

Supporting information

Selective $^{226}\text{Ra}^{2+}$ Ionophores Provided by Self-assembly of Guanosine and Isoguanosine Derivatives

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Figure S1	S2
Figure S2	S2
Experimental precipitation experiments	S3

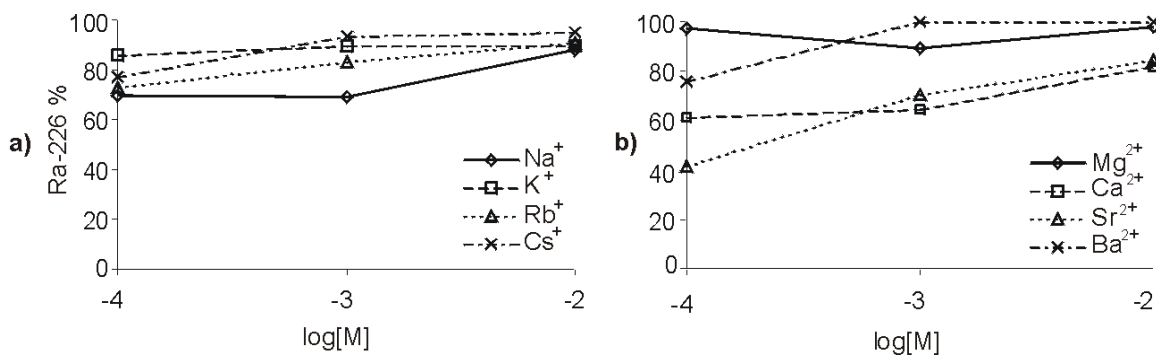


Figure S1. Overall $^{226}\text{Ra}^{2+}$ percentages present in solutions with varying concentrations of alkali(ne earth) cations, after extraction with G 1. Different salt concentrations $\text{M}^n(\text{NO}_3)_n$ [(a) $\text{M} = \text{Na}^+$, K^+ , Rb^+ , or Cs^+ ; (b) $\text{M} = \text{Mg}^{2+}$, Ca^{2+} , Sr^{2+} , and Ba^{2+}], fixed ionophore $[(\text{G } 1)_8 + 2(\text{Pic}^-)]$; $1 \times 10^{-4} \text{ M}$ and $^{226}\text{Ra}^{2+}$ ($2.9 \times 10^{-8} \text{ M}$) concentrations were used.

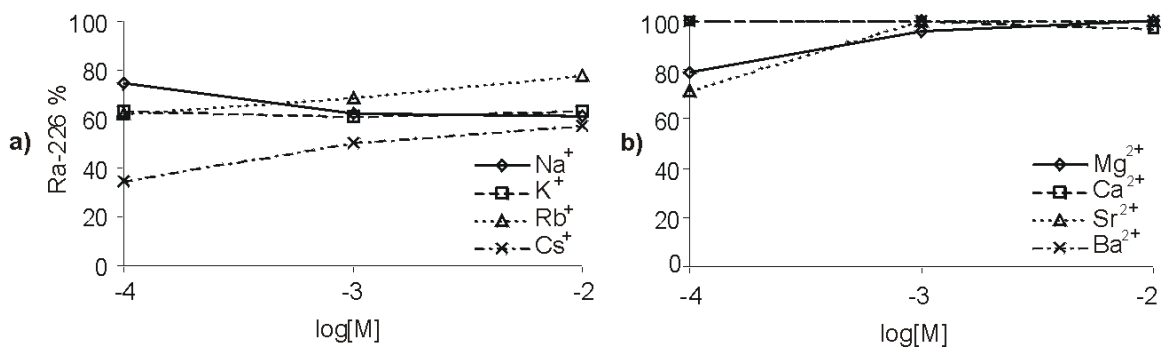


Figure S2. Overall $^{226}\text{Ra}^{2+}$ percentages present in solutions with varying concentrations of alkali(ne earth) cations, after extraction with isoG 2. Different salt concentrations $\text{M}^n(\text{NO}_3)_n$ [(a) $\text{M} = \text{Na}^+$, K^+ , Rb^+ , or Cs^+ ; (b) $\text{M} = \text{Mg}^{2+}$, Ca^{2+} , Sr^{2+} , and Ba^{2+}], fixed ionophore $[(\text{isoG } 2)_{10}]$; $1 \times 10^{-4} \text{ M}$ and $^{226}\text{Ra}^{2+}$ ($2.9 \times 10^{-8} \text{ M}$) concentrations were used.

Precipitation Experiments with G 1 and isoG 2 (Figure S1 and S2). Extraction experiments were performed under competitive conditions. In an aqueous phase pH 8.9 (tris-HCl), the ratio of competing $M^n(NO_3)_n$ ($M = Na^+, K^+, Rb^+, Cs^+, Mg^{2+}, Ca^{2+}, Sr^{2+}$, and Ba^{2+}) salt concentrations was altered compared to a fixed ionophore concentration (1 mL; 10^{-4} M) in the organic phase. The detectable amount of $^{226}Ra^{2+}$ tracer was determined and the $^{226}Ra^{2+}$ percentages obtained with G 1 and isoG 2, were defined as 100% times the ratio of the sum of $^{226}Ra^{2+}$ in the aqueous and organic phase ($A_{aq} + A_o$), and the amount of $^{226}Ra^{2+}$ added (A_{add}) (equation S1).

$$Ra\% = 100\% \cdot ((A_{aq} + A_o) / A_{add}) \quad (S1)$$