Supplementary Information (SI) for Biomaterials Science. This journal is © The Royal Society of Chemistry 2024

Supplemental information

Bioorthogonal oncolytic-virus nanovesicles combined bioimmunotherapy with CAR-T cell for solid tumors

Guojun Huang ^{a,†}, Yiran He ^{a,b,†}, Xiaocong Chen ^a, Ting Yin ^a, Aiqing Ma ^a, Lizheng Zhu ^a, Liqi Chen ^{a,b}, Ruijing Liang ^{a,b}, Pengfei Zhang ^{a,b,*}, Hong Pan ^{a,b,*}, Lintao Cai ^{a,b,c,*}

- ^a Guangdong Key Laboratory of Nanomedicine, CAS-HK Joint Lab of Biomaterials, Shenzhen Institute of Advanced Technology (SIAT), Chinese Academy of Sciences (CAS), Shenzhen, 518055, China
- ^b University of Chinese Academy of Sciences, Beijing, 100049, China
- ^c Sino-European Center of Biomedicine and Health, Luohu, Shenzhen 518024, China
- † These authors contributed equally to this work
- * Corresponding E-mail: lt.cai@siat.ac.cn; hong.pan@siat.ac.cn; pf.zhang@siat.ac.cn; pf.zh

Supplemental figures:

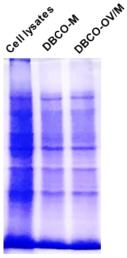


Figure S1. Sodium dodecyl sulfate - polyacrylamide gel electrophoresis (SDS-PAGE) analysis of cell lysates, DBCO-M, and DBCO-OV/M.

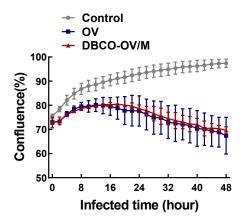


Figure S2. Cell confluence of SPCA-1 during the infection of OV or DBCO-OV/M in 48 h. The cytotoxicity of naked OV (1×10^8 VPs) and OV/M was analyzed by cell confluence. Cell confluence indicated host cell viability which was real-time monitored using Agilent xCELLigence RTCA.

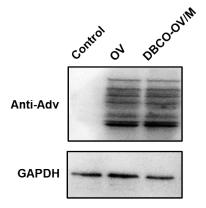


Figure S3. Western blotting assay of adenovirus proteins on OV or DBCO-OV/M treated cells, confirming the infecting capability of DBCO-OV/M.

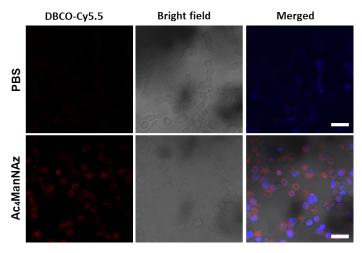


Figure S4. CLSM images of SPCA-1 cells treated with PBS or AC₄ManAz. Azide modification for SPCA-1 cells through bioorthogonal glycometabolic labeling. DBCO-cy5.5 probe was used for detecting labeling of N_3 group. Scale bar= 25 μ m.

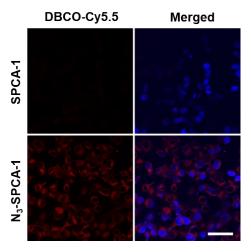


Figure S5. SPCA-1 subcutaneous tumor was injected with AC₄ManAz for Azide modification. CLSM images of tumor slides of SPCA-1 or N_3 -SPCA-1 treated with DBCO-Cy5.5. Scale bar= $100 \ \mu m$.

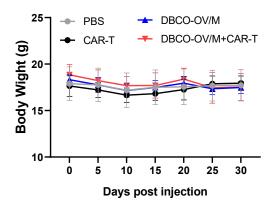


Figure S6. The body weight of mice treated with PBS (control), DBCO-OV/M nanovesicles, CAR-T, or DBCO-OV/M nanovesicles + CAR-T.

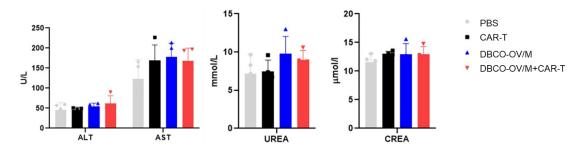


Figure S7. Liver and kidney functionality by blood test parameters after administration (mean \pm s.e.m., n = 3). no significance.

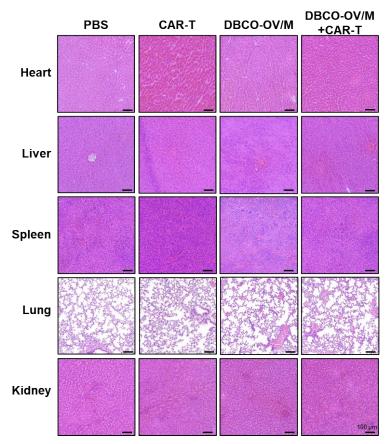


Figure S8. Tissue slices of major organ analyzed by Hematein-Eosin stain. No obvious differences in various groups were observed when compared with that in the PBS group. Scale $bar = 100 \mu m$.