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LCCDD: Linker chemistry at the crossroads of drug designing

With the exploding number of works in the fields of chemical biology, biological chemistry, bioconjugate chemistry, chemical probes, crosslinking chemistry, linker chemistry, multi-component reactions (MCRs) in heterocyclic chemistry and so on, the chemistry is essential for successful research works. A particular point is important to note: in most cases, the studies of biological processes and their therapeutic applications need to use linkers and spacers. Linkers are commonly flexible small molecules, with a very large diversity of (i) structures, (ii) lengths, (iii) physicochemical properties, (iv) biodegradation properties, and (v) stability properties. For example, in the field of antibody-drug conjugates (ADCs), two families of linkers, cleavable and non-cleavable, are developing and play a crucial role in the efficacy and safety of the payload. The efficacy and toxicity of the conjugate are so related to the ability of the payload to be released from the ADC once inside target cells. Then the control of all aspects of the linker chemistry is essential for a success! This presentation will provide an overview of linker chemistry actually developed in the drug discovery, including examples in the design of glycoconjugates, ADCs, chelator-amino acid hybrids, bifunctional molecules, homo- and heterodimers. Sharing research allows efficient work, ChemBio interactions allow efficient linkage between chemists and biologists, both will allow to design and synthesize new molecular entities (NMEs) and biologics.

Biography

Marc Le Borgne has completed his PhD at the age of 31 years from Nantes Atlantic University (France). He is the Director of EA 4446 "Bioactive Molecules and Medicinal Chemistry" (B2MC), a research group dedicated to Drug Design, Synthesis and Structural Optimization. He has published more than 65 papers in reputed journals and has been serving as an editorial board member of Pharmaceuticals.

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