Supplementary material

The Formation of Fluorescent Alkaline Earth Complexes by 4-{2-[10-(2-Morpholinoethyl)-9-anthryl]methyl}morpholine and its -Ethyl}morpholine and -Propyl}morpholine Analogues in Acetonitrile

Jason P. Geue, Nicholas J. Head, A. David Ward and Stephen F. Lincoln

A Department of Chemistry, The University of Adelaide, Adelaide, SA 5005, Australia
B Author to whom correspondence should be addressed (e-mail Stephen.Lincoln@adelaide.edu.au).
**Fig. S1.** The increase in emission of (1) \(3.00 \times 10^{-6} \text{ mol dm}^{-3}\) with \([\text{Ca}^{2+}]\) \((1.00 \times 10^{-4}-6.00 \times 10^{-3} \text{ mol dm}^{-3}\) in acetonitrile at \(I = 0.05 \text{ mol dm}^{-3}\) (NEt₄ClO₄) and 298.2 K when excited at 378 nm. The emission of (1) alone coincides with the base line.

**Fig. S2.** The increase in emission of (2) \(3.00 \times 10^{-6} \text{ mol dm}^{-3}\) with \([\text{Mg}^{2+}]\) \((5.00 \times 10^{-6}-5.00 \times 10^{-3} \text{ mol dm}^{-3}\) in acetonitrile at \(I = 0.05 \text{ mol dm}^{-3}\) (NEt₄ClO₄) and 298.2 K when excited at 365 nm. The lowest emission spectrum is that of (2) alone.
**Fig. S3.** The increase in emission of (2) \((3.00 \times 10^{-6} \text{ mol dm}^{-3})\) with \([\text{Sr}^{2+}]\) \((1.00 \times 10^{-5}-6.00 \times 10^{-3} \text{ mol dm}^{-3})\) in acetonitrile at \(I = 0.05 \text{ mol dm}^{-3}\) (NET₄ClO₄) and 298.2 K when excited at 378 nm. The lowest emission spectrum is that of (2) alone.

**Fig. S4.** The increase in emission of (2) \((3.00 \times 10^{-6} \text{ mol dm}^{-3})\) with \([\text{Ba}^{2+}]\) \((1.00 \times 10^{-5}-6.00 \times 10^{-3} \text{ mol dm}^{-3})\) in acetonitrile at \(I = 0.05 \text{ mol dm}^{-3}\) (NET₄ClO₄) and 298.2 K when excited at 379 nm. The lowest emission spectrum is that of (2) alone.
**Fig. S5.** The increase in emission of (3) \((3.00 \times 10^{-6} \text{ mol dm}^{-3})\) with \([\text{Mg}^{2+}] (1.00 \times 10^{-6}-8.00 \times 10^{-5} \text{ mol dm}^{-3})\) in acetonitrile at \(I = 0.05 \text{ mol dm}^{-3}\) (NEt\(_4\)ClO\(_4\)) and 298.2 K when excited at 377 nm. The lowest emission spectrum is that of (3) alone.

**Fig. S6.** The increase in emission of (3) \((3.00 \times 10^{-6} \text{ mol dm}^{-3})\) with \([\text{Ca}^{2+}] (5.00 \times 10^{-5}-5.00 \times 10^{-3} \text{ mol dm}^{-3})\) in acetonitrile at \(I = 0.05 \text{ mol dm}^{-3}\) (NEt\(_4\)ClO\(_4\)) and 298.2 K when excited at 378 nm. The lowest emission spectrum is that of (3) alone.
Fig. S7. The increase in emission of (3) \(3.00 \times 10^{-6} \text{ mol dm}^{-3}\) with [Ba\(^{2+}\)] \((1.00 \times 10^{-4}-6.00 \times 10^{-3} \text{ mol dm}^{-3}\) in acetonitrile at \(I = 0.05 \text{ mol dm}^{-3}\) (NEt\(_4\)ClO\(_4\)) and 298.2 K when excited at 378 nm. The lowest emission spectrum is that of (3) alone.

Fig. S8. Emission variation of (3) \(3.00 \times 10^{-6} \text{ mol dm}^{-3}\) at 403 nm with increase in [Mg\(^{2+}\)] in acetonitrile and \(I = 0.05 \text{ mol dm}^{-3}\) (NEt\(_4\)ClO\(_4\)) and 298.2 K when excited at 377 nm. The solid curves represent the best fit of the algorithm for the formation of [Mg(3)]\(^{2+}\) and [Mg(3)]\(^{2+}\) and [Mg\(_2\)(3)]\(^{4+}\) to the experimental data points over the range 390-490 nm.