Supporting Information

Bio-distribution and *in vivo*/*in vitro* toxicity profile of PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles for bioimaging applications

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Table S1: Toxicity marker enzymes in serum of animals administered with PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles ($3x10^9$/ kg body weight) after one week and one month post-injection. Values are expressed as mean ± SEM of n = 6 (comparison is between groups). Different alphabets indicate significant difference at $p<0.05$.

Groups	AST (U/L)	ALT (U/L)	ALP (KA units)	CK (U/L)	LDH (U/dl)
Control	100.62±3.5[a]	59.3±2.73 [b]	5.09±0.22 [c]	73.7±3.09 [d]	272.5±22.1 [e]
1 week	99.46±5.29 [a]	63.2±2.21 [b]	5.14±0.16 [c]	70.6±3.63 [d]	273.5±19.9 [e]
1 month	99.58±4.56 [a]	61.3±1.49 [b]	5.17±0.19 [c]	74.3±3.06 [d]	284.2±19.2 [e]

Table S2: Hematology parameters of animals administered with PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles ($3x10^9$/ kg body weight) after one week and one month post-injection. Values are mean± SEM (n = 6) (comparison is between groups). Different alphabets indicate significant difference at $p<0.05$.

Groups	Hemoglobin (g %)	WBC X 10^3	RBC X 10^6	BUN (mg/dL)
Control	14.36±0.48 [a]	6.75±1.92 [b]	9.55±0.19 [c]	20.8±0.44 [d]
1 week	14.38±0.64 [a]	6.98±2.24 [b]	9.48±0.21 [c]	21.6±0.57 [d]
1 month	13.55 ±1.61 [a]	6.83 ±2.51 [b]	9.52±0.21 [c]	21.5 ±0.76 [d]

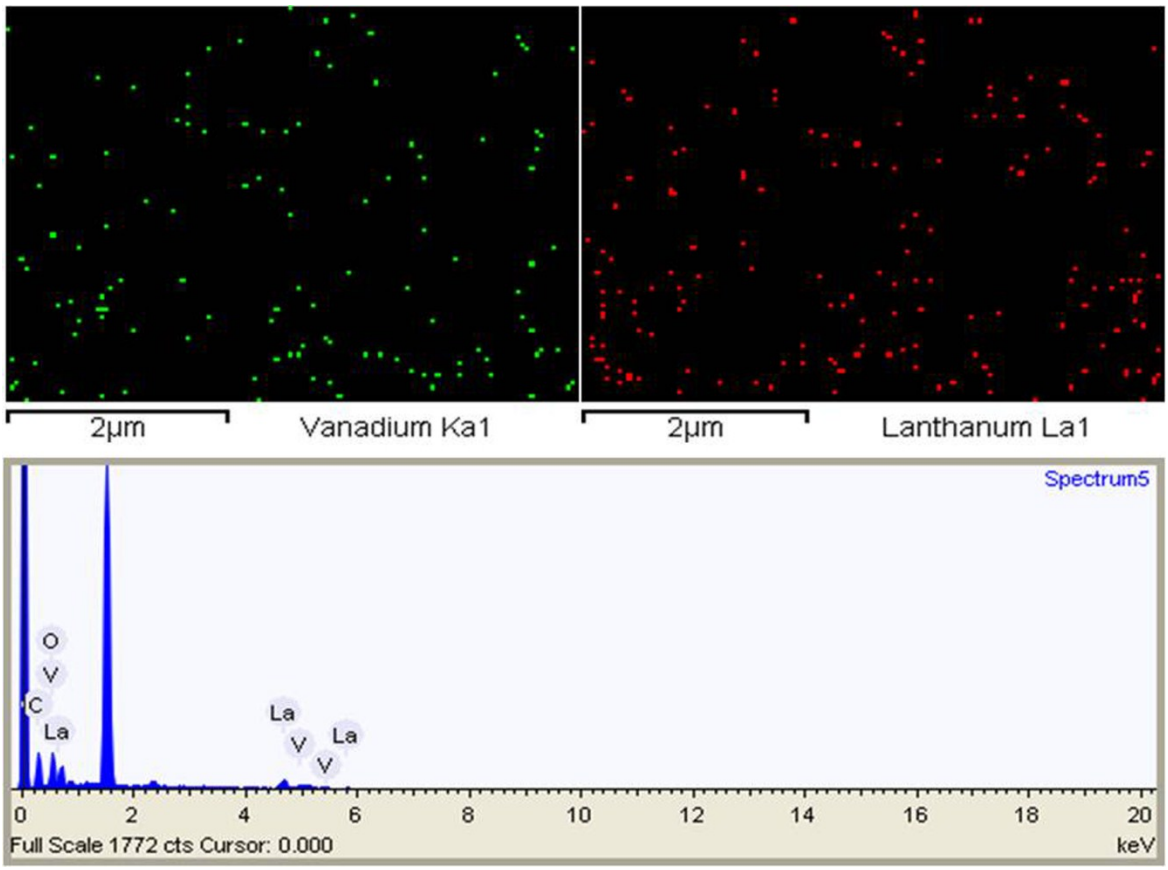

Figure S1: Energy dispersive X-ray spectroscopy (EDX) analysis of PEGylated polymer capsules encapsulating $LaVO_4$:Tb^{3+} nanoparticles.

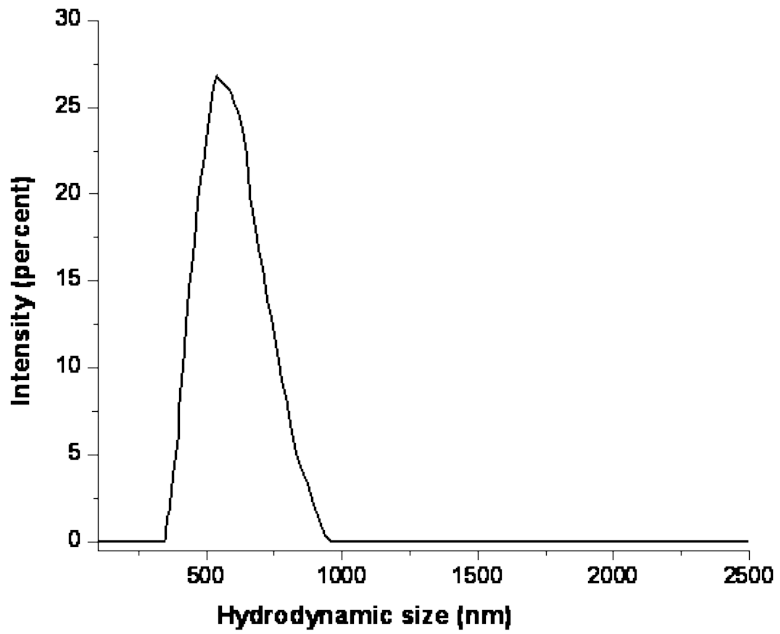

Figure S2. Dynamic light scattering measurement of PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles.

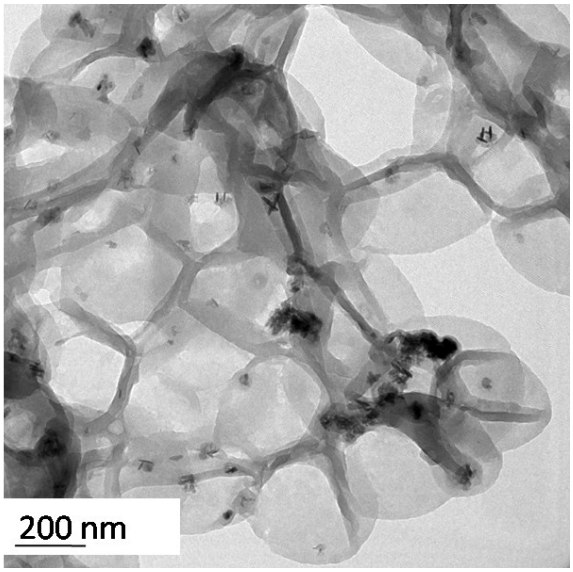

Figure S3. TEM image of PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles (Images are acquired after six months of synthesis of capsules to study the stability)

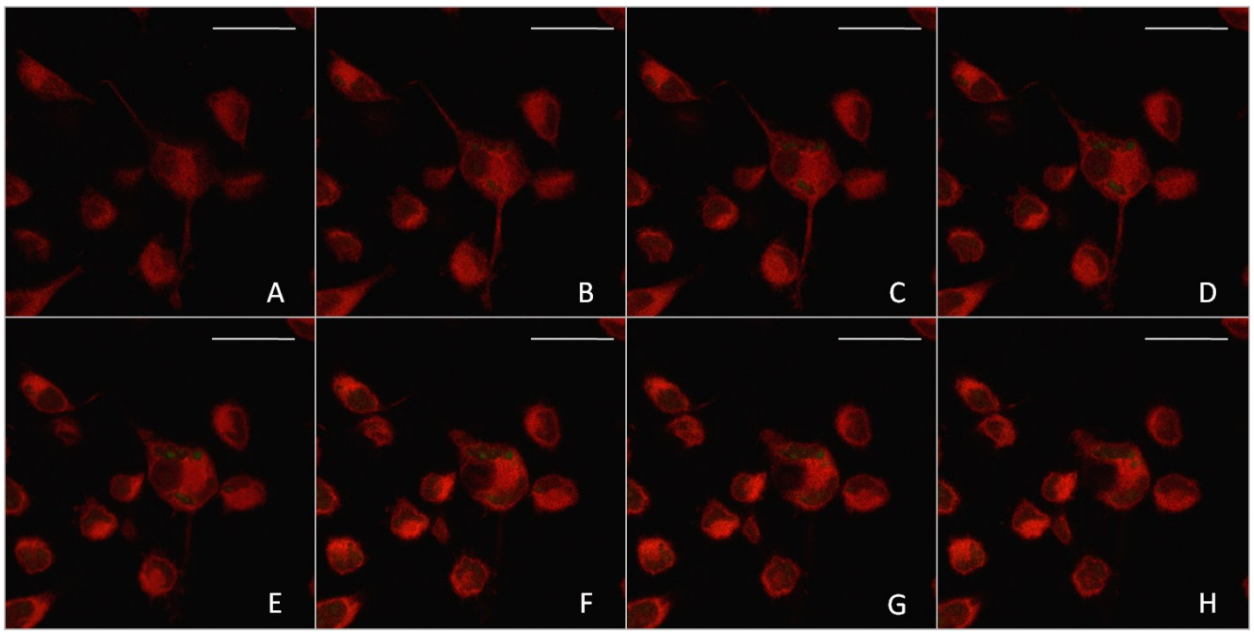

Figure S4. CLSM Z-stack images (A-H) of PEGylated polymer capsules $LaVO_4:Tb^{3+}$ nanoparticles internalized in L929 fibroblast cells. Each stack is taken at 0.5 μm interval.

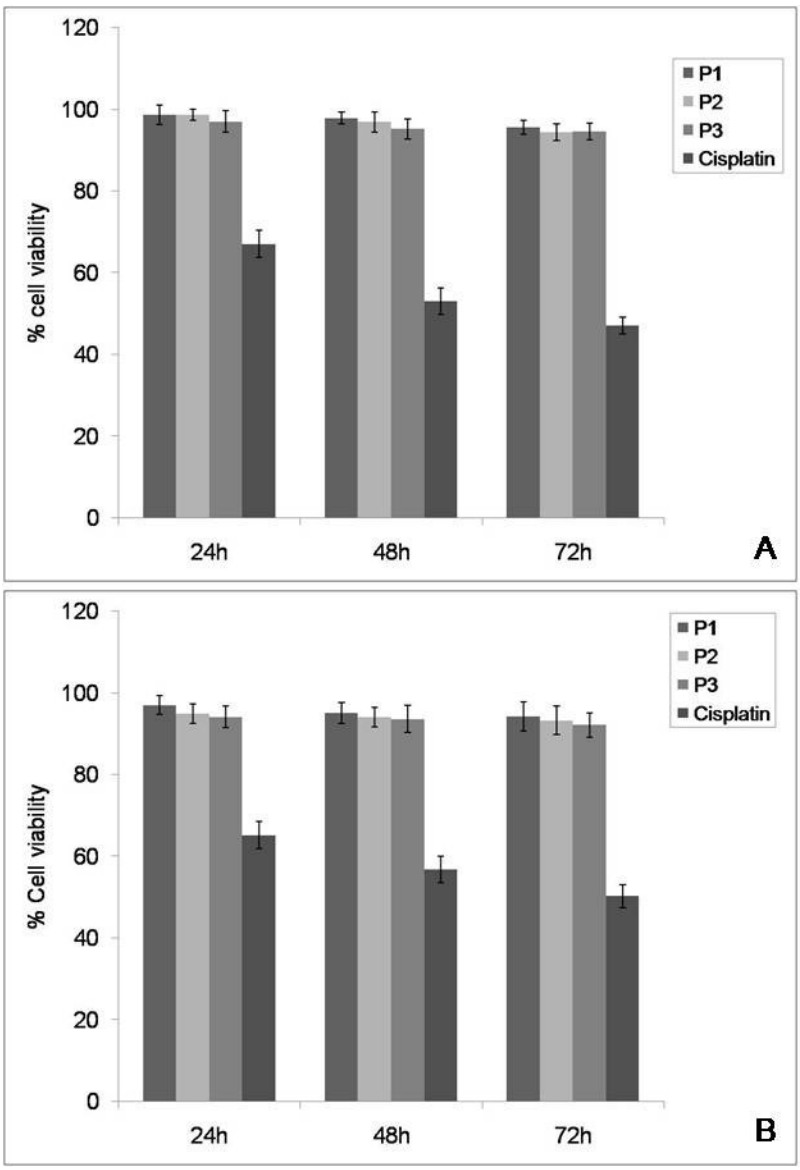

Figure S5. MTT assay graphs of (A) L929 and (B) peripheral blood mononuclear cells (PBMNCs) for different time intervals (24 h, 48 h, and 72 h)

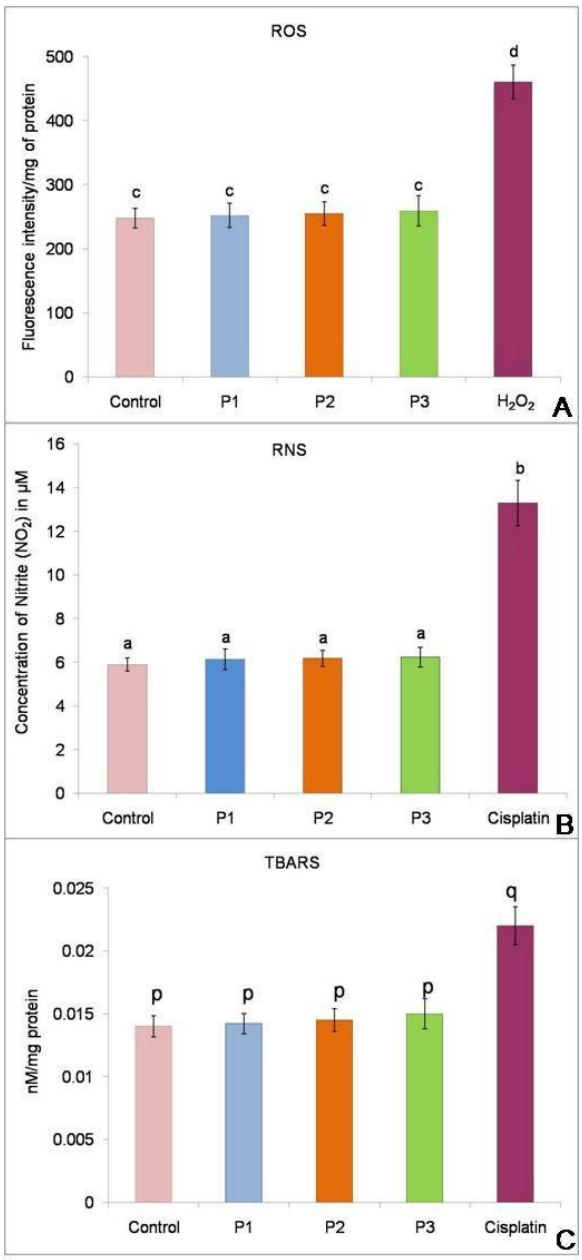

Figure S6. Graphs represent measurement of oxidative stress in L929 cells treated with different concentration of PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles (P1-3 $x10^6$/mL, P2- 4 $x10^6$/mL, and P3- $5x10^6$/mL): (A) generation of ROS, (B) generation of RNS, and (C) concentration of TBARS. Different alphabets indicate significant difference at $p<0.05$.

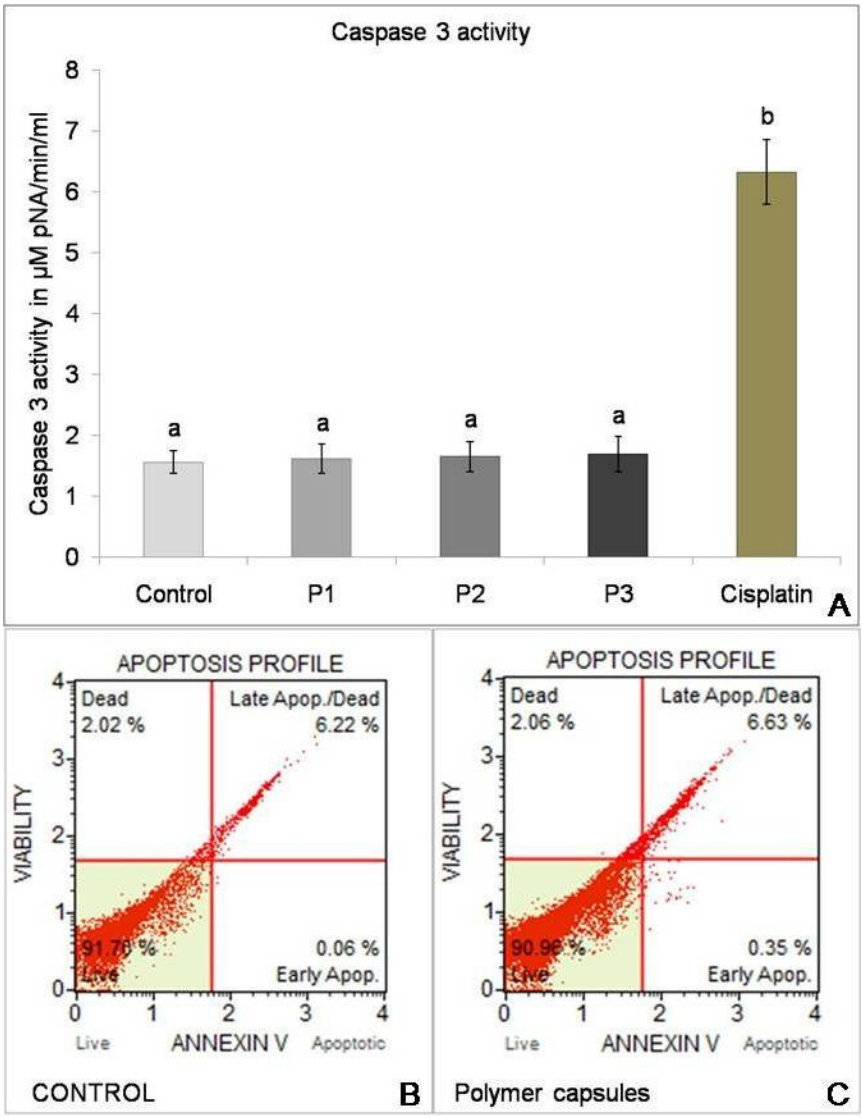

Figure S7. (A) Caspase-3 assay by ELISA (P1-3 x10^6/mL, P2- 4 x10^6/mL, P3- 5x10^6/mL of capsules and cisplatin (10µM) as positive control). Different alphabets indicate significant difference at $p<0.05$. Apoptosis measurement by FACS analysis after propidium iodide/annexin V-FITC staining in (B) control and (C) polymer capsule treated cells.

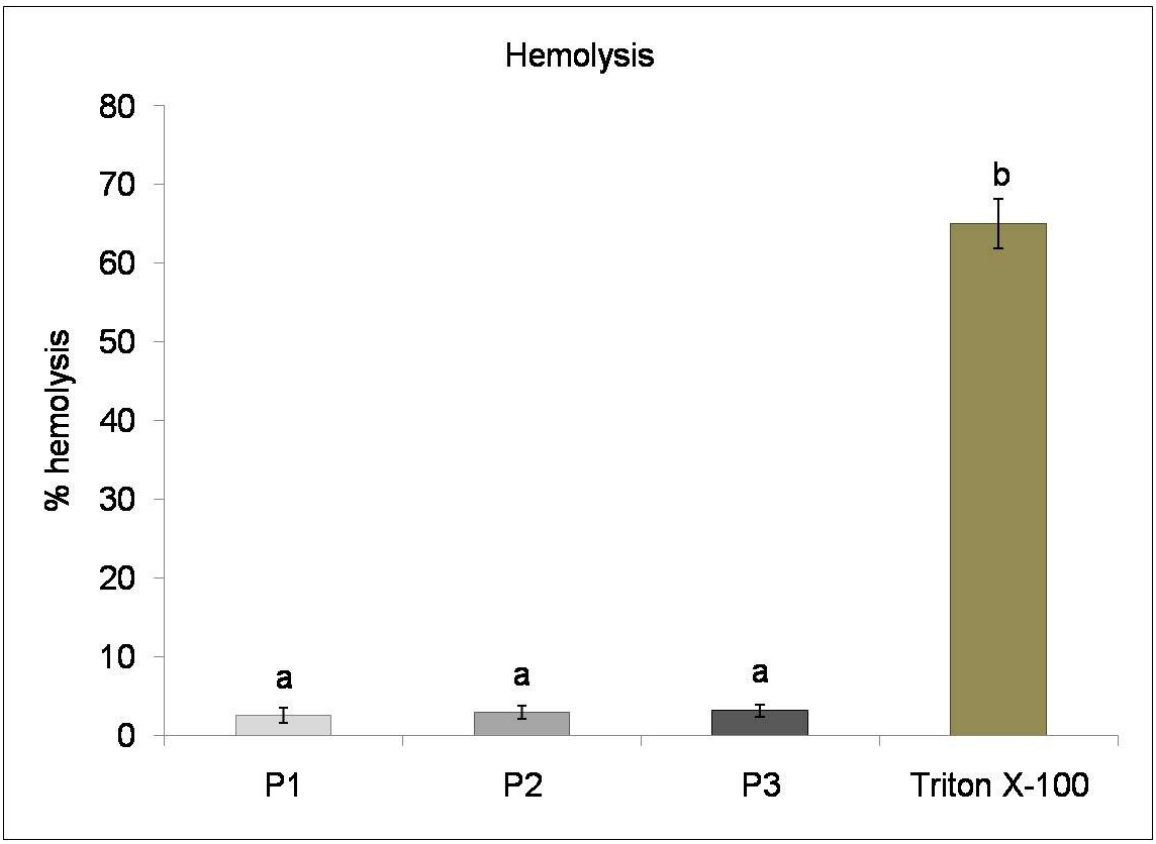

Figure S8. Hemolysis assay plot for different concentrations of PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles (P1-$3x10^5$, P2-$4x10^5$, P3- $5x10^5$) versus percentage hemolysis determined from absorbance measured at 542 nm. Different alphabets indicate significant difference at $p<0.05$.

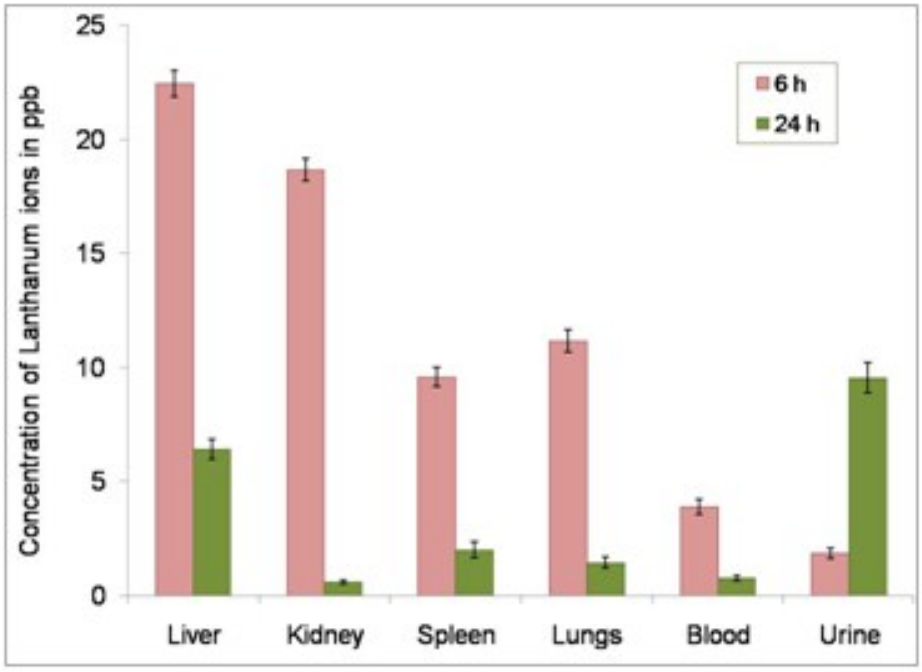

Figure S9. Graph representing ICP-MS data of lanthanum ion concentration (ppb) in various tissues and urine of mice after intravenous administration of PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles ($3x10^9$ capsules/ kg body weight).

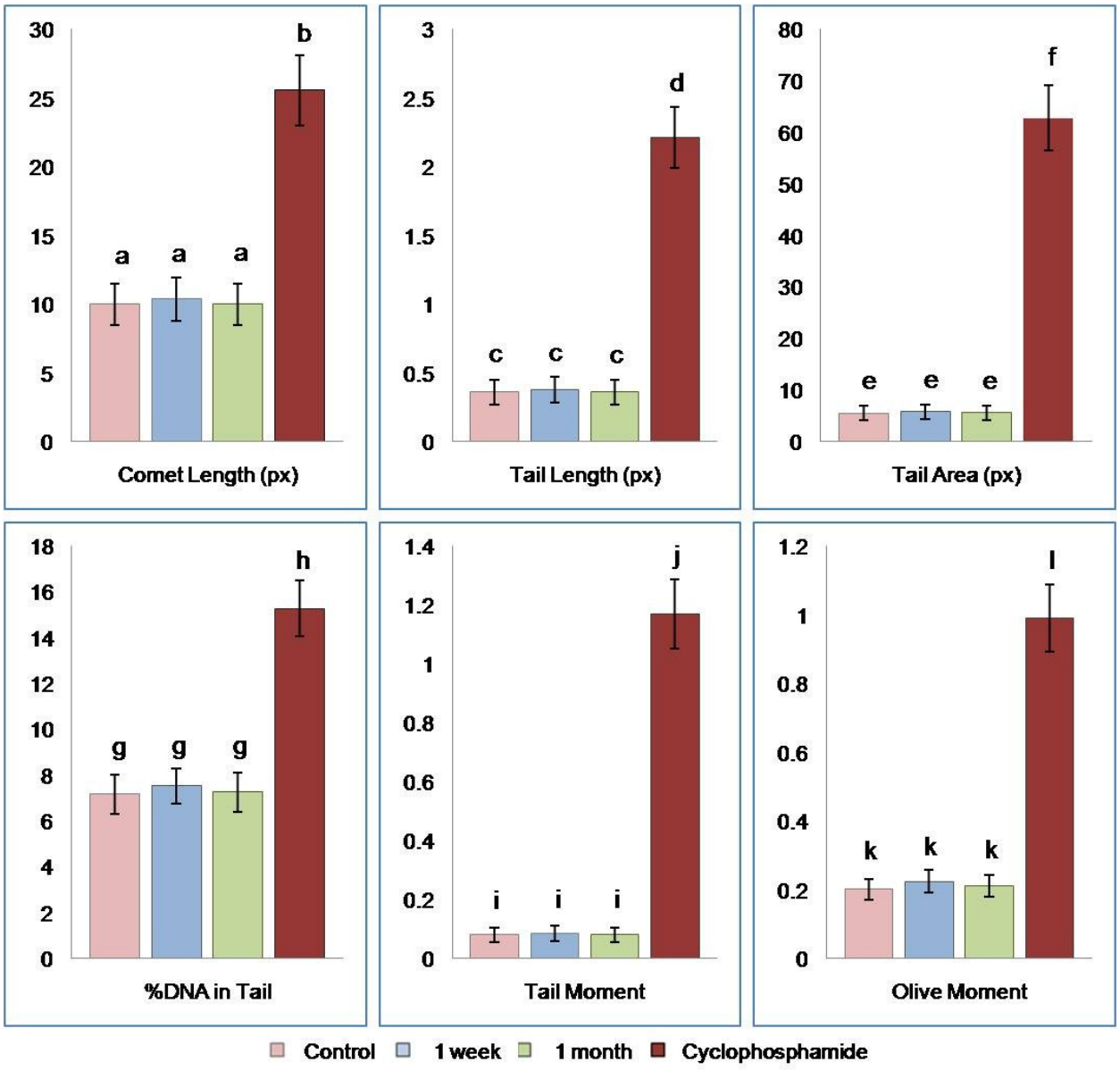

Figure S10. Comet score of single cell gel electrophoresis in peripheral blood of mice sacrificed after one week and one month post administration of PEGylated polymer capsules encapsulating $LaVO_4:Tb^{3+}$ nanoparticles ($3x10^9$/ kg body weight); (px represents arbitrary value). Different alphabets indicate significant difference at $p<0.05$.