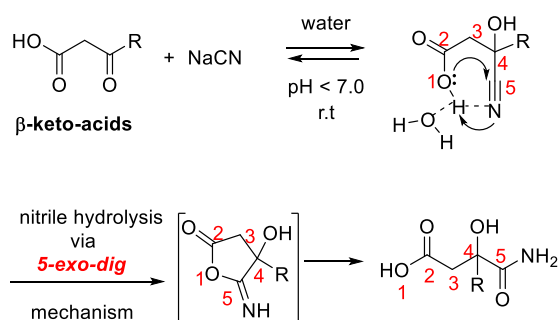
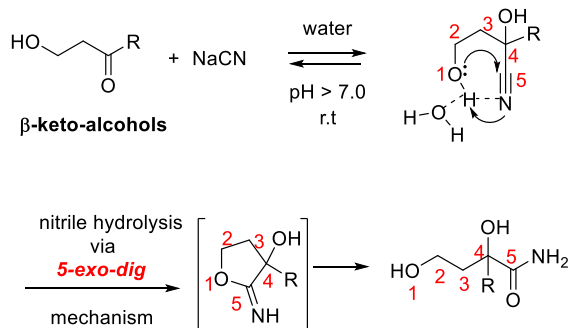
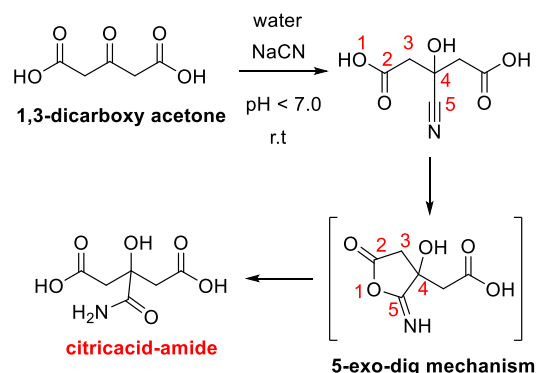


Anchimeric assisted spontaneous hydrolysis of cyanohydrins: Implications for cyanide mediated chemistries.Jayasudhan Reddy Yerabolu^{1,3*}, Charles L Liotta^{2,3}, Ramanarayanan Krishnamurthy^{1,3}¹Department of Chemistry, The Scripps Research Institute, 10550 North Torrey Pines Rd, La Jolla, CA 92037, USA²School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA 30332, USA³NSF/NASA Center for Chemical Evolution, USAEmail: yerabolu@scripps.edu

Introduction: Nitrile/cyanide hydrolysis is of importance from the prebiotic chemistry perspective.¹⁻⁶ Herein we report that neighboring groups located at specific positions on the cyanohydrin molecule cause the spontaneous hydrolysis of cyano group depending on the pH of medium. Specifically, cyanohydrins containing carboxylic acid substituents β to the cyano group undergo hydrolysis only on the acidic side of the pH scale. In contrast, cyanohydrins containing hydroxyl substituents γ to the cyano group undergo hydrolysis only on the basic side of the pH scale. Both of these transformations are postulated to proceed via a 5-membered ring intermediate. A mechanistic rationalization addressing the neighboring group effect and the pH dependence of the hydrolysis will be presented. In addition, the implications for cyanide-mediated prebiotic chemistry⁷⁻¹⁰ will be discussed.

Anchimeric assistance from carboxylic acid group**Anchimeric assistance from hydroxyl group****Cyanide mediated chemistries involving keto-acids****References:**

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Acknowledgement: This work was jointly supported by the NSF and the NASA Astrobiology Program, under the NSF Center for Chemical Evolution, CHE-1504217.