

Rare Earth Cryptates and Fluorescence Resonance Energy Transfer as tools for the study of molecular interactions in biology

Gerard MATHIS, PhD

CIS biointernational/ HTRF/Bioassays BP 84175, F-30204 Bagnols/Cèze Cedex, France.

email: gmathis@cisbiointernational.fr

Tel. +33 (0) 4 66 79 67 71 – Fax +33 (0) 4 66 79 19 20.

Abstract :

Fluorescence resonance energy transfer (FRET) in association with a time-resolved fluorescence mode of detection has been used to design a homogeneous technology suitable to monitor biomolecular interactions. A lanthanide cryptate characterized by a long-lived fluorescence emission was used as donor and a crosslinked allophycocyanine as an acceptor. This new donor/acceptor pair displayed an exceptionally large Förster radius of 9 nm. This allow to build up a set of labeling strategies to probe the interactions between biomolecules with an emphasis on fully indirect cassette formats particularly suitable for high throughput screening applications. We will describe the basics of the technology, and review the latest applications and developments to the study of molecular interactions involved in cells signaling as well as oligonucleotides based assays.