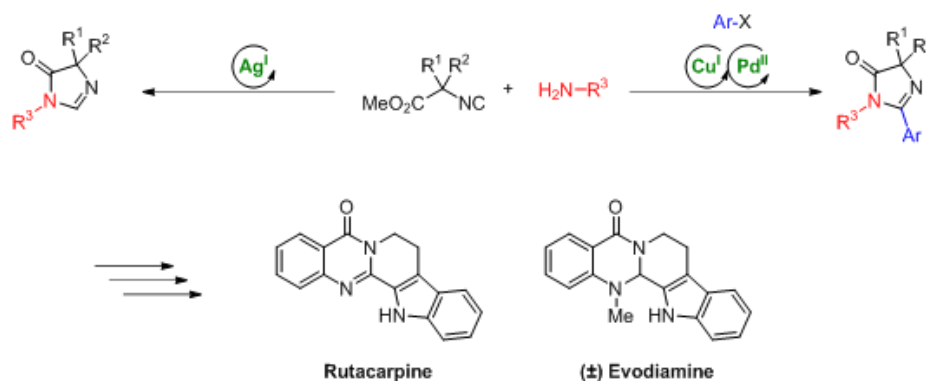


## Isocyanide Insertion of $\alpha,\alpha$ -Disubstituted $\alpha$ -Isocyanoacetate: Development of Multicomponent Reactions for the Synthesis of 5,5-Disubstituted Imidazolones and 5,5,2-Trisubstituted Imidazolones

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**Abstract:** The synthesis of various 5,5-disubstituted imidazolones and 5,5,2-trisubstituted imidazolones has been achieved. Two different methodologies have been developed by taking advantage of the rich reactivity of the isocyanide group. The reaction of  $\alpha,\alpha$ -disubstituted isocyanoacetate, primary amines in the presence of a catalytic amount of  $\text{AgNO}_3$  afforded 5,5-disubstituted imidazolones in good to excellent yields. On the other hand, a bimetallic  $\text{Cu}^{\text{I}}/\text{Pd}^{\text{II}}$  catalyzed reaction of  $\alpha,\alpha$ -disubstituted isocyanoacetate, primary amines and aryl halide afforded 5,5,2-trisubstituted imidazolone in moderated to good yield. Finally, total synthesis of Rutacarpine and ( $\pm$ ) Evodiamine featuring this methodology have been accomplished.



[1] Clemenceau, A.; Wang, Q.; Zhu, J. *manuscript in preparation*.