



Bioinspired luminescent probes for physiological metal cations and biomolecules



Life relies on complex machineries that involve many components including proteins, DNA, RNA but also metal cations. The concentrations of these components are finely regulated at the cellular and the whole organism levels. Misregulation of metal homeostasis or gene translation is often associated to diseases. In order to understand at the molecular level the mechanisms of life, tools are needed to detect and quantify these components in cells or living organisms. Among the techniques suitable for this purpose, luminescence is the easiest and the cheapest for laboratory use. We are developing luminescent probes for metal cations or biomolecules such as DNA or RNA. These probes comprise a peptide scaffold, which is inspired by metal- or DNA/RNA-binding proteins, and a lanthanide complex as a signalling unit. Indeed, lanthanides have desirable luminescent properties that make them very attractive for biological applications. In this presentation, we will describe two luminescent probes selective for Zn^{2+} and Cu^{+} as well as a probe selective for a specific RNA sequence with a special focus on the principles of their selective molecular recognition and on the mechanisms of signal transduction.

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Invité par Eva JAKAB TOTH

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