

Electronic Supplementary Information (ESI) for:

***In vivo* study and thermodynamic investigation of two lanthanum complexes,
La(dpp)₃ and La(XT), for the treatment of bone resorption disorders**

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Fig. S1a: Speciation plot calculated for solutions of La^{3+} -Hdpp under typical conditions employed for ITC. $[\text{La}^{3+}] = 0.0025\text{M}$, $[\text{Hdpp}] = 0.010\text{M}$

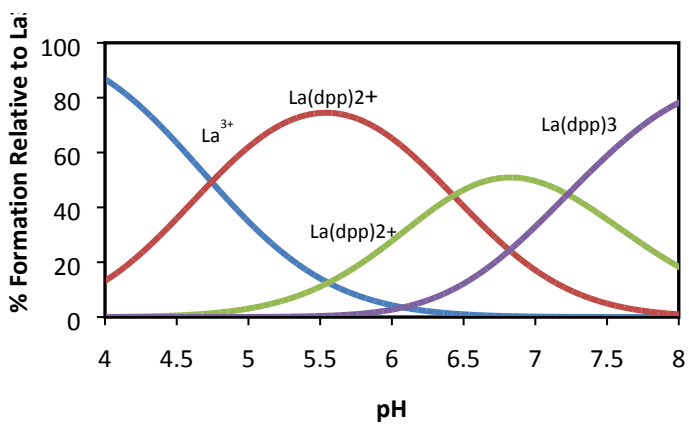


Fig. S1b: Speciation plot calculated for solutions of La^{3+} -Hdpp under typical conditions employed for ITC following first injection of 10 μl . $[\text{La}^{3+}] = 0.0000177\text{M}$, $[\text{Hdpp}] = 0.0000709\text{M}$

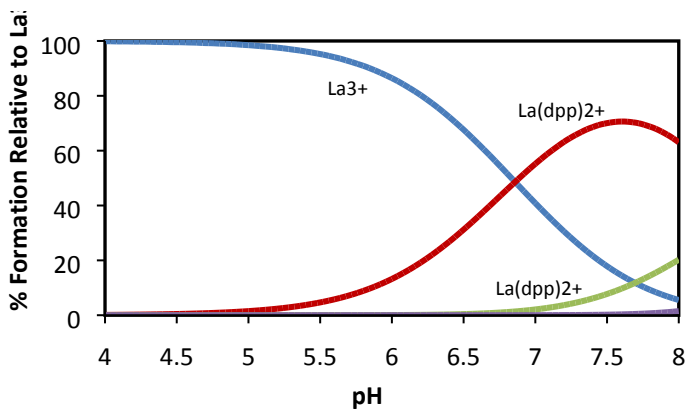


Fig. S2: ITC analysis of H₅XT-hydroxyapatite titration at 37 °C at pH 7.4 (100mM HEPES). (Upper) Raw titration data for 10µL injections of 30.4mM H₅XT⁺ into the ITC cell containing 1.1 mM formula units of hydroxyapatite. (Lower) Integrated heat data (points) and best fit (line) to a one-site bimolecular-bimolecular binding model.

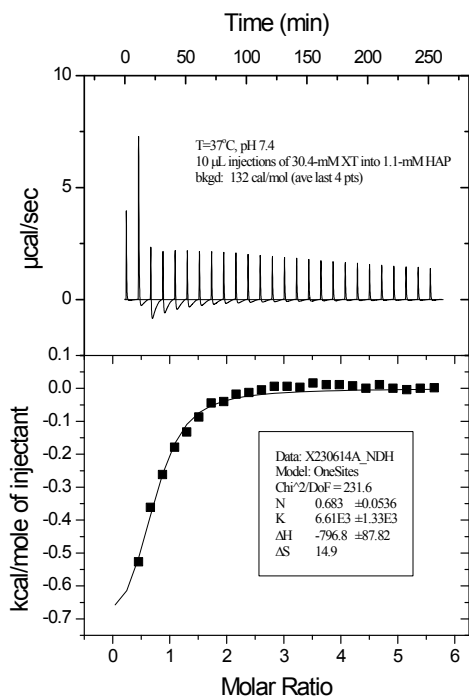


Fig. S3: Speciation plot calculated for solutions of La³⁺-H₅XT under typical conditions employed for ITC. [La³⁺] = 0.0025M, [H₅XT] = 0.010M

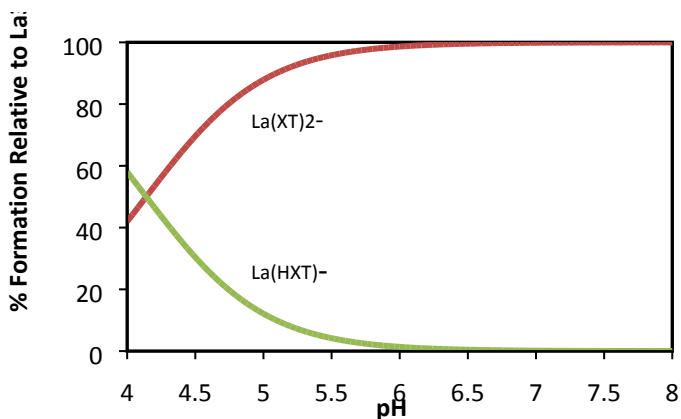


Table S1: Plasma concentrations of La(dpp)3 and LaXT following IV dose of 1mg/kg/day taken at beginning & end of trial (ng/g weight, mean \pm SD, n=6).

La(dpp)	t=0	t=end	LaXT	t=0	t=end
	3.8	4971.8		6.9	5843.4
	8.1	4668.4		3.7	6432.4
	6.6	4232.8		9.3	5776.8
	10.0	7201.5		9.5	6337.3
	6.0	6740.2		3.8	5782.3
	6.8	5287.1		7.2	5819.9
Mean	6.9	5517.0	Mean	6.8	5998.7
SD	2.1	1187.7	SD	2.5	301.6