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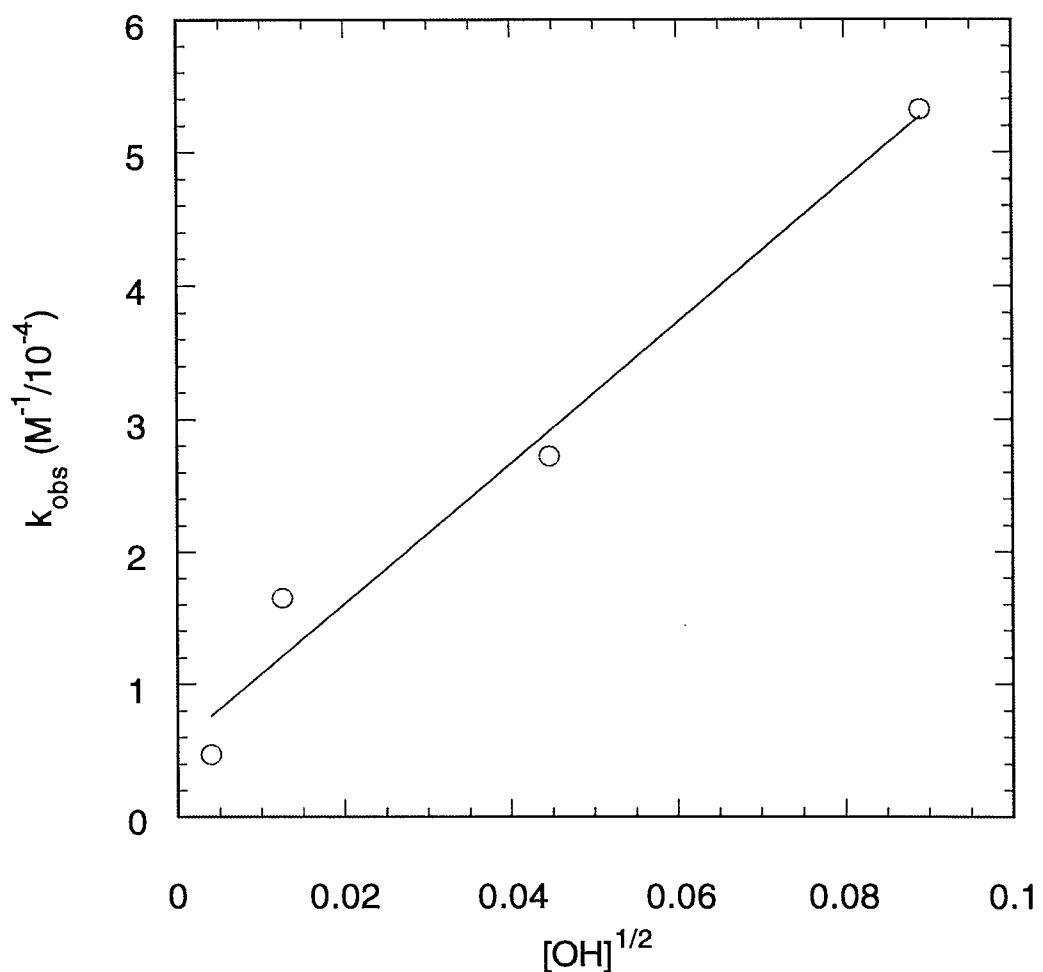
**Table S-I.** Observed rate constants for disproportionation of  $[(\text{Guo})\text{py}(\text{NH}_3)_4\text{Ru}^{\text{III}}]$ .

Ligand	Guo	dGuo	1MeGuo	9MeGua
pH	$k_{\text{obs}}(\text{s}^{-1})$	$k_{\text{obs}}(\text{s}^{-1})$	$k_{\text{obs}}(\text{s}^{-1})$	$k_{\text{obs}}(\text{s}^{-1})$
9.00	$1.78 \times 10^{-4}$	$2.16 \times 10^{-4}$	$4.51 \times 10^{-4}$	$5.73 \times 10^{-5}$
9.50	$4.37 \times 10^{-4}$	$4.74 \times 10^{-4}$	$1.14 \times 10^{-3}$	$1.91 \times 10^{-4}$
10.00	$1.05 \times 10^{-3}$	$1.17 \times 10^{-3}$	$2.68 \times 10^{-3}$	$8.20 \times 10^{-4}$
10.50	$2.50 \times 10^{-3}$	$2.39 \times 10^{-3}$	$8.53 \times 10^{-3}$	$2.07 \times 10^{-3}$
11.00	$6.63 \times 10^{-3}$	$6.49 \times 10^{-3}$	$2.49 \times 10^{-2}$	$9.78 \times 10^{-3}$

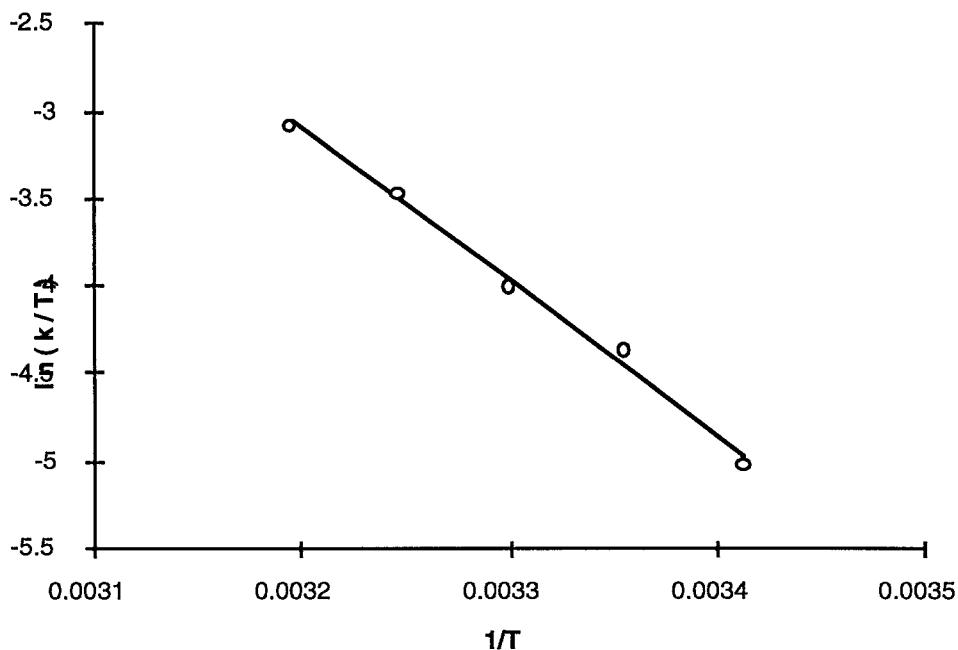
**Table S-II.** Observed rate constants for the appearance of *trans*- $[(\text{Gua})\text{py}(\text{NH}_3)_4\text{Ru}^{\text{III}}]$  in base from *trans*- $[(\text{L})\text{py}(\text{NH}_3)_4\text{Ru}^{\text{III}}]$ .

Ligand	Guo	dGuo
pH	$k_{\text{obs}}$ ( $\text{s}^{-1}/10^{-5}$ )	$k_{\text{obs}}$ ( $\text{s}^{-1}/10^{-4}$ )
9.20	4.75	
10.20	16.5	7.05
11.30	27.2	8.77
11.9	53.2	18.5

**Figure S-1.** Plot of  $k_{\text{obs}}$  versus  $[\text{OH}^-]^{1/2}$  for the appearance of *trans*-[(Gua)py(NH<sub>3</sub>)<sub>4</sub>Ru<sup>III</sup>] in base from *trans*-[(Guo)py(NH<sub>3</sub>)<sub>4</sub>Ru<sup>III</sup>]. Inset: plot of log( $k_{\text{obs}}$ ) vs pH.



**Figure S-2.** Eyring Plot for the disproportionation of *trans*-[(Guo)(py)(NH<sub>3</sub>)<sub>4</sub>Ru<sup>III</sup>].



**Figure S-3.** Eyring Plot for the appearance of *trans*-[(Gua)py(NH<sub>3</sub>)<sub>4</sub>Ru<sup>III</sup>] in base from *trans*-[(Guo)py(NH<sub>3</sub>)<sub>4</sub>Ru<sup>III</sup>].

