*Electronic Supplementary Information (ESI)*

*For*

A combinatorial approach for the fabrication of magneto-optical hybrid nanoparticles

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Figure S1. Schematic diagram illustrating the conjugation of QDs to SPIO NPs using different routes of assembly.



Figure S2. TEM images and size distributions of AgInS2/ZnS (a,b), CuInS2/ZnS (c,d) QDs and SPIO NPs (e,f) before and after phase transfer into an aqueous solution.



Figure S3. TEM images of SPIO NPs incorporated into silica at different reaction times: a) 18h, b) 24h, c) 48h.



**a)**

**b)**

Figure S4. High-resolution TEM images of SiO2 NPs (a) and SiO2 NPs further coated by AgInS2/ZnS QDs (b).



**b)**

**a)**

Figure S5. TEM images of MPTMS (a) GOPTS (b) functionalized SPIO-SiO2 NPs conjugated to QDs.

e)

c)



Ag

Fe

Si

d)

**b)**

a)



f)

Figure. S6. HAADF image of hybrid NP consisting from SPIO NP incorporated into a silica and coated by PEI and AgInS2/ZnS QDs(a), EDS maps (b-e) and spectrum (f) of hybrid NPs.



Figure S7. Attenuated total reflection (ATR) spectra of FA, PEI and folate conjugated PEI complex.



Figure S8. Absorption and photoluminescence spectra of MOHNPs without (a) and with folic acid (b) on the surface.