

## Electronic supplementary information (ESI)

### Dual-functional Lipid-like Nanoparticles for Delivery of mRNA and MRI Contrast Agent

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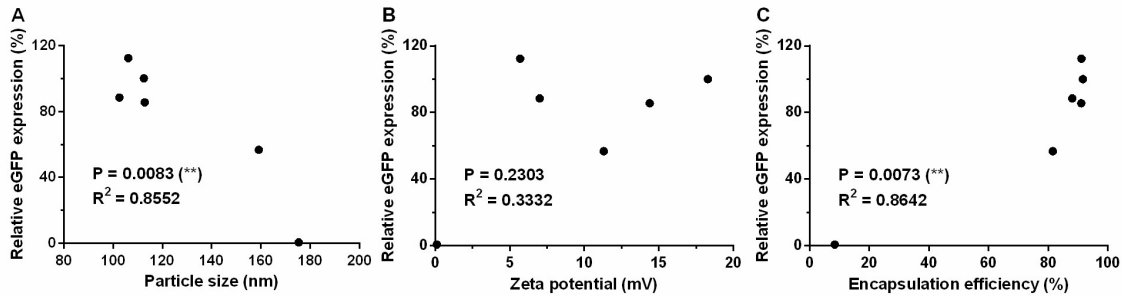
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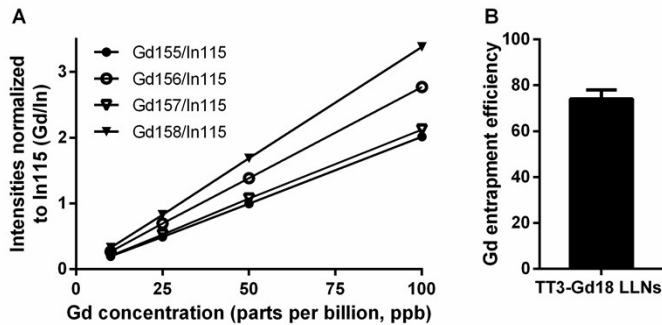
**Table S1.** Formulation molar ratio of TT3-Gd LLNs.

TT3-Gd LLNs	Formulation components (molar ratio)				
	TT3	DOPE	Gd-DTPA-BSA	Cholesterol	DMG-PEG <sub>2000</sub>
TT3-Gd30	20	0	30	40	0.75
TT3-Gd24	20	6	24	40	0.75
TT3-Gd18	20	12	18	40	0.75
TT3-Gd12	20	18	12	40	0.75
TT3-Gd6	20	24	6	40	0.75
TT3	20	30	0	40	0.75

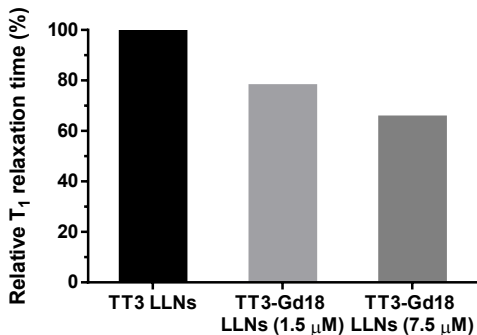


**Fig**

**Figure S1.** Correlation analysis between relative eGFP expression and properties of TT3-Gd LLNs including particle size, zeta potential, and mRNA encapsulation efficiency. (A) Relative eGFP expression was found to have a significant negative correlation with particle size. (B) No correlation was observed between relative eGFP expression and zeta potential. (C) Relative eGFP expression was found to have a significant positive correlation with mRNA encapsulation efficiency.



**Figure S2.** Gd entrapment efficiency of TT3-Gd18 LLNs. (A) Standard curves generated from Gd with pre-determined concentrations. (B) Gd entrapment efficiency was determined to be  $74.14 \pm 3.80\%$ .



**Figure S3.** Relative  $T_1$  relaxation time of cell pellets normalized to TT3 LLNs treated group (no Gd treatment control group).