

**Comparison of Chemical Interactions with  $\text{Li}^+$  and Catalytic Reactivity of Electrochemically  
Generated  $[\text{Fe}^{\text{I}}\text{CIL}]^{2-}$  and  $[\text{Co}^{\text{I}}\text{L}]^-$  Complexes (L = salen or salophen)**

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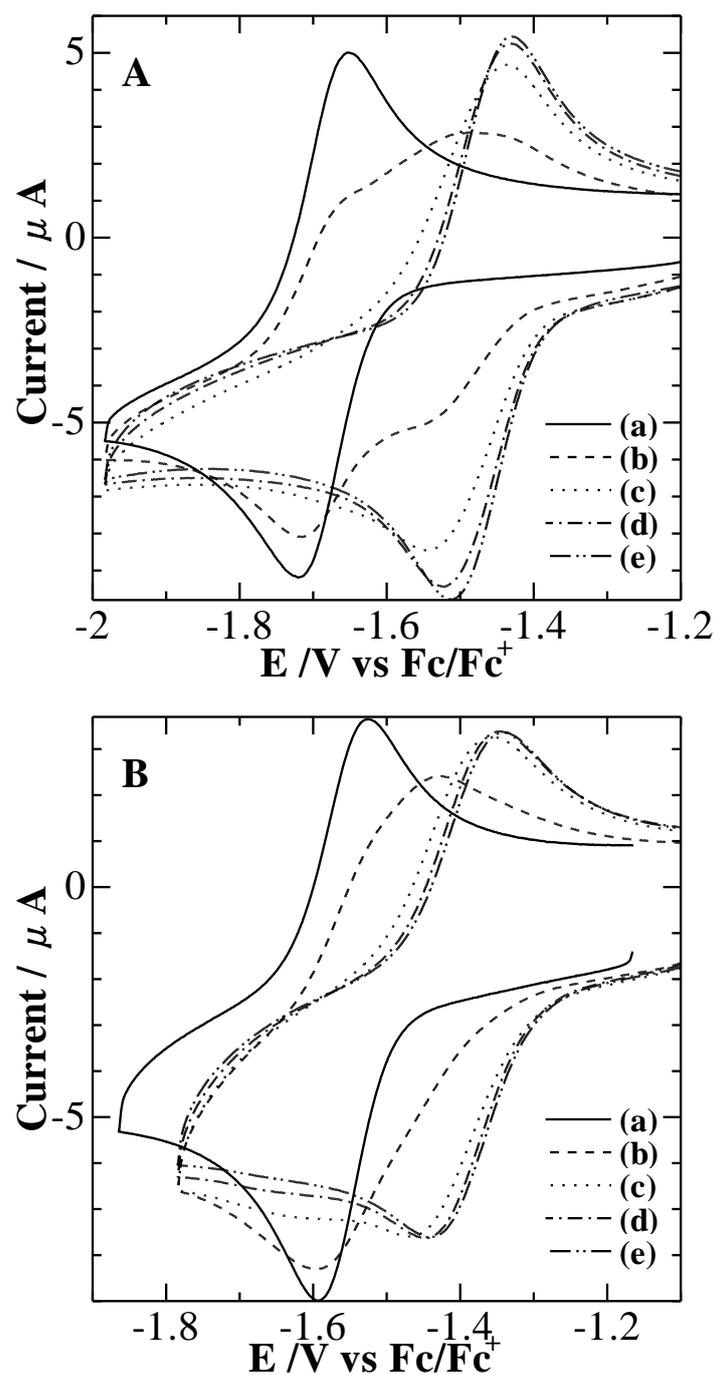
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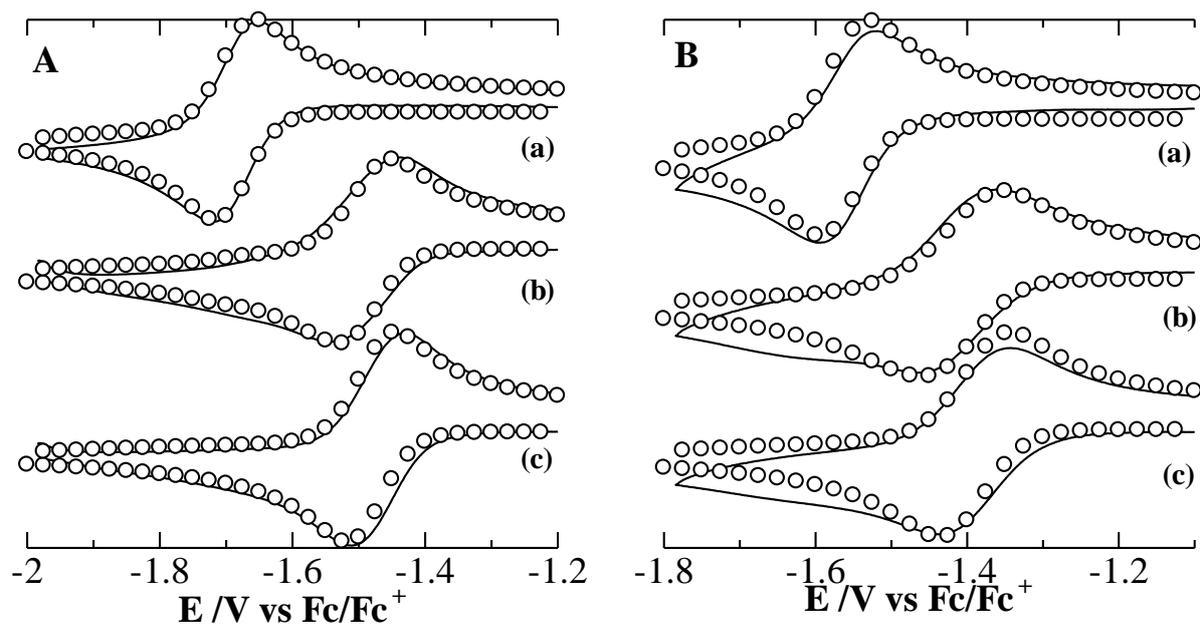
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## **Supporting Information**

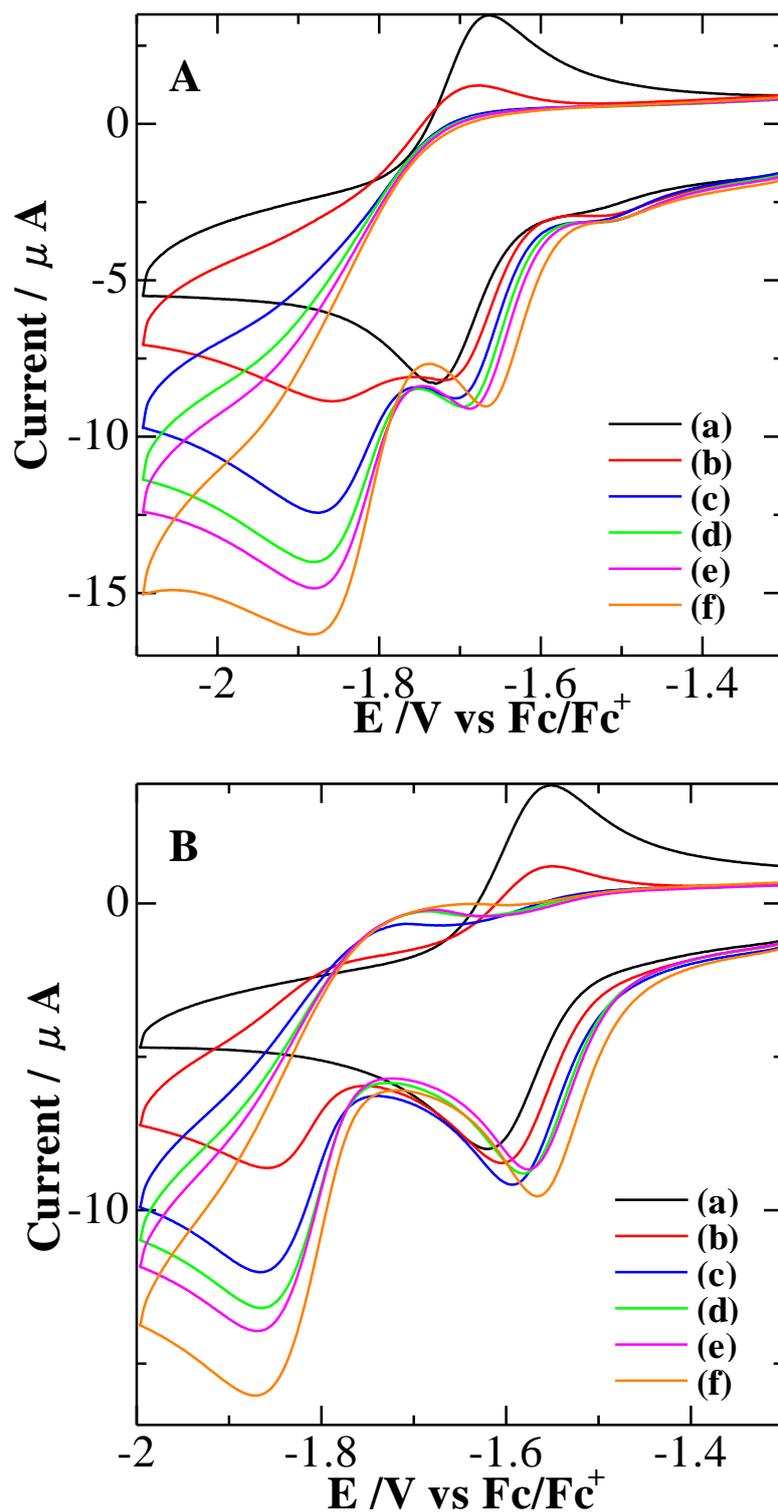
**Figures S1 – S5**



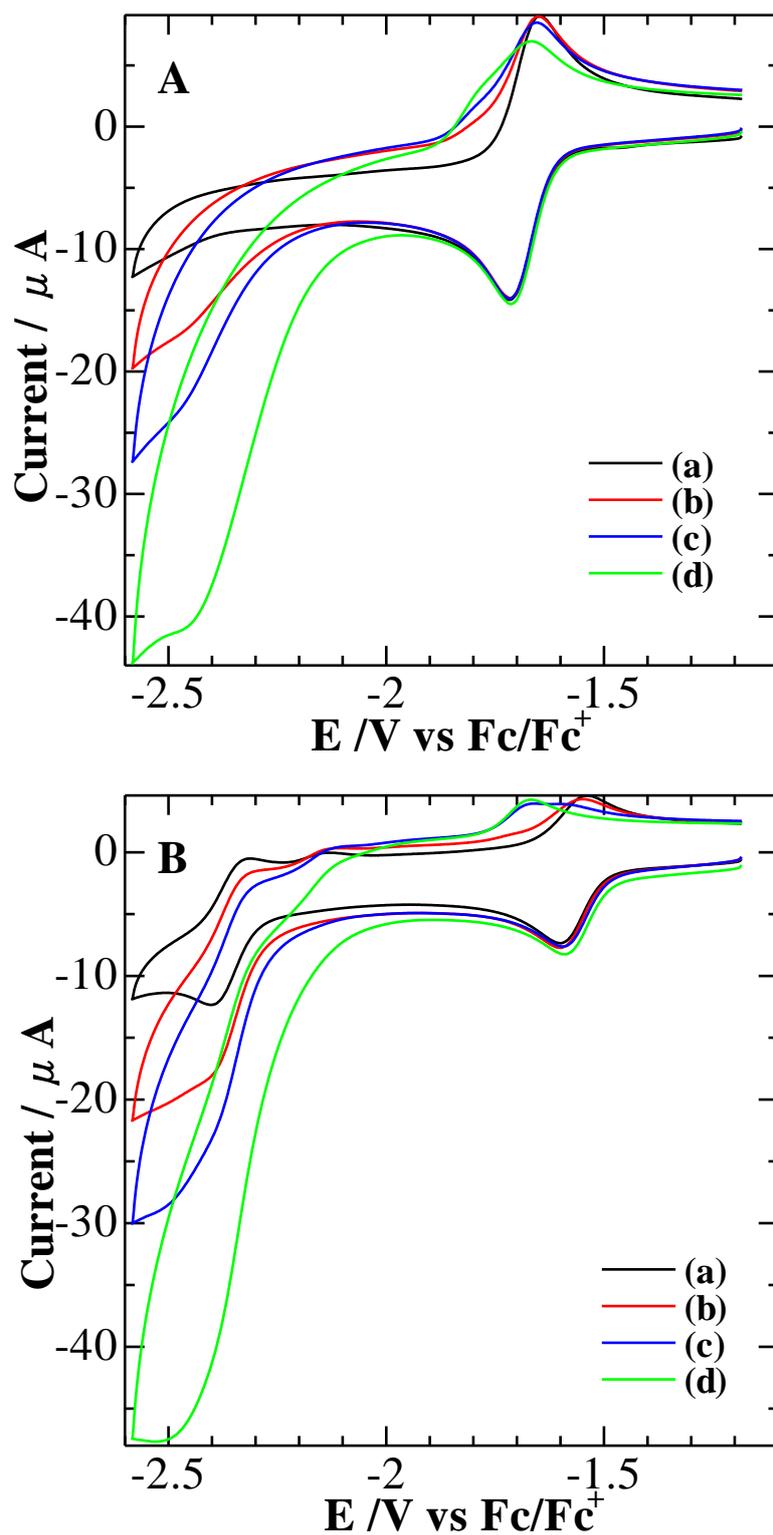
**Figure S1.** Cyclic voltammograms obtained at a glassy carbon electrode (scan rate = 100 mV s<sup>-1</sup>) for reduction of (A) 0.25 mM [Co<sup>II</sup>(salen)] and (B) 0.25 mM [Co<sup>II</sup>(salophen)] in acetonitrile (0.1 M [*n*-Bu<sub>4</sub>N][PF<sub>6</sub>]) containing (a) 0; (b) 0.125; (c) 0.25; (d) 0.375; (e) 0.5 mM LiClO<sub>4</sub>.



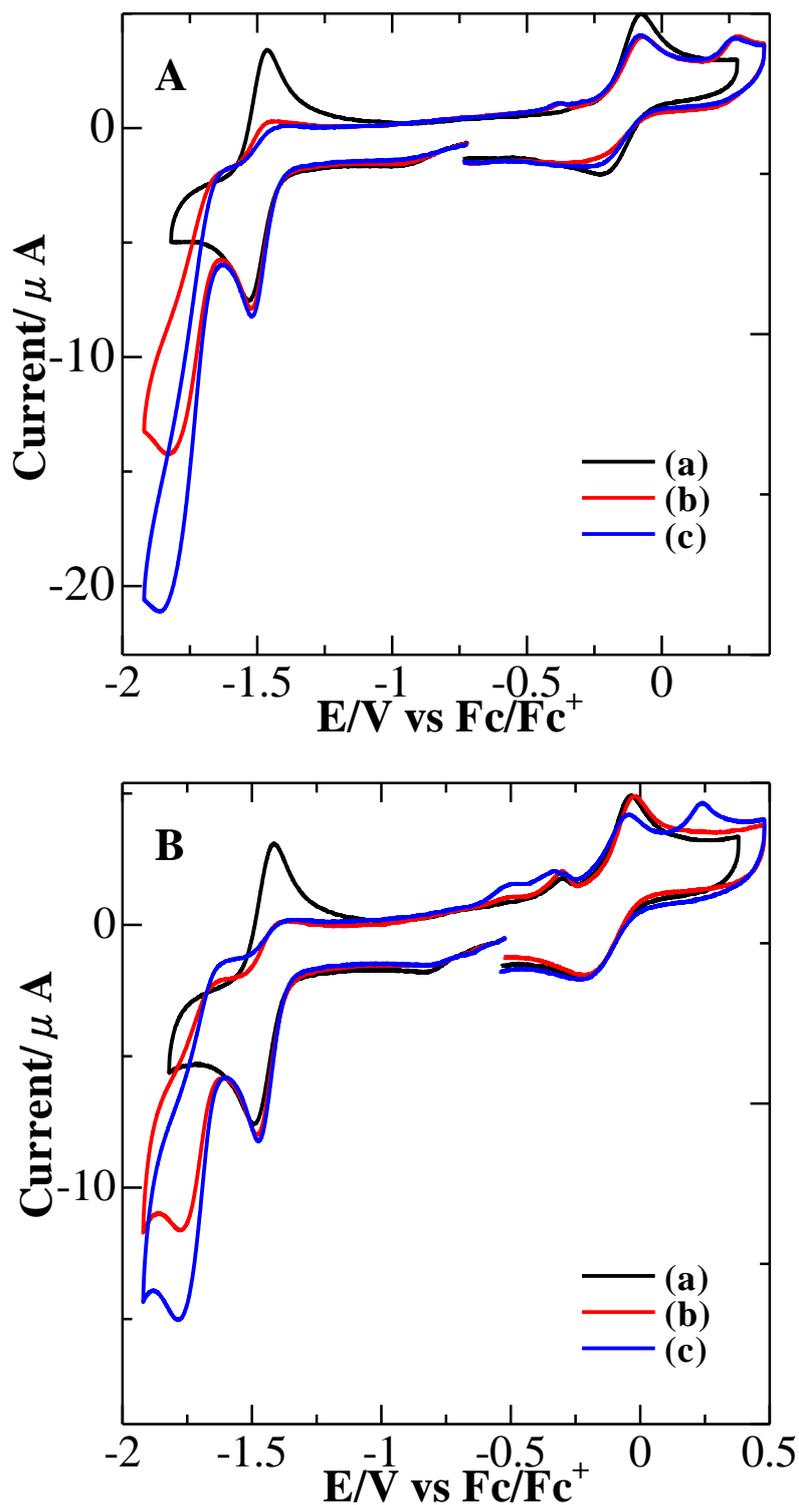
**Figure S2.** Comparison of simulated (o o o) and experimental (—) cyclic voltammograms for reduction of 0.25 mM (A)  $[\text{Co}^{\text{II}}(\text{salen})]$  and (B)  $[\text{Co}^{\text{II}}(\text{salophen})]$  at a glassy carbon electrode in acetonitrile (0.1 M  $[\text{n-Bu}_4\text{N}][\text{PF}_6]$ ) containing (a) 0; (b) 0.25; (c) 0.5 mM  $\text{LiClO}_4$ . Simulation parameters are given in the text and Table 2.



**Figure S3.** Cyclic voltammograms obtained at a glassy carbon electrode (scan rate = 100 mV s<sup>-1</sup>) for reduction of 0.25 mM (A) [Co<sup>II</sup>(salen)] and (B) [Co<sup>II</sup>(salophen)] in acetonitrile (0.1 M [*n*-Bu<sub>4</sub>N][PF<sub>6</sub>]) containing (a) 0; (b) 0.125; (c) 0.25; (d) 0.375; (e) 0.5; (f) 1.0 mM benzyl chloride.



**Figure S4.** Cyclic voltammograms obtained at a glassy carbon electrode (scan rate =  $100\text{ mV s}^{-1}$ ) for reduction of  $0.5\text{ mM}$  (A)  $[\text{Co}^{\text{II}}(\text{salen})]$  and (B)  $[\text{Co}^{\text{II}}(\text{salophen})]$  in acetonitrile ( $0.1\text{ M}$   $[n\text{-Bu}_4\text{N}][\text{PF}_6]$ ) containing (a)  $0$ ; (b)  $0.25$ ; (c)  $0.5$ ; (d)  $1.0\text{ mM}$  bromobenzene.



**Figure S5.** Cyclic voltammograms obtained at a glassy carbon electrode (scan rate =  $100 \text{ mV s}^{-1}$ ) for reduction of 0.5 mM (A)  $[\text{Co}^{\text{II}}(\text{salen})]$  and (B)  $[\text{Co}^{\text{II}}(\text{salophen})]$  in acetonitrile (0.1 M  $\text{LiClO}_4$ ) containing 0.25 (b) and 0.5 mM (c) benzyl chloride.