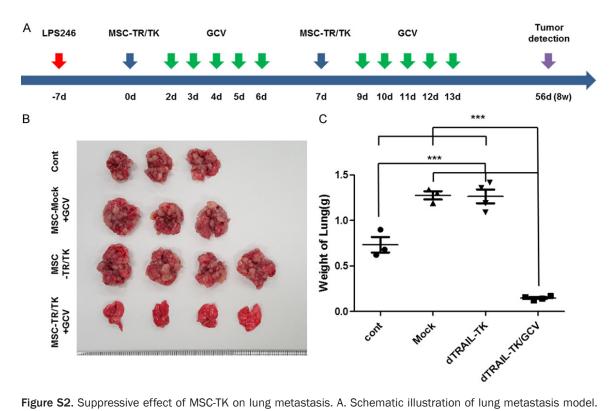


**Figure S1.** Comparison of apoptosis by dTRAIL/HSV-TK in human DDLPS cell line and PDCs. LPS246 cell lines and PDCs were labeled with 0.2 µmol/L DilC18 (5)-DS for 1 h at 37 °C, then co-cultured with engineered MSC with 100 µmol/L of GCV for 48 hours. The apoptosis induced by dTRAIL and HSV-TK was analyzed by FACS. MSC-MOCK+PDC+GCV: group co-cultured with MSC-Mock (GCV); MSC-TR/TK20+PDC: group co-cultured with 20 MOI of MSC-TR/TK (without GCV); MSC-TR/TK20+PDC+GCV: group co-cultured with 20 MOI of MSC-TR/TK (GCV).

## Targeting metastatic DDLPS with MSC-TR/TK



**Figure S2.** Suppressive effect of MSC-TK on lung metastasis. A. Schematic illustration of lung metastasis model. Engineered MSCs were intravenously injected on day 7 after tumor injection, then 50 mg/kg of GCV treatment was initiated on day 2, or 7 after MSC injections for 5 consecutive days. The numbers of metastatic tumor nodules in the lung were counted on day 63 after tumor injection (n = 3-4 mice/ group). B. Gross images of tumor burden in the lung of each group after 8 weeks of treatment (n = 2-5 mice/each group). C. Tumor-bearing lung weights. \*\*\*P < 0.001, values are the mean  $\pm$  SD.