

## Supplementary information

### 1. Spectroscopy of Complexes:

#### 1.1. 1

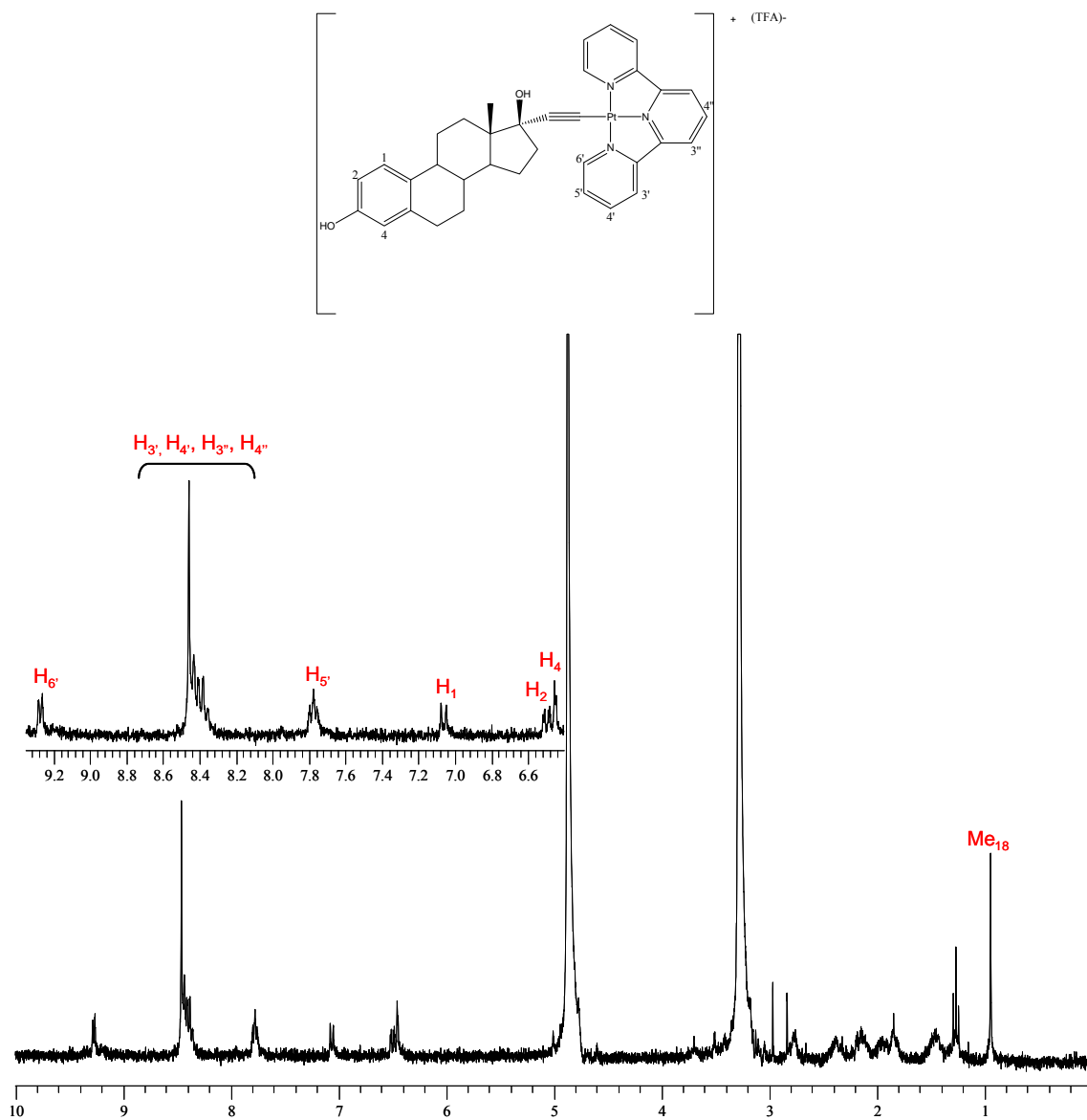


Figure 1.1.1. <sup>1</sup>H-NMR of **1** in a mixture of deuterated water:acetonitrile (1:1).

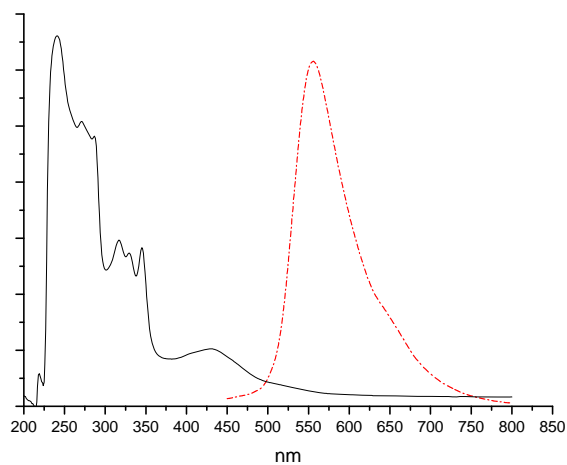


Figure 1.1.2. UV/Vis and Emission spectra of **1** (25  $\mu$ M) in dichloromethane.  $\lambda_{\text{exc}}=425\text{nm}$ .

## 1.2. 2

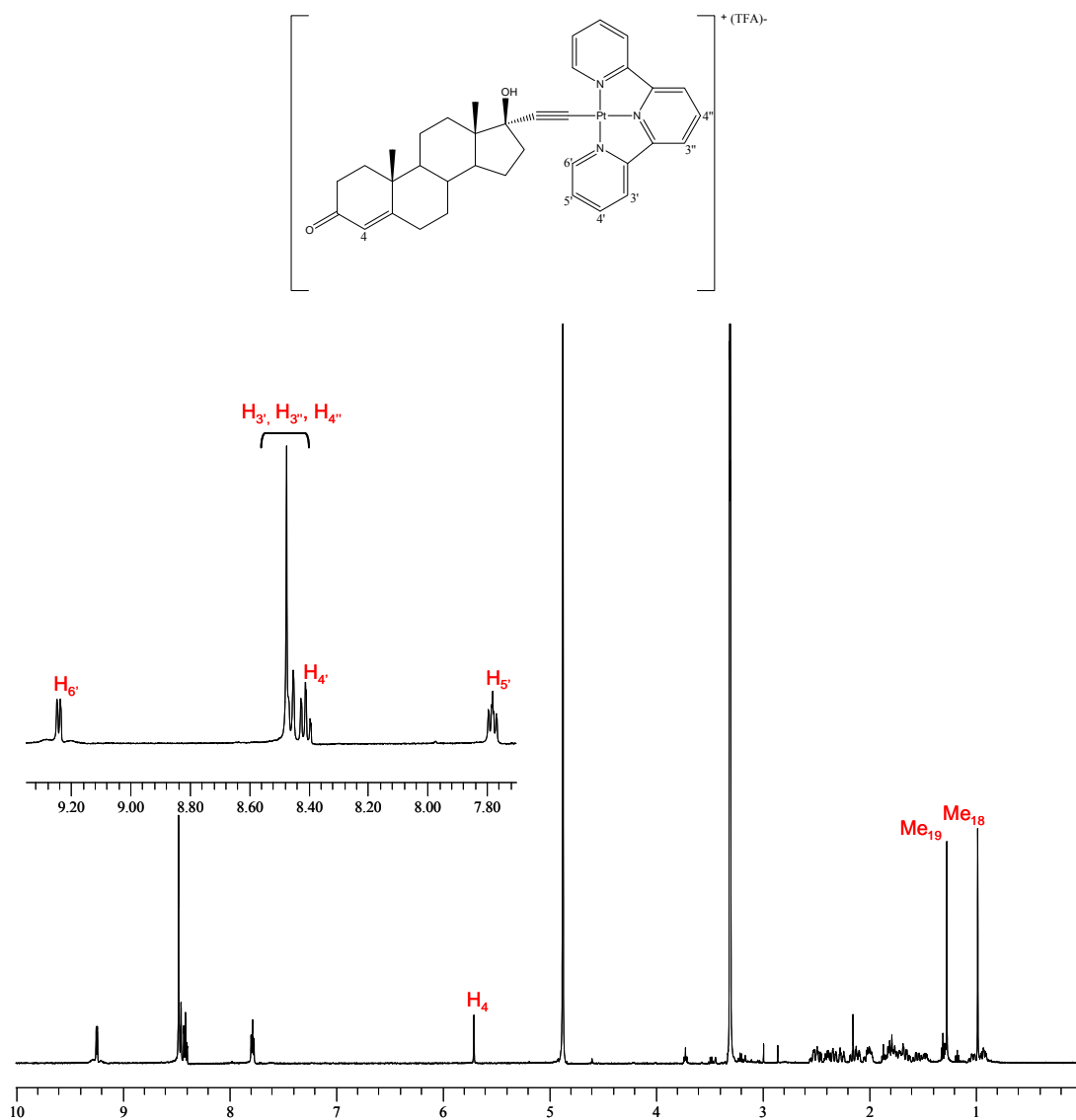


Figure 1.2.1.  $^1\text{H}$ -NMR of **2** in a mixture of deuterated water:acetonitrile (1:1).

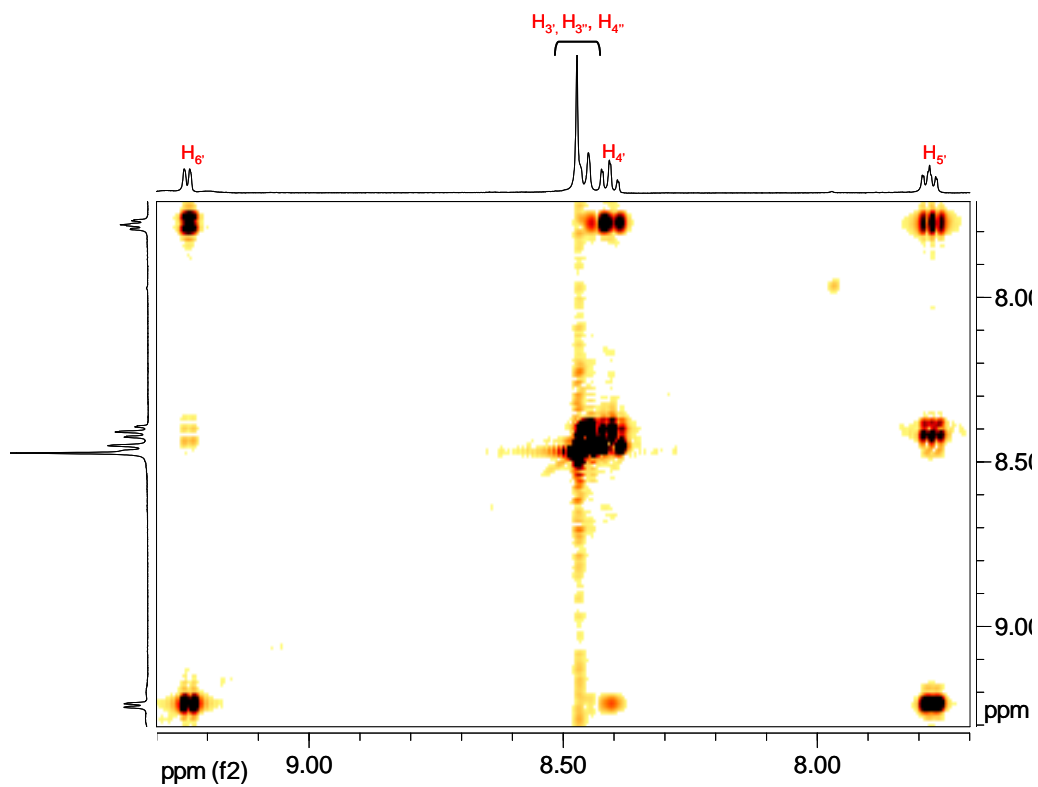


Figure 1.2.2. 2D-COSY  $^1\text{H}$ -NMR of **2** in a mixture of deuterated water:acetonitrile (1:1).

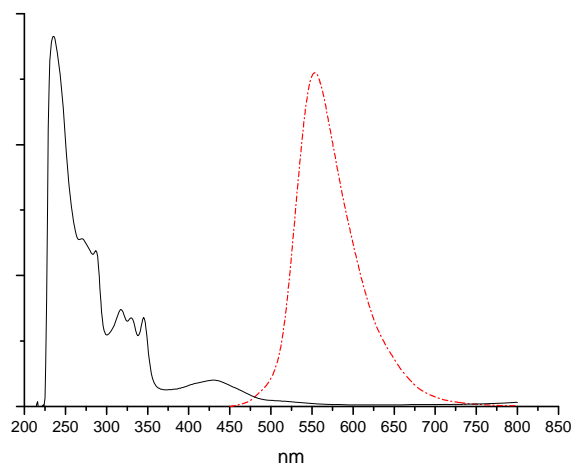


Figure 3.10. UV/Vis and Emission spectra of **2** (25  $\mu\text{M}$ ) in dichloromethane.  $\lambda_{\text{exc}}=425\text{nm}$ .

1.3. 3

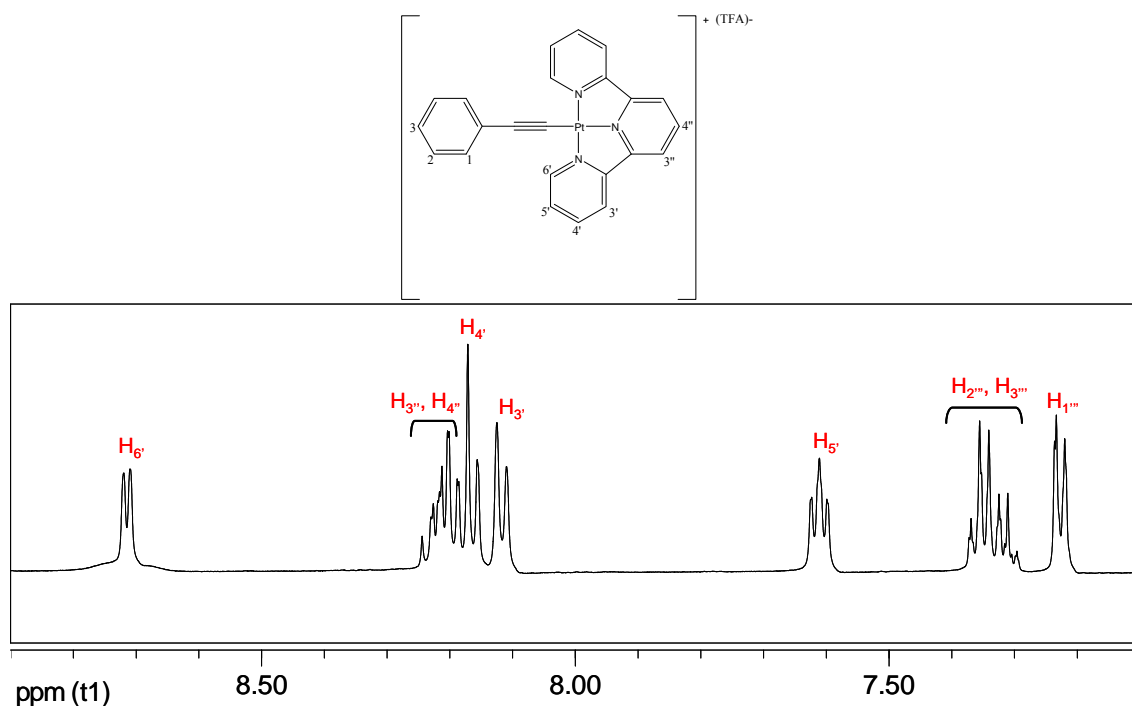


Figure 1.3.1. <sup>1</sup>H-NMR of **3** in a mixture of deuterated water:acetonitrile (1:1).

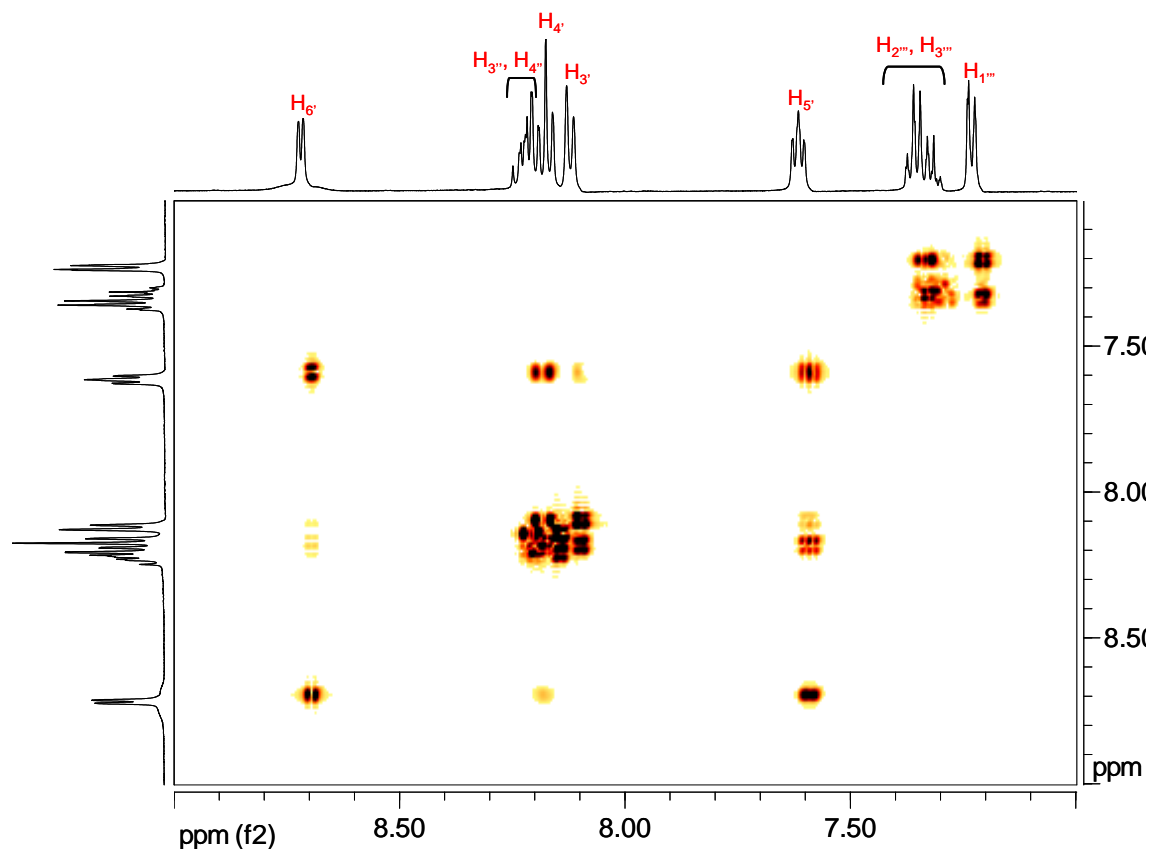


Figure 1.3.2. 2D-COSY <sup>1</sup>H-NMR of **3** in a mixture of deuterated water:acetonitrile (1:1).

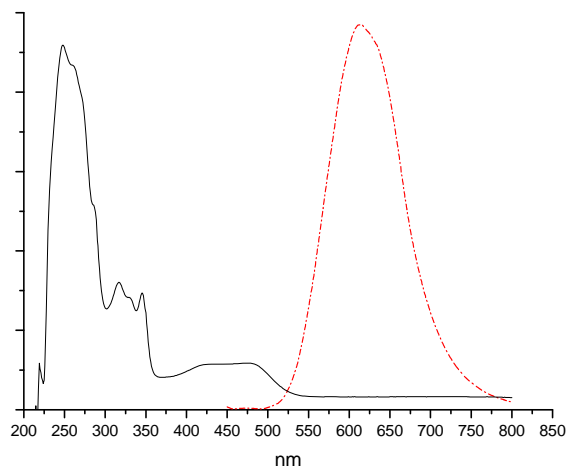


Figure 1.3.3. UV/Vis and Emission spectra of **3** (25  $\mu$ M) in dichloromethane.  $\lambda_{exc}=480$ nm..

1.4 4:

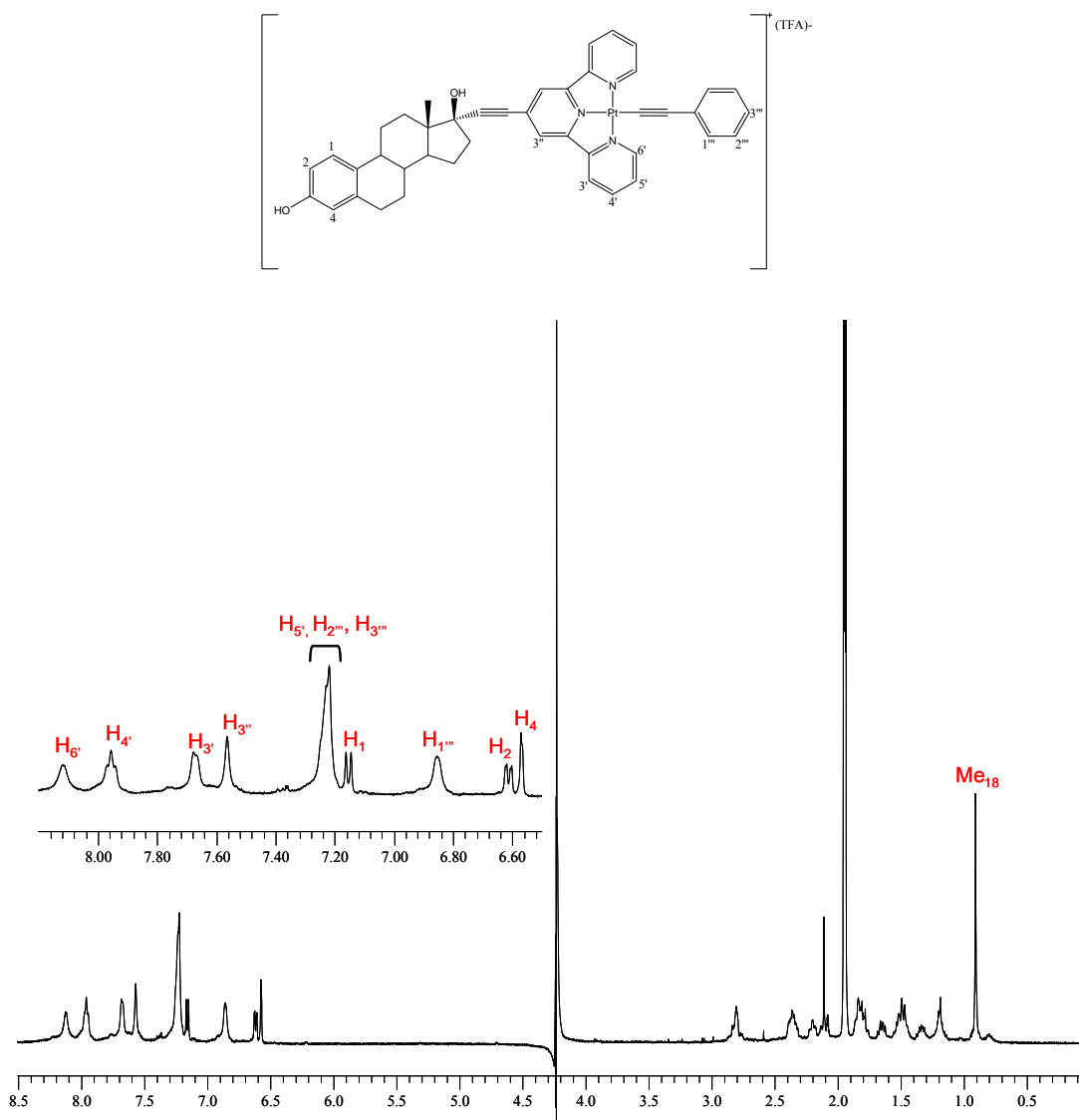


Figure 1.4.1.  $^1\text{H-NMR}$  of **4** in a mixture of deuterated water:acetonitrile (1:1).

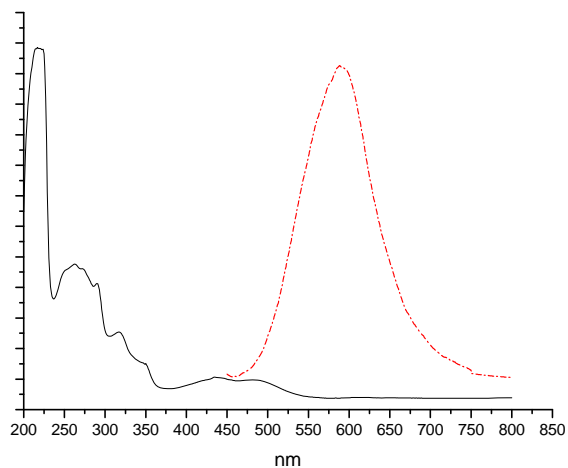


Figure 1.4.2. UV/Vis and Emission spectra of **4** (25  $\mu$ M) in dichloromethane.  $\lambda_{\text{exc}}=480\text{nm}$ .

1.5 5:

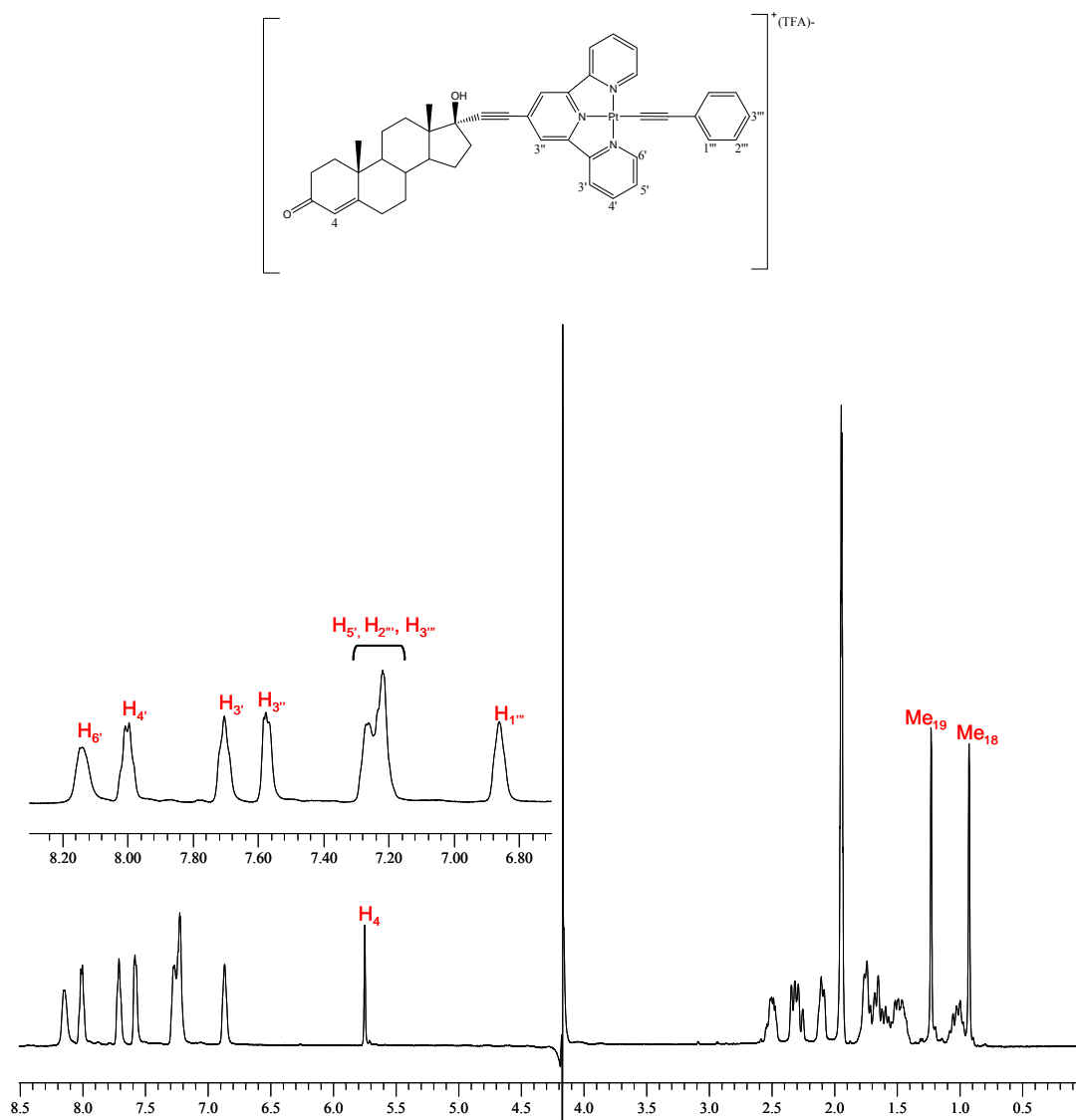


Figure 1.5.1.  $^1\text{H-NMR}$  of **5** in a mixture of deuterated water:acetonitrile (1:1).

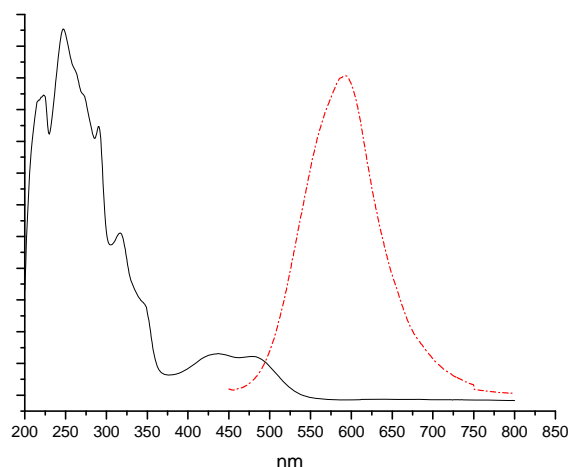


Figure 1.5.2. UV/Vis and Emission spectra of **5** (25  $\mu\text{M}$ ) in dichloromethane.  $\lambda_{\text{exc}}=480\text{nm}$ .

## 2. Cytotoxicity

**Table 2.1.** IC<sub>50</sub>  $\mu\text{M}$  of synthesised complexes against Breast and ovarian cancer cell lines.

Molecule	T-47D	MDA-MB-231	SK-OV-3	A2780	A2780cisR	Rx <sup>[a]</sup>
<b>1</b>	15.4 $\pm$ 0.1	6.3 $\pm$ 1	19.3 $\pm$ 1.2	2.6 $\pm$ 0.7	5.9 $\pm$ 0.9	2.2
<b>2</b>	12.3 $\pm$ 1.9	11.4 $\pm$ 1.2	19.8 $\pm$ 2.6	4.3 $\pm$ 0.9	11.8 $\pm$ 1.8	2.8
<b>3</b>	2.1 $\pm$ 1.5	4 $\pm$ 1.4	15.5 $\pm$ 0.4			
<b>4</b>	52.2 $\pm$ 2.6	50.1 $\pm$ 5.9	83.8 $\pm$ 4.2			
<b>5</b>	22.2 $\pm$ 2.9	30.5 $\pm$ 7.8	39.4 $\pm$ 9.1			
<b>Cisplatin</b>	28 $\pm$ 3	31.3 $\pm$ 4.7	11.2 $\pm$ 0.1	3.0 $\pm$ 0.5	12.8 $\pm$ 1.4	4.3

[a] Rx is ratio of IC<sub>50</sub> for a compound in A2780cisR compared to A2780. \* indicate a oestradiol derivative.

## 3. Cellular uptake

	SK-OV-3			T-47D			MDA-MB-231		
	whole cell	cytoplasm	nuclei	whole cell	cytoplasm	nuclei	whole cell	cytoplasm	nuclei
<b>1</b>	159 $\pm$ 14	111 $\pm$ 11	41 $\pm$ 5	130	80 $\pm$ 19	30 $\pm$ 1	361 $\pm$ 23	61 $\pm$ 13	33 $\pm$ 14
<b>2</b>	474 $\pm$ 7	97 $\pm$ 8	28 $\pm$ 2	408 $\pm$ 26	53 $\pm$ 12	17 $\pm$ 1	287 $\pm$ 11	67 $\pm$ 5	26 $\pm$ 1
<b>3</b>	749	137 $\pm$ 7	129	204 $\pm$ 21	77	101 $\pm$ 0.3	630 $\pm$ 53	160 $\pm$ 6	160 $\pm$ 11
<b>Cisplatin</b>	25 $\pm$ 12	12 $\pm$ 2	1.4 $\pm$ 0.4	11 $\pm$ 2	5	0.2	9 $\pm$ 0.1	8 $\pm$ 1.6	2 $\pm$ 0.1

Table 3.1 pmoles of Pt in T-47D, SK-OV-3 and MDA-MB-231 per million cells after 3 hours of treatment with 30  $\mu\text{M}$  of complexes.

#### 4. Stability of complexes

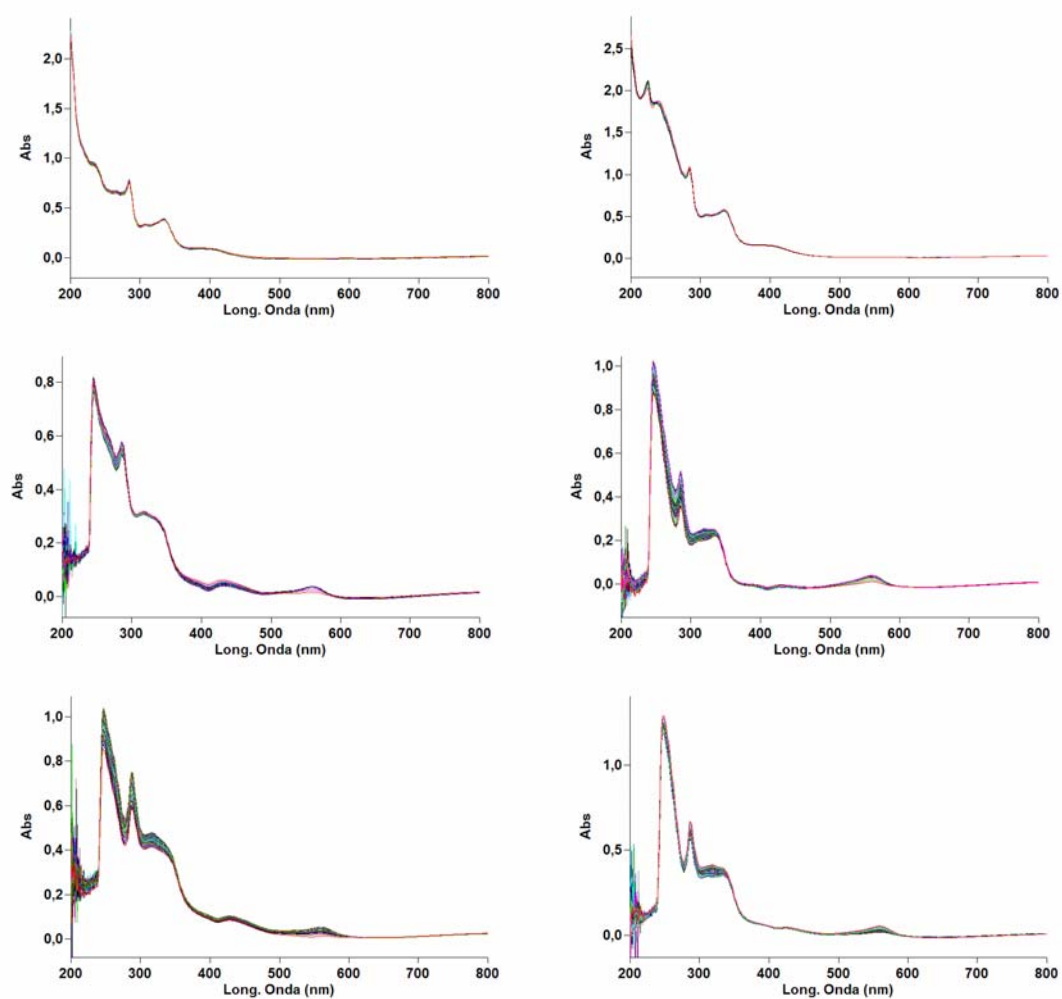


Figure 4.1. UV/Vis of **1** (left) and **2** (right) (50  $\mu$ M) during 72h in water (top), RPMI 1640 (middle) and DMEM medium (bottom).

## 5 Ethidium bromide displacement

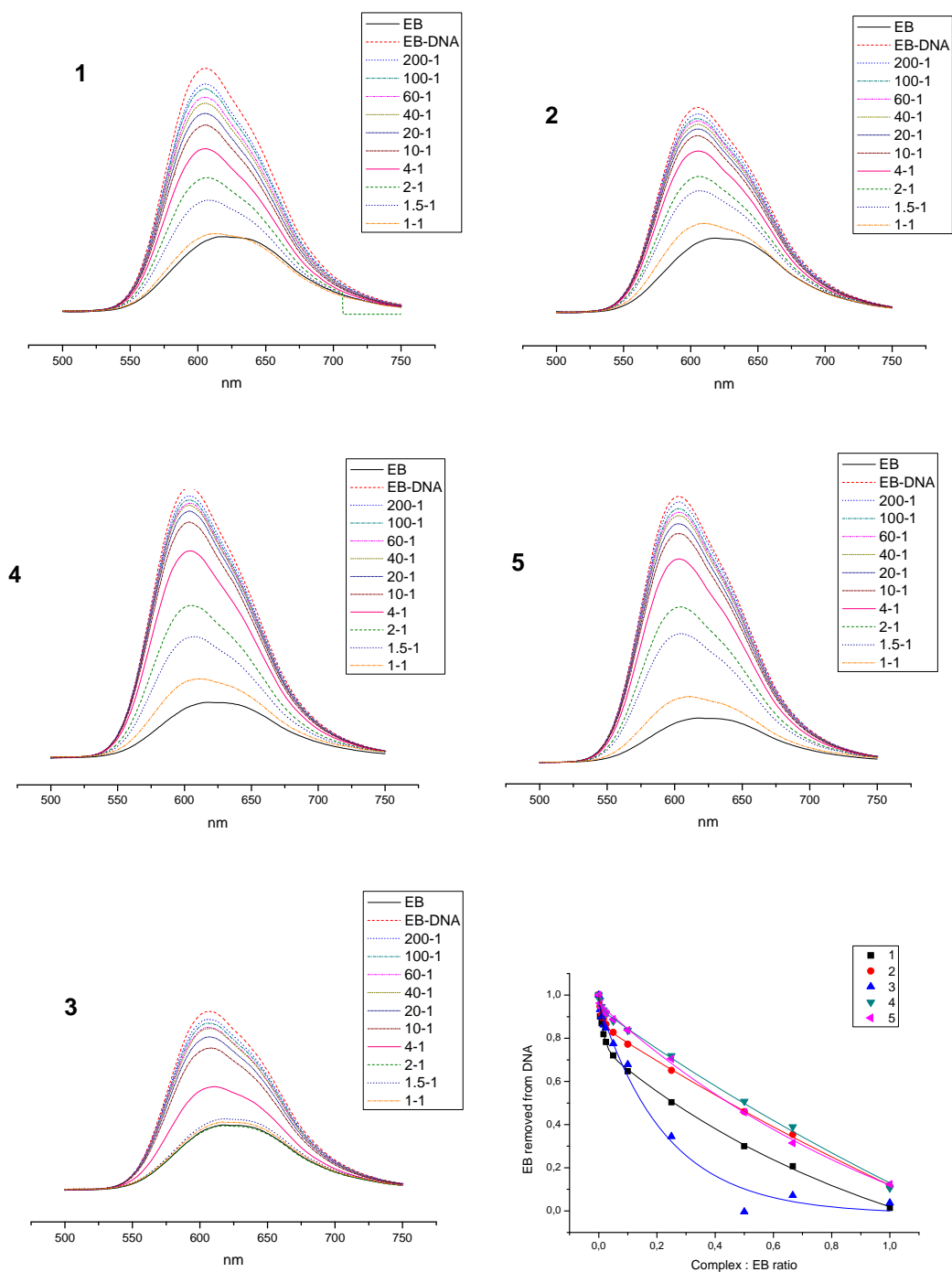


Figure 5.1. Displacement of ethidium bromide (15  $\mu$ M) from ct-DNA (12  $\mu$ M) by synthesized complexes. Mixing ratios EB/complex are shown in the caption.  $\lambda_{exc}$ =480nm. Decreasing ratios of emission (bottom right).

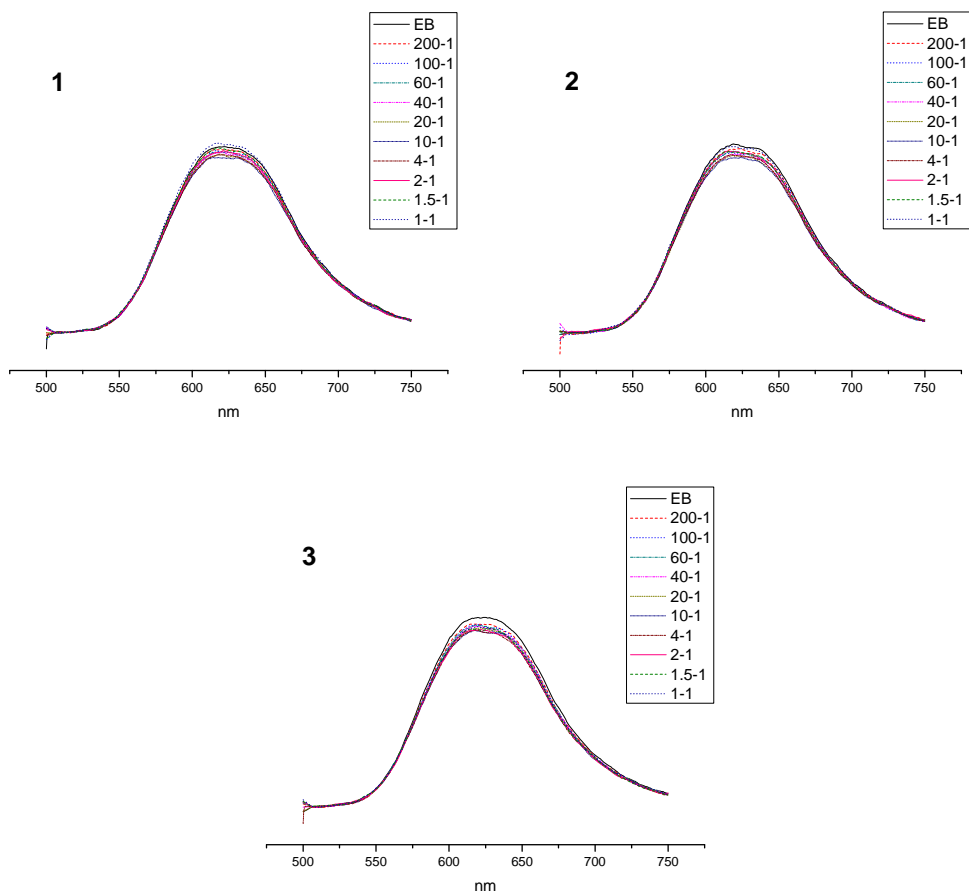


Figure 5.2. Effect on free ethidium bromide (15  $\mu$ M) fluorescence by synthesized complexes. Mixing ratios EB/complex are shown in the caption.  $\lambda_{exc}$ =480nm. Decreasing ratios of emission (bottom right).





