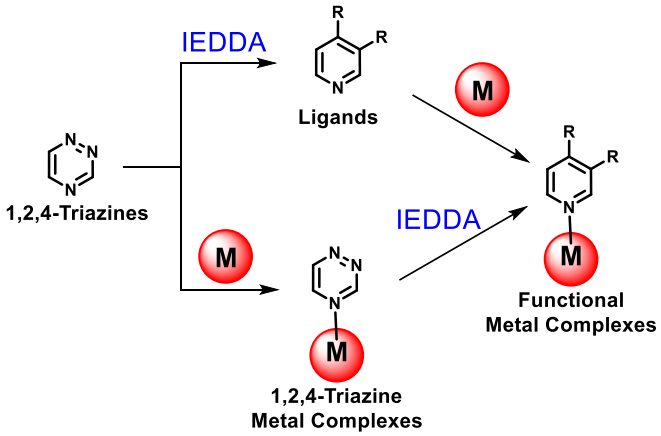
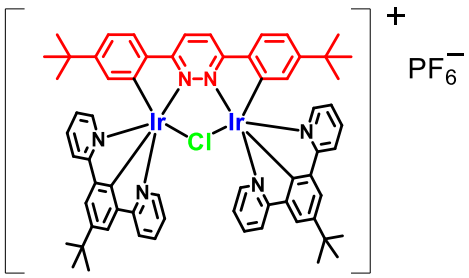
Metal complexes of 1,2,4-triaziners as bioorthogonal reagents. Dinuclear metal complexes in bioimaging.

Valery Kozhevnikov
Northumbria University at Newcastle
valery.kozhevnikov@northumbria.ac.uk

Metal ions often facilitate inverse electron demand Diels-Alder (IEDDA) reaction. This phenomenon inspired us to design metal complexes of 1,2,4-triazines to improve kinetics of the click reaction. In the first part of the talk, we will discuss unprecedented metal complexes of 1,2,4-triazines that react with strain alkynes much faster than the uncoordinated 1,2,4-triazine ligand approaching the kinetic values of widely used tetrazines.[1] This class of materials has a great potential for click functionalization of biomolecules with metal complexes.



Most of the metal complexes studies as potential bioimaging or photodynamic therapy agents are mononuclear. The complexes containing two or more metal centers offers many advantages in terms of brightness or red-shifted emission. In the second part of the talk, we will look at selected examples of such emitters and discuss challenges for their further development for biological applications.[2]



[1] Kozhevnikov, V. N.; Deary, M. E.; Mantso, T.; Panayiotidis, M. I.; Sims, M. T. *Chemical Communications* 2019, **55** (95), 14283.

[2] Daniels, R. E.; McKenzie, L. K.; Shewring, J. R.; Weinstein, J. A.; Kozhevnikov, V.; Bryant, H. E. *RSC Advances* 2018, **8** (18), 9670-9676.