**Additional file**

**Inhalable CAR-T Cell-Derived Exosomes as Paclitaxel Carriers for Treating Lung Cancer**

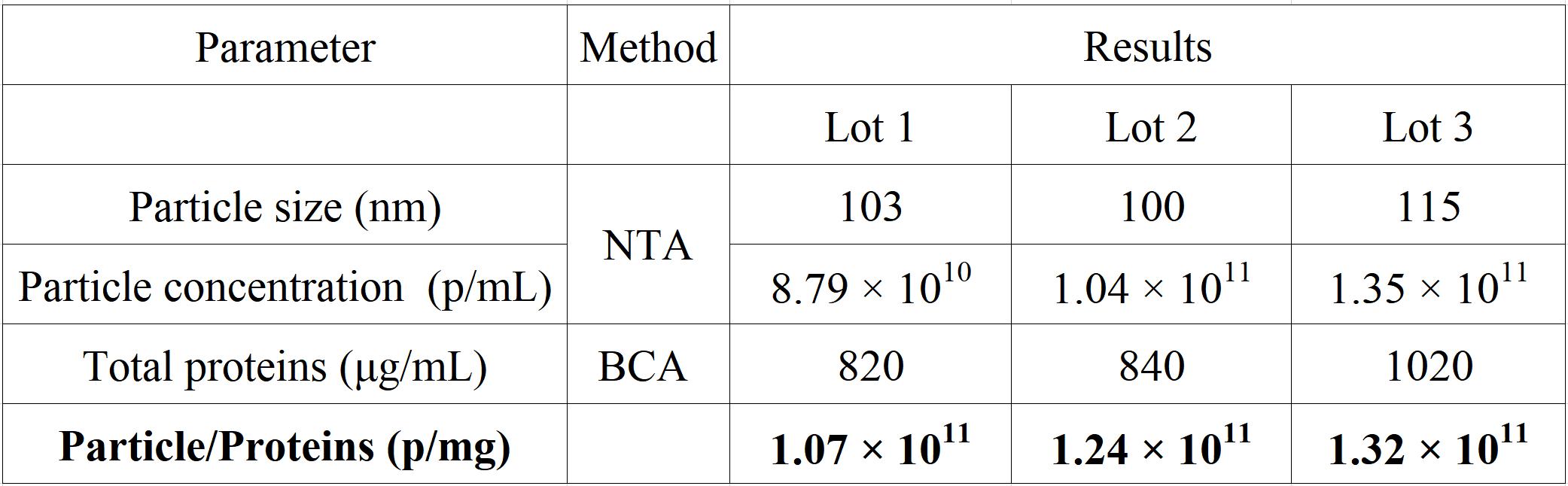
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**Figure S1.** The purity of different batches of CAR-Exos (*n* = 3). Exosome purity level required for preclinical studies: 1 × 1011 particle/mg.



**Figure S2.** **(A)** Representative TEM image of PTX@CAR-Exo. Scale bar: 100 nm. **(B)** Size distribution and zeta potential of CAR-Exo and PTX@CAR-Exo measured by NTA and DLS. Data are presented as the mean ± SD of three biological replicates.



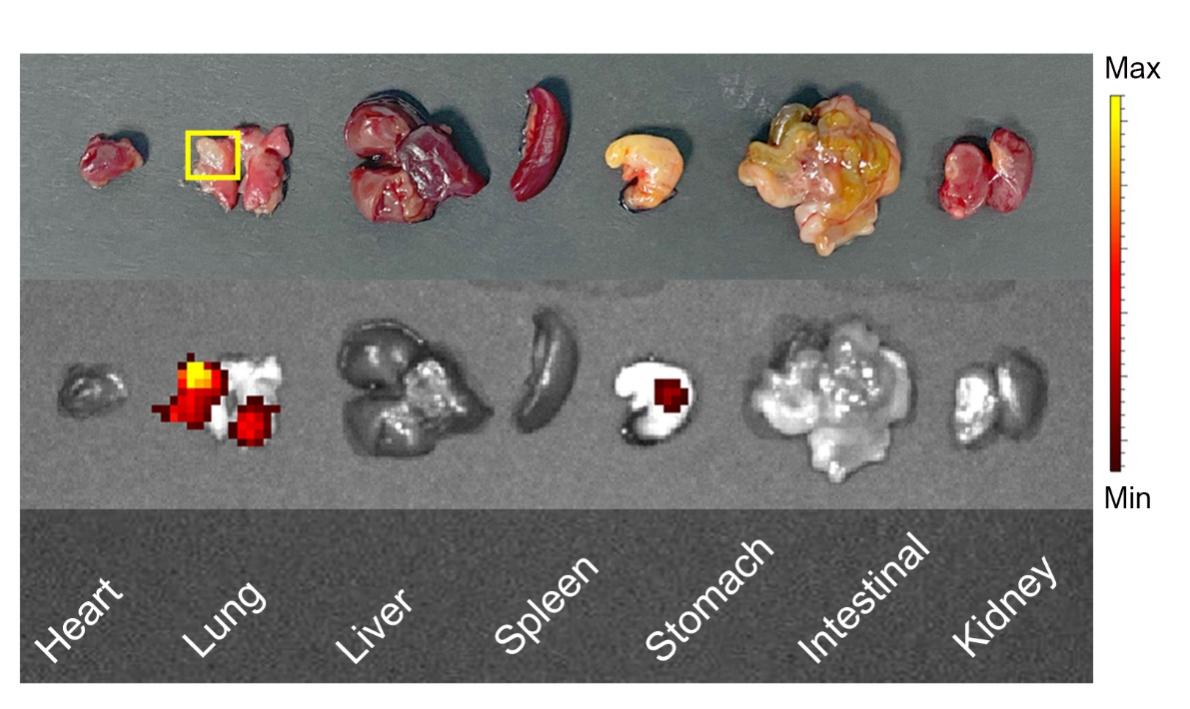
**Figure S3. (A)** Determination of the standard curve for detecting PTX using a spectrophotometer. **(B)** Mass of PTX (μg/mL) = 0.77636 × OD value - 0.01551.



**Figure S4.** Storage stability of CAR-Exo or PTX@CAR-Exo at −80°C. The average size of PTX@CAR-Exo did not change within 30 days at −80°C. Data are presented as the mean ± SD of three biological replicates.



**Figure S5.** **(A)** Representative histological images for H&E staining were obtained from the lung, liver, spleen, heart, and kidney of mice with different treatments post inhalation. Scale bars: 100 µm. **(B)** Body weights of control mice and mice receiving different treatments. **(C–E)** Serum ALT, ALP, and AST levels in mice from different treatments were used as indicators of liver injury. **(F, G)** Serum CRE and BUN levels in mice from different treatments were used as indicators of kidney function. Data are presented as the mean ± SD of three biological replicates. PBS (G1), T-Exo (G2), CAR-Exo (G3), PTX@CAR-Exo (G4).



**Figure S6.** The targeting of CAR-Exos to the orthotopic lung cancer *in vivo*. The accumulation of inhaled CAR-Exos labeled with DiR post administration were measured by IVIS system.



**Figure S7.** Survival analysis of tumor-bearing mice after CAR-Exos inhalation. \**P* < 0.05, \*\**P* < 0.01, \*\*\**P* < 0.001, \*\*\*\**P* < 0.0001, ns: not significant.



**Figure S8.** Cytokine concentrations (IL-2, IL-6, IFN-γ) in mouse peripheral blood following intravenous CAR-T cells administration or inhalation of CAR-Exos. Data are presented as the mean ± SD of three biological replicates. \**P* < 0.05, \*\**P* < 0.01, \*\*\**P* < 0.001, \*\*\*\**P* < 0.0001, ns: not significant.