Title:	Dynamic Covalent Chemistry in Enzymatically Changing Environment
Authors:	Amit, Kumar
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Abstract:	Chemistry research is often inspired by nature. Life has perfected the art of producing complexity by forming systems from molecules interacting via reaction networks over the course of evolution. Dynamic reactions are crucial in systems chemistry, as reaction networks give birth to complex, multi-component systems. This thesis aims to take advantage of a unique feature of a particular species, the reactivity of dynamic reaction systems. We have synthesized several compounds containing dynamic C-N double bonds using condensation reactions. Such reactions are known to be reversible and thus have the inherent property of dynamic behavior. We have tried to investigate this dynamic behavior by studying the stability of such compounds in different solvents at different pH values by employing UV-Vis Spectroscopy. Interestingly, we found that the rate of dissociations of such compounds differs upon changing the pH value of the solution. Additionally, the order of dissociation reaction also changes upon altering the pH value. This intrigued us to introduce some enzyme controls to the reaction medium, controlling the pH of solution and dictating the dissociation dynamics. The most common bond-forming reactions in dynamic covalent chemistry are those involving carbon and nitrogen. They've been employed for molecular switches, organic frameworks, and self-sorting systems in materials chemistry. Similary our work in this thesis is on cascade formation of Hydrazone that also have a wide application in molecular switches.
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