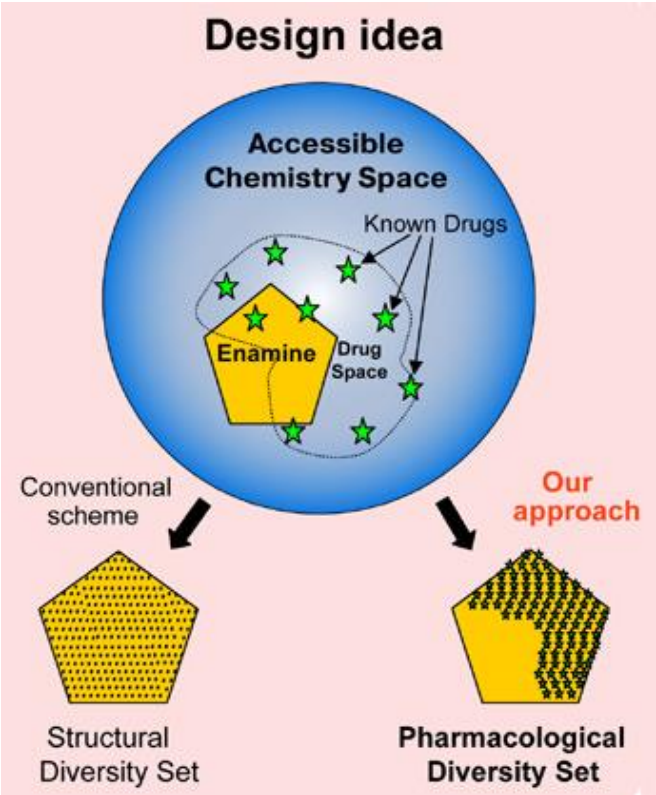
Pharmacology Diversity Set

Discovery of new active ligands against a target protein is an equation with a multiple variables. The most important factors are: quality of screening library, throughput of an assay and its cost, preliminary known active compounds and availability of target's structure. Total screening can provide accurate data for every tested compound and therefore it is a method of choice when high throughput screening can be accomplished at a moderate cost. When data are available either for receptor structure or known ligands, a smaller focused libraries can be used as a more cost-effective solution. However, if investigated protein is an orphan target with no previously studied pharmacology assembly of a reliable screening library turns out to be an intricate task.

Pharmacological Diversity Set (PDS) by Enamine is a brand new powerful tool for HTS campaigns allowing transformation of random screening to the focused search of *the hit space* for particular target. Often potent hits for a new target are derived from known chemical scaffolds. Numerous examples supporting this regularity are known, since chemical space recognized by biological systems is more narrow than general synthetically accessible chemical space. This idea provides rational basis for Pharmacological Diversity Set. Design of PDS is based on pharmacological properties rather then on chemical structures of compounds. For each compound from Enamine Drug Like Collection a profile of 3081 predicted pharmacological properties was generated. Compounds with toxic signatures were removed, then pharmacological profiles were clustered for the rest of structures. Finally, removal of singletons and selection of cluster centroids resulted in 23,000 compounds constituting PDS. Smaller subset of PDS (about 3,500 compounds) is available as well.



Our investigations show large overlap of PDS chemical space with MDDR's "good" compounds' (launched or clinical phase) one. Being as diverse as generic diversity sets, PDS offers an intriguing alternative for them. Enamine specialists have designed double-filtered compound diversity set with strict focus on hit finding for orphan targets, but different applications of PDS may be suggested readily. You can download structures of compounds included in preplated version of PDS from Databases section.