

# **Domino-fluorination-protodefluorination enables decarboxylative cross-coupling of $\alpha$ -oxocarboxylic acids with styrene via photoredox catalysis**

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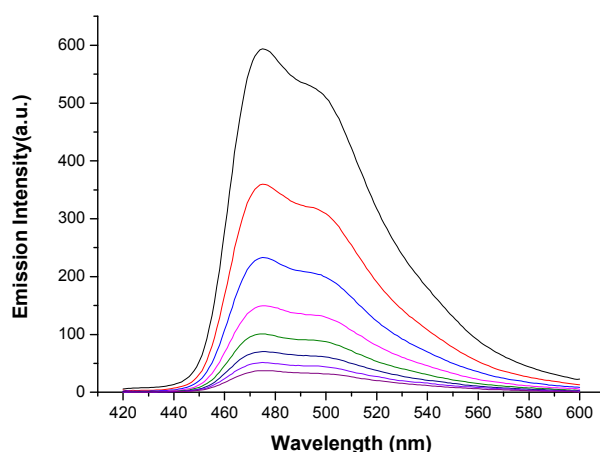
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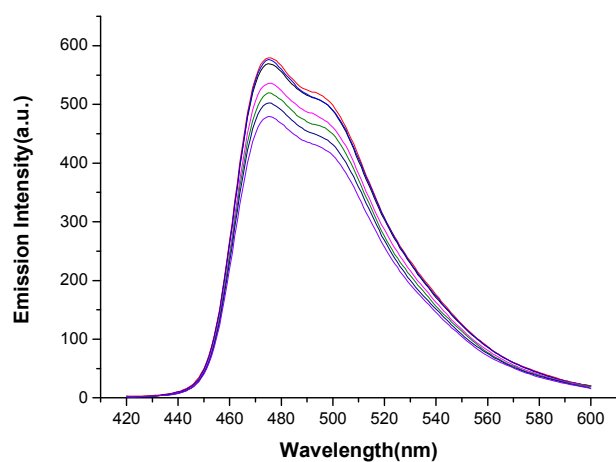
**2. Copies of <sup>1</sup>H NMR, <sup>13</sup>C NMR, <sup>19</sup>F NMR Spectra.....S3**

## 1. Luminescence quenching experiment

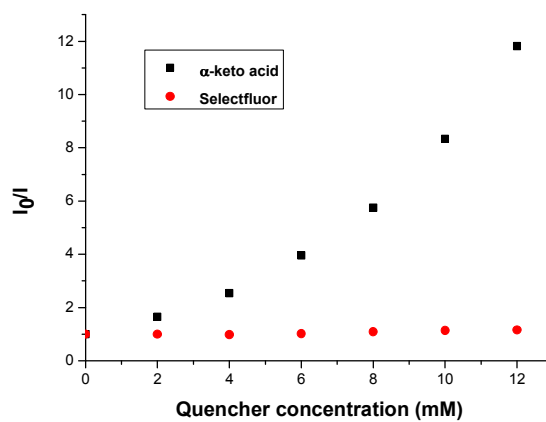
The luminescence quenching experiment was taken using a Cary Eclipse fluorescence spectrophotometer (Varian, USA). The experiments were carried out in  $2.5 \times 10^{-5}$  mol/L of  $[\text{Ir}\{\text{dF}(\text{CF}_3)\text{ppy}\}_2\{\text{dtbbpy}\}]\text{PF}_6$  in  $\text{CH}_3\text{CN}-\text{H}_2\text{O}$  (V/V, 1:1) at 25 °C. The excitation wavelength was 350 nm and the emission intensity was collected at 475 nm. The concentrations of quenchers ( $\alpha$ -keto acid **1** and Selectfluor) in  $\text{CH}_3\text{CN}-\text{H}_2\text{O}$  were 0, 2, 4, 6, 8, 10, 12, 14mM.



Luminescence quenching of  $[\text{Ir}\{\text{dF}(\text{CF}_3)\text{ppy}\}_2\{\text{dtbbpy}\}]\text{PF}_6$  by  $\alpha$ -keto acid



Luminescence quenching of  $[\text{Ir}\{\text{dF}(\text{CF}_3)\text{ppy}\}_2\{\text{dtbbpy}\}]\text{PF}_6$  by Selectfluor



$[\text{Ir}\{\text{dF}(\text{CF}_3)\text{ppy}\}_2\{\text{dtbbpy}\}]\text{PF}_6$  emission quenching with Selectfluor and benzoylformic acid.

## 2. Copies of $^1\text{H}$ NMR, $^{13}\text{C}$ NMR spectra

