

## Supporting Information

### Inhibitors of p21-Activated Kinases (PAKs)

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Detailed kinase selectivity data of compounds **5**, **7**, **13**, **25**, and **28**.

Detailed kinase selectivity data of compounds **5**, **7**, **13**, **25**, and **28** (1 of 3); Source: Invitrogen.

Compound	5	7	13	25	28	Compound	5	7	13	25	28
Test concentration [uM]	1	1	0.1	1	0.1	Test concentration [uM]	1	1	0.1	1	0.1
ACVR1B	1.5	71.3	-0.1	-7	79.3	DCAMKL2			10.9	23.1	
ACVR2B				-1.4		DDR1				38	
AKT1	18.5	2	1.1	-1.7	3.3	DMPK				0.4	
AKT2	-17	7	3.6	8.1		DNA-PK			-6.3	6	
ALK2				6.8		DRAK1				-4.4	
ARK5	95.5	67		60	85.5	DYRK1A	6	3	-2	4.1	
ASK1				47.2		DYRK1B	7	0	0.5	1	
Abl	57.5	98	-0.2	15	99.5	DYRK3	6	-0.6	0.9	2	3.8
Arg	77	98	10.2	7	95.3	DYRK4			-3	1.4	
Aurora_A	62.3	60	10.3	7.3	25.9	EGFR	4.5	62.3	2.4	-0.6	38
Aurora_B	20	42	4.7	22.4		ERK1	20	6	6.2	5.4	12.3
Axl	67	13	1.9	16.5		ERK2	20	1	5	5.4	
B-Raf	35.5	65	8.2	11.9	49	EphA1	1.7	101	15	86.1	90.7
B-Raf(V599E)	20	73		33		EphA2	18	93	9.8	18	43.5
BMPR1A				-0.9		EphA3				1.2	
BTK	72.5	84.7	0.8	5.8	86.3	EphA7				7.5	
Blk	79	94	7.2	26.4	86	EphA8			0	65.2	
Bmx	66	97	11.6	15.4	91.5	EphB1	19.1	96	100.1	74.5	93
BrSK1			4.6	8.6		EphB3			5.5	7.2	
Brk	5.5	96.5	10.2	71.7	92.5	EphB4	15	96.5	5.3	30.6	78.9
CAMKK1				0.3		ErbB2	4	40	-5	2.4	
CAMKK2				-2.1		ErbB4	2	84	-1	1.6	78.9
CDK1/cyclinB	7.5	4	8.1	4.4	16.5	FAK	38	32	3.5	6.8	
CDK2/cyclinA	22	0	1.9	-8.1		FGFR1	82	91.5	-4.5	16.9	83
CDK5/p25	18	0	4.3	4.4		FGFR2	72	93	6.8	15	55.6
CDK5/p35	17	-1	-1.6	0		FGFR3	31	68	7.6	0.5	45.5
CDK7/cyclinH	98	6		-1.4	31	FGFR4	11	39	-1	4.7	
CDK8/cyclinC	3	11.5		12.4	57.3	Fes	43	93.5	51	38.7	38.3
CDK9/cyclinT1	13	-1		-3.3		Fgr			3.6	10.1	
CHK1	91.4	3	-3.5	-8.8	19.1	Flt1	6	58.7	-6	10.8	18.6
CHK2	99	7	5.1	3.6	4.3	Flt3	77.4	92.3	8.7	24.9	83.4
CK1_alpha1			8.8	1.2		Flt4			1	33.5	
CK1_delta	3	0	6.6	8.3		Frk			13.1	2.6	
CK1_epsilon1	3	75.3	7.3	79.2	44	GCK	8	71	1	55.2	69.8
CK1_gamma1			1.9	1		GRK2	10	4	-9.6	0.4	
CK1_gamma2	10.5	6.3	18.3	2.3	-1.5	GRK3	4	-1	1.1	0	
CK2_alpha1	4	6.7	5.2	4.3	-3.5	GRK5			2.5	0.9	
CLK1			11.3	2.6		GRK6			11.7	3.2	
CLK2			0	21		GSK3_alpha	51.5	1	9.7	4.8	40.6
CLK3			8.9	5.7		GSK3_beta	77	-1	4.6	-6.1	11
CLK4				-1.3		HIPK1			1.7	4.5	
CSF1R	8.4	97	2.5	37.5	85.7	HIPK2			2.8	6.8	
CSK			9.8	17.9		HIPK4	42	11	5	11.1	18.6
CaMKI				17.4		Hyl			6.6	4.6	
CaMKII_beta			11.7	4.8		IGF1R	9.5	9.7	2.9	5.9	6.5
CaMKI_delta			6.9	42.7		IKK_alpha	-6	-2		9.2	
CamKII_alpha			-13.8	3.2		IKK_beta	2.5	1.6	6.5	-0.1	3.3
CamKIV			-6.6	16.4		IKK_epsilon			6	-0.6	
Cot	20.3	22	2.8	43.8	19.6	IRAK1				23.7	
DAPK1				-11.3		IRAK4			4.3	26.8	
						IRR	14	13	7.4	7.3	14.5
						InsR	7	7	3.5	1.3	

Detailed kinase selectivity data of compounds **5**, **7**, **13**, **25**, and **28** (2 of 3); Source: Invitrogen.

Compound	5	7	13	25	28	Compound	5	7	13	25	28
Test concentration [uM]	1	1	0.1	1	0.1	Test concentration [uM]	1	1	0.1	1	0.1
Itk	23	7	4	-1.4		PAK1	95	103	2.1	99.7	97.5
JAK1	2	-2	0.1	2		PAK2	85.5	98	14.9	104	97.7
JAK2	9.4	39.3	3.4	-1.8	50.3	PAK3	86	91.8	3.3	96.1	92.6
JAK3	9	39.7	-1.3	-4.3	45.4	PAK4	98.5	16	89.5	5.1	29.2
JNK1_alpha1	9	57.7	4.1	58.5	51	PAK5	100	20.3	75.1	8.2	28.5
JNK2	-1.5	13.7	-1	33.9	14.8	PAK6	99.6	24.3	49.9	22.2	21.8
JNK3	5.5	15.3	2.7	31.5	2.3	PASK			15.9	3.2	
KDR	20	94.3	-3.1	14.7	72.2	PDGFR_alpha	2	76	-3.5	7.8	66.9
KHS1	55	106	-5.1	102	105	PDGFR_alpha(V561D)	23	98		14.9	96
Kit	7	68	-5.5	3.4	37	PDGFR_beta	14	57	0.7	2	
LIMK1	-5	93.5		40.5	42.4	PKD1(direct)	80.3	43.3	13.7	7	-6
LRRK2	16.8	48		-6.9	48.2	PI3K-A	-5	6		-3.5	
LTK			-0.9	-1.8		PI3K-G	-10.5	14.7		-5.2	4.1
Lck	46.5	103	7.6	85.8	97.5	PI3K-C2b	8	19		2	
Lyn	76	98	-2.7	35.2	97.5	PI3K-D			-4.8		
LynB	79	101	11.1	34	99.8	PIM1	6	2	3.8	-1.4	-2
MAP4K4	17.1	101	14.6	58.7	104	PIM2	4	0	8.4	3	
MAPKAPK2	3	2	3.9	-3.8		PKA	103	2	-2.6	1.6	13
MAPKAPK3			4.8	-0.4		PKC_alpha	78	11.5	-12.8	21.4	11.4
MARK1	88.6	12.5	11.3	19.3	25.8	PKC_beta1	58	2	0.5	12.5	
MARK3	100	15	5.5	19.6	37	PKC_delta			8.3	13.7	
MEK1	36.5	29	2.5	24.4	23.8	PKC_epsilon	62	11	-13.2	18.7	
MEK2	20	73	-0.6	15		PKC_eta			12.3	14.3	
MEK3				17		PKC_theta	97	2	22.8	20.1	17
MEKK2				32.7		PKC_zeta			16.4	22.9	
MELK			4.1	47.1		PKD1	94	71.5	9.3	78.7	49.5
MKK6			-11.4	7.1		PKG1_alpha			-2	-1.5	
MKNK1			-2.7	-4		PLK1	35	2	10.8	4.3	
MKNK2				36.7		PLK2			9.2	4.3	
MLK1	53	86	15.4	9.2	11.4	PLK3	18.5	-7.3	5	-4.4	-5.8
MLK2				14.8		PRAK			-2.3	5.2	
MRCK_alpha			-2.4	8.6		PRK1	68	5	10.6	11.5	-1.6
MSK1			4.2	15.6		PRKAA1	101	32.7	12.5	8.5	16
MSSK1			9.8	7.1		PRKAA2	100	55		17	8.3
MST1	88	33.5	-5.1	30	63.7	PhK_gamma1	95.9	13	3.2	4.7	-4.8
MST2			8.8	17		PhK_gamma2			17.3	7.7	
MST3	101	31.3	5.9	100	70.2	PrKX			5.3	15.6	
MST4	96	19	-1.5	96	82	RAF1(Y340D,Y341D)	22.5	63.3	7.6	10.4	18.4
MYLK(smMLCK)				8.3		RIPK2	4.5	99		59.5	101
MYLK2(skMLCK)	30	50.8	8.2	28	25.5	ROCK1	5	-1	0.8	-1.4	
MYLK3(caMLCK)				1.7		ROCK2	10	2	0.5	5.8	
Mer	92	72.5	2.6	26.1	53.8	Ret	81	98	4.4	7	92.1
Met	19	61	4.4	31.8	13.3	Ron	8	79	0.3	49.2	6
Mink1	5.2	89.8	-2.8	65.7	97	Ros			6.8	6.2	
MuSK			0.3	16.9		Rse			1.4	47.5	
NEK1	2	9	8.1	4.2	1.5	Rsk1			6.7	15.4	
NEK2	8	72	6.3	10		Rsk2	105	6	11.7	9.2	-6
NEK4			2	3.8		Rsk3	101	15.5	14.9	25.6	11.9
NEK6			9.9	7.7		Rsk4	100	10.5	2.4	8.6	19.5
NEK9	11	4.5	1.6	1.6	-0.9	SGK1			4.4	-1.3	
NIK			-0.5			SGK2			-2.9	18	
NLK	12.2	77.9		44.6	5	SGK3	47	3	9.3	17.6	2.2

Detailed kinase selectivity data of compounds **5**, **7**, **13**, **25**, and **28** (3 of 3); Source: Invitrogen.

Compound	<b>5</b>	<b>7</b>	<b>13</b>	<b>25</b>	<b>28</b>
Test concentration [uM]	1	1	0.1	1	0.1
SIK2	68	98.3	0.8	88.7	96.3
SLK				9.3	
SPHK1	4	4		2.8	
SRPK1			5.4	4.1	
STK16				27.5	
STK33				18.1	
Src	87.6	94.3	1.9	26.5	92.9
Srm			11.1	-7.7	
Syk	15.1	53.3	4.3	1.6	37.1
TAK1-TAB1	38.2	15.5	-11	0.2	27.9
TAO1	5.5	98.5	-0.2	81	91.5
TBK1	45	34	11.6	5.3	4.3
TEC				2.9	
TGFBR1	-1	95.5		3.1	99.3
TNK2				1.4	
TSSK1	90	10	6.2	9.6	28
TTK				12.6	
TXK			5.1	5.5	
TYK2	14	47	3.3	4.8	
Tie2	0	96	2.1	80.8	24.8
TrkA	83.7	91	9	25.5	51.6
TrkB			15.1	6.9	
WEE1				-1.2	
WNK2				43.6	
YSK1	97	9.8	6.5	96.3	63.9
Yes	86	99	-1.4	14.6	98
ZAK				15.1	
ZAP-70	10	9	2.4	3	4.5
ZIPK			2.9	3.9	
eEF-2K			4.3	10.3	
mTOR	-3	-8	-2.4	-0.5	
p38_alpha(direct)	7	13.3	4.4	-2.6	34.8
p38_beta	8	10	-6.4	5.6	
p38_delta	13	0	8.4	9.6	5.1
p38_gamma			8.1	14.2	
p70S6K	79.2	2	7.2	7.5	15.3