New paradigms in the synthesis of privileged structures

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Heterocycles are common structural motifs present in over 80% of the currently marketed small-molecule drugs in market. Artificially mimicking the heteroatom containing biological molecules such as nucleic acids, amino acids, carbohydrates, vitamins and alkaloids in a subtle manner can lead to potential new drug candidates. Our lab has been actively involved in developing new synthetic strategies to access diverse classes of privileged heterocyclic scaffolds starting from readily available starting compounds. We have considerable interest in developing metal-free strategies leading to the synthesis of privileged structures.[1] We also have made significant progress in the development of several metal-catalyzed processes to access various classes of carbo- and heterocycles.[2] My presentation would give the historical perspective of the metal-promoted chemistry developed in our laboratory and how the lessons learnt through these works translated into the development of metal-free chemistry.

Selected references

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