BioBlocks
A CHEMISTRY PARTNER IN DRUG DISCOVERY

BioBlocks Comprehensive Fragment Library

San Diego, CA, 04/17/2017

BioBlocks Comprehensive Fragment Library (CFL) is now available for Drug Discovery collaborations. Plate 1 contains compounds selected from millions of candidates for their unique combination of 3D core shapes, hydrogen patterns, solubility, and synthetic versatility. BioBlocks' fragment library design was aided by our team's deep expertise in medicinal chemistry and meets very strict property criteria, making it suitable for the discovery of high quality leads. The current fragment set provides low flexibility, low molecular weight starting points with key hydrogen bond patterns for fragment-based lead discovery (FBLD).

Library members are selected for their appealing chemical and pharmaceutical properties. For each hit structure, a set of >1000 related 3D analogs can be generated for hit follow up, and >95% of the fragments contain handles for straightforward synthetic elaboration.

Features

- Designed using first principles, less common chemistry and 3D motifs
- Selected for diverse chemotypes and shapes
- Inclusion criteria more stringent than the rule-of-three
- Designed for limited flexibility and compact interactions with target sites
- Highly soluble (>100mM in 100% DMSO)
- Hit rates typically <5%
- Potencies for hit compounds typically range from 100-4,000 µM

Applications

- Starting point for our Leap-to-Lead™ discovery platform
- Screened by BioBlocks and our collaborators:
  - High-concentration biochemical screens
- Screening planned for 2017 by BioBlocks and our collaborators:
  - SPR
  - NMR
- Core shapes distributed to permit X-ray crystallography multiplexing

Property Summary	CFL Plate 1	CFL Design Goals	Typical Commercial
# Fragments	96	1000	1700 - 30000
MW	161	190	170 - 270
AlogP	0.9	0.8	1.3 - 1.8
H Donors	1.0	1.1	≥1
H Acceptors	1.9	2.5	2 - 4
Rotatable Bonds	0.7	0.3	2 - 3
Unique Rings	48	750	
HBond Patterns	36	500	
% 3D	60	90	
% Commercial	64	30	
% Handles	98	98	

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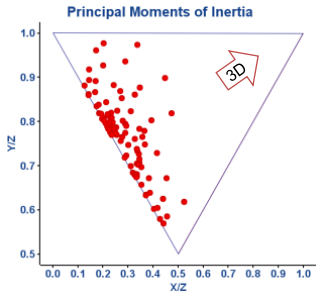
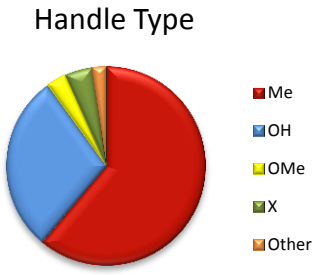
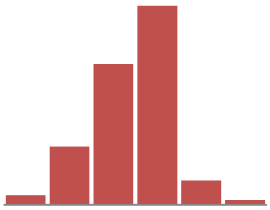
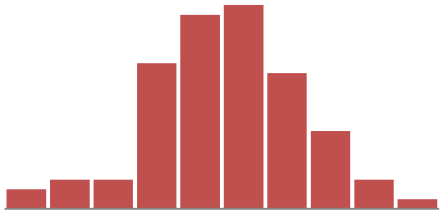
Current 3D and Handle distributions:

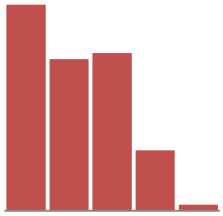


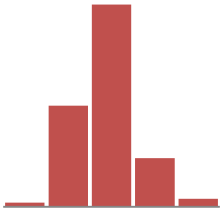


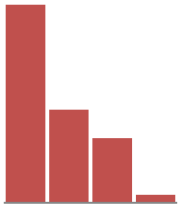
Property Distributions









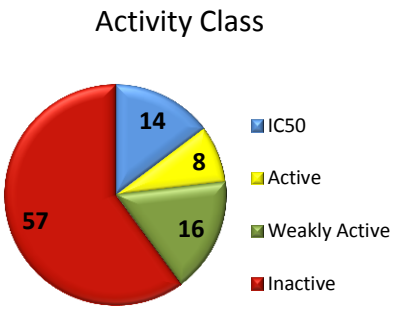


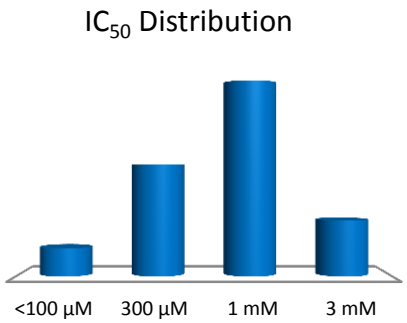
Library Format

- Solutions in DMSO arranged arrayed by mutual agreement
- Typical sample is 2-4 mg compound dissolved in 0.2 mL DMSO (200 mM solution)

Screening Results

Plate 1 has been recently screened in a high concentration inhibition assay:





Further information is available at http://www.bioblocks.com/cfl-summary/, by email at fragments@bioblocks.com or by phone 858-558-5900.