

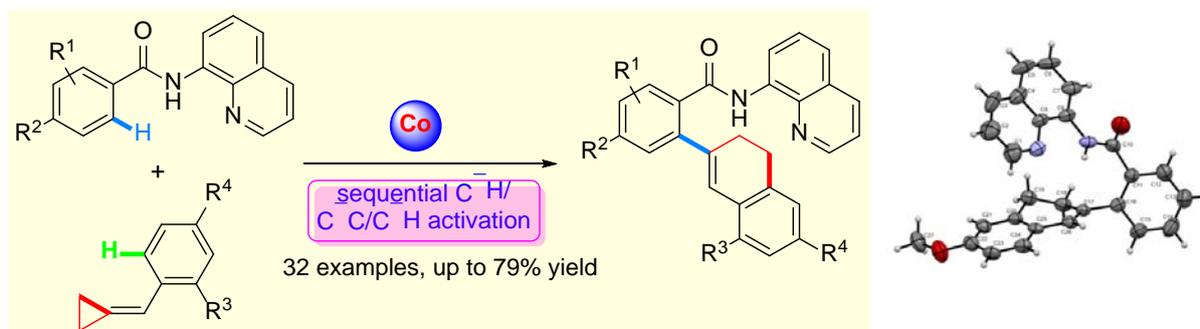
## Cobalt-Catalyzed Aromatic C-H Bond Functionalization/Cyclization Processes

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Our research group has been interested to develop new method in assembling polycyclic compounds using transition metal catalysts.<sup>[1,2]</sup> Here, a cobalt-catalyzed chelation-assisted sequential C-H activation/C-C cleavage/C-H cyclization of aromatic amides with alkylidenecyclopropanes (ACPs) is presented.<sup>[3]</sup> This process allows the sequential formation of two C-C bonds, in which it is different to previous report of using Rh catalyst for the formation of C-N bond. The inexpensive catalyst system exhibits good functional group compatibility and relatively broad substrate scope. The desired products can be easily transformed into polycyclic lactones with *m*-CPBA. Mechanistic studies revealed that the tandem reaction proceeds through a sequential C-H cobaltation,  $\beta$ -carbon elimination and intramolecular C-H cobaltation pathway.



### References

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- [2] Zhao, Q.; Fu, W. C.; Kwong, F. Y. *Angew. Chem. Int. Ed.* **2018**, *57*, 3381.
- [3] Li, M.; Kwong, F. Y. *Angew. Chem. Int. Ed.* **2018**, *57*, 6512.