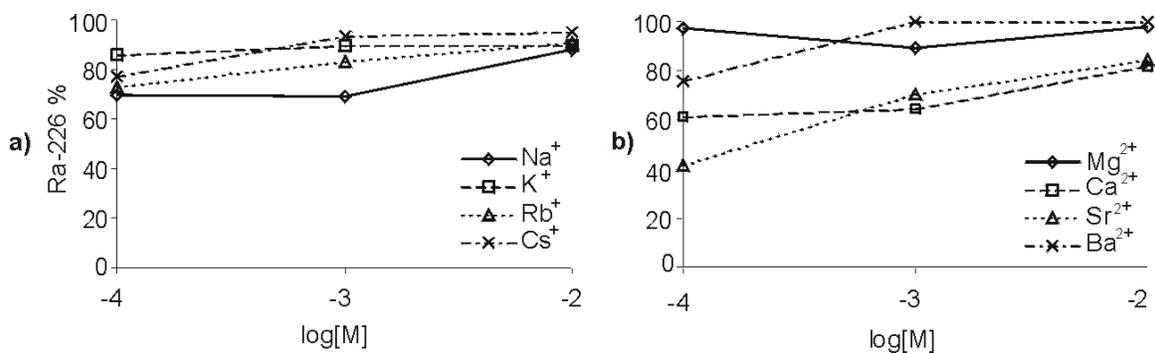


## Supporting information

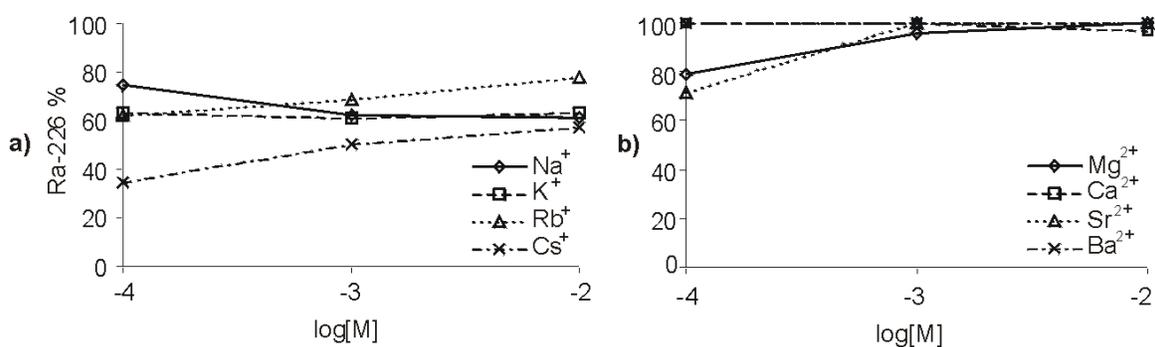
# Selective $^{226}\text{Ra}^{2+}$ Ionophores Provided by Self-assembly of Guanosine and Isoguanosine Derivatives

Fijs W. B. van Leeuwen<sup>a</sup>, Willem Verboom<sup>a,\*</sup>, Xiaodong Shi<sup>b</sup>, Jeffery T. Davis<sup>b</sup>, and  
David N. Reinhoudt<sup>a,\*</sup>

<b>Figure S1</b>	<b>S2</b>
<b>Figure S2</b>	<b>S2</b>
<b>Experimental precipitation experiments</b>	<b>S3</b>



**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)  $\text{M} = \text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Rb}^+$ , or  $\text{Cs}^+$ ; (b)  $\text{M} = \text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ , and  $\text{Ba}^{2+}$ ], fixed ionophore ( $[(\text{G } 1)_8 + 2(\text{Pic}^-)]$ ;  $1 \times 10^{-4}$  M) and  $^{226}\text{Ra}^{2+}$  ( $2.9 \times 10^{-8}$  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)  $\text{M} = \text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Rb}^+$ , or  $\text{Cs}^+$ ; (b)  $\text{M} = \text{Mg}^{2+}$ ,  $\text{Ca}^{2+}$ ,  $\text{Sr}^{2+}$ , and  $\text{Ba}^{2+}$ ], fixed ionophore ( $[(\text{isoG } 2)_{10}]$ ;  $1 \times 10^{-4}$  M) and  $^{226}\text{Ra}^{2+}$  ( $2.9 \times 10^{-8}$  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).

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