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Self-assembly *in vivo:* imaging and reactivity

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Recently, significant research efforts have been focused on the development of new Pt(II) complexes as luminescent probes for cellular imaging due to the establishment of Pt-Pt metallophilic interactions taking place in the supramolecular structures and relying on their square-planar coordination geometry. This phenomenon can be exploited to overcome the serious quenching exerted by dioxygen in water and biological fluids, detrimental for the emissive properties of these compounds, so that in principle biologically relevant processes can be followed in real-time by Pt-based probes.[1] Starting from these assumptions, a series of new luminescent Pt(II) complexes bearing a N^N^N pyridil-triazolate and functionalized with different ancillary ligands were investigated for their *in vivo* effects on the biodistribution, toxicity and oxidative state in two animal models of aquatic invertebrates belonging to *Phylum Cnidaria*, namely *Hydra vulgaris* and the sea anemone *Nematostella vectensis*.[2] Both the evaluated complexes showed a high emission in the body of the freshwater polyp *Hydra vulgaris*, and no toxicity up to 72 h and a concentration of 50 μM. The orange phosphorescence is mostly localized inside tentacles' tissues and in many of the cells that constitute the animals. Preliminary results suggested not only the potentiality of these complexes as luminescent probes already at 20 μM but also their use as innovative tools in the field of regenerative medicine thanks to their ability to promote non-enzymatic antioxidant reactions.

References

1. S. Sinn et al. *J. Am. Chem. Soc*. **2018**, *140*, 2355−2362
2. Allocca et al, Env. Sci.Technol, **2019**, 53(7):3938-3947