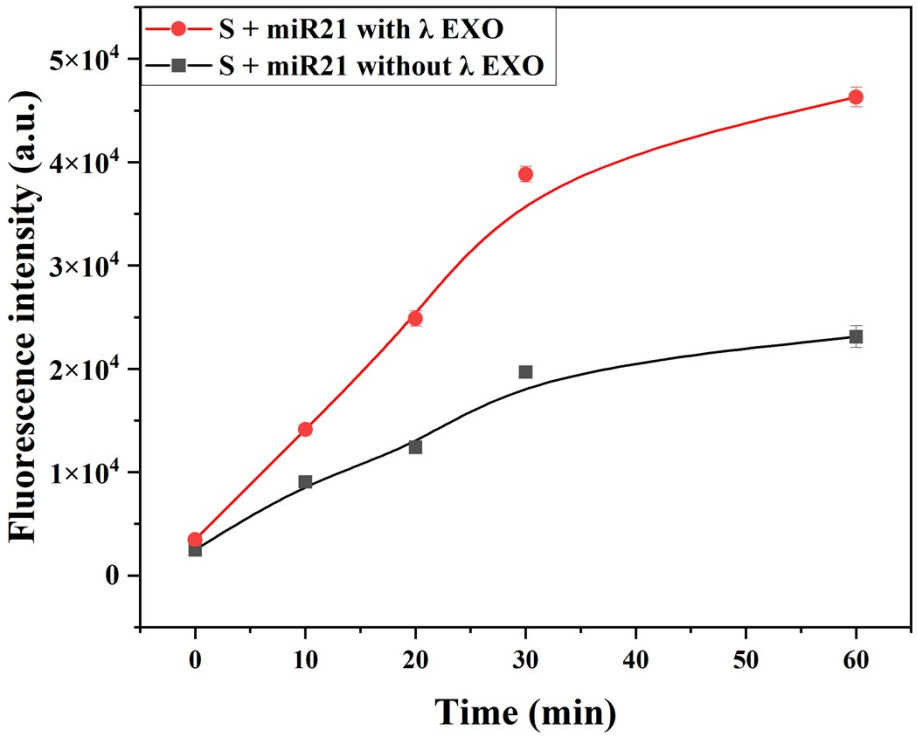

Fig. S1 Time-dependent fluorescence intensity of the amplification system in the presence (red line) and absence (black line) of λ EXO. The data are shown as the mean ± SD (n ⩾ 3).

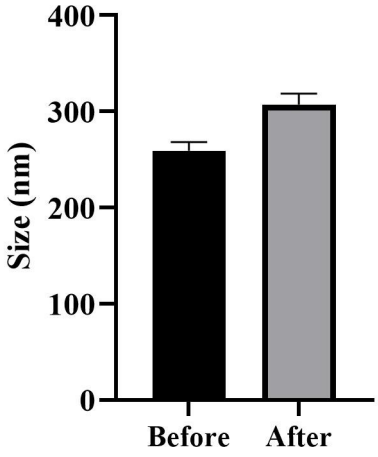

Fig. S2 Comparison of the liposome size before and after conjugation with CD41 antibody. The data are shown as the mean ± SD ($n \geq 3$).