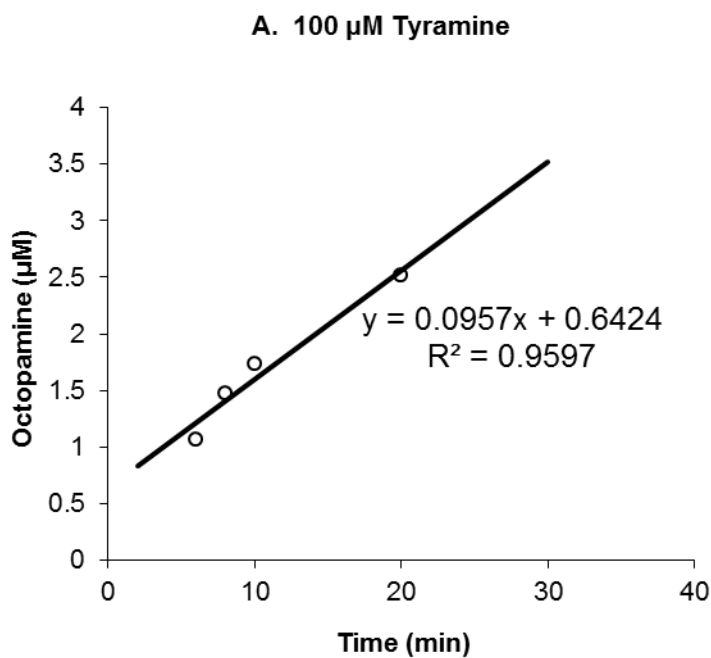
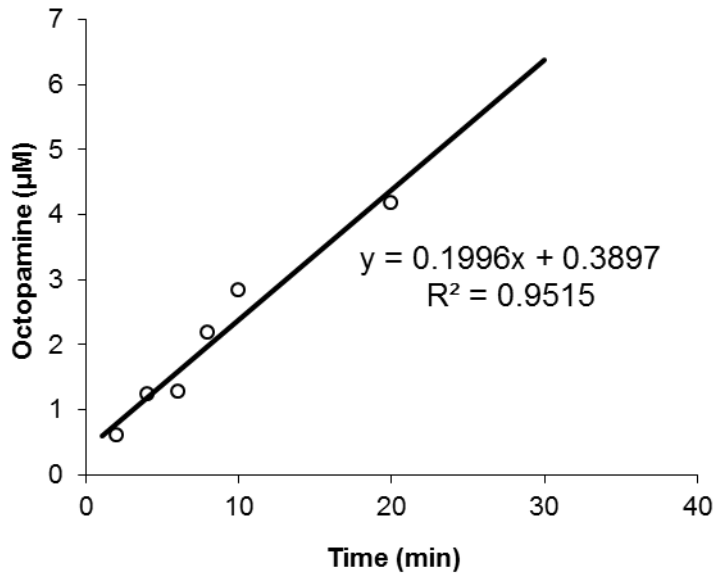


Supporting Information

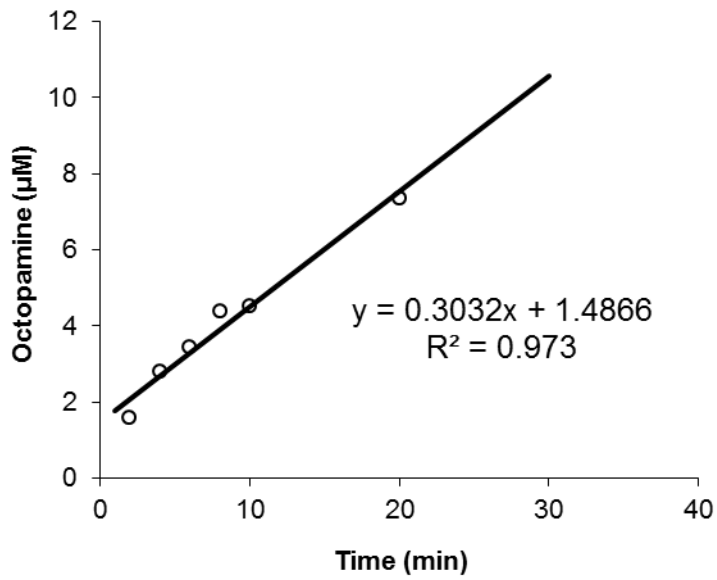
Figure S1. Fit of the linear portion of the product versus time curves for the reaction of Met471Cys T β M with varying concentrations of tyramine; 3.0 μ M Met471Cys T β M, 50 mM KPi, pH 6, 35 $^{\circ}$ C, 100 mM KCl, 100 μ g/mL catalase, 50 mM ascorbate, 15 μ M CuSO₄. (\circ) 100 μ M tyramine (A), (\square) 250 μ M tyramine (B), (\diamond) 500 μ M tyramine (C), (\times) 1 mM tyramine (D), (+) 2 mM tyramine (E), (Δ) 5 mM tyramine (F), and (\bullet) 8 mM tyramine (G). Best fit lines generated by Kaleidagraph.



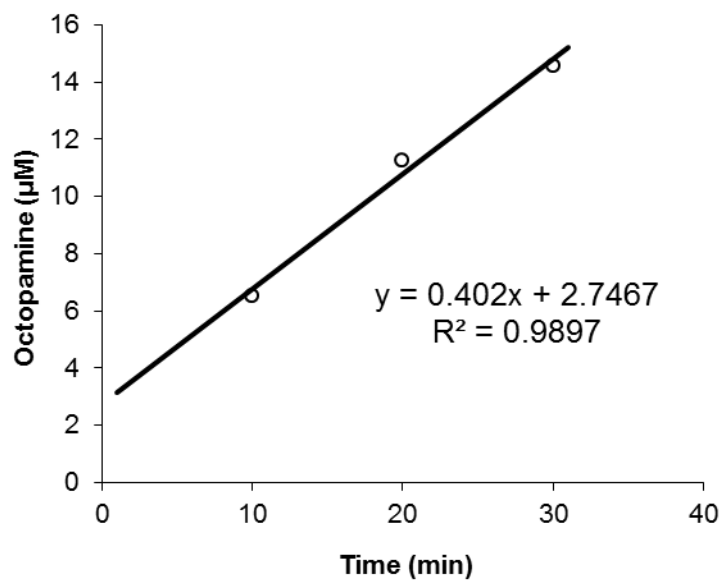
B. 250 μM Tyramine



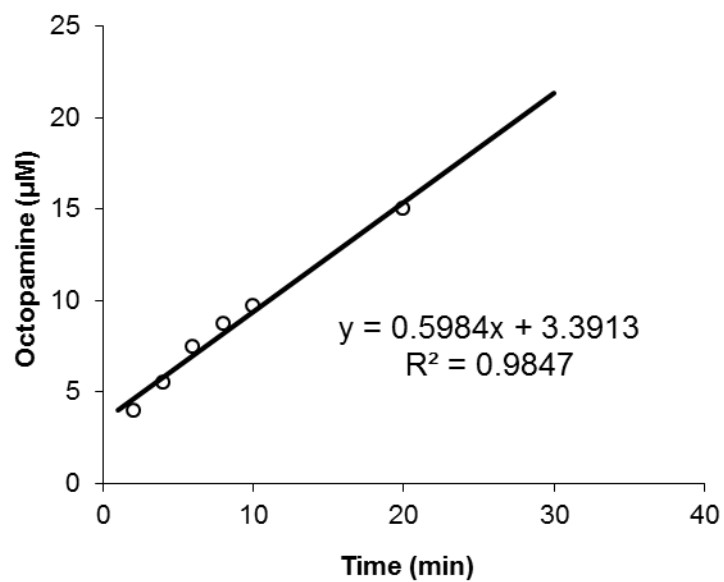
C. 500 μM Tyramine



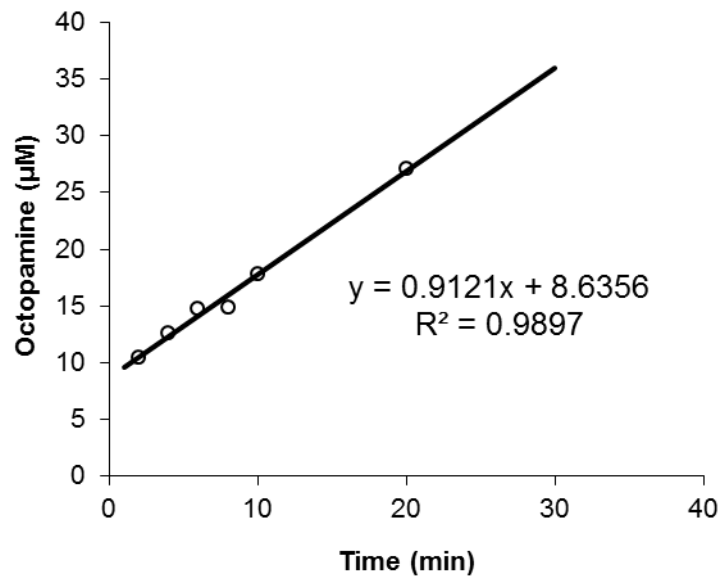
D. 1 mM Tyramine



E. 2 mM Tyramine



F. 5 mM Tyramine



G. 8 mM Tyramine

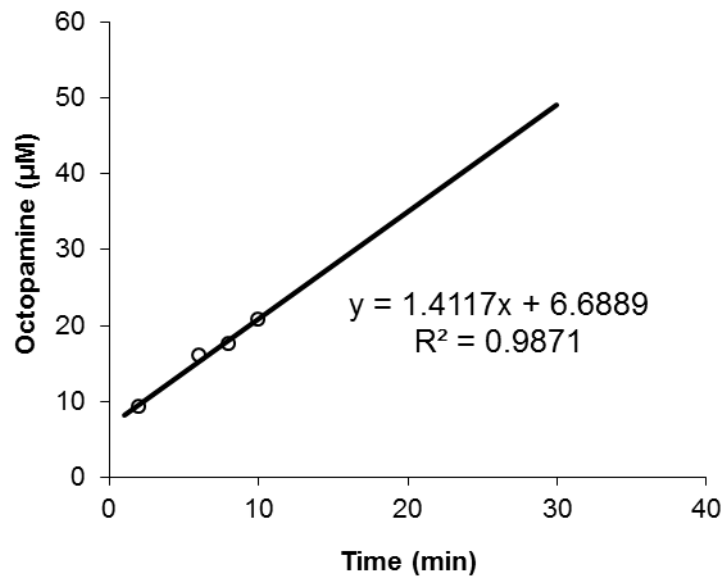


Figure S2. Plot of [octopamine] versus time. For these assays, Met471Cys T β M was incubated with all assay components (i.e. 100 mM KPi, pH 6.0, 100 mM KCl, 50 mM ascorbate, and 100 μ g/mL catalase, 1 mM tyramine) (\circ). Plots of Met471Cys T β M incubated with 100 mM KPi, pH 6.0, 100 mM KCl, 50 mM ascorbate, and 100 μ g/mL catalase, (no tyramine) for 2 (\square) and 4 (\diamond) hours, respectively, before the addition of 1 mM tyramine. After the incubation time with tyramine was complete, end-point assays were performed and product versus time curve generated.

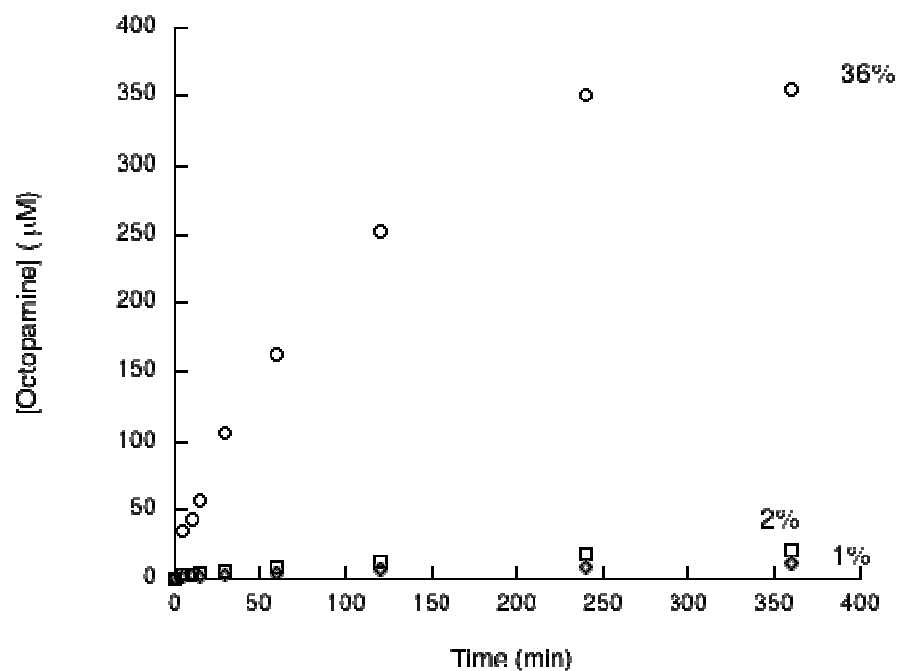


Figure S3. Fit of the linear regions of the product versus time curves for the reaction of Met471Cys T β M with tyramine as a function of incubation time. For these assays Met471Cys T β M was incubated at RT (ca. 23 °C) with 100 mM KPi, pH 6.0, 100 mM KCl, 50 mM ascorbate, and 100 μ g/mL catalase, (no tyramine) for 0 (\circ), 15 (\square), 30 (\diamond), and 45 (\times) minutes before the addition of 1 mM tyramine. After the incubation time was complete, end-point assays were executed at 35 °C and product versus time curves generated in order to determine a k_{obs} as a function of incubation time.

