

Figure S1. XRD patterns for a) Er:Y₂O₃ and b) Nd:Y₂O₃ NPs compared with the powder diffraction file ICDD 25-1011.

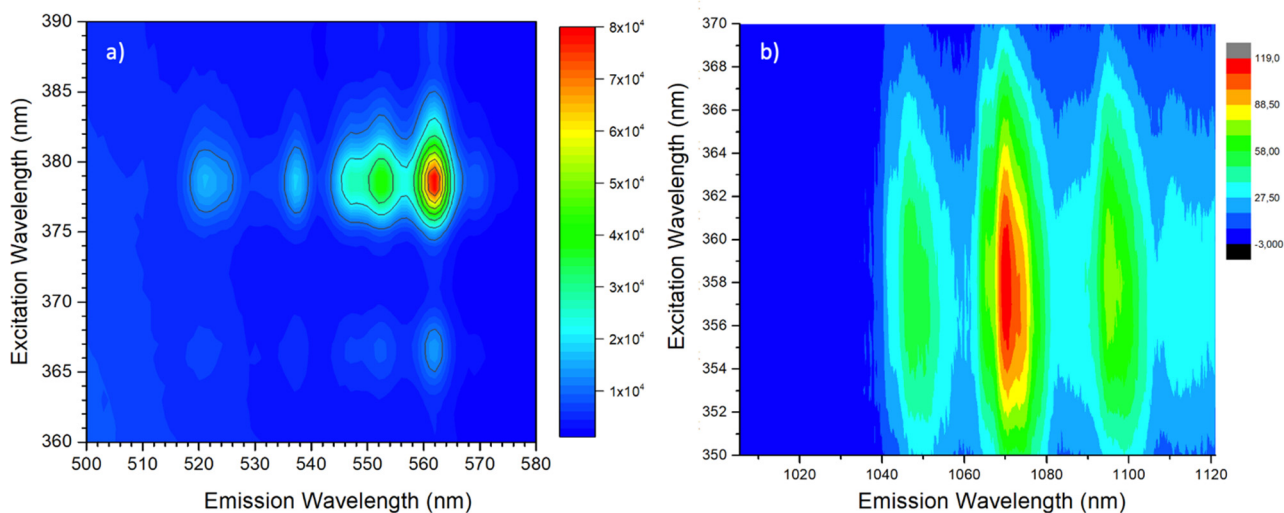


Figure S2. Photoexcitation 2D maps of a) Er:Y₂O₃ NPs and b) Nd:Y₂O₃ NPs.

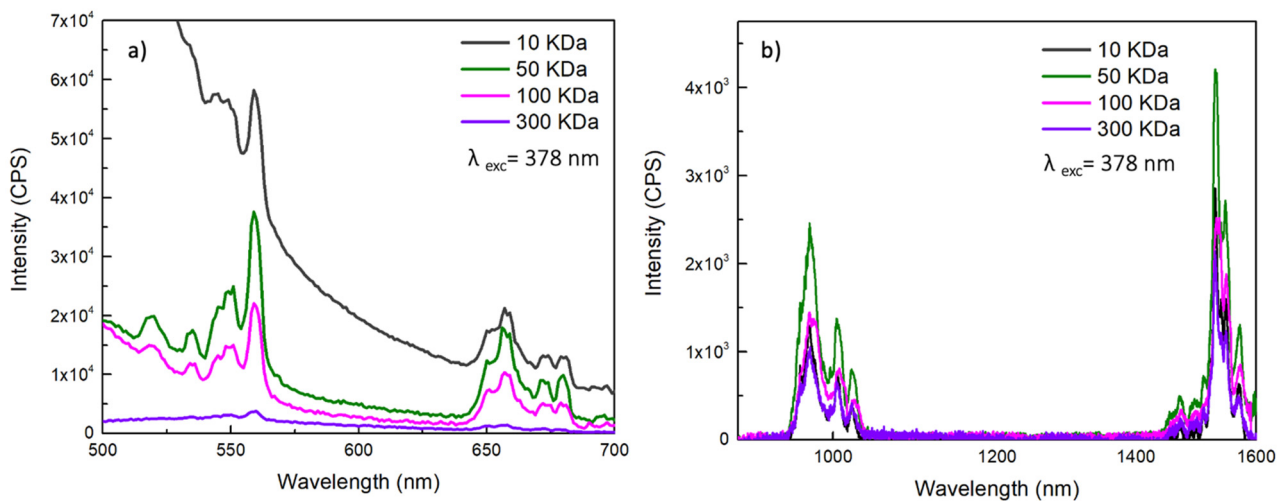


Figure S3. PL emission spectra comparison in a) visible and b) IR range of pegylated Er:Y₂O₃ NPs, sample E3 after ultrafiltration using Amicon with a different pore size ($\lambda_{exc}=378$ nm).

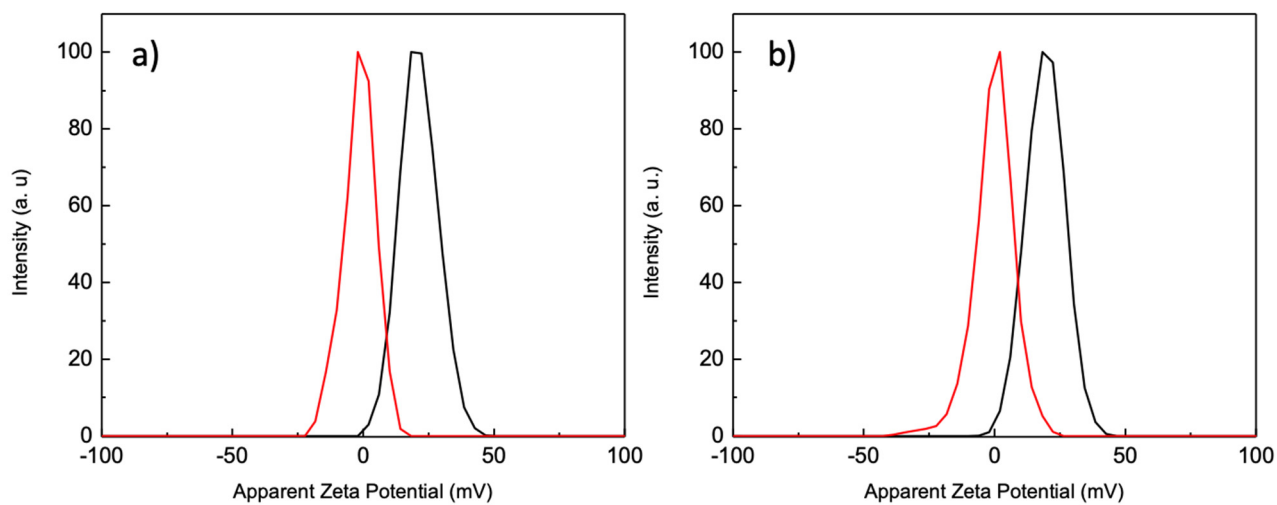


Figure S4. Zeta potential charts of core (in black) and pegylated (in red) for a) Er:Y₂O₃ NPs and b) Nd:Y₂O₃ NPs.