

Figure S1. Production and characterization of therapeutic exosomes. **(a)** Schematics of isolation process for therapeutic exosomes are shown. **(b)** Size of ILB-202 were measured by NTA. **(c)** Positive and negative markers for exosomes were analyzed in naturally produced exosomes (Exo-Naïve) and ILB-202 by immunoblotting. **(d)** Purity of ILB-202 were analyzed by high performance liquid chromatography.

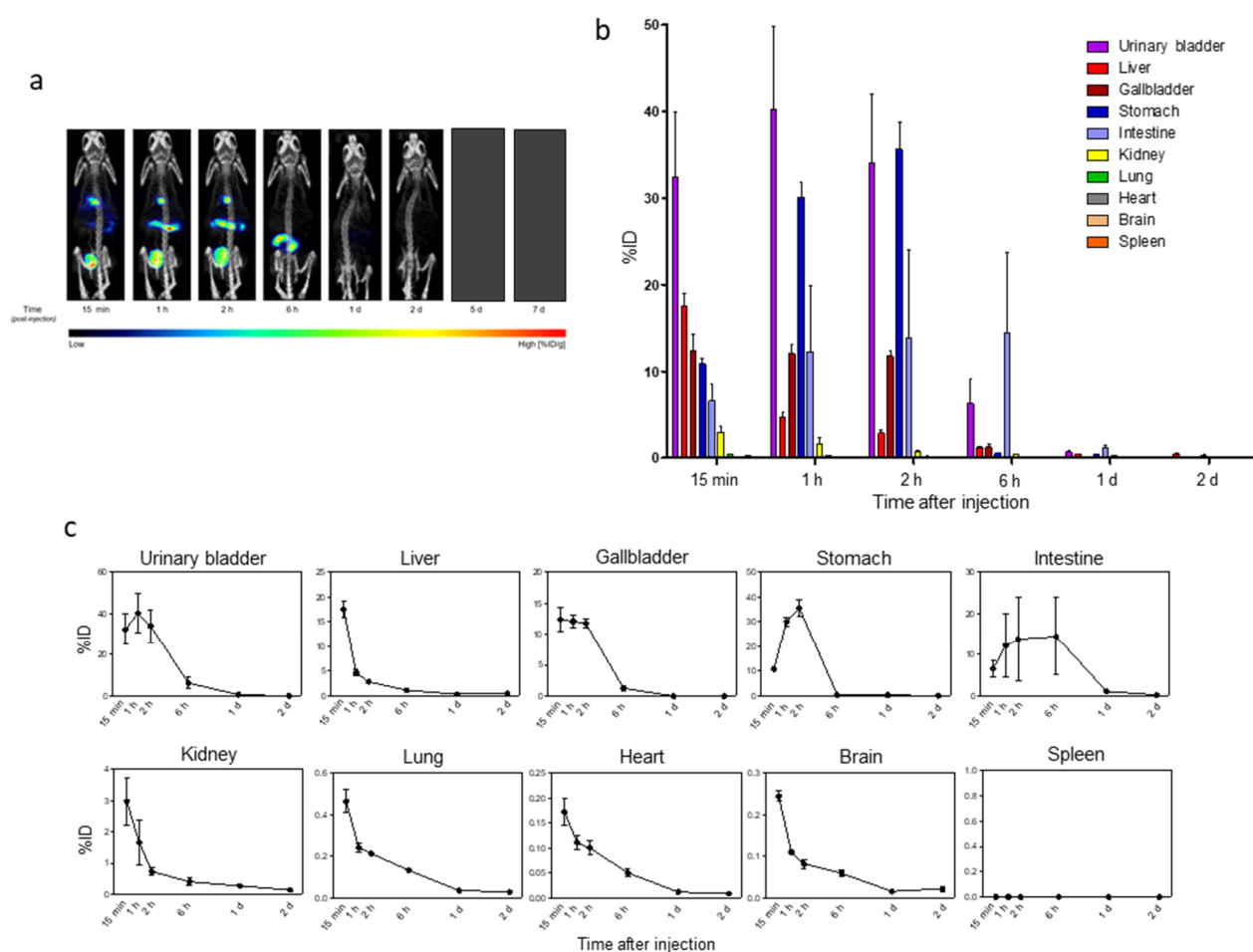


Figure S2. Biodistribution of free ^{89}Zr . **(a)** Biodistribution of i.v. administrated ^{89}Zr -DFO in mice were evaluated by %ID/g at various time points through PET/CT imaging. **(b)** Time-course distribution of ^{89}Zr -DFO in various organs of mice were analyzed by volume-of-interest analysis extracted from the PET/CT image, which are shown as %ID with SEM at various time points. **(c)** Time-course distribution of ^{89}Zr -DFO were shown in each organs as %ID with SEM.

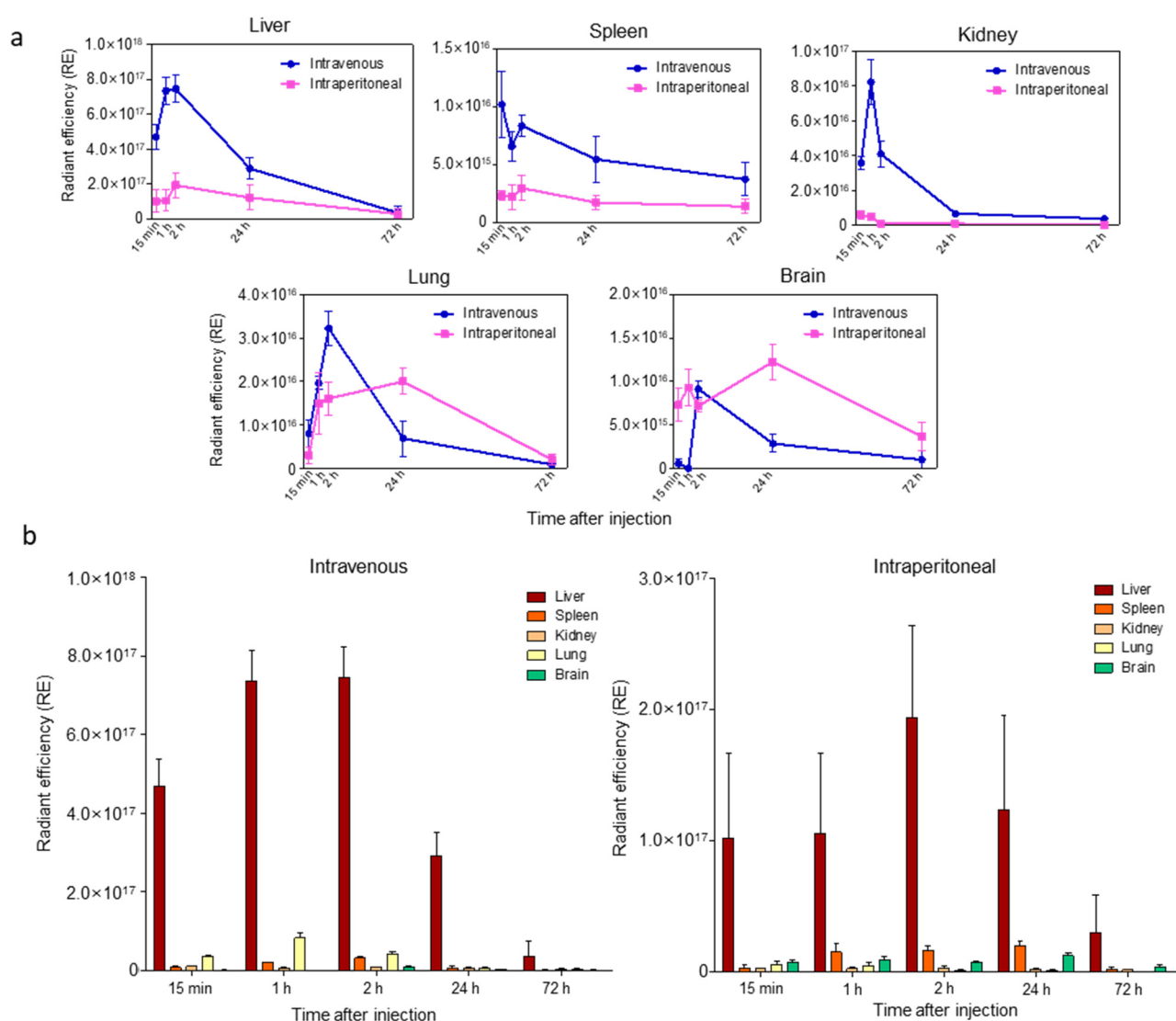


Figure S3. Biodistribution of fluorescent dye-labeled GMP-grade exosomes **(a)** Time-course biodistribution ExoGlow-labeled exosomes administered by i.v. or i.p. route in mice were evaluated by measuring radiant efficiency at various time points through in vivo fluorescence imaging (mean \pm SEM). **(b)** Time-course distribution of ExoGlow-labeled exosomes were organized by injection route (mean \pm SEM).

Table S1. Criteria for confirming batch-to-batch variances of therapeutic exosomes.

Summary	Tests	Acceptance Criteria	Batch A	Batch B
General properties	Appearance	Colorless to yellow and clear to opalescent solution that may contain translucent to white particles	Pass	Pass
	pH	7.5 to 8.5	7.8	7.8
Identity	srI κ B protein	Pass	Pass	Pass
Strength	Exosome particle number	4.0E+11 to 6.0E+11 pn/mL	4.7E+11	4.3E+11
	Total protein	Report result	138.4 μ g/mL	119.6 μ g/mL
	srI κ B protein concentration	Report result	1.0 μ g/mL	1.0 μ g/mL
Purity	Purity	≥ 90 %	95 %	96 %
Potency	In vitro TNF- α assay	50 < relative potency (%) < 150	94 %	110 %
Safety	Endotoxin	≤ 5 EU/mL	< 0.5 EU/mL	< 5 EU/mL
	Sterility	No growth	No growth	No growth