Supporting Information

Selective Targeting by a Mechanism-based Inactivator Against PLP-Dependent Enzymes: Mechanisms of Inactivation and Alternative Turnover

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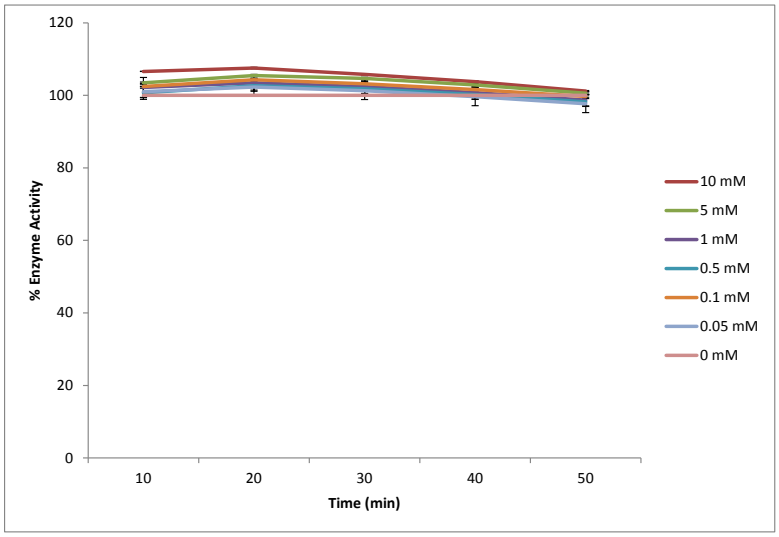


Figure S1. Enzyme activity of Asp-AT at various concentrations of FCP

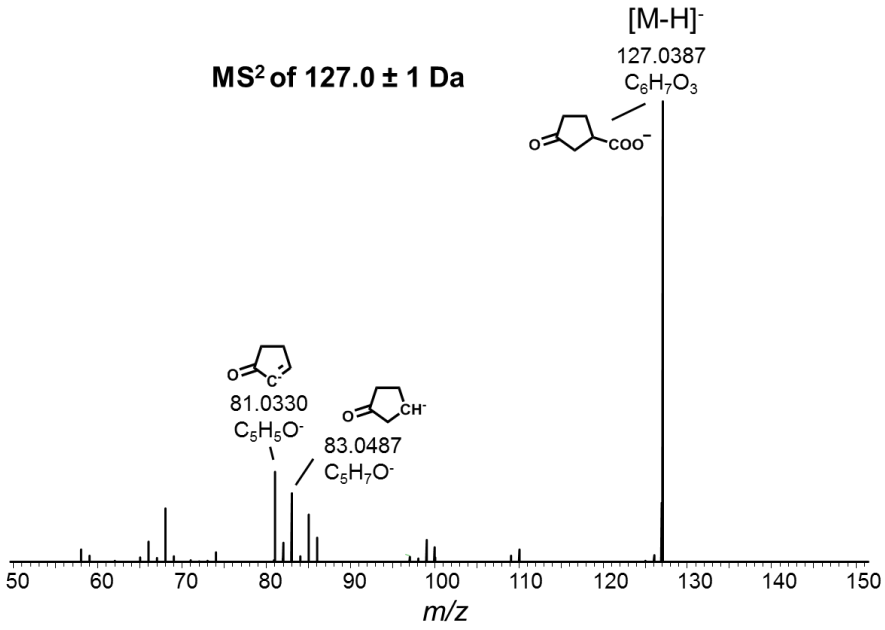


Figure S2. MS^2 fragment assignment for 3-oxocyclopentane-1-carboxylate (**12**) produced by the incubation of FCP with Asp-AT.

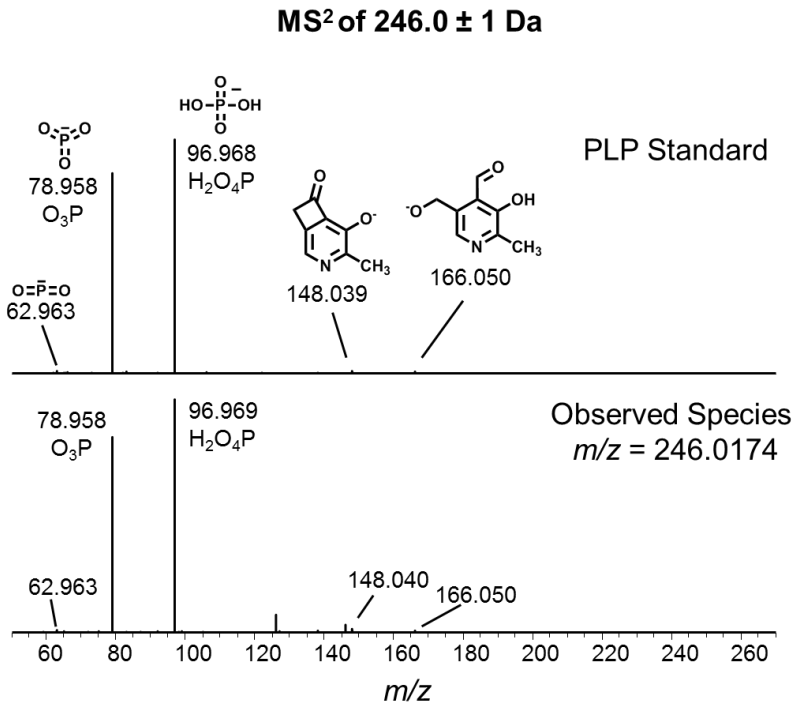


Figure S3. Comparison of MS^2 fragmentation of synthetic PLP standard and the observed PLP product of FCP turnover by Asp-AT.

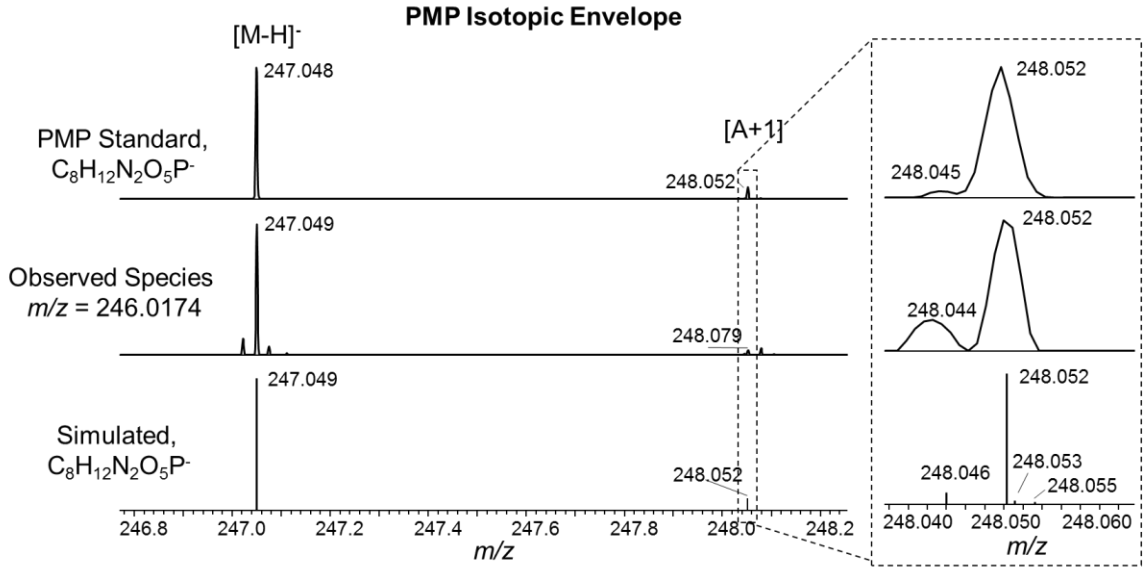


Figure S4. MS1 isotopic envelope of PMP synthetic standard compared to the observed species from the incubation of FCP with Asp-AT, and the computer-simulated isotopic envelope of $C_6H_{12}N_2O_5P^-$.

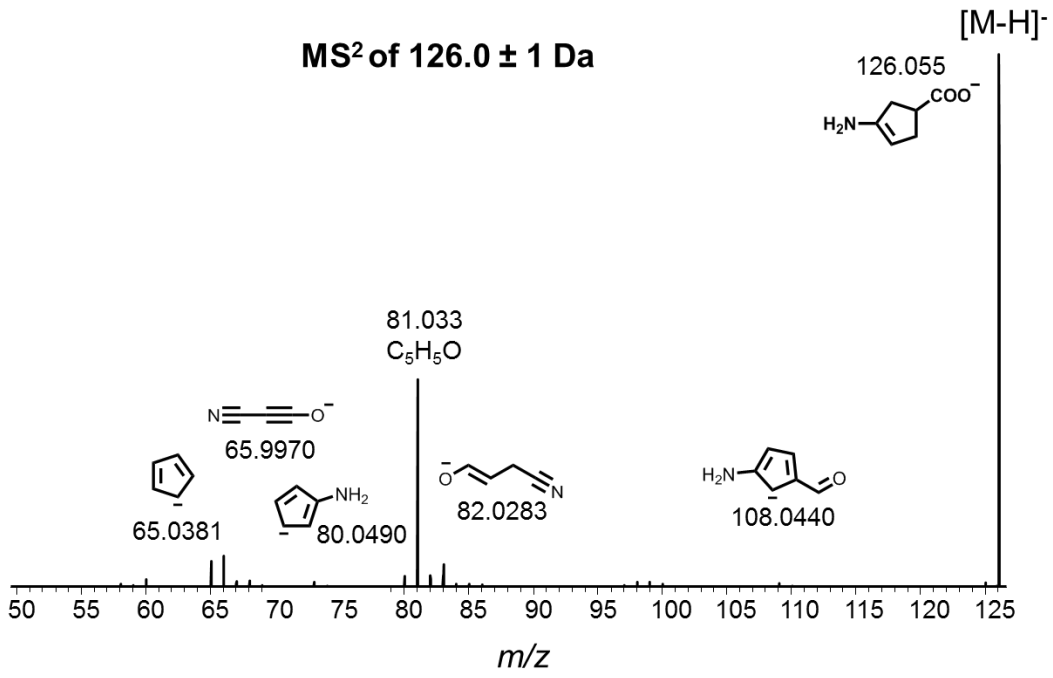


Figure S5. MS^2 fragment assignment for **7,** produced by the incubation of FCP with Asp-AT.

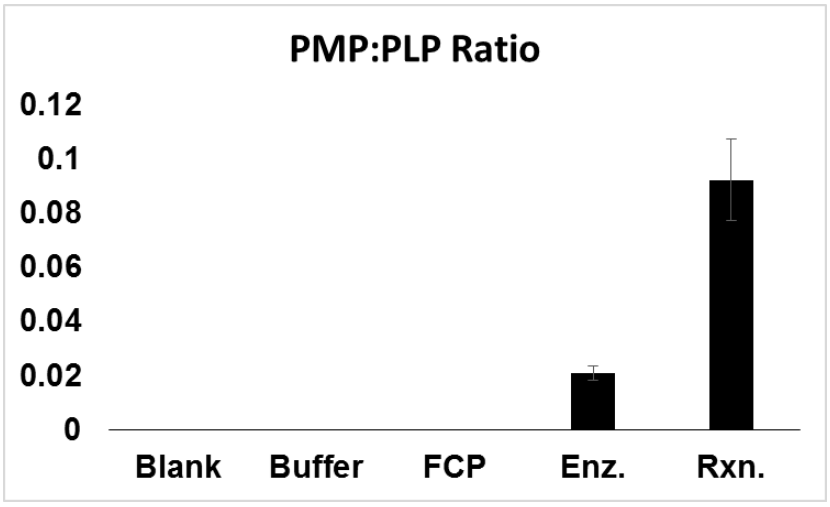


Figure S6. Effect of FCP incubation on PMP:PLP ratio. The ratio of PMP:PLP from naïve OAT (untreated with FCP) was found to be .021 ± .002, while the ratio of PMP:PLP from OAT treated with FCP increased > 4-fold to 0.09 ± .02, indicating the FCP turnover mechanism results in conversion of PLP to PMP.

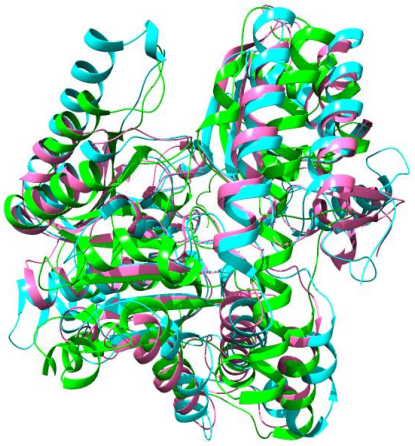


Figure S7. Overlap of the secondary structures of OAT from PDB 1OAT (pink), GABA-AT from PDB 1OHV (cyan), and Asp-AT from PDB 2AAT (green)

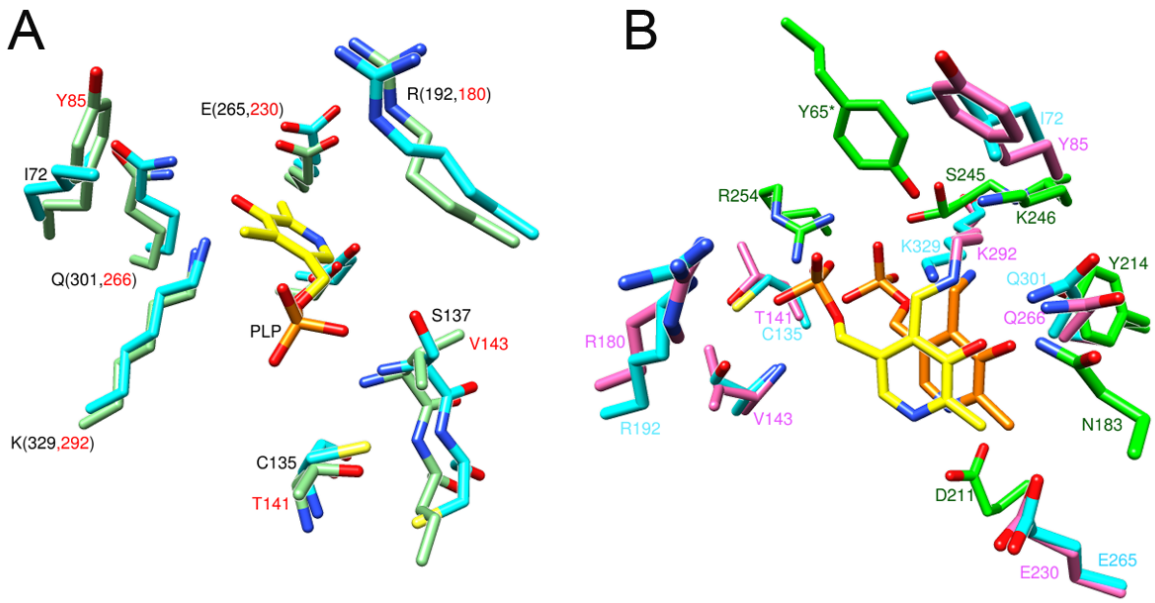
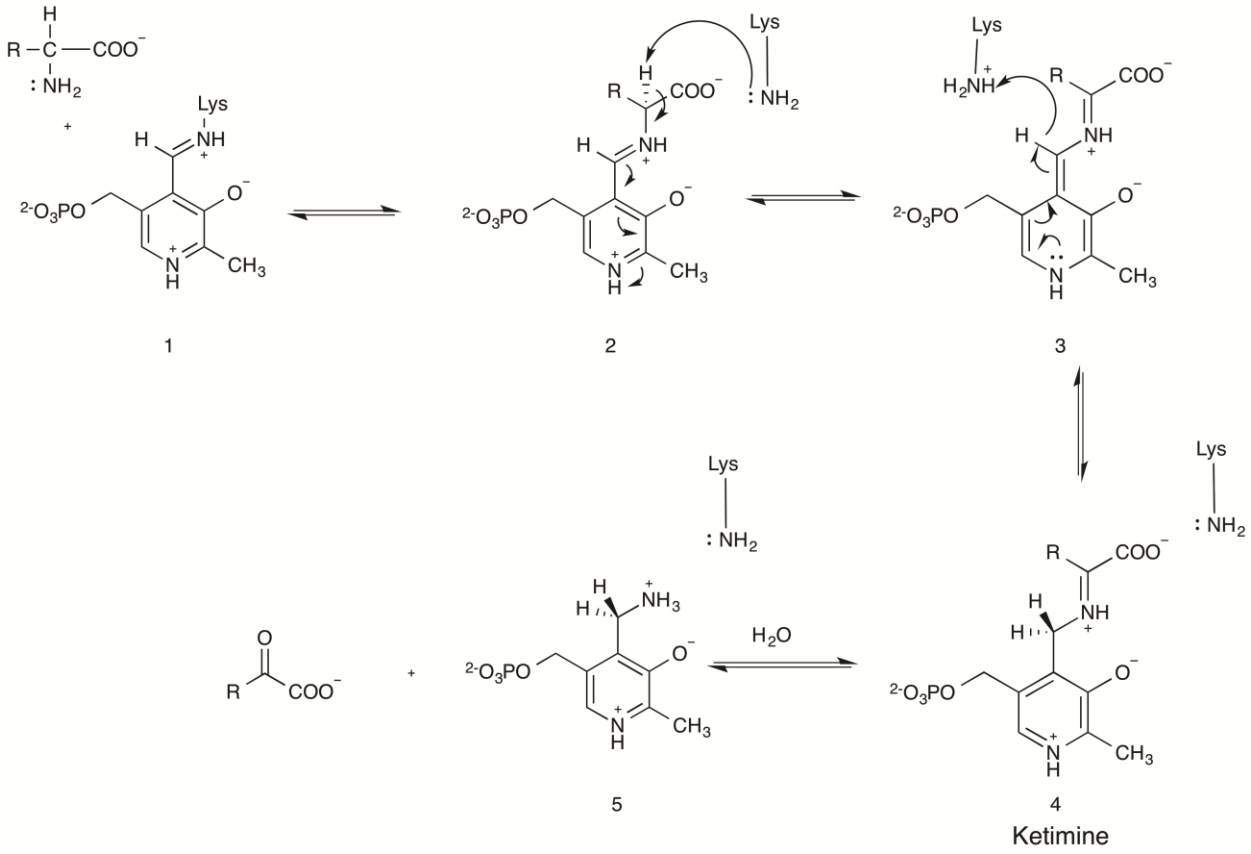


Figure S8. A) Overlap of the active sites of OAT (green) and GABA-AT (cyan)

B) Overlap of the active sites of OAT (pink), GABA-AT (cyan), and Asp-AT (green)



Scheme S1. General mechanism of Asp-AT.