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Electronic Supplementary Information

Polymer modified magnetic-luminescent nanocomposites for combined optical imaging and magnetic fluid hyperthermia in cancer therapy: Analysis of Mn^{2+} doping for enhanced heating effect, hemocompatibility and biocompatibility

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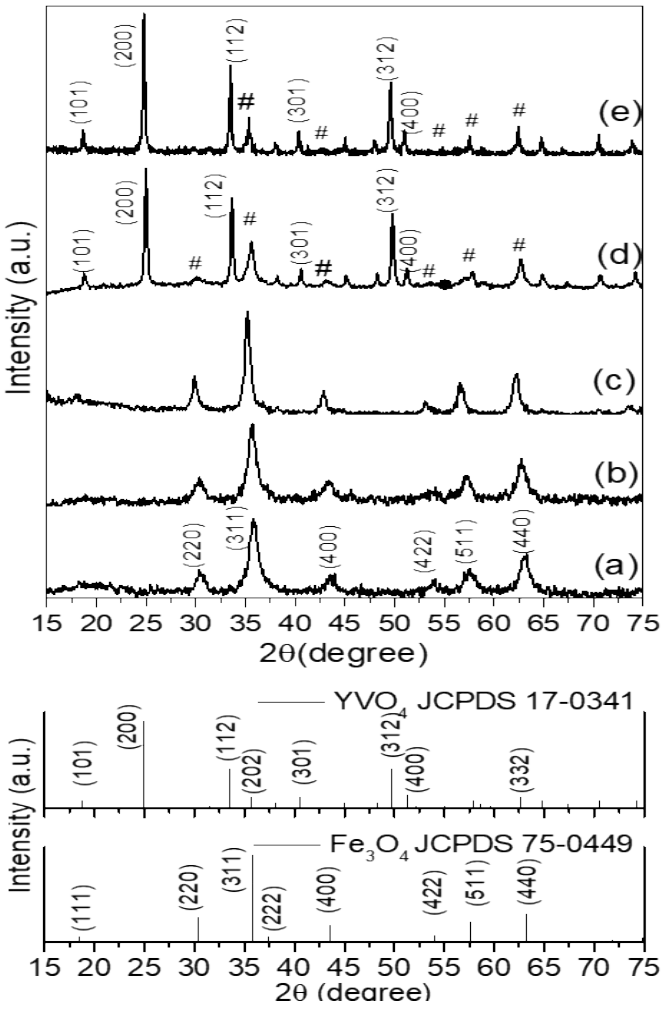

Figure S1. X-ray diffraction patterns of the samples: (a) Fe_3O_4 (b) $Mn_{0.2}Fe_{2.8}O_4$ (c) $Mn_{0.5}Fe_{2.5}O_4$ (d) Mn2Dy ($Mn_{0.2}Fe_{2.8}O_4$@(Y,Dy)VO_4@Chitosan) nanocomposite and (e) Mn5Eu ($Mn_{0.5}Fe_{2.5}O_4$@(Y,Eu)VO_4@PEG) nanocomposite.

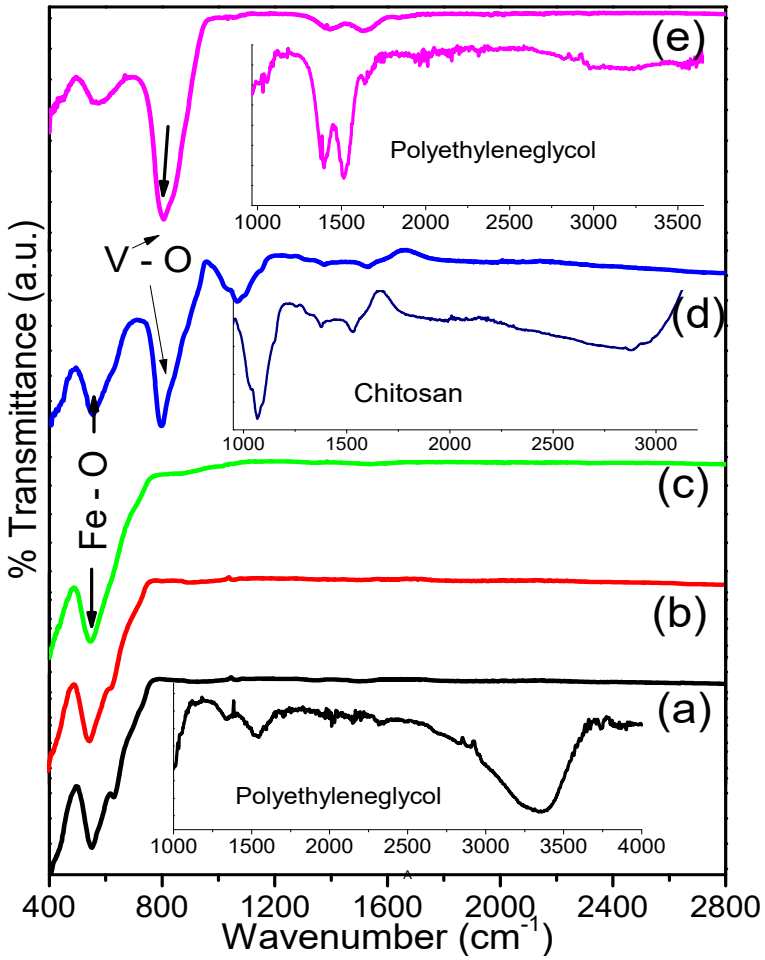

Figure S2. FT-infrared spectra of the samples: (a) Fe_3O_4 (b) $Mn_{0.2}Fe_{2.8}O_4$ (c) $Mn_{0.5}Fe_{2.5}O_4$ (d) Mn2Dy ($Mn_{0.2}Fe_{2.8}O_4$@(Y,Dy)VO_4@Chitosan) and (e) Mn5Eu ($Mn_{0.5}Fe_{2.5}O_4$@(Y,Eu)VO_4@PEG).

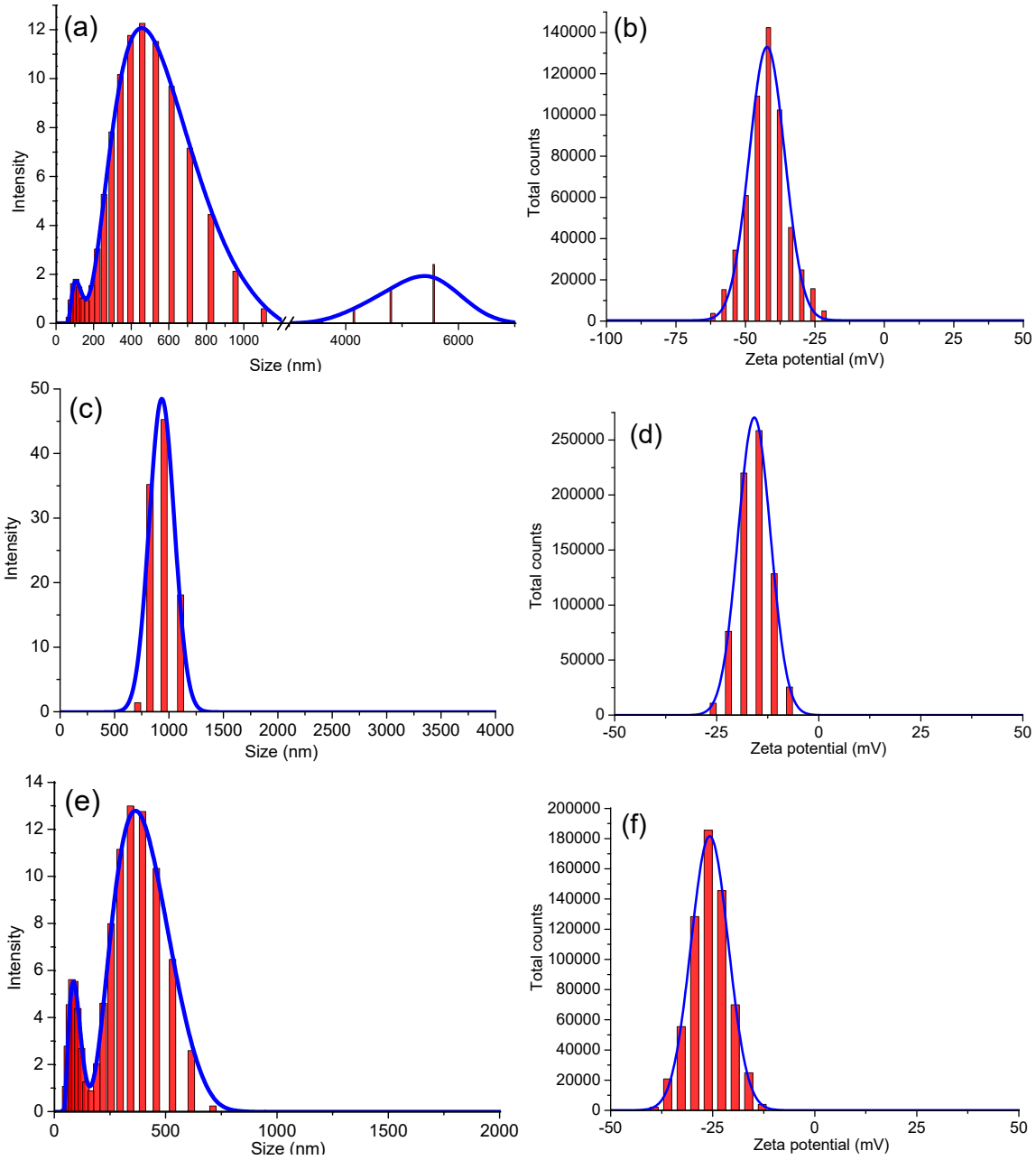

Figure S3. Hydrodynamic size distributions and zeta potentials of the nanoparticles: (a, b) Fe_3O_4 (c, d) $Mn_{0.2}Fe_{2.8}O_4$ (e, f) $Mn_{0.5}Fe_{2.5}O_4$.

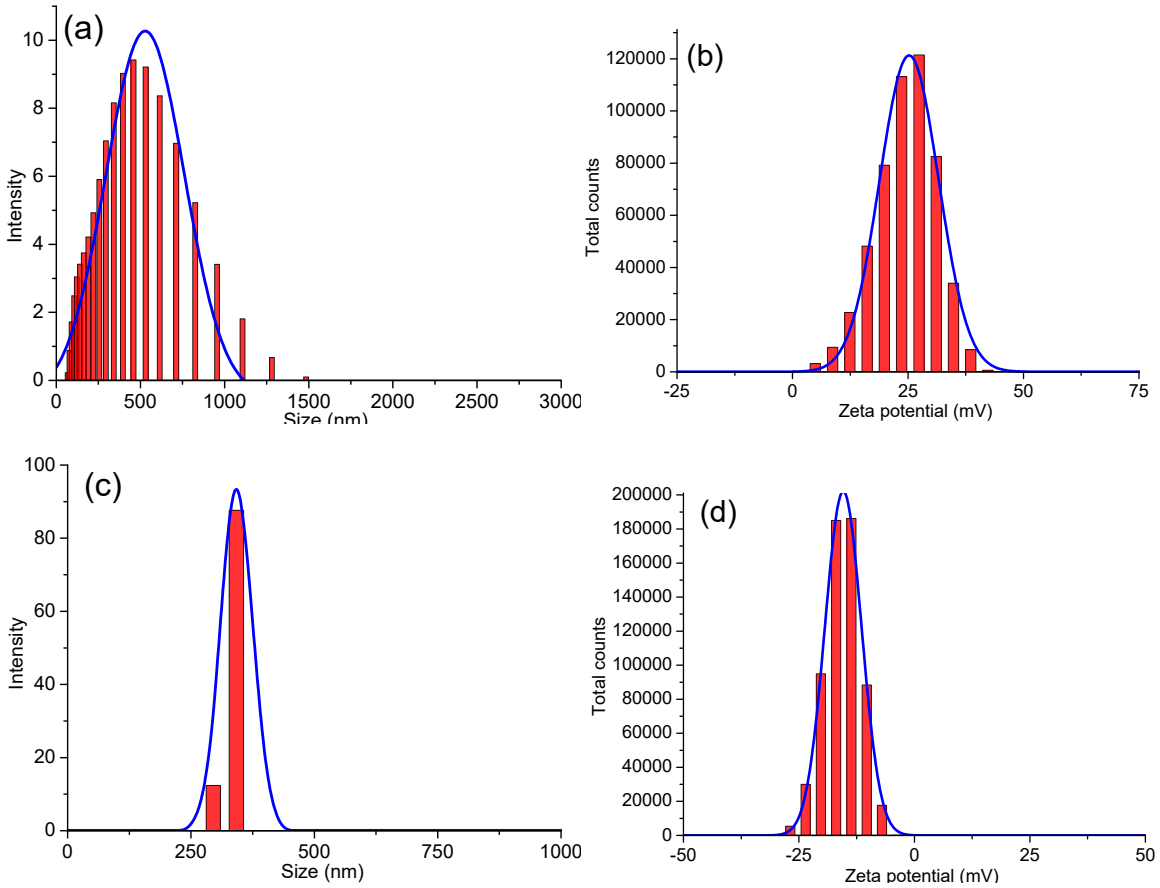

Figure S4. Hydrodynamic size distributions and zeta potentials of the nanocomposites: (a, b) Mn2Dy ($Mn_{0.2}Fe_{2.8}O_4$@(Y,Dy)VO_4@Chitosan) and (c, d) Mn5Eu ($Mn_{0.5}Fe_{2.5}O_4$@(Y,Eu)VO_4@PEG).

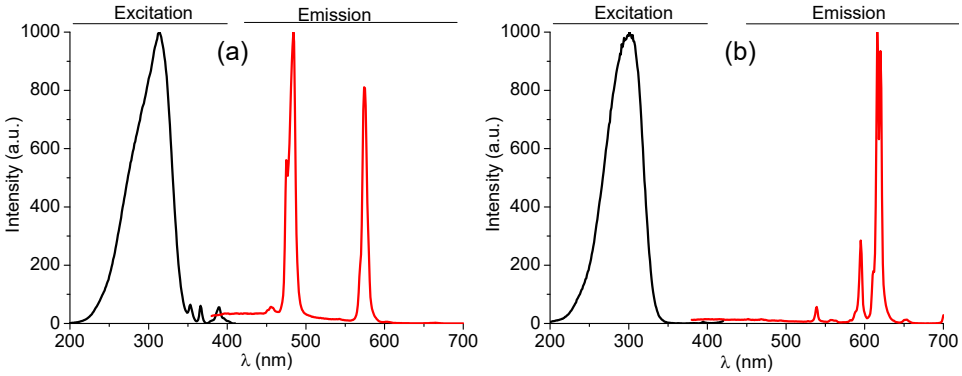

Figure S5. Luminescence excitation and emission spectra: (a) Mn2Dy ($Mn_{0.2}Fe_{2.8}O_4$@(Y,Dy)VO_4@Chitosan) and (b) Mn5Eu ($Mn_{0.5}Fe_{2.5}O_4$@(Y,Eu)VO_4@PEG) nanocomposites.

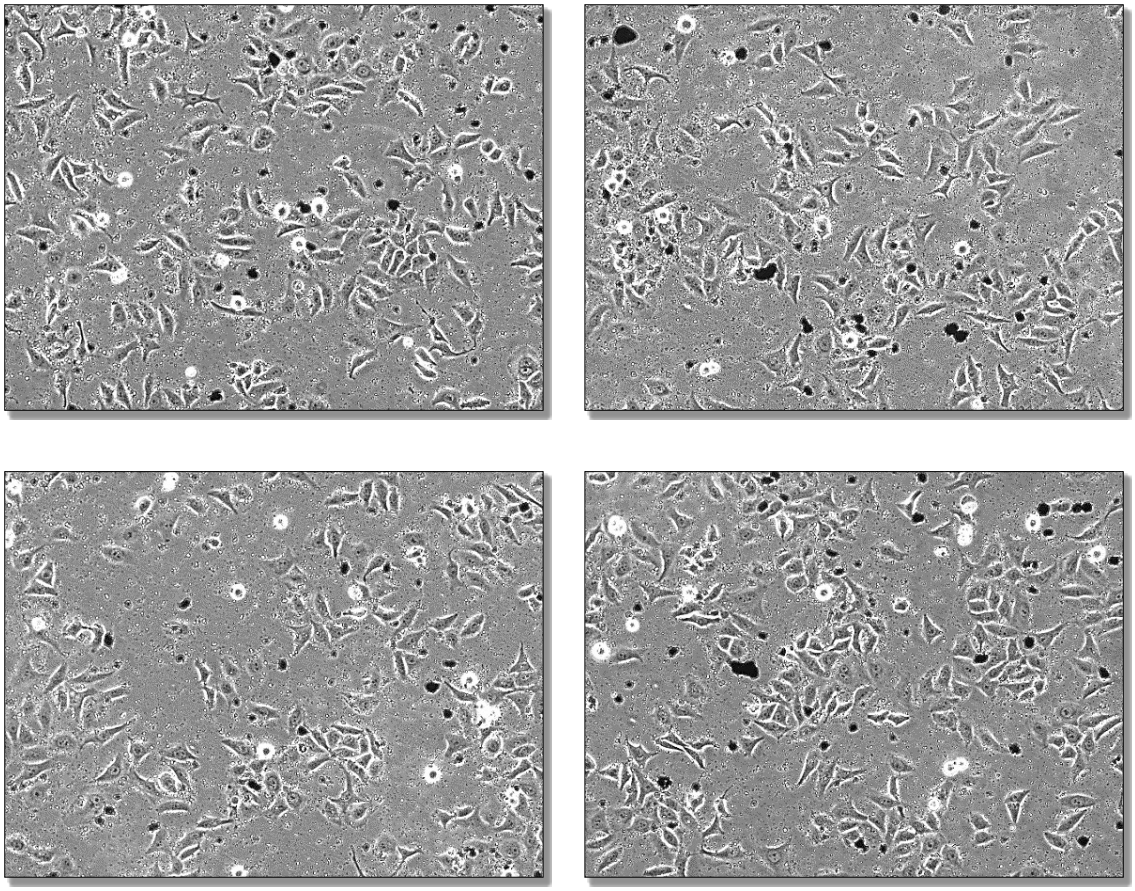

Figure S6. DIC images of the HeLa cell lines treated with $Mn_{0.2}Fe_{2.8}O_4$ nanoparticles.

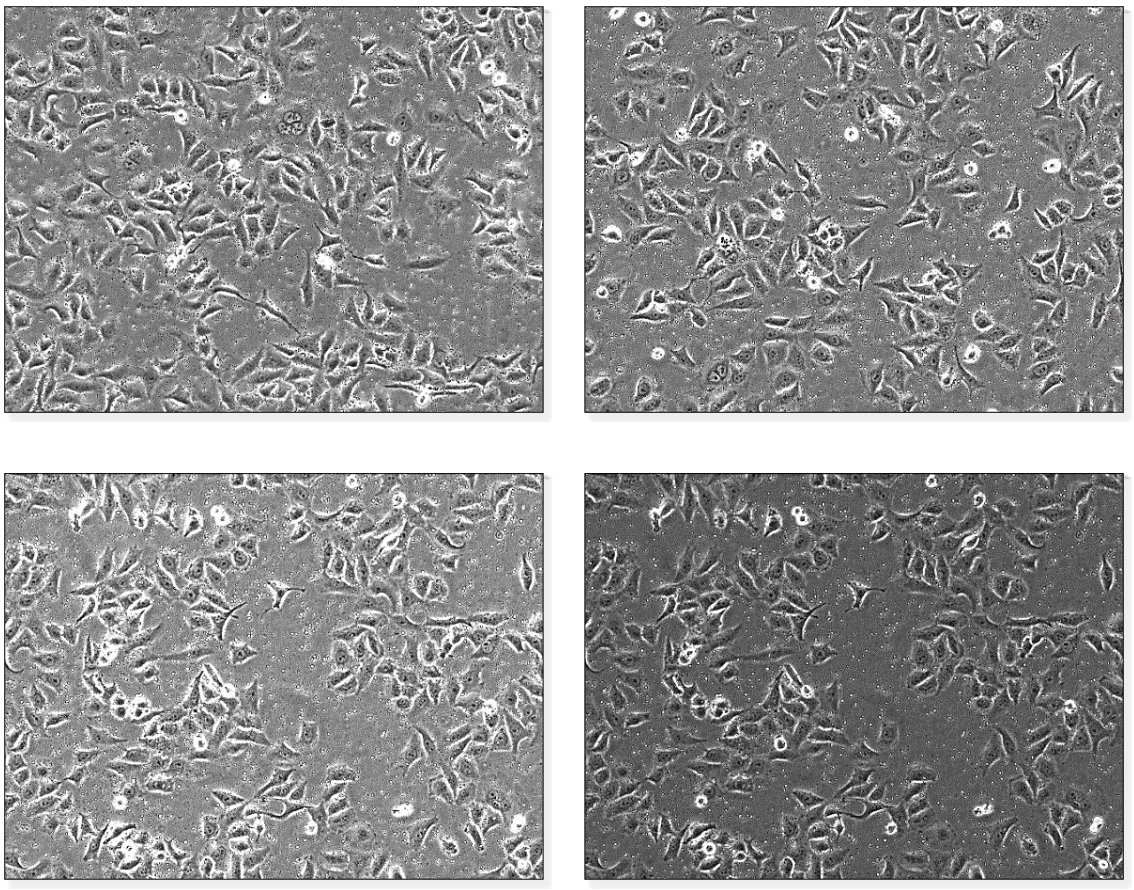

Figure S7. DIC images of the HeLa cell lines treated with $Mn_{0.5}Fe_{2.5}O_4$ nanoparticles.

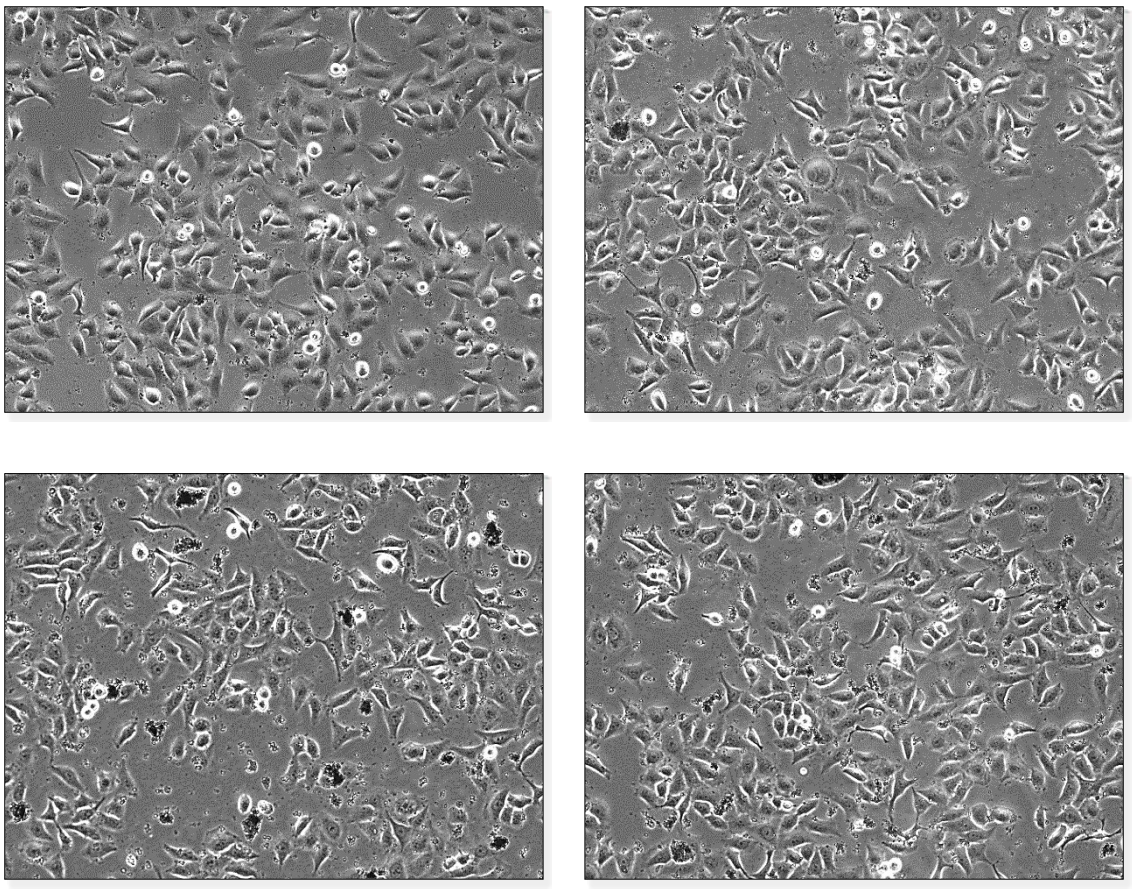

Figure S8. DIC images of the HeLa cell lines treated with Mn2Dy nanocomposite.

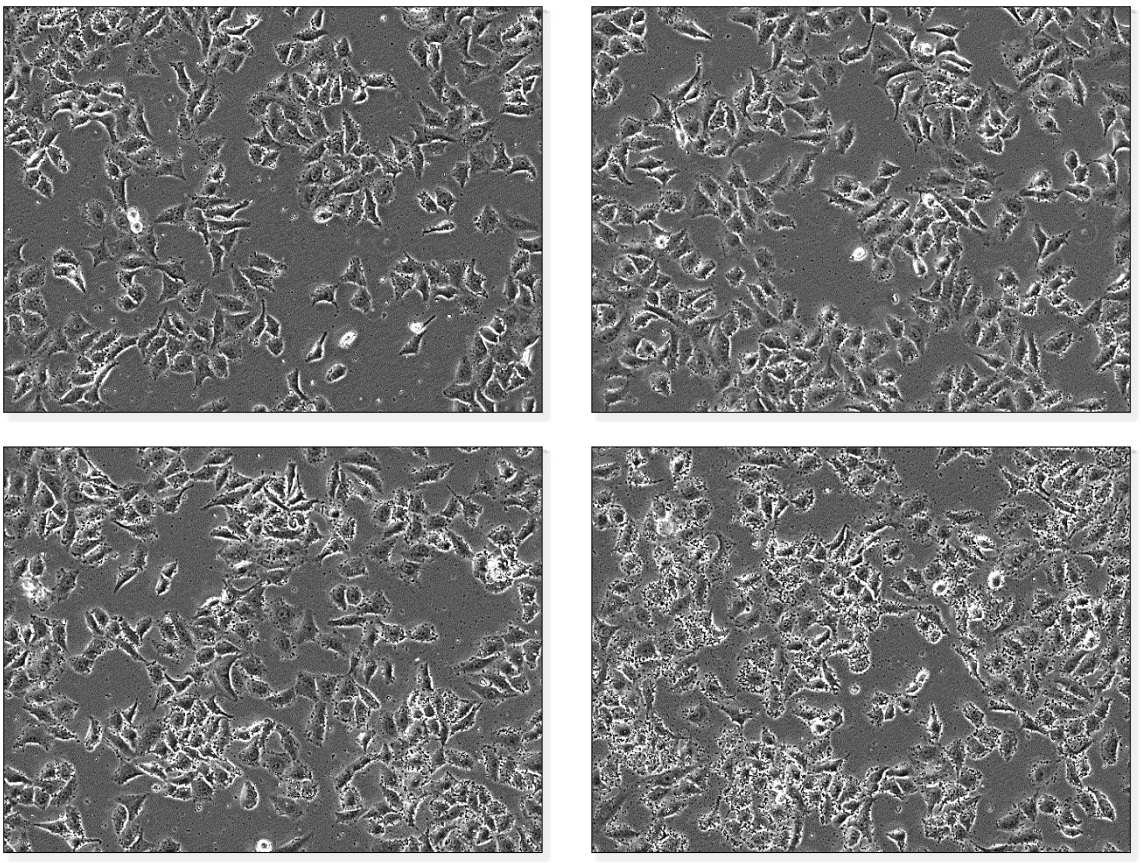

Figure S9. DIC images of the HeLa cell lines treated with Mn5Eu nanocomposite.