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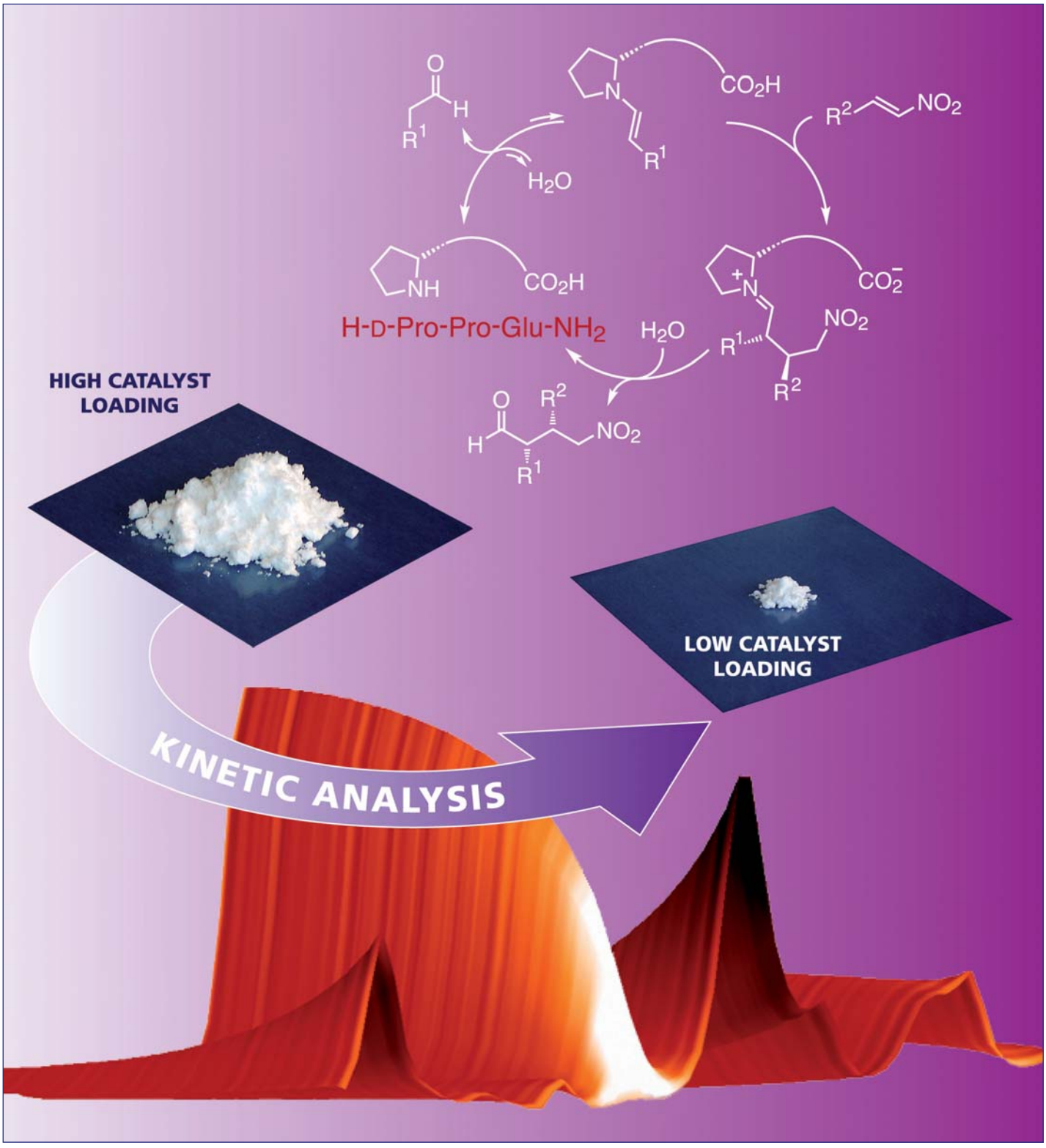

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Communication

Enamine Catalysis with Low Catalyst Loadings - High Efficiency via Kinetic Studies

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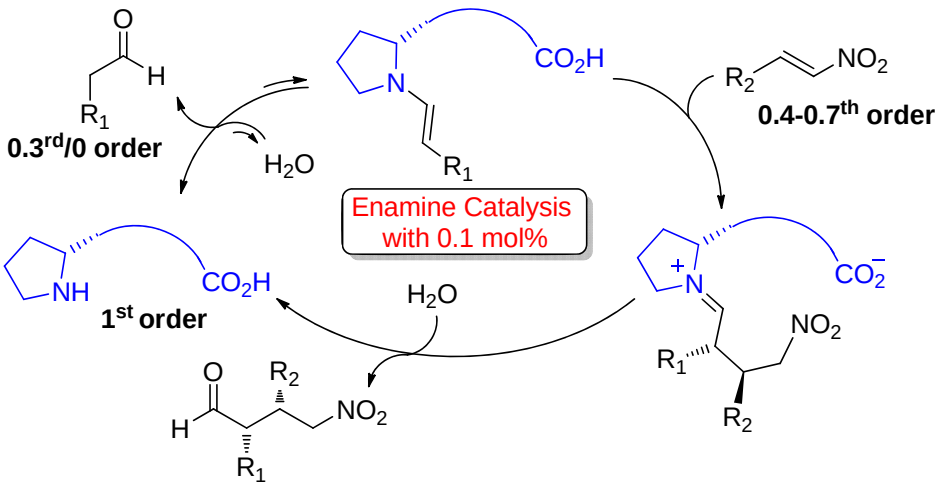
Abstract



Kinetic studies on enamine catalysis provided insight into the rate determining step(s) of peptide catalyzed conjugate addition reactions between aldehydes and nitroolefins. They demonstrate that not enamine formation but both the reaction of the enamine with the electrophile and hydrolysis of the resulting imine are rate limiting. These results allowed for reducing the catalyst loading by a factor of 10 to as little as 0.1 mol %. This is the lowest catalyst loading that has been achieved so far in enamine catalysis with low molecular weight catalysts for a broad range of substrates.