

*Electronic Supplementary Information*

**Gadolinium-conjugated star-block copolymer  
polylysine-modified polyethylenimine as high-  
performance T<sub>1</sub> MR imaging blood pool contrast  
agents**

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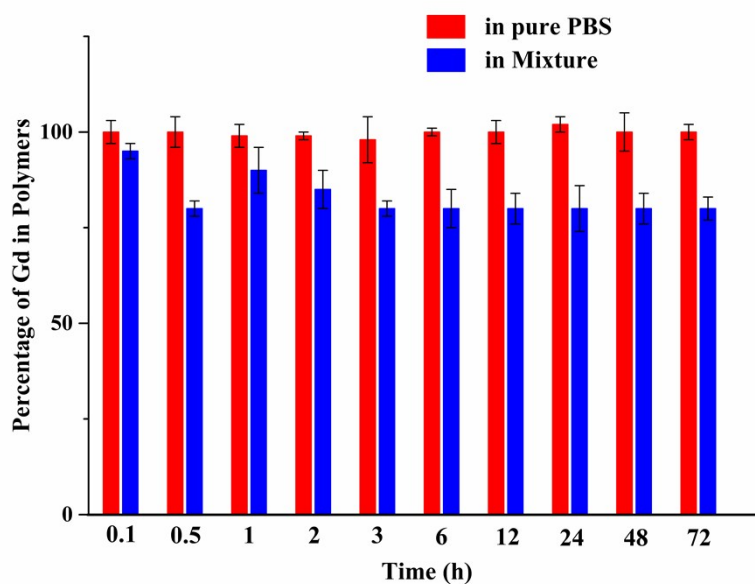


Figure S1. Complex stability of PEI-PLL-DTPA-Gd in pure PBS buffer in a dialysis bag with the external solution of pure PBS and of a mixture buffer containing equal (7.77 mM)  $MgCl_2$ ,  $CuCl_2$  and  $CaCl_2$  in PBS at pH 7.4 and 37 °C. Three equal weight PEI-PLL-DTPA-Gd (0.1 g) was dissolved in 5 ml phosphate buffered saline (PBS) buffer, and then the solution was transferred into a dialysis bag with a molecular weight cut-off of 14 KD. The dialysis bag was putted in to a beaker with mixture of  $MgCl_2$ ,  $CuCl_2$  and  $CaCl_2$  in PBS and only pure PBS as well. After 0.1, 0.5, 1, 2, 3, 6, 12, 24, 48 and 72 h, 1 ml solution in the dialysis bag and beaker was pipetted out for ICP-AES measurements and equal volume pure PBS was replenished.

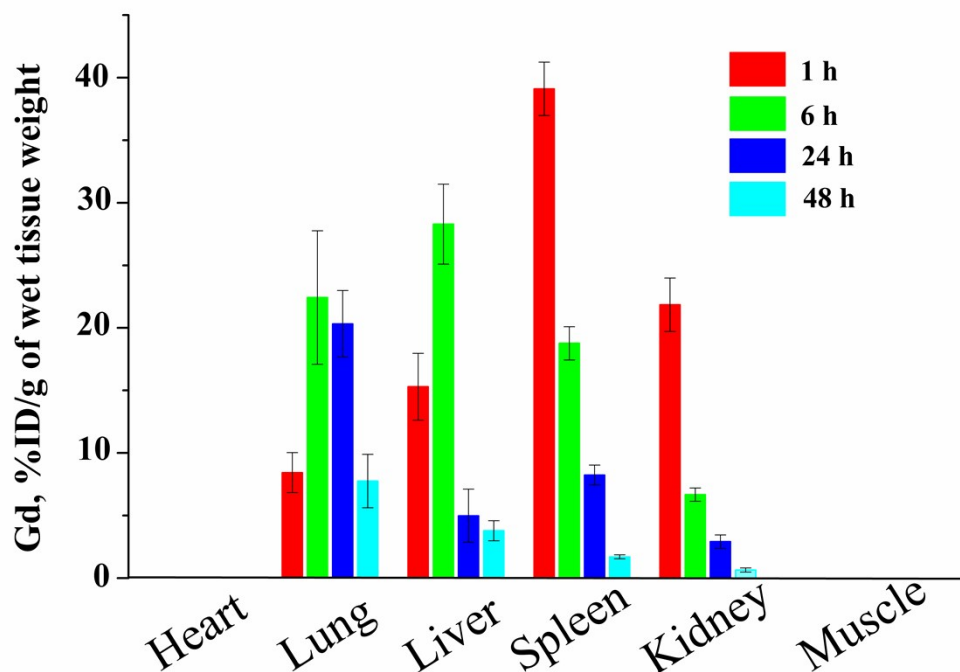


Figure S2. The biodistribution of Gd<sup>3+</sup> concentration of PEI-PLL-DTPA-Gd in mouse in different organs (n = 3). Mice were injected with PEI-PLL-DTPA-Gd through the tail vein (0.05 mM/Kg), and then three mice were sacrificed with an overdose of isoflurane at each time point. After that, sever tissues including heart, lung, liver, spleen, kidney and muscle were extracted and weighted. Then the tissues were digested with aqua regia to obtain clear solution before ICP-AES measurements. The Gd<sup>3+</sup> concentration was expressed as the percentage of the injected dose per gram of wet tissues weight (%ID/g).

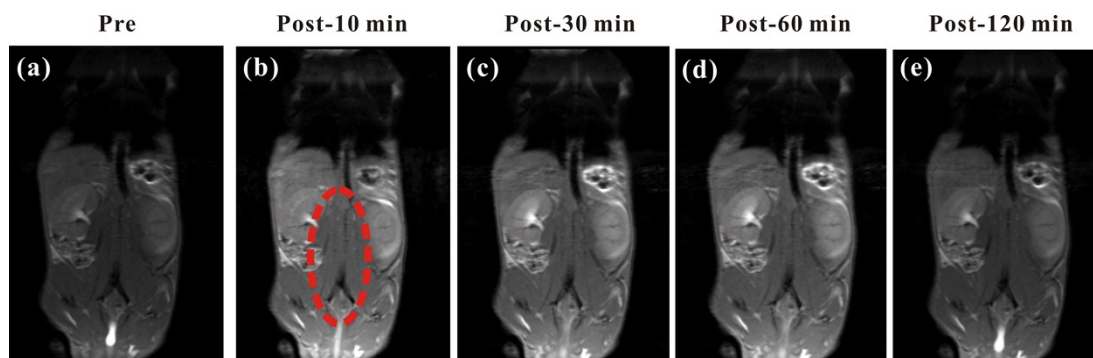


Figure S3. The T<sub>1</sub> weighted Gd-DTPA enhanced *in vivo* MR images at different time points.