

MECHANISTIC INVESTIGATION INTO CYCLIZATION REACTIONS INVOLVING ELECTROSTATIC ACTIVATION OF TERMINAL ALKYNES. Elijah St.Germain, Pradip Maity, Edith Nagy, and Salvatore D. Lepore. Department of Chemistry, Florida Atlantic University, 777 Glades Road, Boca Raton, FL 33431.

We have previously reported a novel ring-closure reaction involving nitrogen addition to an unactivated alkyne in the presence of catalytic quaternary ammonium or phosphonium cations. This has led to a new route to dehydroazaproline derivatives, a class of compounds valuable as pharmacophores and as a source of proline-like amino acid building blocks. We will detail our ongoing efforts to elucidate the mechanism of this unexpected cyclization broadening the scope of the original reaction to show that a range of weakly basic anions paired with covalently simple cations are capable of promoting this alkyne addition. We will describe how these studies suggest alkyne activation resulting from electrostatic interactions with organocation catalysts. The presentation will also highlight our efforts to derivatize the azaproline compounds for enhanced bioorganic applications.