

TRANSITION METAL COMPLEXES IN CATALYSIS AND CHEMICAL BIOLOGY

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Transition metal complexes have found widespread utility in a variety of scientific fields ranging from catalysis to photophysics and supramolecular chemistry. The different coordination and redox characteristics of metals, together with the possibility of tuning their properties by changing the nature of the ligands, provides infinite possibilities for generating new reactivities, and for implementing physicochemical responses.

Recent work in our work group aims to build upon these characteristics to unveil new metal-promoted catalytic processes, as well as to develop metal-dependent supramolecular and biological applications. Our work in catalysis has been mostly focused on discovering new annulation reactions,¹ while in the supramolecular field we have been mainly centered in the area of DNA recognition.²

Finally, in an effort to combine our knowledge in metal catalysis with our work in chemical biology, we have recently demonstrated the viability of achieving ruthenium catalyzed processes in biological media, inside living cells, and even in specific cellular organelles such as mitochondria.³

References

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