

Supplementary materials

Table S1. Characteristics of NPs (hydrodynamic diameter and ζ -potential)

Sample	Hydrodynamic diameter in deionized water, nm	PDI	ζ -potential in deionized water, mV
CeF ₃	66±9	0.314±0.021	+37.48
CeF ₃ -FMN	74±5	0.244±0.016	+40.59

Table S2. Values of absorption, integral intensity and quantum yield of fluorescence of NPs

	Absorbance	Integrated fluorescence intensity	Quantum yield
Tyrosine (reference)	0.0267 0.0534 0.104	3123.4 6137.0 11259.6	0.13±0.01
CeF₃	0.0135 0.0254 0.0379	4379.3 8543.6 13588.9	0.42 ± 0.02
CeF₃+FMN	0.0260 0.0506 0.0983	2628.0 4945.8 9392.8	0.11 ± 0.02

Table S3. Fitting results of the L929 and A431 cells dose-response curves. The 37% survival dose (D0) is obtained by interpolation from the fit curves.

NPs	Concentration, M	D ₀ , Gy	α	β	α/β
L929					
Control		2.7	0.07486	0.10910	0.6863
CeF ₃	10 ⁻⁷	4.5	-0.06921	0.06432	-1.0760
	10 ⁻³	4.8	0.18170	0.00524	34.6800
CeF ₃ +FMN	10 ⁻⁷	6.9	0.02610	0.01565	1.6680
	10 ⁻³	5.3	0.12390	0.01168	10.6000
A431					
Control		3.5	0.28900	-0.00094	-308.2000
CeF ₃	10 ⁻⁷	2.5	0.24470	0.05531	4.4240
	10 ⁻³	1.8	0.58130	-0.02395	-24.2700
CeF ₃ +FMN	10 ⁻⁷	2.5	0.30710	0.03446	8.9110
	10 ⁻³	2.2	0.42980	0.01412	30.4400

Figure S1. The STEM image of CeF_3 NPs

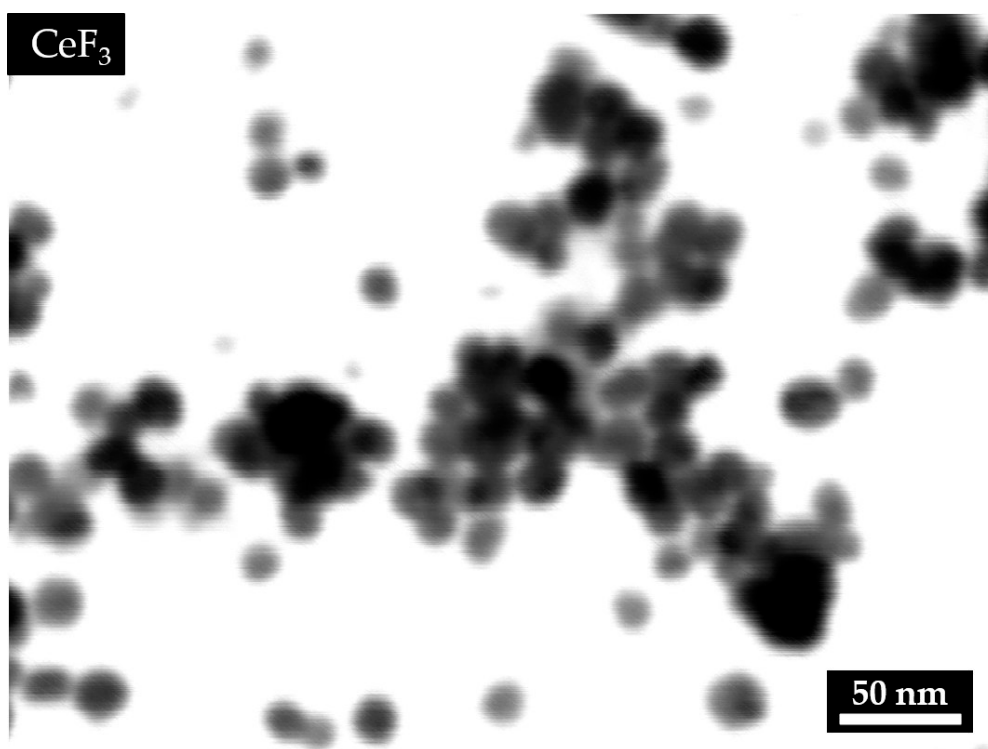


Figure S2. EDX spectrum of CeF_3 (a) and CeF_3 -FMN (b) NPs

