Electronic Supplementary Information

for


Massimo Cametti†, Antonella Dalla Cort and Luigi Mandolini*

Dipartimento di Chimica and IMC-CNR, Università “La Sapienza”, Piazzale Aldo Moro 5, 00185 Roma, Italy.
email: luigi.mandolini@uniroma1.it
†Present address: Dipartimento di Chimica, Materiali ed Ingegneria Chimica "Gualtiero Natta," Politecnico di Milano, Via Mancinelli 7, 20131 Milano, Italy.

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Materials. Salophen-UO$_2$ complexes 1 ($X =$ CH$_3$O, Me, Br and NO$_2$) were available from a previous investigation (ref. 9 in the main text). Tetramethylammonium chloride, (TMA)Cl, and triphenylmethane, TPM, were purchased from Sigma-Aldrich; (TMA)Cl was re-crystallized before use as described below before use.

NMR Studies. $^1$H-NMR spectra were recorded on a 250 MHz Bruker Advance spectrometer. All $^1$H-NMR titrations were run at 298 K following a published procedure (ref. 11 in the main text). Each tested receptor was washed with CHCl$_3$ (amylene stabilized, three times) prior to the experiment. (TMA)Cl was re-crystallized from MeOH and dried before its use. Stock solution of (TMA)Cl was obtained by adding an excess of it in a CDCl$_3$ solution. After 12-18 hours of stirring, the solution was filtrated, and the (TMA)Cl concentration was measured by $^1$H-NMR. Triphenylmethane was used as an internal standard. The (TMA)Cl stock solution was then diluted final concentration range 0.15-0.40 mM

![Figure 1S](image)

**Figure 1S.** Example of (TMA)Cl concentration measurement by signals’ integral comparison with an internal standard TPM.
Titrations Plots.

Titration plots for Salophen-UO₂ complexes 1 (X= H) and Salophen-UO₂ complexes 3 were already reported in reference 10b and 9 (see manuscript), respectively. Reported values are σ-weighted averages from two independent runs using equation (1):

\[ K = \frac{\sum_{i=1}^{N} K_i}{\sum_{i=1}^{N} \frac{1}{\sigma^2_i}} \]  

(1)

**Figure 28.** ³¹H NMR titration of 0.15 mM (TMA)Cl with receptor 1 (X = OCH₃) in CDCl₃ at 25°C.

K, X= OCH₃
first run: 16900 ± 600
second run: 18100 ± 500
Figure 3S. $^1$H-NMR titration of 0.40 mM (TMA)Cl with receptor 1 (X= Me) in CDCl$_3$ at 25°C.

K, X= Me
first run: 14150 ± 850
second run: 16200 ± 1000
Figure 4S. $^1$H NMR titration of 0.20 mM (TMA)Cl with receptor 1 ($X = Br$) in CDCl$_3$ at 25°C.

K, X= Br
first run: 10200 ± 1000
second run: 11300 ± 600
Figure S5. $^1$H NMR titration of 0.23 mM (TMA)Cl with receptor 1 (X = NO$_2$) in CDCl$_3$ at 25°C.

K, X = NO$_2$

first run: 6500 ± 1000

second run: 8550 ± 600