Tables S1 – S15 list the ranks for the known binders, their predicted GlideScore 2.5 SP binding affinities, their Coulomb-vdW interaction enrgies with the protein site, and their hydrogen-bonding scores for the database enrichment screens described in the main paper.

Table S1. Glide 2.5 Rankings for Thymidine Kinase Ligands. The Second Set of Rankings Counts Only the Pyrimidine-Based Ligands.

Rank-all	Rank-pyr	Ligand	GlideScore	CvdW energy	Hbond score
3	3	dT	-9.19	-46.4	-3.4
6	---	gcv	-8.70	-38.5	-3.5
9	9	idu	-8.49	-38.3	-3.3
10	10	mct	-8.29	-24.2	-1.8
16	16	ahiu	-8.11	-29.0	-2.7
42	42	dhbt	-7.54	-42.7	-1.7
52	---	pcv	-7.31	-23.5	-3.1
61	---	acv	-7.04	-41.3	-1.9
72	72	hpt	-6.71	-32.4	-2.6

Table S2. Glide 2.5 Rankings for the 3ert Site for the Estrogen Receptor.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	EM-343	-12.61	-55.1	-2.8
2	nafoxidene	-11.97	-49.4	-1.3
3	4-hydroxytamoxifen	-11.85	-60.1	-2.8
4	ZK-11901	-11.33	-50.7	-1.9
5	LY-326315	-11.05	-27.3	-3.0
8	raloxifene	-10.51	-39.8	-2.2
10	LY-357489	-10.32	-10.2	-2.7
58	ICI-164384	-9.00	-11.3	-1.8

Table S3. Glide 2.5 Rankings for the 1err Site for the Estrogen Eeceptor.

Rank	Ligand	GlideScore	CvdW energy	Hbond energy
1	raloxifene	-13.97	-70.5	-3.6
2	LY-326315	-13.46	-58.3	-3.5
3	ZK-11901	-12.11	-53.9	-2.4
4	EM-343	-11.59	-43.3	-2.5
7	Sumitomo biphenol	-11.05	-46.9	-1.7
9	LY-357489	-10.89	-33.0	-2.4
34	4-hydroxytamoxifen	-9.75	-31.1	-2.7
72	nafoxidene	-9.03	-10.2	-0.9
87	ICI-164384	-8.91	-20.9	-0.9

Table S4. Glide 2.5 Rankings for the 1dm2 Site for CDK-2.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
6	indolin-2-one-2	-10.20	-50.7	-1.9
10	hymenialddisene	-9.97	-45.2	-3.3
15	cgp60474	-9.78	-49.2	-2.7
18	purB	-9.61	-45.5	-2.8
50	ag12073	-9.11	-46.9	-3.6
70	indolin-2-one	-8.87	-39.6	-1.9
181	pyrpyr.mo2	-8.14	-43.3	-0.7
262	4aquin	-7.77	-40.9	-1.7
555	flavo	-6.65	-23.2	-0.7
889	staurosporine	-4.77	-31.5	-0.7

Table S5. Glide 2.5 Rankings for the 1aq1 Site for CDK-2.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	staurosporine	-13.11	-61.9	-3.7
6	indolin-2-one	-11.07	-48.3	-3.4
12	indolin-2-one-2	-10.49	-54.9	-2.9
39	ag12073	-9.80	-46.6	-2.4
48	cgp60474	-9.68	-49.2	-2.2
87	purB	-9.22	-52.2	-2.0
208	4aquin	-8.47	-43.6	-1.3
255	hymenialddisene	-8.25	-38.9	-1.5
314	flavo	-8.02	-49.3	-0.9
1538	pyrpyr.mo2	-7.09	-42.9	-1.9

Table S6. Glide 2.5 Rankings for the 1a9u Site for p38 MAP Kinase.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
4	1kv2_lig	-9.31	-56.2	-1.9
19	p38_6	-8.53	-50.8	-2.8
32	1bl7_lig	-8.25	-43.6	-2.3
36	p38_1	-8.11	-43.1	-2.0
126	p38_9	-7.45	-45.8	-0.4
149	p38_11	-7.32	-36.9	0.0
162	p38_5	-7.23	-41.8	-1.4
205	p38_10	-7.04	-47.6	-0.1
206	p38_8	-7.04	-39.0	-2.3
237	p38_2	-6.94	-34.9	-1.5
309	p38_7	-6.70	-41.8	-0.8
337	p38_13	-6.62	-39.5	0.0
419	p38_4	-6.36	-36.4	0.0
477	1a9u_lig	-6.19	-35.3	-0.4
482	p38_3	-6.16	-47.2	-0.7
681	p38_14	-5.56	-31.7	-0.4
747	p38_12	-5.29	-41.8	0.0

Table S7. Glide 2.5 Rankings for the 1bl7 Site for p38 MAP Kinase.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
5	p38_6	-10.08	-63.4	-1.1
16	1kv2_lig	-9.42	-42.0	-1.3
19	1bl7_lig	-9.38	-48.0	-3.5
56	p38_8	-8.51	-49.1	-0.8
63	p38_9	-8.46	-53.4	-3.0
64	p38_10	-8.44	-51.8	-2.0
90	p38_1	-8.21	-49.0	-0.6
131	1a9u_lig	-7.92	-39.1	-1.8
161	p38_7	-7.76	-43.0	-1.2
163	p38_13	-7.75	-46.5	-0.9
225	p38_3	-7.44	-58.5	-0.1
241	p38_2	-7.36	-35.1	-0.2
336	p38_14	-7.05	-39.9	-0.9
368	p38_11	-6.96	-38.3	-0.9
402	p38_4	-6.89	-35.7	-0.9
584	p38_5	-6.35	-39.5	-0.3
681	p38_12	-6.09	-39.2	0.0

Table S8. Glide 2.5 Rankings for the 1kv2 Site for p38 MAP Kinase.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	1kv2_lig	-13.83	-63.4	-1.9
2	p38_8	-12.86	-58.9	-3.4
12	p38_9	-11.11	-60.8	-0.9
23	p38_6	-10.62	-56.1	-1.8
27	p38_10	-10.51	-53.2	-1.9
31	1a9u_lig	-10.42	-47.0	-1.8
32	p38_1	-10.34	-48.3	-1.2
120	p38_12	-9.16	-49.4	-0.1
133	p38_4	-9.06	-38.2	-0.6
143	p38_11	-8.97	-39.8	0.0
153	p38_13	-8.87	-50.9	-1.9
171	p38_2	-8.73	-39.6	-0.5
193	p38_3	-8.62	-53.1	-2.0
234	p38_14	-8.37	-39.5	-0.9
238	p38_7	-8.30	-48.3	-0.6
336	p38_5	-7.77	-36.0	0.0
436	1bl7_lig	-7.29	-42.0	-0.9

Table S9. Glide 2.5 Rankings for the 1hpx Site for HIV Protease.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	1bvg	-13.50	-67.9	-5.1
2	1hih	-11.79	-66.0	-3.8
3	1hsg	-11.69	-68.0	-2.0
4	1hpx	-11.45	-73.0	-2.2
5	1odw	-11.35	-61.7	-3.6
7	1sbg	-11.17	-63.8	-3.3
10	1hbv	-10.76	-66.4	-2.0
11	4phv	-10.74	-56.5	-2.3
13	1htf	--10.61	-58.3	-3.1
16	1hpv	-10.55	-61.4	-2.3
17	2upj	-10.32	-65.7	-4.9
20	1hps	-10.08	-59.8	-2.0
35	1pro	-9.54	-56.6	-0.6
136	1hte	-8.39	-53.1	-1.6
408	1hvr	-7.18	-35.8	-0.9

Table S10. Glide 2.5 Rankings for the 1dwc Site of Human α Thrombin.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
2	1dwd	-10.85	-57.1	-3.1
4	BMCL comp 11a	-10.76	-53.6	-2.8
5	1dwc	-10.65	-49.3	-4.8
8	BMCL comp 11b	-10.12	-48.8	-2.9
14	BMCL comp 14	-9.60	-45.3	-1.7
33	BMCL comp 1	-9.09	-46.7	-1.5
34	BMCL comp 7	-9.08	-49.3	-1.7
49	BMCL comp 13c	-8.82	-45.2	-1.4
51	1ett	-8.80	-47.4	-2.8
58	BMCL comp 13b	-8.66	-39.8	-1.0
72	BM12.1700	-8.51	-51.2	-2.3
101	1etr	-8.25	-46.8	-5.1
112	BM51.1011	-8.19	-54.4	-2.6
144	BMCL comp 11c	-8.00	-46.8	-1.8
227	BM14.1248	-7.54	-42.7	-2.0
235	BMCL comp 13a	-7.51	-52.8	-1.7

Table S11. Glide 2.5 Rankings for the 1ett site of Bovine ϵ Thrombin.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	BMCL comp 11b	-12.23	-57.6	-3.2
3	BMCL comp 11a	-12.00	-58.0	-2.2
4	BMCL comp 1	-11.48	-52.7	-2.4
5	1dwd	-11.41	-61.8	-4.1
7	1etr	-11.07	-49.2	-5.3
8	BMCL comp 13a	-11.01	-45.6	-2.4
9	BMCL comp 11c	-10.99	-53.6	-1.8
11	BMCL comp 13b	-10.88	-46.9	-2.0
17	1ett	-10.61	-52.7	-2.2
21	BMCL comp 7	-10.48	-55.5	-3.7
24	1dwc	-10.41	-48.0	-4.2
26	BM51.1011	-10.40	-51.2	-2.3
27	BMCL comp 13c	-10.26	-48.4	-2.1
85	BMCL comp 14	-9.07	-47.7	-1.5
99	BM12.1700	-8.96	-44.0	-3.2
127	BM14.1248	-8.75	-52.1	-1.7

Table S12. Glide 2.5 Rankings for the 1tmn Site for Thermolysin.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	1tmn	-12.84	-114.6	-6.3
2	4tmn	-12.60	-123.0	-4.9
4	6tmn	-12.20	-143.6	-4.7
10	5tln	-11.37	-119.5	-3.4
14	5tmn	-11.32	-141.4	-2.9
32	1thl	-10.47	-114.9	-3.0
38	8tln	-10.38	-91.0	-5.4
39	1tlp	-10.35	-134.4	-2.3
46	1lna	-10.23	-89.9	-5.3
138	3tmn	-9.25	-105.5	-2.5

Table S13. Glide 2.5 Rankings for the 1cx2 Site for Cox-2.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	1	-11.68	-51.3	-0.9
2	2	-11.23	-53.6	-0.7
3	24	-11.18	-56.5	-0.7
4	21	-11.16	-54.5	-0.7
5	23	-11.11	-46.8	-1.8
7	22	-10.89	-45.6	0.0
10	20	-10.43	-45.9	0.0
14	19	-10.08	-47.6	0.0
15	14	-10.08	-46.5	-0.7
22	7	-9.70	-49.3	0.0
28	3	-9.45	-48.1	-0.2
29	13	-9.41	-50.5	-0.6
30	10	-9.38	-20.9	-0.4
73	26	-8.22	-13.4	-0.5
74	6	-8.22	-27.9	-0.2
84	30	-8.00	-44.7	0.0
94	33	-7.87	-24.4	-1.6
122	25	-7.65	-25.0	-0.9
255	8	-6.35	-49.5	0.0
371	29	-5.56	-24.1	-0.4
490	28	-4.65	-11.6	-0.2

Table S14. Glide 2.5 Rankings for the 1rt1 Site for HIV Reverse Transcriptase.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
1	11	-11.39	-53.3	-0.9
4	7	-11.23	-47.5	-0.9
5	4	-11.17	-52.0	-0.9
7	20	-11.05	-51.1	-2.8
11	10	-10.71	-45.1	-0.9
14	24	-10.52	-38.9	-0.9
16	22	-10.35	-48.1	-0.9
17	8	-10.31	-47.7	-0.9
21	27	-10.15	-40.7	0.0
23	15	-10.06	-47.1	-1.2
27	6	-9.95	-34.1	0.0
32	32	-9.82	-19.0	-0.8
34	1	-9.78	-36.8	-0.9
37	9	-9.61	-33.0	-0.8
40	23	-9.54	-12.5	0.0
41	26	-9.51	-33.4	-0.9
42	12	-9.48	-44.8	-1.2
47	2	-9.42	-32.9	0.0
65	13	-9.19	-24.1	0.0
71	19	-9.12	-18.9	0.0
84	25	-8.88	-27.1	-0.9
126	5	-8.10	-17.5	0.0
141	14	-7.89	-21.7	0.0
195	16	-7.20	-0.2	0.0
330	18	-6.01	-26.8	0.0
440	3	-5.37	-34.1	-0.1
582	21	-4.63	-27.6	-0.9
592	30	-4.58	-27.9	-0.4
594	31	-4.55	-32.2	-0.1
632	29	-4.41	-35.0	-0.4

Table S15. Glide 2.5 Rankings for the 1vrt Site for HIV Reverse Transcriptase.

Rank	Ligand	GlideScore	CvdW energy	Hbond score
12	30	-10.75	-36.1	0.0
13	4	-10.73	-45.6	-0.9
14	27	-10.71	-38.9	-0.9
15	19	-10.70	-38.7	0.0
20	7	-10.58	-38.3	-0.9
24	6	-10.38	-40.6	0.0
28	1	-10.27	-40.0	-0.9
29	2	-10.24	-45.5	0.0
30	11	-10.24	-42.4	-0.7
36	24	-10.12	-37.2	-0.9
37	10	-10.12	-44.6	-0.9
41	8	-10.08	-41.7	-0.9
45	14	-9.90	-40.8	0.0
47	9	-9.88	-34.0	-1.9
48	2	-9.87	-35.4	-0.9
62	17	-9.70	-21.1	0.0
69	22	-9.55	-46.3	-0.2
70	26	-9.55	-43.6	-0.8
72	21	-9.52	-42.7	0.0
105	28	-9.15	-38.5	0.0
111	18	-9.11	-17.0	0.0
115	12	-9.08	-42.1	-0.9
128	20	-9.01	-40.1	-0.9
130	13	-9.00	-35.9	0.0
164	15	-8.70	-35.1	0.0
238	5	-8.21	-28.8	0.0
253	32	-8.15	-33.4	-0.9
272	3	-8.01	-41.9	-0.5
322	16	-7.77	-34.4	0.0
721	29	-5.16	-35.9	-0.9
790	31	-4.56	-30.8	0.0