Simultaneous Disulfide and Boronic Acid Ester Exchange in Dynamic Combinatorial Libraries - DTU Orbit (09/01/2019)

**Simultaneous Disulfide and Boronic Acid Ester Exchange in Dynamic Combinatorial Libraries**

Dynamic combinatorial chemistry has emerged as a promising tool for the discovery of complex receptors in supramolecular chemistry. At the heart of dynamic combinatorial chemistry are the reversible reactions that enable the exchange of building blocks between library members in dynamic combinatorial libraries (DCLs) ensuring thermodynamic control over the system. If more than one reversible reaction operates in a single dynamic combinatorial library, the complexity of the system increases dramatically, and so does its possible applications. One can imagine two reversible reactions that operate simultaneously or two reversible reactions that operate independently. Both these scenarios have advantages and disadvantages. In this contribution, we show how disulfide exchange and boronic ester transesterification can function simultaneously in dynamic combinatorial libraries under appropriate conditions. We describe the detailed studies necessary to establish suitable reaction conditions and highlight the analytical techniques appropriate to study this type of system.

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