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Biography

Didier Boturyn studied chemistry and biology at the University of Grenoble. He received his PhD thesis in 1996. He worked on the synthesis of fluorescent probes to assess apurinic sites in DNA. From 1997, he performed postdoctoral research at the University of Virginia (USA). He worked on the syntheses and biological studies of bleomycin derivatives in Prof. Sidney Hecht laboratory. Then in 1999, Didier got a position at the Centre National de la Recherche Scientifique in Prof. Pascal Dumy team in Grenoble. There, he has started to work in the field of peptides notably on the syntheses, biomolecular assemblies and biological activities of peptide conjugates. In 2011, he was appointed director of research at the Department of Molecular Chemistry (DCM). Since 2013, he is leader of the "Engineering and Biomolecular Interactions" team at the DCM.

Abstract title: Design of RGD peptide conjugates for imaging and therapeutic applications

Abstract

The identification of molecular markers that can differentiate a tumor from healthy tissue is essential for the development of more successful diagnostic methods and more effective antitumoral agents. Integrins such as $\alpha_V\beta_3$ are attractive therapeutic targets as these receptors are cell surface proteins that are highly expressed on tumor microenvironment. A characteristic feature of this receptor is its high binding affinity for the ubiquitous triad sequence arginine-glycine-aspartic acid (RGD). The design of numerous RGD-containing cyclopeptides has led to highly selective synthetic ligands with enhanced binding affinities.[1] We have shown that clustered RGD-containing compounds offer an interesting outlook for biological applications. These compounds are based on a cyclic decapeptide scaffold containing two independent functional domains: (I) a clustered ligand domain and (II) an effector domain for supplementary function. Access to such biomolecular compounds may become a challenging task. We recently developed methodologies using chemoselective ligations to achieve sophisticated macromolecules [2] with desirable biological properties such as tumor imaging, drug delivery and cell capture.[3]

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