Catalysis towards metal substrates: A strategy for the activation of anticancer prodrugs

Luca Salassa
Donostia International Physics Center

Martes, 15 de octubre
12:30 h
Sala de Grados de la Facultad de Ciencias

CICLO CONFERENCIAS **ISQCH** 2019

Instituto de Síntesis Química y Catálisis Homogénea

Facultad de Ciencias, Universidad de Zaragoza - CSIC
C/ Pedro Cerbuna, 12. Zaragoza 50009. Spain

Facultad de Ciencias Universidad Zaragoza

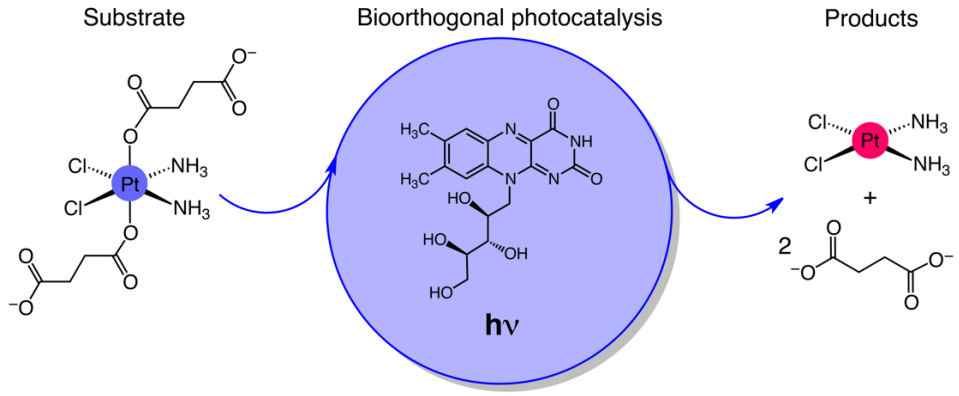
Catalysis towards metal substrates: A strategy for the activation of anticancer prodrugs

Luca Salassa
Donostia International Physics Center, Paseo M. de Lardizabal 4, 20018 Donostia, Spain
Ikerbasque, Basque Foundation for Science, 48011 Bilbao, Spain
Email: lsalassa@dipc.org

Luca Salassa obtained his Ph.D. at the University of Turin (Italy) in 2004 under the supervision of Prof. R. Gobetto. Later, he worked as postdoc at the University of Montana (USA, Profs. J.B.A. Ross and E. Rosenberg) and at the University of Warwick (UK, Prof. P.J. Sadler, MC-IF fellow). In 2012, he was awarded a Ramón y Cajal fellowship to join CIC biomaGUNE (San Sebastián, Spain) and to start his independent career. Since 2017, Luca Salassa is Ikerbasque Professor at the Donostia International Physics Center (San Sebastián, Spain) where his group develops new photochemistry strategies for the activation of biologically relevant metal complexes.

The light-induced reactivity of transition metal complexes has been successfully tailored to kill cancerous cells by novel mechanisms of action that may help overcoming drug resistance. For this reason, photoactivatable metal complexes have been intensively investigated as agents for photochemotherapy and a Ru polypyridyl photosensitizer has recently entered clinical trials for PDT in Canada.[1]
Over the last few years, my group has focused on the development of new strategies for the photoactivation of Pt(IV) anticancer complexes, one of the most promising class of prodrugs[2] considering the unmatched clinical background available for Pt drugs.

In this lecture, I will discuss how flavin catalysis can be applied to transform Pt(IV) anticancer prodrugs into their biologically active counterparts with high efficiency and bioorthogonal selectivity.



References
[1] S. Monro, K. L. Colón, H. Yin, J. Roque, P. Konda, S. Gujar, R. P. Thummel, L. Lilge, C. G. Cameron, S. A. McFarland, Chem. Rev. 119 (2019) 797-828.
[2] (a) S. Alonso-de Castro, A. Terenzi, J. Gurruchaga-Pereda, L. Salassa, Chem. Eur. J. (2019) 10.1002/chem.201806341; (b) S. Alonso-de Castro, A. L. Cortajarena, F. López-Gallego, L. Salassa, Angew. Chem. Int. Ed. 57 (2018) 3143-3147; (c) S. Alonso-de Castro, A. Terenzi, S. Hager, B. Englinger, A. Faraone, J. Calvo Martínez, M. Galanski, B. K. Keppler, W. Berger, L. Salassa, Sci. Rep. 8 (2018) 17198; (d) S. Alonso-de Castro, E. Ruggiero, A. Ruiz-de-Angulo, E. Rezabal, J. C. Mareque-Rivas, X. Lopez, F. López-Gallego, L. Salassa, Chem. Sci. 8 (2017) 4619-4625.