Supplementary Information for

Polymeric PARACEST MRI contrast agents as potential reporters for gene therapy

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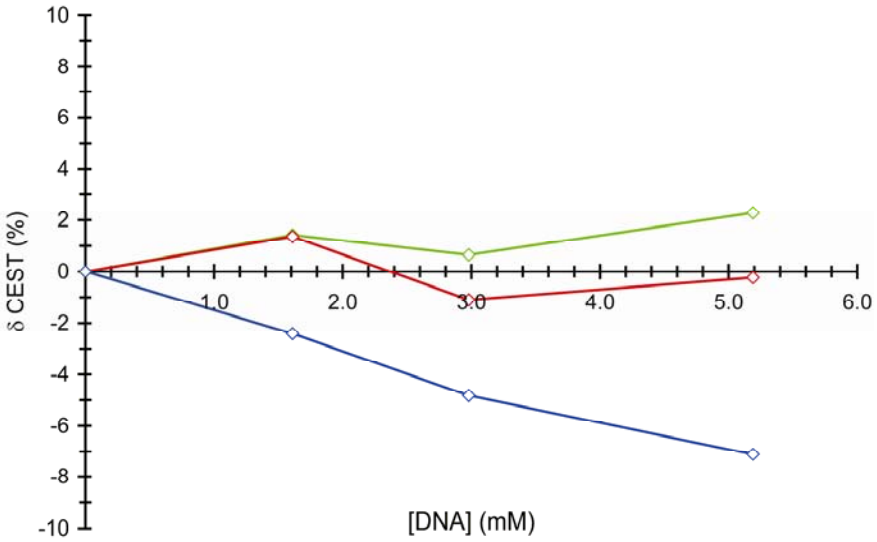

Fig. S1. The observed change in CEST (δ CEST) as a function of added DNA concentration, expressed as a percentage of the CEST observed when [DNA] = 0 mM. Data is shown for a 5 mM solution of Eu**1** (blue, B_0 = 500 MHz, B_1 = 600 Hz, irr. time = 2s 298 K, pH 7.0, PBS); Eu**2** (red, B_0 = 600 MHz, B_1 = 600 Hz, irr. time = 3s 298 K, pH 7.5, TBS) and Eu**3** (green, B_0 = 500 MHz, B_1 = 600 Hz, irr. time = 2s 298 K, pH 7.0, PBS).

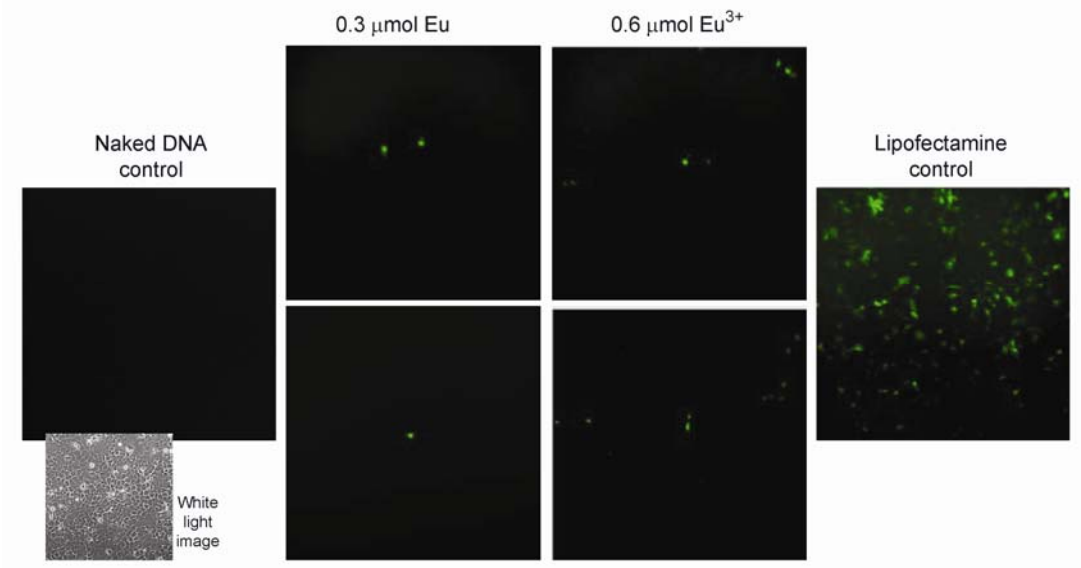

Fig. S2. Images demonstrating the transfection of HEK293 cells with GFP using Eu**1** at 0.3 μmol Eu^{3+} of (left column) and 0.6 μmol Eu^{3+} (right column) with 1.4 μg of the plasmid DNA under a fluorescence microscope at 10× magnification. The image on the left shows the result of a control experiment transfecting with naked DNA (a white light image is provided to demonstrate the presence of the cells); the image on the right demonstrates the result of a control experiment using lipofectamine.

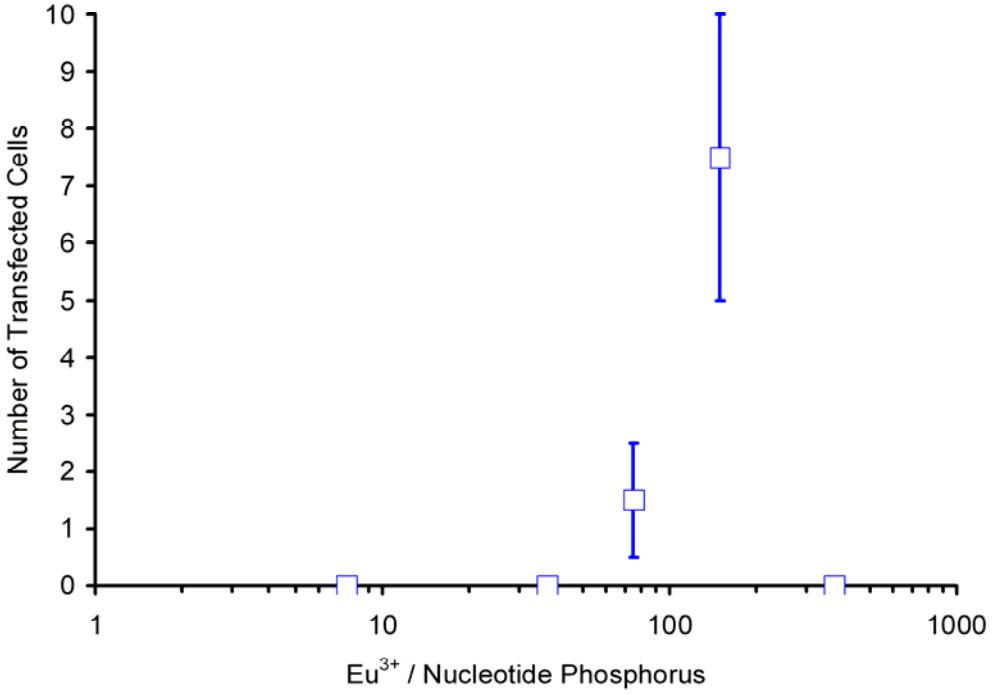

Fig S3. An optimization curve showing that the transfection efficiency of the GFP plasmid improves with increasing amount of Eu**1** employed as transfection agent, to a point. After an Eu^{3+}/nucleotide phosphorus ratio of 150 is exceeded transfection appears to cease altogether.

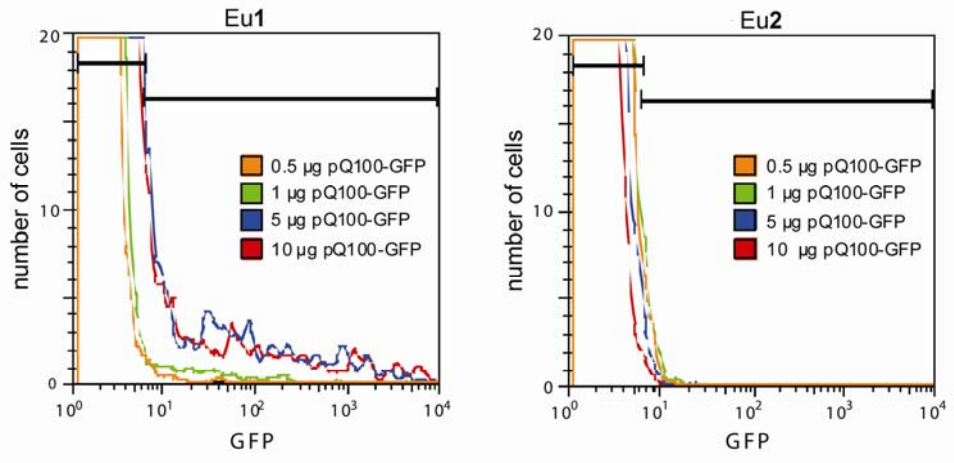

Fig. S3. The extent GFP gene expression in HEK293 cells determined by flow cytometry using Eu**1** (left) and Eu**2** (right). 0.6 µmol of Eu^{3+} was used with 0.5 µg (orange), 1.0 µg (green), 5.0 µg (blue) and 10.0 µg (red) of plasmid DNA.

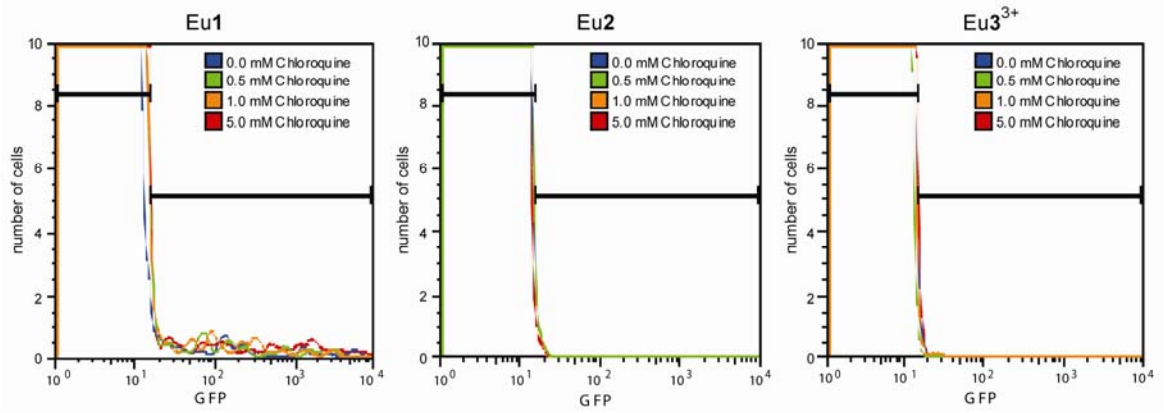

Fig. S5. The extent GFP gene expression in HEK293 cells determined by flow cytometry using Eu**1** (left), Eu**2** (centre) and Eu**3**$^{3+}$ (right) in the presence of varying amounts of chloroquine. These data show that there is no change in ether the transfection rate or level when chloroquine is employed indicating that the gene delivery system does not get trapped in the entry mechanism.

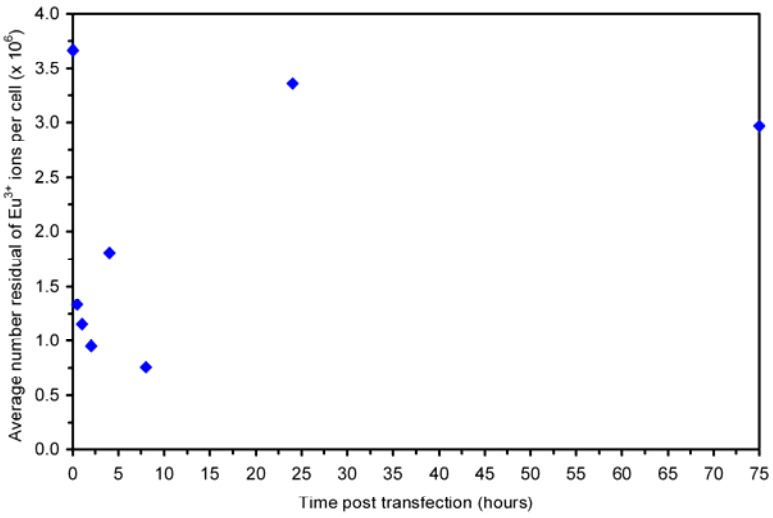

Fig. S6. The amount of Eu^{3+} found in cells by ICP-MS after 4 hours of exposure to Eu**1** and DNA followed by incubation in fresh media (t = 0 is the end of the 4 hours of transfection). Points at 4, 24 and 75 hours post-transfection seem to be subject to error consistent with the low quantities of Eu^{3+} taken into cells, nonetheless Eu**1** does appear to leave cells fairly quickly after transfection except for a small quantity which seems relatively long-lived in cells.