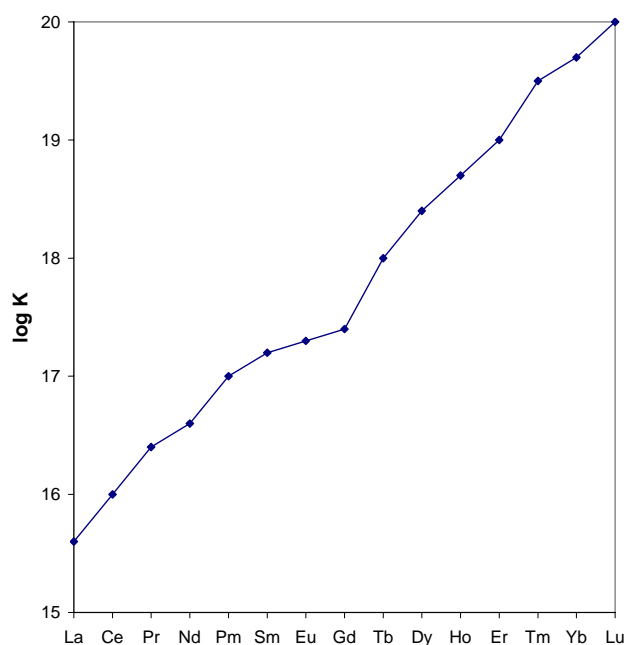


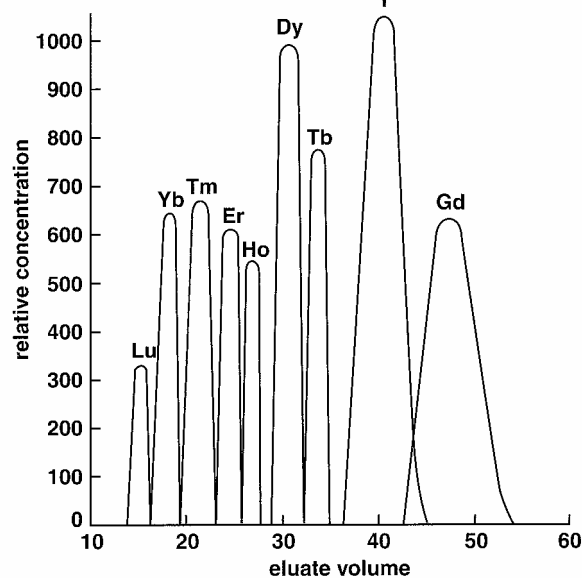
**Table L4.** The abundances of the lanthanides in the Earth's crust and common ores (averages)

Atomic number	Element	Symbol	Abundance (ppm)	Monazite ore	Bastnaesite ore
39	<i>Yttrium</i>	Y	30	2.5%	0.2%
57	Lanthanum	La	32	20%	33%
58	Cerium	Ce	68	43%	49%
59	Praseodymium	Pr	9.5	4.5%	4.3%
60	Neodymium	Nd	38	16%	12%
61	Promethium	Pm	0*	0%*	0%*
62	Samarium	Sm	8	2.5%	0.8%
63	Europium	Eu	2	0.1%	0.1%
64	Gadolinium	Gd	8	1.5%	0.2%
65	Terbium	Tb	1	500 ppm	160 ppm
66	Dysprosium	Dy	6	0.6%	300 ppm
67	Holmium	Ho	1.4	50 ppm	50 ppm
68	Erbium	Er	4	0.2%	35 ppm
69	Thulium	Tm	0.5	200 ppm	10 ppm
70	Ytterbium	Yb	3	0.1%	5 ppm
71	<i>Lutetium</i>	<i>Lu</i>	<i>0.5</i>	<i>200 ppm</i>	<i>1 ppm</i>

\* all isotopes of Pm are radioactive with short half-lives.



**Figure L8.** Equilibrium constants for the formation of 1:1  $\text{Ln}^{3+}/\text{EDTA}^{4-}$  in  $\text{H}_2\text{O}$  at 25°C



**Figure L9.** Elution curve of the late lanthanide elements from an ion exchange resin column