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Encoded chemical libraries represent a new technology pushing the limits of lead generation in drug discovery. A huge diversity of organic molecules can be synthesized efficiently where each individual molecule carries a unique oligonucleotide tag serving as amplifiable barcode. The oligonucleotide tag provides single-molecule detection by allowing amplification and sequencing for hit identification from in-vitro affinity screening of encoded libraries of immense diversity. We want to further evolve the technology by combining encoded chemistry with complementary lead discovery approaches.

Our research interests include:

(1) Proof-of-concept for combining complementary lead discovery methods in synergy with novel encoded chemistry.
(2) Designing, synthesizing, and screening of a oligonucleotide-tagged library to increase our understanding of efficient target modulation.
(3) Leveraging the results from oligonucleotide-encoded screening by synthesizing corresponding bioactive small molecules that can modulate protein function.

Selected Publications

The Substrate-Activity-Screening methodology applied to receptor tyrosine kinases: A proof-of-concept study.
Chapelat J, Berst F, Marzinzik A, Moebitz H, Drueckes P, Trappe J, Fabbro D, Seebach, D.
European Journal of Medicinal Chemistry (2012), 57, 1-9.

An oral sphingosine 1-phosphate receptor 1 (S1P(1)) antagonist prodrug with efficacy in vivo: discovery, synthesis, and evaluation.
Angst D, Janser P, Quancard J, Buehlmayer P, Berst F, Oberer L, Beerli C, Streiff M, Pally C, Hersperger R, Bruns C, Bassilana F, Bollbuck B.

Journal of Medicinal Chemistry (2012), 55(22), 9722-9734.

A potent and selective S1P(1) antagonist with efficacy in experimental autoimmune encephalomyelitis.
Quancard J, Bollbuck B, Janser P, Angst D, Berst F, Buehlmayer P, Streiff M, Beerli C, Brinkmann V, Guerini D, Smith PA, Seabrook TJ, Traebert M, Seuwen K, Hersperger R, Bruns C, Bassilana F, Bigaud
M.Chem Biol. 2012 Sep 21;19(9):1142-51.

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