Building Blocks for DNA-encoded Libraries

ASINEX

DNA-encoded libraries (DEL) are a promising drug discovery tool which allows the synthesis and screening of very large sets of compounds (up to billions) in a very efficient manner. The DNA-small molecule conjugates in those libraries are synthesized form chemical building blocks exploiting DNA-compatible combinatorial chemistry and molecular biology techniques (Scheme1) [1]. The chances of finding valuable hits from DEL are determined not only by the size of the library, but also by its quality and diversity. Strategic selection of building blocks and creative application of compatible and reliable synthetic techniques can significantly increase the chemical diversity and feasibility of DEL members, resulting in the improved library performance.

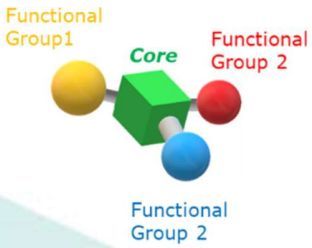
Scheme 1. The multistep construction of DEL

$$DEL = {}_{DNA\ Tag}Scaffolding\ BB + {}_{DNA\ Tag}BB1 + {}_{DNA\ Tag}BB2 + \ldots {}_{DNA\ Tag}BBn$$

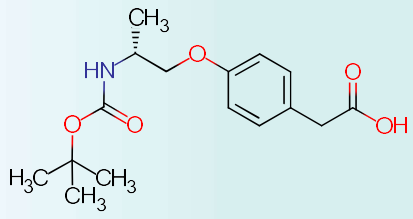
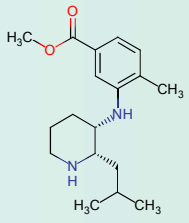
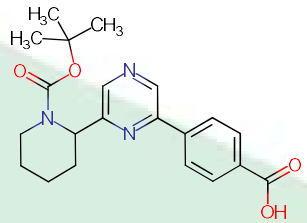
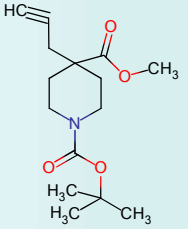
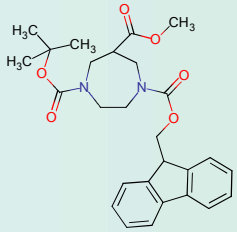
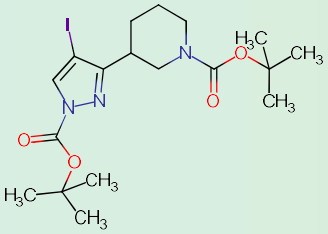
- Scaffolding BBs are multifunctional, drive the DEL quality and diversity, set junction functionalities and growth vectors
- Capping BB1, BB2 – often monofunctional, provide stringent matrix, available in large numbers, drive the DEL size

Novel, orthogonally protected, polyfunctional monomers are a valuable source of the scaffolding building blocks for DEL, as they can be flexibly applied to all established DEL-enabling strategies: templated synthesis, combinatorial "split-and-pool''(Figure 1) [2].

Figure 1



At Asinex we have created several hundred bi- and tri-functional low MW monomers providing flexibility in DNA tagging chemistry and allowing further opportunity for molecule growth and linking. Most of the building blocks are uniquely available from Asinex, reflecting our multi-year investment into the design and synthesis of novel nature product-like compounds [3].

 LAS 51494993	 LAS 51513139	 LAS 51387122
 LAS 34127457	 LAS 34019193	 LAS 33720972

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