Innovative Organocatalysts' Design for Photoredox & Anion-Binding Catalysis

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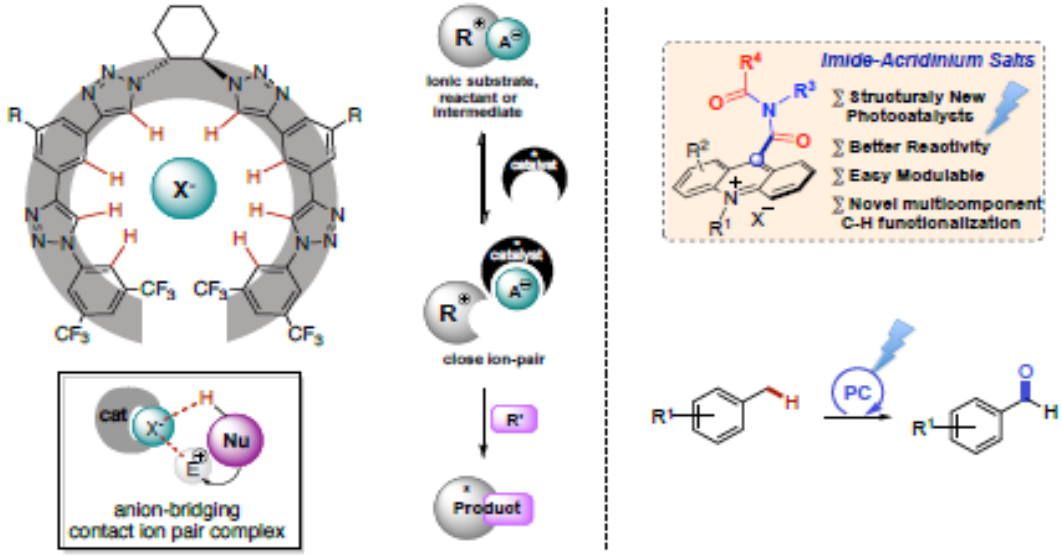
In the past few years, organocatalysis have become a promising strategy to promote chemical reactions. However, the design of more efficient catalysts is of continuous demand. Aiming at solving some of the current reactivity and stability limitations of organocatalytic systems, our group is devoted to the design of innovative non-covalent and photoredox active structures for the development of robust metal-free synthetic methodologies. In this regard, we have recently introduced helical chiral triazoles as versatile multidentate H-donor structures that allow for challenging enantioselective transformations in anion-binding catalysis.[1,2] Their cooperative multidentate character permits the use of very low loadings (down to 0.05 mol%), while promoting an efficient transfer of chirality from the chiral contact ion-pair formed upon binding of the catalyst to a simple achiral anion to the final product. Herein, the remarkable performance of H-donor chiral triazole foldamers in the nucleophilic dearomatization of *N*- and *O*-heteroarenes (up to 99:1 e.r.) will be presented.[2,3]
Another line of research in our group deals with the design of novel acridinium salts for their application in photoredox-catalysis.[4] Hence, the synthesis, photophysical properties and application of tunable amide-acridinium structures with enhanced photoredox catalytic activity respect to the well-established C9-mesityl acridinium salts will also be discussed.[5]



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Prof. Dr. Olga García Mancheño, professor for organic chemistry at the University of Münster (WWU): She obtained her PhD in Chemistry in 2005 at the University Autonomous of Madrid under the supervision of Prof. J.C. Carretero.

After her postdoc in the group of Prof. C. Bolm at RWTH Aachen, she carried out her habilitation at the WWU Münster. In 2013, she was appointed at the University of Regensburg and, in 2017, at the WWU Münster as professor for organic chemistry.

Her research aim at developing new, efficient synthetic methodologies in organic chemistry, with especial focus on the design of novel catalytic systems and their application in homogenous catalysis, including photocatalysis and asymmetric anion-binding catalysis.

https://www.uni-muenster.de/Chemie.oc/garcia/garcia.html