Electronic Supplementary Material (ESI) for Analytical Methods.

Supplementary Information

Stable Tetramethy-1,10-Phenanthroline Osmium(III) Complex in Neutral pH as a Photoluminescence-Following Electron-Transfer Reagent for the Detection of Acetaminophen in Urine and Pharmaceutical Formulations

M.P. Patel,[a] S. A. Varnum[a*], D. Gandla[a], M. Zdilla[a] and C. J. Martoff[b]

[a] Department of Chemistry, 1901 N. 13th Street. Philadelphia, PA 19122.
E-mail: susan.varnum@temple.edu; Fax: 215-204-1532; Tel: 215-204-6390
[b] Department of Physics, 1900 N. 13th Street. Philadelphia, PA 19122.

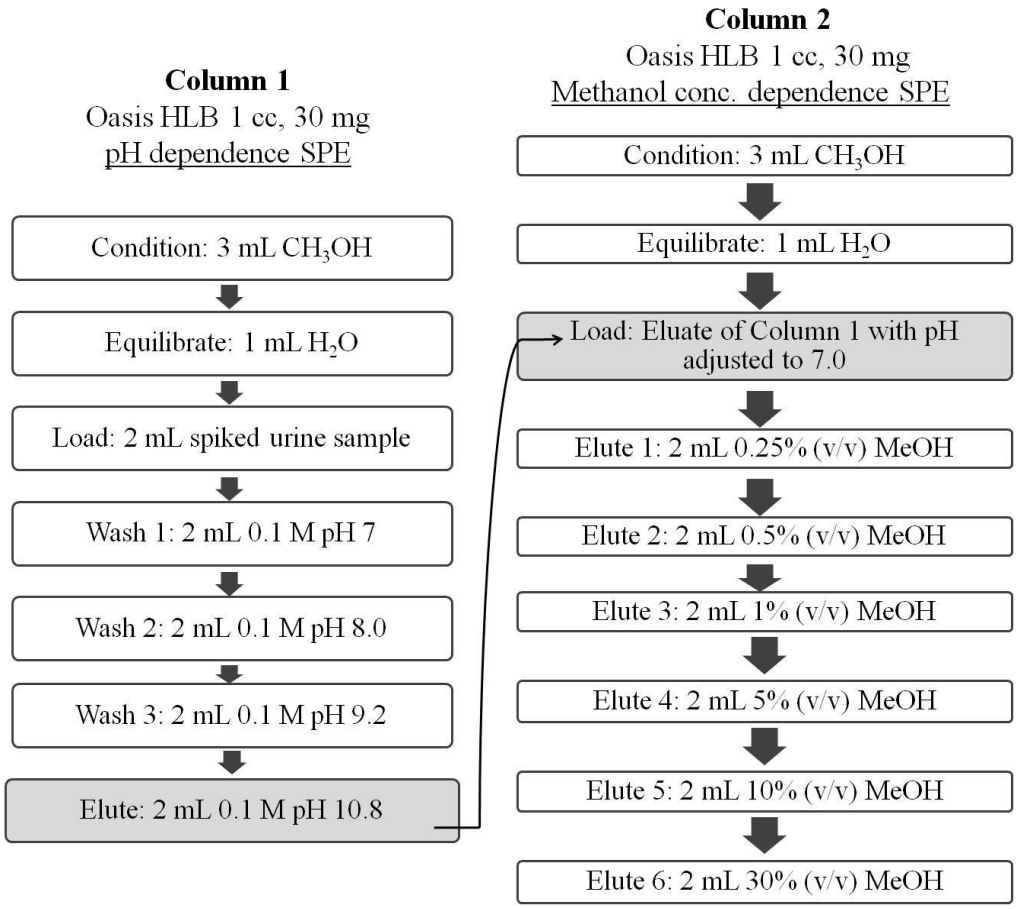

Figure S1. 2x1D-Solid Phase Extraction (SPE) protocol for acetaminophen from urine.

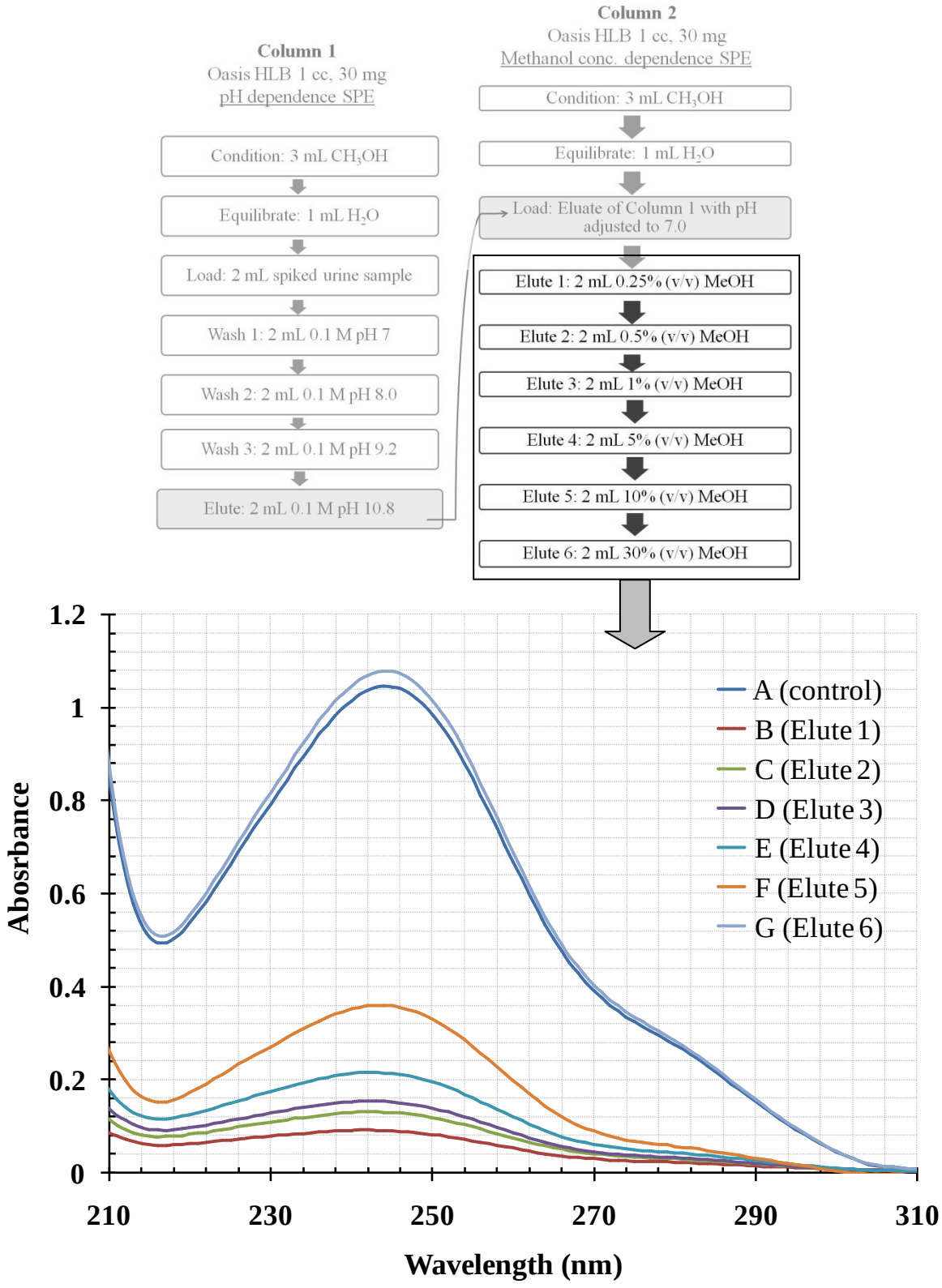

Figure S2. Absorbance spectra of Wash-elute study to determine dependence of percentage of methanol on the elution of acetaminophen (n = 3). Seven columns were loaded with an aliquot of 2 mL sample solution (15.18 µg/mL of acetaminophen in pH 7.0 phosphate buffer solution). The acetaminophen was eluted from each column with 2 mL of methanol-water mixture, respectively: A) Control (15.18 µg/mL of acetaminophen in pH 7.0 buffer), B) 0.25% methanol C) 0.5% methanol D) 1% methanol E) 5% methanol F) 10% methanol and G) 30% methanol.

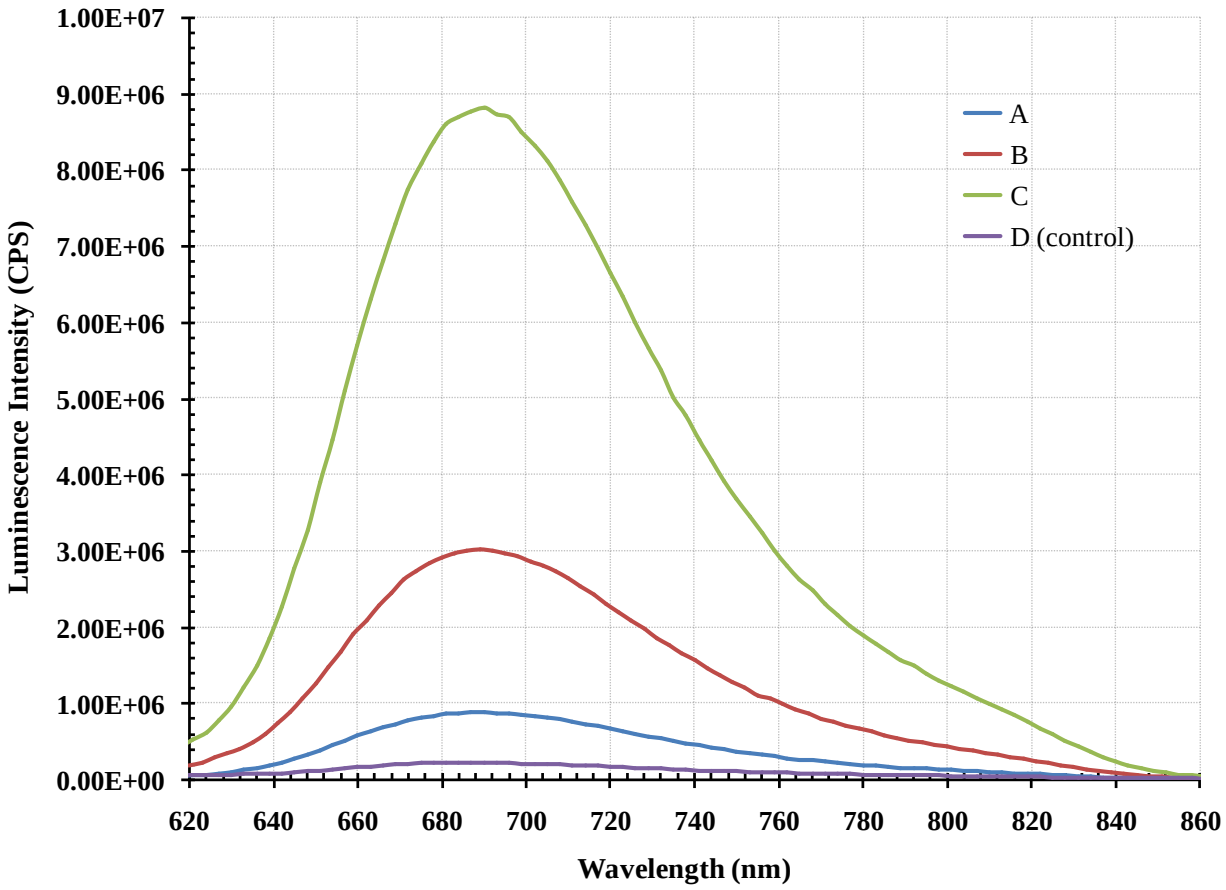

Figure S3. Luminescence signal of $Os(tmphen)_3]^{2+}$ from spiked and native (non-spiked) urine samples (n = 3). Spiked urine samples contained three levels of acetaminophen concentrations: A) low (40.4 µg/L), B) medium(120.0 µg/L) and C) high (360.0 µg/L). D is the luminescence signal from native urine sample (control).

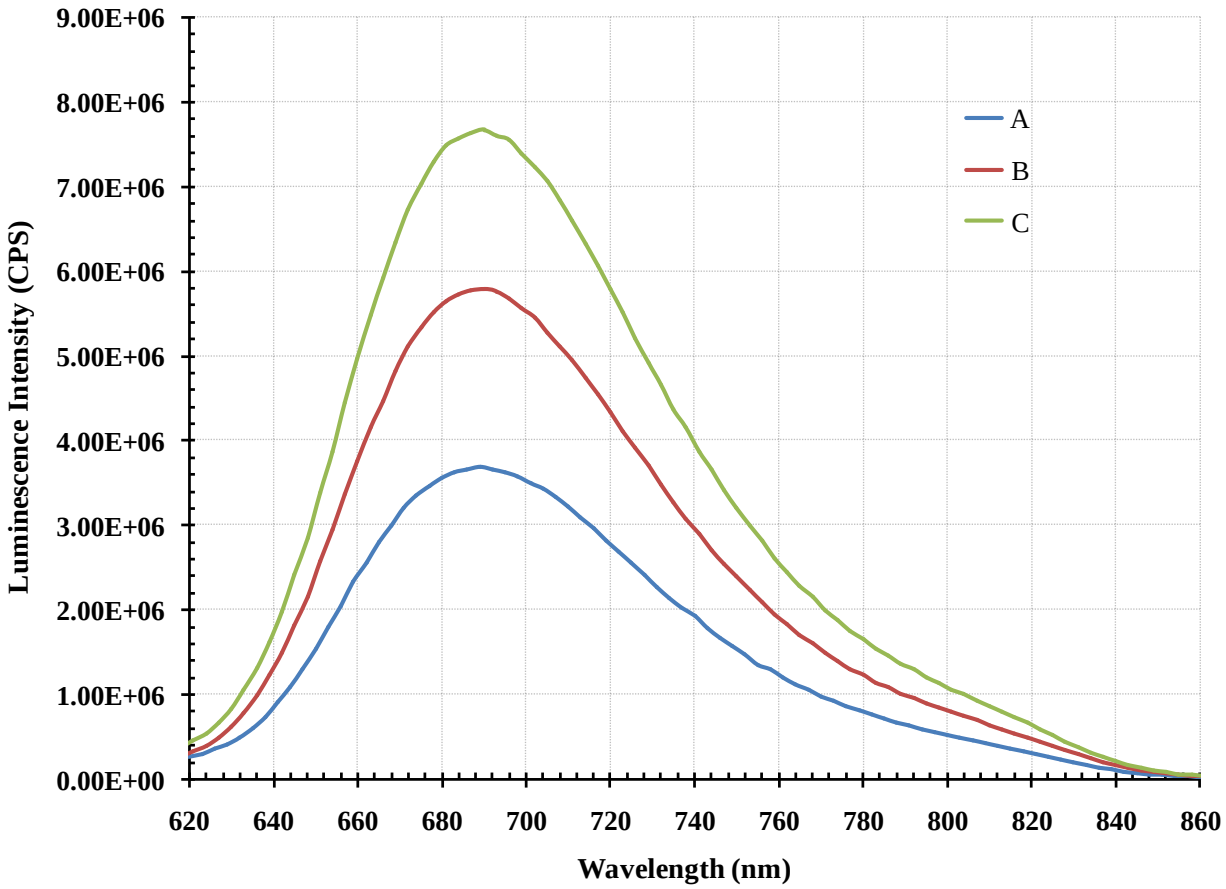

Figure S4. Luminescence signal of $Os(tmphen)_3]^{2+}$ from analysis of pharmaceutical samples (n = 3). Samples contained three levels of acetaminophen concentrations: A) 147.5 µg/L, B) 231.0 µg/L and C) 287.6 µg/L.

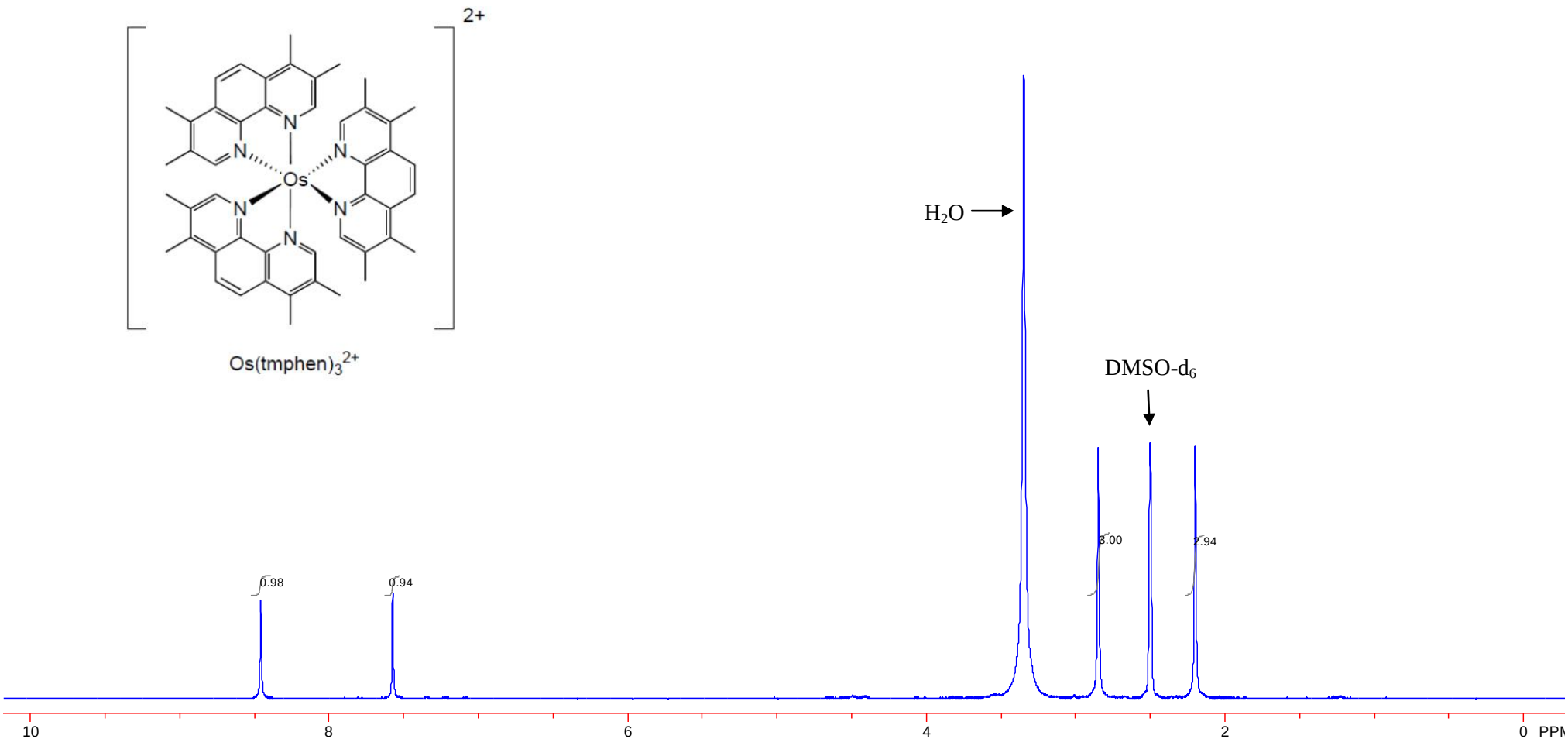

Figure S5. ^{1}H-NMR of Os(tmphen)$_3$(Cl)$_2$: DMSO (δ): 2.21 (s, 3H, CH_3), 2.85 (s, 3H, CH_3), 7.58 (s, 1H) and 8.46 (s, 1H).

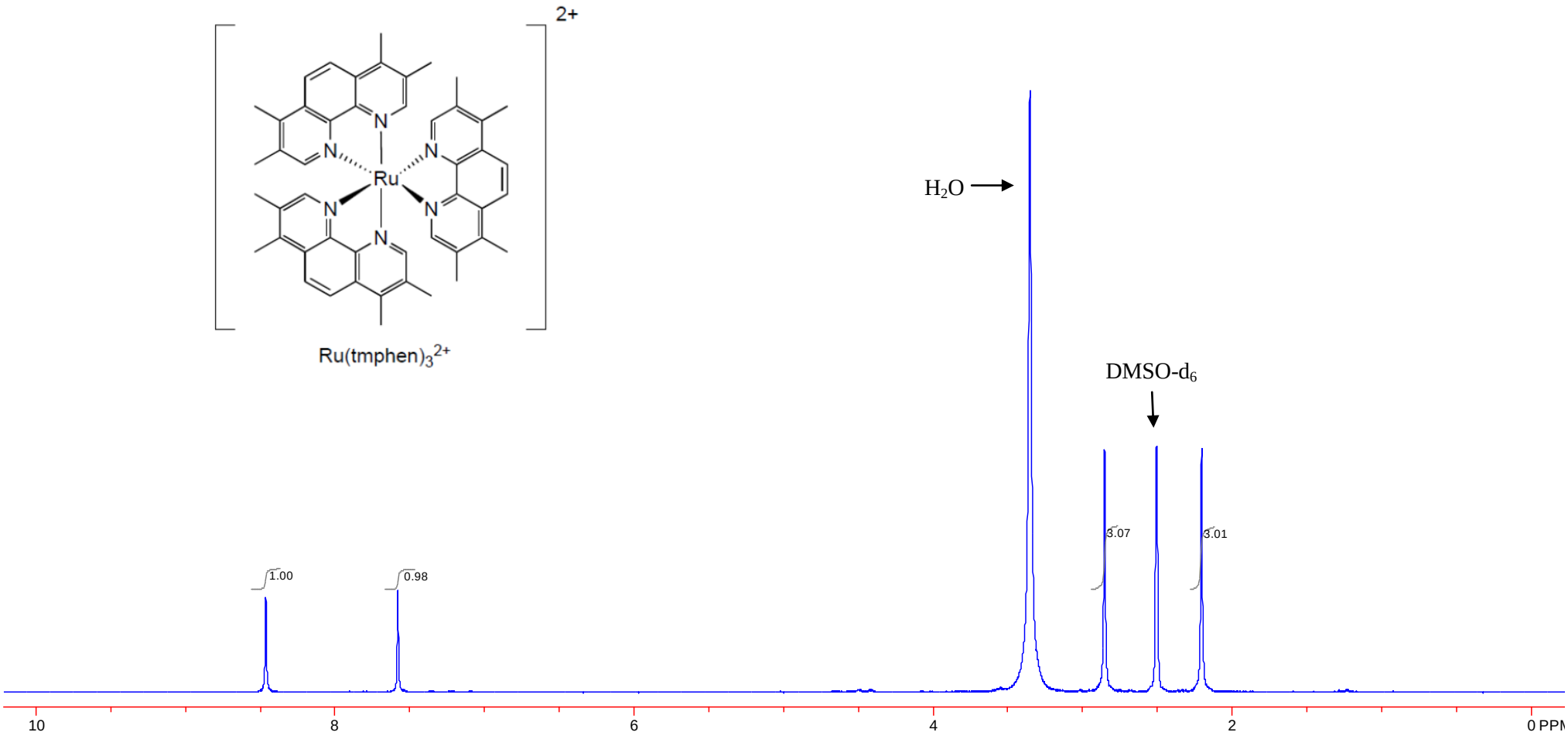

Figure S6. ^{1}H-NMR of Ru(tmphen)$_3$(Cl)$_2$: DMSO (δ): 2.21 (s, 3H, CH_3), 2.76 (s, 3H, CH_3), 7.67 (s, 1H) and 8.47 (s, 1H).

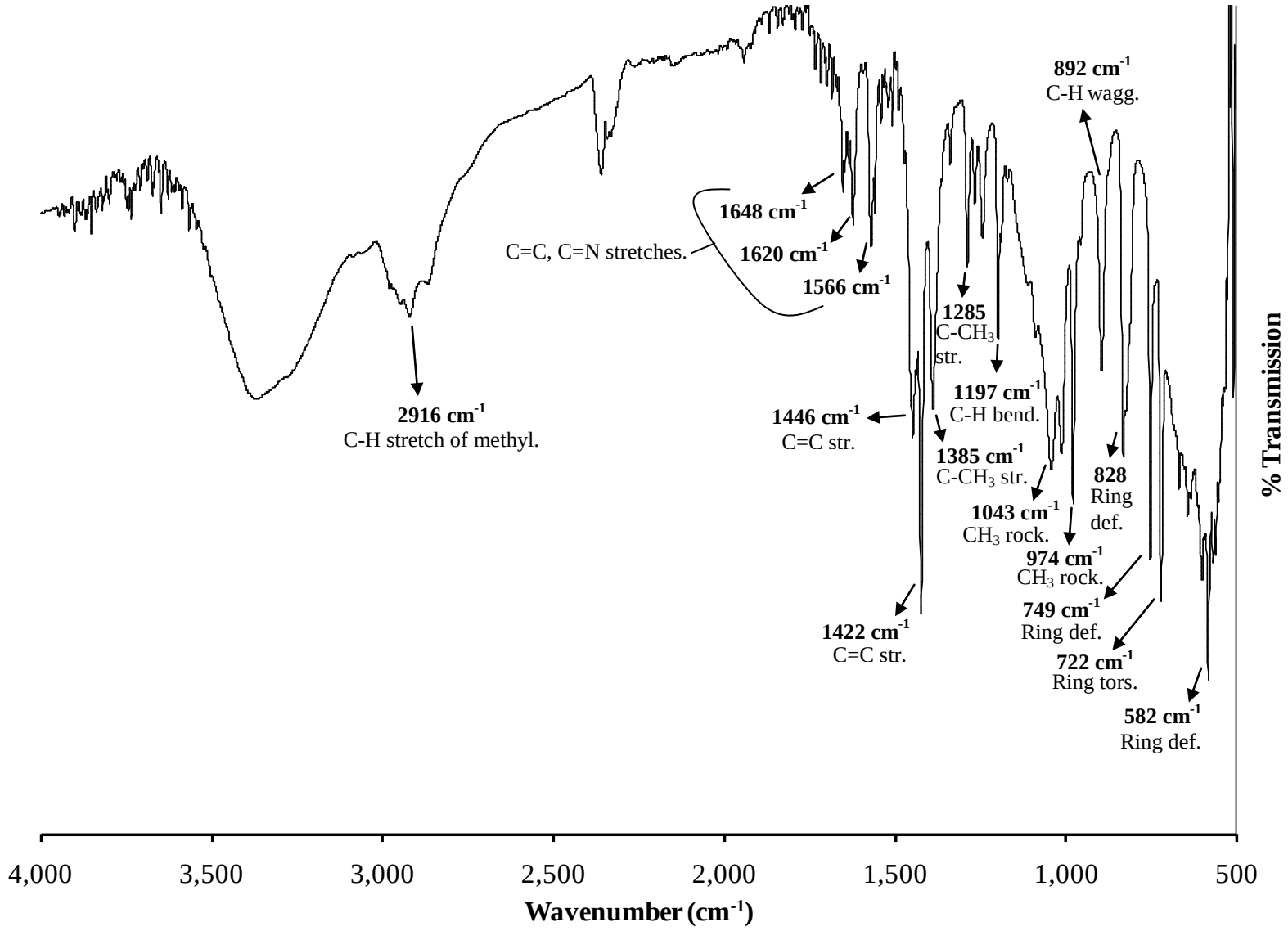

Figure S7. ATR-FTIR spectra of solid $Os(tmphen)_3(Cl)_2$

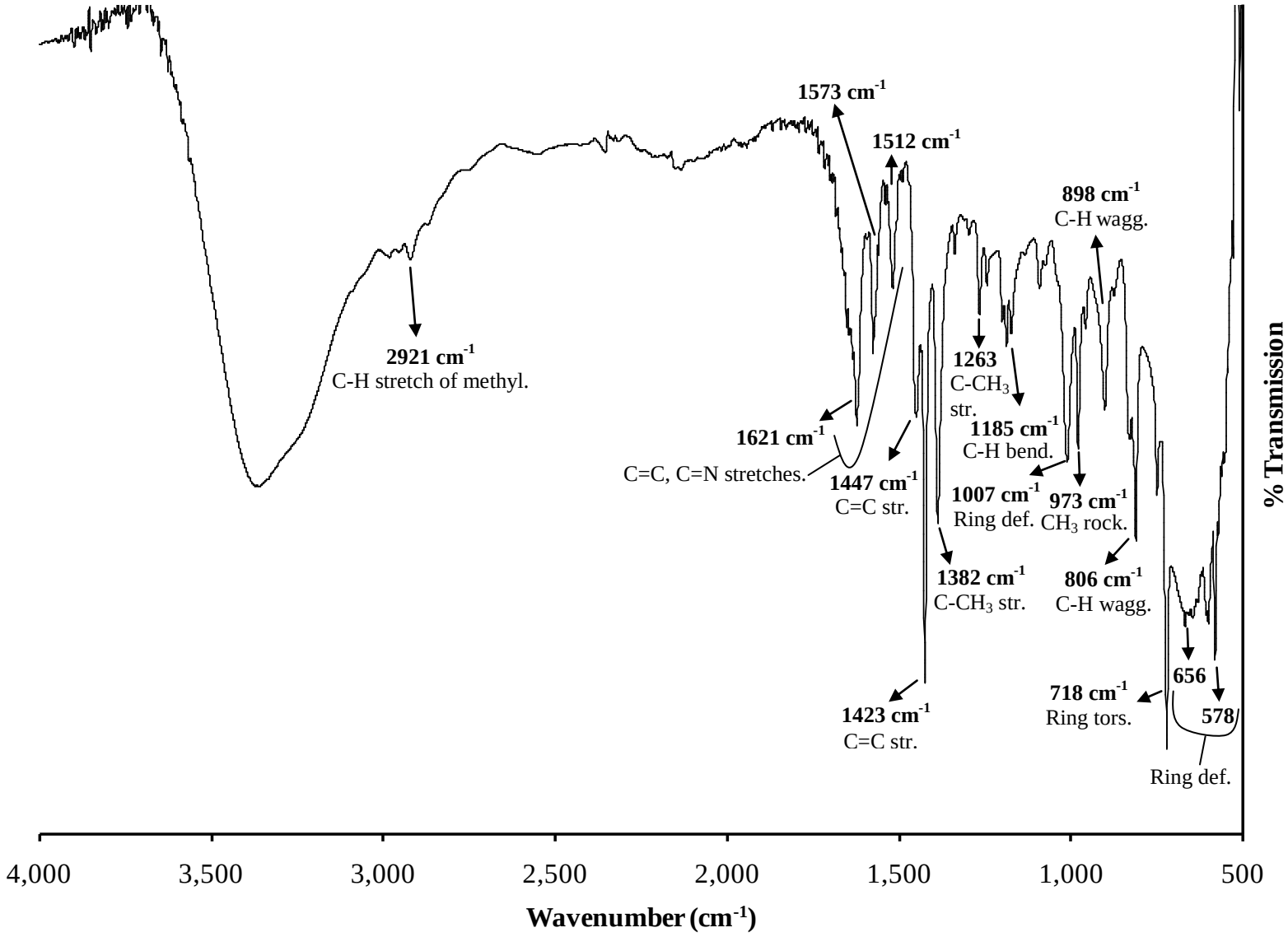

Figure S8. ATR-FTIR spectra of solid $Ru(tmphen)_3(Cl)_2$

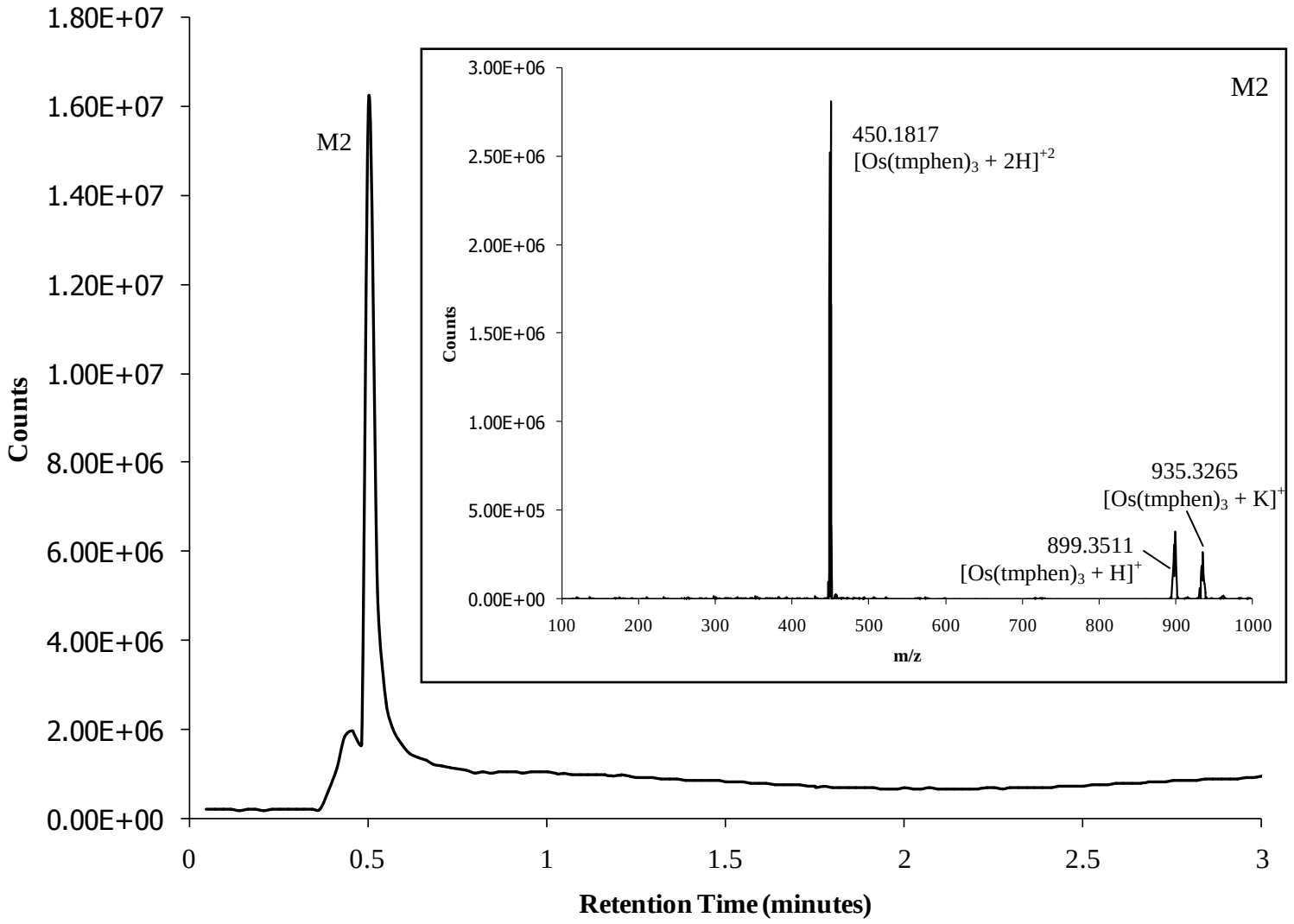

Figure S9. LC/MS chromatogram of $Os(tmphen)_3(Cl)_2$. Sample was made in DI water. Inset: Extracted Total Ion Chromatogram (TIC) of peak labeled M2.

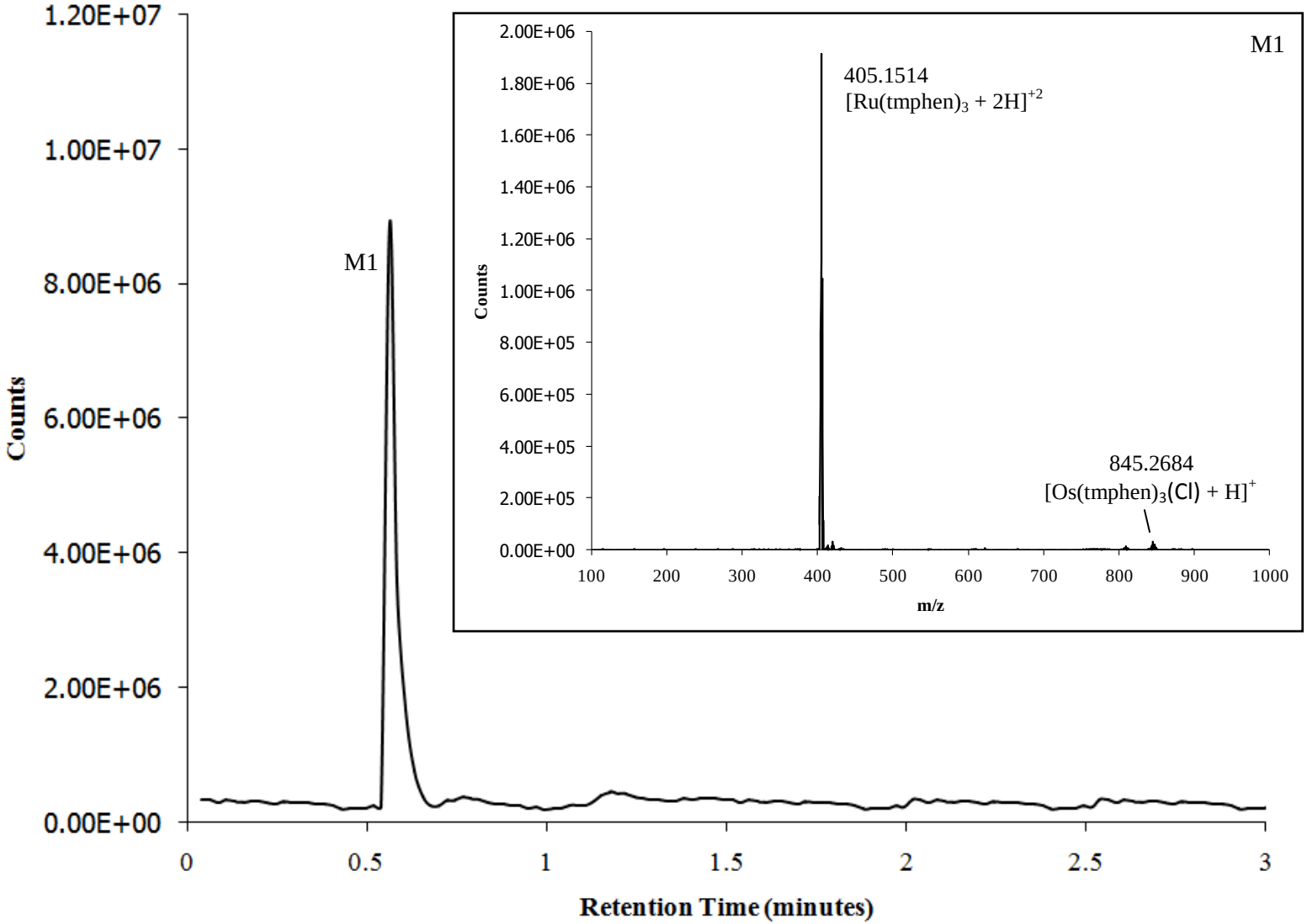

Figure S10. LC/MS chromatogram of $Ru(tmphen)_3(Cl)_2$. Sample was made in DI water. Inset: Extracted Total Ion Chromatogram (TIC) of peak labeled M1.