SGC

The SGC conducts pre-competitive, open access research to facilitate new drug discovery programs. The consortium generates knowledge and reagents that can be used to validate therapeutic targets.

Since 2008, the SGC has led the development of chemical probes which inhibit or antagonize proteins involved in epigenetic signaling. The chemical probes are made available to the research community with no restriction on use: innovation for everyone.

SGC Chemical Probes are small, drug-like molecules which meet these criteria:

- ✓ *in vitro* IC_{50} or Kd < 100 nM
- ✓ > 30-fold selectivity over proteins in the same family
- ✓ significant on-target cellular activity at 1 μM

The SGC also characterizes reagents that may be used in downstream assays:

- a control compound for probes
- biotin-labelled probes
- antibodies to epigenetic proteins

This initiative is sustained by a team of cross-disciplinary scientists from industry and academia specializing in Research Informatics, Biotechnology, Biophysics, and Structural and Chemical Biology.

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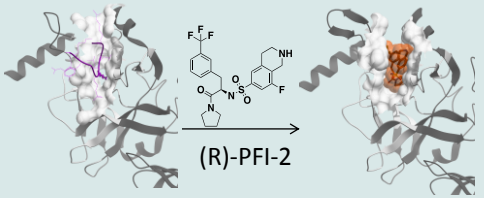
www.thesgc.org/chemcal-probes

SGC Chemical Probes

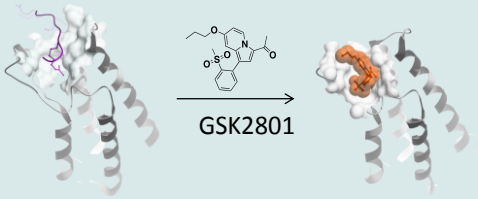
Protein	Probe
ATAD2	BAY-850, GSK8814
BET family	(+)-JQ1, PFI-1
BAZ2A/2B	GSK2801, BAZ2-ICR
BRD9/7	LP99; BI-9564; TP-472
BRD9	I-BRD9
BRPF1/2/3; BRPF1B	OF-1, NI-57; PFI-4, GSK6853
BRPF2/TAF1	BAY-299
CECR2	NVS-CECR2-1
CREBBP, EP300	SGC-CBP30, I-CBP112
SMARCA2/4, PB1	PFI-3
PCAF/GCN5	L-Moses, GSK4027
IDH1 mutant	GSK864
JMJD3/UTX	GSK-J4 (pro-drug of GSK-J1)
LSD1	GSK-LSD1
L3MBTL3	UNC1215
DOT1L	SGC0946
EED	A-395
EZH2/H1	GSK343, UNC1999
G9a/GLP	UNC0638, A-366, UNC0642
PRMT Type I	MS023
PRMT3	SGC707
PRMT4/6	MS049
PRMT4	TP-064, SKI-73
PRMT5	GSK591, LLY-283
SETD7	(R)-PFI-2
SMYD2	BAY-598; LLY-507
SMYD3	BAY-6035
SUV420H1/H2	A-196
PAD4	GSK484
WDR5	OICR-9429

SGC

Structural Genomics Consortium is a public-private partnership that accelerates the discovery of new medicines through open access research



SETD7, H3K4me, SAH — SETD7, (R)-PFI-2, SAM



BAZ2B, H3K14ac — BAZ2B, GSK2801

SGC's scientific contributions include antibody generation, chemical probe development, and novel crystal structures of human proteins.

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SGC Epigenetic Chemical Probe Library

#	Domain: Protein target	Probe	*in vitro* IC_{50} or Kd (nM)	Cell line/Assay, Target/Biomarker: IC_{50}/EC_{50} (nM)	Control	PubMed ID	Supplier
1	BRD: ATAD2A/B	GSK8814	50	nanoBRET ATAD2 (BD): **2700**	GSK8815	27530368	New
2	BRD: ATAD2A	BAY-850	85 (MST‡); 753 (ITC)	FRAP/full-length ATAD2 assay: **1000**	BAY-460		New
3	BRD: BET family	(+)-JQ1	BRD4 1st/2nd BRD: 50/90	NMC 797, BRD4: **500**	(-)-JQ1	20871596	Y
4	BRD: BAZ2A/2B	BAZ2-ICR	130/180	FRAP, BAZ2A: **1000**	-	25719566	Y
5		GSK2801	257/136	FRAP, BAZ2B: **1000**	GSK8573	25799074	Y
6	BRD: BRD9/7	BI-9564	14/239	FRAP, BRD9/7: **100/1000**	-	26914985	Y
7		TP-472	33/340	nanoBRET, BRD9: **323** (EC_{50})	TP-472N		Y
8	BRD: BRD9	I-BRD9	50 ± 17	nanoBRET, BRD9: **159**	-	25856009	Y
9	BRD: BRPF1/2/3	OF-1	100/500/2400	nanoBRET, BRPF1B: **80**	-		Y
10		NI-57	31/108/408	FRAP, BRD1: **1000**	-		Y
11	BRD: BRPF1B	GSK6853	8	nanoBRET BRPF1B (BD): **20**	GSK9311	27326325	Y
12	BRD: BRPF2/TAF1	BAY-299	BRPF2: 67; TAF1 (2nd): 14	nanoBRET, BRPF2: **970**; TAF1 2nd BRD: **575**	BAY-364	28402630	Y
13	BRD: CECR2	NVS-CECR2-1	8	nanoBRET, CECR2: **255**	-		Y
14	BRD: CREBBP/EP300	SGC-CBP30	21/38	FRAP, CREBBP: **1000**	BDOIA513	24946055	Y
15		I-CBP112	151/625	FRAP, CREBBP: **1000**	-	26552700	Y
16	BRD: PCAF/GCN5	GSK4027	PCAF/GCN5: 1.2 (BROMOscan)	nanoBRET, PCAF/H3.3: **60**	GSK4028	28002667	New
17		L-Moses	PCAF/GCN5: 126/600 (ITC)	nanoBRET, PCAF (BD): **260**	D-Moses	27966810	New
18	BRD: SMARCA2/4	PFI-3	SMARCA4:89; PB1 (5th):48	FRAP, SMARCA2: **1000**	BDF25488524	26139243	Y
19	DEHYDR: IDH1 mutant	GSK864	R132C: 9; R132H: 15; R132G:17	HT-1080, IDH1 (R132C mutation): **320**	-	26436839	Y
20	KDM: JMJD3/UTX	GSK-J4*/J1	GSK-J1: 60	(GSK-J4) PBMC, TNF-alpha: **9000**	GSK-J5	22842901	Y
21	KDM: LSD1	GSK-LSD1	16	EC_{50} < **5**	-	26175415	Y
22	Kme: L3MBTL3	UNC1215	40	Inhibit foci formation HEK293, L3MBTL3: **500**	UNC1079	23292653	Y
23	MT: DOT1L	SGC0946	0.3 ± 0.1	MCF10A, ↓ H3K79me: **10**	SGC0649	23250418	Y
24	Kme: EED	A-395	34	RD rhabdoid cells, ↓ H3K27me3: **90**	A-395N	28135237	New
25	MT: EZH2	GSK343	4	HCC1806, ↓ H3K27me3: **174**	-	24900432	Y
26	MT: EZH2/H1	UNC1999	10/45 ± 3	MCF10A, ↓ H3K27me3: **124±11**	UNC2400	23614352	Y
27	MT: G9a/GLP	A-366	3.3/38	PC3, ↓ H3K9: **100**	-	24900801	Y
28		UNC0642	< 2.5	MDA-MB231, ↓ H3K9: **110** ; PC3: **130**	-	24102134	Y
29	MT: PRMT type 1	MS023	PRMT1/3/4/6/8: 39/135/93/4/5	PRMT1/3/4/6, ↓ H4R2/3me2a: **9/1000/5000/21**	MS094	26598975	Y
30	MT: PRMT3	SGC707	31 ± 2	HEK293 flag-PRMT3, ↓ H4R3me2a: **91**	XY-1	25728001	Y
31	MT: PRMT4/6	MS049	PRMT4/6 = 44/63	HEK293,↓ H3R2/3me2a: **970** (PRMT6)	MS049N	27584694	Y
32	MT: PRMT4	TP-064	< 10	HEK293, ↓ med12-Rme2a: **43**	TP-064N		Y
33		SKI-73	13	HEK293, ↓ med12-Rme2a: **500**	SKI-73N		New
34	MT: PRMT5	GSK591	11	Z138, ↓ SmD3-Rme2s: **56** (EC_{50})	SGC2096	26985292	Y
35		LLY-283	22	MCF7, ↓ SmBB'-Rme2s: **25**	LLY-284		New
36	MT: SETD7	(R)-PFI-2	2.0 ± 0.2	MCF7, induces nuclear YAP: **100**	(S)-PFI-2	25136132	Y
37	MT: SMYD2	BAY-598	27	KYSE-150, ↓ p53K370me: **50**	BAY-369	27075367	Y
38		PFI-5	7	MCF7/HEK293, ↓ p53K370me: **1000/3000**	PFI-5N		New
39	MT: SMYD3	BAY-6035	88 ± 16	Hela, ↓ MEKK2K360me ~ **70**	BAY-211		New
40	MT: SUV420H1/H2	A-196	21 ± 3	U2OS, ↓ H4K20me2/3: **500**	SGC2043	28114273	Y
41	PAD: PADI4	GSK484	50	NB4, ↓ H3 citrullination: **71**	GSK106	25622091	Y
42	WD40: WDR5	OICR-9429	64	HEK293 Flag-WDR5, disrupt Wdr5-MLL: **223**	OICR-0547	26167872	Y

* GSK-J4 is an ester pro-drug of GSK-J1; †alphascreen; ‡microscale thermophoresis