

CATALYTIC APPROACHES TO SIMPLIFYING SYNTHESIS

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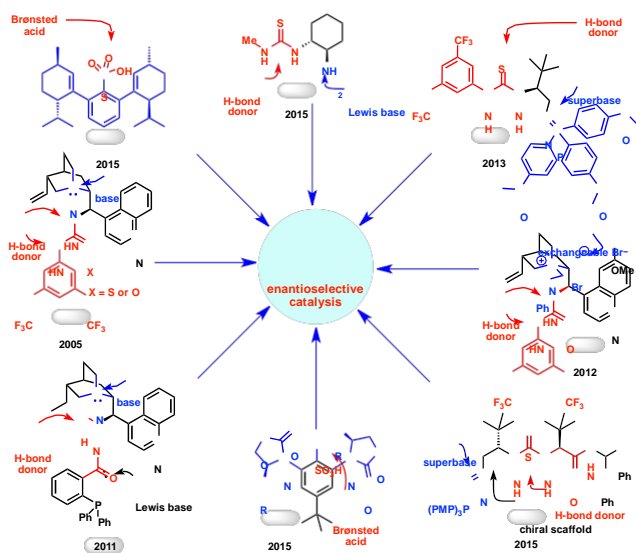
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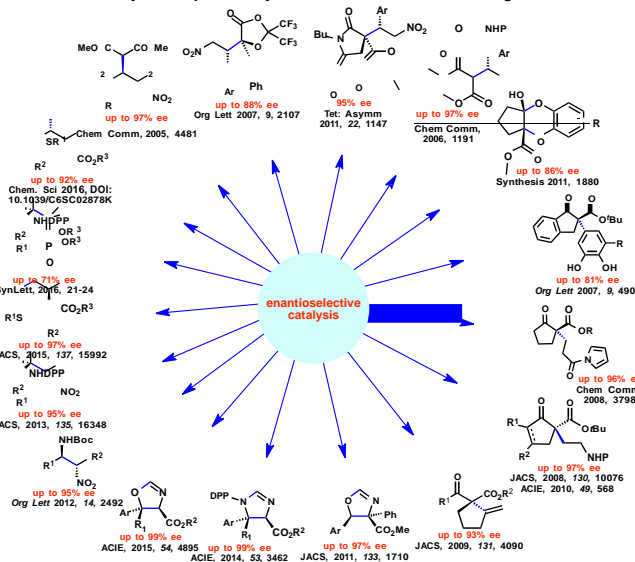
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Catalysts that provide new reactivity and stereocontrol in efficient bond-forming reactions, are essential tools for converting low cost starting materials into high value, structurally complex, stereochemically defined product materials. In this presentation, new families of metal-free and metal-rich cooperative catalysts and their use in highly enantioselective C-C bond forming reactions and other relevant transformations, will be described.

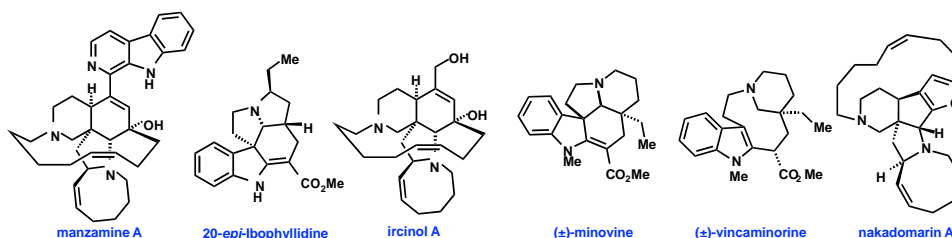
Multifunctional Chiral Catalysts Developed in the Dixon Group



Newly Developed Catalytic Enantioselective Methodologies



Their strategic application to the discovery of new one-pot reaction cascade processes to generate novel, stereochemically defined scaffolds and architectures useful for library and target synthesis will also be discussed. Further application of selected methodologies as pivotal carbon-carbon bond forming steps in the total synthesis of a range of manzamine, aspidosperma, iboga and strychnos alkaloids will then be discussed. These syntheses serve to illustrate how complex molecular targets can be rapidly accessed when combinations of catalyst-controlled reactions, one-pot multistep procedures and powerful route-shortening cascades are designed into the overall synthetic sequence.



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