Supplementary information

Outstanding MRI contrast with Dysprosium phosphate Nanoparticles of tuneable size

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Figure S1

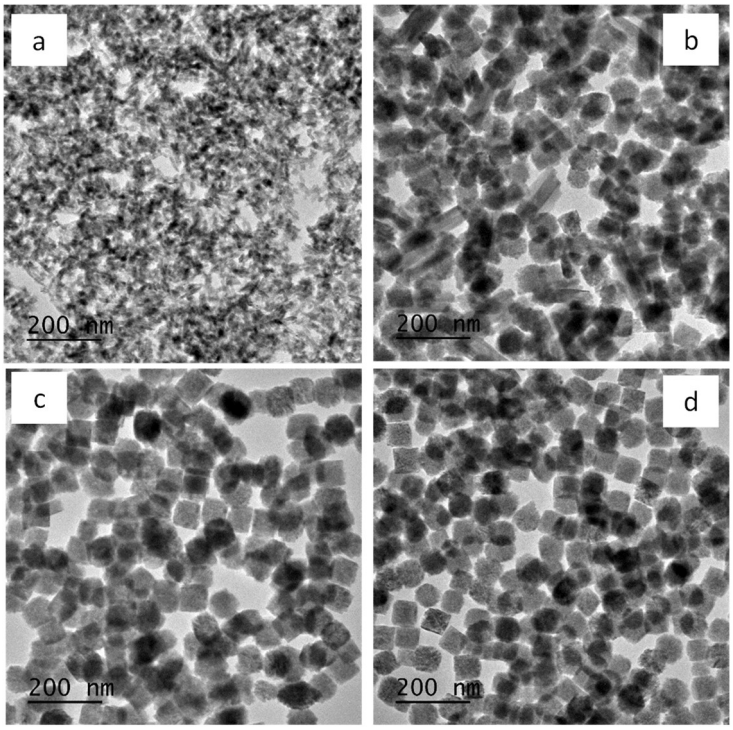

Figure S1: TEM micrographs of $DyPO_4$ NPs obtained after aging at 150 ºC for 1 hour in a microwave oven a dysprosium nitrate (0.02 M) and H_3PO_4 (0.15M) solution in butanol (same experimental conditions as those used for Dy37 NPs), changing just one of the parameters as follows: a) Solvent used was octanol, b) Reaction temperature was 120 ºC, c) Reaction temperature was 180 ºC, d) Heating source was a conventional oven.

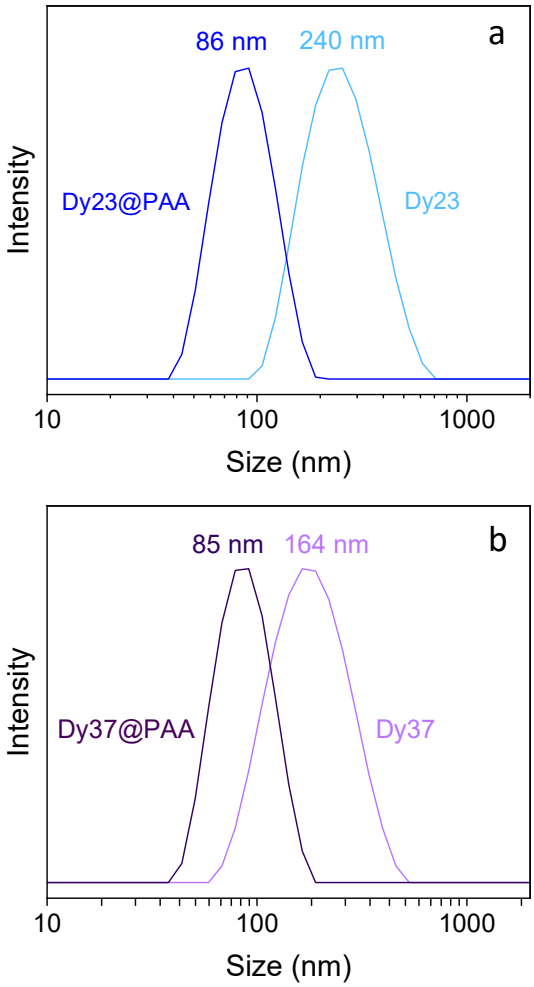

Figure S2: DLS curves of Dy23 (a) and Dy37 (b) NPs suspended in water before and after functionalization with PAA.

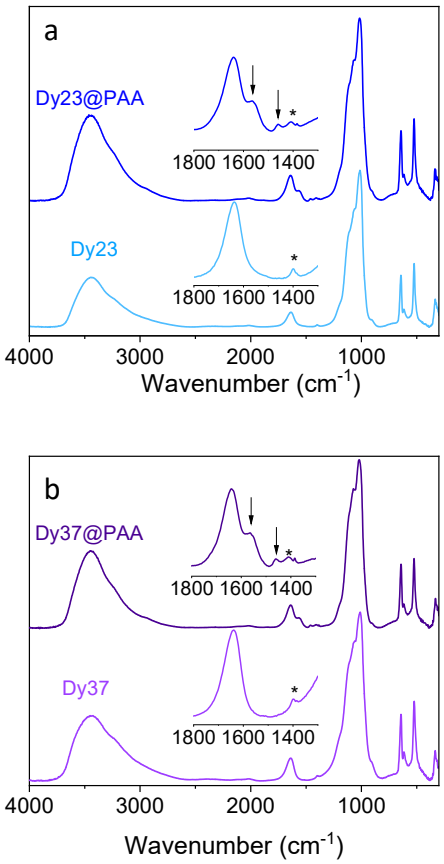

Figure S3: FTIR spectra of Dy23 (a) and Dy37 (b) NPs before and after functionalization with PAA. Insets are magnifications of selected regions for clarity.

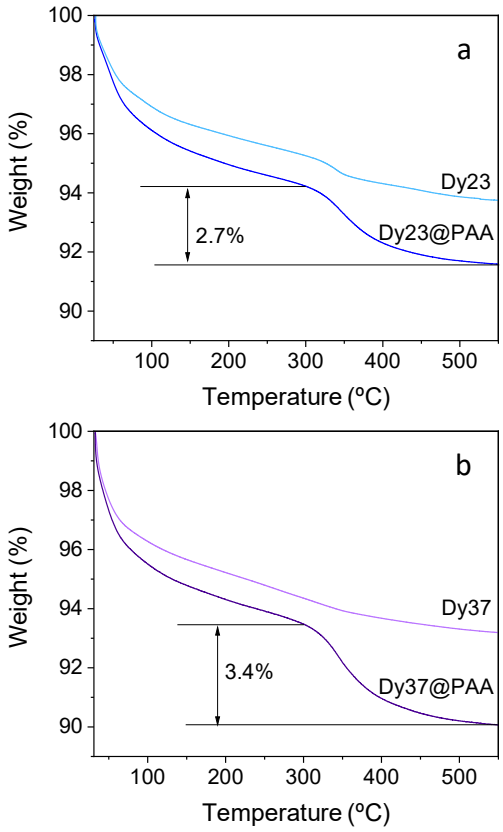

Figure S4: Thermogravimetry curves of Dy23 (a) and Dy37 (b) NPs before and after functionalization with PAA.

Figure S5

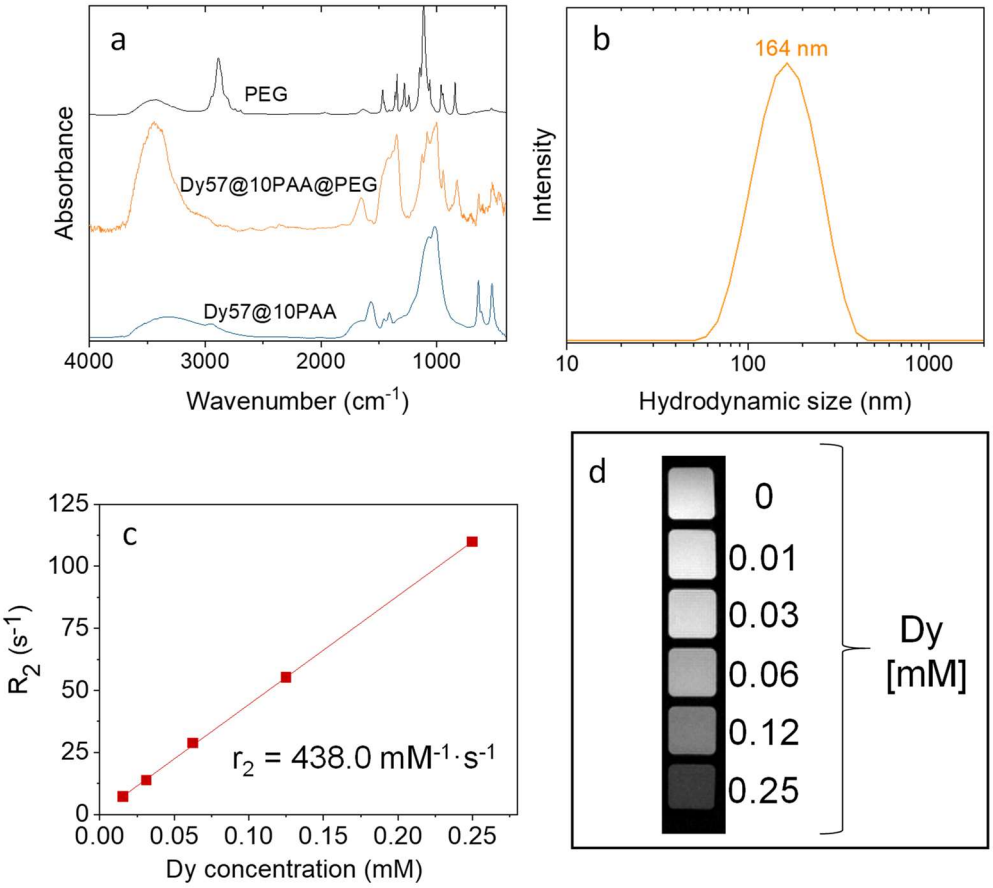

Figure S5: a) FTIR spectra of the Dy57 NPs functionalized with PAA (Dy57@10PAA) and of the same NPs coated with PEG (Dy57@10PAA@PEG). The FTIR spectrum of pure PEG is also given with comparative purpose. b) DLS curve and hydrodynamic size of Dy57@10PAA@PEG suspended in PBS. c) Plot of relaxation rate (R_2) *vs* the concentration of Dy NPs suspension determined at 9.4 T. The line is the linear fit to the data points and the slope indicates the transverse relaxivity value (r_2). d) Phantom MR images of Dy57@PAA@PEG NPs in water at 9.4 T as a function of Dy concentration.