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Biography

Olivier Sénéque obtained a PhD in organic and supramolecular chemistry from the University of Paris XI under the supervision of Prof. Olivia Reinaud in 2002. Then he spent two postdoctoral years in the group of Dr Pascale Delangle at the CEA-Grenoble before being appointed as a CNRS researcher in 2004. His interest is focused on metallopeptides as comprehensive models to understand the properties of metal sites in proteins or as luminescent probes to detect various types of bioanalytes ranging from metal cations to biomolecules.

Abstract title:

How chemoselective ligations make the design of peptide-based responsive luminescent probes easier

Abstract

Luminescence is a cheap and easy-to-use technique for that find many applications, especially in research in biology. Understanding biological processes require new responsive imaging tools that can detect a specific analyte (small molecule, biomolecule, metal cation) or report physicochemical properties (pH, redox potential, temperature ...) in a biological medium (cell or whole body).

We are currently developing luminescent probes for metal cations or biomolecules. These probes are built on a peptide scaffold that is associated to a lanthanide complex as signaling unit. Indeed, lanthanides have desirable luminescent properties that make them very attractive for biological applications. The metal or biomolecule-binding units of these probes are inspired binding domains of proteins.

In this communication, we will show how chemoselective ligations help us in the design of luminescent probes capable of specifically detecting various bioanalytes with highly sought-after properties (high selectivity, NIR emission, ratiometric detection ...).