Supplemental

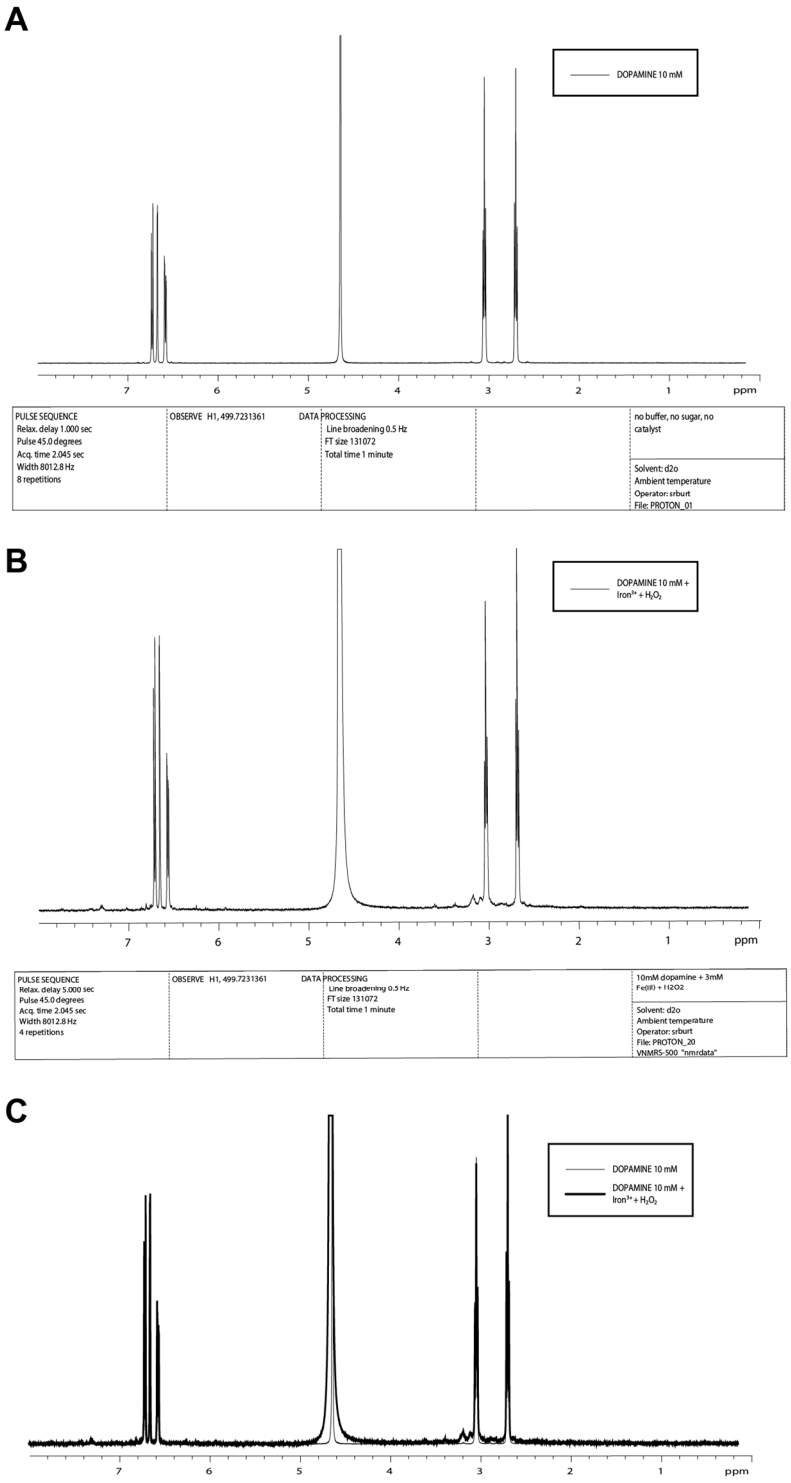

Figure S1*:* H-NMR spectra showing that the dominant species at the **(A)** beginning of the reaction is dopamine, and **(B)** still dopamine at the end of the reaction. **(C)** Overlay of the spectra in **(A)** and **(B)** demonstrating that the peaks match perfectly.

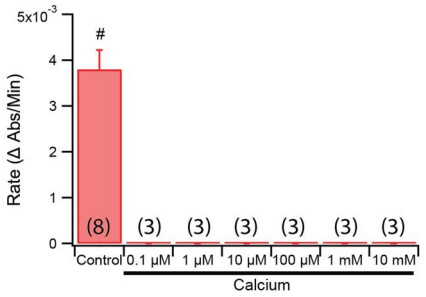

Figure S2: Calcium does not contribute to dopamine (DA) melanization. Control conditions are in the presence of trace elemental Fe^{3+} and indicate melanization with DA (30 μM). For the increasing calcium conditions, Fe^{3+} was chelated using transferrin prior to addition of increasing Ca^{2+} concentrations. No melanogenesis was observed for calcium experiments. Significance marker # denotes $p< 0.0001$ significant differences for control vs all Ca^{2+} conditions as determined by a Tukey's HSD pairwise comparison. Error bars are mean + SEM. The n value for experiments is listed in parenthesis.

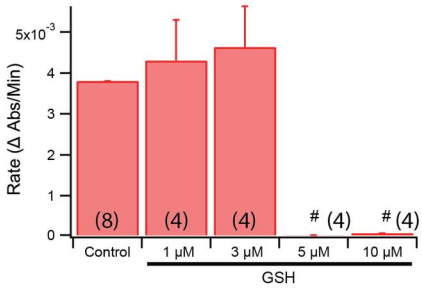

Figure S3: The antioxidant GSH reduces dopamine melanogenesis in a concentration dependent manner. Rate of melanin formation was comparable under control conditions, and with lower concentrations of GSH (1-3 μM). However, higher GSH concentrations similar to those used in Fig 4 (5-10 μM) blocked melanin formation. The binary nature of this effect indicates that the effect concentrations required are higher than 3 μM. Significance marker # denotes $p< 0.0001$ significant differences for control, 1 and 3 μM vs 5 and 10 μM. GSH conditions as determined by a Tukey's HSD pairwise comparison. Error bars are mean + SEM. The n value for experiments is listed in parenthesis.