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Studies toward the Synthesis of an Organophosphorus Analog of Acetylcholine

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Poster Presentation 7

STUDIES TOWARD THE SYNTHESIS OF AN ORGANOPHOSPHORUS ANALOG OF ACETYLCHOLINE

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Acetylcholine is an important neurotransmitter in the human body, stimulating the synapse of cardiac, smooth, and skeletal muscles. In order to better understand this enzyme and the stereochemistry of phosphorylation, we have proposed the synthesis of a conformationally constrained organophosphorus analog (1) of acetylcholine(2), in hopes that this compound would act as an inhibitor of acetylcholinesterase. The inhibition/activation kinetics can often give insights to reaction mechanisms and preferences of the enzyme for various substrates. Studies this year have focused on two main steps of the synthesis, the phosphorylation of the alcohol and deprotection of the amino-group.