A quantitative analysis of kinase inhibitor selectivity

Mazen W Karaman, Sanna Herrgard, Daniel K Treiber, Paul Gallant, Corey E Atteridge, Brian T Campbell, Katrina W Chan, Pietro Ciceri, Mindy I Davis, Philip T Edeen, Raffaella Faraoni, Mark Floyd, Jeremy P Hunt, Daniel J Lockhart, Zdravko V Milanov, Michael J Morrison, Gabriel Pallares, Hitesh K Patel, Stephanie Pritchard, Lisa M Wodicka & Patrick P Zarrinkar

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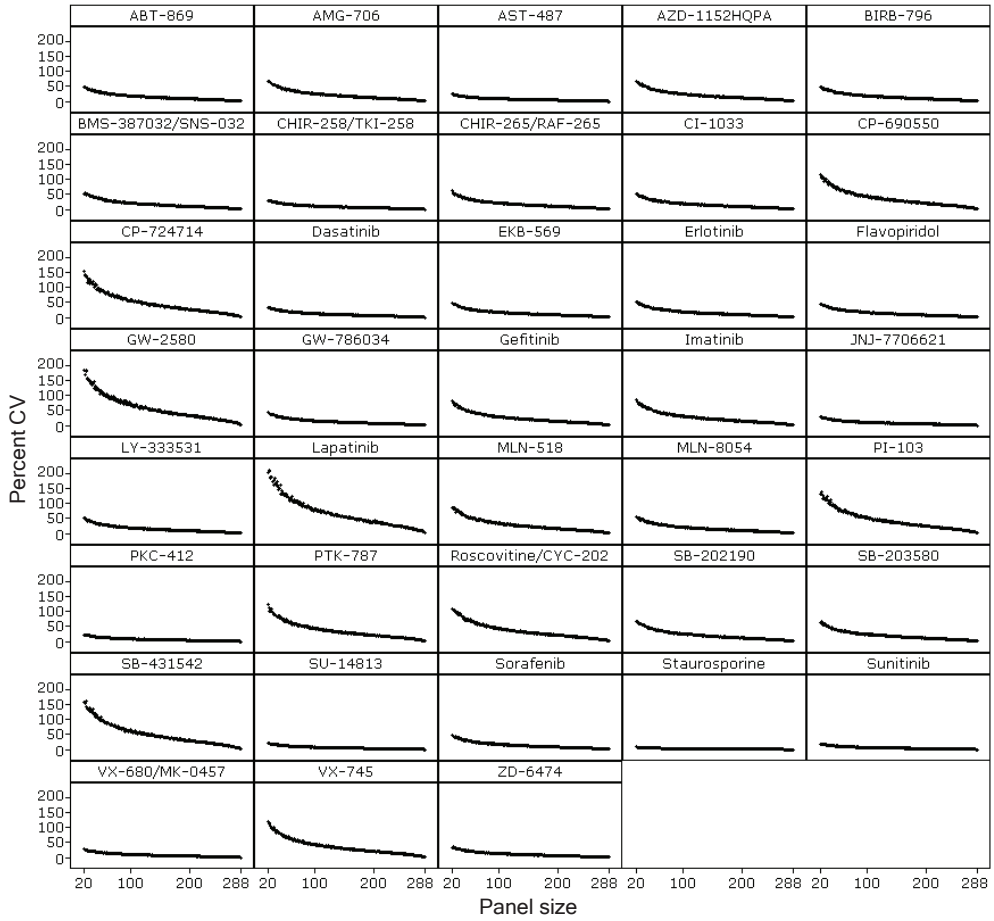
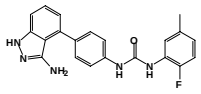
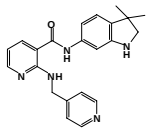
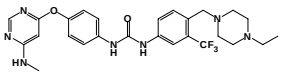
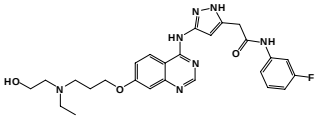
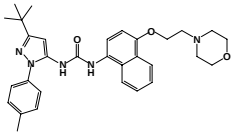
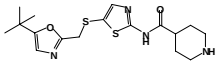
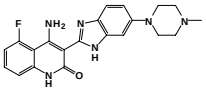
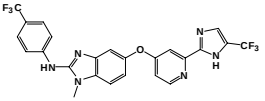
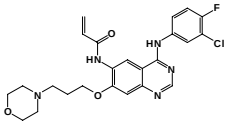
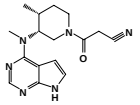
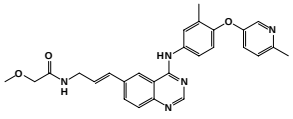
In the version of this file originally posted online, there was a small drawing error in Supplementary Table 1 in each of two chemical structures (lapatinib and staurosporine). The errors have been corrected in this file.

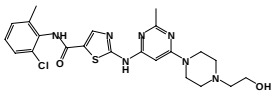
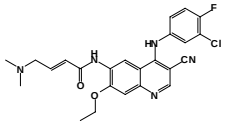
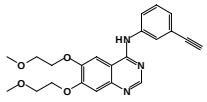
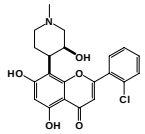
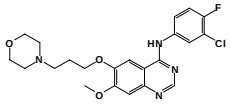
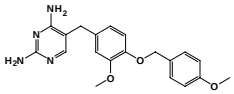
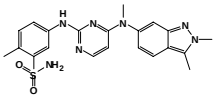
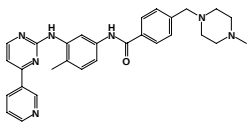
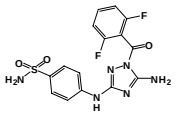
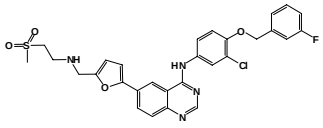
Supplementary Figure 1. Small molecule-kinase interaction maps for high affinity off-targets. Kinases found to bind with affinities within tenfold of that for the primary target are marked with red circles, where larger circles indicate higher affinity relative to the primary target (primary targets are shown in **Supplementary Table 1**; for compounds with multiple primary targets the first listed was used; any additional primary targets listed in **Supplementary Table 1** were not considered off-targets in this analysis and interactions with these are not shown in the figure). Circle size is based on the ratio of off-target and primary target affinities (K_d off-target/K_d primary target). The kinase dendrogram was adapted and is reproduced with permission from Science (www.sciencemag.org) and Cell Signaling Technology, Inc. (www.cellsignal.com).

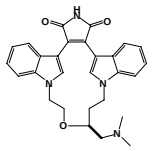
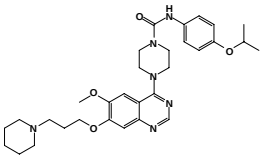
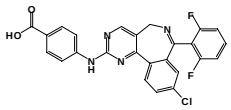
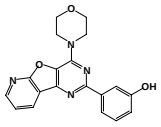
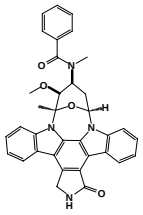
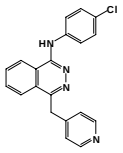
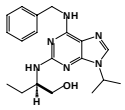
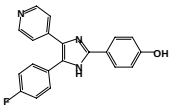
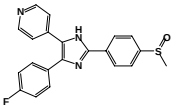
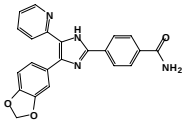


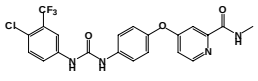
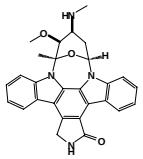
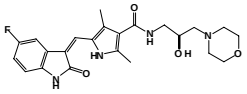
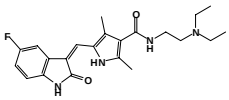
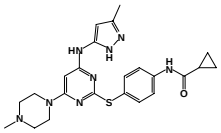
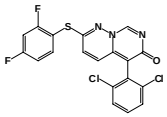
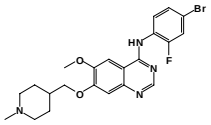
Supplementary Figure 2. The effect of panel size on the variability of apparent selectivity. Coefficients of variation were calculated for the selectivity scores [S(3 μM)] from each set of five hundred randomly chosen individual panels at each panel size. The individual selectivity scores are plotted in **Figure 3**.

Supplementary Table 1. Kinase inhibitors for which specificity profiles were determined[a].

Inhibitor	Primary Targets	Status	Chemical Structure
ABT-869	FLT3, CSF1R, VEGFR2	Phase I	
AMG-706	VEGFR2, FLT1, FLT4, KIT	Phase III	
AST-487	FLT3, KIT	Preclinical	
AZD-1152HQPA	AURKB	Phase I	
BIRB-796	p38-alpha	Phase III/Discontinued	
BMS-387032/SNS-032	CDK2	Phase I	
CHIR-258/TKI-258	FLT3, FGFR3	Phase I	
CHIR-265/RAF-265	BRAF, VEGFR2	Phase I	
CI-1033	EGFR, ERBB2	Phase II/Discontinued	
CP-690550	JAK3	Phase III	
CP-724714	ERBB2	Phase I	

Inhibitor	Primary Targets	Status	Chemical Structure
Dasatinib	ABL1, SRC	Approved for Imatinib-Resistant Chronic Myeloid Leukemia	
EKB-569	EGFR	Phase II	
Erlotinib	EGFR	Approved for Non-Small Cell Lung Cancer, Pancreatic Cancer	
Flavopiridol	CDK2, CDK9, other CDKs	Phase II	
Gefitinib	EGFR	Approved for Non-Small Cell Lung Cancer	
GW-2580	CSF1R	Research	
GW-786034	VEGFR2, FLT1, FLT4	Phase III	
Imatinib	ABL1, KIT, PDGFRB	Approved for Chronic Myeloid Leukemia, Gastrointestinal Stromal Tumors	
JNJ-7706621	CDK2, CDK1, AURKB	Research	
Lapatinib	EGFR, ERBB2	Approved for HER^{+} Breast Cancer	

Inhibitor	Primary Targets	Status	Chemical Structure
LY-333531	PRKCB1	Phase III	
MLN-518	FLT3, KIT	Phase II	
MLN-8054	AURKA	Phase I	
PI-103	PIK3CA	Preclinical	
PKC-412	FLT3, KIT	Phase III	
PTK-787	VEGFR2	Phase III	
Roscovitine/CYC-202	CDK2, CDK1, CDK5	Phase II	
SB-202190	p38-alpha	Research	
SB-203580	p38-alpha	Research	
SB-431542	TGFBR1/ALK5, ACVR1B/ALK4	Research	

Inhibitor	Primary Targets	Status	Chemical Structure
Sorafenib	VEGFR2, BRAF	Approved for Renal Cell Carcinoma	
Staurosporine	PRKCH, Pan-inhibitor	Research	
SU-14813	VEGFR2, FLT1, PDGFRB, KIT, FLT3	Phase II	
Sunitinib	KIT, VEGFR2, FLT3	Approved for Imatinib-Resistant Gastrointestinal Stromal Tumors, Renal Cell Carcinoma	
VX-680/MK-0457	AURKA, AURKB, AURKC	Phase II	
VX-745	p38-alpha	Phase II/Discontinued	
ZD-6474	VEGFR2, EGFR, RET	Phase III	

[a]Sources: Pharmaprojects database, V5 (PJB Publications, www.pjbpubs.com); www.clinicaltrials.gov; www.fda.gov; the table reflects compounds' status as of late August, 2007.

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	ABT-869	AMG-706	AST-487	AZD-1152HQPA	BIRB-796	BMS-387032/SNS-032	CHIR-258/TKI-258	CHIR-265/RAF-265
NP_055726.2	AAK1	AAK1							170	
NP_005148.2	ABL1	ABL1		3900	5.6		3400		870	310
NP_005148.2	ABL1	ABL1(E255K)			35				6200	1100
NP_005148.2	ABL1	ABL1(H396P)			23				910	970
NP_005148.2	ABL1	ABL1(M351T)			6.2		3700		670	210
NP_005148.2	ABL1	ABL1(Q252H)			8.4		6900		2700	580
NP_005148.2	ABL1	ABL1(T315I)	1700		2.3	2800	42		630	1800
NP_005148.2	ABL1	ABL1(Y253F)			5		5700		2000	350
NP_005149.2	ABL2	ABL2			3.4					1900
NP_001096.1	ACVR1	ACVR1								
NP_004293.1	ACVR1B	ACVR1B								
NP_001607.1	ACVR2A	ACVR2A								
NP_001097.2	ACVR2B	ACVR2B								
NP_000011.2	ACVRL1	ACVRL1								
NP_064632.2	CABC1	ADCK3								
NP_079152.3	ADCK4	ADCK4								
NP_005154.2	AKT1	AKT1								
NP_001617.1	AKT2	AKT2								
NP_005456.1	AKT3	AKT3								
NP_004295.2	ALK	ALK	1600		1400				3500	
BAA36547.1	PRKAA1	AMPK-alpha1			1400				520	4500
NP_006243.2	PRKAA2	AMPK-alpha2							820	
NP_848605.1	ANKK1	ANKK1			630	1500	1000		79	
NP_055655.1	NUAK1	ARK5							240	
NP_003591.2	AURKA	AURKA	1600			590		7400		
AAH00442.2	AURKB	AURKB	390			7.2			280	
AAC77369.1	AURKC	AURKC	71	1900	740	4.4			1100	
NP_001690.2	AXL	AXL	340		570	390			3800	
NP_060063.2	BMP2K	BIKE							54	
NP_001706.2	BLK	BLK		2200	30	1500	680		190	
NP_004320.2	BMPR1A	BMPR1A								
NP_001195.2	BMPR2	BMPR2	7800						3100	
NP_001712.1	BMX	BMX								
NP_004324.2	BRAF	BRAF		630	1700		2700			1200
NP_004324.2	BRAF	BRAF(V600E)		280	130					330
NP_115806.1	BRSK1	BRSK1								
NP_003948.2	BRSK2	BRSK2								
NP_000052.1	BTK	BTK								
NP_003647.1	CAMK1	CAMK1			3000					
NP_065130.1	CAMK1D	CAMK1D								
NP_065172.1	CAMK1G	CAMK1G								
NP_741960.1	CAMK2A	CAMK2A								
NP_001211.3	CAMK2B	CAMK2B								
AAD20442.1	CAMK2D	CAMK2D								
NP_751912.1	CAMK2G	CAMK2G								
NP_001735.1	CAMK4	CAMK4			3700					
NP_115670.1	CAMKK1	CAMKK1			220				3100	
NP_006540.3	CAMKK2	CAMKK2			220					
NP_277023.1	CDC2L1	CDC2L1	1300		1400	1200		98		
NP_076916.1	CDC2L2	CDC2L2	1200		1100	1000		48		
NP_055891.1	CDC2L6	CDK11	74		1.5		200	950		5100
NP_001789.2	CDK2	CDK2			760			69		
NP_001249.1	CDK3	CDK3			82			56		
NP_004926.1	CDK5	CDK5			1000		2000	740		
NP_001790.1	CDK7	CDK7	2900		4.5	6200		31	2600	
NP_001251.1	CDK8	CDK8	95		1.4		220	1200		
NP_001252.1	CDK9	CDK9	3000		190			76		
NP_001265.1	CHEK1	CHEK1							1200	
NP_009105.1	CIT	CIT		300	52	5700	2100		8200	87
AAA61480.1	CLK1	CLK1	8900		110			410	6800	
NP_003984.2	CLK2	CLK2			1800			1100	1700	
NP_003983.1	CLK3	CLK3								
NP_065717.1	CLK4	CLK4	1600		290			800	6500	
NP_005202.2	CSF1R	CSF1R	3.4	5.6	5.8	1400	8100		60	250
NP_004374.1	CSK	CSK			2300					
NP_660204.1	CSNK1A1L	CSNK1A1L								
NP_620693.1	CSNK1D	CSNK1D			2500			1800		
NP_001885.1	CSNK1E	CSNK1E			4000			950		
NP_071331.2	CSNK1G1	CSNK1G1								
NP_001310.2	CSNK1G2	CSNK1G2			950					
NP_004375.2	CSNK1G3	CSNK1G3			97					
NP_001886.1	CSNK2A1	CSNK2A1							1400	
NP_001887.1	CSNK2A2	CSNK2A2							1600	
NP_004929.2	DAPK1	DAPK1								
NP_055141.2	DAPK2	DAPK2								
NP_001339.1	DAPK3	DAPK3			3200					
NP_004725.1	DCAMKL1	DCAMKL1						1600		
NP_001035351.1	DCAMKL2	DCAMKL2						1000		
XP_047355.6	DCAMKL3	DCAMKL3						1600	1300	
NP_001945.3	DDR1	DDR1	58	260	0.69	1800	1.9		2500	13
CAA52777.1	DDR2	DDR2	3800		11		33			960
NP_006292.2	MAP3K12	DLK			2500				2100	
NP_004400.4	DMPK	DMPK								
NP_059995.1	CDC42BPG	DMPK2					1200			
NP_004751.2	STK17A	DRAK1						440	830	
NP_004217.1	STK17B	DRAK2							1800	
NP_004705.1	DYRK1B	DYRK1B						200		
NP_005219.2	EGFR	EGFR		15	520	450	7000			
NP_005219.2	EGFR	EGFR(E746-A750del)			1900					
NP_005219.2	EGFR	EGFR(G719C)	6500	2300	220	120	6000			
NP_005219.2	EGFR	EGFR(G719S)		1200	520	170	9100			
NP_005219.2	EGFR	EGFR(L747-E749del, A750P)		1200	220	2900	5300			
NP_005219.2	EGFR	EGFR(L747-S752del, P753S)		4500	550	8800				
NP_005219.2	EGFR	EGFR(L747-T751del,Sins)		2600	530	3500	6800			
NP_005219.2	EGFR	EGFR(L858R)			2600	980				
NP_005219.2	EGFR	EGFR(L861Q)		3900	970	510				
NP_005219.2	EGFR	EGFR(S752-I759del)				5200				
NP_005223.3	EPHA1	EPHA1					9800			
NP_004422.2	EPHA2	EPHA2			160		6200			2900
NP_005224.2	EPHA3	EPHA3	3500		80		880			
NP_004429.1	EPHA4	EPHA4			400		2900			
NP_004430.3	EPHA5	EPHA5			140		1400			
NP_001073917.1	EPHA6	EPHA6	330	490	380		2000			1500
NP_004431.1	EPHA7	EPHA7	110		1100		860			
NP_065387.1	EPHA8	EPHA8			18		270			1100
NP_004432.1	EPHB1	EPHB1			180		4900			
NP_059145.2	EPHB2	EPHB2			130		440			
NP_004434.2	EPHB3	EPHB3	1400							
NP_004435.3	EPHB4	EPHB4	1400							
NP_001005862.1	ERBB2	ERBB2				4300				
NP_001036064.1	ERBB4	ERBB4				470				

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	ABT-869	AMG-706	AST-487	AZD-1152HQPA	BIRB-796	BMS-387032/SNS-032	CHIR-258/TKI-258	CHIR-265/RAF-265
NP_002737.2	MAPK3	ERK1								
NP_620407.1	MAPK1	ERK2								
NP_002739.1	MAPK6	ERK3						500		
NP_002738.2	MAPK4	ERK4						4100		
NP_002740.2	MAPk7	ERK5						650		
NP_620590.2	MAPK15	ERK8	2800		94		3000	120		
NP_005237.2	FER	FER			590					
NP_001996.1	FES	FES			360					
NP_075593.1	FGFR1	FGFR1		6200	620		4300		150	4700
NP_075259.2	FGFR2	FGFR2			1900				410	
NP_000133.1	FGFR3	FGFR3							230	
NP_000133.1	FGFR3	FGFR3(G697C)							370	
NP_075252.2	FGFR4	FGFR4		6800	1400				4300	
NP_005239.1	FGR	FGR		6900	190				190	
NP_002010.1	FLT1	FLT1	7.5	12	86	110	410		69	800
NP_004110.2	FLT3	FLT3	0.63	71	0.79	8.2	2300		0.64	1400
NP_004110.2	FLT3	FLT3(D835H)	2.7	4500	4.9	210		7400	6.1	
NP_004110.2	FLT3	FLT3(D835Y)	11		11	670		3000	5.2	
NP_004110.2	FLT3	FLT3(ITD)	8.8	1000	11	140			3.6	
NP_004110.2	FLT3	FLT3(N841I)	2.6	1100	2.3	43	5000		4.8	
CAA49505.1	FLT4	FLT4	16	9.7	120		7100		580	2000
NP_002022.1	FRK	FRK	400	99	26		1200		2300	590
NP_694592.1	FYN	FYN		2800	50				440	2100
NP_005246.1	GAK	GAK			1300			1800	490	
NP_001013725.2	EIF2AK4	GCN2(Kin.Dom.2,S808G)		4400					250	55
NP_063937.2	GSK3A	GSK3A						28		
NP_002084.2	GSK3B	GSK3B						37	350	
NP_002101.2	HCK	HCK			880	3900			3300	1200
NP_000866.1	IGF1R	IGF1R								
NP_054721.1	IKBKE	IKK-epsilon							480	
NP_000199.2	INSR	INSR								
NP_055030.1	INSRR	INSRR	3900		1400					
NP_009130.1	IRAK3	IRAK3						2900		
NP_005537.3	ITK	ITK			990				530	
NP_002218.2	JAK1	JAK1(Kin.Dom.1/JH2 - pseudokinase)							380	
NP_004963.1	JAK2	JAK2(Kin.Dom.2/JH1 - catalytic)			910				7000	
NP_000206.2	JAK3	JAK3(Kin.Dom.2/JH1 - catalytic)			260				8700	
NP_002741.1	MAPK8	JNK1			460					
NP_620707.1	MAPK9	JNK2	240		56		7.3			
NP_002744.1	MAPK10	JNK3			760		110			
NP_000213.1	KIT	KIT	2	3.7	5.4	17	170		7.5	200
NP_000213.1	KIT	KIT(D816V)	81	410	360	4600			1400	6200
NP_000213.1	KIT	KIT(V559D)	1.7	3.2	5	15	230		7.2	170
NP_000213.1	KIT	KIT(V559D,T670I)	3.8	13	18	7.9	260		26	240
NP_000213.1	KIT	KIT(V559D,V654A)	21	23	100	480	2400		3.1	850
NP_004681.1	LATS1	LATS1			470				1700	
NP_055387.1	LATS2	LATS2	1700		3000				530	
NP_005347.3	LCK	LCK		360	11	380	1200		250	640
NP_002305.1	LIMK1	LIMK1								
NP_005560.1	LIMK2	LIMK2	4700							
NP_000446.1	STK11	LKB1							3700	
BAA35073.1	STK10	LOK	460	1100	0.92	2800	12		550	60
NP_996844.1	LTK	LTK	550		160	3200	1400			
NP_002341.1	LYN	LYN		160	14	1600	2700		750	370
NP_005913.2	MAP3K4	MAP3K4							5500	
NP_005914.1	MAP3K5	MAP3K5								
NP_001036065.1	MAP4K1	MAP4K1	830		210				44	
NP_003609.2	MAP4K3	MAP4K3	3200		190				560	
NP_663719.1	MAP4K4	MAP4K4			15		90		160	1300
NP_006566.2	MAP4K5	MAP4K5	910		350	160			620	830
NP_116584.2	MAPKAPK2	MAPKAPK2								
NP_003659.2	MAPKAPK5	MAPKAPK5								
CAH72463.1	MARK1	MARK1							2300	
NP_059672.2	MARK2	MARK2							1500	
NP_002367.4	MARK3	MARK3							3400	
NP_113605.2	MARK4	MARK4							1700	
NP_002746.1	MAP2K1	MEK1							520	
NP_109587.1	MAP2K2	MEK2				5700			350	
NP_002747.2	MAP2K3	MEK3								
NP_003001.1	MAP2K4	MEK4								
NP_002749.2	MAP2K6	MEK6								
NP_055606.1	MELK	MELK			830			5600	1600	
AAB60430.1	MERTK	MERTK	870		370		3700		1800	
NP_000236.2	MET	MET	1300		4400					
CAI14764.1	MKNK1	MKNK1	4900		26			3800		
AAF17226.1	MKNK2	MKNK2	270		3		1600			
NP_872299.1	MLCK	MLCK						1700	2	
NP_149132.2	MAP3K9	MLK1							9900	
NP_002437.2	MAP3K10	MLK2								
NP_002410.1	MAP3K11	MLK3							2200	
NP_003598.2	CDC42BPA	MRCKA					9400			
NP_006026.3	CDC42BPB	MRCKB					910			
NP_006273.1	STK4	MST1	1400						200	
NP_006272.2	STK3	MST2	1500		860				480	
NP_003567.2	STK24	MST3							430	
NP_057626.2	RP6-213H19.1	MST4							540	
NP_005583.1	MUSK	MUSK	10		3.1	1500	1900		830	
NP_444254.3	MYLK	MYLK							3500	
NP_149109.1	MYLK2	MYLK2			330			980	92	
NP_059129.2	MYO3A	MYO3A			41					
NP_620482.1	MYO3B	MYO3B			84					
NP_055815.1	STK38L	NDR2								
NP_036356.1	NEK1	NEK1								
NP_002488.1	NEK2	NEK2							2000	
NP_954983.1	NEK5	NEK5			1100				2300	3200
NP_055212.2	NEK6	NEK6							1500	
NP_598001.1	NEK7	NEK7							5600	
NP_149107.3	NEK9	NEK9							9100	
NP_057315.2	NLK	NLK			160		1000			
NP_620581.1	MAPK14	p38-alpha			73		0.37			
NP_002742.3	MAPK11	p38-beta			430		1500			
AAB40118.1	MAPK12	p38-gamma			29		19			
NP_002567.3^	PAK1	PAK1								
NP_002568.2	PAK2	PAK2								
NP_002569.1	PAK3	PAK3						3500	770	
NP_001014833.1	PAK4	PAK4								
NP_064553.1	PAK6	PAK6								
NP_065074.1	PAK7	PAK7/PAK5								
NP_006192.1^	PCTK1	PCTK1			420	6300		7.1	430	
CAA47004.1	PCTK2	PCTK2			15			13	3000	
NP_002587.2	PCTK3	PCTK3			54			44		

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	ABT-869	AMG-706	AST-487	AZD-1152HQPA	BIRB-796	BMS-387032/SNS-032	CHIR-258/TKI-258	CHIR-265/RAF-265
NP_006197.1	PDGFRA	PDGFRA	4.2	10	27	38	1200		54	1100
NP_002600.1	PDGFRB	PDGFRB	1.9	9.1	8.1	41	1100		3.8	240
NP_002604.1	PDPK1	PDPK1								
NP_036527.1	PFTK1	PFTK1			17			690		
NP_006204.1	PHKG1	PHKG1						3800	640	
NP_000285.1	PHKG2	PHKG2							9000	
NP_006209.2	PIK3CA	PIK3CA								
NP_006209.2	PIK3CA	PIK3CA(E545K)								
NP_002639.1	PIM1	PIM1								
NP_006866.2	PIM2	PIM2								
NP_001001852.1	PIM3	PIM3								
AAC50911.1	PIP5K1A	PIP5K1A							1900	
NP_003550.1	PIP5K2B	PIP5K2B							260	
NP_002721.1	PRKACA	PKAC-alpha	6900		3700					
NP_002722.1	PRKACB	PKAC-beta			260					
NP_872629.1	PKMYT1	PKMYT1								
NP_998725.1	PKN1	PKN1							180	
NP_006247.1	PKN2	PKN2							9900	
NP_005021.2	PLK1	PLK1								
NP_004064.2	PLK3	PLK3	8500							
BAB69958.1	PLK4	PLK4				4700				
NP_006245.2	PRKCD	PRKCD								
NP_005391.1	PRKCE	PRKCE								
NP_006246.2	PRKCH	PRKCH								
NP_006248.1	PRKCQ	PRKCQ			2200				3200	
NP_002733.2	PRKD1	PRKD1			1200			1200		
NP_057541.2	PRKD2	PRKD2			950			3900		
NP_005804.1	PRKD3	PRKD3			1500			750		
NP_006249.1	PRKG1	PRKG1								
NP_006250.1	PRKG2	PRKG2								
NP_002750.1	EIF2AK2	PRKR			1100				2800	950
NP_005035.1	PRKX	PRKX								
NP_722560.1	PTK2	PTK2					7100			
NP_775267.1	PTK2B	PTK2B			520		990			
NP_005966.1	PTK6	PTK6		1000						3600
NP_002871.1	RAF1	RAF1		880	930					390
NP_065681.1	RET	RET	100	14	17	80	500		71	150
NP_065681.1	RET	RET(M918T)	120	20	4.5	120	240		47	72
NP_113668.2	RIOK1	RIOK1							420	
NP_003822.2	RIOK3	RIOK3							690	
NP_003795.2	RIPK1	RIPK1	2800		210				320	
NP_003812.1	RIPK2	RIPK2			1100	1800				950
NP_002935.2	ROS1	ROS1			1700					
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.1 - N-terminal)							450	
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.2 - C-terminal)								
NP_066958.2	RPS6KA2	RPS6KA2(Kin.Dom.1 - N-terminal)							310	
NP_001006933.1	RPS6KA2	RPS6KA2(Kin.Dom.2 - C-terminal)			1100					
NP_004577.1	RPS6KA3	RPS6KA3(Kin.Dom.1 - N-terminal)							5600	
NP_001006945.1	RPS6KA4	RPS6KA4(Kin.Dom.1 - N-terminal)	7200		1900				590	
NP_003933.1	RPS6KA4	RPS6KA4(Kin.Dom.2 - C-terminal)								
NP_872198.1	RPS6KA5	RPS6KA5(Kin.Dom.1 - N-terminal)	1200		730				680	
NP_004746.2	RPS6KA5	RPS6KA5(Kin.Dom.2 - C-terminal)								
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.1 - N-terminal)							4600	
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.2 - C-terminal)			3400					
NP_001012418.1	RP11-145H9.1	SgK085							80	
NP_055535.2	SLK	SLK	450	1300	23		150		300	510
NP_112214.1	NUAK2	SNARK						1700	130	
NP_775490.2	SNF1LK	SNF1LK			1700					
NP_056006.1	SNF1LK2	SNF1LK2							3700	
NP_005408.1	SRC	SRC			340				1800	1100
NP_543013.1	SRMS	SRMS			72	7900				
NP_003128.3	SRPK1	SRPK1							420	
AAC05299.1	SRPK2	SRPK2							290	
CAA06700.1	STK16	STK16								
NP_112168.1	STK33	STK33	3800		1200					
NP_056505.1	STK36	STK36			1300	4600		260		
NP_003168.2	SYK	SYK			600					
NP_003206.1	TEC	TEC								
NP_006276.2	TESK1	TESK1			2400					
NP_004603.1	TGFBR1	TGFBR1								
NP_003233.4	TGFBR2	TGFBR2			260			2400		
NP_005415.1	TIE1	TIE1	110		0.29	350	8.3		4000	150
NP_000450.2	TEK	TIE2	450		19	1900	20			1300
NP_036422.3	TLK1	TLK1								
AAF03095.1	TLK2	TLK2							2600	
NP_055843.1	TNIK	TNIK			69		140		24	1500
AAH35782.1	TNK1	TNK1			60					
NP_001010938.1	TNK2	TNK2								
NP_057062.1	TNNI3K	TNNI3K		220	170					5900
NP_001012331.1	NTRK1	TRKA	3100		320		1000		100	
NP_006171.2	NTRK2	TRKB	1100		190		570		720	
AAA75374.1	NTRK3	TRKC	210		34		190		190	
NP_114417.1	TSSK1	TSSK1								
NP_003309.2	TTK	TTK			230	8500	3300			
NP_003319.1	TXK	TXK								
CAA38449.1	TYK2	TYK2(Kin.Dom.2/JH1 - catalytic)			2100					
NP_006284.2	TYRO3	TYRO3							9300	
NP_002244.1	KDR	VEGFR2	8.1	26	200	500	3900		68	1300
NP_003381.1	WEE1	WEE1							1200	
NP_060871.1	STK32B	YANK2	270							
NP_775846.2	STK32C	YANK3								
NP_005424.1	YES1	YES			260	3800	4900		580	940
NP_006365.2	STK25	YSK1			1200				1200	
NP_598407.1	ZAK	ZAK		8	2.3	1700	860			63
NP_997402.1	ZAP70	ZAP70								

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	CI-1033	CP-690550	CP-724714	Dasatinib	EKB-569	Erlotinib	Flavopiridol	Gefitinib
NP_055726.2	AAK1	AAK1					3500	1200	5300	
NP_005148.2	ABL1	ABL1	1400			0.53	560	310		
NP_005148.2	ABL1	ABL1(E255K)	1000			2.1	1600	640		
NP_005148.2	ABL1	ABL1(H396P)	500			1.2	430	230		
NP_005148.2	ABL1	ABL1(M351T)	640			0.72	180	250		
NP_005148.2	ABL1	ABL1(Q252H)	200			1.1	230	190		
NP_005148.2	ABL1	ABL1(T315I)	550			590	860	190		
NP_005148.2	ABL1	ABL1(Y253F)	730			0.96	190	160		
NP_005149.2	ABL2	ABL2	870			0.17	370	200		
NP_001096.1	ACVR1	ACVR1	1700			620			1900	
NP_004293.1	ACVR1B	ACVR1B				330				
NP_001607.1	ACVR2A	ACVR2A				210				
NP_001097.2	ACVR2B	ACVR2B				570			2400	
NP_000011.2	ACVRL1	ACVRL1				460				
NP_064632.2	CABC1	ADCK3	1500			190		1900		
NP_079152.3	ADCK4	ADCK4	3400				6100	2500		
NP_005154.2	AKT1	AKT1								
NP_001617.1	AKT2	AKT2								
NP_005456.1	AKT3	AKT3								
NP_004295.2	ALK	ALK					7100	1200	670	
BAA36547.1	PRKAA1	AMPK-alpha1								
NP_006243.2	PRKAA2	AMPK-alpha2								
NP_848605.1	ANKK1	ANKK1								
NP_055655.1	NUAK1	ARK5								
NP_003591.2	AURKA	AURKA						2200		
AAH00442.2	AURKB	AURKB	4200					1400		
AAC77369.1	AURKC	AURKC	2800					600		
NP_001690.2	AXL	AXL	5700				920		3500	
NP_060063.2	BMP2K	BIKE	3800				2200	1200		
NP_001706.2	BLK	BLK	45			0.21	78	190		1200
NP_004320.2	BMPR1A	BMPR1A								
NP_001195.2	BMPR2	BMPR2								
NP_001712.1	BMX	BMX	2600			1.4	7400			
NP_004324.2	BRAF	BRAF				500				
NP_004324.2	BRAF	BRAF(V600E)				570				
NP_115806.1	BRSK1	BRSK1								
NP_003948.2	BRSK2	BRSK2								
NP_000052.1	BTK	BTK	1600			1.4	4900			
NP_003647.1	CAMK1	CAMK1		5000						
NP_065130.1	CAMK1D	CAMK1D					5900			
NP_065172.1	CAMK1G	CAMK1G								
NP_741960.1	CAMK2A	CAMK2A							1700	
NP_001211.3	CAMK2B	CAMK2B								
AAD20442.1	CAMK2D	CAMK2D								
NP_751912.1	CAMK2G	CAMK2G								
NP_001735.1	CAMK4	CAMK4							3200	
NP_115670.1	CAMKK1	CAMKK1					5100		79	
NP_006540.3	CAMKK2	CAMKK2					2500		430	
NP_277023.1	CDC2L1	CDC2L1								
NP_076916.1	CDC2L2	CDC2L2								
NP_055891.1	CDC2L6	CDK11			1100				57	
NP_001789.2	CDK2	CDK2							550	
NP_001249.1	CDK3	CDK3							410	
NP_004926.1	CDK5	CDK5							110	
NP_001790.1	CDK7	CDK7							23	
NP_001251.1	CDK8	CDK8			2300				120	
NP_001252.1	CDK9	CDK9							6.4	
NP_001265.1	CHEK1	CHEK1					1900			
NP_009105.1	CIT	CIT	1300				310	680	110	1300
AAA61480.1	CLK1	CLK1					3300		1700	
NP_003984.2	CLK2	CLK2					1800		2200	
NP_003983.1	CLK3	CLK3					5600		1600	
NP_065717.1	CLK4	CLK4					3900			
NP_005202.2	CSF1R	CSF1R				0.58	4300		2800	
NP_004374.1	CSK	CSK	6100			1	3400			
NP_660204.1	CSNK1A1L	CSNK1A1L					1000			
NP_620693.1	CSNK1D	CSNK1D					1100	3500		
NP_001885.1	CSNK1E	CSNK1E				1500	100			430
NP_071331.2	CSNK1G1	CSNK1G1								
NP_001310.2	CSNK1G2	CSNK1G2								
NP_004375.2	CSNK1G3	CSNK1G3								
NP_001886.1	CSNK2A1	CSNK2A1								
NP_001887.1	CSNK2A2	CSNK2A2								
NP_004929.2	DAPK1	DAPK1								
NP_055141.2	DAPK2	DAPK2								
NP_001339.1	DAPK3	DAPK3								5700
NP_004725.1	DCAMKL1	DCAMKL1							2100	
NP_001035351.1	DCAMKL2	DCAMKL2								
XP_047355.6	DCAMKL3	DCAMKL3		4.5			4900		1100	
NP_001945.3	DDR1	DDR1	400			0.69		790		
CAA52777.1	DDR2	DDR2				3.2				
NP_006292.2	MAP3K12	DLK					2600			
NP_004400.4	DMPK	DMPK				1300	59	2900	650	6900
NP_059995.1	CDC42BPG	DMPK2				1200		3400		
NP_004751.2	STK17A	DRAK1					200			2000
NP_004217.1	STK17B	DRAK2					4200		1900	3800
NP_004705.1	DYRK1B	DYRK1B					4000		84	
NP_005219.2	EGFR	EGFR	0.19		42	120	0.44	0.67		1
NP_005219.2	EGFR	EGFR(E746-A750del)	0.26		2000	130	0.38	0.48		0.54
NP_005219.2	EGFR	EGFR(G719C)	0.13		10	170	0.24	0.85		2
NP_005219.2	EGFR	EGFR(G719S)	0.19		17	79	0.42	0.52		1.1
NP_005219.2	EGFR	EGFR(L747-E749del, A750P)	0.17		720	110	0.24	0.52	2300	0.57
NP_005219.2	EGFR	EGFR(L747-S752del, P753S)	0.26		1800	320	0.27	0.47		0.57
NP_005219.2	EGFR	EGFR(L747-T751del,Sins)	0.26		560	160	0.23	0.35		0.52
NP_005219.2	EGFR	EGFR(L858R)	0.24		110	120	0.41	0.97		0.94
NP_005219.2	EGFR	EGFR(L861Q)	0.22		36	110	0.44	1.2		1.4
NP_005219.2	EGFR	EGFR(S752-I759del)	0.19		1000	330	0.33	1.6	1400	0.98
NP_005223.3	EPHA1	EPHA1	2500			4.1				4000
NP_004422.2	EPHA2	EPHA2				0.85			2500	
NP_005224.2	EPHA3	EPHA3	2100			0.093	4000	2400	3300	
NP_004429.1	EPHA4	EPHA4	3600			1.2				
NP_004430.3	EPHA5	EPHA5	1200			0.24				
NP_001073917.1	EPHA6	EPHA6	270					440		590
NP_004431.1	EPHA7	EPHA7						1400		
NP_065387.1	EPHA8	EPHA8	2000			0.24	3300	940		1800
NP_004432.1	EPHB1	EPHB1				0.45				
NP_059145.2	EPHB2	EPHB2	2700			0.39				
NP_004434.2	EPHB3	EPHB3				6.9				
NP_004435.3	EPHB4	EPHB4	1800			0.34	2800			
NP_001005862.1	ERBB2	ERBB2	87		43	1400	500			3500
NP_001036064.1	ERBB4	ERBB4	29		260	55	21	230		410

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	CI-1033	CP-690550	CP-724714	Dasatinib	EKB-569	Erlotinib	Flavopiridol	Gefitinib
NP_002737.2	MAPK3	ERK1								
NP_620407.1	MAPK1	ERK2								
NP_002739.1	MAPK6	ERK3	1700							1600
NP_002738.2	MAPK4	ERK4						2500		3100
NP_002740.2	MAPk7	ERK5							620	
NP_620590.2	MAPK15	ERK8							330	
NP_005237.2	FER	FER					8800			
NP_001996.1	FES	FES					5700			
NP_075593.1	FGFR1	FGFR1				3700				
NP_075259.2	FGFR2	FGFR2				1400				
NP_000133.1	FGFR3	FGFR3								
NP_000133.1	FGFR3	FGFR3(G697C)								
NP_075252.2	FGFR4	FGFR4								
NP_005239.1	FGR	FGR	2800			0.5	950	1100		
NP_002010.1	FLT1	FLT1				5000		4400		
NP_004110.2	FLT3	FLT3	2700							
NP_004110.2	FLT3	FLT3(D835H)	1200			8100	3300	350	5000	1100
NP_004110.2	FLT3	FLT3(D835Y)	730				2800	130	3200	1000
NP_004110.2	FLT3	FLT3(ITD)	3000					820	4600	
NP_004110.2	FLT3	FLT3(N841I)	2400				2000	500	6500	3000
CAA49505.1	FLT4	FLT4						2100		
NP_002022.1	FRK	FRK	3400			0.31	680	2000		2000
NP_694592.1	FYN	FYN				0.79	2400			
NP_005246.1	GAK	GAK	100			2.6	6.4	3.1	370	13
NP_001013725.2	EIF2AK4	GCN2(Kin.Dom.2,S808G)				1600	290	4400		
NP_063937.2	GSK3A	GSK3A							1300	
NP_002084.2	GSK3B	GSK3B							730	
NP_002101.2	HCK	HCK	4200			0.35	2300	1800		4400
NP_000866.1	IGF1R	IGF1R								
NP_054721.1	IKBKE	IKK-epsilon							3100	
NP_000199.2	INSR	INSR								
NP_055030.1	INSRR	INSRR								
NP_009130.1	IRAK3	IRAK3	3000							1500
NP_005537.3	ITK	ITK	5600				2500			
NP_002218.2	JAK1	JAK1(Kin.Dom.1/JH2 - pseudokinase)								
NP_004963.1	JAK2	JAK2(Kin.Dom.2/JH1 - catalytic)		5		1000				
NP_000206.2	JAK3	JAK3(Kin.Dom.2/JH1 - catalytic)	630	2.2			25	930		
NP_002741.1	MAPK8	JNK1								
NP_620707.1	MAPK9	JNK2								
NP_002744.1	MAPK10	JNK3	5500						5500	3200
NP_000213.1	KIT	KIT	7800			0.62				
NP_000213.1	KIT	KIT(D816V)	3900			2.6		1600	4600	4300
NP_000213.1	KIT	KIT(V559D)	7900			0.68		3100		
NP_000213.1	KIT	KIT(V559D,T670I)						1300		
NP_000213.1	KIT	KIT(V559D,V654A)				2.7				
NP_004681.1	LATS1	LATS1								
NP_055387.1	LATS2	LATS2								
NP_005347.3	LCK	LCK	320	1800		0.2	99	250		630
NP_002305.1	LIMK1	LIMK1				570				
NP_005560.1	LIMK2	LIMK2				86				
NP_000446.1	STK11	LKB1								
BAA35073.1	STK10	LOK	1900			1200	330	19		470
NP_996844.1	LTK	LTK						890	2200	
NP_002341.1	LYN	LYN	810			0.57	720	530		990
NP_005913.2	MAP3K4	MAP3K4	8400			310	280			
NP_005914.1	MAP3K5	MAP3K5								
NP_001036065.1	MAP4K1	MAP4K1				980	270		3300	
NP_003609.2	MAP4K3	MAP4K3				640	170		4500	
NP_663719.1	MAP4K4	MAP4K4				3100	330			
NP_006566.2	MAP4K5	MAP4K5	2600			45	10			
NP_116584.2	MAPKAPK2	MAPKAPK2								
NP_003659.2	MAPKAPK5	MAPKAPK5								
CAH72463.1	MARK1	MARK1					4000			
NP_059672.2	MARK2	MARK2								
NP_002367.4	MARK3	MARK3								
NP_113605.2	MARK4	MARK4								
NP_002746.1	MAP2K1	MEK1	1800			1000	360			
NP_109587.1	MAP2K2	MEK2	1600			1400	810			
NP_002747.2	MAP2K3	MEK3								
NP_003001.1	MAP2K4	MEK4								
NP_002749.2	MAP2K6	MEK6								
NP_055606.1	MELK	MELK								
AAB60430.1	MERTK	MERTK					1300		6800	
NP_000236.2	MET	MET	5600				6200	3800		
CAI14764.1	MKNK1	MKNK1	260					690		290
AAF17226.1	MKNK2	MKNK2	1800		840				3200	1200
NP_872299.1	MLCK	MLCK								
NP_149132.2	MAP3K9	MLK1							5700	
NP_002437.2	MAP3K10	MLK2							5200	
NP_002410.1	MAP3K11	MLK3								
NP_003598.2	CDC42BPA	MRCKA				2000			9500	
NP_006026.3	CDC42BPB	MRCKB				2100			3300	
NP_006273.1	STK4	MST1					3600			
NP_006272.2	STK3	MST2		4300			2400		9400	
NP_003567.2	STK24	MST3					2100			
NP_057626.2	RP6-213H19.1	MST4				1900				
NP_005583.1	MUSK	MUSK								
NP_444254.3	MYLK	MYLK								
NP_149109.1	MYLK2	MYLK2					3900	970		1900
NP_059129.2	MYO3A	MYO3A								
NP_620482.1	MYO3B	MYO3B								
NP_055815.1	STK38L	NDR2								
NP_036356.1	NEK1	NEK1					3900			
NP_002488.1	NEK2	NEK2					680			
NP_954983.1	NEK5	NEK5								
NP_055212.2	NEK6	NEK6								
NP_598001.1	NEK7	NEK7								
NP_149107.3	NEK9	NEK9								
NP_057315.2	NLK	NLK				260				
NP_620581.1	MAPK14	p38-alpha				27				
NP_002742.3	MAPK11	p38-beta				410				
AAB40118.1	MAPK12	p38-gamma								
NP_002567.3^	PAK1	PAK1					3400			
NP_002568.2	PAK2	PAK2								
NP_002569.1	PAK3	PAK3								
NP_001014833.1	PAK4	PAK4								
NP_064553.1	PAK6	PAK6								
NP_065074.1	PAK7	PAK7/PAK5								
NP_006192.1^	PCTK1	PCTK1							440	
CAA47004.1	PCTK2	PCTK2							480	
NP_002587.2	PCTK3	PCTK3							1100	

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	CI-1033	CP-690550	CP-724714	Dasatinib	EKB-569	Erlotinib	Flavopiridol	Gefitinib
NP_006197.1	PDGFRA	PDGFRA	5200			0.47		1800		
NP_002600.1	PDGFRB	PDGFRB	7500			0.63		1400		
NP_002604.1	PDPK1	PDPK1								
NP_036527.1	PFTK1	PFTK1							110	
NP_006204.1	PHKG1	PHKG1					3500		2200	3700
NP_000285.1	PHKG2	PHKG2							2900	
NP_006209.2	PIK3CA	PIK3CA								
NP_006209.2	PIK3CA	PIK3CA(E545K)								
NP_002639.1	PIM1	PIM1							560	
NP_006866.2	PIM2	PIM2							770	
NP_001001852.1	PIM3	PIM3							600	5800
AAC50911.1	PIP5K1A	PIP5K1A								
NP_003550.1	PIP5K2B	PIP5K2B					2600			
NP_002721.1	PRKACA	PKAC-alpha								
NP_002722.1	PRKACB	PKAC-beta								
NP_872629.1	PKMYT1	PKMYT1				130	2900			
NP_998725.1	PKN1	PKN1		200					3500	
NP_006247.1	PKN2	PKN2								
NP_005021.2	PLK1	PLK1								
NP_004064.2	PLK3	PLK3								
BAB69958.1	PLK4	PLK4								
NP_006245.2	PRKCD	PRKCD					4600		590	
NP_005391.1	PRKCE	PRKCE							380	
NP_006246.2	PRKCH	PRKCH							350	
NP_006248.1	PRKCQ	PRKCQ							350	
NP_002733.2	PRKD1	PRKD1							520	
NP_057541.2	PRKD2	PRKD2							1100	
NP_005804.1	PRKD3	PRKD3							170	
NP_006249.1	PRKG1	PRKG1								
NP_006250.1	PRKG2	PRKG2								
NP_002750.1	EIF2AK2	PRKR					1900	1300	5200	
NP_005035.1	PRKX	PRKX								
NP_722560.1	PTK2	PTK2								
NP_775267.1	PTK2B	PTK2B								
NP_005966.1	PTK6	PTK6	3800			7.8				
NP_002871.1	RAF1	RAF1				570				
NP_065681.1	RET	RET	4200			730		1300		
NP_065681.1	RET	RET(M918T)	840			390		330		
NP_113668.2	RIOK1	RIOK1								
NP_003822.2	RIOK3	RIOK3								
NP_003795.2	RIPK1	RIPK1								
NP_003812.1	RIPK2	RIPK2	300			31		680		530
NP_002935.2	ROS1	ROS1								
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.1 - N-terminal)							2300	
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.2 - C-terminal)	6200						720	
NP_066958.2	RPS6KA2	RPS6KA2(Kin.Dom.1 - N-terminal)								
NP_001006933.1	RPS6KA2	RPS6KA2(Kin.Dom.2 - C-terminal)		1400			8700		1500	
NP_004577.1	RPS6KA3	RPS6KA3(Kin.Dom.1 - N-terminal)								
NP_001006945.1	RPS6KA4	RPS6KA4(Kin.Dom.1 - N-terminal)							1300	
NP_003933.1	RPS6KA4	RPS6KA4(Kin.Dom.2 - C-terminal)						7000		
NP_872198.1	RPS6KA5	RPS6KA5(Kin.Dom.1 - N-terminal)								
NP_004746.2	RPS6KA5	RPS6KA5(Kin.Dom.2 - C-terminal)								
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.1 - N-terminal)								
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.2 - C-terminal)		1200					800	
NP_001012418.1	RP11-145H9.1	SgK085								
NP_055535.2	SLK	SLK	1800			720	360	26		920
NP_112214.1	NUAK2	SNARK		420			2700		1400	
NP_775490.2	SNF1LK	SNF1LK				3.9				
NP_056006.1	SNF1LK2	SNF1LK2	4900			6.4	4500			2100
NP_005408.1	SRC	SRC	1100			0.21	280	700		3800
NP_543013.1	SRMS	SRMS	6700			13			1400	
NP_003128.3	SRPK1	SRPK1								
AAC05299.1	SRPK2	SRPK2								
CAA06700.1	STK16	STK16								
NP_112168.1	STK33	STK33					4500		1700	
NP_056505.1	STK36	STK36	4500			210	4000			
NP_003168.2	SYK	SYK				2900	7200			
NP_003206.1	TEC	TEC	1500			13				
NP_006276.2	TESK1	TESK1	3200			33				
NP_004603.1	TGFBR1	TGFBR1	9600			230				
NP_003233.4	TGFBR2	TGFBR2	800			2900			5600	
NP_005415.1	TIE1	TIE1	2200				1000	850		
NP_000450.2	TEK	TIE2								
NP_036422.3	TLK1	TLK1								
AAF03095.1	TLK2	TLK2								
NP_055843.1	TNIK	TNIK				2000	170			
AAH35782.1	TNK1	TNK1		640				630		
NP_001010938.1	TNK2	TNK2				5.6	5200			
NP_057062.1	TNNI3K	TNNI3K	5600			11	7200	570	55	
NP_001012331.1	NTRK1	TRKA								
NP_006171.2	NTRK2	TRKB								
AAA75374.1	NTRK3	TRKC								
NP_114417.1	TSSK1	TSSK1								
NP_003309.2	TTK	TTK								
NP_003319.1	TXK	TXK	700			2.1	5500			6000
CAA38449.1	TYK2	TYK2(Kin.Dom.2/JH1 - catalytic)		620						
NP_006284.2	TYRO3	TYRO3	1000				3700	3900		
NP_002244.1	KDR	VEGFR2								
NP_003381.1	WEE1	WEE1				7000	770			
NP_060871.1	STK32B	YANK2					6000			
NP_775846.2	STK32C	YANK3								
NP_005424.1	YES1	YES	1600			0.3	1100	2200		
NP_006365.2	STK25	YSK1					3400			
NP_598407.1	ZAK	ZAK	1200			45	1200			
NP_997402.1	ZAP70	ZAP70								

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	GW-2580	GW-786034	Imatinib	JNJ-7706621	Lapatinib	LY-333531	MLN-518	MLN-8054
NP_055726.2	AAK1	AAK1		2900		200		900		
NP_005148.2	ABL1	ABL1		1700	12	1200				820
NP_005148.2	ABL1	ABL1(E255K)			77	2200				3600
NP_005148.2	ABL1	ABL1(H396P)			35	1600				820
NP_005148.2	ABL1	ABL1(M351T)			8.5	820				610
NP_005148.2	ABL1	ABL1(Q252H)			21	1200				640
NP_005148.2	ABL1	ABL1(T315I)		3400		68				450
NP_005148.2	ABL1	ABL1(Y253F)			44	1200				630
NP_005149.2	ABL2	ABL2		3000	10					3300
NP_001096.1	ACVR1	ACVR1				5900			2500	
NP_004293.1	ACVR1B	ACVR1B								
NP_001607.1	ACVR2A	ACVR2A				2900				
NP_001097.2	ACVR2B	ACVR2B		2400		5900				
NP_000011.2	ACVRL1	ACVRL1				2900				
NP_064632.2	CABC1	ADCK3				1200				
NP_079152.3	ADCK4	ADCK4								
NP_005154.2	AKT1	AKT1								
NP_001617.1	AKT2	AKT2								
NP_005456.1	AKT3	AKT3						1400		
NP_004295.2	ALK	ALK		2200		7100				
BAA36547.1	PRKAA1	AMPK-alpha1				1700				
NP_006243.2	PRKAA2	AMPK-alpha2				1800				
NP_848605.1	ANKK1	ANKK1				500				
NP_055655.1	NUAK1	ARK5				180		1800		
NP_003591.2	AURKA	AURKA		7100		250				6.5
AAH00442.2	AURKB	AURKB				160				43
AAC77369.1	AURKC	AURKC		750		86			1600	26
NP_001690.2	AXL	AXL				2200				440
NP_060063.2	BMP2K	BIKE		8800		180		430		
NP_001706.2	BLK	BLK		2600	520					68
NP_004320.2	BMPR1A	BMPR1A								
NP_001195.2	BMPR2	BMPR2				880				
NP_001712.1	BMX	BMX				4700				3100
NP_004324.2	BRAF	BRAF		730						
NP_004324.2	BRAF	BRAF(V600E)		430	3300					
NP_115806.1	BRSK1	BRSK1				6500				
NP_003948.2	BRSK2	BRSK2				2700				
NP_000052.1	BTK	BTK								4200
NP_003647.1	CAMK1	CAMK1		2100						
NP_065130.1	CAMK1D	CAMK1D								
NP_065172.1	CAMK1G	CAMK1G		3700						
NP_741960.1	CAMK2A	CAMK2A						4500		
NP_001211.3	CAMK2B	CAMK2B								
AAD20442.1	CAMK2D	CAMK2D						4600		
NP_751912.1	CAMK2G	CAMK2G						7800		
NP_001735.1	CAMK4	CAMK4								
NP_115670.1	CAMKK1	CAMKK1				2900		5000		
NP_006540.3	CAMKK2	CAMKK2				2600		2400		
NP_277023.1	CDC2L1	CDC2L1		2100		150				
NP_076916.1	CDC2L2	CDC2L2		1300		110				
NP_055891.1	CDC2L6	CDK11			5500					
NP_001789.2	CDK2	CDK2				23				
NP_001249.1	CDK3	CDK3				180				
NP_004926.1	CDK5	CDK5				240				
NP_001790.1	CDK7	CDK7				760				
NP_001251.1	CDK8	CDK8								
NP_001252.1	CDK9	CDK9				470				
NP_001265.1	CHEK1	CHEK1						540		
NP_009105.1	CIT	CIT						1400		
AAA61480.1	CLK1	CLK1			4500	660		910	630	
NP_003984.2	CLK2	CLK2				290		420		3200
NP_003983.1	CLK3	CLK3				310				2300
NP_065717.1	CLK4	CLK4			2100	1700		1900	1600	
NP_005202.2	CSF1R	CSF1R	1.6	7.9	19	4200			4.9	
NP_004374.1	CSK	CSK								9000
NP_660204.1	CSNK1A1L	CSNK1A1L								
NP_620693.1	CSNK1D	CSNK1D								
NP_001885.1	CSNK1E	CSNK1E				3600				
NP_071331.2	CSNK1G1	CSNK1G1				1200				
NP_001310.2	CSNK1G2	CSNK1G2				740				
NP_004375.2	CSNK1G3	CSNK1G3				7900				
NP_001886.1	CSNK2A1	CSNK2A1						3600		
NP_001887.1	CSNK2A2	CSNK2A2				2000		3400		
NP_004929.2	DAPK1	DAPK1						970		
NP_055141.2	DAPK2	DAPK2								
NP_001339.1	DAPK3	DAPK3								
NP_004725.1	DCAMKL1	DCAMKL1				2500				
NP_001035351.1	DCAMKL2	DCAMKL2				4500				
XP_047355.6	DCAMKL3	DCAMKL3				6500				
NP_001945.3	DDR1	DDR1		57	0.7				1400	4200
CAA52777.1	DDR2	DDR2		98	15					
NP_006292.2	MAP3K12	DLK				5200				
NP_004400.4	DMPK	DMPK				1200		280		
NP_059995.1	CDC42BPG	DMPK2								
NP_004751.2	STK17A	DRAK1			5300	5600				190
NP_004217.1	STK17B	DRAK2								8.1
NP_004705.1	DYRK1B	DYRK1B						5400		
NP_005219.2	EGFR	EGFR					2.4		410	
NP_005219.2	EGFR	EGFR(E746-A750del)					8.6		330	
NP_005219.2	EGFR	EGFR(G719C)					0.92		210	
NP_005219.2	EGFR	EGFR(G719S)					2.1		230	
NP_005219.2	EGFR	EGFR(L747-E749del, A750P)			7600		2.2		260	
NP_005219.2	EGFR	EGFR(L747-S752del, P753S)					3.9		410	6400
NP_005219.2	EGFR	EGFR(L747-T751del,Sins)					3.5		470	
NP_005219.2	EGFR	EGFR(L858R)					2.8		400	3200
NP_005219.2	EGFR	EGFR(L861Q)					1.2		870	
NP_005219.2	EGFR	EGFR(S752-I759del)					4.2		350	
NP_005223.3	EPHA1	EPHA1								1800
NP_004422.2	EPHA2	EPHA2								370
NP_005224.2	EPHA3	EPHA3								2100
NP_004429.1	EPHA4	EPHA4								420
NP_004430.3	EPHA5	EPHA5								1400
NP_001073917.1	EPHA6	EPHA6								580
NP_004431.1	EPHA7	EPHA7				3100				1000
NP_065387.1	EPHA8	EPHA8			1400					
NP_004432.1	EPHB1	EPHB1								330
NP_059145.2	EPHB2	EPHB2								
NP_004434.2	EPHB3	EPHB3								3500
NP_004435.3	EPHB4	EPHB4								560
NP_001005862.1	ERBB2	ERBB2					7			
NP_001036064.1	ERBB4	ERBB4					54			

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	GW-2580	GW-786034	Imatinib	JNJ-7706621	Lapatinib	LY-333531	MLN-518	MLN-8054
NP_002737.2	MAPK3	ERK1								
NP_620407.1	MAPK1	ERK2								
NP_002739.1	MAPK6	ERK3				480				
NP_002738.2	MAPK4	ERK4				1600				
NP_002740.2	MAPk7	ERK5				520				
NP_620590.2	MAPK15	ERK8				1100		88		
NP_005237.2	FER	FER		2700						4400
NP_001996.1	FES	FES								
NP_075593.1	FGFR1	FGFR1		990		810				2400
NP_075259.2	FGFR2	FGFR2		210		680				1700
NP_000133.1	FGFR3	FGFR3		740		510				1200
NP_000133.1	FGFR3	FGFR3(G697C)		620		690				1300
NP_075252.2	FGFR4	FGFR4		2800						
NP_005239.1	FGR	FGR		1600	2400	2000				220
NP_002010.1	FLT1	FLT1		14		2100			3100	1000
NP_004110.2	FLT3	FLT3		1100		850		1900	3	
NP_004110.2	FLT3	FLT3(D835H)		1100		840		210	310	
NP_004110.2	FLT3	FLT3(D835Y)		810		590		130	1800	
NP_004110.2	FLT3	FLT3(ITD)		2500		1400		280	9.1	
NP_004110.2	FLT3	FLT3(N841I)		1600		1400		980	29	
CAA49505.1	FLT4	FLT4		27		1100				3100
NP_002022.1	FRK	FRK		750	1500					
NP_694592.1	FYN	FYN		2700	3100					1300
NP_005246.1	GAK	GAK		200	1000	2400		1100		
NP_001013725.2	EIF2AK4	GCN2(Kin.Dom.2,S808G)				3900				
NP_063937.2	GSK3A	GSK3A				160				
NP_002084.2	GSK3B	GSK3B				950		2600		
NP_002101.2	HCK	HCK								1500
NP_000866.1	IGF1R	IGF1R								
NP_054721.1	IKBKE	IKK-epsilon				8300				
NP_000199.2	INSR	INSR								
NP_055030.1	INSRR	INSRR								
NP_009130.1	IRAK3	IRAK3		800		3400			730	1400
NP_005537.3	ITK	ITK								
NP_002218.2	JAK1	JAK1(Kin.Dom.1/JH2 - pseudokinase)				21				
NP_004963.1	JAK2	JAK2(Kin.Dom.2/JH1 - catalytic)				220				
NP_000206.2	JAK3	JAK3(Kin.Dom.2/JH1 - catalytic)		6900		180		420		
NP_002741.1	MAPK8	JNK1			5000	1700				
NP_620707.1	MAPK9	JNK2								
NP_002744.1	MAPK10	JNK3		1900	3100	1300				
NP_000213.1	KIT	KIT		2.8	14	1800			2.7	
NP_000213.1	KIT	KIT(D816V)		500	820	2500		920	29	
NP_000213.1	KIT	KIT(V559D)		2.3	15	1400			3.8	
NP_000213.1	KIT	KIT(V559D,T670I)		6.5	2900	590			1100	
NP_000213.1	KIT	KIT(V559D,V654A)		30	71				26	
NP_004681.1	LATS1	LATS1						2600		
NP_055387.1	LATS2	LATS2						640		
NP_005347.3	LCK	LCK		1200	40					590
NP_002305.1	LIMK1	LIMK1		720		620				
NP_005560.1	LIMK2	LIMK2		390		1000				
NP_000446.1	STK11	LKB1								
BAA35073.1	STK10	LOK		84		110	4400	280		3700
NP_996844.1	LTK	LTK								
NP_002341.1	LYN	LYN			890					1400
NP_005913.2	MAP3K4	MAP3K4								
NP_005914.1	MAP3K5	MAP3K5								
NP_001036065.1	MAP4K1	MAP4K1		750		120		2600		
NP_003609.2	MAP4K3	MAP4K3		1600		820		8400		
NP_663719.1	MAP4K4	MAP4K4								
NP_006566.2	MAP4K5	MAP4K5		3000		2100			780	
NP_116584.2	MAPKAPK2	MAPKAPK2								
NP_003659.2	MAPKAPK5	MAPKAPK5								
CAH72463.1	MARK1	MARK1				620				
NP_059672.2	MARK2	MARK2				1200				
NP_002367.4	MARK3	MARK3		4000		600				
NP_113605.2	MARK4	MARK4				660				
NP_002746.1	MAP2K1	MEK1				1800				
NP_109587.1	MAP2K2	MEK2				5600				
NP_002747.2	MAP2K3	MEK3				1500				
NP_003001.1	MAP2K4	MEK4		590		630		930		
NP_002749.2	MAP2K6	MEK6		4100		1000				
NP_055606.1	MELK	MELK			1900					
AAB60430.1	MERTK	MERTK		3300		2800				730
NP_000236.2	MET	MET				650				
CAI14764.1	MKNK1	MKNK1								
AAF17226.1	MKNK2	MKNK2								
NP_872299.1	MLCK	MLCK								
NP_149132.2	MAP3K9	MLK1		290		3600		1400		
NP_002437.2	MAP3K10	MLK2		2100						
NP_002410.1	MAP3K11	MLK3		740						
NP_003598.2	CDC42BPA	MRCKA								
NP_006026.3	CDC42BPB	MRCKB								
NP_006273.1	STK4	MST1				130				
NP_006272.2	STK3	MST2				61		960		
NP_003567.2	STK24	MST3				180				
NP_057626.2	RP6-213H19.1	MST4				210				
NP_005583.1	MUSK	MUSK								
NP_444254.3	MYLK	MYLK				2100		290		
NP_149109.1	MYLK2	MYLK2		2000						
NP_059129.2	MYO3A	MYO3A								
NP_620482.1	MYO3B	MYO3B								
NP_055815.1	STK38L	NDR2								
NP_036356.1	NEK1	NEK1								
NP_002488.1	NEK2	NEK2		980						
NP_954983.1	NEK5	NEK5								
NP_055212.2	NEK6	NEK6								
NP_598001.1	NEK7	NEK7								
NP_149107.3	NEK9	NEK9								
NP_057315.2	NLK	NLK		4400						
NP_620581.1	MAPK14	p38-alpha								
NP_002742.3	MAPK11	p38-beta								
AAB40118.1	MAPK12	p38-gamma								
NP_002567.3^	PAK1	PAK1								
NP_002568.2	PAK2	PAK2								
NP_002569.1	PAK3	PAK3				2100				
NP_001014833.1	PAK4	PAK4				2300				
NP_064553.1	PAK6	PAK6				1400				
NP_065074.1	PAK7	PAK7/PAK5				830				
NP_006192.1^	PCTK1	PCTK1		1200		23			6000	
CAA47004.1	PCTK2	PCTK2				290				
NP_002587.2	PCTK3	PCTK3				2100				

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	GW-2580	GW-786034	Imatinib	JNJ-7706621	Lapatinib	LY-333531	MLN-518	MLN-8054
NP_006197.1	PDGFRA	PDGFRA		4.9	31	4000			2.4	
NP_002600.1	PDGFRB	PDGFRB		2	14	910			4.5	
NP_002604.1	PDPK1	PDPK1				3100		700		
NP_036527.1	PFTK1	PFTK1				3600				
NP_006204.1	PHKG1	PHKG1						3700		
NP_000285.1	PHKG2	PHKG2								
NP_006209.2	PIK3CA	PIK3CA								
NP_006209.2	PIK3CA	PIK3CA(E545K)								
NP_002639.1	PIM1	PIM1						270		
NP_006866.2	PIM2	PIM2						1700		
NP_001001852.1	PIM3	PIM3						12		
AAC50911.1	PIP5K1A	PIP5K1A				9200		690		
NP_003550.1	PIP5K2B	PIP5K2B				1300		830		
NP_002721.1	PRKACA	PKAC-alpha						5400		
NP_002722.1	PRKACB	PKAC-beta						3200		
NP_872629.1	PKMYT1	PKMYT1								
NP_998725.1	PKN1	PKN1						350		
NP_006247.1	PKN2	PKN2				1900		1500		
NP_005021.2	PLK1	PLK1				5000				
NP_004064.2	PLK3	PLK3				7100				
BAB69958.1	PLK4	PLK4		290	7800	120		4700		410
NP_006245.2	PRKCD	PRKCD				4500		3.6		
NP_005391.1	PRKCE	PRKCE						11		
NP_006246.2	PRKCH	PRKCH						1800		
NP_006248.1	PRKCQ	PRKCQ				4400		2.5		
NP_002733.2	PRKD1	PRKD1				8400				
NP_057541.2	PRKD2	PRKD2						890		
NP_005804.1	PRKD3	PRKD3				4200				
NP_006249.1	PRKG1	PRKG1								
NP_006250.1	PRKG2	PRKG2						3100		
NP_002750.1	EIF2AK2	PRKR		1900		6300				
NP_005035.1	PRKX	PRKX								
NP_722560.1	PTK2	PTK2								
NP_775267.1	PTK2B	PTK2B								2000
NP_005966.1	PTK6	PTK6		2300						
NP_002871.1	RAF1	RAF1		900	1700					
NP_065681.1	RET	RET		310		1000				
NP_065681.1	RET	RET(M918T)		270		4200				
NP_113668.2	RIOK1	RIOK1				1100		810		
NP_003822.2	RIOK3	RIOK3				1200				
NP_003795.2	RIPK1	RIPK1		260		1800				
NP_003812.1	RIPK2	RIPK2		580			3600			
NP_002935.2	ROS1	ROS1		920						3100
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.1 - N-terminal)				4000		400		
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.2 - C-terminal)								
NP_066958.2	RPS6KA2	RPS6KA2(Kin.Dom.1 - N-terminal)				410		280		
NP_001006933.1	RPS6KA2	RPS6KA2(Kin.Dom.2 - C-terminal)								
NP_004577.1	RPS6KA3	RPS6KA3(Kin.Dom.1 - N-terminal)						3600		
NP_001006945.1	RPS6KA4	RPS6KA4(Kin.Dom.1 - N-terminal)				3000		6100		
NP_003933.1	RPS6KA4	RPS6KA4(Kin.Dom.2 - C-terminal)								
NP_872198.1	RPS6KA5	RPS6KA5(Kin.Dom.1 - N-terminal)						1300		
NP_004746.2	RPS6KA5	RPS6KA5(Kin.Dom.2 - C-terminal)								
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.1 - N-terminal)						2300		
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.2 - C-terminal)								
NP_001012418.1	RP11-145H9.1	SgK085								
NP_055535.2	SLK	SLK				48		400		
NP_112214.1	NUAK2	SNARK				26		320		
NP_775490.2	SNF1LK	SNF1LK		2200		2200				1700
NP_056006.1	SNF1LK2	SNF1LK2		7300		1600				
NP_005408.1	SRC	SRC		2800						800
NP_543013.1	SRMS	SRMS		2500						
NP_003128.3	SRPK1	SRPK1				2800				
AAC05299.1	SRPK2	SRPK2								
CAA06700.1	STK16	STK16		360		140				
NP_112168.1	STK33	STK33						3100		
NP_056505.1	STK36	STK36		470						
NP_003168.2	SYK	SYK				1300				
NP_003206.1	TEC	TEC				1000				730
NP_006276.2	TESK1	TESK1				3100				
NP_004603.1	TGFBR1	TGFBR1								
NP_003233.4	TGFBR2	TGFBR2								
NP_005415.1	TIE1	TIE1		700		260				1600
NP_000450.2	TEK	TIE2				950				300
NP_036422.3	TLK1	TLK1				1100				
AAF03095.1	TLK2	TLK2				750				
NP_055843.1	TNIK	TNIK		310						
AAH35782.1	TNK1	TNK1				980				2400
NP_001010938.1	TNK2	TNK2								
NP_057062.1	TNNI3K	TNNI3K			4300	1400				
NP_001012331.1	NTRK1	TRKA	630						450	
NP_006171.2	NTRK2	TRKB	36						740	
AAA75374.1	NTRK3	TRKC	120						2000	
NP_114417.1	TSSK1	TSSK1								
NP_003309.2	TTK	TTK		150		190				
NP_003319.1	TXK	TXK		2600						
CAA38449.1	TYK2	TYK2(Kin.Dom.2/JH1 - catalytic)				32				
NP_006284.2	TYRO3	TYRO3								3100
NP_002244.1	KDR	VEGFR2		14		3700				
NP_003381.1	WEE1	WEE1								
NP_060871.1	STK32B	YANK2								
NP_775846.2	STK32C	YANK3								
NP_005424.1	YES1	YES		5000						260
NP_006365.2	STK25	YSK1				360				
NP_598407.1	ZAK	ZAK			2600					
NP_997402.1	ZAP70	ZAP70								

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	PI-103	PKC-412	PTK-787	Roscovitine/CYC 202	SB-202190	SB-203580	SB-431542	Sorafenib
NP_055726.2	AAK1	AAK1		48						
NP_005148.2	ABL1	ABL1								680
NP_005148.2	ABL1	ABL1(E255K)								3900
NP_005148.2	ABL1	ABL1(H396P)								1600
NP_005148.2	ABL1	ABL1(M351T)								250
NP_005148.2	ABL1	ABL1(Q252H)								480
NP_005148.2	ABL1	ABL1(T315I)		3200						160
NP_005148.2	ABL1	ABL1(Y253F)								420
NP_005149.2	ABL2	ABL2								2900
NP_001096.1	ACVR1	ACVR1								
NP_004293.1	ACVR1B	ACVR1B					950	3000	190	
NP_001607.1	ACVR2A	ACVR2A								
NP_001097.2	ACVR2B	ACVR2B					4800			
NP_000011.2	ACVRL1	ACVRL1								
NP_064632.2	CABC1	ADCK3								
NP_079152.3	ADCK4	ADCK4					4900	3100		
NP_005154.2	AKT1	AKT1		950						
NP_001617.1	AKT2	AKT2		780						
NP_005456.1	AKT3	AKT3								
NP_004295.2	ALK	ALK		270		2300				
BAA36547.1	PRKAA1	AMPK-alpha1		180						
NP_006243.2	PRKAA2	AMPK-alpha2		460						
NP_848605.1	ANKK1	ANKK1								
NP_055655.1	NUAK1	ARK5		41						
NP_003591.2	AURKA	AURKA		120						
AAH00442.2	AURKB	AURKB		62						440
AAC77369.1	AURKC	AURKC		170						210
NP_001690.2	AXL	AXL		620						4500
NP_060063.2	BMP2K	BIKE		220						
NP_001706.2	BLK	BLK		500						
NP_004320.2	BMPR1A	BMPR1A								
NP_001195.2	BMPR2	BMPR2								
NP_001712.1	BMX	BMX								
NP_004324.2	BRAF	BRAF	2900				4800	710		540
NP_004324.2	BRAF	BRAF(V600E)	2300				620	530		260
NP_115806.1	BRSK1	BRSK1		1200						
NP_003948.2	BRSK2	BRSK2		650						
NP_000052.1	BTK	BTK								
NP_003647.1	CAMK1	CAMK1		2000						
NP_065130.1	CAMK1D	CAMK1D		670						
NP_065172.1	CAMK1G	CAMK1G		1800						
NP_741960.1	CAMK2A	CAMK2A		20						
NP_001211.3	CAMK2B	CAMK2B		210						
AAD20442.1	CAMK2D	CAMK2D		36						
NP_751912.1	CAMK2G	CAMK2G		140						
NP_001735.1	CAMK4	CAMK4								
NP_115670.1	CAMKK1	CAMKK1		130						
NP_006540.3	CAMKK2	CAMKK2		73						
NP_277023.1	CDC2L1	CDC2L1								
NP_076916.1	CDC2L2	CDC2L2								
NP_055891.1	CDC2L6	CDK11		7200						250
NP_001789.2	CDK2	CDK2				3400				
NP_001249.1	CDK3	CDK3								
NP_004926.1	CDK5	CDK5				1900				
NP_001790.1	CDK7	CDK7				1800				140
NP_001251.1	CDK8	CDK8								310
NP_001252.1	CDK9	CDK9								
NP_001265.1	CHEK1	CHEK1		1300						
NP_009105.1	CIT	CIT			8800		510	420		6200
AAA61480.1	CLK1	CLK1	3900	350		1200				
NP_003984.2	CLK2	CLK2		860		700				
NP_003983.1	CLK3	CLK3								
NP_065717.1	CLK4	CLK4		410						
NP_005202.2	CSF1R	CSF1R		330	18					28
NP_004374.1	CSK	CSK		8700						
NP_660204.1	CSNK1A1L	CSNK1A1L					1900	1700	5900	
NP_620693.1	CSNK1D	CSNK1D				260	59	37	170	
NP_001885.1	CSNK1E	CSNK1E				320	170	100	260	
NP_071331.2	CSNK1G1	CSNK1G1								
NP_001310.2	CSNK1G2	CSNK1G2								
NP_004375.2	CSNK1G3	CSNK1G3				2900				
NP_001886.1	CSNK2A1	CSNK2A1		250						
NP_001887.1	CSNK2A2	CSNK2A2								
NP_004929.2	DAPK1	DAPK1	2400	4700						
NP_055141.2	DAPK2	DAPK2	2700	890						
NP_001339.1	DAPK3	DAPK3	840	1800						
NP_004725.1	DCAMKL1	DCAMKL1								
NP_001035351.1	DCAMKL2	DCAMKL2								
XP_047355.6	DCAMKL3	DCAMKL3								
NP_001945.3	DDR1	DDR1		7200	270		1100	1000		1.5
CAA52777.1	DDR2	DDR2					1600	5000		6.6
NP_006292.2	MAP3K12	DLK								
NP_004400.4	DMPK	DMPK		3800						
NP_059995.1	CDC42BPG	DMPK2					640	400		
NP_004751.2	STK17A	DRAK1		1900						
NP_004217.1	STK17B	DRAK2		4700						
NP_004705.1	DYRK1B	DYRK1B		330		1100				
NP_005219.2	EGFR	EGFR		1300			2600	1700		
NP_005219.2	EGFR	EGFR(E746-A750del)		7000			210	340		
NP_005219.2	EGFR	EGFR(G719C)		1500			910	710		
NP_005219.2	EGFR	EGFR(G719S)		5300			1900	1300		
NP_005219.2	EGFR	EGFR(L747-E749del, A750P)		620			2000	1700		
NP_005219.2	EGFR	EGFR(L747-S752del, P753S)		1700			1400	1600		
NP_005219.2	EGFR	EGFR(L747-T751del,Sins)		1900			1100	1500		
NP_005219.2	EGFR	EGFR(L858R)		760			1900	1900		
NP_005219.2	EGFR	EGFR(L861Q)		2800			2300	3200		
NP_005219.2	EGFR	EGFR(S752-I759del)		1800			1700	2000		
NP_005223.3	EPHA1	EPHA1								3100
NP_004422.2	EPHA2	EPHA2								2000
NP_005224.2	EPHA3	EPHA3								1900
NP_004429.1	EPHA4	EPHA4								3000
NP_004430.3	EPHA5	EPHA5								
NP_001073917.1	EPHA6	EPHA6					2200	1200		370
NP_004431.1	EPHA7	EPHA7								5300
NP_065387.1	EPHA8	EPHA8								2400
NP_004432.1	EPHB1	EPHB1								3000
NP_059145.2	EPHB2	EPHB2								1900
NP_004434.2	EPHB3	EPHB3								
NP_004435.3	EPHB4	EPHB4								1800
NP_001005862.1	ERBB2	ERBB2								
NP_001036064.1	ERBB4	ERBB4		3100			4900			

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	PI-103	PKC-412	PTK-787	Roscovitine/CYC 202	SB-202190	SB-203580	SB-431542	Sorafenib
NP_002737.2	MAPK3	ERK1								
NP_620407.1	MAPK1	ERK2								
NP_002739.1	MAPK6	ERK3								
NP_002738.2	MAPK4	ERK4								
NP_002740.2	MAPk7	ERK5								
NP_620590.2	MAPK15	ERK8								46
NP_005237.2	FER	FER		1200						
NP_001996.1	FES	FES								
NP_075593.1	FGFR1	FGFR1		1600						2800
NP_075259.2	FGFR2	FGFR2		2400						2700
NP_000133.1	FGFR3	FGFR3		1700						
NP_000133.1	FGFR3	FGFR3(G697C)								5900
NP_075252.2	FGFR4	FGFR4								
NP_005239.1	FGR	FGR		730						
NP_002010.1	FLT1	FLT1		450	9.6					31
NP_004110.2	FLT3	FLT3		11						13
NP_004110.2	FLT3	FLT3(D835H)		6.8						30
NP_004110.2	FLT3	FLT3(D835Y)		15						82
NP_004110.2	FLT3	FLT3(ITD)		11						79
NP_004110.2	FLT3	FLT3(N841I)		6						11
CAA49505.1	FLT4	FLT4		670	330					95
NP_002022.1	FRK	FRK		2400	1800		3100	1800		510
NP_694592.1	FYN	FYN		2100						
NP_005246.1	GAK	GAK		380			53	19		
NP_001013725.2	EIF2AK4	GCN2(Kin.Dom.2,S808G)		39						
NP_063937.2	GSK3A	GSK3A		2500						
NP_002084.2	GSK3B	GSK3B		1800			2700	1700		
NP_002101.2	HCK	HCK		720						
NP_000866.1	IGF1R	IGF1R								
NP_054721.1	IKBKE	IKK-epsilon		160						
NP_000199.2	INSR	INSR								
NP_055030.1	INSRR	INSRR								
NP_009130.1	IRAK3	IRAK3		180						
NP_005537.3	ITK	ITK								
NP_002218.2	JAK1	JAK1(Kin.Dom.1/JH2 - pseudokinase)								
NP_004963.1	JAK2	JAK2(Kin.Dom.2/JH1 - catalytic)		94						
NP_000206.2	JAK3	JAK3(Kin.Dom.2/JH1 - catalytic)		12						
NP_002741.1	MAPK8	JNK1		4400			2400	1100		
NP_620707.1	MAPK9	JNK2					210	130		
NP_002744.1	MAPK10	JNK3		3600			42	35		
NP_000213.1	KIT	KIT		220	5.1					31
NP_000213.1	KIT	KIT(D816V)		7.7						310
NP_000213.1	KIT	KIT(V559D)		200	17					16
NP_000213.1	KIT	KIT(V559D,T670I)		150						18
NP_000213.1	KIT	KIT(V559D,V654A)		1600	210					240
NP_004681.1	LATS1	LATS1		1100						
NP_055387.1	LATS2	LATS2		2200			1700			
NP_005347.3	LCK	LCK		280				2800		2700
NP_002305.1	LIMK1	LIMK1								1600
NP_005560.1	LIMK2	LIMK2	3500							
NP_000446.1	STK11	LKB1		350						
BAA35073.1	STK10	LOK		590						150
NP_996844.1	LTK	LTK		3000						
NP_002341.1	LYN	LYN		4200						3000
NP_005913.2	MAP3K4	MAP3K4								
NP_005914.1	MAP3K5	MAP3K5								
NP_001036065.1	MAP4K1	MAP4K1		2100						
NP_003609.2	MAP4K3	MAP4K3		120						
NP_663719.1	MAP4K4	MAP4K4		650				3700		4800
NP_006566.2	MAP4K5	MAP4K5		1100						1600
NP_116584.2	MAPKAPK2	MAPKAPK2								
NP_003659.2	MAPKAPK5	MAPKAPK5								
CAH72463.1	MARK1	MARK1		170						
NP_059672.2	MARK2	MARK2		100						
NP_002367.4	MARK3	MARK3		21						
NP_113605.2	MARK4	MARK4		370						
NP_002746.1	MAP2K1	MEK1								
NP_109587.1	MAP2K2	MEK2					9600	9600		
NP_002747.2	MAP2K3	MEK3		5300						
NP_003001.1	MAP2K4	MEK4		4800						
NP_002749.2	MAP2K6	MEK6								
NP_055606.1	MELK	MELK		280						
AAB60430.1	MERTK	MERTK		2900						3600
NP_000236.2	MET	MET		690						
CAI14764.1	MKNK1	MKNK1								230
AAF17226.1	MKNK2	MKNK2		950						130
NP_872299.1	MLCK	MLCK								
NP_149132.2	MAP3K9	MLK1		15						
NP_002437.2	MAP3K10	MLK2		790						
NP_002410.1	MAP3K11	MLK3		17						
NP_003598.2	CDC42BPA	MRCKA	1800					6200		
NP_006026.3	CDC42BPB	MRCKB					4200	2700		
NP_006273.1	STK4	MST1		40						
NP_006272.2	STK3	MST2		220						
NP_003567.2	STK24	MST3								
NP_057626.2	RP6-213H19.1	MST4								
NP_005583.1	MUSK	MUSK								130
NP_444254.3	MYLK	MYLK	1500	2000						
NP_149109.1	MYLK2	MYLK2								
NP_059129.2	MYO3A	MYO3A								
NP_620482.1	MYO3B	MYO3B								
NP_055815.1	STK38L	NDR2								
NP_036356.1	NEK1	NEK1								
NP_002488.1	NEK2	NEK2								
NP_954983.1	NEK5	NEK5								
NP_055212.2	NEK6	NEK6								
NP_598001.1	NEK7	NEK7								
NP_149107.3	NEK9	NEK9								
NP_057315.2	NLK	NLK					28	25		640
NP_620581.1	MAPK14	p38-alpha					9.8	12		370
NP_002742.3	MAPK11	p38-beta					32	70		230
AAB40118.1	MAPK12	p38-gamma					3300	1500		7600
NP_002567.3^	PAK1	PAK1		2100						
NP_002568.2	PAK2	PAK2		3300						
NP_002569.1	PAK3	PAK3		180						
NP_001014833.1	PAK4	PAK4								
NP_064553.1	PAK6	PAK6								
NP_065074.1	PAK7	PAK7/PAK5								
NP_006192.1^	PCTK1	PCTK1								
CAA47004.1	PCTK2	PCTK2								1600
NP_002587.2	PCTK3	PCTK3								

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	PI-103	PKC-412	PTK-787	Roscovitine/CYC 202	SB-202190	SB-203580	SB-431542	Sorafenib
NP_006197.1	PDGFRA	PDGFRA		380	96					62
NP_002600.1	PDGFRB	PDGFRB		110	25					37
NP_002604.1	PDPK1	PDPK1		190						
NP_036527.1	PFTK1	PFTK1								2900
NP_006204.1	PHKG1	PHKG1		900						
NP_000285.1	PHKG2	PHKG2		1400						
NP_006209.2	PIK3CA	PIK3CA	1.5							
NP_006209.2	PIK3CA	PIK3CA(E545K)	1.5							
NP_002639.1	PIM1	PIM1		560						
NP_006866.2	PIM2	PIM2								
NP_001001852.1	PIM3	PIM3		560						
AAC50911.1	PIP5K1A	PIP5K1A		310						
NP_003550.1	PIP5K2B	PIP5K2B		270						
NP_002721.1	PRKACA	PKAC-alpha		720			1700			
NP_002722.1	PRKACB	PKAC-beta		240			530			
NP_872629.1	PKMYT1	PKMYT1								
NP_998725.1	PKN1	PKN1		9.3						
NP_006247.1	PKN2	PKN2		15						
NP_005021.2	PLK1	PLK1								
NP_004064.2	PLK3	PLK3								
BAB69958.1	PLK4	PLK4		66						4500
NP_006245.2	PRKCD	PRKCD		320						
NP_005391.1	PRKCE	PRKCE		540						
NP_006246.2	PRKCH	PRKCH		290						
NP_006248.1	PRKCQ	PRKCQ		920						
NP_002733.2	PRKD1	PRKD1								
NP_057541.2	PRKD2	PRKD2		6300						
NP_005804.1	PRKD3	PRKD3		3200						
NP_006249.1	PRKG1	PRKG1		250						
NP_006250.1	PRKG2	PRKG2		74						
NP_002750.1	EIF2AK2	PRKR		6900						
NP_005035.1	PRKX	PRKX		960						
NP_722560.1	PTK2	PTK2								
NP_775267.1	PTK2B	PTK2B		660						
NP_005966.1	PTK6	PTK6			2400		6800	3900		
NP_002871.1	RAF1	RAF1	3700				1900	980		230
NP_065681.1	RET	RET		350						13
NP_065681.1	RET	RET(M918T)		130	7600					7.4
NP_113668.2	RIOK1	RIOK1		1200						
NP_003822.2	RIOK3	RIOK3		420						
NP_003795.2	RIPK1	RIPK1								
NP_003812.1	RIPK2	RIPK2					150	24	3400	1300
NP_002935.2	ROS1	ROS1		430						
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.1 - N-terminal)		690						
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.2 - C-terminal)					170	320	1300	
NP_066958.2	RPS6KA2	RPS6KA2(Kin.Dom.1 - N-terminal)		730						
NP_001006933.1	RPS6KA2	RPS6KA2(Kin.Dom.2 - C-terminal)								
NP_004577.1	RPS6KA3	RPS6KA3(Kin.Dom.1 - N-terminal)		740						
NP_001006945.1	RPS6KA4	RPS6KA4(Kin.Dom.1 - N-terminal)		260						
NP_003933.1	RPS6KA4	RPS6KA4(Kin.Dom.2 - C-terminal)								
NP_872198.1	RPS6KA5	RPS6KA5(Kin.Dom.1 - N-terminal)		240						
NP_004746.2	RPS6KA5	RPS6KA5(Kin.Dom.2 - C-terminal)								
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.1 - N-terminal)		1500						
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.2 - C-terminal)					270	250		7500
NP_001012418.1	RP11-145H9.1	SgK085		640						
NP_055535.2	SLK	SLK		220			3200	3700		1000
NP_112214.1	NUAK2	SNARK		63						
NP_775490.2	SNF1LK	SNF1LK		160						
NP_056006.1	SNF1LK2	SNF1LK2		560						
NP_005408.1	SRC	SRC		1200				5300		
NP_543013.1	SRMS	SRMS								9800
NP_003128.3	SRPK1	SRPK1		42						
AAC05299.1	SRPK2	SRPK2		330						
CAA06700.1	STK16	STK16		280						
NP_112168.1	STK33	STK33								2400
NP_056505.1	STK36	STK36					790	1300		3800
NP_003168.2	SYK	SYK		88						
NP_003206.1	TEC	TEC								
NP_006276.2	TESK1	TESK1								
NP_004603.1	TGFBR1	TGFBR1						7100	170	
NP_003233.4	TGFBR2	TGFBR2						1800		
NP_005415.1	TIE1	TIE1		1400						68
NP_000450.2	TEK	TIE2		1900						2100
NP_036422.3	TLK1	TLK1								
AAF03095.1	TLK2	TLK2								
NP_055843.1	TNIK	TNIK		1600			1600	820		
AAH35782.1	TNK1	TNK1		83						2300
NP_001010938.1	TNK2	TNK2		120						
NP_057062.1	TNNI3K	TNNI3K						3500		280
NP_001012331.1	NTRK1	TRKA		380						6300
NP_006171.2	NTRK2	TRKB		310						2100
AAA75374.1	NTRK3	TRKC		1700						600
NP_114417.1	TSSK1	TSSK1		4800						
NP_003309.2	TTK	TTK		350		1600	4500	2500		3500
NP_003319.1	TXK	TXK						4500		
CAA38449.1	TYK2	TYK2(Kin.Dom.2/JH1 - catalytic)		250						
NP_006284.2	TYRO3	TYRO3								
NP_002244.1	KDR	VEGFR2		3200	62					59
NP_003381.1	WEE1	WEE1								
NP_060871.1	STK32B	YANK2					4900	2100		
NP_775846.2	STK32C	YANK3								
NP_005424.1	YES1	YES		950						
NP_006365.2	STK25	YSK1		1800						
NP_598407.1	ZAK	ZAK			4400			4400		6.3
NP_997402.1	ZAP70	ZAP70		2600						

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	Staurosporine	SU-14813	Sunitinib	VX-680/MK-0457	VX-745	ZD-6474
NP_055726.2	AAK1	AAK1	1.2	66	11	290		
NP_005148.2	ABL1	ABL1	290	1500	830	13	730	270
NP_005148.2	ABL1	ABL1(E255K)	1000		2800	45		530
NP_005148.2	ABL1	ABL1(H396P)	210	930	1000	9.1	2300	67
NP_005148.2	ABL1	ABL1(M351T)	220	970	1200	9.4	1500	82
NP_005148.2	ABL1	ABL1(Q252H)	91	2100	890	17	2200	100
NP_005148.2	ABL1	ABL1(T315I)	27	260	140	6.3		78
NP_005148.2	ABL1	ABL1(Y253F)	270	1200	950	23	1200	94
NP_005149.2	ABL2	ABL2	110		1000	4	1900	69
NP_001096.1	ACVR1	ACVR1	470			1900		150
NP_004293.1	ACVR1B	ACVR1B	680					
NP_001607.1	ACVR2A	ACVR2A						
NP_001097.2	ACVR2B	ACVR2B	4600					
NP_000011.2	ACVRL1	ACVRL1						470
NP_064632.2	CABC1	ADCK3						4500
NP_079152.3	ADCK4	ADCK4						1700
NP_005154.2	AKT1	AKT1	20					
NP_001617.1	AKT2	AKT2	44		2700			
NP_005456.1	AKT3	AKT3	170					
NP_004295.2	ALK	ALK	32	490	170	3100		2100
BAA36547.1	PRKAA1	AMPK-alpha1	3.7	100	19	1100		
NP_006243.2	PRKAA2	AMPK-alpha2	12	290	89	350		
NP_848605.1	ANKK1	ANKK1	270	160	310	5600		
NP_055655.1	NUAK1	ARK5	4.4	460	48	200		
NP_003591.2	AURKA	AURKA	110		1700	4.1		
AAH00442.2	AURKB	AURKB	19	340	380	7.4		
AAC77369.1	AURKC	AURKC	23	810	220	6.3		1500
NP_001690.2	AXL	AXL	6.8	84	9	210		250
NP_060063.2	BMP2K	BIKE	5.6	27	5.5	65		
NP_001706.2	BLK	BLK	15	750	65	2200	3100	66
NP_004320.2	BMPR1A	BMPR1A	3700					
NP_001195.2	BMPR2	BMPR2		200	570	7100		
NP_001712.1	BMX	BMX	170			2600		
NP_004324.2	BRAF	BRAF						
NP_004324.2	BRAF	BRAF(V600E)						
NP_115806.1	BRSK1	BRSK1	26	5000	3500			
NP_003948.2	BRSK2	BRSK2	3.5	4100	1100			
NP_000052.1	BTK	BTK	210			4400		
NP_003647.1	CAMK1	CAMK1	27	3300	970			
NP_065130.1	CAMK1D	CAMK1D	1.1	970	510	4900		
NP_065172.1	CAMK1G	CAMK1G	23	940	440			
NP_741960.1	CAMK2A	CAMK2A	0.16	350	80			
NP_001211.3	CAMK2B	CAMK2B	1.3	2300	1400			
AAD20442.1	CAMK2D	CAMK2D	0.32	760	420			
NP_751912.1	CAMK2G	CAMK2G	0.55	1100	690			
NP_001735.1	CAMK4	CAMK4	41	2700	890			
NP_115670.1	CAMKK1	CAMKK1	0.039	850	420			
NP_006540.3	CAMKK2	CAMKK2	0.16	2500	1500			
NP_277023.1	CDC2L1	CDC2L1				290		
NP_076916.1	CDC2L2	CDC2L2				260		
NP_055891.1	CDC2L6	CDK11	190					
NP_001789.2	CDK2	CDK2	7					
NP_001249.1	CDK3	CDK3	30					
NP_004926.1	CDK5	CDK5	84					
NP_001790.1	CDK7	CDK7	45	930	330			
NP_001251.1	CDK8	CDK8	510					
NP_001252.1	CDK9	CDK9	100					
NP_001265.1	CHEK1	CHEK1	3.2	1200	300			
NP_009105.1	CIT	CIT	340	94	3900			1800
AAA61480.1	CLK1	CLK1	32	360	22			
NP_003984.2	CLK2	CLK2	8.2	150	20			
NP_003983.1	CLK3	CLK3	910					
NP_065717.1	CLK4	CLK4	9.6	250	29			
NP_005202.2	CSF1R	CSF1R	12	3.6	2	1800	2600	1200
NP_004374.1	CSK	CSK	330			4800		2500
NP_660204.1	CSNK1A1L	CSNK1A1L	250	1500	550			
NP_620693.1	CSNK1D	CSNK1D	2400	260	15			
NP_001885.1	CSNK1E	CSNK1E	73	340	13			3000
NP_071331.2	CSNK1G1	CSNK1G1		1000	930			
NP_001310.2	CSNK1G2	CSNK1G2	780	790	110			
NP_004375.2	CSNK1G3	CSNK1G3		570	240			
NP_001886.1	CSNK2A1	CSNK2A1	36	97	81	400		
NP_001887.1	CSNK2A2	CSNK2A2	6.5	140	370	400		
NP_004929.2	DAPK1	DAPK1	1.4	270	120			
NP_055141.2	DAPK2	DAPK2	1.6	400	150			
NP_001339.1	DAPK3	DAPK3	1	170	22			
NP_004725.1	DCAMKL1	DCAMKL1	110	550	370			
NP_001035351.1	DCAMKL2	DCAMKL2	73		2700			
XP_047355.6	DCAMKL3	DCAMKL3	17	240	110	3600		
NP_001945.3	DDR1	DDR1	19		2000	28	1100	11
CAA52777.1	DDR2	DDR2	42			230		320
NP_006292.2	MAP3K12	DLK	1500	560	100	190		
NP_004400.4	DMPK	DMPK	3.5					
NP_059995.1	CDC42BPG	DMPK2	37					2200
NP_004751.2	STK17A	DRAK1	14	24	1			
NP_004217.1	STK17B	DRAK2	21	320	110			
NP_004705.1	DYRK1B	DYRK1B	28	2600	2300			
NP_005219.2	EGFR	EGFR	370					9.5
NP_005219.2	EGFR	EGFR(E746-A750del)	120					4.8
NP_005219.2	EGFR	EGFR(G719C)	1100	9000	6800			9.6
NP_005219.2	EGFR	EGFR(G719S)	1100					5.9
NP_005219.2	EGFR	EGFR(L747-E749del, A750P)	96					12
NP_005219.2	EGFR	EGFR(L747-S752del, P753S)	300					7.9
NP_005219.2	EGFR	EGFR(L747-T751del,Sins)	210					8.9
NP_005219.2	EGFR	EGFR(L858R)	270					8.7
NP_005219.2	EGFR	EGFR(L861Q)	600					11
NP_005219.2	EGFR	EGFR(S752-I759del)	290					12
NP_005223.3	EPHA1	EPHA1	300			1000		230
NP_004422.2	EPHA2	EPHA2	1200			840		1100
NP_005224.2	EPHA3	EPHA3	27		2100	1500		2000
NP_004429.1	EPHA4	EPHA4	290			4300		1600
NP_004430.3	EPHA5	EPHA5	95					240
NP_001073917.1	EPHA6	EPHA6	290	2000	960			50
NP_004431.1	EPHA7	EPHA7	630		2400			2400
NP_065387.1	EPHA8	EPHA8	190			500		91
NP_004432.1	EPHB1	EPHB1	240		480	1900		290
NP_059145.2	EPHB2	EPHB2	2100					440
NP_004434.2	EPHB3	EPHB3						
NP_004435.3	EPHB4	EPHB4				1700		520
NP_001005862.1	ERBB2	ERBB2						2600
NP_001036064.1	ERBB4	ERBB4	770					480

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	Staurosporine	SU-14813	Sunitinib	VX-680/MK-0457	VX-745	ZD-6474
NP_002737.2	MAPK3	ERK1	8400					
NP_620407.1	MAPK1	ERK2	7300					
NP_002739.1	MAPK6	ERK3						1500
NP_002738.2	MAPK4	ERK4						
NP_002740.2	MAPk7	ERK5	1600					
NP_620590.2	MAPK15	ERK8	35					
NP_005237.2	FER	FER	24	34	1100			
NP_001996.1	FES	FES	23		960			
NP_075593.1	FGFR1	FGFR1	90	1900	520	550		560
NP_075259.2	FGFR2	FGFR2	100	790	570	570		1100
NP_000133.1	FGFR3	FGFR3	88	560	290	860		1600
NP_000133.1	FGFR3	FGFR3(G697C)	310	380	1400	820		6900
NP_075252.2	FGFR4	FGFR4	250			7200		
NP_005239.1	FGR	FGR	17	390	270	790	1300	270
NP_002010.1	FLT1	FLT1	150	4.7	1.8	100		260
NP_004110.2	FLT3	FLT3	2.9	0.54	0.47	6.5		850
NP_004110.2	FLT3	FLT3(D835H)	2.1	6.3	4.3	14		560
NP_004110.2	FLT3	FLT3(D835Y)	2.5	6.1	2.3	55		830
NP_004110.2	FLT3	FLT3(ITD)	2.4	1.8	0.99	45		1800
NP_004110.2	FLT3	FLT3(N841I)	2.1	5.4	2.4	4.3		1200
CAA49505.1	FLT4	FLT4	28	50	50	1900		1100
NP_002022.1	FRK	FRK	45		530	3800		170
NP_694592.1	FYN	FYN	33	2600	520	530	2100	360
NP_005246.1	GAK	GAK	17	44	20	3200		86
NP_001013725.2	EIF2AK4	GCN2(Kin.Dom.2,S808G)	16	470	180	1900		
NP_063937.2	GSK3A	GSK3A	140					
NP_002084.2	GSK3B	GSK3B	69					
NP_002101.2	HCK	HCK	20	2200	880			360
NP_000866.1	IGF1R	IGF1R	210		2600	740		
NP_054721.1	IKBKE	IKK-epsilon	5.1	480	620	2600		
NP_000199.2	INSR	INSR	110	1200	500	630		
NP_055030.1	INSRR	INSRR	81	2000	430	290		
NP_009130.1	IRAK3	IRAK3	13	1900	940	5600		
NP_005537.3	ITK	ITK	19	190	13	350		
NP_002218.2	JAK1	JAK1(Kin.Dom.1/JH2 - pseudokinase)		97	49			
NP_004963.1	JAK2	JAK2(Kin.Dom.2/JH1 - catalytic)	11	1600	410	190		
NP_000206.2	JAK3	JAK3(Kin.Dom.2/JH1 - catalytic)	10	580	1200	630		
NP_002741.1	MAPK8	JNK1	220					
NP_620707.1	MAPK9	JNK2						
NP_002744.1	MAPK10	JNK3	110			2800		
NP_000213.1	KIT	KIT	19	0.68	0.37	240		260
NP_000213.1	KIT	KIT(D816V)	0.64	340	380	290		290
NP_000213.1	KIT	KIT(V559D)	15	0.51	0.41	240		180
NP_000213.1	KIT	KIT(V559D,T670I)	9.5	0.56	0.28	430		2000
NP_000213.1	KIT	KIT(V559D,V654A)	38	0.25	0.21	2300		560
NP_004681.1	LATS1	LATS1	42	850	630	5500		
NP_055387.1	LATS2	LATS2	17	430	460			
NP_005347.3	LCK	LCK	30	2300	230	61	4600	17
NP_002305.1	LIMK1	LIMK1	480			2600		
NP_005560.1	LIMK2	LIMK2	9200			2600		
NP_000446.1	STK11	LKB1	61	360	38	1300		
BAA35073.1	STK10	LOK	0.037	230	19	120		81
NP_996844.1	LTK	LTK	37	4200	1800	7500		550
NP_002341.1	LYN	LYN	40	810	270	650	1700	110
NP_005913.2	MAP3K4	MAP3K4	1200			2500		
NP_005914.1	MAP3K5	MAP3K5	110					
NP_001036065.1	MAP4K1	MAP4K1	4.3	15	16	72		
NP_003609.2	MAP4K3	MAP4K3	8.2	210	180	290		1500
NP_663719.1	MAP4K4	MAP4K4	24	260	140	2400		1400
NP_006566.2	MAP4K5	MAP4K5	18	300	41	83		450
NP_116584.2	MAPKAPK2	MAPKAPK2	880					
NP_003659.2	MAPKAPK5	MAPKAPK5						
CAH72463.1	MARK1	MARK1	4	1500	1200	4900		
NP_059672.2	MARK2	MARK2	0.7	440	310	1400		
NP_002367.4	MARK3	MARK3	3	1100	410	2500		
NP_113605.2	MARK4	MARK4	5.4	2000	3600	4900		
NP_002746.1	MAP2K1	MEK1	21	77	130	1800		1800
NP_109587.1	MAP2K2	MEK2	28	120	110	2000		1100
NP_002747.2	MAP2K3	MEK3	5					
NP_003001.1	MAP2K4	MEK4	70	1400				
NP_002749.2	MAP2K6	MEK6	3.4	5500		2600		
NP_055606.1	MELK	MELK	33	340	350	240		
AAB60430.1	MERTK	MERTK	6.4	66	26	1700		1400
NP_000236.2	MET	MET	190			670		5700
CAI14764.1	MKNK1	MKNK1	170					360
AAF17226.1	MKNK2	MKNK2	17	5500				1700
NP_872299.1	MLCK	MLCK	140	42	23	15		
NP_149132.2	MAP3K9	MLK1	10	2600	3400	390		
NP_002437.2	MAP3K10	MLK2	52			1800		
NP_002410.1	MAP3K11	MLK3	20	1700	1300	680		
NP_003598.2	CDC42BPA	MRCKA	57					2600
NP_006026.3	CDC42BPB	MRCKB	42					2500
NP_006273.1	STK4	MST1	0.19	130	19	200		
NP_006272.2	STK3	MST2	0.18	65	56	510		
NP_003567.2	STK24	MST3	120	100	63	3600		
NP_057626.2	RP6-213H19.1	MST4	140	330	340			
NP_005583.1	MUSK	MUSK	86	100	490	300		
NP_444254.3	MYLK	MYLK	15	360	280			
NP_149109.1	MYLK2	MYLK2	61	190	49	43		
NP_059129.2	MYO3A	MYO3A	500					
NP_620482.1	MYO3B	MYO3B	300		4500			
NP_055815.1	STK38L	NDR2	28	2000	970			
NP_036356.1	NEK1	NEK1	860					
NP_002488.1	NEK2	NEK2	750	1100	1400			
NP_954983.1	NEK5	NEK5	810			4200		
NP_055212.2	NEK6	NEK6						
NP_598001.1	NEK7	NEK7	4500	3200	4100			
NP_149107.3	NEK9	NEK9	3100					
NP_057315.2	NLK	NLK	220					
NP_620581.1	MAPK14	p38-alpha					2.8	
NP_002742.3	MAPK11	p38-beta					74	
AAB40118.1	MAPK12	p38-gamma	42					
NP_002567.3^	PAK1	PAK1	0.57			4400		
NP_002568.2	PAK2	PAK2	3.1			5700		
NP_002569.1	PAK3	PAK3	7.1	190	16	3300		
NP_001014833.1	PAK4	PAK4	6.3		2300	4300		
NP_064553.1	PAK6	PAK6	0.57		2400			
NP_065074.1	PAK7	PAK7/PAK5	1.2		640	3300		
NP_006192.1^	PCTK1	PCTK1	24	940	150	230		
CAA47004.1	PCTK2	PCTK2	96		1200			
NP_002587.2	PCTK3	PCTK3	270		1700			

Supplementary Table 2. Binding results (Kd's in nM) for 38 kinase inhibitors against 317 kinases. Blank fields indicate combinations that were tested, but for which binding was weak (Kd > 10 uM), or not detected in a primary screen (10 uM).

Accession Number	Entrez Gene Symbol	Kinase Target	Staurosporine	SU-14813	Sunitinib	VX-680/MK-0457	VX-745	ZD-6474
NP_006197.1	PDGFRA	PDGFRA	10	1.1	0.79	1600		230
NP_002600.1	PDGFRB	PDGFRB	1.8	0.29	0.075	310	8400	88
NP_002604.1	PDPK1	PDPK1	1.7	2600	3500			
NP_036527.1	PFTK1	PFTK1	160		270			
NP_006204.1	PHKG1	PHKG1	0.65	83	5.5	2200		1100
NP_000285.1	PHKG2	PHKG2	0.14	100	5.9			
NP_006209.2	PIK3CA	PIK3CA						
NP_006209.2	PIK3CA	PIK3CA(E545K)						
NP_002639.1	PIM1	PIM1	3.2					
NP_006866.2	PIM2	PIM2	1.9					
NP_001001852.1	PIM3	PIM3	0.51	2400	2400			
AAC50911.1	PIP5K1A	PIP5K1A	43	130	5400	130		
NP_003550.1	PIP5K2B	PIP5K2B	77	260	39	140		
NP_002721.1	PRKACA	PKAC-alpha	19					
NP_002722.1	PRKACB	PKAC-beta	29					
NP_872629.1	PKMYT1	PKMYT1						
NP_998725.1	PKN1	PKN1	1.3	1900	710	1500		
NP_006247.1	PKN2	PKN2	2.5	3800	1300			
NP_005021.2	PLK1	PLK1	190					
NP_004064.2	PLK3	PLK3	910					
BAB69958.1	PLK4	PLK4	0.77	180	190	9.2		620
NP_006245.2	PRKCD	PRKCD	1.5					
NP_005391.1	PRKCE	PRKCE	0.25					
NP_006246.2	PRKCH	PRKCH	4.8					
NP_006248.1	PRKCQ	PRKCQ	8.5	7200	4300			
NP_002733.2	PRKD1	PRKD1	27	2400	310			
NP_057541.2	PRKD2	PRKD2	72	3700	380			
NP_005804.1	PRKD3	PRKD3	18	2700	280			
NP_006249.1	PRKG1	PRKG1	32					
NP_006250.1	PRKG2	PRKG2	16					
NP_002750.1	EIF2AK2	PRKR	360	1300	670			
NP_005035.1	PRKX	PRKX	13					
NP_722560.1	PTK2	PTK2	64	1200	440			
NP_775267.1	PTK2B	PTK2B	3.5	600	82	2600		
NP_005966.1	PTK6	PTK6	2300					160
NP_002871.1	RAF1	RAF1						
NP_065681.1	RET	RET	15	37	12	28		34
NP_065681.1	RET	RET(M918T)	28	24	19	26		14
NP_113668.2	RIOK1	RIOK1	130	590	35	360		
NP_003822.2	RIOK3	RIOK3	76	9700	3800	600		
NP_003795.2	RIPK1	RIPK1		1200	370	20		
NP_003812.1	RIPK2	RIPK2	5200					4.6
NP_002935.2	ROS1	ROS1	30			610		
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.1 - N-terminal)	43	180	140			
NP_002944.2	RPS6KA1	RPS6KA1(Kin.Dom.2 - C-terminal)	1200	5800	5000			400
NP_066958.2	RPS6KA2	RPS6KA2(Kin.Dom.1 - N-terminal)	8.9	260	17	2000		
NP_001006933.1	RPS6KA2	RPS6KA2(Kin.Dom.2 - C-terminal)	190	9600	8400			
NP_004577.1	RPS6KA3	RPS6KA3(Kin.Dom.1 - N-terminal)	69	2100	580	6400		
NP_001006945.1	RPS6KA4	RPS6KA4(Kin.Dom.1 - N-terminal)	120	200	96			
NP_003933.1	RPS6KA4	RPS6KA4(Kin.Dom.2 - C-terminal)	2200	2000	2000			
NP_872198.1	RPS6KA5	RPS6KA5(Kin.Dom.1 - N-terminal)	42	150	28			
NP_004746.2	RPS6KA5	RPS6KA5(Kin.Dom.2 - C-terminal)	890	1500	1700			
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.1 - N-terminal)	18	3100	2400			
NP_055311.1	RPS6KA6	RPS6KA6(Kin.Dom.2 - C-terminal)	3300					240
NP_001012418.1	RP11-145H9.1	SgK085	470	32	15	2200		
NP_055535.2	SLK	SLK	0.024	460	56	82		95
NP_112214.1	NUAK2	SNARK	0.086	400	150	530		
NP_775490.2	SNF1LK	SNF1LK	2.2	2700	3200	2500		1900
NP_056006.1	SNF1LK2	SNF1LK2	1.1	750	580	1700		430
NP_005408.1	SRC	SRC	86	4900	2100	170	5500	70
NP_543013.1	SRMS	SRMS	740	62				1900
NP_003128.3	SRPK1	SRPK1	5.5	4000	250	82		
AAC05299.1	SRPK2	SRPK2	67	200	190	680		
CAA06700.1	STK16	STK16	270	730	250	610		
NP_112168.1	STK33	STK33	1.8	130	17			1400
NP_056505.1	STK36	STK36	6700					
NP_003168.2	SYK	SYK	14			1800		
NP_003206.1	TEC	TEC	1300					
NP_006276.2	TESK1	TESK1	320			5600		3700
NP_004603.1	TGFBR1	TGFBR1	2000					
NP_003233.4	TGFBR2	TGFBR2						
NP_005415.1	TIE1	TIE1	65			270		1500
NP_000450.2	TEK	TIE2	140			450		1000
NP_036422.3	TLK1	TLK1	27	630	740			
AAF03095.1	TLK2	TLK2	16	270	330			
NP_055843.1	TNIK	TNIK	4.7	90	25	1800		2300
AAH35782.1	TNK1	TNK1	2.5	1500	680	83		
NP_001010938.1	TNK2	TNK2	16	4900	8900	4400		
NP_057062.1	TNNI3K	TNNI3K	1000					2800
NP_001012331.1	NTRK1	TRKA	4	480	100	38		
NP_006171.2	NTRK2	TRKB	3.8	990	590	240		
AAA75374.1	NTRK3	TRKC	17	220	5100	200		
NP_114417.1	TSSK1	TSSK1	24		6300			
NP_003309.2	TTK	TTK	61	180	63			
NP_003319.1	TXK	TXK	230			2700		3700
CAA38449.1	TYK2	TYK2(Kin.Dom.2/JH1 - catalytic)	56	5100	1600			
NP_006284.2	TYRO3	TYRO3	280	2400	49			93
NP_002244.1	KDR	VEGFR2	220	2.3	1.5	2000		820
NP_003381.1	WEE1	WEE1	1600	3000	1100	3200		
NP_060871.1	STK32B	YANK2	98					
NP_775846.2	STK32C	YANK3	310					
NP_005424.1	YES1	YES	52	260	120	470	1600	120
NP_006365.2	STK25	YSK1	110	360	290	4800		
NP_598407.1	ZAK	ZAK				2800		5100
NP_997402.1	ZAP70	ZAP70	44					

Supplementary Table 3. Comparison of binding constants shown in **Supplementary Table 2** to published results.

Inhibitor	Kinase	K_d (nM)	Published $IC_{50}/K_d/K_i$ (nM)	Reference
ABT-869	CSF1R	3.4	3	Mol. Cancer Ther. 5, 995-1006 (2006)
ABT-869	FLT3	0.63	4	Mol. Cancer Ther. 5, 995-1006 (2006)
ABT-869	VEGFR2	8.1	4	Mol. Cancer Ther. 5, 995-1006 (2006)
AMG-706	FLT1	12	2	Cancer Res. 66, 8715-8721 (2006)
AMG-706	FLT4	9.7	6	Cancer Res. 66, 8715-8721 (2006)
AMG-706	KIT	3.7	8	Cancer Res. 66, 8715-8721 (2006)
AMG-706	PDGFRB	9.1	84	Cancer Res. 66, 8715-8721 (2006)
AMG-706	VEGFR2	26	3	Cancer Res. 66, 8715-8721 (2006)
AST-487	FLT3	0.79	520	Cancer Res. 67, 6956-6964 (2007)
AST-487	KIT	5.4	500	Cancer Res. 67, 6956-6964 (2007)
AZD-1152HQPA	AURKB	7.2	0.36	Clin. Cancer Res. 11, B220 (2005)
BIRB-796	p38-alpha	0.37	0.1	Nature Struct. Biol. 9, 268-272 (2002)
BMS-387032/SNS-032	CDK2	69	48	J. Med. Chem. 47, 1719-1728 (2004)
CHIR-258/TKI-258	FGFR3	230	9	Blood 105, 2941-2948 (2005)
CHIR-258/TKI-258	FLT3	0.64	1	Blood 105, 2941-2948 (2005)
CHIR-265/RAF-265	BRAF	1200	3-60	Proc. Amer. Assoc. Cancer Res. 47, 1140 (2006)
CHIR-265/RAF-265	VEGFR2	1300	30	Proc. Amer. Assoc. Cancer Res. 47, 1140 (2006)
CI-1033	EGFR	0.19	0.8	Semin. Oncol. 29, 11-21 (2002)
CI-1033	ERBB2	87	19	Semin. Oncol. 29, 11-21 (2002)
CP-690550	JAK2	5	20	Science 302, 875-878 (2003)
CP-690550	JAK3	2.2	1	Science 302, 875-878 (2003)
CP-724714	ERBB2	43	3.8	J. Clin. Oncol. 22, Suppl. 3122 (2004)
Dasatinib	ABL1	0.53	0.6	Cancer Res. 65, 4500-4505 (2005)
Dasatinib	SRC	0.21	0.8	Cancer Res. 65, 4500-4505 (2005)
EKB-569	EGFR	0.44	38.5	Nature Med. 6, 1024-1028 (2000)
Erlotinib	EGFR	0.67	2	Cancer Res. 57, 4838-4848 (1997)
Flavopiridol	CDK2	550	100	Cancer Res. 56, 2973-2978 (1996)
Gefitinib	EGFR	1	2	Cancer Res. 62, 5749-5754 (2002)
GW-2580	CSF1R	1.6	30	Proc. Natl. Acad. Sci. USA 102, 16078-16083 (2005)
GW-786034	FLT1	14	10	Mol. Cancer Ther. 6, 2012-2021 (2007)
GW-786034	FLT4	27	47	Mol. Cancer Ther. 6, 2012-2021 (2007)
GW-786034	KIT	2.8	74	Mol. Cancer Ther. 6, 2012-2021 (2007)
GW-786034	PDGFRA	4.9	71	Mol. Cancer Ther. 6, 2012-2021 (2007)
GW-786034	PDGFRB	2	84	Mol. Cancer Ther. 6, 2012-2021 (2007)
GW-786034	VEGFR2	14	30	Mol. Cancer Ther. 6, 2012-2021 (2007)
Imatinib	ABL1	12	37	Science 289, 1938-1942 (2000)
Imatinib	KIT	14	413	Eur. J. Cancer 38, S19-S27 (2002)
Imatinib	PDGFRB	14	386	Eur. J. Cancer 38, S19-S27 (2002)
JNJ-7706621	AURKB	160	15	J. Med. Chem. 48, 4208-4211 (2005)
JNJ-7706621	CDK2	23	4	J. Med. Chem. 48, 4208-4211 (2005)
Lapatinib	EGFR	2.4	3	Cancer Res. 64, 6652-6659 (2004)
Lapatinib	ERBB2	7	13	Cancer Res. 64, 6652-6659 (2004)
MLN-518	FLT3	3	220	Cancer Cell 1, 421-432 (2002)
MLN-518	KIT	2.7	170	Cancer Cell 1, 421-432 (2002)
MLN-8054	AURKA	6.5	4	Proc. Natl. Acad. Sci. USA 104, 4106-4111 (2007)
PI-103	PIK3CA	1.5	2	Cancer Res. 67, 5840-5850 (2007)
PKC-412	FLT3	11	<10	Cancer Cell 1, 433-443 (2002)
PKC-412	KIT	220	600	Anticancer Drug Des. 15, 17-28 (2000)
PTK-787	VEGFR2	62	37	Cancer Res. 60, 2178-2189 (2000)
Roscovitine/CYC-202	CDK2	3400	700	Biochem. J. 371, 199-204 (2003)
Roscovitine/CYC-202	CDK5	1900	200	Biochem. J. 371, 199-204 (2003)
SB-202190	p38-alpha	9.8	50	Biochem. J. 351, 95-105 (2000)
SB-203580	p38-alpha	12	40	Biochemistry 37, 13846-13853 (1998)
SB-431542	ACVR1B/ALK4	190	750	Mol. Pharmacol. 62, 65-74 (2002)
SB-431542	TGFBR1/ALK5	170	500	Mol. Pharmacol. 62, 65-74 (2002)
Sorafenib	BRAF	540	22	Cancer Res. 64, 7099-7109 (2004)
Sorafenib	VEGFR2	59	90	Cancer Res. 64, 7099-7109 (2004)
Staurosporine	PRKCH	4.8	1.3	FEBS Lett. 362, 139-142 (1995)
SU-14813	FLT1	4.7	2	Mol. Cancer Ther. 5, 1774-1782 (2006)
SU-14813	KIT	0.68	15	Mol. Cancer Ther. 5, 1774-1782 (2006)
SU-14813	PDGFRB	0.29	4	Mol. Cancer Ther. 5, 1774-1782 (2006)
SU-14813	VEGFR2	2.3	50	Mol. Cancer Ther. 5, 1774-1782 (2006)
Sunitinib	FLT3	0.47	30	Blood 101, 3597-3605 (2003)
Sunitinib	KIT	0.37	1-10	Mol. Cancer Ther. 2, 471-478 (2003)
Sunitinib	VEGFR2	1.5	9	Clin. Cancer Res. 9, 327-337 (2003)
VX-680/MK-0457	AURKA	4.1	0.6	Nat. Med. 10, 262-267 (2004)
VX-680/MK-0457	AURKB	7.4	18	Nat. Med. 10, 262-267 (2004)
VX-680/MK-0457	AURKC	6.3	4.6	Nat. Med. 10, 262-267 (2004)
VX-745	p38-alpha	2.8	0.8	Nat. Struct. Biol. 10, 764-769 (2003)
ZD-6474	EGFR	9.5	500	Cancer Res. 62, 4645-4655 (2002)
ZD-6474	FLT4	1100	110	Cancer Res. 62, 4645-4655 (2002)
ZD-6474	RET	34	100	Cancer Res. 62, 7284-7290 (2002)
ZD-6474	VEGFR2	820	40	Cancer Res. 62, 4645-4655 (2002)

Supplementary Table 4. Selectivity scores.

Inhibitor	S(3 μM)	S(100 nM)	S_{TK}(3 μM)	S_{STK}(3 μM)	S_{TK}(100 nM)	S_{STK}(100 nM)	S([K_d off-target/K_d primary target] < 10)
ABT-869	0.1621	0.0448	0.3247	0.1048	0.1299	0.0143	0.0105
AMG-706	0.0897	0.0414	0.2338	0.0381	0.1429	0.0048	0.0383
AST-487	0.4517	0.1586	0.7532	0.3476	0.3117	0.1048	0.0417
AZD-1152HQPA	0.0966	0.0241	0.2338	0.0476	0.0649	0.0095	0.0173
BIRB-796	0.1621	0.0310	0.3506	0.0952	0.0519	0.0238	0.0035
BMS-387032/SNS-032	0.1276	0.0379	0.0000	0.1762	0.0000	0.0524	0.0588
CHIR-258/TKI-258	0.3310	0.0517	0.3766	0.3095	0.1039	0.0333	0.0069
CHIR-265/RAF-265	0.1276	0.0172	0.3247	0.0571	0.0130	0.0190	0.1215
CI-1033	0.1483	0.0138	0.3506	0.0762	0.0519	0.0000	0.0000
CP-690550	0.0345	0.0103	0.0649	0.0238	0.0260	0.0048	0.0069
CP-724714	0.0207	0.0069	0.0390	0.0143	0.0260	0.0000	0.0069
Dasatinib	0.2828	0.1586	0.5455	0.1905	0.4675	0.0476	0.1042
EKB-569	0.1793	0.0276	0.2597	0.1476	0.0649	0.0143	0.0000
Erlotinib	0.1517	0.0138	0.3377	0.0857	0.0130	0.0143	0.0035
Flavopiridol	0.1897	0.0207	0.0649	0.2381	0.0000	0.0286	0.1696
Gefitinib	0.0724	0.0069	0.1039	0.0619	0.0130	0.0048	0.0000
GW-2580	0.0138	0.0069	0.0519	0.0000	0.0260	0.0000	0.0000
GW-786034	0.2103	0.0345	0.3766	0.1524	0.1169	0.0048	0.0244
Imatinib	0.0655	0.0310	0.1818	0.0238	0.1169	0.0000	0.0209
JNJ-7706621	0.3724	0.0276	0.2987	0.4000	0.0260	0.0286	0.0833
Lapatinib	0.0103	0.0103	0.0390	0.0000	0.0390	0.0000	0.0000
LY-333531	0.1552	0.0172	0.0260	0.1952	0.0000	0.0238	0.0138
MLN-518	0.0552	0.0172	0.1299	0.0286	0.0649	0.0000	0.0104
MLN-8054	0.1310	0.0172	0.3766	0.0429	0.0130	0.0190	0.0104
PI-103	0.0241	0.0034	0.0000	0.0286	0.0000	0.0000	0.0000
PKC-412	0.4655	0.0759	0.5065	0.4476	0.0649	0.0810	0.0764
PTK-787	0.0345	0.0207	0.1299	0.0000	0.0779	0.0000	0.0242
Roscovitine/CYC-202	0.0345	0.0000	0.0130	0.0429	0.0000	0.0000	0.0313
SB-202190	0.0931	0.0207	0.0519	0.1095	0.0000	0.0286	0.0173
SB-203580	0.1034	0.0241	0.0649	0.1190	0.0000	0.0333	0.0242
SB-431542	0.0172	0.0000	0.0000	0.0238	0.0000	0.0000	0.0104
Sorafenib	0.1793	0.0483	0.3766	0.1095	0.1558	0.0095	0.0972
Staurosporine	0.8724	0.5966	0.9481	0.8476	0.5844	0.6000	0.5017
SU-14813	0.5069	0.0931	0.5195	0.5000	0.1818	0.0619	0.0174
Sunitinib	0.5690	0.1828	0.6364	0.5476	0.2078	0.1714	0.0174
VX-680/MK-0457	0.3759	0.0690	0.6494	0.2714	0.1039	0.0571	0.0314
VX-745	0.0345	0.0069	0.1039	0.0095	0.0000	0.0095	0.0000
ZD-6474	0.2690	0.0517	0.6364	0.1381	0.1429	0.0190	0.2613

Supplementary Table 5. Full length and catalytic domain kinases used in binding assays.

Accession Number	Kinase Target	Full length kinase used for binding assay
NP_055726.2	AAK1	no
NP_005148.2	ABL1	no
NP_005148.2	ABL1(E255K)	no
NP_005148.2	ABL1(H396P)	no
NP_005148.2	ABL1(M351T)	no
NP_005148.2	ABL1(Q252H)	no
NP_005148.2	ABL1(T315I)	no
NP_005148.2	ABL1(Y253F)	no
NP_005149.2	ABL2	no
NP_001096.1	ACVR1	no
NP_004293.1	ACVR1B	no
NP_001607.1	ACVR2A	no
NP_001097.2	ACVR2B	no
NP_000011.2	ACVRL1	no
NP_064632.2	ADCK3	no
NP_079152.3	ADCK4	yes
NP_005154.2	AKT1	no
NP_001617.1	AKT2	no
NP_005456.1	AKT3	no
NP_004295.2	ALK	no
BAA36547.1	AMPK-alpha1	no
NP_006243.2	AMPK-alpha2	no
NP_848605.1	ANKK1	no
NP_055655.1	ARK5	no
NP_003591.2	AURKA	no
AAH00442.2	AURKB	no
AAC77369.1	AURKC	yes
NP_001690.2	AXL	no
NP_060063.2	BIKE	no
NP_001706.2	BLK	no
NP_004320.2	BMPR1A	no
NP_001195.2	BMPR2	no
NP_001712.1	BMX	yes
NP_004324.2	BRAF	no
NP_004324.2	BRAF(V600E)	no
NP_115806.1	BRSK1	no
NP_003948.2	BRSK2	yes
NP_000052.1	BTK	yes
NP_003647.1	CAMK1	yes
NP_065130.1	CAMK1D	no
NP_065172.1	CAMK1G	no
NP_741960.1	CAMK2A	no
NP_001211.3	CAMK2B	no
AAD20442.1	CAMK2D	no
NP_751912.1	CAMK2G	no
NP_001735.1	CAMK4	no
NP_115670.1	CAMKK1	no
NP_006540.3	CAMKK2	no
NP_277023.1	CDC2L1	no
NP_076916.1	CDC2L2	no
NP_055891.1	CDK11	no
NP_001789.2	CDK2	yes
NP_001249.1	CDK3	yes
NP_004926.1	CDK5	yes
NP_001790.1	CDK7	yes
NP_001251.1	CDK8	no
NP_001252.1	CDK9	yes
NP_001265.1	CHEK1	no
NP_009105.1	CIT	no
AAA61480.1	CLK1	yes
NP_003984.2	CLK2	no
NP_003983.1	CLK3	yes
NP_065717.1	CLK4	no
NP_005202.2	CSF1R	no
NP_004374.1	CSK	yes
NP_660204.1	CSNK1A1L	yes
NP_620693.1	CSNK1D	yes
NP_001885.1	CSNK1E	yes
NP_071331.2	CSNK1G1	no
NP_001310.2	CSNK1G2	yes
NP_004375.2	CSNK1G3	yes
NP_001886.1	CSNK2A1	yes
NP_001887.1	CSNK2A2	yes
NP_004929.2	DAPK1	no
NP_055141.2	DAPK2	yes
NP_001339.1	DAPK3	no

Supplementary Table 5. Full length and catalytic domain kinases used in binding assays.

Accession Number	Kinase Target	Full length kinase used for binding assay
NP_004725.1	DCAMKL1	no
NP_001035351.1	DCAMKL2	no
XP_047355.6	DCAMKL3	no
NP_001945.3	DDR1	no
CAA52777.1	DDR2	no
NP_006292.2	DLK	yes
NP_004400.4	DMPK	no
NP_059995.1	DMPK2	no
NP_004751.2	DRAK1	no
NP_004217.1	DRAK2	yes
NP_004705.1	DYRK1B	yes
NP_005219.2	EGFR	no
NP_005219.2	EGFR(E746-A750del)	no
NP_005219.2	EGFR(G719C)	no
NP_005219.2	EGFR(G719S)	no
NP_005219.2	EGFR(L747-E749del, A750P)	no
NP_005219.2	EGFR(L747-S752del, P753S)	no
NP_005219.2	EGFR(L747-T751del,Sins)	no
NP_005219.2	EGFR(L858R)	no
NP_005219.2	EGFR(L861Q)	no
NP_005219.2	EGFR(S752-I759del)	no
NP_005223.3	EPHA1	no
NP_004422.2	EPHA2	no
NP_005224.2	EPHA3	no
NP_004429.1	EPHA4	no
NP_004430.3	EPHA5	no
NP_001073917.1	EPHA6	no
NP_004431.1	EPHA7	no
NP_065387.1	EPHA8	no
NP_004432.1	EPHB1	no
NP_059145.2	EPHB2	no
NP_004434.2	EPHB3	no
NP_004435.3	EPHB4	no
NP_001005862.1	ERBB2	no
NP_001036064.1	ERBB4	no
NP_002737.2	ERK1	yes
NP_620407.1	ERK2	yes
NP_002739.1	ERK3	no
NP_002738.2	ERK4	no
NP_002740.2	ERK5	no
NP_620590.2	ERK8	no
NP_005237.2	FER	no
NP_001996.1	FES	no
NP_075593.1	FGFR1	no
NP_075259.2	FGFR2	no
NP_000133.1	FGFR3	no
NP_000133.1	FGFR3(G697C)	no
NP_075252.2	FGFR4	no
NP_005239.1	FGR	no
NP_002010.1	FLT1	no
NP_004110.2	FLT3	no
NP_004110.2	FLT3(D835H)	no
NP_004110.2	FLT3(D835Y)	no
NP_004110.2	FLT3(ITD)	no
NP_004110.2	FLT3(N841I)	no
CAA49505.1	FLT4	no
NP_002022.1	FRK	no
NP_694592.1	FYN	no
NP_005246.1	GAK	no
NP_001013725.2	GCN2(Kin.Dom.2,S808G)	no
NP_063937.2	GSK3A	yes
NP_002084.2	GSK3B	yes
NP_002101.2	HCK	no
NP_000866.1	IGF1R	no
NP_054721.1	IKK-epsilon	yes
NP_000199.2	INSR	no
NP_055030.1	INSRR	no
NP_009130.1	IRAK3	no
NP_005537.3	ITK	no
NP_002218.2	JAK1(Kin.Dom.1/JH2 - pseudokinase)	no
NP_004963.1	JAK2(Kin.Dom.2/JH1 - catalytic)	no
NP_000206.2	JAK3(Kin.Dom.2/JH1 - catalytic)	no
NP_002741.1	JNK1	yes
NP_620707.1	JNK2	yes
NP_002744.1	JNK3	no
NP_000213.1	KIT	no

Supplementary Table 5. Full length and catalytic domain kinases used in binding assays.

Accession Number	Kinase Target	Full length kinase used for binding assay
NP_000213.1	KIT(D816V)	no
NP_000213.1	KIT(V559D)	no
NP_000213.1	KIT(V559D,T670I)	no
NP_000213.1	KIT(V559D,V654A)	no
NP_004681.1	LATS1	no
NP_055387.1	LATS2	no
NP_005347.3	LCK	no
NP_002305.1	LIMK1	yes
NP_005560.1	LIMK2	yes
NP_000446.1	LKB1	yes
BAA35073.1	LOK	no
NP_996844.1	LTK	no
NP_002341.1	LYN	no
NP_005913.2	MAP3K4	no
NP_005914.1	MAP3K5	no
NP_001036065.1	MAP4K1	no
NP_003609.2	MAP4K3	no
NP_663719.1	MAP4K4	no
NP_006566.2	MAP4K5	no
NP_116584.2	MAPKAPK2	no
NP_003659.2	MAPKAPK5	no
CAH72463.1	MARK1	no
NP_059672.2	MARK2	no
NP_002367.4	MARK3	yes
NP_113605.2	MARK4	no
NP_002746.1	MEK1	yes
NP_109587.1	MEK2	yes
NP_002747.2	MEK3	yes
NP_003001.1	MEK4	no
NP_002749.2	MEK6	no
NP_055606.1	MELK	yes
AAB60430.1	MERTK	no
NP_000236.2	MET	no
CAI14764.1	MKNK1	yes
AAF17226.1	MKNK2	no
NP_872299.1	MLCK	no
NP_149132.2	MLK1	no
NP_002437.2	MLK2	no
NP_002410.1	MLK3	no
NP_003598.2	MRCKA	no
NP_006026.3	MRCKB	no
NP_006273.1	MST1	yes
NP_006272.2	MST2	no
NP_003567.2	MST3	no
NP_057626.2	MST4	yes
NP_005583.1	MUSK	no
NP_444254.3	MYLK	no
NP_149109.1	MYLK2	no
NP_059129.2	MYO3A	no
NP_620482.1	MYO3B	no
NP_055815.1	NDR2	no
NP_036356.1	NEK1	no
NP_002488.1	NEK2	no
NP_954983.1	NEK5	no
NP_055212.2	NEK6	no
NP_598001.1	NEK7	yes
NP_149107.3	NEK9	no
NP_057315.2	NLK	yes
NP_620581.1	p38-alpha	yes
NP_002742.3	p38-beta	yes
AAB40118.1	p38-gamma	yes
NP_002567.3^	PAK1	no
NP_002568.2	PAK2	no
NP_002569.1	PAK3	yes
NP_001014833.1	PAK4	no
NP_064553.1	PAK6	no
NP_065074.1	PAK7/PAK5	no
NP_006192.1^	PCTK1	no
CAA47004.1	PCTK2	yes
NP_002587.2	PCTK3	yes
NP_006197.1	PDGFRA	no
NP_002600.1	PDGFRB	no
NP_002604.1	PDPK1	yes
NP_036527.1	PFTK1	yes
NP_006204.1	PHKG1	yes
NP_000285.1	PHKG2	no

Supplementary Table 5. Full length and catalytic domain kinases used in binding assays.

Accession Number	Kinase Target	Full length kinase used for binding assay
NP_006209.2	PIK3CA	no
NP_006209.2	PIK3CA(E545K)	no
NP_002639.1	PIM1	no
NP_006866.2	PIM2	no
NP_001001852.1	PIM3	no
AAC50911.1	PIP5K1A	yes
NP_003550.1	PIP5K2B	yes
NP_002721.1	PKAC-alpha	no
NP_002722.1	PKAC-beta	yes
NP_872629.1	PKMYT1	no
NP_998725.1	PKN1	no
NP_006247.1	PKN2	no
NP_005021.2	PLK1	no
NP_004064.2	PLK3	no
BAB69958.1	PLK4	no
NP_006245.2	PRKCD	no
NP_005391.1	PRKCE	no
NP_006246.2	PRKCH	no
NP_006248.1	PRKCQ	no
NP_002733.2	PRKD1	no
NP_057541.2	PRKD2	no
NP_005804.1	PRKD3	no
NP_006249.1	PRKG1	no
NP_006250.1	PRKG2	no
NP_002750.1	PRKR	no
NP_005035.1	PRKX	yes
NP_722560.1	PTK2	no
NP_775267.1	PTK2B	yes
NP_005966.1	PTK6	no
NP_002871.1	RAF1	no
NP_065681.1	RET	no
NP_065681.1	RET(M918T)	no
NP_113668.2	RIOK1	yes
NP_003822.2	RIOK3	yes
NP_003795.2	RIPK1	no
NP_003812.1	RIPK2	no
NP_002935.2	ROS1	no
NP_002944.2	RPS6KA1(Kin.Dom.1 - N-terminal)	no
NP_002944.2	RPS6KA1(Kin.Dom.2 - C-terminal)	no
NP_066958.2	RPS6KA2(Kin.Dom.1 - N-terminal)	no
NP_001006933.1	RPS6KA2(Kin.Dom.2 - C-terminal)	no
NP_004577.1	RPS6KA3(Kin.Dom.1 - N-terminal)	no
NP_001006945.1	RPS6KA4(Kin.Dom.1 - N-terminal)	no
NP_003933.1	RPS6KA4(Kin.Dom.2 - C-terminal)	no
NP_872198.1	RPS6KA5(Kin.Dom.1 - N-terminal)	no
NP_004746.2	RPS6KA5(Kin.Dom.2 - C-terminal)	no
NP_055311.1	RPS6KA6(Kin.Dom.1 - N-terminal)	no
NP_055311.1	RPS6KA6(Kin.Dom.2 - C-terminal)	no
NP_001012418.1	SgK085	no
NP_055535.2	SLK	no
NP_112214.1	SNARK	no
NP_775490.2	SNF1LK	no
NP_056006.1	SNF1LK2	yes
NP_005408.1	SRC	no
NP_543013.1	SRMS	no
NP_003128.3	SRPK1	yes
AAC05299.1	SRPK2	yes
CAA06700.1	STK16	no
NP_112168.1	STK33	yes
NP_056505.1	STK36	no
NP_003168.2	SYK	no
NP_003206.1	TEC	no
NP_006276.2	TESK1	no
NP_004603.1	TGFBR1	no
NP_003233.4	TGFBR2	no
NP_005415.1	TIE1	no
NP_000450.2	TIE2	no
NP_036422.3	TLK1	no
AAF03095.1	TLK2	no
NP_055843.1	TNIK	no
AAH35782.1	TNK1	yes
NP_001010938.1	TNK2	no
NP_057062.1	TNNI3K	yes
NP_001012331.1	TRKA	no
NP_006171.2	TRKB	no
AAA75374.1	TRKC	no

Supplementary Table 5. Full length and catalytic domain kinases used in binding assays.

Accession Number	Kinase Target	Full length kinase used for binding assay
NP_114417.1	TSSK1	yes
NP_003309.2	TTK	no
NP_003319.1	TXK	no
CAA38449.1	TYK2(Kin.Dom.2/JH1 - catalytic)	no
NP_006284.2	TYRO3	no
NP_002244.1	VEGFR2	no
NP_003381.1	WEE1	no
NP_060871.1	YANK2	yes
NP_775846.2	YANK3	no
NP_005424.1	YES	no
NP_006365.2	YSK1	no
NP_598407.1	ZAK	no
NP_997402.1	ZAP70	no