Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B. This journal is © The Royal Society of Chemistry 2014

## **ELECTRONIC SUPPLEMENTARY INFORMATION (ESI)**



Figure E.S.I. 1 i) DLS results for Mg\_span NPs. Average hydrodynamic diameter: a) 162 nm, b) 142 nm, c) 142 nm ii) DLS results for Mg\_mix NPs. Average hydrodynamic diameter: a) 520, b) 300, c) 460 nm



Figure E.S.I. 2 SEM micrograph of Ca\_span



Figure E.S.I. 3. a). IR spectra of  $Mg(OH)_2$  (a) and  $Ca(OH)_2$  (b) NPs synthesized with 3:1 mix



Figure E.S.I. 4. Raman spectra of the used surfactants



Figure E.S.I. 5. TGA-DSC data of pure surfactants





Figure E.S.I. 7 Energy levels diagrams for a) Eu<sup>3+</sup> and b) Tb<sup>3+</sup>