Supporting information

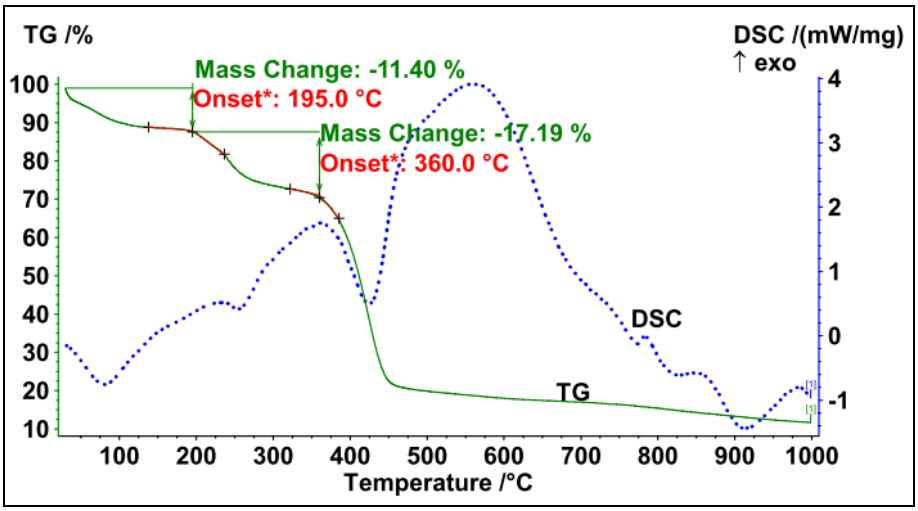

Figure S1 TG and DSC curves of WR–$IM^{+}[Eu(TTA)_4]^{-}$.

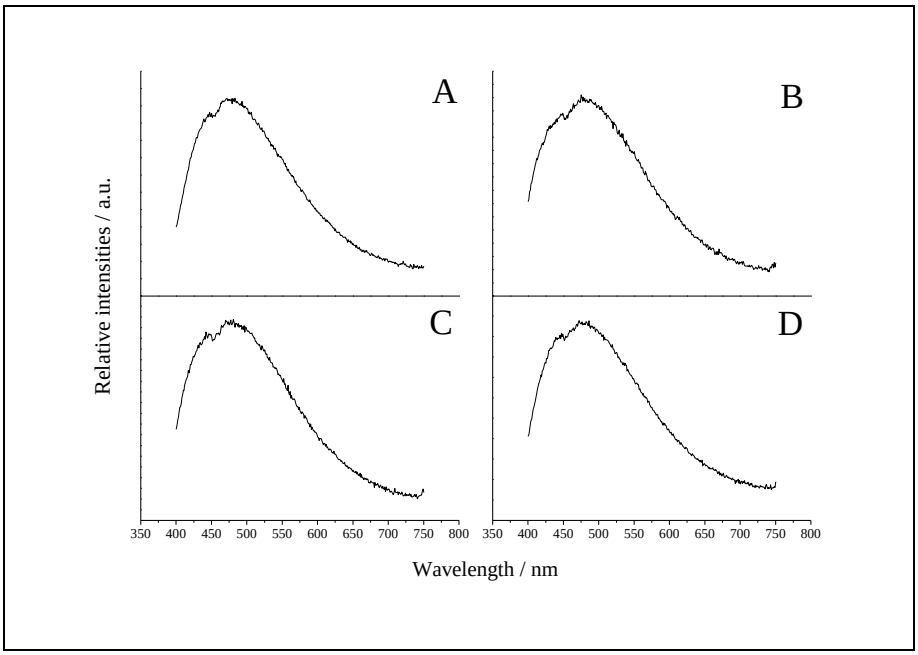

Figure S2 Emission spectra of the Poly(St-HEMA) matrix (A), europium tetrakis(TAA) complexes treated Poly(St-HEMA) (B), samarium tetrakis(TAA) complexes treated Poly(St-HEMA) (C), and terbium tetrakis(TAA) complexes treated Poly(St-HEMA) (D). The excitation wavelength for the emission spectra are 365, 323, 315 and 325 nm for A, B, C and D, respectively. All the Poly(St-HEMA) used here are unmodified by the imidazolium.

As shown in Figure S2, the selected WR–$IM^{+}[Eu(TTA)_4]^{-}$ shows a two-step weight loss approach over 195 °C according to the DTG and the DSC curves. The weight loss between 195 and 360 °C could be associated with the decomposition of europium tetrakis(β-diketonate) attaching onto the polymer matrices.

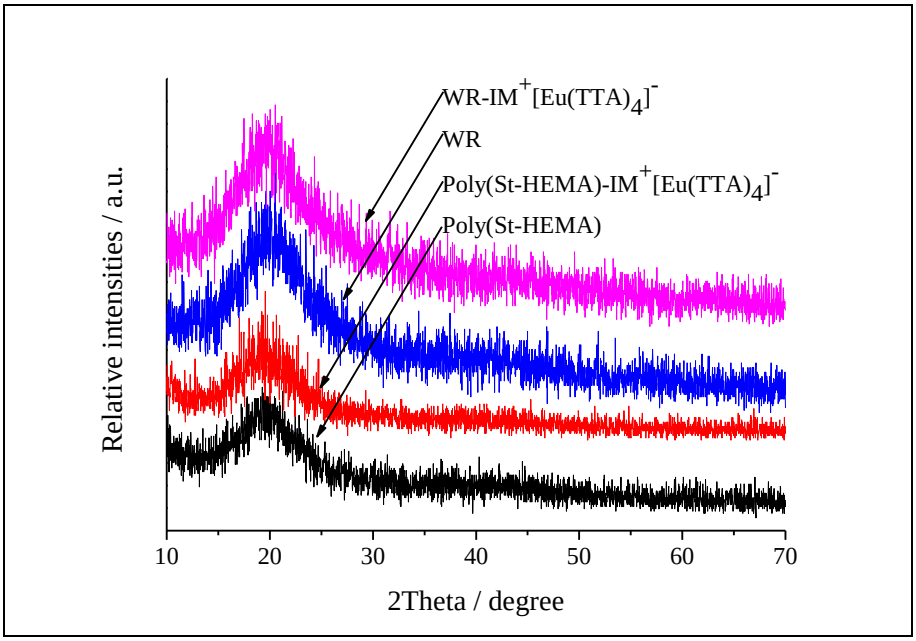

Figure S3 XRD patterns for the selected polymers.

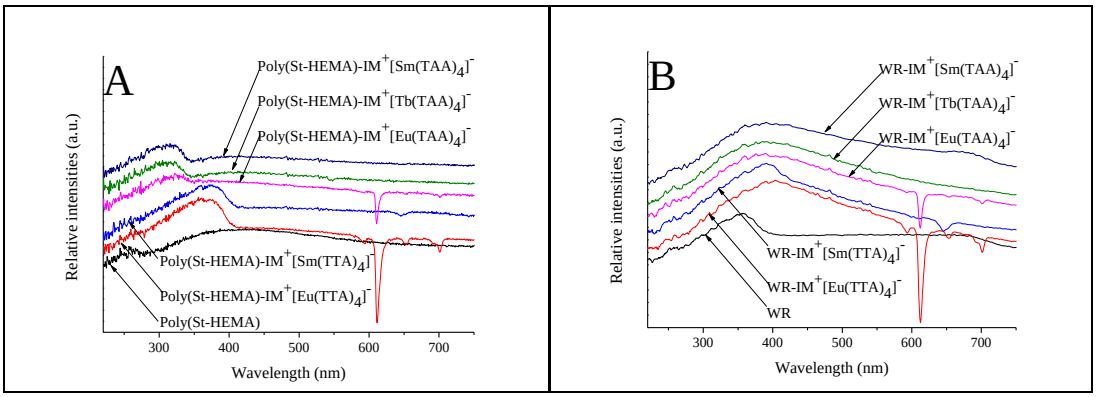

Figure S4 The diffuse reflectance UV-Vis spectra for Poly(St-HEMA)-based materials (A) and WR-based materials (B).

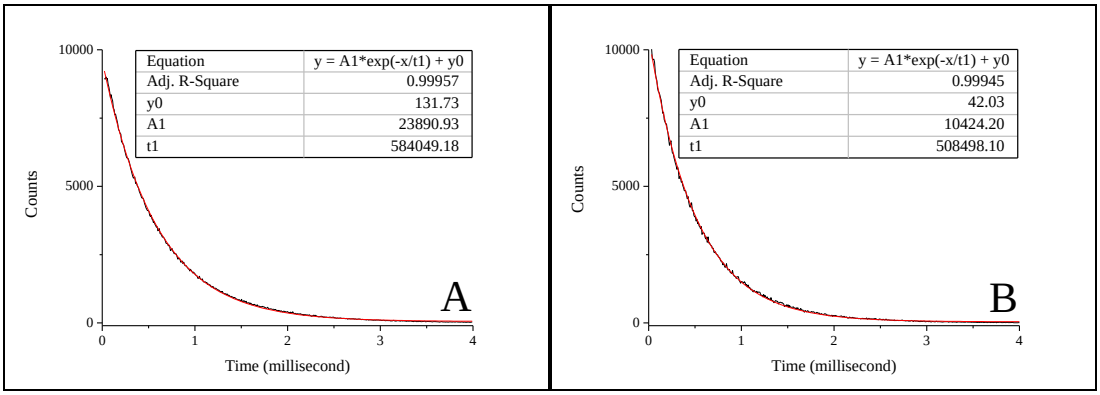

Figure S5 The luminescence lifetime decay curves of materials (A) WR–IM^{+}[Eu(TTA)$_4$]$^{-}$ and (B) poly(St-HEMA)–IM^{+}[Tb(TTA)$_4$]$^{-}$. Curves fit to a single exponential.