

Electronic supplementary information (ESI)

Figure S1

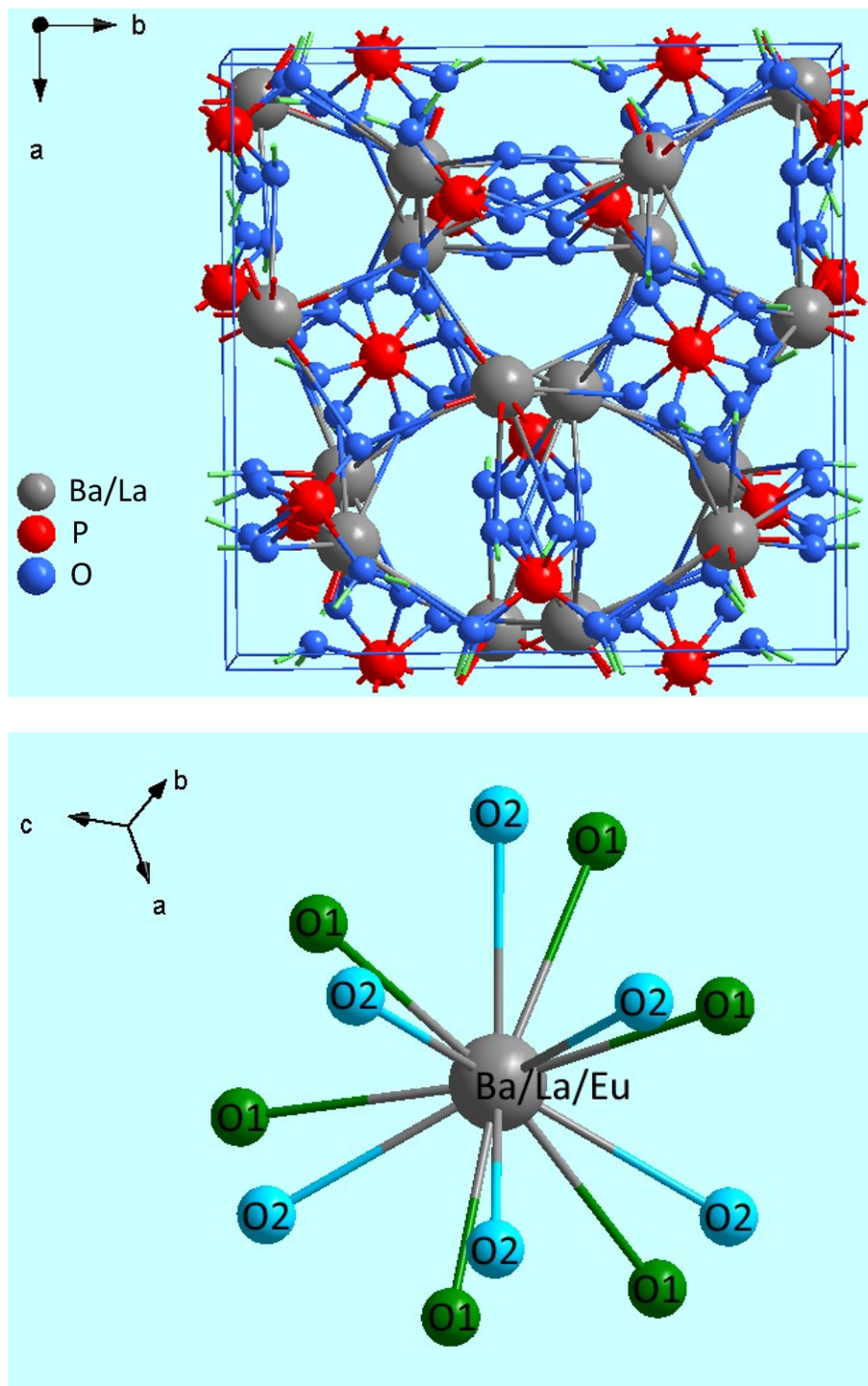


Figure S1. The crystal structure of $\text{Ba}_3\text{La}(\text{PO}_4)_3$ viewing along $[001]$ direction, and the coordination environment of M (Ba^{2+} , La^{3+} , and Eu^{2+}).

Table S1. The fluorescence lifetimes of Eu^{2+} (μs) for different sites (I, II, III, and IV) in $\text{BLaP:0.005Eu}^{2+},y\text{Mn}^{2+}$ samples.

Luminescence center Mn ²⁺ content	Site I (Eu1)	Site II (Eu2)	Site III (Eu3)	Site IV (Eu4)
0.00	0.049	0.880	0.043	0.269
0.005	0.044	0.853	0.040	0.228
0.01	0.039	0.834	0.037	0.217
0.02	0.037	0.809	0.035	0.213
0.04	0.034	0.793	0.033	0.187
0.06	0.031	0.719	0.029	0.159
0.08	0.030	0.660	0.028	0.135
0.10	0.027	0.636	0.026	0.124

Figure S2

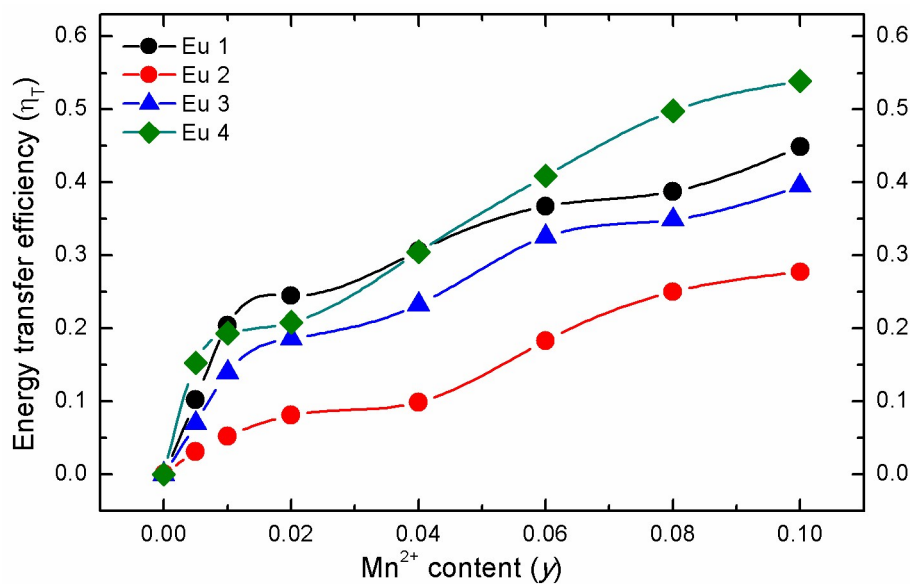


Figure S2. Dependence of the energy transfer efficiency η_T on Mn^{2+} content (y) for different luminescence centers (Eu1, Eu2, Eu3, and Eu4).

Figure S3

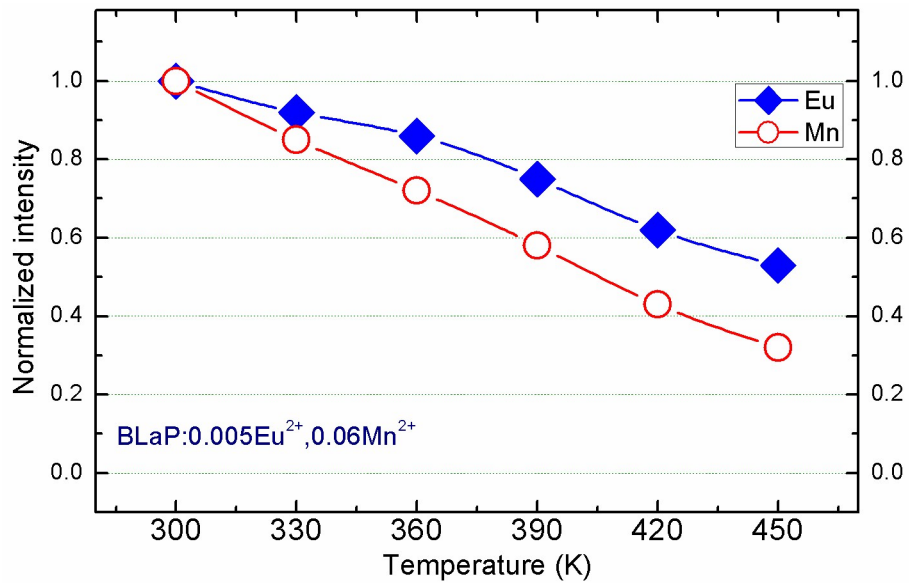


Figure S3. The integral luminescence intensity of both Eu²⁺ and Mn²⁺ for BLaP:0.005Eu²⁺,0.06Mn²⁺ phosphor at different temperature.