

## Supplementary Material

### PEG-modified upconversion nanoparticles for *in vivo* optical imaging of tumors

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**Supplementary Information 1 (SI-1).** Colloid stability of modified UCNPs in  $\text{B}$  PBS buffer, pH 7.0, was confirmed by dynamic light scattering (DLS) measurements. No significant differences in sizes of modified UCNPs was observed over 2 months (Fig. SI-1)

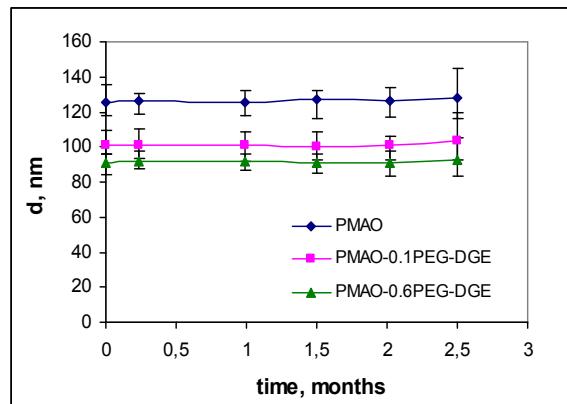


Fig. SI-1. Diameters of UCNPs modified with PMAO and with PMAO followed by PEG-DGE cross-linking at 0.1 and 0.6 mg/ml concentrations vs. time.

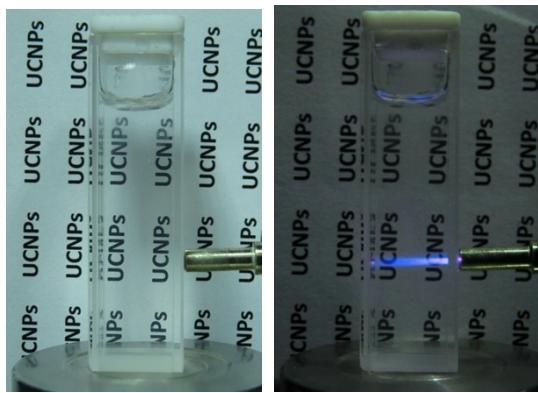


Fig. **SI-1.1.** A cuvette with UCNPs-PMAO in PBS buffer, pH 7.0, exhibiting high transparency of the solution (left) and uniform blue emission at the 975 nm excitation laser beam (right). UCNP concentration is 0.5 mg/ml.

**Supplementary Information 2 (SI-2).** Viability of human dermal fibroblasts incubated with the obtained UCNP probes at the 0.1 mg/ml concentration of NPs for 24 h at 37 °C (Fig. **SI-2**).

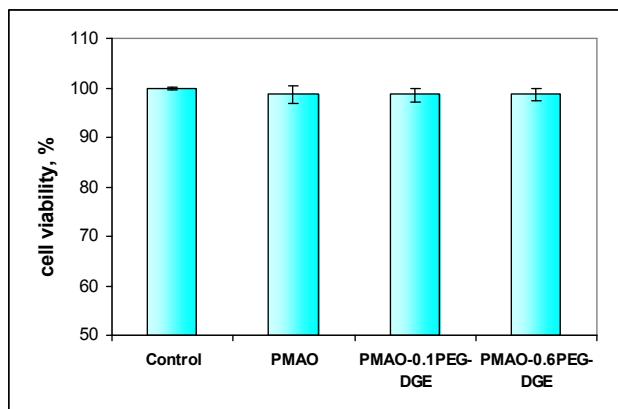


Fig. **SI-2.** Cell viability of fibroblasts after incubation with UCNPs modified with PMAO and with PMAO followed by PEG-DGE cross-linking at 0.1 and 0.6 mg/ml concentrations.