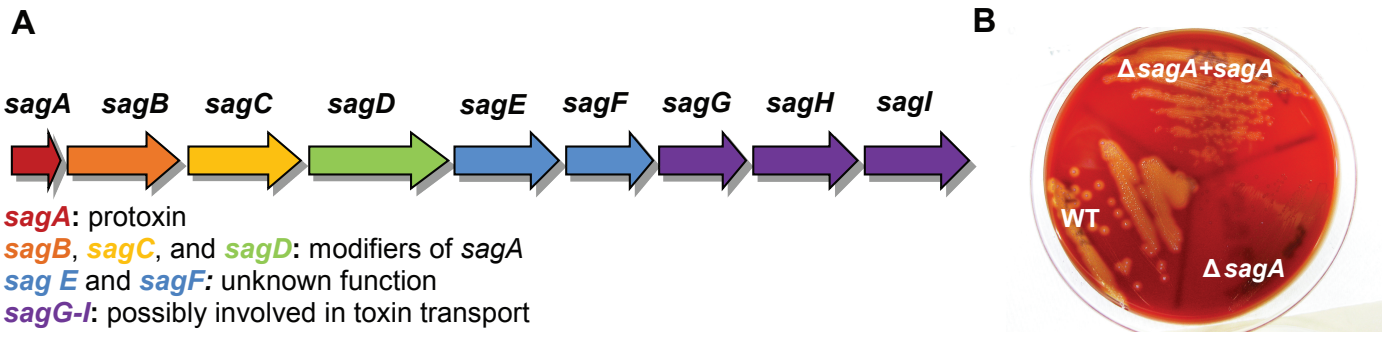
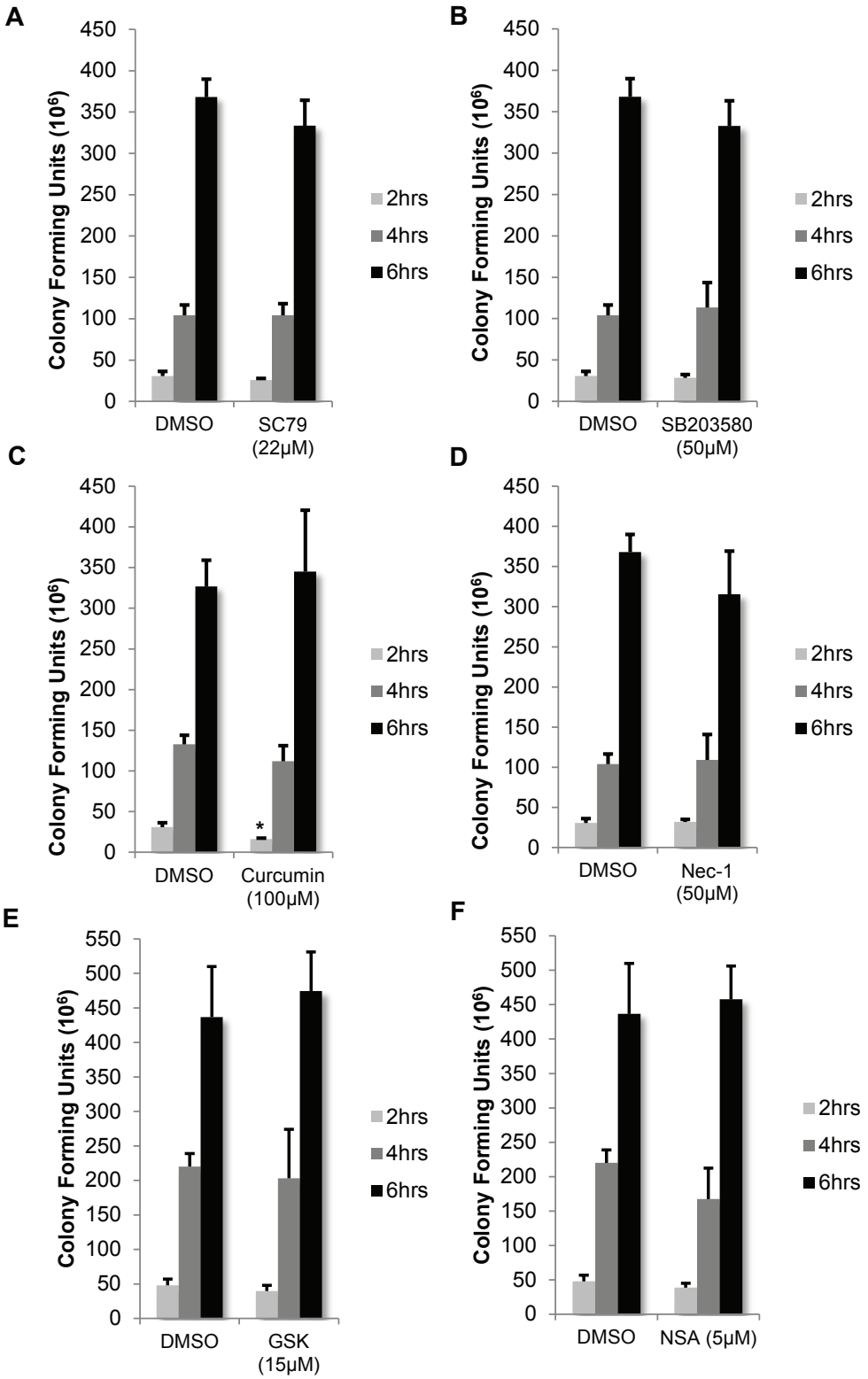
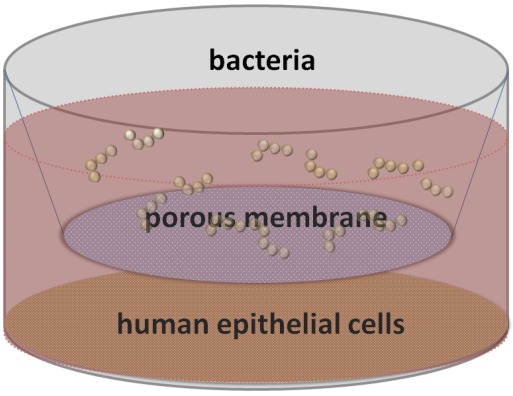


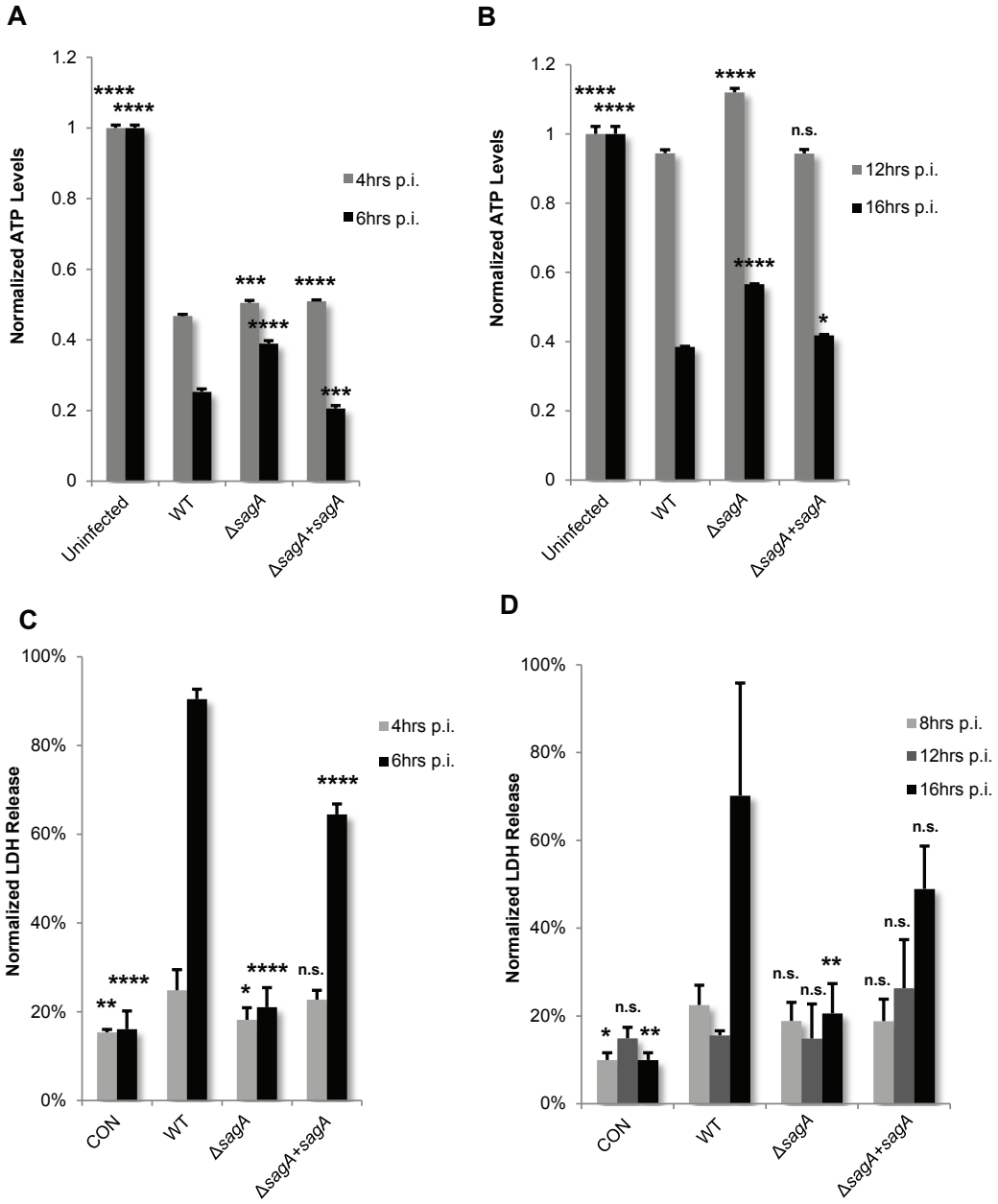
Supplementary Figure 1: (A) The Streptolysin S associated gene (*sag*) cluster encodes the protoxin portion of Streptolysin S, several enzymes that play critical roles in processing SLS to produce the mature toxin, and additional protein products believed to be involved in toxin transport (adapted from Lee et al. 2008). (B) Presence of an intact *sag* cluster induces robust lysis when WT GAS is grown on sheep blood agar. This lytic phenotype is lost when SLS-deficient GAS, lacking *sagA,* are grown on blood plates and restored with complementation of the WT *sagA* gene in the Δ*sagA* background.



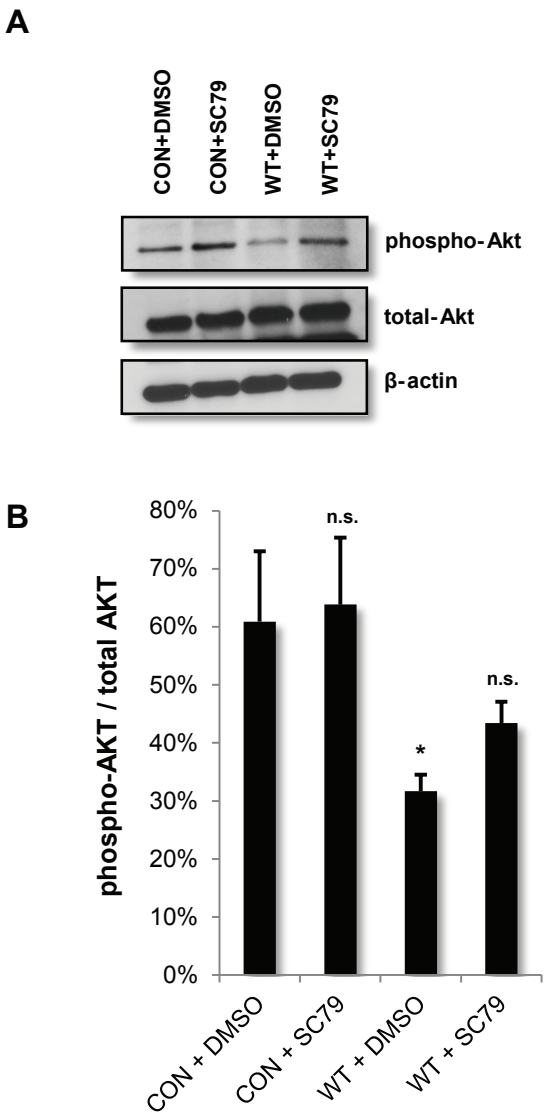
Supplementary Figure 2: Effects of inhibitor and activator compounds on bacterial growth and viability. Bacteria were grown in DMEM+10% FBS supplemented with the highest compound concentration that had provided significantly increased protection from GAS-induced cell death in the ethidium homodimer assay. (A-F) At 2, 4, and 6hrs, bacteria were plated on Todd-Hewitt agar and their growth in the presence of each compound, compared to DMSO, was determined by a colony counting assay. Significance between each vehicle control (DMSO) and each treatment at the corresponding time point was determined by an unpaired, two-tailed Student's t-test.



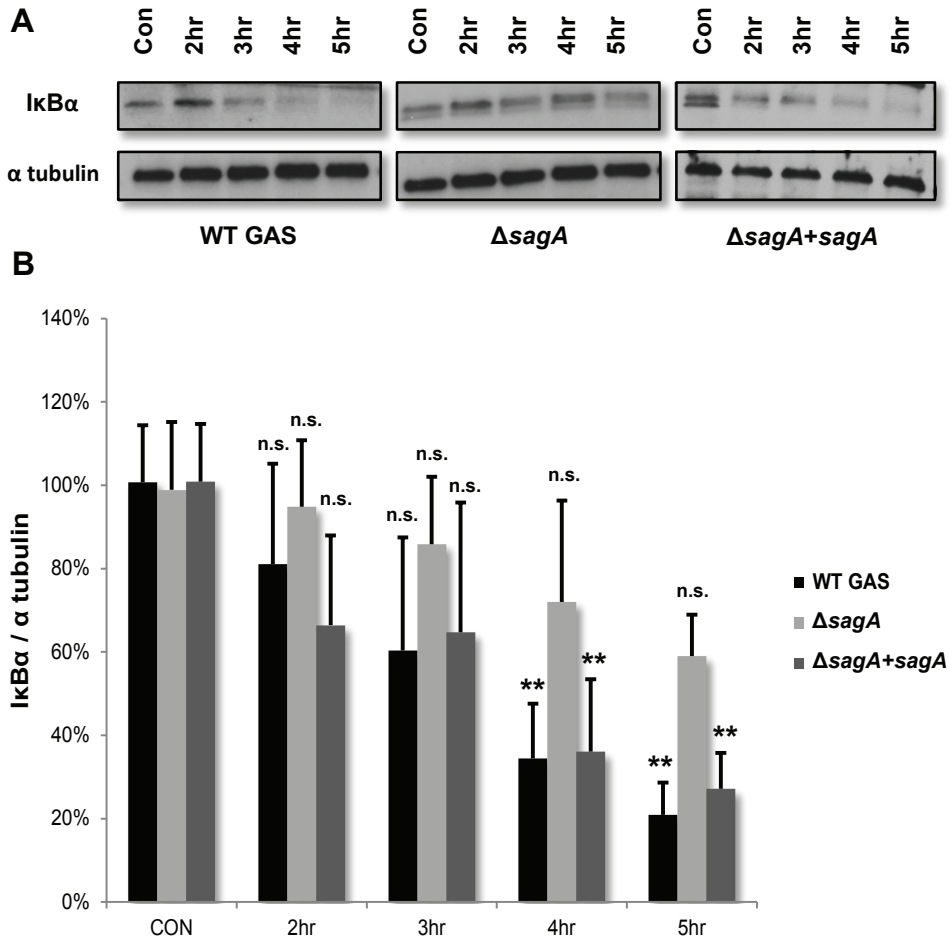
Supplementary Figure 3: Diagram of Transwell system for assessing the effects of secreted bacterial factors on host cells. Human keratinocytes are plated in the bottom compartment and grown to 90% confluence. A collagen coated membrane with 0.4μm pores separates the upper and lower chambers, and bacteria are added to the upper chamber of the Transwell system.



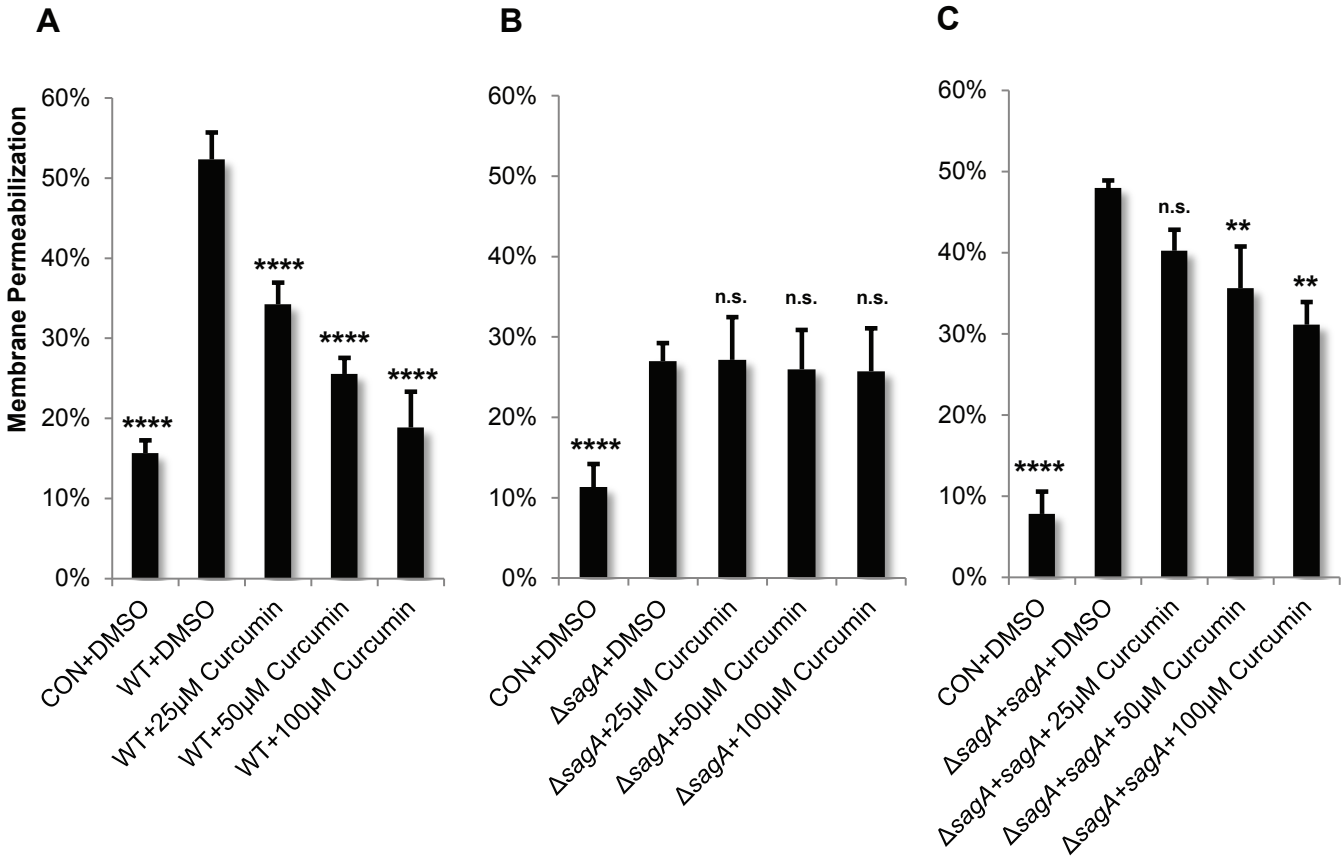
Supplementary Figure 4: ATP loss and LDH release confirm SLS-dependent loss of keratinocyte viability during Group A *Streptococcal* infection. HaCaT cells were infected with GAS for 4-6 hours using the direct infection system (A and C) or for 8-16hrs using the Transwell infection system (B and D). ATP determination assays (A and B) and LDH release assays (C and D) were used to compare keratinocyte viability in response to infection. (A and B) Technical replicates (n=3) from one representative biological replicate ($2x10^6$ cells per sample) were averaged for each condition, with error bars representing standard deviation. (C and D) Averages from three independent biological replicates are shown, with error bars representing standard deviation. Overall p-values were determined by ANOVA (A) 4hrs, $p<0.0001$; 6hrs, $p<0.0001$ (B) 12hrs, $p<0.0001$; 16hrs, $p<0.0001$ (C) 4hrs, $p=0.0059$; 6hrs, $p<0.0001$ (D) 8hrs, $p=0.0287$; 12hrs, $p=0.1977$; 16hrs, $p=0.0031$. Dunnett's tests were performed to compare each condition with wild-type infection for the corresponding time point and infection system.



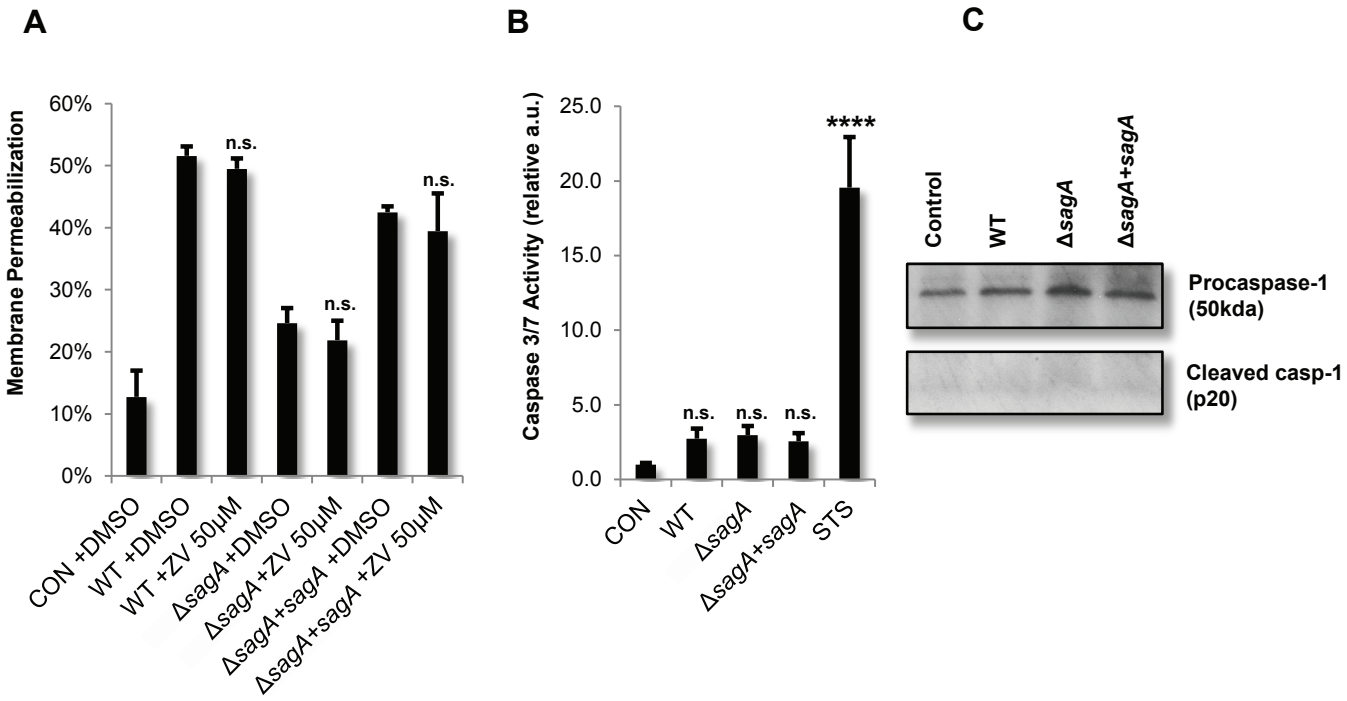
Supplementary Figure 5: SC79 enhances Akt phosphorylation in HaCaT cells during GAS infection. (A) HaCaT keratinocytes were pretreated with SC79 (22μM) or DMSO for 1.5hrs and infected with GAS directly for 4hrs at an MOI of 10. (B) Densitometry from three independent Western Blots showing phospho-Akt/total Akt levels for uninfected or GAS-infected cells. Error bars represent standard deviation from the mean. Significance was determined by ANOVA (p=0.0058) followed by Dunnett's test to compare all conditions to the uninfected vehicle control condition (CON+DMSO).



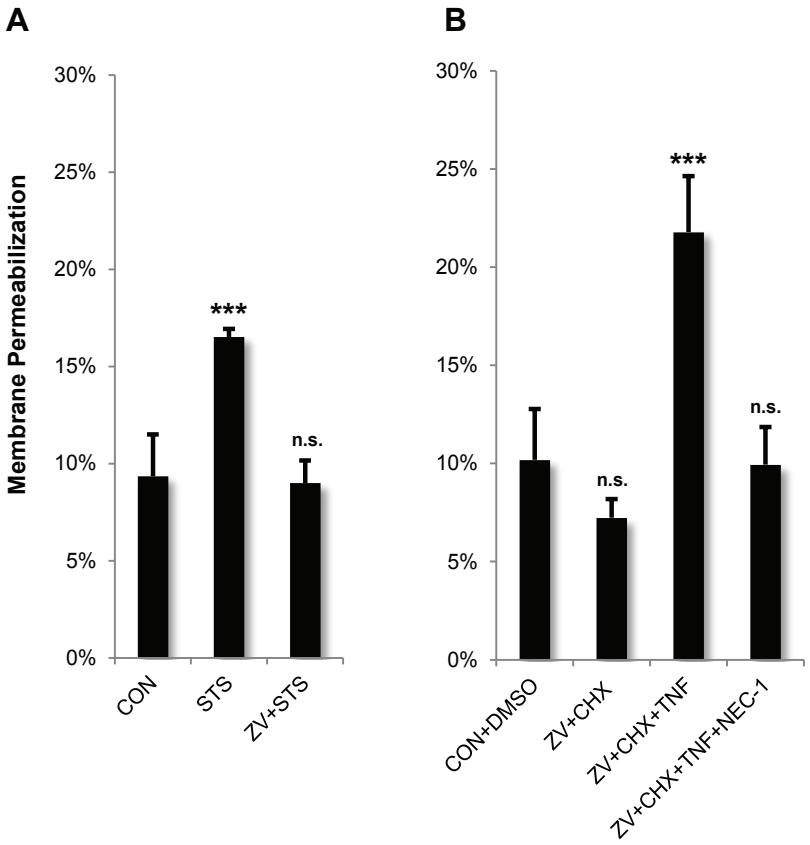
Supplementary Figure 6: Streptolysin S contributes to IκB loss during Group A *Streptococcal* infection. HaCaT keratinocytes were infected with GAS for 2-5hrs at MOI=10 and lysates were assessed for changes in total IκB levels by Western Blotting (A). Densitometry from three independent Western Blots was performed to quantify the relative abundance of IκB, compared to α-tubulin, over the course of GAS infection (B). Averages from three biological replicates are shown, with error bars representing standard deviation. The overall p-value for each strain was determined by ANOVA (WT, p=0.002; Δ*sagA*, p=0.0853; Δ*sagA*+*sagA*, p=0.0083), and Dunnett's tests were performed to compare each infection condition for each strain with the corresponding uninfected control condition.



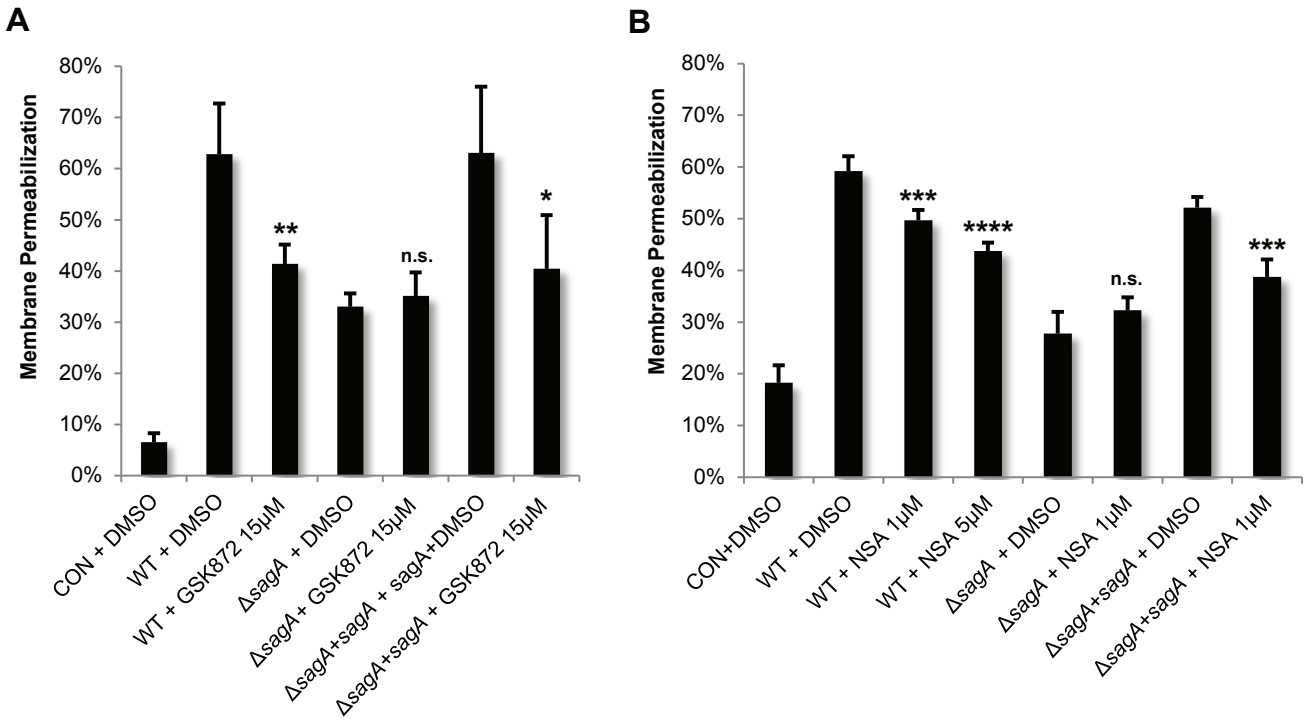
Supplementary Figure 7: Inhibition of the NFκB inflammatory signaling cascade significantly reduces GAS-induced cell death. HaCaTs were treated for 1.5hrs with the NFκB inhibitor curcumin prior to infection with WT or mutant GAS for 6hrs at an MOI of 10. Cell death was determined by ethidium homodimer membrane permeabilization assay. Each condition was tested in triplicate and error bars represent standard deviation from the mean. Use of the inhibitor during bacterial infection significantly reduced cell death compared to vehicle control treatments in GAS-infected cells. The overall p-value for each strain was determined by ANOVA (A) $p<0.0001$ (B) $p<0.0001$ (C) $p<0.0001$. Dunnett's tests were performed post hoc to compare each condition to the corresponding vehicle control infection (i.e. WT+DMSO).



Supplementary Figure 8: Caspase activation is not required for SLS-mediated keratinocyte death during GAS infection. (A) HaCaTs were treated for 1hr with the pan-caspase inhibitor Z-VAD-fmk (50μM) prior to infection with GAS for 6hrs at an MOI of 10. Inhibitor treatment during bacterial infection did not significantly reduce cell death compared to vehicle control treatments in WT or SLS-mutant GAS. Significance was determined by ANOVA ($p<0.0001$) followed by Dunnett's test ($p<0.05$ was considered significant). (B) Caspase 3/7 activation was assessed by infecting keratinocytes directly with WT, SLS-deficient, or Δ*sagA*+*sagA* GAS for 6hrs at an MOI of 10. Staurosporine (2μM) was used as a positive control. Caspase 3/7 activity levels were measured using the luminescence-based CaspaseGLO kit from Promega and normalized relative to uninfected control cells. None of the GAS infection conditions significantly induced caspase 3/7 activity compared to uninfected controls at 6hrs post-infection. In contrast, staurosporine induced robust activation of caspases compared to uninfected cells. Significance was determined by ANOVA ($p<0.0001$) and a post hoc Dunnett's test. (C) Activity of caspase-1 was evaluated by Western Blotting following infection for 5hrs at an MOI of 10. Levels of cleaved caspase 1 were not found to be increased in the presence of GAS compared to uninfected cells.



Supplementary Figure 9: Effects of known apoptosis-inducing and programmed necrosis-inducing compounds on HaCaT keratinocyte membrane permeabilization and death by ethidium homodimer assay. (A) Staurosporine (STS) at a concentration of 2μM was incubated with HaCaT cells for 6hrs prior to determining membrane permeabilization; use of the general caspase inhibitor Z-vad-fmk (ZV) at 50μM 1.5hrs prior to the addition of STS was able to completely inhibit the membrane permeabilization induced by STS as well as reducing other signs of cellular distress such as rounding and detachment. Significance was determined by ANOVA ($p<0.0001$) followed by Dunnett's test to compare values to uninfected cells. (B) The combined treatment of Z-vad-fmk (10μM; added 1.5hrs prior to CHX and TNFα), cycloheximide (CHX; 50μM) and TNFα (100ng/mL) induced membrane permeabilization and death in HaCaT keratinocytes 6hrs post-treatment. Use of the programmed necrosis inhibitor Necrostatin-1 (Nec-1; 50μM) administered along with ZV 1.5hrs prior to the addition of CHX and TNFα was able to reduce cell death to control levels. Significance was determined using ANOVA ($p<0.0001$) followed by Dunnett's test to compare values to uninfected cells.



Supplementary Figure 10: RIPK3 and MLKL contribute to the activation of programmed cell death in GAS-infected keratinocytes. HaCaTs were incubated with the RIPK3 kinase inhibitor GSK872 (A) or the MLKL inhibitor NSA (B) for 1.5hrs prior to infection with GAS at MOI=10. Cell death was determined by ethidium homodimer membrane permeabilization assay 6hrs post-infection. The averages of three biological replicates are shown for each condition, and error bars represent standard deviation. Overall p-values were determined by ANOVA; (A) $p<0.0001$ (B) $p<0.0001$. Dunnett's tests were performed post hoc to compare vehicle control means from each strain (i.e. WT+DMSO) to uninfected control cells (CON+DMSO) and the corresponding pharmacological treatment (i.e. WT+GSK872). P-values for each vehicle control matched to each GAS strain versus treatment with the inhibitors are indicated.

Kinex™ Antibody Microarray Data Report for Order 3065

SAMPLE DETAILS

Sample IDs: Control ID: 003 "delta" (Kinexus ID 17517) Treated ID: 004 "WT" (Kinexus ID 17518)

Array Barcode: K011402124

Date of Report: March 21, 2014

Supplementary Table 1: Full Antibody Array Analysis Report Comparing WT vs. Δ*sagA* Infection

			Globally Normalized Median				Globally Normalized Median												
			1848				2131												
Target Protein Name	Phospho Site (Human)	Flag-003 "delta"	Globally Normalized - 003 "delta"	%Error Range 003 "delta"	Log2 (Intensity Corrected) - 003 "delta"	Flag-004 "WT"	Globally Normalized - 004 "WT"	%Error Range 004 "WT"	Log2 (Intensity Corrected) - 004 "WT"	%CFC (004 "WT" from 003 "delta")	Z-score (003 "delta")	Z-score (004 "WT")	Z-score Difference (004 "WT"-003 "delta")	Z-ratio (004 "WT", 003 "delta")	Block	Row	Column	Refseq	Uniprot Link
14-3-3 z	Pan-specific	0, 0	90	5.10	6.56	0, 0	110	25.13	6.71	23	-2.15	-2.18	-0.03	-0.10	1	7	1	NP_003397	P63104
4E-BP1	Pan-specific	0, 0	8282	18.65	13.09	0, 0	7891	0.67	12.87	-5	1.15	1.13	-0.02	-0.07	1	8	1	NP_004086	Q13541
4E-BP1	S65	0, 0	861	88.32	9.82	0, 0	750	13.40	9.48	-13	-0.50	-0.69	-0.19	-0.74	1	9	1	NP_004086	Q13541
4E-BP1	T45	0, 0	1367	52.64	10.49	0, 0	1455	7.75	10.43	6	-0.16	-0.18	-0.02	-0.06	1	10	1	NP_004086	Q13541
4E-BP1	T70	0, 0	317	34.06	8.38	0, 0	352	13.59	8.38	11	-1.23	-1.28	-0.05	-0.18	1	6	2	NP_004086	Q13541
Abl	Pan-specific	0, 0	963	5.00	9.98	0, 0	1231	27.47	10.19	28	-0.42	-0.31	0.11	0.43	1	7	2	NP_005148	P00519
AcCoA carboxylase	S80	0, 0	3650	17.88	11.91	0, 0	4604	28.82	12.09	26	0.55	0.71	0.16	0.62	1	8	2	NP_000655	Q13085
Acetylated Lysine	Pan-specific	0, 0	787	42.24	9.69	0, 0	650	2.01	9.27	-17	-0.57	-0.80	-0.24	-0.91	1	9	2	NA	NA
Acetylated Lysine	Pan-specific	0, 0	1447	62.27	10.57	0, 0	2603	3.33	11.27	80	-0.12	0.27	0.39	1.52	1	10	2	NA	NA
ACK1	Pan-specific	0, 0	2747	4.30	11.49	0, 0	2811	11.00	11.38	2	0.35	0.33	-0.01	-0.05	1	6	3	NP_005772	Q07912
Adducin a	S726	0, 0	1852	3.88	10.93	0, 0	2151	46.57	11.00	16	0.06	0.12	0.07	0.25	1	7	3	NP_058432	P35611
AIF	Pan-specific	0, 0	1875	5.84	10.94	0, 0	2205	15.46	11.03	18	0.07	0.14	0.08	0.29	1	8	3	NP_004199	O95831
AK2	Pan-specific	0, 0	762	8.81	9.65	0, 0	1197	19.38	10.15	57	-0.59	-0.33	0.26	1.00	1	9	3	NP_001616	P54819
ALK	Pan-specific	0, 0	10433	20.61	13.42	0, 0	9876	6.20	13.16	-7	1.32	1.29	-0.03	-0.11	1	10	3	NP_004295.2	Q9UM73
ALS2CR7 (PFTAIRE2)	Pan-specific	0, 0	440	2.52	8.85	0, 0	572	14.63	9.08	30	-0.99	-0.90	0.09	0.34	1	6	4	NP_631897	Q96Q40
AMPKa1/2	T183	0, 0	306	3.76	8.33	0, 0	259	0.50	7.94	-15	-1.26	-1.52	-0.26	-1.00	1	7	4	NP_006242	Q13131
ANKRD3	Pan-specific	0, 0	743	3.89	9.61	0, 0	992	5.11	9.88	34	-0.61	-0.48	0.13	0.51	1	8	4	NP_065690	P57078
APG1	Pan-specific	0, 0	1857	1.29	10.93	0, 0	1951	3.37	10.85	5	0.06	0.05	-0.01	-0.04	1	9	4	NP_055093	O95757
APG2	Pan-specific	0, 0	3040	5.62	11.64	0, 0	3560	10.87	11.72	17	0.42	0.52	0.09	0.37	1	10	4	NP_002145.3	P34932
APP	T668	0, 0	2217	14.52	11.19	0, 0	2030	23.17	10.91	-8	0.19	0.08	-0.11	-0.42	1	6	5	NP_000475.1	P05067
Arrestin b1	Pan-specific	0, 0	846	38.78	9.80	0, 0	831	27.87	9.62	-2	-0.51	-0.61	-0.10	-0.38	1	7	5	NP_004032	P49407
Arrestin b1	S412	0, 0	2986	1.77	11.62	0, 0	3521	7.31	11.71	18	0.41	0.51	0.10	0.38	1	8	5	NP_004032	P49407
ASK1 (MAP3K5)	Pan-specific	0, 0	2227	1.97	11.19	0, 0	2398	3.51	11.15	8	0.19	0.21	0.02	0.06	1	9	5	NP_005914	Q99683
ASK1 (MAP3K5)	Pan-specific	0, 0	2133	22.95	11.13	0, 0	2765	8.93	11.36	30	0.16	0.32	0.16	0.61	1	10	5	NP_005914	Q99683
ASK1 (MAP3K5)	S966	0, 0	1550	10.37	10.67	0, 0	1920	18.12	10.83	24	-0.07	0.04	0.11	0.42	1	6	6	NP_005914	Q99683
ATF2	Pan-specific	0, 0	161	4.26	7.40	0, 0	183	8.88	7.44	13	-1.72	-1.79	-0.06	-0.24	1	7	6	NP_001871	P15336
ATF2	T69 + T71	0, 0	5889	1.67	12.59	0, 0	6549	10.70	12.60	12	0.90	0.99	0.09	0.34	1	8	6	NP_001871	P15336
ATF2	S112	0, 0	1012	4.80	10.05	0, 0	1319	17.50	10.29	30	-0.38	-0.25	0.13	0.49	1	9	6	NP_001871	P15336
Aurora A (AIK)	Pan-specific	0, 0	435	31.62	8.84	0, 0	481	91.07	8.83	10	-1.00	-1.04	-0.04	-0.15	1	10	6	NP_940835	O14965
Aurora B (AIM-1)	Pan-specific	0, 0	1869	6.41	10.94	0, 0	2358	8.68	11.13	26	0.07	0.20	0.13	0.50	1	6	7	NP_004208	Q96GD4
Aurora C (AIK3)	Pan-specific	0, 0	459	0.95	8.91	0, 0	667	9.64	9.31	46	-0.96	-0.78	0.18	0.68	1	7	7	NP_003151	Q9UQB9
Axl	Pan-specific	0, 0	463	4.27	8.93	0, 0	629	4.99	9.22	36	-0.95	-0.83	0.12	0.48	1	8	7	NP_001690	P30530
B23 (NPM)	T199	0, 0	1757	9.45	10.85	0, 0	1465	1.56	10.44	-17	0.02	-0.17	-0.19	-0.74	1	9	7	NP_002511	P06748
B23 (NPM)	T199	0, 0	216	12.47	7.82	0, 0	281	29.69	8.06	30	-1.51	-1.45	0.06	0.22	1	10	7	NP_002511	P06748
B23 (NPM)	T234/T237	0, 0	1567	17.87	10.68	0, 0	1343	17.22	10.32	-14	-0.06	-0.24	-0.18	-0.68	1	6	8	NP_002511	P06748
Bad	S99	0, 0	233	15.64	7.94	0, 0	323	12.10	8.26	38	-1.46	-1.35	0.11	0.41	1	7	8	NP_004313	Q92934
Bak	Pan-specific	0, 0	4034	2.02	12.05	0, 0	4912	6.27	12.19	22	0.63	0.76	0.14	0.53	1	8	8	NP_001179	Q16611
Bax	Pan-specific	0, 0	15888	42.47	14.03	0, 0	19124	21.63	14.15	20	1.63	1.82	0.19	0.74	1	9	8	NP_620116	Q07812
Bcl2	Pan-specific	0, 0	2062	12.02	11.08	0, 0	2447	4.26	11.18	19	0.14	0.22	0.09	0.34	1	10	8	NP_000624	P10415
Bcl2	Pan-specific	0, 0	669	17.14	9.46	0, 0	837	25.94	9.63	25	-0.68	-0.61	0.08	0.30	1	6	9	NP_000624	P10415
Bcl-xL	Pan-specific	0, 0	5124	10.18	12.39	0, 0	5887	1.33	12.45	15	0.80	0.91	0.10	0.40	1	7	9	NP_612815	Q07817
Bcl-xS/L	Pan-specific	0, 0	2948	43.69	11.60	0, 0	4484	6.30	12.06	52	0.40	0.69	0.30	1.14	1	8	9	NP_612815	Q07817
Bcr	Y177	0, 0	811	13.23	9.73	0, 0	1791	6.61	10.73	121	-0.54	-0.02	0.53	2.03	1	9	9	NP_004318.3	P11274
Bid	Pan-specific	0, 0	2526	8.22	11.37	0, 0	3073	5.59	11.51	22	0.29	0.40	0.12	0.45	1	10	9	NP_001187	P55957
BLK	Pan-specific	0, 0	795	0.55	9.71	0, 0	1029	24.38	9.93	30	-0.56	-0.45	0.11	0.43	1	6	10	NP_001706	P51451
BLNK	Y84	0, 0	9574	1.59	13.30	0, 0	10869	12.52	13.33	14	1.26	1.38	0.12	0.47	1	7	10	NP_037446	Q75498
BMX (Etk)	Pan-specific	1, 1	1212	20.03	10.32	1, 1	1665	9.67	10.63	37	-0.25	-0.07	0.18	0.68	1	8	10	NP_001712	P51813
BMX (Etk)	Y40	0, 0	754	0.78	9.63	0, 0	1042	15.14	9.95	38	-0.60	-0.44	0.16	0.62	1	9	10	NP_001712	P51813
BRCA1	S1497	0, 0	2660	33.47	11.45	0, 0	3523	10.45	11.71	32	0.32	0.51	0.18	0.71	1	10	10	NP_009225	P38398
BRCA1	S1423	0, 0	2467	10.88	11.34	0, 0	3603	9.48	11.74	46	0.27	0.52	0.26	0.99	1	6	11	NP_009225	P38398
BRD2	Pan-specific	0, 0	1203	11.74	10.30	0, 0	1811	14.28	10.75	51	-0.26	-0.01	0.25	0.95	1	7	11	NP_005095	P25440
Btk	Pan-specific	0, 0	4976	10.53	12.35	0, 0	6202	2.49	12.52	25	0.78	0.95	0.17	0.64	1	8	11	NP_000052	Q06187
Btk	Y223	0, 0	558	20.10	9.19	0, 0	721	18.73	9.42	29	-0.82	-0.72	0.09	0.36	1	9	11	NP_000052	Q06187
BUB1A	Pan-specific	0, 0	557	7.69	9.19	0, 0	783	33.14	9.54	41	-0.82	-0.66	0.16	0.62	1	10	11	NP_004327	O43683
C/9	Pan-specific	0, 0	2325	10.74	11.25	0, 0	3144	17.63	11.54	35	0.22	0.42	0.19	0.75	2	6	1	NP_001207.2	Q16790
Caldesmon	S789	0, 0	3078	7.97	11.66	0, 0	3558	3.98	11.72	16	0.43	0.51	0.09	0.33	2	7	1	NP_004333	Q05682
Calnexin	Pan-specific	0, 0	11045	13.83	13.50	0, 0	10273	5.53	13.25	-7	1.36	1.34	-0.02	-0.10	2	8	1	NP_001019820.1	P27824
Calreticulin	Pan-specific	0, 0	11248	12.48	13.53	0, 0	11133	6.60	13.37	-1	1.37	1.40	0.02	0.09	2	9	1	NP_004338.2	P27797
CAMK1a	Pan-specific	0, 0	1452	6.37	10.58	0, 0	1941	7.30	10.85	34	-0.12	0.05	0.16	0.63	2	10	1	NP_003647.1	Q14012
CaMK1d	Pan-specific	1, 1	2987	7.83	11.62	1, 1	5183	3.18	12.26	74	0.41	0.81	0.40	1.54	2	6	2	NP_003647	Q8IU85
CaMK1d	Pan-specific	0, 0	2538	12.34	11.38	0, 0	2996	3.46	11.47	18	0.29	0.38	0.09	0.36	2	7	2	NP_003647	Q8IU85
CaMK2a	T286	0, 0	108	5.80	6.82	0, 0	139	17.10	7.04	29	-2.02	-2.00	0.02	0.06	2	8	2	NP_741980	Q9UQM7
CAMK2b	Pan-specific	0, 0	1485	82.66	10.61	0, 0	2118	254.86	10.97	43	-0.10	0.11	0.22	0.83	2	9	2	NP_742081	Q13554
CAMK2d	Pan-specific	0, 0	1582	15.94	10.70	0, 0	1614	15.91	10.58	2	-0.06	-0.10	-0.04	-0.16	2	10	2	NP_742126	Q13557
CaMK4	Pan-specific	0, 0	997	28.78	10.03	0, 0	955	11.21	9.82	-4	-0.39	-0.50	-0.11	-0.43	2	6	3	NP_001735	Q16566
CaMK4	Pan-specific	0, 0	122	6.80	7.00	0, 0	151	3.78	7.16	24	-1.93	-1.93	-0.01	-0.03	2	7	3	NP_001735	Q16566
CaMK4	Pan-specific	0, 0	1706	13.03	10.81	0, 0	1979	3.99	10.88	16	0.00	0.06	0.06	0.24	2	8	3	NP_001735	Q16566
CaMKK (CaMKK1)	Pan-specific	0, 0	2932	11.74	11.59	0, 0	3273	4.31	11.60	12	0.39	0.45	0.06	0.22	2	9	3	NP_006540	Q8N5S9
CAS	Pan-specific	0, 0	1338	47.25	10.46	0, 0	1151	1.95	10.09	-14	-0.18	-0.36	-0.18	-0.70	2	10	3	NP_001307	P56060
CASK/Lin2	Pan-specific	0, 0	122	1.75	7.00	0, 0	132	33.45	6.97	8	-1.93	-2.04	-0.11	-0.43	2	6	4	NP_001119626.1	O14936
CASP1	Pan-specific	0, 0	3461	0.15	11.83	0, 0	3815	5.54	11.82	10	0.51	0.57	0.05	0.21	2	7	4	NP_001214	P29466
CASP1	Pan-specific	0, 0	386	13.11	8.66	0, 0	299	3.11	8.15	-22	-1.08	-1.40	-0.32	-1.23	2	8	4	NP_001214	P29466
CASP3	Pan-specific	0, 0	1210	44.68	10.31	0, 0	972	9.75	9.85	-20	-0.25	-0.49	-0.24	-0.92	2	9	4	NP_004337	P42574
CASP3	Pan-specific	0, 0	599	58.40	9.30	0, 0	476	4.92	8.82	-20	-0.76	-1.04	-0.28	-1.07	2	10	4	NP_004337	P42574
CASP6	Pan-specific	0, 0	610	35.05	9.32	0, 0	859	62.13	9.67	41	-0.75	-0.59	0.17	0.64	2	6	5	NP_001217	P55212
CASP7	Pan-specific	0, 0	1147	5.61	10.24	0, 0	1522	16.01	10.50	33	-0.29	-0.14	0.15	0.57	2	7	5	NP_01218	P55210
CASP7	Pan-specific	0, 0	1366	19.91	10.49	0, 0	2242	1.15	11.06	64	-0.16	0.16	0.32	1.23	2	8	5	NP_01218	P55210
CASP9	Pan-specific	0, 0	281	14.44	8.21	0, 0	189	18.17	7.49	-33	-1.32	-1.76	-0.44	-1.71	2	9	5	NP_033938	P55211
Catenin a	S641	0, 0	1424	2.29	10.55	0, 0	1540	15.42	10.51	8	-0.13	-0.13	0.00	-0.01	2	10	5	NP_001894.2	P35221
Catenin b	S33	0, 0	3134	7.09	11.69	0, 0	3139	1.20	11.54	0	0.44	0.42	-0.02	-0.09	2	6	6	NP_001895	P35222
Catenin b	Y333	0, 0	3753	13.48	11.95	0, 0	3924	7.55	11.86	5	0.57	0.59	0.02	0.06	2	7	6	NP_001895	P35222
Catenin b1	Pan-specific	0, 0	15132	16.71	13.96	0, 0	11309	3.33	13.39	-25	1.59	1.41	-0.18	-0.69	2	8	6	NP_001895	P35222
Catenin b1	Pan-specific	0, 0	3214	16.78	11.72	0, 0	3471	8.27	11.69	8	0.46	0.50	0.03	0.13	2	9	6	NP_001895	P35222
Caveolin 1	Pan-specific	0, 0	1151	6.90	10.24	0, 0	1310	7.49	10.28	14	-0.29	-0.26	0.03	0.11	2	10	6	NP_001744.2	Q03135
Caveolin 1	Y14	0, 0	1147	6.01	10.24	0, 0	1072	2.08	9.99	-7	-0.29	-0.41	-0.12	-0.48	2	6	7	NP_001744.2	Q03135
Caveolin 2	Pan-specific	0, 0	1237	3.35	10.34	0, 0	848	4.22	9.65	-31	-0.24	-0.60	-0.36	-1.39	2	7	7	NP_001224	P51636
Caveolin 2	S36	0, 0	3749	11.97	11.94	0, 0	3934	18.55	11.87	5	0.57	0.59	0.02	0.07	2	8	7	NP_001224	P51636
Cbl	Y700	0, 0	1579	8.88	10.70	0, 0	1589	9.90	10.56	1	-0.06	-0.11	-0.05	-0.20	2	9	7	NP_005179.2	P22681
CD45	Pan-specific	0, 0	1194	1.86	10.28	0, 0	1368	10.41	10.34	16	-0.27	-0.23	0.04	0.16	2	10	7	NP_002829	P08575
Cdc25B	Pan-specific	0, 0	2131	15.42	11.13	0, 0	2299	4.56	11.09	8	0.16	0.18	0.02	0.06	2	6	8	NP_004349	P30305

Cdc25C	Pan-specific	0, 0	5603	4.88	12.52	0, 0	5525	5.53	12.36	-1	0.87	0.86	-0.01	-0.04	2	7	8	NP_001781	P30307
Cdc25C	S216	0, 0	247	6.76	8.02	0, 0	352	19.62	8.38	42	-1.41	-1.28	0.13	0.51	2	8	8	NP_002882.3	P30307
CDC2L5 (CHED)	Pan-specific	0, 0	2107	10.59	11.11	0, 0	3023	6.12	11.49	43	0.15	0.39	0.24	0.91	2	9	8	NP_003709	Q14004
Cdc34	Pan-specific	0, 0	2222	14.97	11.19	0, 0	2305	4.11	11.10	4	0.19	0.18	-0.01	-0.05	2	10	8	NP_004350	P49427
Cdc42	Pan-specific	0, 0	1078	1.11	10.15	0, 0	1144	105.19	10.09	6	-0.34	-0.36	-0.03	-0.11	2	6	9	NP_001782	P60953
CDK1 (CDC2)	Pan-specific	0, 0	13900	0.69	13.83	0, 0	11978	5.73	13.47	-14	1.53	1.46	-0.07	-0.28	2	7	9	NP_001777	P06493
CDK1 (CDC2)	Pan-specific	0, 0	2245	2.62	11.20	0, 0	2016	22.73	10.90	-10	0.20	0.07	-0.12	-0.48	2	8	9	NP_001777	P06493
CDK1 (CDC2)	Pan-specific	0, 0	2966	5.31	11.61	0, 0	2902	11.72	11.43	-2	0.40	0.36	-0.05	-0.17	2	9	9	NP_001777	P06493
CDK1 (CDC2)	Pan-specific	0, 0	524	6.33	9.11	0, 0	638	5.00	9.24	22	-0.86	-0.82	0.04	0.17	2	10	9	NP_001777	P06493
CDK1 (CDC2)	Pan-specific	0, 0	2586	2.41	11.41	0, 0	2631	14.28	11.29	2	0.30	0.28	-0.02	-0.08	2	6	10	NP_001777	P06493
CDK1 (CDC2)	Pan-specific	0, 0	3180	0.22	11.71	0, 0	3123	1.03	11.53	-2	0.45	0.41	-0.04	-0.15	2	7	10	NP_001777	P06493
CDK1/2	T14+Y15	0, 0	3812	4.92	11.97	0, 0	4072	10.20	11.92	7	0.59	0.62	0.03	0.13	2	8	10	NP_001777	P06493
CDK1/2	Y15	0, 0	1559	1.33	10.68	0, 0	1658	1.42	10.62	6	-0.07	-0.08	-0.01	-0.04	2	9	10	NP_001777	P06493
CDK1/2	Y15	0, 0	388	2.28	8.67	0, 0	488	29.37	8.85	26	-1.08	-1.03	0.06	0.21	2	10	10	NP_001777	P06493
CDK1/2	Y15	0, 0	1472	15.02	10.60	0, 0	1543	0.90	10.52	5	-0.11	-0.13	-0.02	-0.09	2	6	11	NP_001777	P06493
CDK1/2	T161	0, 0	39	1.96	5.37	0, 0	71	10.74	6.07	80	-2.75	-2.52	0.23	0.88	2	7	11	NP_001777	P06493
CDK10	Pan-specific	0, 0	740	2.85	9.60	0, 0	962	0.58	9.83	30	-0.61	-0.50	0.11	0.43	2	8	11	NP_003665	Q15131
CDK2	Pan-specific	0, 0	611	2.70	9.33	0, 0	793	3.00	9.56	30	-0.75	-0.65	0.10	0.39	2	9	11	NP_001789	P24941
CDK2	Pan-specific	0, 0	1215	4.61	10.32	0, 0	970	26.27	9.85	-20	-0.25	-0.49	-0.24	-0.94	2	10	11	NP_001789	P24941
CDK2	Pan-specific	0, 0	297	15.92	8.29	0, 0	377	5.93	8.48	27	-1.28	-1.22	0.05	0.20	3	6	1	NP_001789	P24941
CDK2	Pan-specific	0, 0	4177	7.76	12.10	0, 0	4420	1.93	12.03	6	0.65	0.68	0.03	0.12	3	7	1	NP_001789	P24941
CDK2	Pan-specific	0, 0	4523	5.35	12.21	0, 0	4638	0.12	12.10	3	0.71	0.72	0.01	0.04	3	8	1	NP_001789	P24941
CDK2	Pan-specific	0, 0	4769	1.57	12.29	0, 0	6520	14.60	12.60	37	0.75	0.98	0.24	0.91	3	9	1	NP_001789	P24941
CDK4	Pan-specific	0, 0	556	3.27	9.19	0, 0	703	14.42	9.38	26	-0.82	-0.74	0.08	0.30	3	10	1	NP_000066	P11802
CDK4	Pan-specific	0, 0	2979	5.97	11.61	0, 0	3150	4.76	11.55	6	0.41	0.42	0.01	0.06	3	6	2	NP_000066	P11802
CDK5	Pan-specific	0, 0	1887	4.76	10.95	0, 0	2422	6.57	11.17	28	0.07	0.22	0.14	0.56	3	7	2	NP_004926	Q00535
CDK5	Pan-specific	0, 0	1405	6.46	10.53	0, 0	1717	8.88	10.67	22	-0.14	-0.05	0.09	0.36	3	8	2	NP_004926	Q00535
CDK5	Pan-specific	0, 0	5225	4.26	12.42	0, 0	4756	5.50	12.14	-9	0.82	0.74	-0.08	-0.29	3	9	2	NP_004926	Q00535
CDK5	Pan-specific	0, 0	4534	23.87	12.22	0, 0	5117	10.54	12.25	13	0.71	0.80	0.08	0.33	3	10	2	NP_004926	Q00535
CDK6	Pan-specific	0, 0	3755	20.70	11.95	0, 0	4324	14.14	12.00	15	0.57	0.67	0.09	0.35	3	6	3	NP_001250	Q00534
CDK6	Pan-specific	0, 0	721	10.81	9.57	0, 0	699	15.44	9.37	-3	-0.63	-0.75	-0.12	-0.45	3	7	3	NP_001250	Q00534
CDK6	Pan-specific	0, 0	5952	23.19	12.61	0, 0	5106	0.07	12.24	-14	0.91	0.79	-0.12	-0.45	3	8	3	NP_001250	Q00534
CDK6	Y13	0, 0	1435	11.95	10.56	0, 0	1681	17.87	10.64	17	-0.13	-0.07	0.06	0.23	3	9	3	NP_001250	Q00534
CDK7	Pan-specific	0, 0	9474	9.71	13.28	0, 0	9317	3.50	13.11	-2	1.25	1.26	0.01	0.04	3	10	3	NP_001790	P50613
CDK7	Pan-specific	0, 0	582	17.79	9.26	0, 0	822	24.50	9.61	41	-0.79	-0.62	0.16	0.63	3	6	4	NP_001790	P50613
CDK8	Pan-specific	0, 0	775	12.05	9.67	0, 0	1166	27.13	10.11	50	-0.58	-0.35	0.23	0.87	3	7	4	NP_001252	P49336
CDK8	Pan-specific	0, 0	701	23.31	9.52	0, 0	707	1.91	9.39	1	-0.66	-0.74	-0.09	-0.34	3	8	4	NP_001252	P49336
CDK8	Pan-specific	0, 0	3039	1.56	11.64	0, 0	2770	11.28	11.36	-9	0.42	0.32	-0.10	-0.38	3	9	4	NP_001252	P49336
CDK9	Pan-specific	0, 0	5778	2.14	12.57	0, 0	6257	21.08	12.54	8	0.89	0.95	0.06	0.24	3	10	4	NP_001252	P50750
CDKL1	Pan-specific	0, 0	254	66.77	8.06	0, 0	196	6.25	7.54	-23	-1.39	-1.73	-0.34	-1.30	3	6	5	NP_004187.2	Q00532
Chk1	Pan-specific	0, 0	6072	8.57	12.64	0, 0	7100	8.38	12.72	17	0.93	1.05	0.13	0.48	3	7	5	NP_001265	O14757
Chk1	Pan-specific	0, 0	4723	10.80	12.28	0, 0	5524	18.54	12.36	17	0.74	0.86	0.11	0.44	3	8	5	NP_001265	O14757
Chk1	S280	0, 0	1950	4.82	11.00	0, 0	2115	6.26	10.97	8	0.10	0.11	0.02	0.06	3	9	5	NP_001265	O14757
Chk2	Pan-specific	0, 0	3823	4.65	11.97	0, 0	4024	14.94	11.90	5	0.59	0.61	0.02	0.09	3	10	5	NP_009125	Q96017
Chk2	T68	0, 0	2881	17.04	11.56	0, 0	3438	19.94	11.67	19	0.38	0.49	0.11	0.41	3	6	6	NP_009125	Q96017
c-IAP1	Pan-specific	0, 0	3286	12.46	11.75	0, 0	4198	7.07	11.96	28	0.48	0.64	0.17	0.64	3	7	6	NP_001156	Q13490
CK1d	Pan-specific	0, 0	6141	3.82	12.66	0, 0	6253	13.27	12.54	2	0.93	0.95	0.02	0.07	3	8	6	NP_001884	P48730
CK1e	Pan-specific	0, 0	16040	1.32	14.04	0, 0	15939	3.98	13.89	-1	1.63	1.68	0.04	0.17	3	9	6	NP_001885	P49674
CK1g	Pan-specific	0, 0	548	46.16	9.17	0, 0	561	2.76	9.06	3	-0.83	-0.92	-0.09	-0.33	3	10	6	NP_071331	Q9HCP0
CK1g2	Pan-specific	0, 0	961	2.99	9.98	0, 0	1265	44.53	10.23	32	-0.42	-0.29	0.13	0.51	3	6	7	NP_001310	P78368
CK2a	Pan-specific	0, 0	650	41.35	9.42	0, 0	751	25.68	9.48	15	-0.70	-0.69	0.01	0.05	3	7	7	NP_001887	P68400
CK2a	T360/S362	0, 0	5026	54.00	12.37	0, 0	5191	2.80	12.27	3	0.79	0.81	0.02	0.08	3	8	7	NP_001887	P68400
c-Myc	T58/S62	0, 0	390	18.43	8.68	0, 0	425	29.18	8.65	9	-1.08	-1.13	-0.05	-0.21	3	9	7	NP_002458.2	P01106
Cofilin 1	Pan-specific	0, 0	753	11.07	9.63	0, 0	1571	12.94	10.54	109	-0.60	-0.12	0.48	1.84	3	10	7	NP_005498	P23528
Cofilin 1	S3	0, 0	1544	7.23	10.66	0, 0	2812	17.02	11.38	82	-0.07	0.33	0.41	1.56	3	6	8	NP_005498	P23528
Cofilin 2	S3	0, 0	5641	47.02	12.53	0, 0	7866	34.79	12.87	39	0.87	1.13	0.26	0.99	3	7	8	NP_068733	Q9Y281
Connexin 43	S368	0, 0	2731	39.19	11.49	0, 0	4265	9.79	11.98	56	0.34	0.66	0.31	1.21	3	8	8	NP_000156.1	P17302
Cortactin	Y466	0, 0	13415	0.48	13.78	0, 0	13916	10.89	13.69	4	1.50	1.57	0.07	0.26	3	9	8	NP_031829	Q14247
COT	Pan-specific	0, 0	643	32.73	9.40	0, 0	590	12.38	9.13	-8	-0.71	-0.88	-0.16	-0.63	3	10	8	NP_005195	P41279
COT	Pan-specific	0, 0	1606	7.95	10.72	0, 0	2269	92.73	11.07	41	-0.05	0.17	0.21	0.81	3	6	9	NP_005195	P41279
COX2	Pan-specific	0, 0	585	36.06	9.26	0, 0	1419	2.22	10.40	143	-0.78	-0.20	0.58	2.25	3	7	9	NP_000954	P35354
CPG16/CaMKinase VI	Pan-specific	0, 0	764	29.39	9.65	0, 0	1835	9.08	10.77	140	-0.59	0.00	0.59	2.27	3	8	9	NP_004725	Q15075
CREB1	S129+S133	0, 0	1836	51.93	10.91	0, 0	2687	2.25	11.32	46	0.05	0.30	0.24	0.94	3	9	9	NP_004370	P16220
CREB1	S133	0, 0	2748	46.59	11.50	0, 0	3658	64.97	11.76	33	0.35	0.54	0.19	0.73	3	10	9	NP_004370	P16220
CREB1	S133	0, 0	56	39.40	5.87	0, 0	94	35.31	6.49	70	-2.50	-2.30	0.20	0.77	3	6	10	NP_004370	P16220
Crystallin aB	Pan-specific	0, 0	8530	2.42	13.13	0, 0	9961	7.22	13.21	17	1.17	1.31	0.14	0.54	3	7	10	NP_001876	P02511
Crystallin aB	Pan-specific	0, 0	2042	5.89	11.07	0, 0	3925	24.67	11.86	92	0.13	0.59	0.46	1.77	3	8	10	NP_001876	P02511
Crystallin aB	Pan-specific	0, 0	3227	36.86	11.73	0, 0	7233	2.91	12.75	124	0.46	1.06	0.60	2.31	3	9	10	NP_001876	P02511
Crystallin aB	S19	0, 1	14274	14.79	13.87	0, 1	16661	1.38	13.95	17	1.55	1.71	0.16	0.63	3	10	10	NP_001876	P02511
Crystallin aB	S45	0, 0	16427	30.22	14.08	0, 0	16640	14.94	13.95	1	1.65	1.71	0.06	0.23	3	6	11	NP_001876	P02511
Csk	Pan-specific	0, 0	924	32.98	9.92	0, 0	2564	1.20	11.25	178	-0.45	0.26	0.71	2.73	3	7	11	NP_004374	P41240
Csk	Pan-specific	0, 0	7017	27.91	12.85	0, 0	6289	22.65	12.54	-10	1.03	0.96	-0.07	-0.29	3	8	11	NP_004374	P41240
Cyclin A	Pan-specific	0, 1	11249	15.71	13.53	0, 1	13729	0.94	13.67	22	1.37	1.56	0.19	0.72	3	9	11	NP_003905	P78396
Cyclin B1	Pan-specific	0, 0	5945	24.16	12.61	0, 0	6406	6.67	12.57	8	0.91	0.97	0.06	0.23	3	10	11	NP_114172	P14635
Cyclin B1	S147	0, 0	1061	27.26	10.12	0, 0	1095	21.13	10.02	3	-0.35	-0.40	-0.05	-0.20	4	6	1	NP_114172	P14635
Cyclin D1	Pan-specific	0, 0	18434	5.64	14.24	0, 0	15383	5.18	13.83	-17	1.74	1.65	-0.09	-0.33	4	7	1	NP_444284	P24385
Cyclin D1	Pan-specific	0, 0	191	4.58	7.65	0, 0	271	7.90	8.01	42	-1.60	-1.48	0.12	0.45	4	8	1	NP_444284	P24385
Cyclin E	Pan-specific	0, 0	4209	5.61	12.11	0, 0	4713	9.05	12.13	12	0.66	0.73	0.07	0.29	4	9	1	NP_001229	P24864
Cyclin E	T395	0, 0	1452	6.64	10.58	0, 0	1357	3.32	10.33	-7	-0.12	-0.23	-0.11	-0.44	4	10	1	NP_001229	P24864
Cyclin G1	Pan-specific	0, 0	5808	16.79	12.58	0, 0	4630	13.47	12.10	-20	0.89	0.72	-0.17	-0.67	4	6	2	NP_004051	P51959
CytoC	Pan-specific	0, 0	5308	4.57	12.45	0, 0	4831	17.98	12.16	-9	0.83	0.75	-0.08	-0.29	4	7	2	NP_061820	P99999
Dab1	Y198	0, 0	2185	49.65	11.17	0, 0	1880	8.08	10.80	-14	0.18	0.02	-0.16	-0.61	4	8	2	NP_066566	O75553
DAPK1	Pan-specific	0, 0	312	1.83	8.36	0, 0	339	5.37	8.33	9	-1.24	-1.31	-0.07	-0.25	4	9	2	NP_004929	P53355
DAPK2	Pan-specific	0, 0	400	4.40	8.72	0, 0	483	1.73	8.84	21	-1.06	-1.03	0.03	0.10	4	10	2	NP_055141	Q9UIK4
DAXX	Pan-specific	0, 0	8276	3.46	13.09	0, 0	7757	1.37	12.85	-6	1.15	1.12	-0.03	-0.12	4	6	3	NP_001341	Q9UER7
DDIT3(CHOP)	Pan-specific	0, 0	3734	1.34	11.94	0, 0	3270	1.64	11.60	-12	0.57	0.45	-0.12	-0.47	4	7	3	NP_001181986.1	P35638
DFF35	Pan-specific	0, 0	167	16.17	7.46	0, 0	152	3.02	7.17	-9	-1.70	-1.93	-0.23	-0.90	4	8	3	NP_004392	O00273
DGKz	Pan-specific	0, 0	1223	1.79	10.33	0, 0	1175	2.23	10.12	-4	-0.24	-0.34	-0.10	-0.38	4	9	3	NP_963290	Q13574
DNAPK	Pan-specific	0, 0	1837	6.03	10.91	0, 0	1397	12.27	10.37	-24	0.05	-0.21	-0.26	-1.01	4	10	3	NP_008835	P78527
DNAPK	Pan-specific	0, 0	192	10.48	7.66	0, 0	174	1.65	7.37	-10	-1.59	-1.82	-0.23	-0.89	4	6	4	NP_008835	P78527
Dok2	Y139	0, 0	4126	2.90	12.08	0, 0	3500	6.32	11.70	-15	0.64	0.50	-0.14	-0.54	4	7	4	NP_034201	Q60496
Dok2	Y139	0, 0	6413	1.90	12.72	0, 0	5469	9.90	12.34	-15	0.96	0.85	-0.12	-0.45	4	8	4	NP_034201	Q60496
DRAK2 (STK17B)	Pan-specific	0, 0	630	1.40	9.37	0, 0	610	1.27	9.18	-3	-0.73	-0.85	-0.12	-0.47	4	9	4	NP_004217	Q94768
eEF2K	Pan-specific	0, 0	87	42.22	6.51	0, 0	139	36.55	7.04	60	-2.17	-2.00	0.18	0.68	4	10	4	NP 037434	O00418
EFNA5	Pan-specific	0, 0	1125	10.06	10.21	0, 0	889	5.98	9.72	-21	-0.30	-0.56	-0.26	-0.98	4	6	5	NP_001953.1	P52803
EFNB2	Y316	0, 0	585	10.98	9.26	0, 0	464	11.26	8.78	-21	-0.78	-1.06	-0.28	-1.08	4	7	5	NP_004084.1	P52799
EGFR	Pan-specific	0, 0	8280	5.46	13.09	0, 0	7564	9.36	12.81	-9	1.15	1.10	-0.05	-0.20	4	8	5	NP_005219	P00533
EGFR	Y1172	0, 0	3397	10.83	11.80	0, 0	2536	11.58	11.23	-25	0.50	0.25	-0.25	-0.96	4	9	5	NP_005219	P00533
EGFR	Y1172	0, 0	3741	7.90	11.94	0, 0	2549	14.47	11.24	-32	0.57	0.26	-0.32	-1.21	4	10	5	NP_005219	P00533
EGFR	Y1197	0, 0	1354	1.45	10.47	0, 0	1016	3.22	9.91	-25	-0.17	-0.46	-0.29	-1.10	4	6	6	NP_005219	P00533
EGFR	T693	0, 0	1922	5.27	10.98	0, 0	1418	1.25	10.39	-26	0.09	-0.20	-0.28	-1.09	4	7	6	NP_005219	P00533
EGFR	Y1092	0, 0	3369	2.07	11.79	0, 0	2287	6.01	11.08	-32	0.50	0.17	-0.32	-1.24	4	8	6	NP_005219	P00533
EGFR	Y1110	0, 0	3712	7.09	11.93	0, 0	2797	2.34	11.37	-25	0.57	0.33	-0.24	-0.91	4	9	6	NP_005219	P00533
eIF2a	Pan-specific	0, 0	1091	8.90	10.16	0, 0	855	2.22	9.66	-22	-0.33	-0.59	-0.26	-1.01	4	10	6	NP_004085	P05198
eIF2a	S52	0, 0	3250	11.81	11.74	0, 0	2135	8.88	10.98	-34	0.47	0.12	-0.35	-1.35	4	6	7	NP_004085	P05198
eIF2a	S52	0, 0	2438	21.57	11.32	0, 0	1936	2.67	10.84	-21	0.26	0.04	-0.22	-0.83	4	7	7	NP_004085	P05198

eIF4B	S422	0, 0	851	0.56	9.80	0, 0	708	5.79	9.39	-17	-0.51	-0.74	-0.23	-0.88	4	8	7	NP_001408.2	P23588
eIF4E	Pan-specific	0, 0	1613	11.95	10.73	0, 0	938	1.13	9.80	-42	-0.04	-0.52	-0.48	-1.83	4	9	7	NP_001959	P06730
eIF4E	S209	0, 1	14234	33.52	13.87	0, 1	9032	4.69	13.07	-37	1.55	1.24	-0.31	-1.19	4	10	7	NP_001959	P06730
eIF4E	S209	0, 1	1139	31.87	10.23	0, 1	808	30.51	9.58	-29	-0.30	-0.63	-0.34	-1.30	4	6	8	NP_001959	P06730
eIF4G	S1107	0, 0	8357	9.89	13.10	0, 0	5796	1.81	12.43	-31	1.16	0.89	-0.27	-1.02	4	7	8	NP_004944	Q04637
eIF4G	S1232	0, 0	1941	8.94	10.99	0, 0	1641	2.12	10.60	-15	0.09	-0.09	-0.18	-0.69	4	8	8	NP_004944	Q04637
Elk-1	Pan-specific	0, 0	1234	4.90	10.33	0, 0	941	4.70	9.80	-23	-0.24	-0.52	-0.27	-1.06	4	9	8	NP_001107595.1	P19419
Elk-1	S383	0, 0	3237	4.18	11.73	0, 0	2531	3.38	11.23	-22	0.47	0.25	-0.22	-0.83	4	10	8	NP_001107595.1	P19419
Elk-1	S389	0, 0	847	0.44	9.80	0, 0	882	5.30	9.71	4	-0.51	-0.57	-0.05	-0.21	4	6	9	NP_001107595.1	P19419
Epcam	Pan-specific	0, 0	1809	4.72	10.89	0, 0	1593	4.60	10.56	-12	0.04	-0.11	-0.15	-0.58	4	7	9	NP_002345.2	P16422
EphA1	Pan-specific	0, 0	1138	6.09	10.22	0, 0	1104	2.71	10.03	-3	-0.30	-0.39	-0.10	-0.37	4	8	9	NP_005223	P21709
ER-alpha	S104	0, 0	1075	21.39	10.14	0, 0	981	6.12	9.86	-9	-0.34	-0.48	-0.15	-0.56	4	9	9	NP_000116.2	P03372
ErbB2 (HER2)	Pan-specific	0, 0	1034	52.51	10.09	0, 0	717	5.62	9.41	-31	-0.37	-0.73	-0.36	-1.38	4	10	9	NP_004439	P04626
ErbB2 (HER2)	Pan-specific	0, 0	11214	5.61	13.52	0, 0	7544	0.12	12.81	-33	1.37	1.10	-0.28	-1.06	4	6	10	NP_004439	P04626
ErbB2 (HER2)	Y1248	0, 0	9643	13.13	13.31	0, 0	8296	2.26	12.94	-14	1.26	1.17	-0.09	-0.35	4	7	10	NP_004439	P04626
ErbB2 (HER2)	Y1248	0, 0	42	4.78	5.45	0, 0	62	5.12	5.89	50	-2.71	-2.62	0.09	0.36	4	8	10	NP_004439	P04626
ErbB2 (HER2)	T686	0, 0	9694	11.66	13.31	0, 0	8288	9.84	12.94	-15	1.27	1.17	-0.10	-0.37	4	9	10	NP_004439	P04626
ErbB3	Y1328	0, 0	2485	5.21	11.35	0, 0	2340	20.32	11.12	-6	0.27	0.19	-0.08	-0.32	4	10	10	NP_001005915.1	P21860
Erk1 (MAPK3)+ Erk2 (MAPK1)	Pan-specific	0, 0	2386	4.95	11.29	0, 0	2506	8.67	11.22	5	0.24	0.24	0.00	0.00	4	7	11	X36142.1, NP_002	P27361
Erk1 (MAPK3)+ Erk2 (MAPK1)	Pan-specific	0, 0	8469	4.91	13.12	0, 0	8187	6.66	12.92	-3	1.17	1.16	-0.01	-0.03	4	8	11	X36142.1, NP_002	P27361
Erk1 (MAPK3)+ Erk2 (MAPK1)	Pan-specific	0, 0	1342	4.78	10.46	0, 0	1398	11.93	10.37	4	-0.18	-0.21	-0.03	-0.13	4	9	11	X36142.1, NP_002	P27361
Erk1 (MAPK3)+ Erk2 (MAPK1)	Pan-specific	0, 0	5035	17.74	12.37	0, 0	4740	13.17	12.14	-6	0.79	0.74	-0.05	-0.20	4	10	11	X36142.1, NP_002	P27361
Erk1 (MAPK3)+ Erk2 (MAPK1)	Pan-specific	0, 0	678	208.27	9.48	0, 0	371	3.99	8.46	-45	-0.67	-1.24	-0.56	-2.17	5	6	1	X36142.1, NP_002	P27361
Erk1 (MAPK3)+ Erk2 (MAPK1)	Pan-specific	0, 0	62	38.32	6.02	0, 0	67	21.44	6.00	9	-2.42	-2.56	-0.14	-0.52	5	7	1	X36142.1, NP_002	P27361
Erk1 (MAPK3)+ Erk2 (MAPK1)	Y204	0, 0	2147	171.96	11.14	0, 0	1533	24.28	10.51	-29	0.17	-0.14	-0.30	-1.17	5	8	1	X36142.1, NP_002	P27361
Erk1 (MAPK3)+ Erk2 (MAPK1)	T202	0, 0	1844	2.56	10.92	0, 0	2239	13.78	11.05	21	0.06	0.16	0.10	0.39	5	9	1	X36142.1, NP_002	P27361
Erk2 (MAPK1)	Pan-specific	0, 0	661	16.10	9.44	0, 0	940	32.74	9.80	42	-0.69	-0.52	0.18	0.68	5	10	1	NP_002736	P28482
Erk3 (MAPK6)	Pan-specific	0, 0	7798	4.26	12.99	0, 0	6376	31.23	12.56	-18	1.10	0.97	-0.14	-0.53	5	6	2	NP_002739	Q16659
Erk4 (MAPK4)	Pan-specific	1, 0	696	2.18	9.51	1, 0	1037	13.38	9.94	49	-0.66	-0.44	0.21	0.83	5	7	2	NP_002738	P31152
Erk5 (MAPK7)	Pan-specific	0, 0	457	132.78	8.91	0, 0	446	72.91	8.73	-2	-0.96	-1.09	-0.13	-0.51	5	8	2	NP_620602	Q13164
Erk5 (MAPK7)	Pan-specific	0, 0	410	33.81	8.75	0, 0	427	24.61	8.66	4	-1.04	-1.13	-0.09	-0.34	5	9	2	NP_620602	Q13164
Erk5 (MAPK7)	Pan-specific	0, 0	4456	51.14	12.19	0, 0	4056	14.51	11.91	-9	0.70	0.62	-0.08	-0.31	5	10	2	NP_620602	Q13164
Erk5 (MAPK7)	T218+Y220	0, 0	3296	3.40	11.76	0, 0	3216	54.87	11.58	-2	0.48	0.44	-0.04	-0.16	5	6	3	NP_620602	Q13164
Erk5 (MAPK7)	T218+Y220	0, 0	3207	9.99	11.72	0, 0	3317	98.71	11.62	3	0.46	0.46	0.00	0.00	5	7	3	NP_620602	Q13164
ERP57	Pan-specific	0, 0	792	13.50	9.70	0, 0	1187	78.19	10.14	50	-0.56	-0.34	0.22	0.87	5	8	3	NP_005304	P30101
ERP72	Pan-specific	0, 0	521	12.98	9.10	0, 0	644	13.74	9.25	23	-0.87	-0.81	0.06	0.21	5	9	3	NP_004902	P13667
Ezrin	T567	0, 0	675	35.19	9.47	0, 0	863	15.17	9.88	28	-0.68	-0.58	0.09	0.36	5	10	3	NP_001104547.1	P15311
Ezrin	Y353	0, 0	2451	3.56	11.33	0, 0	1747	138.44	10.70	-29	0.26	-0.04	-0.30	-1.15	5	6	4	NP_001104547.1	P15311
FAK	Pan-specific	0, 0	2483	11.23	11.35	0, 0	2239	49.17	11.05	-10	0.27	0.16	-0.12	-0.45	5	7	4	NP_005598	Q05397
FAK	Y397	0, 0	11289	28.93	13.53	0, 0	10273	0.28	13.25	-9	1.38	1.34	-0.04	-0.16	5	8	4	NP_005598	Q05397
FAK	Y397	0, 0	1161	11.27	10.25	0, 0	1255	25.14	10.22	8	-0.28	-0.29	-0.01	-0.04	5	9	4	NP_005598	Q05397
FAK	Y576	0, 0	28	31.48	4.88	0, 0	105	0.57	6.63	274	-3.00	-2.22	0.78	3.01	5	10	4	NP_005598	Q05397
FAK	S722	0, 0	4876	25.53	12.32	0, 0	3238	114.97	11.59	-34	0.77	0.44	-0.32	-1.24	5	6	5	NP_005598	Q05397
FAK	S722	0, 0	4623	18.04	12.25	0, 0	3128	59.42	11.54	-32	0.73	0.42	-0.31	-1.20	5	7	5	NP_005598	Q05397
FAK	S732	0, 0	5689	14.36	12.55	0, 0	3100	65.51	11.52	-46	0.88	0.41	-0.47	-1.81	5	8	5	NP_005598	Q05397
FAK	S843	0, 0	4607	50.93	12.24	0, 0	3612	47.71	11.74	-22	0.72	0.53	-0.20	-0.76	5	9	5	NP_005598	Q05397
FAK	S910	0, 0	4115	12.23	12.08	0, 0	3679	24.11	11.77	-11	0.64	0.54	-0.10	-0.39	5	10	5	NP_005598	Q05397
FAK	Y576/Y577	0, 0	3493	30.12	11.84	0, 0	3149	107.74	11.55	-10	0.52	0.42	-0.10	-0.39	5	6	6	NP_005598	Q05397
FAS	Pan-specific	0, 0	2022	26.26	11.05	0, 0	2144	40.22	10.99	6	0.12	0.12	0.00	0.00	5	7	6	NP_003789	P25445
FasL	Pan-specific	0, 0	1773	19.70	10.86	0, 0	1450	32.37	10.43	-18	0.03	-0.18	-0.21	-0.80	5	8	6	NP_000630	P48023
Fes	Pan-specific	0, 0	1553	13.84	10.67	0, 0	1824	20.18	10.76	17	-0.07	0.00	0.07	0.26	5	9	6	NP_001996	P07332
FHL2	Pan-specific	0, 0	2281	21.46	11.23	0, 0	2497	8.30	11.21	9	0.21	0.24	0.03	0.11	5	10	6	NP_001034581.1	Q14192
FKBP52	Pan-specific	0, 0	1183	2.15	10.28	0, 0	1657	103.83	10.62	40	-0.27	-0.08	0.19	0.73	5	6	7	NP_002005	Q02790
FKHR	S256	0, 0	1488	17.19	10.61	0, 0	1310	11.11	10.28	-12	-0.10	-0.26	-0.16	-0.61	5	7	7	NP_002006.2	Q12778
FKHR	S319	0, 0	984	34.38	10.01	0, 0	1029	9.90	9.93	5	-0.40	-0.45	-0.04	-0.17	5	8	7	NP_002006.2	Q12778
FKHRL1	T32	0, 0	114	15.19	6.90	0, 0	147	33.08	7.13	29	-1.98	-1.95	0.02	0.08	5	9	7	NP_001446	O43524
FKHRL1	T32	0, 0	431	0.94	8.82	0, 0	904	16.06	9.74	110	-1.00	-0.55	0.46	1.76	5	10	7	NP_001446	O43524
Fos	Pan-specific	0, 0	9099	0.30	13.22	0, 0	11538	27.62	13.42	27	1.22	1.43	0.21	0.79	5	6	8	NP_005243	P01100
Fos	T232	0, 0	2028	28.01	11.06	0, 0	2096	39.48	10.96	3	0.13	0.10	-0.02	-0.08	5	7	8	NP_005243	P01100
FRS2	Y348	0, 0	5504	20.63	12.50	0, 0	8543	60.08	12.99	55	0.85	1.19	0.34	1.31	5	8	8	NP_001036020.1	Q8WU20
Fyn	Pan-specific	0, 0	3503	17.10	11.85	0, 0	6022	50.86	12.48	72	0.52	0.92	0.40	1.54	5	9	8	NP_002028	P06241
Gab1	Y627	0, 0	1653	0.36	10.76	0, 0	2622	32.74	11.28	59	-0.02	0.28	0.30	1.16	5	10	8	NP_002030.2	Q13480
GAP-43	S41	0, 0	514	23.73	9.08	0, 0	622	6.90	9.21	21	-0.88	-0.84	0.04	0.15	5	6	9	NP_002036	P17677
GATA1	S142	0, 0	1506	39.48	10.63	0, 0	1602	4.29	10.57	6	-0.09	-0.10	-0.01	-0.04	5	7	9	NP_002040.1	P15976
GCK	Pan-specific	0, 0	5296	9.99	12.44	0, 0	6081	29.97	12.49	15	0.83	0.93	0.11	0.40	5	8	9	NP_004570	Q12851
GFAP	S8	0, 0	4117	6.25	12.08	0, 0	5209	15.72	12.27	27	0.64	0.81	0.17	0.65	5	9	9	NP_002046	P14136
GluR1	S849	0, 0	3992	7.49	12.03	0, 0	7196	8.08	12.74	80	0.62	1.06	0.44	1.70	5	10	9	NP_000818.2	P42261
GNB2L1	Pan-specific	0, 0	1472	3.10	10.60	0, 0	2319	19.31	11.10	58	-0.11	0.18	0.29	1.12	5	6	10	NP_006089	P63244
GRK2 (BARK1)	Pan-specific	0, 0	7182	16.90	12.88	0, 0	10207	2.53	13.24	42	1.05	1.33	0.28	1.09	5	7	10	NP_001610	P25098
GRK2 (BARK1)	S670	0, 0	8920	21.20	13.19	0, 0	11991	34.44	13.47	34	1.21	1.46	0.25	0.97	5	8	10	NP_001610	P25098
GRK3 (BARK2)	Pan-specific	0, 0	1051	41.58	10.11	0, 0	1473	13.62	10.45	40	-0.35	-0.17	0.19	0.72	5	9	10	NP_005151	P35626
GroEL	Pan-specific	0, 0	3323	6.72	11.77	0, 0	6083	12.44	12.50	83	0.49	0.93	0.45	1.71	5	10	10	NP_002147	P10809
Grp75	Pan-specific	0, 0	12133	1.62	13.64	0, 0	11173	9.14	13.37	-8	1.43	1.40	-0.03	-0.11	5	6	11	NP_004125	P38646
Grp78	Pan-specific	0, 0	11253	17.62	13.53	0, 0	10008	17.06	13.21	-11	1.38	1.32	-0.06	-0.23	5	7	11	NP_005338	P11021
Grp78	Pan-specific	0, 0	10578	5.82	13.44	0, 0	10526	19.17	13.29	0	1.33	1.36	0.03	0.10	5	8	11	NP_005338	P11021
Grp94	Pan-specific	0, 0	1057	10.30	10.12	0, 0	1587	21.32	10.56	50	-0.35	-0.11	0.24	0.92	5	9	11	NP_003290	P14625
GSK3a	Pan-specific	0, 0	1984	1.04	11.03	0, 0	2858	2.99	11.41	44	0.11	0.35	0.24	0.91	5	10	11	NP_063937	P49840
GSK3a	Pan-specific	0, 0	1427	14.69	10.55	0, 0	2764	7.07	11.36	94	-0.13	0.32	0.45	1.73	6	6	1	NP_063937	P49840
GSK3a	S21	0, 0	827	15.05	9.76	0, 0	933	13.34	9.79	13	-0.53	-0.52	0.01	0.03	6	7	1	NP_063937	P49840
GSK3a	Y279	0, 0	2583	32.62	11.41	0, 0	3837	0.86	11.83	49	0.30	0.57	0.27	1.05	6	8	1	NP_063937	P49840
GSK3b	Pan-specific	0, 0	928	5.83	9.93	0, 0	1223	1.28	10.18	32	-0.45	-0.31	0.13	0.51	6	9	1	NP_002084	P49841
GSK3b	Pan-specific	0, 0	594	7.97	9.28	0, 0	817	7.53	9.60	38	-0.77	-0.63	0.15	0.56	6	10	1	NP_002084	P49841
Haspin	Pan-specific	0, 0	1250	2.25	10.36	0, 0	1528	0.22	10.50	22	-0.23	-0.14	0.09	0.34	6	6	2	NP_114171	Q8TF76
HDAC4	Pan-specific	0, 0	1388	1.36	10.51	0, 0	1453	15.07	10.43	5	-0.15	-0.18	-0.03	-0.11	6	7	2	NP_006028.2	P56524
HDAC4	S246	0, 0	6162	12.70	12.66	0, 0	6515	4.41	12.59	6	0.94	0.98	0.05	0.18	6	8	2	NP_006028.2	P56524
HDAC5	S498	0, 0	3676	21.12	11.92	0, 0	3392	3.70	11.65	-8	0.56	0.48	-0.08	-0.31	6	9	2	NP_001015053.1	Q9UQL6
hHR23B	Pan-specific	0, 0	2693	4.02	11.47	0, 0	1829	1.76	10.76	-32	0.33	0.00	-0.33	-1.28	6	10	2	NP_002865	P54727
Hip	Pan-specific	0, 0	12309	0.08	13.66	0, 0	11681	0.52	13.44	-5	1.44	1.44	0.00	-0.02	6	6	3	NP_003923	P50502
Histone H1	phospho CDK1 sites	0, 0	6487	8.42	12.73	0, 0	7103	0.45	12.72	9	0.97	1.05	0.08	0.30	6	7	3	NP_005316	Q02539
Histone H2A.X	S140	0, 0	5343	30.51	12.45	0, 0	6940	3.33	12.62	24	0.83	1.00	0.17	0.64	6	8	3	NP_002096	P16104
Histone H2B	S15	0, 0	14863	0.57	13.93	0, 0	13999	6.67	13.70	-6	1.58	1.58	0.00	-0.01	6	9	3	NP_778225	P33778
Histone H3	S11	0, 0	2586	0.62	11.41	0, 0	3219	6.63	11.58	25	0.30	0.44	0.14	0.52	6	10	3	NP_003521	P84243
Histone H3	S29	0, 0	15222	0.97	13.97	0, 0	11532	4.47	13.42	-24	1.60	1.43	-0.17	-0.65	6	6	4	NP_003521	P84243
Histone H3	T12	0, 1	6480	4.58	12.73	0, 1	6547	0.99	12.60	1	0.97	0.99	0.01	0.06	6	7	4	NP_003521	P84243
Histone H3	T4	0, 0	15157	7.90	13.96	0, 0	12048	5.67	13.48	-21	1.59	1.46	-0.13	-0.51	6	8	4	NP_003521	P84243
Histone H3	T4	0, 0	8240	5.65	13.08	0, 0	8000	5.17	12.89	-3	1.15	1.14	0.00	-0.02	6	9	4	NP_003521	P84243
HO1	Pan-specific	0, 0	11785	2.09	13.60	0, 0	10635	5.08	13.30	-10	1.41	1.36	-0.05	-0.17	6	10	4	NP_002124	P09601
HO2	Pan-specific	0, 0	16681	12.41	14.10	0, 0	12475	8.51	13.53	-25	1.66	1.49	-0.18	-0.67	6	6	5	NP_002125	P30519
Hpk1 (MAP4K1)	Pan-specific	0, 0	12040	5.25	13.63	0, 0	13348	1.11	13.63	11	1.42	1.54	0.12	0.44	6	7	5	NP_009112	Q92918
Hsc70	Pan-specific	0, 0	4319	9.78	12.15	0, 0	4226	5.43	11.97	-2	0.68	0.65	-0.03	-0.11	6	8	5	NP_006588	P11142
Hsc70	Pan-specific	0, 0	16952	14.84	14.28	0, 0	16212	4.88	13.91	-14	1.76	1.69	-0.07	-0.25	6	9	5	NP_006588	P11142
HSF4	Pan-specific	0, 0	1732	17.05	10.83	0, 0	1746	7.86	10.69	1	0.01	-0.04	-0.05	-0.18	6	10	5	NP_001529	Q9ULV5
Hsp105	Pan-specific	0, 0	3796	5.35	11.96	0, 0	4419	2.49	12.03	16	0.58	0.68	0.10	0.39	6	6	6	NP_006635	Q92598
Hsp27	Pan-specific	0, 0	21068	7.97	14.43	0, 0	14414	4.51	13.74	-32	1.83	1.60	-0.23	-0.90	6	7	6	NP_001531	P04792
Hsp27	S15	0, 0	514	4.44	9.08	0, 0	533	0.83	8.98	4	-0.88	-0.96	-0.08	-0.31	6	8	6	NP_001531	P04792
Hsp27	S15	0, 0	6104	8.01	12.65	0, 0	6624	2.10	12.62	9	0.93	1.00	0.07	0.26	6	9	6	NP_001531	P04792

Hsp27	S78	0, 0	13714	3.45	13.81	0, 0	10253	0.96	13.25	-25	1.52	1.34	-0.18	-0.71	6	10	6	NP_001531	P04792
Hsp27	S82	0, 0	6820	2.96	12.81	0, 0	5857	3.44	12.44	-14	1.01	0.90	-0.11	-0.42	6	6	7	NP_001531	P04792
Hsp27	S82	0, 0	6	43.30	2.66	0, 0	31	8.47	4.89	418	-4.12	-3.16	0.96	3.71	6	7	7	NP_001531	P04792
Hsp27	S82	0, 0	4281	15.54	12.14	0, 0	2286	18.60	11.08	-47	0.67	0.17	-0.50	-1.92	6	8	7	NP_001531	P04792
Hsp40	Pan-specific	0, 0	723	6.37	9.57	0, 0	1173	15.20	10.12	62	-0.63	-0.35	0.28	1.09	6	9	7	NP_006136	P25685
Hsp40	Pan-specific	0, 0	17260	2.03	14.15	0, 0	14572	5.59	13.76	-16	1.69	1.61	-0.08	-0.31	6	10	7	NP_006136	P25685
Hsp40	Pan-specific	0, 0	14204	0.15	13.87	0, 0	10596	0.93	13.30	-25	1.55	1.36	-0.18	-0.71	6	6	8	NP_006136	P25685
Hsp47	Pan-specific	0, 0	8263	3.09	13.08	0, 0	7514	2.14	12.80	-9	1.15	1.09	-0.06	-0.21	6	7	8	NP_001226	P29043
Hsp60	Pan-specific	0, 0	6408	3.46	12.72	0, 0	6372	0.83	12.56	-1	0.96	0.97	0.00	0.01	6	8	8	NP_002147	P10809
Hsp60	Pan-specific	0, 0	24695	7.13	14.66	0, 0	18209	0.43	14.08	-26	1.95	1.78	-0.17	-0.65	6	9	8	NP_002147	P10809
Hsp60	Pan-specific	0, 0	8713	0.32	13.16	0, 0	7138	3.19	12.73	-18	1.19	1.05	-0.13	-0.52	6	10	8	NP_002147	P10809
Hsp70	Pan-specific	0, 0	3459	7.11	11.83	0, 0	4181	2.82	11.95	21	0.51	0.64	0.13	0.48	6	6	9	NP_005336	P08107
Hsp70	Pan-specific	0, 0	5904	2.09	12.60	0, 0	6538	0.96	12.60	11	0.90	0.99	0.08	0.31	6	7	9	NP_005336	P08107
Hsp70	Pan-specific	0, 0	10920	0.76	13.49	0, 0	8516	1.93	12.98	-22	1.35	1.19	-0.16	-0.62	6	8	9	NP_005336	P08107
Hsp90a	Pan-specific	0, 0	4981	3.20	12.35	0, 0	4840	7.25	12.17	-3	0.78	0.75	-0.03	-0.11	6	9	9	NP_005339	P07900
Hsp90a/b	Pan-specific	0, 0	9709	5.12	13.32	0, 0	8545	4.51	12.99	-12	1.27	1.19	-0.07	-0.28	6	10	9	NP_005339	P07900
Hsp90a/b	Pan-specific	0, 0	11622	4.40	13.58	0, 0	9521	10.98	13.14	-18	1.40	1.28	-0.12	-0.47	6	6	10	NP_005339	P07900
Hsp90a/b	Pan-specific	0, 0	2709	14.17	11.47	0, 0	3277	11.59	11.60	21	0.34	0.45	0.11	0.44	6	7	10	NP_005339	P07900
Hsp90a/b	Pan-specific	0, 0	520	0.63	9.09	0, 0	1171	9.25	10.12	125	-0.87	-0.35	0.52	2.01	6	8	10	NP_005339	P07900
Hsp90a/b	Pan-specific	0, 0	2240	1.03	11.20	0, 0	3318	21.59	11.62	48	0.20	0.46	0.26	1.01	6	9	10	NP_005339	P07900
Hsp90b	Pan-specific	0, 0	6236	3.31	12.68	0, 0	5540	31.17	12.36	-11	0.94	0.86	-0.09	-0.33	6	10	10	NP_031381	P08238
Hsp90b	Pan-specific	0, 0	11196	2.17	13.52	0, 0	10159	5.48	13.24	-9	1.37	1.33	-0.04	-0.17	6	6	11	NP_031381	P08238
Hsp90b	S255	0, 0	500	1.98	9.04	0, 0	684	6.96	9.34	37	-0.90	-0.76	0.13	0.51	6	7	11	NP_031381	P08238
HspBP1	Pan-specific	0, 0	1288	11.72	10.40	0, 0	1337	6.89	10.31	4	-0.21	-0.24	-0.04	-0.14	6	8	11	NP_036399	Q9NZL4
Huntingtin	S421	0, 1	1189	7.00	10.29	0, 1	2710	131.88	11.33	128	-0.26	0.30	0.57	2.19	6	9	11	NP_002102	P42858
I1PP2A	Pan-specific	0, 0	15122	1.90	13.96	0, 0	11039	34.71	13.36	-27	1.59	1.39	-0.20	-0.76	6	10	11	NP_006296	P39687
I2PP2A	Pan-specific	0, 0	12762	9.79	13.71	0, 0	11562	3.46	13.42	-9	1.47	1.43	-0.04	-0.15	7	6	1	NP_003002	Q01105
ICK	Pan-specific	0, 0	502	3.27	9.04	0, 0	609	3.90	9.17	21	-0.89	-0.85	0.04	0.15	7	7	1	NP_057597	Q9UPZ9
IGF1R	Pan-specific	0, 0	596	1.12	9.29	0, 0	734	4.00	9.44	23	-0.77	-0.71	0.06	0.23	7	8	1	NP_000866	P08069
IGF1R	Y1280	0, 0	3928	42.67	12.01	0, 0	3650	31.98	11.76	-7	0.61	0.53	-0.07	-0.28	7	9	1	NP_000866	P08069
IGF1R	Y1165/Y1166	0, 0	1772	4.26	10.86	0, 0	2103	11.07	10.96	19	0.03	0.11	0.08	0.31	7	10	1	NP_000866	P08069
IGF1Rb/IRb	Y1161/Y1185	0, 0	401	3.10	8.72	0, 0	329	11.19	8.29	-18	-1.06	-1.33	-0.27	-1.05	7	6	2	NP_000866	P08069
IkBa	Pan-specific	0, 0	16844	2.56	14.11	0, 0	13389	4.28	13.63	-21	1.67	1.54	-0.13	-0.49	7	7	2	NP_065390	P25963
IkBa	Pan-specific	0, 0	3332	1.48	11.77	0, 0	3056	12.44	11.50	-8	0.49	0.40	-0.09	-0.35	7	8	2	NP_065390	P25963
IkBa	Pan-specific	0, 0	28	1.59	4.89	0, 0	126	490.81	6.91	349	-2.99	-2.07	0.92	3.55	7	9	2	NP_065390	P25963
IkBa	Y42	0, 0	767	2.10	9.65	0, 0	682	21.29	9.34	-11	-0.58	-0.76	-0.18	-0.69	7	10	2	NP_065390	P25963
IkBb	Pan-specific	0, 0	11758	6.97	13.59	0, 0	9869	2.94	13.16	-18	1.41	1.29	-0.12	-0.45	7	6	3	NP_002494	Q15653
IkBe	S161	0, 0	1012	7.72	10.05	0, 0	969	4.06	9.84	-4	-0.38	-0.49	-0.11	-0.43	7	7	3	NP_004517.2	Q00221
IKKa	Pan-specific	0, 0	617	14.75	9.34	0, 0	680	9.92	9.33	10	-0.74	-0.77	-0.02	-0.09	7	8	3	NP_001269	O15111
IKKa	Pan-specific	0, 0	2502	14.18	11.36	0, 0	2677	18.69	11.31	7	0.28	0.29	0.02	0.06	7	9	3	NP_001269	O15111
IKKa	Pan-specific	0, 0	7595	5.27	12.96	0, 0	6338	9.00	12.55	-17	1.09	0.96	-0.13	-0.49	7	10	3	NP_001269	O15111
IKKa	Pan-specific	0, 0	786	13.81	9.69	0, 0	894	5.40	9.73	14	-0.57	-0.56	0.01	0.04	7	6	4	NP_001269	O15111
IKKa	Pan-specific	0, 0	747	1.47	9.62	0, 0	933	9.72	9.79	25	-0.60	-0.52	0.08	0.31	7	7	4	NP_001269	O15111
IKKa	Pan-specific	0, 0	1257	7.56	10.37	0, 0	1639	10.79	10.60	30	-0.22	-0.09	0.14	0.53	7	8	4	NP_001269	O15111
IKKa	S180	0, 0	80	19.32	6.40	0, 0	143	38.11	7.09	79	-2.23	-1.97	0.26	0.99	7	9	4	NP_001269	O15111
IKKa	T23	0, 0	2685	3.25	11.46	0, 0	2586	26.38	11.26	-4	0.33	0.27	-0.06	-0.24	7	10	4	NP_001269	O15111
IKKb	Pan-specific	0, 0	85	11.97	6.48	0, 0	110	1.40	6.71	29	-2.19	-2.18	0.01	0.03	7	6	5	NP_001547	O14920
IKKb	Pan-specific	0, 0	535	19.67	9.14	0, 0	673	9.79	9.32	26	-0.85	-0.78	0.07	0.28	7	7	5	NP_001547	O14920
IKKb	Pan-specific	0, 0	352	11.95	8.53	0, 0	473	3.09	8.81	35	-1.15	-1.05	0.10	0.40	7	8	5	NP_001547	O14920
IKKb	Pan-specific	0, 0	164	35.79	7.43	0, 0	180	11.74	7.42	10	-1.71	-1.80	-0.09	-0.33	7	9	5	NP_001547	O14920
IKKg (NEMO)	Pan-specific	0, 0	1167	10.36	10.26	0, 0	1527	40.43	10.50	31	-0.28	-0.14	0.14	0.53	7	10	5	NP_003630	Q9Y6K9
ILK1	Pan-specific	0, 0	1988	5.12	11.03	0, 0	3176	17.97	11.56	60	0.11	0.43	0.32	1.22	7	6	6	NP_034692	Q13418
ILK1	Pan-specific	0, 0	574	7.76	9.24	0, 0	822	0.16	9.61	43	-0.80	-0.62	0.18	0.68	7	7	6	NP_034692	Q13418
Integrin a4	S1027	0, 0	14019	6.60	13.85	0, 0	14566	9.39	13.76	4	1.54	1.61	0.07	0.28	7	8	6	NP_000876	P13612
Integrin b1	S785	0, 0	3307	8.89	11.76	0, 0	4448	18.79	12.04	34	0.48	0.69	0.21	0.79	7	9	6	NP_002202	P05556
IR (INSR)	Pan-specific	0, 0	1013	44.12	10.06	0, 0	1134	40.06	10.07	12	-0.38	-0.37	0.01	0.04	7	10	6	NP_000199	P06213
IR (INSR)	Y999	0, 0	3702	3.50	11.93	0, 0	4378	6.16	12.02	18	0.56	0.68	0.11	0.43	7	6	7	NP_000199	P06213
IR/IGF1R (INSR)	Y1189/Y1190	0, 0	4238	16.13	12.12	0, 0	5200	2.65	12.27	23	0.66	0.81	0.15	0.58	7	7	7	NP_000868	P06213
IRAK1	Pan-specific	0, 0	1874	6.87	10.94	0, 0	2707	19.71	11.33	44	0.07	0.30	0.24	0.91	7	8	7	NP_001560	P51617
IRAK1	Pan-specific	0, 0	3231	7.65	11.73	0, 0	3915	9.41	11.86	21	0.46	0.59	0.12	0.48	7	9	7	NP_001560	P51617
IRAK2	Pan-specific	0, 0	4550	27.64	12.22	0, 0	5046	8.83	12.23	11	0.71	0.79	0.07	0.27	7	10	7	NP_001561	O43187
IRAK2	Pan-specific	0, 0	1073	23.76	10.14	0, 0	1802	14.25	10.74	68	-0.34	-0.01	0.33	1.26	7	6	8	NP_001561	O43187
IRAK3	Pan-specific	0, 0	1539	40.08	10.66	0, 0	1916	5.63	10.83	24	-0.08	0.04	0.11	0.43	7	7	8	NP_009130	Q9Y616
IRAK4	Pan-specific	0, 0	22	80.06	4.53	0, 0	15	22.93	3.86	-30	-3.18	-3.71	-0.53	-2.05	7	8	8	NP_057207	Q9NWZ3
IRAK4	Pan-specific	0, 0	501	2.15	9.04	0, 0	672	3.78	9.32	34	-0.90	-0.78	0.12	0.46	7	9	8	NP_057207	Q9NWZ3
IRS1	Y612	0, 0	2774	1.05	11.51	0, 0	3421	14.76	11.66	23	0.35	0.48	0.13	0.50	7	10	8	NP_005535	P35568
IRS1	Y1179	0, 0	12099	28.87	13.63	0, 0	15935	26.98	13.88	32	1.43	1.68	0.25	0.96	7	6	9	NP_005535	P35568
IRS1	S312	0, 0	890	9.49	9.87	0, 0	1634	0.71	10.60	83	-0.48	-0.09	0.39	1.49	7	7	9	NP_005535	P35568
IRS1	S639	0, 0	1607	19.66	10.72	0, 0	2214	11.68	11.04	38	-0.04	0.15	0.19	0.74	7	8	9	NP_005535	P35568
JAK1	Pan-specific	0, 0	4497	16.76	12.21	0, 0	5117	1.62	12.25	14	0.71	0.80	0.09	0.35	7	9	9	NP_002218	P23458
JAK1	Pan-specific	0, 0	2088	2.37	11.10	0, 0	2911	1.56	11.43	39	0.15	0.36	0.21	0.82	7	10	9	NP_002218	P23458
JAK1	Y1034	0, 0	1451	13.89	10.57	0, 0	2160	31.75	11.00	49	-0.12	0.13	0.25	0.95	7	6	10	NP_002218	P23458
JAK2	Pan-specific	0, 0	5495	28.07	12.50	0, 0	7962	9.12	12.88	45	0.85	1.14	0.29	1.10	7	7	10	NP_004963	O60674
JAK2	Y1007+Y1008	0, 0	12947	29.29	13.73	0, 0	14859	7.97	13.78	15	1.48	1.62	0.15	0.56	7	8	10	NP_004963	O60674
JAK2	Y1007+Y1008	0, 0	4438	9.56	12.19	0, 0	4417	21.32	12.03	0	0.70	0.68	-0.01	-0.05	7	9	10	NP_004963	O60674
JAK3	Pan-specific	0, 0	7238	17.24	12.89	0, 0	9153	11.79	13.08	26	1.05	1.25	0.19	0.75	7	10	10	NP_000206	P52333
TAO3 (JIK)	Pan-specific	0, 0	1109	6.36	10.19	0, 0	1699	0.96	10.66	53	-0.32	-0.06	0.26	0.99	7	6	11	NP_057365	Q9H2K8
JNK1 (MAPK8)	Pan-specific	0, 0	1414	0.50	10.54	0, 0	3051	2.91	11.50	116	-0.14	0.40	0.53	2.05	7	7	11	NP_620637.1	P45983
JNK1/2/3	Pan-specific	0, 0	502	0.88	9.04	0, 0	806	5.75	9.58	60	-0.89	-0.64	0.26	0.99	7	8	11	NP_002741	P45983
JNK1/2/3	Pan-specific	0, 0	4585	3.66	12.23	0, 0	3994	1.76	11.89	-13	0.72	0.60	-0.12	-0.45	7	9	11	NP_002741	P45983
JNK1/2/3	Pan-specific	0, 0	350	3.05	8.52	0, 0	658	8.08	9.29	88	-1.16	-0.79	0.36	1.40	7	10	11	NP_002741	P45983
JNK1/2/3	T183 + Y185	0, 0	591	7.40	9.28	0, 0	812	12.31	9.59	37	-0.77	-0.63	0.14	0.55	8	6	1	NP_002741	P45983
JNK1/2/3	T183 + Y185	0, 0	2945	29.87	11.60	0, 0	2175	15.63	11.01	-26	0.40	0.13	-0.26	-1.01	8	7	1	NP_002741	P45983
JNK1/2/3	T183 + Y185	0, 0	3210	23.93	11.72	0, 0	3010	27.58	11.48	-6	0.46	0.39	-0.07	-0.29	8	8	1	NP_002741	P45983
JNK2 (MAPK9)	Pan-specific	0, 0	3383	4.28	11.80	0, 0	3514	1.52	11.70	4	0.50	0.51	0.01	0.03	8	9	1	NP_002744	P45984
JNK2/3	Pan-specific	0, 0	358	9.79	8.55	0, 0	195	15.84	7.53	-45	-1.14	-1.73	-0.59	-2.29	8	10	1	NP_002743.3	P45984
JNK3 (MAPK10)	Pan-specific	0, 0	889	14.98	9.87	0, 0	941	1.21	9.80	6	-0.48	-0.52	-0.04	-0.15	8	6	2	NP_002744.1	P53779
Jun	Pan-specific	0, 0	1072	6.27	10.14	0, 0	853	16.10	9.66	-20	-0.34	-0.59	-0.25	-0.97	8	7	2	NP_002219	P05412
Jun	S63	0, 0	151	5.79	7.31	0, 0	82	5.25	6.29	-45	-1.77	-2.40	-0.63	-2.43	8	8	2	NP_002219	P05412
Jun	S73	0, 0	3119	3.95	11.68	0, 0	2805	4.43	11.38	-10	0.44	0.33	-0.11	-0.42	8	9	2	NP_002219	P05412
Jun	S73	0, 0	12611	1.63	13.69	0, 0	8163	9.03	12.92	-35	1.46	1.16	-0.30	-1.15	8	10	2	NP_002219	P05412
Jun	S243	0, 0	1190	3.48	10.29	0, 0	813	5.24	9.59	-32	-0.26	-0.63	-0.37	-1.41	8	6	3	NP_002219	P05412
Jun	Y170	0, 0	2248	16.32	11.21	0, 0	2128	3.43	10.98	-5	0.20	0.12	-0.08	-0.32	8	7	3	NP_002219	P05412
Jun	T91	0, 0	2852	0.37	11.55	0, 0	2653	0.63	11.30	-7	0.37	0.29	-0.09	-0.33	8	8	3	NP_002219	P05412
KAP	Pan-specific	0, 0	12649	6.35	13.70	0, 0	12679	9.86	13.55	0	1.46	1.50	0.04	0.15	8	9	3	NP_005183	Q16667
KDEL receptor 1	Pan-specific	0, 0	5613	0.21	12.53	0, 0	3854	1.60	11.84	-31	0.87	0.58	-0.29	-1.12	8	10	3	NP_006792.1	P24390
KHS (MAP4K5)	Pan-specific	0, 0	1452	28.00	10.57	0, 0	1067	12.39	9.98	-26	-0.12	-0.42	-0.30	-1.15	8	6	4	NP_006566	Q9Y4K4
Kit	Y703	0, 0	5969	4.03	12.61	0, 0	5702	8.97	12.40	-4	0.91	0.88	-0.03	-0.12	8	7	4	NP_006566	P10721
Kit	Y730	0, 0	8992	9.78	13.20	0, 0	7432	7.13	12.78	-17	1.21	1.09	-0.12	-0.47	8	8	4	NP_006566	P10721
Kit	Y936	0, 0	4498	18.37	12.21	0, 0	3017	13.73	11.48	-33	0.71	0.39	-0.32	-1.23	8	9	4	NP_006566	P10721
Kit	Y721	0, 0	1194	3.50	10.29	0, 0	957	8.18	9.83	-20	-0.26	-0.50	-0.24	-0.93	8	10	4	NP_006566	P10721
Ksr1	Pan-specific	0, 0	237	9.12	7.96	0, 0	169	26.19	7.32	-29	-1.44	-1.85	-0.41	-1.56	8	6	5	NP_055053.1	Q8VT5
Ksr1	Pan-specific	0, 0	1500	1.80	10.62	0, 0	1072	7.08	9.99	-29	-0.09	-0.42	-0.32	-1.23	8	7	5	NP_055053.1	Q8VT5
LAR	Pan-specific	0, 0	2081	11.27	11.09	0, 0	1184	28.92	10.13	-43	0.14	-0.34	-0.48	-1.85	8	8	5	NP_002831	P10586
LATS1	Pan-specific	0, 0	820	0.25	9.75	0, 0	701	3.44	9.38	-15	-0.54	-0.74	-0.21	-0.80	8	9	5	NP_004681	O95835
Lck	Pan-specific	0, 0	5705	1.39	12.55	0, 0	3779	1.54	11.81	-34	0.88	0.56	-0.32	-1.22	8	10	5	NP_005347	P06239

Lck	Pan-specific	0, 0	1620	11.74	10.73	0, 0	984	17.78	9.87	-39	-0.04	-0.48	-0.44	-1.70	8	6	6	NP_005347	P06239
Lck	S158	0, 0	13464	12.45	13.79	0, 0	8480	0.17	12.97	-37	1.51	1.19	-0.32	-1.22	8	7	6	NP_005347	P06239
Lck	Y192	0, 0	8930	1.91	13.20	0, 0	5781	2.19	12.42	-35	1.21	0.89	-0.32	-1.21	8	8	6	NP_005347	P06239
Lck	Y505	0, 0	4014	9.42	12.04	0, 0	2417	9.83	11.16	-40	0.62	0.22	-0.41	-1.57	8	9	6	NP_005347	P06239
Lck	Y394	0, 0	1612	4.10	10.73	0, 0	1026	2.82	9.93	-36	-0.04	-0.45	-0.41	-1.56	8	10	6	NP_005347	P06239
LIMK1	Pan-specific	0, 0	2239	5.19	11.20	0, 0	1356	2.38	10.33	-39	0.20	-0.23	-0.43	-1.66	8	6	7	NP_002305	P53667
LIMK1	Y507+T508	0, 0	7329	18.47	12.91	0, 0	4572	10.58	12.08	-38	1.06	0.71	-0.35	-1.36	8	7	7	NP_002305	P53667
Lyn	Pan-specific	0, 0	9782	2.85	13.33	0, 0	7328	2.44	12.76	-25	1.27	1.07	-0.20	-0.76	8	8	7	NP_002341	P07948
Lyn	Y508	0, 0	297	8.75	8.29	0, 0	183	9.97	7.44	-38	-1.28	-1.78	-0.51	-1.96	8	9	7	NP_002341	P07948
MAK	Pan-specific	0, 0	945	9.32	9.96	0, 0	768	6.16	9.51	-19	-0.43	-0.67	-0.24	-0.93	8	10	7	NP_005897	P20794
MAPKAPK2	Pan-specific	0, 0	3379	11.43	11.79	0, 0	2674	7.29	11.31	-21	0.50	0.29	-0.20	-0.78	8	6	8	NP_116584	P49137
MAPKAPK2	T222	0, 0	4196	18.82	12.11	0, 0	2700	4.81	11.32	-36	0.66	0.30	-0.35	-1.36	8	7	8	NP_004750	P49137
MAPKAPK2a	T334	0, 0	745	6.85	9.61	0, 0	481	0.91	8.83	-35	-0.61	-1.04	-0.43	-1.66	8	8	8	NP_004750	P49137
MAPKAPK2a	T334	0, 0	3030	14.17	11.64	0, 0	2078	23.34	10.95	-31	0.42	0.10	-0.32	-1.23	8	9	8	NP_004750	P49137
MARCKS	S159+S163	0, 0	1393	12.16	10.52	0, 0	499	25.51	8.89	-64	-0.15	-1.01	-0.86	-3.31	8	10	8	NP_002347	P29966
MARK	Pan-specific	0, 0	778	16.32	9.68	0, 0	695	9.20	9.37	-11	-0.57	-0.75	-0.18	-0.68	8	6	9	NP_061120	Q8P0L2
Mcl1	Pan-specific	0, 0	8532	7.09	13.13	0, 0	6914	8.07	12.68	-19	1.17	1.03	-0.14	-0.55	8	7	9	NP_068779	Q07820
MDM2	S166	0, 0	5415	15.70	12.47	0, 0	3094	4.60	11.52	-43	0.84	0.41	-0.43	-1.67	8	8	9	NP_002383.2	Q00987
MEF-2	Pan-specific	0, 0	3619	7.01	11.89	0, 0	2924	4.77	11.44	-19	0.55	0.36	-0.18	-0.71	8	9	9	NP_057216.2	Q9P2K5
MEK1 (MAP2K1)	Pan-specific	0, 0	3177	25.30	11.70	0, 0	1774	16.82	10.72	-44	0.45	-0.02	-0.48	-1.83	8	10	9	NP_002746	Q02750
MEK1 (MAP2K1)	Pan-specific	0, 0	885	15.42	9.86	0, 0	841	9.36	9.64	-5	-0.48	-0.60	-0.12	-0.47	8	6	10	NP_002746	Q02750
MEK1 (MAP2K1)	Pan-specific	0, 0	1093	7.08	10.17	0, 0	1171	1.79	10.12	7	-0.33	-0.35	-0.02	-0.08	8	7	10	NP_002746	Q02750
MEK1 (MAP2K1)	Pan-specific	0, 0	5381	2.28	12.47	0, 0	4321	11.97	12.00	-20	0.84	0.67	-0.17	-0.66	8	8	10	NP_002746	Q02750
MEK1 (MAP2K1)	Pan-specific	0, 0	433	2.84	8.83	0, 0	440	22.75	8.71	2	-1.00	-1.11	-0.10	-0.40	8	9	10	NP_002746	Q02750
MEK1 (MAP2K1)	T292	0, 0	4293	28.38	12.14	0, 0	3823	26.87	11.83	-11	0.67	0.57	-0.10	-0.39	8	10	10	NP_002746	Q02750
MEK1 (MAP2K1)	T292	0, 0	11594	1.34	13.57	0, 0	10348	20.31	13.26	-11	1.40	1.34	-0.05	-0.21	8	6	11	NP_002746	Q02750
MEK1 (MAP2K1)	T292	0, 0	132	10.32	7.12	0, 0	180	18.92	7.42	36	-1.87	-1.80	0.07	0.27	8	7	11	NP_002746	Q02750
MEK1 (MAP2K1)	S298	0, 0	12635	14.59	13.70	0, 0	10564	0.15	13.29	-16	1.46	1.36	-0.10	-0.39	8	8	11	NP_002746	Q02750
MEK1 (MAP2K1)	T386	0, 0	10643	1.45	13.45	0, 0	9942	25.93	13.20	-7	1.33	1.31	-0.02	-0.09	8	9	11	NP_002746	Q02750
MEK1 (MAP2K1)	T386	0, 0	9958	31.50	13.35	0, 0	10076	30.85	13.22	1	1.29	1.32	0.04	0.14	8	10	11	NP_002746	Q02750
MEK1 (MAP2K1)	T386	0, 0	34	17.05	5.14	0, 0	46	0.71	5.45	37	-2.87	-2.85	0.01	0.05	9	6	1	NP_002746	Q02750
MEK1/2 (MAP2K1/2)	S218+S222	0, 0	310	10.43	8.35	0, 0	397	18.49	8.56	28	-1.24	-1.18	0.06	0.23	9	7	1	NP_002746	Q02750
MEK1/2 (MAP2K1/2)	Pan-specific	0, 0	255	5.24	8.06	0, 0	423	16.47	8.65	66	-1.39	-1.13	0.25	0.97	9	8	1	NP_002746	Q02750
MEK2 (MAP2K2)	Pan-specific	0, 0	670	27.33	9.46	0, 0	789	2.01	9.55	18	-0.68	-0.65	0.03	0.12	9	9	1	AAH00471.1	P36507
MEK2 (MAP2K2)	Pan-specific	0, 0	277	8.12	8.18	0, 0	381	9.22	8.50	38	-1.33	-1.22	0.11	0.43	9	10	1	AAH00471.1	P36507
MEK2 (MAP2K2)	Pan-specific	0, 0	323	9.90	8.41	0, 0	567	30.00	9.07	76	-1.21	-0.91	0.31	1.18	9	6	2	AAH00471.1	P36507
MEK2 (MAP2K2)	T394	0, 0	2372	1.84	11.28	0, 0	3527	35.70	11.71	49	0.24	0.51	0.27	1.03	9	7	2	AAH00471.1	P36507
MEK2 (MAP2K2)	T394	0, 0	2950	1.13	11.60	0, 0	3924	28.27	11.86	33	0.40	0.59	0.19	0.74	9	8	2	AAH00471.1	P36507
MEK2 (MAP2K2)	T394	0, 0	2488	4.86	11.35	0, 0	3466	24.56	11.68	39	0.27	0.49	0.22	0.85	9	9	2	NP_075627	P36507
MEK3 (MAP2K3)	Pan-specific	0, 0	1161	0.29	10.25	0, 0	1350	13.96	10.32	16	-0.28	-0.24	0.05	0.18	9	10	2	NP_659732	P46734
MEK3 (MAP2K3)	Pan-specific	0, 0	3795	7.36	11.96	0, 0	5346	17.68	12.31	41	0.58	0.83	0.25	0.96	9	6	3	NP_659732	P46734
MEK3 (MAP2K3)	S218	0, 0	285	5.99	8.23	0, 0	364	16.95	8.43	28	-1.31	-1.25	0.05	0.21	9	7	3	NP_659732	P46734
MEK3/6 (MAP2K3/6)	S218/S207	0, 0	175	8.74	7.52	0, 0	269	60.09	8.00	54	-1.66	-1.49	0.18	0.69	9	8	3	NP_002747	P46734
MEK3/6 (MAP2K3/6)	S218/S207	0, 0	5816	3.23	12.58	0, 0	7357	13.53	12.77	26	0.89	1.08	0.18	0.71	9	9	3	NP_002747	P46734
MEK3/6 (MAP2K3/6)	S218/S207	0, 0	2988	9.60	11.62	0, 0	3676	11.07	11.77	23	0.41	0.54	0.13	0.51	9	10	3	NP_002747	P46734
MEK3b (MAP2K3)	Pan-specific	0, 0	1186	9.25	10.28	0, 0	1012	0.99	9.91	-15	-0.27	-0.46	-0.19	-0.74	9	6	4	NP_659731	P46734
MEK4 (MAP2K4)	Pan-specific	0, 0	4721	10.58	12.28	0, 0	6348	14.75	12.56	34	0.74	0.96	0.22	0.85	9	7	4	NP_003001	P45985
MEK4 (MAP2K4)	Pan-specific	0, 0	1978	4.28	11.02	0, 0	3359	28.10	11.64	70	0.11	0.47	0.36	1.40	9	8	4	NP_003001	P45985
MEK4 (MAP2K4)	Pan-specific	0, 0	479	8.20	8.97	0, 0	828	24.59	9.62	73	-0.93	-0.62	0.31	1.20	9	9	4	NP_003001	P45985
MEK4 (MAP2K4)	S257+T261	0, 0	8619	2.66	13.14	0, 0	10341	5.03	13.26	20	1.18	1.34	0.16	0.62	9	10	4	NP_003001	P45985
MEK5 (MAP2K5)	S311+T315	0, 0	329	1.77	8.43	0, 0	344	43.24	8.35	5	-1.20	-1.30	-0.09	-0.36	9	6	5	NP_660143	Q13163
MEK5 (MAP2K5)	Pan-specific	0, 0	1436	14.05	10.56	0, 0	1830	10.33	10.76	27	-0.13	0.00	0.13	0.49	9	7	5	NP_660143	Q13163
MEK5 (MAP2K5)	Pan-specific	0, 0	353	7.29	8.54	0, 0	445	14.54	8.72	26	-1.15	-1.10	0.05	0.21	9	8	5	NP_660143	Q13163
MEK6 (MAP2K6)	Pan-specific	0, 0	1437	8.30	10.56	0, 0	2412	28.98	11.16	68	-0.13	0.21	0.34	1.31	9	9	5	NP_002749	P52564
MEK6 (MAP2K6)	S207	0, 0	422	13.04	8.79	0, 0	495	6.19	8.88	17	-1.02	-1.01	0.01	0.03	9	10	5	NP_002749	P52564
MEK7 (MAP2K7)	Pan-specific	0, 0	2518	18.23	11.37	0, 0	3305	9.39	11.62	31	0.28	0.46	0.17	0.67	9	6	6	NP_005034	O14733
MEKK1 (MAP3K1)	Pan-specific	0, 0	831	9.44	9.77	0, 0	1211	7.39	10.17	46	-0.53	-0.32	0.21	0.79	9	7	6	NP_005912.1	Q13233
MEKK1 (MAP3K1)	Pan-specific	0, 0	1305	0.55	10.42	0, 0	1836	4.31	10.77	41	-0.20	0.00	0.20	0.78	9	8	6	NP_005912.1	Q13233
MEKK1 (MAP3K1)	Pan-specific	0, 0	824	3.15	9.76	0, 0	1269	15.35	10.23	54	-0.53	-0.28	0.25	0.95	9	9	6	NP_005912.1	Q13233
MEKK1 (MAP3K1)	Pan-specific	0, 0	5614	3.31	12.53	0, 0	6802	11.06	12.66	21	0.87	1.02	0.15	0.57	9	10	6	NP_005912.1	Q13233
MEKK2 (MAP3K2)	Pan-specific	0, 0	1029	0.20	10.08	0, 0	1337	16.24	10.31	30	-0.37	-0.24	0.13	0.49	9	6	7	NP_006600.3	Q9Y2U5
MEKK2 (MAP3K2)	Pan-specific	0, 0	3307	1.26	11.76	0, 0	6052	9.91	12.49	83	0.48	0.93	0.44	1.71	9	7	7	NP_006600.3	Q9Y2U5
MEKK4 (MAP3K4)	Pan-specific	0, 0	935	3.06	9.94	0, 0	1513	8.45	10.49	62	-0.44	-0.15	0.29	1.12	9	8	7	NP_005913	Q9Y6R4
Met	Y1230+Y1234+Y1235	0, 0	4110	0.69	12.08	0, 0	5125	12.54	12.25	25	0.64	0.80	0.16	0.61	9	9	7	NP_000236.	P08581
MKP1	Pan-specific	0, 0	3064	1.72	11.65	0, 0	3355	2.57	11.64	9	0.43	0.47	0.04	0.17	9	10	7	NP_004408	P28562
MKP2	Pan-specific	0, 0	1497	17.01	10.62	0, 0	2679	27.56	11.31	79	-0.10	0.29	0.39	1.51	9	6	8	NP_001385	Q13115
MLC(MLRC2)	S19	0, 0	11042	12.61	13.50	0, 0	15398	22.84	13.84	39	1.36	1.65	0.29	1.11	9	7	8	NP_291024	P19105
MLC(MLRC2)	S19	0, 0	376	6.32	8.62	0, 0	434	13.90	8.69	15	-1.11	-1.12	-0.01	-0.04	9	8	8	NP_291024	P19105
MLK3	Pan-specific	0, 0	1318	0.25	10.44	0, 0	1310	9.12	10.28	-1	-0.19	-0.26	-0.07	-0.27	9	9	8	NP_002410	Q16584
MLK3	T277+S281	0, 0	6328	1.36	12.70	0, 0	7902	2.00	12.87	25	0.96	1.13	0.18	0.69	9	10	8	NP_002410	Q16584
mMOB1	Pan-specific	0, 1	9001	19.07	13.21	0, 1	10147	8.54	13.23	13	1.21	1.33	0.11	0.44	9	6	9	NP_056202	Q9Y3A3
Mnk1	T250+T255	0, 1	475	8.79	8.96	0, 1	1685	14.92	10.64	255	-0.93	-0.06	0.87	3.34	9	7	9	NP_003675	Q9BUB5
Mnk2	Pan-specific	0, 0	3006	10.00	11.63	0, 0	4050	19.42	11.91	35	0.41	0.62	0.21	0.79	9	8	9	NP_060042	Q9HBH9
MSH2	Pan-specific	0, 0	1794	17.39	10.88	0, 0	2798	27.57	11.37	56	0.04	0.33	0.29	1.13	9	9	9	NP_000242	P43246
Msk1	S376	0, 1	508	5.08	9.06	0, 1	909	11.74	9.75	79	-0.88	-0.54	0.34	1.32	9	10	9	NP_004746	O75582
MST1	Pan-specific	0, 0	1398	27.36	10.52	0, 0	3194	13.99	11.57	129	-0.15	0.43	0.58	2.22	9	6	10	NP_006273	Q13043
MST1	Pan-specific	0, 0	1832	24.43	10.91	0, 0	1953	3.87	10.86	7	0.05	0.05	0.00	0.00	9	7	10	NP_006273	Q13043
MST1	Pan-specific	0, 0	3765	9.79	11.95	0, 0	4686	21.60	12.12	24	0.58	0.73	0.15	0.58	9	8	10	NP_006273	Q13043
MST1	Pan-specific	0, 0	337	18.37	8.47	0, 0	568	8.76	9.08	69	-1.18	-0.91	0.28	1.07	9	9	10	NP_006273	Q13043
MST2	Pan-specific	0, 0	6570	31.54	12.75	0, 0	8003	4.16	12.89	22	0.98	1.14	0.16	0.62	9	10	10	NP_006272	Q13188
MST3	Pan-specific	1, 0	1463	22.58	10.59	1, 0	1334	4.18	10.31	-9	-0.11	-0.25	-0.13	-0.51	9	6	11	NP_003567	Q9Y6E0
mTOR (FRAP)	S2448	0, 0	1180	28.18	10.28	0, 0	1155	17.25	10.10	-2	-0.27	-0.36	-0.09	-0.33	9	7	11	NP_004949	P42345
Myc	S373	0, 0	1568	13.71	10.69	0, 0	2248	8.36	11.06	43	-0.06	0.16	0.22	0.85	9	8	11	NP_002458.2	P01106
Myc	T58	0, 0	3307	6.50	11.76	0, 0	5095	8.90	12.24	54	0.48	0.79	0.31	1.20	9	9	11	NP_002458.2	P01106
MyoD	S200	0, 0	2030	2.43	11.06	0, 0	2515	1.31	11.22	24	0.13	0.25	0.12	0.46	9	10	11	NP_002469.2	P15172
MYPT1	T696	0, 0	2241	13.99	11.20	0, 0	2468	4.65	11.19	10	0.20	0.23	0.03	0.13	10	6	1	NP_446342	O14974
NBS1	S343	0, 0	1410	32.16	10.53	0, 0	1914	3.10	10.83	36	-0.14	0.03	0.17	0.67	10	7	1	NP_002476.2	O60934
Nek2	Pan-specific	0, 0	494	23.00	9.02	0, 0	664	9.88	9.30	34	-0.90	-0.79	0.12	0.46	10	8	1	NP_002488	P51955
Nek2	Pan-specific	0, 0	420	35.56	8.78	0, 0	497	5.76	8.88	18	-1.02	-1.01	0.01	0.05	10	9	1	NP_002488	P51955
Nek2	Pan-specific	0, 0	1678	12.33	10.78	0, 0	2089	13.00	10.95	25	-0.01	0.10	0.12	0.44	10	10	1	NP_002488	P51955
Nek2	Pan-specific	0, 0	1735	31.15	10.83	0, 0	1879	21.01	10.80	8	0.01	0.02	0.01	0.03	10	6	2	NP_002488	P51955
Nek2	Pan-specific	0, 0	1141	10.73	10.23	0, 0	1452	8.52	10.43	27	-0.29	-0.18	0.11	0.44	10	7	2	NP_002488	P51955
Nek4	Pan-specific	1, 0	592	16.61	9.28	1, 0	668	0.86	9.31	13	-0.77	-0.78	-0.01	-0.03	10	8	2	NP_003148	P51957
Nek7	Pan-specific	0, 0	543	22.66	9.16	0, 0	666	7.23	9.30	23	-0.84	-0.78	0.05	0.20	10	9	2	NP_598001	Q8TDX7
NFkappaB p50	Pan-specific	0, 0	8149	22.24	13.06	0, 0	8876	5.32	13.04	9	1.14	1.22	0.08	0.32	10	10	2	NP_003989	P19838
NFkappaB p65	Pan-specific	0, 0	11944	16.89	13.62	0, 0	9744	11.69	13.18	-18	1.42	1.30	-0.12	-0.47	10	6	3	NP_003989	Q04206
NFkappaB p65	S276	0, 0	1644	0.16	10.75	0, 0	1989	1.15	10.88	21	-0.03	0.06	0.09	0.36	10	7	3	NP_003989	Q04206
NFkappaB p65	S529	0, 0	1112	7.06	10.19	0, 0	1213	11.81	10.17	9	-0.31	-0.32	-0.01	-0.02	10	8	3	NP_003989	Q04206
NFkappaB p65	S536	0, 0	2947	18.79	11.60	0, 0	3265	11.37	11.60	11	0.40	0.45	0.05	0.19	10	9	3	NP_003989	Q04206
NIK (MAP3K14)	Pan-specific	0, 0	1680	20.92	10.79	0, 0	1688	13.40	10.65	0	-0.01	-0.06	-0.05	-0.19	10	10	3	NP_003945.2	Q99558
NLK	Pan-specific	0, 0	1828	18.58	10.91	0, 0	1896	11.21	10.64	-8	0.05	-0.06	-0.11	-0.44	10	6	4	NP_057315.3	Q9UBE8
NMDAR2B	Y1474	0, 0	1212	8.06	10.31	0, 0	1101	11.54	10.03	-9	-0.25	-0.39	-0.14	-0.55	10	7	4	NP_000825	Q13224
NME7	Pan-specific	0, 0	846	9.58	9.80	0, 0	999	4.68	9.89	18	-0.51	-0.47	0.04	0.17	10	8	4	NP_037462	Q9Y5B8
NR1	S896	0, 0	2592	25.31	11.41	0, 0	3113	2.96	11.53	20	0.30	0.41	0.11	0.41	10	9	4	NP_000823	Q05586
NT5E	Pan-specific	0, 0	5950	18.73	12.61	0, 0	5428	9.91	12.33	-9	0.91	0.84	-0.07	-0.26	10	10	4	NP_002517	P21589
p107	Pan-specific	0, 0	7188	10.72	12.88	0, 0	4186	6.39	11.96	-42	1.05	0.64	-0.41	-1.57	10	6	5	NP_002886.2	P28749

p18.INK4c	Pan-specific	0, 0	4137	17.18	12.09	0, 0	4755	0.74	12.14	15	0.65	0.74	0.09	0.36	10	7	5	NP_523240	P42773
p21.CDKI1	Pan-specific	0, 0	2214	11.75	11.18	0, 0	2294	0.87	11.09	4	0.19	0.17	-0.01	-0.05	10	8	5	NP_000380	P38936
p25	Pan-specific	0, 0	8066	21.21	13.05	0, 0	6274	7.02	12.54	-22	1.13	0.95	-0.18	-0.68	10	9	5	NP_003876.1	Q15078
p27 Kip1	Pan-specific	0, 0	5278	19.85	12.44	0, 0	4938	4.72	12.19	-6	0.82	0.77	-0.05	-0.21	10	10	5	NP_004055	P46527
p27 Kip1	T187	0, 0	3	445.40	1.69	0, 0	7	204.67	2.68	120	-4.61	-4.34	0.27	1.04	10	6	6	NP_004055	P46527
p38a MAPK	T180+Y182	0, 0	944	21.63	9.95	0, 0	969	6.73	9.85	3	-0.43	-0.49	-0.06	-0.23	10	7	6	NP_001306	Q16539
p38a MAPK	T180+Y182	0, 0	327	34.34	8.43	0, 0	264	1.87	7.97	-19	-1.21	-1.50	-0.30	-1.14	10	8	6	NP_001306	Q16539
p38a MAPK	T180+Y182	0, 0	4177	7.50	12.10	0, 0	3454	2.20	11.68	-17	0.65	0.49	-0.16	-0.62	10	9	6	NP_001306	Q16539
p38a MAPK	Pan-specific	0, 0	719	19.88	9.56	0, 0	851	7.35	9.66	18	-0.63	-0.59	0.04	0.15	10	10	6	NP_001306	Q16539
p38a MAPK	Pan-specific	0, 0	43	26.79	5.50	0, 0	53	21.47	5.66	24	-2.68	-2.74	-0.06	-0.22	10	6	7	NP_001306	Q16539
p38a MAPK	Pan-specific	0, 0	13665	18.54	13.81	0, 0	11339	11.26	13.39	-17	1.52	1.41	-0.10	-0.40	10	7	7	NP_001306	Q16539
p38a MAPK	Pan-specific	0, 0	582	19.49	9.26	0, 0	724	8.88	9.42	24	-0.79	-0.72	0.07	0.26	10	8	7	NP_001306	Q16539
p38a MAPK	Pan-specific	0, 0	4475	27.66	12.20	0, 0	4449	5.04	12.04	-1	0.70	0.69	-0.01	-0.06	10	9	7	NP_001306	Q16539
p38a MAPK	Pan-specific	0, 0	10391	1.61	13.41	0, 0	8532	16.30	12.98	-18	1.32	1.19	-0.12	-0.48	10	10	7	NP_001306	Q16539
p38a MAPK	Pan-specific	0, 0	5206	19.61	12.42	0, 0	4814	4.14	12.16	-8	0.81	0.75	-0.06	-0.25	10	6	8	NP_001306	Q16539
p38g MAPK (Erk6)	Pan-specific	0, 0	3414	12.52	11.81	0, 0	3529	4.88	11.71	3	0.51	0.51	0.00	0.01	10	7	8	NP_002980	P53778
p38g MAPK (Erk6)	Pan-specific	0, 0	691	21.30	9.50	0, 0	781	0.79	9.53	13	-0.66	-0.66	0.00	0.00	10	8	8	NP_002980	P53778
p53	Pan-specific	0, 0	6905	1.19	12.82	0, 0	6457	5.47	12.58	-6	1.02	0.98	-0.04	-0.16	10	9	8	NP_000537	P04637
p53	S392	0, 0	1021	18.21	10.07	0, 0	1519	6.05	10.49	49	-0.38	-0.14	0.23	0.89	10	10	8	NP_000537	P04637
p53	S392	0, 0	3083	6.29	11.66	0, 0	2885	34.69	11.42	-6	0.43	0.35	-0.08	-0.30	10	6	9	NP_000537	P04637
p53	S392	0, 0	183	37.64	7.58	0, 0	151	8.62	7.17	-17	-1.63	-1.93	-0.30	-1.16	10	7	9	NP_000537	P04637
p53	S33	0, 0	812	15.49	9.74	0, 0	870	8.56	9.69	7	-0.54	-0.58	-0.03	-0.13	10	8	9	NP_000537	P04637
p53	S37	0, 0	2749	25.88	11.50	0, 0	3922	52.76	11.86	43	0.35	0.59	0.24	0.94	10	9	9	NP_000537	P04637
p53	S6	0, 0	1831	18.72	10.91	0, 0	2233	19.28	11.05	22	0.05	0.15	0.10	0.40	10	10	9	NP_000537	P04637
p73	Pan-specific	0, 0	11744	1.48	13.59	0, 0	10845	8.04	13.33	-8	1.41	1.38	-0.03	-0.11	10	6	10	NP_005418	O15350
PAC1	Pan-specific	0, 0	6302	20.95	12.69	0, 0	5080	1.64	12.24	-19	0.95	0.79	-0.16	-0.62	10	7	10	NP_004409	Q05923
PACSIN1	Pan-specific	0, 0	2446	40.75	11.33	0, 0	2104	1.36	10.96	-14	0.26	0.11	-0.15	-0.59	10	8	10	NP_065855	Q9BY11
PAK1	Pan-specific	0, 0	4619	21.27	12.24	0, 0	3776	23.70	11.81	-18	0.73	0.56	-0.16	-0.63	10	9	10	NP_002567	Q13153
PAK1	Pan-specific	0, 0	203	13.37	7.73	0, 0	215	17.94	7.68	6	-1.56	-1.66	-0.10	-0.40	10	10	10	NP_002567	Q13153
PAK1	Pan-specific	0, 0	3095	17.34	11.67	0, 0	3300	31.32	11.61	7	0.43	0.46	0.02	0.09	10	6	11	NP_002567	Q13153
PAK1	T212	0, 0	3549	13.79	11.86	0, 0	2333	10.66	11.11	-34	0.53	0.19	-0.35	-1.33	10	7	11	NP_002567	Q13153
PAK1/2/3	Pan-specific	0, 0	436	16.22	8.84	0, 0	387	2.25	8.52	-11	-1.00	-1.20	-0.21	-0.80	10	8	11	NP_002567	Q13153
PAK1/2/3	S144/S141/S154	0, 0	372	38.09	8.61	0, 0	328	4.43	8.28	-12	-1.11	-1.33	-0.22	-0.85	10	9	11	NP_002567	Q13153
PAK2	Pan-specific	0, 0	179	23.57	7.56	0, 0	201	19.83	7.57	12	-1.64	-1.71	-0.07	-0.27	10	10	11	NP_002568.2	Q13177
PAK2	Pan-specific	0, 0	3529	14.88	11.86	0, 0	2879	13.00	11.42	-18	0.53	0.35	-0.18	-0.69	11	6	1	NP_002568.2	Q13177
PAK3	Pan-specific	0, 0	3278	11.38	11.75	0, 0	2646	1.56	11.29	-19	0.48	0.29	-0.19	-0.73	11	7	1	NP_002569	O75914
PARP1	Pan-specific	0, 0	1797	9.78	10.88	0, 0	1068	0.94	9.99	-41	0.04	-0.42	-0.45	-1.76	11	8	1	NP_001609	P09874
PARP1	Pan-specific	0, 0	129	24.87	7.08	0, 0	112	26.56	6.73	-13	-1.88	-2.17	-0.28	-1.09	11	9	1	NP_001609	P09874
Pax2	S394	0, 0	5	6.35	2.34	0, 0	8	30.45	2.93	66	-4.28	-4.21	0.07	0.28	11	10	1	NP_003978	Q02962
Paxillin 1	Pan-specific	0, 0	868	10.23	9.83	0, 0	479	39.66	8.83	-45	-0.49	-1.04	-0.55	-2.10	11	6	2	NP_002850	P49023
Paxillin 1	Y31	0, 0	5087	23.01	12.38	0, 0	3002	24.58	11.48	-41	0.80	0.38	-0.41	-1.59	11	7	2	NP_002850	P49023
Paxillin 1	Y118	0, 0	10294	55.96	13.40	0, 0	6499	7.84	12.59	-37	1.31	0.98	-0.33	-1.26	11	8	2	NP_002850	P49023
Paxillin 1	Y118	0, 0	8	65.66	3.11	0, 0	12	12.53	3.50	45	-3.89	-3.90	-0.01	-0.04	11	9	2	NP_002850	P49023
PCNA	Pan-specific	0, 0	259	15.32	8.09	0, 0	280	1.95	8.06	8	-1.38	-1.45	-0.08	-0.30	11	10	2	NP_002583	P12004
PCTK1 (PCTAIRE1)	Pan-specific	0, 0	1201	1.52	10.30	0, 0	1047	23.23	9.96	-13	-0.26	-0.43	-0.18	-0.68	11	6	3	NP_148978	Q00536
PDGFRa	Y754	0, 0	12753	1.88	13.71	0, 0	6768	30.48	12.65	-47	1.47	1.01	-0.45	-1.74	11	7	3	NP_006197	P16234
PDGFRb	Y716	0, 0	3659	10.28	11.91	0, 0	2605	5.20	11.27	-29	0.56	0.27	-0.28	-1.09	11	8	3	NP_032835	P09619
PDI	Pan-specific	0, 0	11121	1.98	13.51	0, 0	7623	16.27	12.82	-31	1.37	1.11	-0.26	-1.00	11	9	3	NP_000909.2	P07237
PDK1	Pan-specific	0, 0	184	11.87	7.60	0, 0	140	31.03	7.05	-24	-1.63	-1.99	-0.37	-1.42	11	10	3	NP_002604	O15530
PDK1	Pan-specific	0, 0	8915	16.01	13.19	0, 0	3362	38.32	11.64	-62	1.21	0.47	-0.73	-2.83	11	6	4	NP_002604	O15530
PDK1	S241	0, 0	26	36.54	4.78	0, 0	19	4.21	4.21	-26	-3.05	-3.52	-0.47	-1.82	11	7	4	NP_002604	O15530
PED15 (PEA15)	S116	0, 0	4399	0.72	12.17	0, 0	2171	2.94	11.01	-51	0.69	0.13	-0.56	-2.15	11	8	4	NP_003759	O15121
PERP	Pan-specific	0, 0	1110	5.26	10.19	0, 0	1052	3.62	9.96	-5	-0.31	-0.43	-0.11	-0.44	11	9	4	NP_071404	Q9H230
PI3K p85/p55	Pan-specific	0, 0	1653	2.55	10.76	0, 0	751	63.42	9.48	-55	-0.02	-0.69	-0.67	-2.56	11	10	4	NP_852664	P27986
PI3K p85/p55	Y467/Y199	0, 0	41	17.83	5.42	0, 0	19	8.35	4.15	-54	-2.73	-3.55	-0.82	-3.17	11	6	5	NP_852664	P27986
PI3KR4	Pan-specific	0, 0	587	2.14	9.27	0, 0	500	19.25	8.89	-15	-0.78	-1.01	-0.23	-0.87	11	7	5	NP_055417	Q99570
PI4KCB	Pan-specific	0, 0	429	1.02	8.82	0, 0	451	30.02	8.74	5	-1.01	-1.09	-0.08	-0.30	11	8	5	NP_002642	Q5VWC1
PIP5K2a	Pan-specific	0, 0	550	4.50	9.17	0, 0	550	14.27	9.03	0	-0.83	-0.93	-0.10	-0.40	11	9	5	NP_005019.2	P48426
PITSLRE	Pan-specific	0, 0	2299	14.60	11.24	0, 0	2075	17.65	10.94	-10	0.22	0.10	-0.12	-0.46	11	10	5	NP_277021.1	P21127
PKA Ca/b	Pan-specific	0, 0	1710	0.39	10.81	0, 0	922	36.28	9.77	-46	0.00	-0.53	-0.53	-2.05	11	6	6	NP_002721	P17612
PKA Ca/b	T198	0, 0	11196	1.23	13.52	0, 0	7908	18.20	12.87	-29	1.37	1.13	-0.24	-0.91	11	7	6	NP_002721	P17612
PKA Cb	S339	0, 0	3398	5.01	11.80	0, 0	2611	42.52	11.28	-23	0.50	0.28	-0.23	-0.87	11	8	6	NP_002722	P22694
PKA R1a	Pan-specific	0, 0	1543	0.47	10.66	0, 0	1520	16.85	10.49	-1	-0.07	-0.14	-0.07	-0.27	11	9	6	NP_002725	P10644
PKA R2a	Pan-specific	0, 0	1041	55.36	10.09	0, 0	740	26.51	9.46	-29	-0.36	-0.70	-0.34	-1.31	11	10	6	NP_004148	P13861
PKA R2a	S99	1, 0	3127	5.92	11.68	1, 0	2391	48.92	11.15	-24	0.44	0.21	-0.23	-0.90	11	6	7	NP_523671	P13861
PKBa (Akt1)	Pan-specific	0, 0	10702	22.17	13.46	0, 0	9776	33.68	13.18	-9	1.34	1.30	-0.04	-0.16	11	7	7	NP_005154	P31749
PKBa (Akt1)	Pan-specific	0, 0	130	13.29	7.09	0, 0	144	4.47	7.09	11	-1.88	-1.97	-0.09	-0.36	11	8	7	NP_005154	P31749
PKBa (Akt1)	T308	0, 0	44	21.84	5.55	0, 0	34	47.43	4.99	-25	-2.66	-3.10	-0.44	-1.68	11	9	7	NP_005154	P31749
PKBa (Akt1)	S473	0, 0	2598	1.58	11.39	0, 0	2483	40.75	11.20	-3	0.29	0.24	-0.06	-0.22	11	10	7	NP_005154	P31749
PKBa (Akt1)	S473	0, 0	5861	1.99	12.59	0, 0	2137	26.07	10.99	-64	0.90	0.12	-0.78	-3.00	11	6	8	NP_005154	P31749
PKBa (Akt1)	S473	0, 0	6831	28.09	12.81	0, 0	5425	6.18	12.33	-21	1.01	0.84	-0.17	-0.65	11	7	8	NP_005154	P31749
PKBa (Akt1)	Y474	0, 0	2384	8.20	11.29	0, 0	1980	5.05	10.88	-17	0.24	0.06	-0.18	-0.70	11	8	8	NP_005154	P31749
PKBb (Akt2)	Pan-specific	0, 0	1032	48.72	10.08	0, 0	956	18.43	9.83	-7	-0.37	-0.50	-0.14	-0.52	11	9	8	NP_001617	P31751
PKBb (Akt2)	Pan-specific	0, 0	154	18.95	7.34	0, 0	141	28.41	7.06	-9	-1.75	-1.99	-0.23	-0.90	11	10	8	NP_001617	P31751
PKBb (Akt2)	Pan-specific	0, 0	805	10.71	9.72	0, 0	674	22.47	9.32	-16	-0.55	-0.77	-0.23	-0.87	11	6	9	NP_001617	P31751
PKBb (Akt2)	Pan-specific	0, 0	1876	12.22	10.94	0, 0	1334	33.54	10.31	-29	0.07	-0.25	-0.31	-1.21	11	7	9	NP_001617	P31751
PKBb (Akt2)	Pan-specific	0, 0	1827	0.91	10.91	0, 0	2144	25.64	10.99	17	0.05	0.12	0.07	0.28	11	8	9	NP_001617	P31751
PKBb (Akt2)	Pan-specific	0, 0	2987	10.12	11.62	0, 0	2575	13.63	11.26	-14	0.41	0.26	-0.14	-0.55	11	9	9	NP_001617	P31751
PKBg (Akt3)	Pan-specific	0, 0	980	37.10	10.01	0, 0	820	27.22	9.60	-16	-0.41	-0.62	-0.22	-0.83	11	10	9	NP_005456	Q9Y243
PKBg (Akt3)	Pan-specific	0, 0	1459	23.14	10.58	0, 0	2093	11.77	10.96	43	-0.32	0.10	0.22	0.84	11	6	10	NP_005456	Q9Y243
PKC	Pan-specific	0, 0	988	4.87	10.02	0, 0	1043	17.41	9.95	6	-0.40	-0.44	-0.04	-0.14	11	7	10	NP_002728	P17252
PKCh	Pan-specific	0, 0	5731	4.09	12.56	0, 0	5187	3.13	12.27	-10	0.88	0.81	-0.08	-0.29	11	8	10	NP_006246.2	P24723
PKCa	Pan-specific	0, 0	3399	14.58	11.80	0, 0	3816	43.95	11.82	12	0.50	0.57	0.07	0.26	11	9	10	NP_002728	P17252
PKCa	S657	0, 0	5751	17.26	12.56	0, 0	5910	17.16	12.45	3	0.89	0.91	0.02	0.09	11	10	10	NP_002728	P17252
PKCa/b2	T638/T641	0, 0	84	17.00	6.46	0, 0	152	7.58	7.17	82	-2.20	-1.93	0.27	1.05	11	6	11	NP_002728	P17252
PKCb1	Pan-specific	0, 0	16338	0.76	14.07	0, 0	14737	5.73	13.77	-10	1.65	1.62	-0.03	-0.12	11	7	11	NP_002729	P05771
PKCb1	Pan-specific	0, 0	3564	17.36	11.87	0, 0	1935	31.08	10.84	-46	0.54	0.04	-0.49	-1.90	11	8	11	NP_002729	P05771
PKCb1/2	T500	0, 0	3959	13.05	12.02	0, 0	4490	1.17	12.06	13	0.61	0.70	0.08	0.32	11	9	11	NP_997700	P05771
PKCb1/2	T500	0, 0	3656	12.21	11.91	0, 0	4676	19.24	12.12	28	0.58	0.73	0.17	0.66	11	10	11	NP_997700	P05771
PKCb2	Pan-specific	0, 0	4247	8.34	12.12	0, 0	3445	8.35	11.68	-19	0.66	0.49	-0.17	-0.67	12	6	1	AAA60095	P05771-2
PKCb2	T642	0, 0	3442	26.39	11.82	0, 0	2255	6.27	11.06	-34	0.51	0.16	-0.35	-1.34	12	7	1	NP_002729	P05771
PKCd	Pan-specific	0, 0	2920	27.42	11.58	0, 0	2298	5.74	11.09	-21	0.39	0.18	-0.21	-0.83	12	8	1	NP_006245	Q05655
PKCd	Y313	0, 0	5395	8.66	12.47	0, 0	4475	7.69	12.05	-17	0.84	0.69	-0.15	-0.56	12	9	1	NP_006245	Q05655
PKCd	Y313	0, 0	4224	10.40	12.12	0, 0	4052	12.10	11.91	-4	0.66	0.62	-0.04	-0.17	12	10	1	NP_006245	Q05655
PKCd	T507	0, 0	77	48.06	6.33	0, 0	55	22.86	5.70	-28	-2.26	-2.72	-0.45	-1.75	12	6	2	NP_006245	Q05655
PKCd	S645	0, 0	1661	11.74	10.77	0, 0	1044	2.88	9.95	-37	-0.02	-0.44	-0.41	-1.60	12	7	2	NP_006245	Q05655
PKCd	S664	0, 0	3446	16.28	11.82	0, 0	2238	3.16	11.05	-35	0.51	0.16	-0.36	-1.37	12	8	2	NP_006245	Q05655
PKCe	Pan-specific	0, 0	3425	9.71	11.81	0, 0	2182	8.07	11.02	-36	0.51	0.14	-0.37	-1.43	12	9	2	NP_005391	Q02156
PKCe	Pan-specific	0, 0	3734	11.82	11.93	0, 0	2254	2.91	11.06	-39	0.57	0.16	-0.41	-1.57	12	10	2	NP_005391	Q02156
PKCe	S729	0, 0	1799	0.77	10.88	0, 0	1324	0.16	10.30	-26	0.04	-0.25	-0.29	-1.11	12	6	3	NP_005391	Q02156
PKCg	Pan-specific	0, 0	5863	11.31	12.59	0, 0	3798	0.12	11.82	-35	0.90	0.57	-0.33	-1.29	12	7	3	NP_002730	P05129
PKCg	T514	0, 0	12060	24.75	13.63	0, 0	6943	3.52	12.69	-42	1.43	1.03	-0.39	-1.51	12	8	3	NP_002730	P05129
PKCg	T514	0, 0	15426	10.94	13.98	0, 0	9261	2.74	13.10	-40	1.61	1.26	-0.35	-1.34	12	9	3	NP_002730	P05129
PKCg	T655	0, 0	13889	0.00	13.83	0, 0	7667	7.36	12.83	-45	1.53	1.11	-0.42	-1.61	12	10	3	NP_002730	P05129
PKCg	T674	0, 0	6195	17.01	12.67	0, 0	3395	0.28	11.65	-45	0.94	0.48	-0.46	-1.77	12	6	4	NP_002730.1	P05129
PKCh	T655	0, 0	4290	20.12	12.14	0, 0	2768	4.21	11.36	-35	0.67	0.32	-0.35	-1.35	12	7	4	NP_006246	P24723

PKCI/l	Pan-specific	0, 0	2430	2.70	11.32	0, 0	1545	4.60	10.52	-36	0.26	-0.13	-0.39	-1.50	12	8	4	NP_002731	P41743
PKCI/l	T564	0, 0	2161	7.55	11.15	0, 0	1069	8.06	9.99	-51	0.17	-0.42	-0.59	-2.26	12	9	4	NP_002731	P41743
PKCm (PKD)	Pan-specific	0, 0	1492	7.27	10.61	0, 0	1019	2.07	9.92	-32	-0.10	-0.45	-0.36	-1.37	12	10	4	NP_002733	Q15139
PKCm (PKD)	S738+S742	0, 0	1236	2.81	10.34	0, 0	700	11.17	9.38	-43	-0.24	-0.74	-0.51	-1.96	12	6	5	NP_002733	Q15139
PKCm (PKD)	S910	0, 0	2569	8.91	11.40	0, 0	1867	2.79	10.79	-27	0.30	0.01	-0.28	-1.09	12	7	5	NP_002733	Q15139
PKCm (PKD)	S910	0, 0	307	13.43	8.33	0, 0	209	10.40	7.63	-32	-1.25	-1.68	-0.43	-1.66	12	8	5	NP_002733	Q15139
PKCq	Pan-specific	0, 0	1781	6.21	10.87	0, 0	1094	1.45	10.01	-39	0.03	-0.41	-0.44	-1.68	12	9	5	NP_006248	Q04759
PKCq	T538	0, 0	129	9.41	7.08	0, 0	118	10.46	6.81	-9	-1.89	-2.13	-0.24	-0.92	12	10	5	NP_006248	Q04759
PKCq	S676	0, 0	1327	6.92	10.44	0, 0	818	11.91	9.60	-38	-0.18	-0.62	-0.44	-1.69	12	6	6	NP_006248	Q04759
PKCq	S695	0, 0	1689	3.67	10.79	0, 0	1028	3.89	9.93	-39	-0.01	-0.45	-0.44	-1.69	12	7	6	NP_006248	Q04759
PKCz	Pan-specific	0, 0	3713	3.14	11.93	0, 0	2902	10.57	11.43	-22	0.57	0.36	-0.21	-0.81	12	8	6	NP_002735	Q05513
PKCz/l	T410/T412	0, 0	250	49.74	8.04	0, 0	100	4.86	6.57	-60	-1.40	-2.25	-0.85	-3.27	12	9	6	NP_002735	Q05513
PKG1	Pan-specific	0, 0	1542	4.16	10.66	0, 0	937	1.55	9.80	-39	-0.07	-0.52	-0.44	-1.71	12	10	6	NP_006249	Q13976
PKG1a	Pan-specific	0, 0	401	1.58	8.72	0, 0	294	2.42	8.12	-27	-1.06	-1.42	-0.36	-1.39	12	6	7	NP_006249	Q13976
PKG1b	Pan-specific	0, 0	443	3.50	8.86	0, 0	377	2.46	8.48	-15	-0.98	-1.22	-0.24	-0.92	12	7	7	NP_006249.1	P14619
PKM2	Pan-specific	0, 0	816	1.67	9.74	0, 0	646	16.10	9.26	-21	-0.54	-0.81	-0.27	-1.03	12	8	7	NP_872270	P14618
PKR1	Pan-specific	0, 0	1589	6.74	10.71	0, 0	1201	20.70	10.16	-24	-0.05	-0.33	-0.27	-1.05	12	9	7	NP_002750	P19525
PKR1	T446	0, 0	1776	9.01	10.87	0, 0	1064	3.09	9.98	-40	0.03	-0.42	-0.45	-1.73	12	10	7	NP_002750	P19525
PLC R(PLCg2)	Pan-specific	0, 0	2273	13.11	11.22	0, 0	2004	19.83	10.89	-12	0.21	0.07	-0.14	-0.53	12	6	8	NP_002652.2	P16885
PLCg1	Y783	0, 0	1832	23.11	10.91	0, 0	1084	2.42	10.01	-41	0.05	-0.41	-0.46	-1.76	12	7	8	NP_877963.1	P19174
PLCg1	Y771	0, 0	2516	3.18	11.37	0, 0	1643	10.76	10.61	-35	0.28	-0.08	-0.37	-1.41	12	8	8	NP_877963.1	P19174
PLC R(PLCg2)	Y753	0, 0	1705	0.56	10.81	0, 0	955	6.77	9.82	-44	0.00	-0.50	-0.50	-1.93	12	9	8	NP_002652.2	P16885
Plk1	Pan-specific	0, 0	197	23.04	7.69	0, 0	143	2.15	7.09	-27	-1.58	-1.97	-0.40	-1.53	12	10	8	NP_005021	P53350
Plk1	T210	0, 0	195	9.80	7.68	0, 0	178	13.70	7.40	-9	-1.59	-1.81	-0.22	-0.86	12	6	9	NP_005021	P53350
Plk2	Pan-specific	0, 0	961	31.75	9.98	0, 0	771	12.93	9.52	-20	-0.42	-0.67	-0.25	-0.96	12	7	9	NP_006613	Q9NYY3
Plk2	Pan-specific	0, 0	2498	6.39	11.33	0, 0	2745	12.65	11.35	12	0.27	0.31	0.05	0.19	12	8	9	NP_006613	Q9NYY3
Plk3	Pan-specific	0, 0	752	6.66	9.63	0, 0	743	0.95	9.46	-1	-0.60	-0.70	-0.10	-0.38	12	9	9	NP_004064	Q9H4B4
PP1/Ca	Pan-specific	0, 0	970	39.86	9.99	0, 0	836	8.48	9.63	-14	-0.41	-0.61	-0.19	-0.75	12	10	9	NP_002699	P62136
PP1/Ca	Pan-specific	0, 0	1196	11.78	10.30	0, 0	1243	6.69	10.20	4	-0.26	-0.30	-0.04	-0.15	12	6	10	NP_002699	P62136
PP1/Ca	T320	0, 0	298	36.52	8.29	0, 0	209	4.08	7.63	-30	-1.27	-1.68	-0.41	-1.57	12	7	10	NP_002699	P62136
PP1/Cb	Pan-specific	0, 0	755	13.92	9.63	0, 0	848	4.78	9.65	12	-0.60	-0.60	0.00	0.00	12	8	10	NP_002700	P62140
PP1/Cb	Pan-specific	0, 0	498	2.40	9.03	0, 0	551	5.66	9.03	11	-0.90	-0.93	-0.03	-0.12	12	9	10	NP_002700	P62140
PP1/Cg	Pan-specific	0, 0	1190	12.69	10.29	0, 0	1278	12.05	10.24	7	-0.26	-0.28	-0.01	-0.06	12	10	10	NP_002701	P36873
PP2A B' (B56)	Pan-specific	0, 0	7934	11.90	13.03	0, 0	8012	5.94	12.89	1	1.12	1.14	0.02	0.09	12	6	11	NP_001186685.1	Q15172
PP2A/Aa/b	Pan-specific	0, 0	818	13.91	9.75	0, 0	1029	6.81	9.93	26	-0.54	-0.45	0.09	0.35	12	7	11	NP_002707	P30153
PP2A/Bb	Pan-specific	0, 0	1738	10.25	10.83	0, 0	2119	8.08	10.97	22	0.01	0.11	0.10	0.39	12	8	11	NP_001120853.1	Q00005
PP2A/Bg2	Pan-specific	0, 0	717	14.96	9.56	0, 0	855	13.22	9.66	19	-0.63	-0.59	0.04	0.16	12	9	11	NP_001193923.1	Q9Y274
PP2A/Cg	Pan-specific	0, 0	1351	12.82	10.47	0, 0	985	19.78	9.87	-27	-0.17	-0.48	-0.31	-1.19	12	10	11	NP_002720	P67775
PP2B/Aa	Pan-specific	0, 0	1823	5.21	10.90	0, 0	2201	30.99	11.03	21	0.05	0.14	0.10	0.37	13	6	1	NP_000935	Q08209
PP2Ca	Pan-specific	0, 0	163	3.00	7.42	0, 0	268	51.96	7.99	65	-1.72	-1.49	0.23	0.87	13	7	1	NP_066283	P35813
PP2A/Aa/b	Pan-specific	0, 0	618	30.74	9.34	0, 0	865	11.54	9.68	40	-0.74	-0.58	0.16	0.62	13	8	1	NP_002707	P30153
PP2Cd	Pan-specific	0, 0	2347	80.19	11.27	0, 0	2345	7.07	11.12	0	0.23	0.19	-0.04	-0.15	13	9	1	NP_110395	O15297
PP4/A2	Pan-specific	0, 0	6306	10.22	12.69	0, 0	6891	2.86	12.68	9	0.95	1.03	0.07	0.29	13	10	1	NP_005125	Q8TF05
PP4C	Pan-specific	0, 0	805	9.35	9.72	0, 0	958	31.16	9.83	19	-0.55	-0.50	0.05	0.18	13	6	2	NP_002711	P60510
PP4C	Pan-specific	0, 0	1894	11.05	10.96	0, 0	2688	32.53	11.32	42	0.08	0.30	0.22	0.86	13	7	2	NP_002711	P60510
PP5C	Pan-specific	0, 0	1623	25.75	10.74	0, 0	2054	22.30	10.93	27	-0.04	0.09	0.13	0.49	13	8	2	NP_006238	P53041
PP5C	Pan-specific	0, 0	2045	0.48	11.07	0, 0	2978	6.23	11.47	46	0.13	0.38	0.25	0.95	13	9	2	NP_006238	P53041
PP6C	Pan-specific	0, 0	975	1.23	10.00	0, 0	1190	35.80	10.14	22	-0.41	-0.33	0.08	0.29	13	10	2	NP_002712	Q00743
PRAS40	T246	0, 0	1291	23.53	10.41	0, 0	1610	65.57	10.58	25	-0.20	-0.10	0.10	0.40	13	6	3	NP_115751	Q96B36
PRK1 (PKN1)	Pan-specific	0, 0	1782	17.16	10.87	0, 0	2193	19.68	11.02	23	0.03	0.14	0.11	0.42	13	7	3	NP_002732	Q16512
PRK1 (PKN1)	T774	0, 0	510	16.34	9.07	0, 0	571	12.60	9.08	12	-0.88	-0.90	-0.02	-0.08	13	8	3	NP_002732	Q16512
PRK2 (PKN2)	Pan-specific	0, 0	3633	19.04	11.90	0, 0	5273	15.62	12.29	45	0.55	0.82	0.27	1.04	13	9	3	NP_006247	Q16513
PRK2 (PKN2)	Pan-specific	0, 0	1696	11.27	10.80	0, 0	2222	16.07	11.04	31	-0.01	0.15	0.16	0.60	13	10	3	NP_006247	Q16513
PRKAB1	Pan-specific	0, 0	468	18.60	8.94	0, 0	511	3.22	8.92	9	-0.94	-0.99	-0.05	-0.17	13	6	4	NP_006244	Q9Y478
WNK4 (PRKWNK4)	Pan-specific	0, 0	989	4.36	10.02	0, 0	1377	10.29	10.35	39	-0.40	-0.22	0.18	0.69	13	7	4	NP_115763	Q96J92
Progesterone Receptor	S294	0, 0	714	8.63	9.55	0, 0	693	41.25	9.36	-3	-0.64	-0.75	-0.12	-0.45	13	8	4	NP_000917	P06401
PRP4K	Pan-specific	0, 0	668	11.65	9.45	0, 0	841	14.46	9.64	26	-0.69	-0.60	0.08	0.32	13	9	4	NP_003904	Q13523
PSD-95	Pan-specific	0, 0	2231	35.58	11.19	0, 0	3573	31.07	11.73	60	0.19	0.52	0.32	1.25	13	10	4	NP_001356.1	P78352
PST/ARE	Pan-specific	0, 0	540	13.05	9.15	0, 0	725	12.94	9.43	34	-0.84	-0.72	0.12	0.47	13	6	5	NA	NA
PTEN	Pan-specific	0, 0	4106	3.43	12.08	0, 0	5665	9.49	12.39	38	0.64	0.88	0.24	0.91	13	7	5	NP_000305	P60484
PTEN	Pan-specific	0, 0	64	112.11	6.07	0, 0	61	20.51	5.85	-5	-2.40	-2.64	-0.24	-0.94	13	8	5	NP_000305	P60484
PTEN	S380+T382+S385	0, 0	3005	36.31	11.62	0, 0	4059	29.67	11.91	35	0.41	0.62	0.20	0.79	13	9	5	NP_000305	P60484
PTEN	S380+T382+T383	0, 0	1824	1.76	10.90	0, 0	2890	22.08	11.42	58	0.05	0.35	0.31	1.18	13	10	5	NP_000305	P60484
PTEN	S380+T382+T383	0, 0	1835	29.95	10.91	0, 0	3010	25.84	11.48	64	0.05	0.39	0.33	1.28	13	6	6	NP_000305	P60484
PTP1B	Pan-specific	0, 0	1426	65.27	10.55	0, 0	2051	92.70	10.93	44	-0.13	0.09	0.22	0.85	13	7	6	NP_002818	P18031
PTP1C	Pan-specific	0, 0	2465	56.64	11.34	0, 0	3349	42.10	11.63	36	0.27	0.47	0.20	0.77	13	8	6	NP_002822	P29350
PTP1D	Pan-specific	0, 0	1520	72.89	10.64	0, 0	2026	43.56	10.91	33	-0.09	0.08	0.16	0.63	13	9	6	NP_002825	Q06124
PTP1D	Pan-specific	0, 0	4260	12.24	12.13	0, 0	5303	8.67	12.30	24	0.67	0.82	0.16	0.61	13	10	6	NP_002825	Q06124
PTP1D	S580	0, 0	1651	26.50	10.76	0, 0	2137	22.97	10.99	29	-0.03	0.12	0.14	0.56	13	6	7	NP_002825	Q06124
PTPD1	Pan-specific	0, 0	12466	24.46	13.68	0, 0	13441	20.23	13.64	8	1.45	1.54	0.10	0.37	13	7	7	NP_008972.2	Q16825
PTP-PEST	Pan-specific	0, 0	478	5.41	8.97	0, 0	691	13.68	9.36	45	-0.93	-0.75	0.17	0.67	13	8	7	NP_001124480.1	Q05209
PyDK2 (PDHK2)	Pan-specific	0, 0	785	15.90	9.69	0, 0	1037	5.62	9.94	32	-0.57	-0.44	0.13	0.49	13	9	7	NP_002602	Q15119
Pyk2	Pan-specific	0, 0	3720	15.43	11.93	0, 0	4395	10.47	12.03	18	0.57	0.68	0.11	0.43	13	10	7	NP_004094	Q14289
Pyk2	Y579	0, 0	1279	16.83	10.39	0, 0	1618	0.17	10.58	27	-0.21	-0.10	0.12	0.45	13	6	8	NP_004094	Q14289
Rab5	Pan-specific	0, 0	91	27.33	6.58	0, 0	153	12.48	7.18	68	-2.14	-1.92	0.21	0.82	13	7	8	NP_004153.2	P20339
Rac1	Pan-specific	0, 1	1565	8.53	10.68	0, 1	1975	3.05	10.87	26	-0.06	0.06	0.12	0.47	13	8	8	NP_001782	P63000
Rac1	S71	0, 0	2667	20.95	11.45	0, 0	2843	11.31	11.40	7	0.32	0.34	0.02	0.06	13	9	8	NP_008839	P63000
Rad17	S656	0, 0	1433	28.95	10.56	0, 0	1414	23.94	10.39	-1	-0.13	-0.20	-0.07	-0.28	13	10	8	NP_579921	O75943
Raf1	Pan-specific	0, 0	565	48.44	9.21	0, 0	738	0.20	9.45	31	-0.81	-0.70	0.10	0.40	13	6	9	NP_002871	P04049
Raf1	Pan-specific	0, 0	13432	16.72	13.78	0, 0	13458	10.38	13.64	0	1.50	1.55	0.04	0.16	13	7	9	NP_002871	P04049
Raf1	Pan-specific	0, 0	3703	14.43	11.93	0, 0	3757	4.49	11.80	1	0.56	0.56	-0.01	-0.03	13	8	9	NP_002871	P04049
Raf1	S259	0, 0	614	3.06	9.33	0, 0	632	8.41	9.23	3	-0.75	-0.82	-0.08	-0.30	13	9	9	NP_002871	P04049
RafA (Araf)	Pan-specific	0, 0	4312	0.12	12.15	0, 0	5198	7.59	12.27	21	0.68	0.81	0.13	0.51	13	10	9	NP_001645.1	P10398
RafA (Araf)	Pan-specific	0, 0	9435	5.04	13.28	0, 0	9165	6.64	13.09	-3	1.25	1.25	0.00	0.01	13	6	10	NP_001645.1	P10398
RafB (Braf)	Pan-specific	0, 0	5019	14.80	12.36	0, 0	5194	9.84	12.27	3	0.79	0.81	0.02	0.08	13	7	10	NP_004324	P15056
RafB (Braf)	Pan-specific	0, 0	491	3.14	9.01	0, 0	758	25.17	9.49	54	-0.91	-0.68	0.23	0.87	13	8	10	NP_004324	P15056
Rb	Pan-specific	0, 0	1396	9.33	10.52	0, 0	3091	2.85	11.52	121	-0.15	0.41	0.55	2.13	13	9	10	NP_000312	P06400
Rb	T356	0, 0	10483	12.04	13.43	0, 0	12117	9.89	13.49	16	1.32	1.46	0.14	0.54	13	10	10	NP_000312	P06400
Rb	S612	0, 0	17738	7.91	14.19	0, 0	16861	4.09	13.97	-5	1.71	1.72	0.01	0.05	13	6	11	NP_000312	P06400
Rb	S780	0, 0	848	2.73	9.80	0, 0	1107	0.25	10.04	31	-0.51	-0.39	0.12	0.47	13	7	11	NP_000312	P06400
Rb	S807	0, 0	1128	5.15	10.21	0, 0	1431	9.80	10.41	27	-0.30	-0.19	0.11	0.43	13	8	11	NP_000312	P06400
Rb	S807+S811	0, 0	238	44.63	7.96	0, 0	364	10.26	8.43	53	-1.44	-1.25	0.19	0.72	13	9	11	NP_000312	P06400
Rb	T821	0, 0	8249	4.44	13.08	0, 0	8217	11.19	12.93	0	1.15	1.16	0.01	0.06	13	10	11	NP_000312	P06400
Rb	T826	0, 0	10308	7.77	13.40	0, 0	13190	35.67	13.61	28	1.31	1.53	0.22	0.84	14	6	1	NP_000312	P06400
Rb	S608	0, 0	387	4.95	8.67	0, 0	525	11.78	8.96	36	-1.08	-0.97	0.11	0.44	14	7	1	NP_000312	P06400
Rb	S795	0, 0	1834	6.00	10.91	0, 0	2609	6.65	11.27	42	0.05	0.27	0.22	0.86	14	8	1	NP_000312	P06400
RelB	Pan-specific	0, 0	4345	4.46	12.16	0, 0	6836	11.05	12.66	57	0.68	1.02	0.34	1.31	14	9	1	NP_006500.2	Q01201
RelB	S573	0, 0	6448	12.89	12.73	0, 0	8137	13.04	12.92	26	0.97	1.16	0.19	0.72	14	10	1	NP_006500.2	Q01201
RIP2/RCK	Pan-specific	1, 0	1467	21.21	10.59	1, 0	1519	18.51	10.49	4	-0.11	-0.14	-0.03	-0.13	14	6	2	NP_003812	Q43353
RIPK1	Pan-specific	0, 0	5324	23.41	12.45	0, 0	5356	46.32	12.31	1	0.83	0.83	0.00	0.01	14	7	2	NP_003795	Q13546
ROKa (ROCK2)	Pan-specific	0, 0	2204	7.34	11.18	0, 0	2898	6.98	11.43	31	0.19	0.36	0.17	0.65	14	8	2	NP_004841	O75116
ROKa (ROCK2)	Pan-specific	0, 0	4354	6.82	12.16	0, 0	6118	7.75	12.50	40	0.68	0.93	0.25	0.97	14	9	2	NP_004841	O75116
ROKb (ROCK1)	Pan-specific	0, 0	2335	50.01	11.26	0, 0	2168	25.08	11.01	-7	0.23	0.13	-0.10	-0.37	14	10	2	NP_005397	Q13464
RONa	Pan-specific	0, 1	1476	18.36	10.60	0, 1	1972	11.14	10.87	34	-0.11	0.06	0.16	0.63	14	6	3	NP_002438	Q04912
ROR2	Pan-specific	0, 1	621	15.05	9.35	0, 1	805	30.32	9.58	30	-0.74	-0.64	0.10	0.39	14	7	3	NP_004551	Q01974
ROS	Pan-specific	0, 0	793	9.77	9.70	0, 0	1084	0.82	10.01	37	-0.56	-0.41	0.15	0.59	14	8	3	NP_002935	P08922

RSK1	Pan-specific	0, 0	20723	3.87	14.41	0, 0	21142	2.47	14.29	2	1.82	1.90	0.08	0.29	14	9	3	NP_002944	Q15418
RSK1	Pan-specific	0, 0	1653	18.82	10.76	0, 0	2608	27.36	11.27	58	-0.02	0.27	0.30	1.15	14	10	3	NP_002944	Q15418
RSK1	S363	0, 0	2070	11.54	11.09	0, 0	3250	1.38	11.59	57	0.14	0.44	0.30	1.17	14	6	4	NP_002944	Q15418
RSK1	T348	0, 0	3812	0.86	11.97	0, 0	5866	11.09	12.44	54	0.59	0.90	0.32	1.22	14	7	4	NP_002944	Q15418
RSK1/2	S221/S227	0, 0	7333	5.50	12.91	0, 0	7587	5.15	12.81	3	1.06	1.10	0.04	0.15	14	8	4	NP_002944	Q15418
RSK1/2	S363/S369	0, 0	2391	13.84	11.29	0, 0	3393	19.52	11.65	42	0.25	0.48	0.23	0.90	14	9	4	NP_002944	Q15418
RSK1/2	S363/S369	0, 0	3494	0.63	11.84	0, 0	4056	5.89	11.91	16	0.52	0.62	0.09	0.36	14	10	4	NP_002944	Q15418
RSK1/2	S380/S386	0, 0	13	13.53	3.81	0, 0	45	6.95	5.43	239	-3.54	-2.87	0.67	2.59	14	6	5	NP_002944	Q15418
RSK1/2	S380/S386	0, 0	3997	24.06	12.04	0, 0	5836	12.34	12.44	46	0.62	0.90	0.28	1.07	14	7	5	NP_002944	Q15418
RSK1/2/3	T573/T577/T570	0, 0	175	11.34	7.52	0, 0	420	22.91	8.64	140	-1.66	-1.14	0.52	2.01	14	8	5	NP_002944	Q15418
RSK1/3	T359+S363/T356+S360	0, 0	131	2.63	7.10	0, 0	294	26.74	8.12	125	-1.87	-1.42	0.46	1.76	14	9	5	NP_002944	Q15418
RSK2	Pan-specific	0, 0	400	4.74	8.72	0, 0	694	1.74	9.36	73	-1.06	-0.75	0.31	1.18	14	10	5	NP_004577	P51812
RYK	Pan-specific	0, 0	822	3.80	9.76	0, 0	1218	4.20	10.18	48	-0.53	-0.32	0.22	0.84	14	6	6	NP_001005861.1	P34925
S6	S235	0, 0	4239	13.83	12.12	0, 0	5774	1.01	12.42	36	0.66	0.89	0.23	0.87	14	7	6	NP_001001	P62753
S6K	S424	0, 0	1982	10.99	11.02	0, 0	3949	1.40	11.87	99	0.11	0.60	0.49	1.88	14	8	6	NP_003152	P23443
S6K	S411	0, 0	2096	0.18	11.10	0, 0	4181	19.51	11.95	99	0.15	0.64	0.49	1.89	14	9	6	NP_003152	P23443
S6Kb1	Pan-specific	0, 0	13742	17.42	13.82	0, 0	16044	16.80	13.89	17	1.52	1.68	0.16	0.62	14	10	6	NP_003152	P23443
S6Kb1	Pan-specific	0, 0	16	40.49	4.08	0, 0	34	30.80	5.02	112	-3.40	-3.08	0.32	1.22	14	6	7	NP_003152	P23443
S6Kb1	Pan-specific	0, 0	770	18.74	9.66	0, 0	1210	4.74	10.17	57	-0.58	-0.32	0.26	1.00	14	7	7	NP_003152	P23443
S6Kb1	T252	0, 0	5305	16.23	12.44	0, 0	6313	14.99	12.55	19	0.83	0.96	0.13	0.51	14	8	7	NP_003152	P23443
S6Kb1	T444+S447	0, 0	1294	11.54	10.41	0, 0	2402	6.00	11.15	86	-0.20	0.21	0.41	1.59	14	9	7	NP_003152	P23443
S6Kb1	T412	0, 0	165	19.21	7.44	0, 0	406	19.41	8.59	146	-1.71	-1.17	0.54	2.07	14	10	7	NP_003152	P23443
S6Kb2	Pan-specific	0, 0	1664	25.62	10.77	0, 0	2909	0.42	11.43	75	-0.02	0.36	0.38	1.45	14	6	8	NP_003943	Q9UBS0
SG2NA	Pan-specific	0, 0	8408	19.04	13.11	0, 0	10545	8.82	13.29	25	1.16	1.36	0.19	0.75	14	7	8	NP_001077362.1	Q13033
Shc1	Y349+Y350	0, 0	10658	20.95	13.45	0, 0	15389	1.61	13.83	44	1.34	1.65	0.31	1.21	14	8	8	NP_003020	P29353
Shc1	Y349	0, 0	886	15.73	9.86	0, 0	2009	6.66	10.90	127	-0.48	0.07	0.55	2.12	14	9	8	NP_003020	P29353
Smac/DIABLO	Pan-specific	0, 0	2039	4.35	11.06	0, 0	3713	2.69	11.78	82	0.13	0.55	0.42	1.61	14	10	8	NP_620308	Q9NR28
Smad1	S465	0, 0	5013	11.39	12.36	0, 0	6180	16.34	12.52	23	0.79	0.94	0.16	0.61	14	6	9	NP_005891	Q15797
Smad1/5/8	S463+S465/S463+S465/S465+S467	0, 0	69	30.27	6.18	0, 0	200	15.28	7.57	189	-2.34	-1.72	0.62	2.40	14	7	9	NP_005891	Q15797
Smad2	S467	0, 0	2274	16.04	11.22	0, 0	4559	12.58	12.08	100	0.21	0.71	0.50	1.92	14	8	9	NP_005891	Q15796
Smad2	T200	0, 0	1367	32.47	10.49	0, 0	2877	11.74	11.42	110	-0.16	0.35	0.51	1.97	14	9	9	NP_005891	Q15796
Smad2/3	Pan-specific	0, 0	926	83.19	9.93	0, 0	1896	39.63	10.81	105	-0.45	0.03	0.47	1.82	14	10	9	NP_005892	Q15796
SMC1	S957	0, 0	1632	21.65	10.74	0, 0	2787	14.91	11.37	71	-0.03	0.33	0.36	1.38	14	6	10	NP_006297.2	Q14683
SNCA	Y136	0, 0	481	30.01	8.98	0, 0	990	11.63	9.88	106	-0.92	-0.48	0.45	1.72	14	7	10	NP_000336.1	P37840
SNCA	S129	0, 0	281	32.64	8.21	0, 0	678	0.89	9.33	141	-1.32	-0.77	0.55	2.10	14	8	10	NP_000336.1	P37840
SOCS2	Pan-specific	0, 0	11022	21.60	13.50	0, 0	11539	1.12	13.42	5	1.36	1.43	0.07	0.26	14	9	10	NP_003868.1	O14508
SOCS4	Pan-specific	0, 0	2208	4.14	11.18	0, 0	4644	1.28	12.11	110	0.19	0.72	0.53	2.06	14	10	10	NP_543143	Q8WXH5
SOD (Cu/Zn)	Pan-specific	0, 0	2086	25.44	11.10	0, 0	3217	12.15	11.58	54	0.15	0.44	0.29	1.12	14	6	11	NP_000445	P00441
SOD (Mn)	Pan-specific	0, 0	911	28.04	9.90	0, 0	1661	1.23	10.62	82	-0.46	-0.08	0.38	1.48	14	7	11	NP_000627	P04179
SOD (Mn)	Pan-specific	0, 0	7413	21.20	12.93	0, 0	9672	4.48	13.16	30	1.07	1.29	0.22	0.84	14	8	11	NP_000627	P04179
SODD	Pan-specific	0, 0	2302	9.63	11.24	0, 0	3826	4.28	11.83	66	0.22	0.57	0.35	1.36	14	9	11	NP_004865	Q9UJ29
SOX9	S181	0, 0	9256	14.47	13.25	0, 0	16750	0.16	13.96	81	1.23	1.72	0.48	1.86	14	10	11	NP_000337	P48436
SPHK1	Pan-specific	0, 0	1081	7.29	10.15	0, 0	1737	30.18	10.69	61	-0.33	-0.04	0.29	1.13	15	6	1	NP_892010	Q9NYA1
SPHK2	Pan-specific	0, 0	1344	33.07	10.46	0, 0	2019	11.08	10.90	50	-0.17	0.08	0.25	0.96	15	7	1	NP_064511	Q9NRA0
Src	Pan-specific	0, 0	517	23.50	9.09	0, 0	919	14.15	9.77	78	-0.87	-0.53	0.34	1.30	15	8	1	NP_005408	P12931
Src	Pan-specific	0, 0	982	27.26	10.01	0, 0	1648	0.46	10.61	68	-0.40	-0.08	0.32	1.24	15	9	1	NP_005408	P12931
Src	Pan-specific	0, 0	2534	17.95	11.38	0, 0	4152	4.37	11.94	64	0.29	0.63	0.35	1.33	15	10	1	NP_005408	P12931
Src	Pan-specific	0, 0	812	17.05	9.74	0, 0	1151	7.88	10.09	42	-0.54	-0.36	0.18	0.70	15	6	2	NP_005408	P12931
Src	Y419	0, 0	952	49.21	9.97	0, 0	1406	22.51	10.41	51	-0.43	-0.19	0.24	0.92	15	7	2	NP_005408	P12931
Src	Y530	0, 0	2381	46.45	11.29	0, 0	4418	22.28	12.03	86	0.24	0.68	0.44	1.70	15	8	2	NP_005408	P12931
STAT1a	Pan-specific	0, 0	5750	72.38	12.56	0, 0	9345	0.50	13.11	63	0.89	1.26	0.38	1.45	15	9	2	NP_009330	P42224
STAT1a	Pan-specific	0, 0	4	87.40	2.16	0, 0	7	51.22	2.77	68	-4.37	-4.30	0.08	0.30	15	10	2	NP_009330	P42224
STAT1a	Pan-specific	0, 0	869	18.12	9.83	0, 0	1190	13.13	10.14	37	-0.49	-0.33	0.16	0.61	15	6	3	NP_009330	P42224
STAT1a	S727	0, 0	2033	28.56	11.06	0, 0	2362	24.86	11.13	16	0.13	0.20	0.07	0.27	15	7	3	NP_009330	P42224
STAT1a	Y701	0, 0	14	56.08	3.87	0, 0	35	19.02	5.07	155	-3.51	-3.06	0.45	1.74	15	8	3	NP_009330	P42224
STAT2	Pan-specific	0, 0	10991	32.51	13.50	0, 0	11561	4.88	13.42	5	1.36	1.43	0.07	0.27	15	9	3	NP_005410	P52630
STAT2	Y690	0, 0	586	12.05	9.27	0, 0	1071	0.28	9.99	83	-0.78	-0.42	0.36	1.40	15	10	3	NP_005410	P52630
STAT3	Pan-specific	0, 0	8001	33.05	13.04	0, 0	7814	14.20	12.86	-2	1.13	1.12	0.00	-0.01	15	6	4	NP_003141	P40763
STAT3	Pan-specific	0, 0	40	40.57	5.41	0, 0	80	41.08	6.24	97	-2.73	-2.43	0.30	1.15	15	7	4	NP_003141	P40763
STAT3	S727	0, 0	445	26.79	8.87	0, 0	1020	5.46	9.92	129	-0.98	-0.45	0.53	2.03	15	8	4	NP_003141	P40763
STAT3	Y705	0, 0	83	20.61	6.45	0, 0	202	8.63	7.58	143	-2.21	-1.71	0.50	1.92	15	9	4	NP_003141	P40763
STAT3	Y705	0, 0	3846	28.47	11.98	0, 0	7517	1.68	12.80	95	0.59	1.09	0.50	1.93	15	10	4	NP_003141	P40763
STAT4	Pan-specific	0, 0	10117	19.28	13.38	0, 0	8729	20.02	13.02	-14	1.30	1.21	-0.09	-0.34	15	6	5	NP_003142	Q14765
STAT5A	Pan-specific	0, 0	10684	16.84	13.45	0, 0	11537	12.14	13.42	8	1.34	1.43	0.09	0.34	15	7	5	NP_003143	P42229
STAT5A	Y694	0, 0	68	24.16	6.16	0, 0	177	13.71	7.40	160	-2.35	-1.81	0.54	2.08	15	8	5	NP_003143	P42229
STAT5A	Y694	0, 0	1255	16.26	10.37	0, 0	2028	0.26	10.91	62	-0.22	0.08	0.30	1.17	15	9	5	NP_003143	P42229
STAT5A	S780	0, 0	887	24.77	9.86	0, 0	1599	3.68	10.57	80	-0.48	-0.11	0.37	1.44	15	10	5	NP_003143	P42229
STAT5B	Pan-specific	0, 0	11144	20.56	13.52	0, 0	11128	18.46	13.37	0	1.37	1.40	0.03	0.12	15	6	6	NP_036580	P51692
STAT6	Pan-specific	0, 0	9144	13.92	13.23	0, 0	8966	20.45	13.06	-2	1.22	1.23	0.01	0.04	15	7	6	NP_003144	P42226
STI1	Pan-specific	0, 0	1468	29.43	10.59	0, 0	1750	3.69	10.70	19	-0.11	-0.04	0.08	0.29	15	8	6	NP_006810	P31948
STK33	Pan-specific	0, 0	574	20.11	9.24	0, 0	821	0.91	9.61	43	-0.80	-0.62	0.17	0.67	15	9	6	NP_112168	Q8NEF5
Striatin	Pan-specific	0, 0	6359	6.06	12.71	0, 0	9989	19.99	13.21	57	0.96	1.31	0.36	1.37	15	10	6	NP_003153.2	O43815
Syk	Pan-specific	0, 0	8452	27.53	13.12	0, 0	10656	3.68	13.30	26	1.17	1.36	0.20	0.76	15	6	7	NP_003168	P43405
Syk	Y323	0, 0	1536	20.69	10.66	0, 0	2032	12.82	10.91	32	-0.08	0.08	0.16	0.61	15	7	7	NP_003168	P43405
Synapsin 1	Pan-specific	0, 0	1818	25.88	10.90	0, 0	2825	1.56	11.39	55	0.05	0.34	0.29	1.12	15	8	7	NP_008881	P17600
Synapsin 1	S9	0, 0	48	34.20	5.67	0, 0	119	14.02	6.82	146	-2.60	-2.12	0.48	1.85	15	9	7	NP_008881	P17600
TAK1	Pan-specific	0, 0	391	12.70	8.68	0, 0	617	8.71	9.19	58	-1.08	-0.84	0.23	0.90	15	10	7	NP_663306	O43318
TAK1	Pan-specific	0, 0	1077	7.77	10.14	0, 0	1233	0.21	10.19	15	-0.34	-0.31	0.03	0.12	15	6	8	NP_663306	O43318
TAK1	Pan-specific	0, 0	295	18.26	8.27	0, 0	476	22.86	8.82	62	-1.28	-1.04	0.24	0.92	15	7	8	NP_663306	O43318
TAK1	Pan-specific	0, 0	4278	19.82	12.13	0, 0	5790	2.11	12.42	35	0.67	0.89	0.22	0.86	15	8	8	NP_663306	O43318
Tau	S516	0, 0	3191	13.23	11.71	0, 0	4538	1.97	12.07	42	0.46	0.70	0.25	0.95	15	9	8	NP_005901	P10636
Tau	S516+S519	0, 0	3048	3.25	11.64	0, 0	4023	6.76	11.90	32	0.42	0.61	0.19	0.72	15	10	8	NP_005901	P10636
Tau	S713	0, 0	1155	9.71	10.24	0, 0	1310	28.83	10.28	13	-0.29	-0.26	0.03	0.10	15	6	9	NP_005901	P10636
Tau	S713	0, 0	4687	7.15	12.27	0, 0	5140	15.46	12.25	10	0.74	0.80	0.06	0.25	15	7	9	NP_005901	P10636
Tau	S717	0, 0	3901	8.01	12.00	0, 0	3730	2.66	11.79	-4	0.60	0.55	-0.05	-0.20	15	8	9	NP_005901	P10636
Tau	S721	0, 0	2539	9.29	11.38	0, 0	3306	15.93	11.62	30	0.29	0.46	0.17	0.65	15	9	9	NP_005901	P10636
Tau	S519	0, 0	473	18.07	8.96	0, 0	574	31.74	9.09	21	-0.94	-0.90	0.04	0.15	15	10	9	NP_005901	P10636
Tau	S739	0, 0	3640	4.97	11.90	0, 0	3707	3.51	11.78	2	0.55	0.55	0.00	-0.02	15	6	10	NP_005901	P10636
Tau	T522	0, 0	1434	5.41	10.56	0, 0	1694	9.14	10.65	18	-0.13	-0.06	0.07	0.26	15	7	10	NP_005901	P10636
Tau	T548	0, 0	1502	13.93	10.62	0, 0	1629	15.15	10.59	8	-0.09	-0.09	0.00	0.01	15	8	10	NP_005901	P10636
TBK1	Pan-specific	0, 0	4282	0.05	12.14	0, 0	4094	4.05	11.92	-4	0.67	0.62	-0.05	-0.18	15	9	10	NP_037386	Q9UHD2
TBK1	Pan-specific	0, 0	5089	27.91	12.38	0, 0	5745	19.07	12.41	13	0.80	0.89	0.09	0.35	15	10	10	NP_037386	Q9UHD2
TEK (TIE2)	Pan-specific	0, 0	683	22.71	9.49	0, 0	806	5.26	9.58	18	-0.67	-0.64	0.03	0.13	15	6	11	NP_444515	Q02763
Tlk1	Pan-specific	0, 0	708	8.28	9.54	0, 0	857	14.96	9.67	21	-0.64	-0.59	0.05	0.21	15	7	11	NP_036422	Q9UKI8
TPIPb	Pan-specific	0, 0	451	0.55	8.89	0, 0	473	23.29	8.81	5	-0.97	-1.05	-0.08	-0.30	15	8	11	NP_001135440.1	Q6XPS3
TRADD	Pan-specific	0, 0	1659	16.05	10.77	0, 0	2062	11.16	10.93	24	-0.02	0.09	0.11	0.44	15	9	11	NP_003789	Q15628
Trail	Pan-specific	0, 0	14987	14.23	13.94	0, 0	14042	29.91	13.70	-6	1.58	1.58	-0.01	-0.02	15	10	11	NP_003801	P50591
TrkA	Pan-specific	0, 0	541	3.87	9.15	0, 0	525	6.22	8.96	-3	-0.84	-0.97	-0.13	-0.50	16	6	1	NP_002520	P04629
TrkB	Pan-specific	0, 0	1754	12.62	10.85	0, 0	1667	6.48	10.63	-5	0.02	-0.07	-0.09	-0.35	16	7	1	NP_006171	Q16620
TrkB	Y706	0, 0	1870	0.02	10.94	0, 0	1719	11.52	10.67	-8	0.07	-0.05	-0.11	-0.44	16	8	1	NP_006171	Q16620
TTK	Pan-specific	0, 0	740	6.85	9.60	0, 0	789	24.98	9.55	7	-0.61	-0.65	-0.04	-0.16	16	9	1	AAA81239.1	P33981
Tyk2	Pan-specific	0, 0	3739	7.00	11.94	0, 0	2504	2.19	11.21	-33	0.57	0.24	-0.33	-1.27	16	6	2	NP_003322	P29597
Tyk2	Pan-specific	0, 0	4841	3.48	12.31	0, 0	3080	15.70	11.51	-36	0.76	0.40	-0.36	-1.37	16	7	2	NP_003322	P29597
Tyro10 (DDR2)	Pan-specific	0, 0	748	7.45	9.62	0, 0	671	20.49	9.32	-10	-0.60	-0.78	-0.17	-0.67	16	8	2	NP_006173	Q16832
Tyro10 (DDR2)	Pan-specific	0, 0	1625	18.19	10.74	0, 0	1253	7.27	10.22	-23	-0.04	-0.29	-0.26	-0.99	16	9	2	NP_006173	Q16832
Tyrosine Hydroxylase	S70	0, 0	442	51.58	8.86	0, 0	191	34.50	7.50	-57	-0.99	-1.75	-0.77	-2.95	16	6	3	NP_954986	P07101

Tyrosine Hydroxylase	S18	0, 0	801	11.93	9.72	0, 0	495	0.36	8.88	-38	-0.55	-1.01	-0.46	-1.77	16	7	3	NP_954986	P07101
VEGF-C	Pan-specific	0, 0	4379	11.96	12.17	0, 0	2388	15.81	11.15	-45	0.69	0.21	-0.48	-1.85	16	8	3	NP_005420.1	P49767
VEGFR2 (KDR)	Y1059	0, 0	4289	5.20	12.14	0, 0	2174	14.53	11.01	-49	0.67	0.13	-0.54	-2.07	16	9	3	NP_002244	P35968
VEGFR2 (KDR)	Y1214	0, 0	1832	10.22	10.91	0, 0	826	6.14	9.61	-55	0.05	-0.62	-0.67	-2.57	16	6	4	NP_002244	P35968
VHR	Pan-specific	0, 0	3394	13.58	11.80	0, 0	1266	17.92	10.23	-63	0.50	-0.29	-0.79	-3.03	16	7	4	NP_004081	P51452
Vimentin	S34	0, 0	3305	3.18	11.76	0, 0	1662	1.86	10.61	-50	0.48	-0.08	-0.56	-2.36	16	8	4	NP_003371	P08670
Vrk1	Pan-specific	0, 0	1056	6.27	10.12	0, 0	725	0.90	9.43	-31	-0.35	-0.72	-0.37	-1.41	16	9	4	NP_003375	Q99986
Wee1	Pan-specific	0, 0	2037	15.11	11.06	0, 0	1104	0.17	10.03	-46	0.13	-0.39	-0.52	-2.00	16	6	5	NP_003381	P30291
WIP1	Pan-specific	0, 0	2544	4.57	11.38	0, 0	1563	10.85	10.54	-39	0.29	-0.12	-0.41	-1.59	16	7	5	NP_003611.1	O15297
Yes	Pan-specific	0, 0	7852	17.06	13.01	0, 0	5944	5.82	12.46	-24	1.11	0.91	-0.20	-0.77	16	8	5	NP_005424	P07947
Yes	Pan-specific	0, 0	3102	9.63	11.67	0, 0	1045	7.51	9.95	-66	0.44	-0.43	-0.87	-3.35	16	9	5	NP_005424	P07947
YSK1	Pan-specific	0, 0	4347	6.12	12.16	0, 0	3313	10.67	11.62	-24	0.68	0.46	-0.22	-0.85	16	6	6	NP_006365.2	O00506
ZAP70	Pan-specific	0, 0	2666	0.79	11.45	0, 0	1025	8.37	9.93	-62	0.32	-0.45	-0.77	-2.98	16	7	6	NP_003168	P43403
ZAP70	Pan-specific	0, 1	3187	17.03	11.71	0, 1	2429	39.79	11.17	-24	0.45	0.22	-0.24	-0.91	16	8	6	NP_003168	P43403
ZAP70/Syk	Y319/Y352	0, 0	159	8.57	7.39	0, 0	98	12.13	6.54	-38	-1.73	-2.27	-0.54	-2.07	16	9	6	NP_001070	P43403
pThr(MmAb)	pThr	0, 0	10644	10.36	13.45	0, 0	6815	10.35	12.66	-36	1.33	1.02	-0.32	-1.22	16	10	6	NA	NA
ZIPK	Pan-specific	0, 0	1672	8.50	10.78	0, 0	1166	3.81	10.11	-30	-0.02	-0.35	-0.33	-1.29	16	6	7	NP_001339	Q43293
ZIPK	Pan-specific	0, 0	974	6.11	10.00	0, 0	707	0.52	9.39	-27	-0.41	-0.74	-0.33	-1.26	16	7	7	NP_001339	Q43293
Actin	Pan-specific	0, 0	5651	6.41	12.54	0, 0	4964	3.34	12.20	-12	0.87	0.77	-0.10	-0.38	16	10	7	NP_001092.1	P60709
Tubulin	Pan-specific	0, 0	12430	7.20	13.67	0, 0	9828	19.93	13.19	-21	1.45	1.30	-0.15	-0.56	16	10	8	NP_006000.2	Q71U36
pThr(RpAb)	pThr	0, 0	2376	12.54	11.29	0, 0	1730	2.28	10.68	-27	0.24	-0.04	-0.28	-1.09	16	10	9	NA	NA
4G10	pTyr	0, 0	4577	17.97	12.23	0, 0	2918	2.95	11.44	-36	0.72	0.36	-0.36	-1.38	16	10	10	NA	NA

Supplementary Table 2: Significant Changes in Total and Activated Protein Levels in WT vs. Δ*sagA* Infection				
Target Protein Name	**Phospho Site (Human)**	**Full Target Protein Name**	**Fold Change**	**Z-ratio WT vs Δ*sagA***
Hsp27	S82	Heat shock 27 kDa protein beta 1 (HspB1)	8.36	3.71
IkBa	Pan-specific	Inhibitor of NF-kappa-B alpha (MAD3)	6.97	3.55
FAK	Y576	Focal adhesion protein-tyrosine kinase	5.48	3.01
Mnk1	T250+T255	MAP kinase-interacting protein-serine kinase 1 (calmodulin-activated)	5.09	3.34
RSK1/2	S380/S386	Ribosomal S6 protein-serine kinase 1/2	4.79	2.59
Smad1/5/8	S463+S465/S463+S465/S465+S467	Mothers against decapentaplegic homologs 1/5/8	3.78	2.40
Csk	Pan-specific	C-terminus of Src tyrosine kinase	3.55	2.73
STAT5A	Y694	Signal transducer and activator of transcription 5A	3.20	2.08
STAT1a	Y701	Signal transducer and activator of transcription 1 alpha	3.10	1.74
S6Kb1	T412	Ribosomal protein serine S6 kinase beta 1	2.93	2.07
Synapsin 1	S9	Synapsin 1 isoform Ia	2.92	1.85
STAT3	Y705	Signal transducer and activator of transcription 3	2.87	1.92
COX2	Pan-specific	Cyclo-oxygenase 2 (prostaglandin G/H synthase 2 precursor)	2.85	2.25
SNCA	S129	Alpha-synuclein	2.82	2.10
CPG16/CaMKinase VI	Pan-specific	Serine/threonine-protein kinase DCAMKL1	2.81	2.27
RSK1/2/3	T573/T577/T570	Ribosomal S6 protein-serine kinase 1/2/3	2.80	2.01
STAT3	S727	Signal transducer and activator of transcription 3	2.58	2.03
MST1	Pan-specific	Mammalian STE20-like protein-serine kinase 1 (KRS2)	2.57	2.22
Huntingtin	S421	Huntington's disease protein	2.56	2.19
Shc1	Y349	SH2 domain-containing transforming protein 1	2.54	2.12
Hsp90a/b	Pan-specific	Heat shock 90 kDa protein alpha/beta	2.50	2.01
RSK1/3	T359+S363/T356+S360	Ribosomal S6 protein-serine kinase 1/3	2.49	1.76
Crystallin aB	Pan-specific	Crystallin alpha B (heat-shock 20 kDa like-protein)	2.48	2.31
Rb	Pan-specific	Retinoblastoma-associated protein 1	2.43	2.13
Bcr	Y177	Breakpoint cluster region protein	2.42	2.03
p27 Kip1	T187	p27 cyclin-dependent kinase inhibitor 1B	2.40	1.04
JNK1 (MAPK8)	Pan-specific	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPK)) 1	2.31	2.05
S6Kb1	Pan-specific	Ribosomal protein-serine S6 kinase beta 1	2.24	1.22
Smad2	T200	Mothers against decapentaplegic homolog 2	2.21	1.97
SOCS4	Pan-specific	Suppressor of cytokine signalling 4 (SOCS7)	2.21	2.06
FKHRL1	T32	Forkhead-like transcription factor 1 (FOXO3A)	2.19	1.76
Cofilin 1	Pan-specific	Cofilin 1	2.17	1.84
SNCA	Y136	Alpha-synuclein	2.12	1.72
Smad2/3	Pan-specific	SMA- and mothers against decapentaplegic homolog 2/3	2.10	1.82
Smad2	S467	Mothers against decapentaplegic homolog 2	2.01	1.92
S6K	S411	p70 ribosomal protein-serine S6 kinase	1.99	1.89
S6K	S424	p70 ribosomal protein-serine S6 kinase	1.98	1.88
STAT3	Pan-specific	Signal transducer and activator of transcription 3 (acute phase response factor)	1.93	1.15
STAT3	Y705	Signal transducer and activator of transcription 3	1.91	1.93
GSK3a	Pan-specific	Glycogen synthase-serine kinase 3 alpha	1.87	1.73
Crystallin aB	Pan-specific	Crystallin alpha B (heat-shock 20 kDa like-protein)	1.84	1.77
JNK1/2/3	Pan-specific	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPK)) 1/2/3	1.76	1.40
S6Kb1	T444+S447	Ribosomal protein serine S6 kinase beta 1	1.71	1.59
Src	Y530	Src proto-oncogene-encoded protein-tyrosine kinase	1.71	1.70
IRS1	S312	Insulin receptor substrate 1	1.67	1.49
GroEL	Pan-specific	GroEL homolog (may correspond to Hsp60)	1.66	1.71
MEKK2 (MAP3K2)	Pan-specific	MAPK/ERK kinase kinase 2	1.66	1.71
STAT2	Y690	Signal transducer and activator of transcription 2	1.65	1.40
SOD (Mn)	Pan-specific	Superoxide dismutase [Mn]	1.65	1.48
Cofilin 1	S3	Cofilin 1	1.64	1.56
Smac/DIABLO	Pan-specific	Second mitochondria-derived activator of caspase	1.64	1.61
PKCa/b2	T638/T641	Protein-serine kinase C alpha/beta 2	1.63	1.05
SOX9	S181	SRY (sex determining region Y)-box 9 (campomelic dysplasia, autosomal sex-reversal)	1.62	1.86
GluR1	S849	Glutamate receptor 1	1.60	1.70
STAT5A	S780	Signal transducer and activator of transcription 5A	1.60	1.44
Acetylated Lysine	Pan-specific	Acetylated Lysine	1.60	1.52
IKKa	S180	Inhibitor of NF-kappa-B protein-serine kinase alpha (CHUK)	1.58	0.99
MKP2	Pan-specific	MAP kinase phosphatase 2 (VH2)	1.58	1.51
Msk1	S376	Mitogen & stress-activated protein-serine kinase 1	1.58	1.32
Src	Pan-specific	Src proto-oncogene-encoded protein-tyrosine kinase	1.56	1.30
MEK2 (MAP2K2)	Pan-specific	MAPK/ERK protein-serine kinase 2 (MKK2)	1.51	1.18
S6Kb2	Pan-specific	Ribosomal protein-serine S6 kinase beta 2	1.50	1.45
CaMK1d	Pan-specific	Calcium/calmodulin-dependent protein-serine kinase 1 delta	1.47	1.54
RSK2	Pan-specific	Ribosomal S6 protein-serine kinase 2	1.46	1.18
MEK4 (MAP2K4)	Pan-specific	MAPK/ERK protein-serine kinase 4 (MKK4)	1.46	1.20
Fyn	Pan-specific	Fyn proto-oncogene-encoded protein-tyrosine kinase	1.44	1.54
SMC1	S957	Structural maintenance of chromosomes protein 1A	1.42	1.38
MEK4 (MAP2K4)	Pan-specific	MAPK/ERK protein-serine kinase 4 (MKK4)	1.40	1.40
MST1	Pan-specific	Mammalian STE20-like protein-serine kinase 1 (KRS2)	1.37	1.07

IRAK2	Pan-specific	Interleukin 1 receptor-associated kinase 2	1.36	1.26
MEK6 (MAP2K6)	Pan-specific	MAPK/ERK protein-serine kinase 6 (MKK6)	1.36	1.31
Src	Pan-specific	Src proto-oncogene-encoded protein-tyrosine kinase	1.36	1.24
SODD	Pan-specific	Silencer of death domains (Bcl2 associated athanogene 4 (BAG4))	1.32	1.36
MEK1/2 (MAP2K1/2)	Pan-specific	MAPK/ERK protein-serine kinase 1/2 (MKK1/2)	1.32	0.97
CASP7	Pan-specific	Caspase 7 (ICE-like apoptotic protease 3 (ICE-LAP3), Mch3)	1.28	1.23
PTEN	S380+T382+T383	Phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase and protein phosphatase and tensin homolog deleted on chromosome 10	1.28	1.28
Src	Pan-specific	Src proto-oncogene-encoded protein-tyrosine kinase	1.28	1.33
STAT1a	Pan-specific	Signal transducer and activator of transcription 1 alpha	1.25	1.45
Hsp40	Pan-specific	DnaJ homolog, subfamily B member 1	1.25	1.09
MEKK4 (MAP3K4)	Pan-specific	MAPK/ERK kinase kinase 4	1.24	1.12
STAT5A	Y694	Signal transducer and activator of transcription 5A	1.23	1.17
SPHK1	Pan-specific	Sphingosine kinase 1	1.21	1.13
JNK1/2/3	Pan-specific	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPK)) 1/2/3	1.21	0.99
PSD-95	Pan-specific	Disks large homolog 4	1.20	1.25
ILK1	Pan-specific	Integrin-linked protein-serine kinase 1	1.19	1.22
Gab1	Y627	GRB2-associated binder 1	1.17	1.16
PTEN	S380+T382+T383	Phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase and protein phosphatase and tensin homolog deleted on chromosome 10	1.17	1.18
RSK1	Pan-specific	Ribosomal S6 protein-serine kinase 1	1.16	1.15
GNB2L1	Pan-specific	Guanine nucleotide-binding protein beta (receptor for activated C kinase 1 (RACK1))	1.15	1.12
RelB	Pan-specific	Transcription factor RelB	1.15	1.31
S6Kb1	Pan-specific	Ribosomal protein-serine S6 kinase beta 1	1.14	1.00
Striatin	Pan-specific	Striatin	1.14	1.37
AK2	Pan-specific	Adenylate kinase 2	1.14	1.00
RSK1	S363	Ribosomal S6 protein-serine kinase 1	1.14	1.17
Connexin 43	S368	Gap junction alpha-1 protein	1.12	1.21
MSH2	Pan-specific	DNA mismatch repair protein mutS homolog2, colon cancer, nonpolyposis type 1	1.12	1.13
Synapsin 1	Pan-specific	Synapsin 1 isoform Ia	1.11	1.12
FRS2	Y348	Fibroblast growth factor receptor substrate 2	1.10	1.31
SOD (Cu/Zn)	Pan-specific	Superoxide dismutase 1	1.08	1.12
Myc	T58	Myc proto-oncogene protein	1.08	1.20
MEKK1 (MAP3K1)	Pan-specific	MAPK/ERK kinase kinase 1	1.08	0.95
RSK1	T348	Ribosomal S6 protein-serine kinase 1	1.08	1.22
TAO3 (JIK)	Pan-specific	STE20-like protein-serine kinase	1.06	0.99
Bcl-xS/L	Pan-specific	Bcl2-like protein 1	1.04	1.14
BRD2	Pan-specific	Bromodomain-containing protein-serine kinase 2	1.01	0.95
SPHK2	Pan-specific	Sphingosine kinase 2	1.00	0.96
JAK1	Y1034	Janus protein-tyrosine kinase 1	0.98	0.95
MEK2 (MAP2K2)	T394	MAPK/ERK protein-serine kinase 2 (MKK2)	0.97	1.03
GSK3a	Y279	Glycogen synthase-serine kinase 3 alpha	0.97	1.05
Hsp90a/b	Pan-specific	Heat shock 90 kDa protein alpha/beta	0.96	1.01
BRCA1	S1423	Breast cancer type 1 susceptibility protein	0.92	0.99
RSK1/2	S380/S386	Ribosomal S6 protein-serine kinase 1/2	0.92	1.07
PRK2 (PKN2)	Pan-specific	Protein kinase C-related protein-serine kinase 2	0.90	1.04
Shc1	Y349+Y350	SH2 domain-containing transforming protein 1	0.89	1.21
Tau	S516	Microtubule-associated protein tau	0.84	0.95
GRK2 (BARK1)	Pan-specific	G protein-coupled receptor-serine kinase 2	0.84	1.09
MEK3 (MAP2K3)	Pan-specific	MAPK/ERK protein-serine kinase 3 (MKK3)	0.82	0.96
ROKa (ROCK2)	Pan-specific	RhoA protein-serine kinase alpha	0.81	0.97
MLC(MLRC2)	S19	Myosin regulatory light chain 2, smooth muscle isoform	0.79	1.11
Cofilin 2	S3	Cofilin 2	0.79	0.99
GRK2 (BARK1)	S670	G protein-coupled receptor-serine kinase 2	0.69	0.97
IRS1	Y1179	Insulin receptor substrate 1	0.63	0.96
PARP1	Pan-specific	Poly [ADP-ribose] polymerase 1 (ADPRT)	-0.27	-1.09
AMPKa1/2	T183	5'-AMP-activated protein kinase subunit alpha 1/2	-0.31	-1.00
p53	S392	Tumor suppressor protein p53 (antigenNY-CO-13)	-0.34	-1.16
IGF1Rb/IRb	Y1161/Y1185	Insulin-like growth factor 1 /Insulin receptorreceptor beta	-0.36	-1.05
p38a MAPK	T180+Y182	Mitogen-activated protein-serine kinase p38 alpha	-0.39	-1.14
Plk2	Pan-specific	Polo-like protein kinase 2 (serum -inducible kinase (SNK))	-0.39	-0.96
Jun	Pan-specific	Jun proto-oncogene-encoded AP1 transcription factor	-0.41	-0.97
CASP3	Pan-specific	Caspase 3 (apopain, cysteine protease CPP32)	-0.41	-1.07
EFNB2	Y316	EPH-related receptor tyrosine kinase ligand 5	-0.41	-1.08
PKM2	Pan-specific	Pyruvate kinase, isozymes M1/M2	-0.42	-1.03
EFNA5	Pan-specific	Ephrin-A5	-0.42	-0.98
eIF2a	Pan-specific	Eukaryotic translation initiation factor 2 alpha	-0.43	-1.01
CASP1	Pan-specific	Caspase 1 (Interleukin-1 beta convertase)	-0.45	-1.23
CDKL1	Pan-specific	Cyclin-dependent kinase-like 1	-0.45	-1.30
Tyro10 (DDR2)	Pan-specific	Neurotrophic receptor-tyrosine kinase of discoidin domain receptor family, member 2 precursor	-0.46	-0.99
Elk-1	Pan-specific	ETS domain-containing protein Elk-1	-0.46	-1.05
DNAPK	Pan-specific	DNA-activated protein-serine kinase	-0.48	-1.01
PDK1	Pan-specific	3-phosphoinositide-dependent protein-serine kinase 1	-0.48	-1.42

PKR1	Pan-specific	Double-stranded RNA-dependent protein-serine kinase (EIF2AK2)	-0.49	-1.05
PKBa (Akt1)	T308	Protein-serine kinase B alpha	-0.49	-1.68
EGFR	Y1197	Epidermal growth factor receptor-tyrosine kinase	-0.50	-1.10
EGFR	Y1172	Epidermal growth factor receptor-tyrosine kinase	-0.51	-0.96
PDK1	S241	3-Phosphoinositide-dependent protein-serine kinase 1	-0.51	-1.82
JNK1/2/3	T183 + Y185	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPK)) 1/2/3	-0.52	-1.01
EGFR	T693	Epidermal growth factor receptor-tyrosine kinase	-0.52	-1.09
KHS (MAP4K5)	Pan-specific	Kinase homologous to SPS1/STE20 (MAP kinase kinase kinase protein-serine kinase 5 (MEKKK5)	-0.53	-1.15
PKG1a	Pan-specific	cGMP-dependent protein kinase 1, alpha isozyme	-0.54	-1.39
PP2A/Ca	Pan-specific	Protein-serine phosphatase 2A - catalytic subunit - alpha isoform	-0.54	-1.19
pThr(RpAb)	pThr	pThr(RpAb)	-0.54	-1.09
Plk1	Pan-specific	Polo-like protein-serine kinase 1	-0.54	-1.53
PKCm (PKD)	S910	Protein-serine kinase C mu (Protein kinase D)	-0.55	-1.09
ZIPK	Pan-specific	ZIP kinase (death associated protein-serine kinase 3 (DAPK3))	-0.55	-1.26
PKCd	T507	Protein-serine kinase C delta	-0.57	-1.75
Ksr1	Pan-specific	Protein-serine kinase suppressor of Ras 1	-0.57	-1.23
Erk1 (MAPK3)+ Erk2 (MAPK1)	Y204	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase) +Extracellular regulated protein-serine kinase 2 (p42 MAP kinase)	-0.57	-1.17
Ezrin	Y353	cytovillin 2	-0.57	-1.15
Ksr1	Pan-specific	Protein-serine kinase suppressor of Ras 1	-0.58	-1.56
PDGFRb	Y716	Platelet-derived growth factor receptor kinase beta	-0.58	-1.09
PKA R2a	Pan-specific	cAMP-dependent protein-serine kinase regulatory type 2 subunit alpha	-0.58	-1.31
PKBb (Akt2)	Pan-specific	Protein-serine kinase B beta	-0.58	-1.21
eIF4E	S209	Eukaryotic translation initiation factor 4 (mRNA cap binding protein)	-0.58	-1.30
PP1/Ca	T320	Protein-serine phosphatase 1 - catalytic subunit - alpha isoform	-0.60	-1.57
ZIPK	Pan-specific	ZIP kinase (death associated protein-serine kinase 3 (DAPK3))	-0.61	-1.29
IRAK4	Pan-specific	Interleukin 1 receptor-associated kinase 4	-0.61	-2.05
ErbB2 (HER2)	Pan-specific	ErbB2 (Neu) receptor-tyrosine kinase	-0.61	-1.38
eIF4G	S1107	Eukaryotic translation initiation factor 4 gamma 1	-0.61	-1.02
KDEL receptor 1	Pan-specific	ER lumen protein retaining receptor 1	-0.63	-1.12
Vrk1	Pan-specific	Vaccinia related protein-serine kinase 1	-0.63	-1.41
Caveolin 2	Pan-specific	Caveolin 2	-0.63	-1.39
MAPKAPK2a	T334	Mitogen-activated protein kinase-activated protein kinase 2 alpha	-0.63	-1.23
PDI	Pan-specific	Protein disulfide-isomerase	-0.63	-1.00
Jun	S243	Jun proto-oncogene-encoded AP1 transcription factor	-0.63	-1.41
PKCm (PKD)	Pan-specific	Protein-serine kinase C mu (Protein kinase D)	-0.63	-1.37
EGFR	Y1172	Epidermal growth factor receptor-tyrosine kinase	-0.64	-1.21
PKCm (PKD)	S910	Protein-serine kinase C mu (Protein kinase D)	-0.64	-1.66
hHR23B	Pan-specific	UV excison repair protein RAD23 homolog B	-0.64	-1.28
EGFR	Y1092	Epidermal growth factor receptor-tyrosine kinase	-0.64	-1.24
FAK	S722	Focal adhesion protein-tyrosine kinase	-0.65	-1.20
ErbB2 (HER2)	Pan-specific	ErbB2 (Neu) receptor-tyrosine kinase	-0.65	-1.06
CASP9	Pan-specific	Caspase 9 (ICE-like apoptotic protease 6 (ICE-LAP6), Mch6, APAF3)	-0.66	-1.71
Kit	Y936	Kit/Steel factor receptor-tyrosine kinase	-0.66	-1.23
Tyk2	Pan-specific	Protein-tyrosine kinase 2 (Jak-related)	-0.66	-1.27
FAK	S722	Focal adhesion protein-tyrosine kinase	-0.67	-1.24
Lck	Pan-specific	Lymphocyte-specific protein-tyrosine kinase	-0.68	-1.22
PAK1	T212	p21-activated kinase 1 (alpha) (serine/threonine-protein kinase PAK 1)	-0.69	-1.33
eIF2a	S52	Eukaryotic translation initiation factor 2 alpha	-0.69	-1.35
PKCb2	T642	Protein-serine kinase C beta 2	-0.69	-1.34
PLCg1	Y771	1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma-1	-0.69	-1.41
PKCd	S664	Protein-serine kinase C delta	-0.70	-1.37
PKCg	Pan-specific	Protein-serine kinase C gamma	-0.70	-1.29
Lck	Y192	Lymphocyte-specific protein-tyrosine kinase	-0.71	-1.21
Jun	S73	Jun proto-oncogene-encoded AP1 transcription factor	-0.71	-1.15
MAPKAPK2a	T334	Mitogen-activated protein kinase-activated protein kinase 2 alpha	-0.71	-1.66
PKCh	T655	Protein-serine kinase C eta	-0.71	-1.35
MAPKAPK2	T222	Mitogen-activated protein kinase-activated protein kinase 2	-0.71	-1.36
pThr(MmAb)	pThr	pThr(MmAb)	-0.72	-1.22
4G10	pTyr	4G10	-0.72	-1.38
PKCe	Pan-specific	Protein-serine kinase C epsilon	-0.73	-1.43
Lck	Y394	Lymphocyte-specific protein-tyrosine kinase	-0.73	-1.56
Tyk2	Pan-specific	Protein-tyrosine kinase 2 (Jak-related)	-0.73	-1.37
PKCl/i	Pan-specific	Protein-serine kinase C lambda/iota	-0.73	-1.50
Paxillin 1	Y118	Paxillin 1	-0.74	-1.26
Lck	S158	Lymphocyte-specific protein-tyrosine kinase	-0.74	-1.22
PKCd	S645	Protein-serine kinase C delta	-0.74	-1.60
LIMK1	Y507+T508	LIM domain kinase 1	-0.75	-1.36
Tyrosine Hydroxylase	S18	Tyrosine hydroxylase isoform a	-0.76	-1.77
PKCq	S676	Protein-serine kinase C theta	-0.77	-1.69
Lyn	Y508	Yes-related protein-tyrosine kinase	-0.77	-1.96
ZAP70/Syk	Y319/Y352	Zeta-chain (TCR) associated protein-tyrosine kinase, 70 kDa/Spleen protein-tyrosine kinase	-0.77	-2.07

WIP1	Pan-specific	Protein phosphatase 1D	-0.77	-1.59
PKCq	Pan-specific	Protein-serine kinase C theta	-0.78	-1.68
PKCq	S695	Protein-serine kinase C theta	-0.78	-1.69
PKG1	Pan-specific	Protein-serine kinase G1 (cGMP-dependent protein kinase)	-0.78	-1.71
Lck	Pan-specific	Lymphocyte-specific protein-tyrosine kinase	-0.79	-1.70
LIMK1	Pan-specific	LIM domain kinase 1	-0.79	-1.65
PKCe	Pan-specific	Protein-serine kinase C epsilon	-0.79	-1.57
Lck	Y505	Lymphocyte-specific protein-tyrosine kinase	-0.80	-1.57
PKCg	T514	Protein-serine kinase C gamma	-0.80	-1.34
PKR1	T446	Double-stranded RNA-dependent protein-serine kinase (EIF2AK2)	-0.80	-1.73
PARP1	Pan-specific	Poly [ADP-ribose] polymerase 1 (ADPRT)	-0.81	-1.75
PLCg1	Y783	1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma-1	-0.82	-1.76
Paxillin 1	Y31	Paxillin 1	-0.82	-1.59
p107	Pan-specific	Retinoblastoma (Rb) protein-related p107 (PRB1)	-0.84	-1.57
eIF4E	Pan-specific	Eukaryotic translation initiation factor 4 (mRNA cap binding protein)	-0.84	-1.83
PKCg	T514	Protein-serine kinase C gamma	-0.85	-1.51
MDM2	S166	double minute 2	-0.86	-1.67
LAR	Pan-specific	LCA antigen-related (LAR) receptor tyrosine phosphatase	-0.86	-1.85
PKCm (PKD)	S738+S742	Protein-serine kinase C mu (Protein kinase D)	-0.87	-1.96
PLC R(PLCg2)	Y753	1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma-2	-0.88	-1.93
MEK1 (MAP2K1)	Pan-specific	MAPK/ERK protein-serine kinase 1 (MKK1)	-0.88	-1.83
PKCg	T655	Protein-serine kinase C gamma	-0.90	-1.61
Paxillin 1	Pan-specific	Paxillin 1	-0.90	-2.10
PKCg	T674	Protein-serine kinase C gamma	-0.90	-1.77
Jun	S63	Jun proto-oncogene-encoded AP1 transcription factor	-0.91	-2.43
Erk1 (MAPK3)+ Erk2 (MAPK1)	Pan-specific	Extracellular regulated protein-serine kinase 1 (p44 MAP kinase) +Extracellular regulated protein-serine kinase 2 (p42 MAP kinase)	-0.91	-2.17
JNK2/3	Pan-specific	Jun N-terminus protein-serine kinase (stress-activated protein kinase (SAPKa/b)) 2/3	-0.91	-2.29
VEGF-C	Pan-specific	Vascular endothelial growth factor C	-0.91	-1.85
FAK	S732	Focal adhesion protein-tyrosine kinase	-0.91	-1.81
PKCb1	Pan-specific	Protein-serine kinase C beta 1	-0.91	-1.90
Wee1	Pan-specific	Wee1 protein-tyrosine kinase	-0.92	-2.00
PKA Ca/b	Pan-specific	cAMP-dependent protein-serine kinase catalytic subunit alpha/beta	-0.92	-2.05
PDGFRa	Y754	Platelet-derived growth factor receptor kinase alpha	-0.94	-1.74
VEGFR2 (KDR)	Y1059	Vascular endothelial growth factor receptor-tyrosine kinase 2 (KDR)	-0.99	-2.07
Vimentin	S34	Vimentin	-1.00	-2.16
PKCl/i	T564	Protein-serine kinase C lambda/iota	-1.01	-2.26
PED15 (PEA15)	S116	Phosphoprotein-enriched in diabetes/astrocytes 15	-1.01	-2.15
PI3K p85/p55	Y467/Y199	Phosphatidylinositol 3-kinase regulatory subunit alpha	-1.08	-3.17
PI3K p85/p55	Pan-specific	Phosphatidylinositol 3-kinase regulatory subunit alpha	-1.09	-2.56
VEGFR2 (KDR)	Y1214	Vascular endothelial growth factor receptor-tyrosine kinase 2 (KDR)	-1.10	-2.57
Tyrosine Hydroxylase	S70	Tyrosine hydroxylase isoform a	-1.14	-2.95
PKCz/l	T410/T412	Protein-serine kinase C zeta/lambda	-1.20	-3.27
ZAP70	Pan-specific	Zeta-chain (TCR) associated protein-tyrosine kinase, 70 kDa	-1.23	-2.98
PDK1	Pan-specific	3-phosphoinositide-dependent protein-serine kinase 1	-1.25	-2.83
VHR	Pan-specific	Dual specificity protein phosphatase 3	-1.25	-3.03
PKBa (Akt1)	S473	Protein-serine kinase B alpha	-1.27	-3.00
MARCKS	S159+S163	Myristoylated alanine-rich protein kinase C substrate	-1.28	-3.31
Yes	Pan-specific	Yamaguchi sarcoma proto-oncogene-encoded tyrosine kinase	-1.33	-3.35

***** Z-score ratio cut-off value of +/- 0.95**

Supplementary Table 3: Annotated Changes in Total and Activated Protein Levels in WT vs. Δ*sagA* GAS Infection				
Target Protein Name	**Phospho Site (Human)**	**Normalized Fold Change**	**Z-ratio WT vs Δ*sagA***	**Pathway or Function (summarized from uniprot.org protein function database)**
Regulation of Cell Survival and Growth Signaling				
AK2	Pan-specific	1.14	1.00	Cellular energy homeostasis: catalyzes the reversible transfer of the terminal phosphate group between ATP and AMP.
AMPKa1/2	T183	-0.31	-1.00	Cellular energy metabolism: catalytic subunit of AMP-activated protein kinase (AMPK), an energy sensor protein kinase that inhibits energy-consuming processes.
Bcl-xS/L	Pan-specific	1.04	1.14	Inhibits caspase activation: binds to and thereby blocks the release of CYC1 (caspase activator) from mitochondrial voltage-dependent anion channels (VDAC). Also regulates G2 checkpoint of cell cycle.
CASP3	Pan-specific	-0.41	-1.07	Apoptosis cascade: Cleaves and activates caspase-6, -7 and -9 and other apoptosis effectors.
CASP7	Pan-specific	1.28	1.23	Apoptosis cascade: activates PARP.
CASP9	Pan-specific	-0.66	-1.71	Apoptosis cascade: Activated through interaction with Apaf-1; cleaves and activates caspase-3 and cleaves PARP.
Caveolin 2	Pan-specific	-0.63	-1.39	May act as a scaffolding protein within caveolar membranes. Interacts with and regulates G-protein alpha subunit and also plays a role in targeting to lipid rafts and in driving caveolae formation.
Csk	Pan-specific	3.55	2.73	Non-receptor tyrosine-protein kinase that plays an important role in the regulation of cell growth, differentiation, migration and immune response. Phosphorylates tyrosine residues of Src-family kinases to inhibit activity.
EGFR	Y1197	-0.50	-1.10	Receptor tyrosine kinase that activates at least 4 major downstream signaling cascades including the RAS-RAF-MEK-ERK, PI3K-AKT, PLCγ-PKC and STATs modules.
	Y1172	-0.64	-1.21	
	Y1092	-0.64	-1.24	
ErbB2 (HER2)	Pan-specific	-0.61	-1.38	Tyrosine kinase: participates in several cell surface receptor complexes and requires a coreceptor for ligand binding. Regulates organization of microtubules and plays a role in the regulation of protein synthesis and cell growth.
Erk1/Erk2	Pan-specific	-0.91	-2.17	MAPK serine/threonine kinase that mediates cell growth, adhesion, survival and differentiation through the regulation of transcription, translation, and cytoskeletal rearrangements.
FKHRL1 (FOXO3A)	T32	2.19	1.76	Transcriptional activator: triggers apoptosis in the absence of survival factors or in response to oxidative stress. Post-transcriptionally regulates Myc following phosphorylation by MAPKAPK5. Negatively regulated by Akt1 (phosphorylated on Thr-32 and Ser-253). The dephosphorylated form triggers apoptosis in response to stress.
FRS2	Y348	1.10	1.31	Adapter protein that links activated FGR and NGF receptors to downstream signaling pathways. Plays a role in the activation of MAP kinases and in the phosphorylation of PIK3R1 (regulatory subunit of PI3K), in response to FGFR1 signaling. Negatively regulates signaling via SHC1.
Fyn	Pan-specific	1.44	1.54	Non-receptor tyrosine-protein kinase: plays a role in the regulation of cell growth and survival, cell adhesion, integrin-mediated signaling, cytoskeletal remodeling, cell motility, immune response and axon guidance.
Gab1	Y627	1.17	1.16	Adapter protein that plays a role in intracellular signaling cascades triggered by activated receptor-type kinases. Plays a role in FGFR1 signaling. Probably involved in signaling by the epidermal growth factor receptor (EGFR) and the insulin receptor (INSR).
GNB2L1	Pan-specific	1.15	1.12	Component of the 40S ribosomal subunit: represses translation by binding and stabilizing PKC, which promotes EIF6 phosphorylation. Inhibits SRC, LCK and YES1 kinase activity. Inhibits cell growth by prolonging the G0/G1 phase of the cell cycle. Promotes cell spreading and contact with the ECM. Promotes apoptosis by increasing oligomerization of BAX and disrupting the interaction of BAX with the anti-apoptotic factor BCL2L.
GSK3a	Pan-specific	1.87	1.73	Constitutively active protein kinase that negatively regulates the hormonal control of glucose homeostasis, Wnt signaling and regulation of transcription factors and microtubules. Phosphorylates MCL1 to promote apoptosis in response to growth factor deprivation.
	Y279	0.97	1.05	
IGF1Rb/IRb	Y1161/Y1185	-0.36	-1.05	Receptor tyrosine kinase: mediates actions of insulin-like growth factor 1 (IGF1). Activates the PI3K-AKT/PKB pathway to inhibit apoptosis and promote protein synthesis and the Ras-MAPK pathway to increase cellular proliferation.
IRS1	S312	1.67	1.49	Mediates insulin responsive signaling. When phosphorylated by the insulin receptor binds specifically to various cellular proteins containing SH2 domains such as PI3K p85 or GRB2.
	Y1179	0.63	0.96	
Kit	Y936	-0.66	-1.23	Tyrosine-protein kinase that acts as cell-surface receptor for the cytokine KITLG/SCF and regulates cell survival and proliferation, hematopoiesis, stem cell maintenance, gametogenesis, mast cell development, migration and function, and melanogenesis.
Ksr1	Pan-specific	-0.58	-1.56	Location-regulated scaffolding protein connecting MEK to RAF.
Lyn	Y508	-0.77	-1.96	Non-receptor tyrosine-protein kinase: transmits signals from cell surface receptors and regulates innate and adaptive immune responses, hematopoiesis, responses to growth factors and cytokines, integrin signaling, and responses to DNA damage and genotoxic agents. Functions primarily as a negative regulator.
MDM2	S166	-0.86	-1.67	Negative regulator of apoptosis: E3 ubiquitin-protein ligase that mediates ubiquitination of p53/TP53, leading to its degradation by the proteasome. Also promotes proteasome-dependent ubiquitin-independent degradation of retinoblastoma RB1 protein.
MEK1	Pan-specific	-0.88	-1.83	Dual specificity protein kinase which participates in the MAPK/ERK cascade, responding to signals downstream of RAS and RAF1 activation.
MKP2	Pan-specific	1.58	1.51	Regulates mitogenic signal transduction by dephosphorylating both Thr and Tyr residues on MAP kinases ERK1 and ERK2.
MST1	Pan-specific	2.57	2.22	Stress-activated, pro-apoptotic kinase which, following caspase-cleavage, enters the nucleus and induces chromatin condensation followed by internucleosomal DNA fragmentation. Inhibits AKT1 signaling.
Myc	T58	1.08	1.20	Transcription factor: involved in promoting cell growth proliferation and recruits histone acetyltransferases.
p53	S392	-0.34	-1.16	Acts as a tumor suppressor gene; induces growth arrest or apoptosis depending on the physiological circumstances and cell type. Involved in cell cycle regulation by controlling inhibitors of cyclin-dependent kinases. Also activates oxidative stress-induced necrosis.
PAK1	T212	-0.69	-1.33	Protein kinase: involved in intracellular signaling pathways downstream of integrins and receptor-type kinases. Plays an important role in cytoskeleton dynamics, cell adhesion, migration, proliferation, apoptosis, mitosis, and vesicle-mediated transport processes. Can directly phosphorylate BAD and protects cells against apoptosis. Activity is inhibited in cells undergoing apoptosis.
PDGFRa	Y754	-0.94	-1.74	Tyrosine-protein kinase that acts as a cell-surface receptor for PDGFA, PDGFB and PDGFC and plays an essential role in the regulation of embryonic development, cell proliferation, survival and chemotaxis. Plays a role in platelet activation, secretion of agonists from platelet granules, and in thrombin-induced platelet aggregation. Mediates activation of the AKT1 signaling, MAPK/ERK pathway, and STAT family members.
PDGFRb	Y716	-0.58	-1.09	Tyrosine-protein kinase that acts as cell-surface receptor for homodimeric PDGFB and PDGFD and for heterodimers formed by PDGFA and PDGFB, and plays an essential role in the regulation of embryonic development, cell proliferation, survival, differentiation, chemotaxis and migration. Activates AKT1 signaling via PI3K, MAPK1/ERK2 and/or MAPK3/ERK1 pathways, and activation of SRC family kinases.

PDK1	Pan-specific	-0.48	-1.42	Serine/threonine kinase which acts as a master kinase, targeting: AKT, RPS6Ks, protein kinase C, SGKs, p21-activated kinase-1 (PAK1), and protein kinase PKN. Plays a central role in the transduction of signals from insulin to downstream targets controlling cell proliferation and survival, as well as glucose and amino acid uptake and storage.
	S241	-0.51	-1.82	
	Pan-specific	-1.25	-2.83	
PED15	S116	-1.01	-2.15	Blocks Ras-mediated inhibition of integrin activation and modulates the ERK MAP kinase cascade.
PI3K p85/p55	Y467/Y199	-1.08	-3.17	Binds to activated (phosphorylated) protein-Tyr kinases, through its SH2 domain, and acts as an adapter, mediating the association of the p110 catalytic unit to the plasma membrane. Necessary for the insulin-stimulated increase in glucose uptake and glycogen synthesis in insulin-sensitive tissues. Plays an important role in signaling in response to FGFR1, FGFR2, FGFR3, FGFR4, KITLG/SCF, KIT, PDGFRA and PDGFRB, and ITGB2.
	Pan-specific	-1.09	-2.56	
PKA R2a	Pan-specific	-0.58	-1.31	Regulatory subunit of the cAMP-dependent protein kinases involved in cAMP signaling in cells. Type II regulatory chains mediate membrane association by binding to anchoring proteins, including the MAP2 kinase.
PKBa (Akt1)	S473	-1.27	-3.00	Serine/threonine-protein kinase that regulates many processes including metabolism, proliferation, cell survival, growth and angiogenesis. Responsible of the regulation of glucose uptake and storage of glucose in the form of glycogen. Mediates protein synthesis though mTORC1 signaling. Acts as an anti-apoptotic factor through regulation BAD, FOXO, p53, MAP3Ks and additional targets.
	T308	-0.49	-1.68	
PKBb (Akt2)	Pan-specific	-0.58	-1.21	
PKCb2	T642	-0.69	-1.34	Regulatory subunit of the cAMP-dependent protein kinases involved in cAMP signaling in cells. Type II regulatory chains mediate membrane association by binding to anchoring proteins, including the MAP2 kinase.
PKCd	S645	-0.74	-1.60	Calcium-independent, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that plays contrasting roles in cell death and cell survival by functioning as a pro-apoptotic protein during DNA damage-induced apoptosis, but acting as an anti-apoptotic protein during cytokine receptor-initiated cell death. It is required for oxygen radical production by NADPH oxidase and acts as positive or negative regulator in platelet functional responses.
PKCe	Pan-specific	-0.79	-1.57	Calcium-independent, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that plays essential roles in the regulation of multiple cellular processes linked to cytoskeletal proteins, such as cell adhesion, motility, migration and cell cycle, functions in neuron growth and ion channel regulation, and is involved in immune response, cancer cell invasion and regulation of apoptosis. May be involved in the regulation of the insulin-induced phosphorylation and activation of AKT1.
PKCh	T655	-0.71	-1.35	Calcium-independent, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that is involved in the regulation of cell differentiation in keratinocytes, mediates regulation of epithelial tight junction integrity, and prevents apoptosis. Interacts with FYN to induce keratinocyte growth arrest and differentiation. Can activate the mTOR pathway, the PI3K/AKT pathway and the ERK1-dependent phosphorylation of ELK1. Involved in protection from irradiation and DNA damage-induced apoptosis by preventing caspase-9 activation and ATF2 phosphorylation.
PKCl/i	T564	-1.01	-2.26	Calcium- and diacylglycerol-independent serine/ threonine-protein kinase that plays a general protective role against apoptotic stimuli, is involved in NF-kappa-B activation, cell survival, differentiation and polarity, and contributes to the regulation of microtubule dynamics in the early secretory pathway. May function downstream of phosphatidylinositol 3-kinase (PI3K) and PDPK1 in the promotion of cell survival by phosphorylating and inhibiting the pro-apoptotic factor BAD.
PKCq	S695	-0.78	-1.69	Phosphorylates PDPK1 at 'Ser-504' and 'Ser-532' and negatively regulates its ability to phosphorylate PKB/AKT1.
PKCz/l	T410/T412	-1.20	-3.27	Calcium- and diacylglycerol-independent serine/threonine-protein kinase that functions in phosphatidylinositol 3-kinase (PI3K) pathway and mitogen-activated protein (MAP) kinase cascade, and is involved in NF-kappa-B activation, mitogenic signaling, cell proliferation, cell polarity, inflammatory response and maintenance of long-term potentiation (LTP).
PKM2	Pan-specific	-0.42	-1.03	Glycolytic enzyme that catalyzes the transfer of a phosphoryl group from phosphoenolpyruvate (PEP) to ADP, generating ATP.
PLC R(PLCg2)	Y753	-0.88	-1.93	The production of the second messenger molecules diacylglycerol (DAG) and inositol 1,4,5-trisphosphate (IP3) is mediated by activated phosphatidylinositol-specific phospholipase C enzymes.
PLCg1	Y771	-0.69	-1.41	Mediates the production of the second messenger molecules diacylglycerol (DAG) and inositol 1,4,5-trisphosphate (IP3). Plays an important role in the regulation of intracellular signaling cascades. Becomes activated in response to ligand-mediated activation of receptor-type tyrosine kinases, such as PDGFRA, PDGFRB, FGFR1, FGFR2, FGFR3 and FGFR4. Plays a role in actin reorganization and cell migration.
	Y783	-0.82	-1.76	
PRK2 (PKN2)	Pan-specific	0.90	1.04	PKC-related serine/threonine-protein kinase and Rho/Rac effector protein that regulates cell cycle progression, actin cytoskeleton assembly, cell migration, cell adhesion, tumor cell invasion and transcription activation signaling processes.
PTEN	S380+T382+T383	1.28	1.28	Acts as a dual-specificity protein and lipid phosphatase, dephosphorylating tyrosine-, serine- and threonine-phosphorylated proteins as well as removing the phosphate in the D3 position of the inositol ring from PI 3,4,5-trisphosphate, PI 3,4-diphosphate, PI 3-phosphate and inositol 1,3,4,5-tetrakisphosphate. Antagonizes the PI3K-AKT/PKB signaling pathway thereby modulating cell cycle progression and cell survival. Dephosphorylates tyrosine-phosphorylated focal adhesion kinase and inhibits cell migration and integrin-mediated cell spreading and focal adhesion formation. Plays a role in mitochondrial energetic metabolism by promoting COX activity and ATP production.
	S380+T382+T383	1.17	1.18	
pThr(MmAb)	pThr	-0.72	-1.22	Phosphorylation site for serine-threonine kinases
pThr(RpAb)	pThr	-0.54	-1.09	
RSK1/2	S380/S386	4.79	2.59	Serine/threonine-protein kinase that acts downstream of ERK (MAPK1/ERK2 and MAPK3/ERK1) signaling and mediates mitogenic and stress-induced activation of the transcription factors CREB1, ETV1/ER81 and NR4A1/NUR77, regulates translation through RPS6 and EIF4B phosphorylation, and mediates cellular proliferation, survival, and differentiation by modulating mTOR signaling and repressing pro-apoptotic function of BAD and DAPK1.
RSK1/3	T359+S363/ T356+S360	2.49	1.76	
S6K	S411	1.99	1.89	Serine/threonine-protein kinase that acts downstream of mTOR signaling in response to growth factors and nutrients to promote cell proliferation, cell growth and cell cycle progression. Regulates protein synthesis through phosphorylation of EIF4B, RPS6 and EEF2K, and contributes to cell survival by repressing the pro-apoptotic function of BAD. Also plays a role in feedback regulation of mTORC and AKT1 by by phosphorylating RICTOR.
S6Kb1	T412	2.93	2.07	
S6Kb2	Pan-specific	1.50	1.45	
Shc1	Y349	2.54	2.12	Signaling adapter that couples activated growth factor receptors to signaling pathways. Participates in signaling initiated by activated KIT and KITLG/SCF. Acts as a downstream target of p53 and is indispensable for the ability of stress-activated p53 to induce elevation of intracellular oxidants, cytochrome c release and apoptosis.
	Y349+Y350	0.89	1.21	
Smac/DIABLO	Pan-specific	1.64	1.61	Promotes apoptosis by activating caspases in the cytochrome c/Apaf-1/caspase-9 pathway. Acts by opposing the inhibitory activity of inhibitor of apoptosis proteins (IAP).
Smad1/5/8	S463+S465/S463 +S465/S465+S467	3.78	2.40	Transcriptional modulator activated by BMP (bone morphogenetic proteins) type 1 receptor kinase. SMAD1/OAZ1/PSMB4 complex mediates the degradation of the CREBBP/EP300 repressor SNIP1.
Smad2	T200	2.21	1.97	Receptor-regulated SMAD (R-SMAD) that is an intracellular signal transducer and transcriptional modulator activated by TGF-beta and activin type 1 receptor kinases. Binds the TRE element in the promoter region of many genes that are regulated by TGF-beta and, on formation of the SMAD2/SMAD4 complex, activates transcription. Positively regulates PDPK1 kinase activity by stimulating its dissociation from the 14-3-3 protein YWHAQ.
	S467	2.01	1.92	
Smad2/3	Pan-specific	2.10	1.82	
SPHK1	Pan-specific	1.21	1.13	Catalyzes the phosphorylation of sphingosine to form sphingosine 1-phosphate (SPP), a lipid mediator with both intra- and extracellular functions. Also acts on D-erythro-sphingosine and to a lesser extent sphinganine, but not other lipids, such as D,L-threo-dihydrosphingosine, N,N-dimethylsphingosine, diacylglycerol, ceramide, or phosphatidylinositol.

SPHK2	Pan-specific	1.00	0.96	Catalyzes the phosphorylation of sphingosine to form sphingosine 1-phosphate (SPP), a lipid mediator with both intra- and extracellular functions. Also acts on D-erythro-dihydrosphingosine, D-erythro-sphingosine and L-threo-dihydrosphingosine. Binds phosphoinositides.
VHR	Pan-specific	-1.25	-3.03	Shows activity both for tyrosine-protein phosphate and serine-protein phosphate, but displays a strong preference toward phosphotyrosines. Specifically dephosphorylates and inactivates ERK1 and ERK2.
Yes	Pan-specific	-1.33	-3.35	Non-receptor protein tyrosine kinase: involved in the regulation of cell growth and survival, apoptosis, cell-cell adhesion, cytoskeleton remodeling, and differentiation. Stimulation by receptor tyrosine kinases (RTKs) including EGRF, PDGFR, CSF1R and FGFR leads to recruitment of YES1 to the phosphorylated receptor, and activation and phosphorylation of downstream substrates. Upon EGFR activation, promotes epithelial tight junction assembly.
ZIPK	Pan-specific	-0.61	-1.29	Serine/threonine kinase which is involved in the regulation of apoptosis, autophagy, transcription, translation, actin cytoskeleton reorganization, cell motility, smooth muscle contraction, and mitosis, particularly cytokinesis. Regulates type I apoptotic and type II autophagic cell death. Positively regulates STAT3 and Wnt/beta-catenin signaling.
Stress and Inflammatory Signaling				
CASP1	Pan-specific	-0.45	-1.23	Thiol protease that cleaves IL-1 β to release the mature cytokine, which is involved in a variety of inflammatory processes. Important for defense against pathogens. Can also promote cell death, and cleaved caspase is associated with pyroptosis.
COX2	Pan-specific	2.85	2.25	Converts arachidonate to prostaglandin H2 (PGH2), a committed step in prostanoid synthesis and pro-inflammatory cascades.
Crystallin aB	Pan-specific	2.48	2.31	Has chaperone-like activity, preventing aggregation of various proteins under a wide range of stress conditions.
Csk	Pan-specific	3.55	2.73	Non-receptor tyrosine-protein kinase that plays an important role in the regulation of cell growth, differentiation, migration and immune response. Phosphorylates tyrosine residues of Src-family kinases to inhibit activity.
GroEL	Pan-specific	1.66	1.71	Implicated in mitochondrial protein import and macromolecular assembly; facilitates correct folding of proteins.
Hsp27	S82	8.36	3.71	Involved in stress resistance and actin organization. Can be activated by MAPK p38 signaling in response to a variety of stressors including temperature, osmotic stress, and oxidative stress.
Hsp40	Pan-specific	1.25	1.09	Interacts with HSP70 and can stimulate its ATPase activity. Stimulates the association between HSC70 and HIP.
Hsp90a/b	Pan-specific	2.50	2.01	Molecular chaperone that promotes the maturation, structural maintenance and proper regulation of specific target proteins involved for instance in cell cycle control and signal transduction.
IkBa	Pan-specific	6.97	3.55	Inhibits the activity of dimeric NF-kappa-B/REL complexes by trapping REL dimers in the cytoplasm. On cellular stimulation by immune and proinflammatory responses, becomes phosphorylated promoting ubiquitination and degradation, enabling the dimeric RELA to translocate to the nucleus and activate transcription. Also a transcriptional target of NFκB as part of a negative feedback loop.
IKKa	S180	1.58	0.99	Activator of NFκB signaling pathway: serine kinase that is a subunit of the IKK complex. Phosphorylates inhibitors of NFκB on serine residues to initiate their polyubiquitination and subsequent degradation by the proteasome. In non-canonical NFκB signaling, the MAP3K14-activated CHUK/IKKA homodimer phosphorylates NFκB2/p100 associated with RelB to induce proteolytic processing and subsequent NFκB activation.
IRAK2	Pan-specific	1.36	1.26	Binds to the IL-1 type I receptor following IL-1 engagement, triggering intracellular signaling cascades leading to transcriptional up-regulation and mRNA stabilization.
IRAK4	Pan-specific	-0.61	-2.05	Serine/threonine-protein kinase: plays a role in initiating innate immune response against pathogens. Involved in Toll-like receptor (TLR) and IL-1R signaling pathways and is rapidly recruited by MYD88 upon TLR activation along with IRAK2. Activates IRAK1 and participates in the IRAK1-MAP3K7/TAK1-TRAF6 complex and the NEMO-IKKA-IKKB complex leading to NFκB activation. Also regulates NADPH oxidase activation during microbial infections.
JAK1	Y1034	0.98	0.95	Non-receptor tyrosine kinase: involved in the IFN-alpha/beta/gamma signaling pathway. Kinase partner for the interleukin (IL)-2 receptor.
JNK1	Pan-specific	2.31	2.05	MAPK family serine/threonine-protein kinase involved in regulation of cell proliferation, differentiation, migration, transformation and programmed cell death. Responds to proinflammatory cytokines or physical stress and phosphorylates a number of transcription factors, primarily AP-1 family members (i.e. JUN, JDP2 and ATF2). Promotes stressed cell apoptosis by phosphorylating key regulatory factors including p53/TP53 and Yes-associates protein YAP1. Mediates starvation-induced BCL2 phosphorylation and dissociation from BECN1 to promote autophagy.
JNK1/2/3	Pan-specific	1.76	1.40	
JNK2/3	Pan-specific	-0.91	-2.29	MAPK family serine/threonine-protein kinase involved in cell proliferation, differentiation, migration, transformation and programmed cell death. Extracellular stimuli such as proinflammatory cytokines or physical stress stimulate the stress-activated protein kinase/c-Jun N-terminal kinase (SAP/JNK) signaling pathway. Activates AP-1 transcription factors such as JUN and ATF2. In response to oxidative or ribotoxic stresses, inhibits rRNA synthesis. Promotes stressed cell apoptosis by phosphorylating key regulatory factors including TP53 and YAP1. Plays an important role in osmotic stress-induced epithelial tight-junctions disruption. Also inhibits the canonical Wnt signaling pathway.
Jun	S63	-0.91	-2.43	Transcription factor: promotes activity of NR5A1 when phosphorylated by HIPK3. Activation leads to increased steroidogenic gene expression upon cAMP signaling pathway stimulation.
MAPKAPK2	T222	-0.71	-1.36	Stress-activated serine/threonine-protein kinase involved in cytokines production, endocytosis, reorganization of the cytoskeleton, cell migration, cell cycle control, chromatin remodeling, DNA damage response and transcriptional regulation. Following stress, it is phosphorylated and activated by MAP kinase p38-alpha/MAPK14. Phosphorylates HSP27/HSPB1 in response to stress. Involved in inflammatory response by regulating tumor necrosis factor (TNF) and IL6 production post-transcriptionally. Also involved in late G2/M checkpoint following DNA damage.
MAPKAPK2a	T334	-0.71	-1.66	
MEK4	Pan-specific	1.40	1.40	MAPK family dual specificity protein kinase which acts upstream of JNK signaling pathway. With MAP2K7/MKK7, it directly activates JNK. The MKK/JNK signaling pathway regulates the mitochondrial death signaling pathway. MAP2K4/MKK4 can also activate p38 MAPKs (MAPK11, MAPK12, MAPK13 and MAPK14).
MEK6	Pan-specific	1.36	1.31	MAPK family dual specificity protein kinase which, with MAP3K3/MKK3, activates MAPK p38 and plays an important role in the regulation of cellular responses to cytokines and all kinds of stresses. The p38 MAP kinase signal transduction pathway leads to direct activation of numerous transcription factors, including NFκB and STATs. Also crucial for IL-6-induced SOCS3 expression and for IFNG-dependent gene transcription.
MEKK2	Pan-specific	1.66	1.71	MAPK family: regulates the JNK and ERK5 pathways by phosphorylating and activating MAP2K5 and MAP2K7.
Mnk1	T250+T255	5.09	3.34	Plays a role in the response to environmental stress and cytokines. Regulates translation by phosphorylating EIF4E to increase its affinity to the 7-methylguanosine-containing mRNA cap.
Msk1	S376	1.58	1.32	Serine/threonine-protein kinase required for the mitogen or stress-induced phosphorylation of CREB1, ATF1, STAT3, ETV1/ER81, and RELA transcription factors.
PKA Ca/b	Pan-specific	-0.92	-2.05	Phosphorylates a large number of substrates in the cytoplasm and the nucleus including CDC25B, ABL1, NFKB1, CLDN3, PSMC5/RPT6, PJA2, RYR2, RORA and VASP. Involved in the regulation of platelets in response to thrombin and collagen. Negatively regulates tight junctions (TJs) via CLDN3 phosphorylation.
PKCa/b2	T638/T641	1.63	1.05	
PKCm (PKD)	S738+S742	-0.87	-1.96	Serine/threonine-protein kinase: converts diacylglycerol (DAG) signals into prolonged physiological effects downstream of PKC and is involved in the regulation of MAPK8/JNK1 and Ras signaling, Golgi membrane integrity and trafficking, cell survival through NFκB activation, cell migration, cell differentiation by mediating HDAC7 nuclear export, cell proliferation via MAPK1/3 (ERK1/2) signaling, and plays a role in cardiac hypertrophy, VEGFA-induced angiogenesis, genotoxic-induced apoptosis and flagellin-stimulated inflammatory response. Under oxidative stress, is phosphorylated by SRC-ABL1 to promote cell survival by activating the IKK complex. Plays a role in the proliferative response induced by low calcium in keratinocytes via ERK1/2 pathway. Participates in TLR5 signaling to activate p38 and inflammatory cytokine production.
RelB	Pan-specific	1.15	1.31	NFκB is a pleiotropic transcription factor which is present in almost all cell types and is involved in many biological processes such as inflammation, immunity, differentiation, cell growth, tumorigenesis and apoptosis.

Smad1/5/8	S463+S465/S463 +S465/S465+S467	3.78	2.40	Transcriptional modulator activated by BMP (bone morphogenetic proteins) type 1 receptor kinase. SMAD1 is a receptor-regulated SMAD (R-SMAD). SMAD1/OAZ1/PSMB4 complex mediates the degradation of the CREBBP/EP300 repressor SNIP1.
Smad2	T200	2.21	1.97	Receptor-regulated SMAD (R-SMAD) that is an intracellular signal transducer and transcriptional modulator activated by TGF-β and activin type 1 receptor kinases. Binds the TRE element in the promoter region of many genes that are regulated by TGF-β and, on formation of the SMAD2/SMAD4 complex, activates transcription.
	S467	2.01	1.92	
Smad2/3	Pan-specific	2.10	1.82	
SOCS4	Pan-specific	2.21	2.06	SOCS family proteins form part of a classical negative feedback system that regulates cytokine signal transduction. Inhibits EGF signaling by mediating the degradation of the Tyr-phosphorylated EGF receptor/EGFR.
SOD (Cu/Zn)	Pan-specific	1.08	1.12	Destroys radicals which are normally produced within the cells and which are toxic to biological systems.
SOD (Mn)	Pan-specific	1.65	1.48	Destroys superoxide anion radicals which are normally produced within the cells and which are toxic to biological systems.
SODD	Pan-specific	1.32	1.36	Enzyme with a broad specificity. Negatively regulates TGF-β signaling through dephosphorylating SMAD2 and SMAD3, resulting in their dissociation from SMAD4, nuclear export of the SMADs and termination of the TGF-β-mediated signaling. Terminates TNF-α-mediated NFκB activation by dephosphorylating IKBKB/IKKB.
Src	Y530	1.71	1.70	Non-receptor protein tyrosine kinase: activated following engagement of many different classes of cellular receptors (i.e. immune response receptors, integrins and other adhesion receptors, receptor protein tyrosine kinases, G protein-coupled receptors and cytokine receptors). Participates in signaling pathways that control a diverse spectrum of biological activities including gene transcription, immune response, cell adhesion, cell cycle progression, apoptosis, migration, and transformation. Also plays a role in EGF-mediated calcium-activated chloride channel activation.
	Pan-specific	1.28	1.33	
	Pan-specific	1.56	1.30	
	Pan-specific	1.36	1.24	
STAT1a	Pan-specific	1.25	1.45	Signal transducer and transcription activator that mediates cellular responses to interferons (IFNs), cytokine KITLG/SCF as well as other cytokines growth factors. Following type I IFN (IFN-alpha and IFN-beta) binding to cell surface receptors, signaling via protein kinases leads to activation of Jak kinases (TYK2 and JAK1) and to tyrosine phosphorylation of STAT1 and STAT2. Becomes activated in response to KITLG/SCF and KIT signaling as well as FGFR1, FGFR2, FGFR3 and FGFR4.
	Y701	3.10	1.74	
STAT2	Y690	1.65	1.40	
STAT3	Y705	2.87	1.92	Signal transducer and transcriptional activator that mediates cellular responses to interleukins, KITLG/SCF and other growth factors. Mediates responses to activated FGFR1, FGFR2, FGFR3 and FGFR4. Binds to the interleukin-6 (IL-6)-responsive elements identified in the promoters of various acute-phase protein genes. Cytoplasmic STAT3 represses macroautophagy and aids in host defense against bacteria.
	S727	2.58	2.03	
STAT5A	S780	1.60	1.44	Mediates cellular responses to the cytokine KITLG/SCF, ERBB4, and FGFR1, FGFR2, FGFR3 and FGFR4. Binds to the GAS element and activates PRL-induced transcription.
	Y694	3.20	2.08	
Tyk2	Pan-specific	-0.73	-1.37	Involved in intracellular signal transduction by initiating type I IFN signaling. Phosphorylates the interferon-alpha/beta receptor alpha chain.
Cytoskeletal Rearrangements and Cell to Cell Contact Proteins				
Bcr	Y177	2.42	2.03	GTPase-activating protein for RAC1 and CDC42. Promotes the exchange of RAC or CDC42-bound GDP by GTP, thereby activating them. Displays serine/threonine kinase activity.
Cofilin 1	Pan-specific	2.17	1.84	Regulates actin cytoskeleton dynamics: binds to F-actin and exhibits pH-sensitive F-actin depolymerizing activity. Aids in regulation of cell cycle progression and cytokinesis and plays a role in the regulation of cell morphology.
Cofilin 2	S3	0.79	0.99	Controls reversibly actin polymerization and depolymerization in a pH-sensitive manner. It has the ability to bind G- and F-actin in a 1:1 ratio of cofilin to actin. It is the major component of intranuclear and cytoplasmic actin rods.
Connexin 43	S368	1.12	1.21	Gap junction protein that interacts with transmembrane channels to regulate diffusion of materials of low MW from one cell to a neighboring cell.
EFNA5	Pan-specific	-0.42	-0.98	Cell surface GPI-bound ligand for Eph receptors, a family of RTKs which are crucial for migration, repulsion and adhesion during neuronal, vascular and epithelial development. Aids in regulation of signaling through Fyn to control cell-cell adhesion and cytoskeletal organization.
EFNB2	Y316	-0.41	-1.08	Cell surface GPI-bound ligand for Eph receptors, a family of RTKs which are crucial for migration, repulsion and adhesion during neuronal, vascular and epithelial development. Aids in regulation of signaling through Fyn to control cell-cell adhesion and cytoskeletal organization. Together with EPHB4 plays a central role in heart morphogenesis and angiogenesis through regulation of cell adhesion and cell migration.
Ezrin	Y353	-0.57	-1.15	Involved in connections of major cytoskeletal structures to the plasma membrane. In epithelial cells, required for the formation of microvilli and membrane ruffles on the apical pole. Along with PLEKHG6, required for normal macropinocytosis.
FAK	Y576	5.48	3.01	Non-receptor protein-tyrosine kinase: regulates cell migration, adhesion, spreading, reorganization of the actin cytoskeleton, formation and disassembly of focal adhesions and cell protrusions, cell cycle progression, cell proliferation and apoptosis. Functions in integrin signal transduction and in signaling downstream of growth factor receptors, G-protein coupled receptors (GPCR), EPHA2, netrin receptors and LDL receptors. Forms complexes with SRC and SRC family members upon activation to allow binding of additional scaffold proteins, effectors and substrates. Promotes PI3K/AKT1 and ERK1/2 signaling cascades. Also promotes activation of GEFs and GAPs to regulate Rho family GTPases. Regulates cell death via recruitment of the ubiquitin ligase MDM2 to P53/TP53 in the nucleus. Phosphorylates SRC, ACTN1, ARHGEF7, GRB7, RET, and WASL. Promotes phosphorylation of PXN, STAT1, BCAR1, GIT2, SHC1, BMX and PIK3R1. (Y576 = activating site)
	S722	-0.65	-1.20	
	S722	-0.67	-1.24	
	S732	-0.91	-1.81	
Fyn	Pan-specific	1.44	1.54	Non-receptor tyrosine-protein kinase: plays a role in regulation of cell growth and survival, cell adhesion, integrin-mediated signaling, cytoskeletal remodeling, cell motility, immune response and axon guidance. Activated by PKA and associates with PTK2/FAK1 and catenins to regulate focal adhesions and with WAS, MAP2 and MAPT to regulate cytoskeletal remodeling.
GNB2L1	Pan-specific	1.15	1.12	Component of the 40S ribosomal subunit involved in translational repression. Also involved in the recruitment, assembly and/or regulation of a variety of signaling molecules including PKC, SRC kinases (SRC, LCK and YES1), RhoA, and IGF1R-dependent signaling proteins. Plays a role in cell spreading and contact with the extracellular matrix. Regulates cell surface expression of ADAM12 and some GPCRs such as TBXA2R.
Huntingtin	S421	2.56	2.19	May play a role in microtubule-mediated transport or vesicle function.
ILK1	Pan-specific	1.19	1.22	Receptor-proximal protein kinase regulating integrin-mediated signal transduction. Also participates in focal adhesion complexes and growth factor responsive signaling. Plays a role in the regulation of cell architecture and anchorage-dependent growth in epithelial cells.
KDEL receptor 1	Pan-specific	-0.63	-1.12	Endoplasmic reticulum and Golgi vesicular trafficking protein: required for the retention of luminal ER resident proteins via vesicular recycling. Recognizes the C-terminal K-D-E-L motif. Retrograde trafficking of KDEL receptor-ligand complexes is mediated by COPI-coated transport intermediates.
LAR	Pan-specific	-0.86	-1.85	Possible cell adhesion receptor that has intrinsic protein tyrosine phosphatase activity (PTPase). Also dephosphorylates EPHA2 to regulate its activity.
LIMK1	Y507+T508	-0.75	-1.36	Serine/threonine-protein kinase: plays a role in the regulation of actin filament dynamics. Acts downstream of Rho family GTPase signal transduction pathways. Activated by upstream kinases including ROCK1, PAK1 and PAK4, which phosphorylate LIMK1. Stabilizes the actin cytoskeleton by inactivating the actin binding/depolymerizing factors cofilin-1/CFL1, cofilin-2/CFL2 and destrin/DSTN, thereby preventing the cleavage of filamentous actin (F-actin). Also phosphorylates TPPP to promote microtubule disassembly.
MARCKS	S159+S163	-1.28	-3.31	The most prominent cellular substrate for protein kinase C. This protein binds calmodulin, actin, and synapsin. MARCKS is a filamentous (F) actin cross-linking protein.

PAK1	T212	-0.69	-1.33	Protein kinase involved in intracellular signaling pathways downstream of integrins and receptor-type kinases that plays an important role in cytoskeleton dynamics, focal adhesions, migration, proliferation, apoptosis, mitosis, and in vesicle-mediated transport processes. Activated by CDC42 and RAC1. Functions as GTPase effector that links the Rho-related GTPases CDC42 and RAC1 to the JNK MAP kinase pathway. Interacts with the tubulin chaperone TBCB to regulate organization of the tubulin cytoskeleton and is required for phosphorylation of LIMK1 and cofilin (CFL1). Also plays a role in chemokine uptake and degradation.
Paxillin 1	Y118	-0.74	-1.26	Cytoskeletal protein involved in actin-membrane attachment at sites of cell adhesion to the extracellular matrix (focal adhesion).
	Y31	-0.82	-1.59	
	Pan-specific	-0.90	-2.10	
PKCe	Pan-specific	-0.79	-1.57	Calcium-independent, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that plays essential roles in the regulation of multiple cellular processes linked to cytoskeletal proteins, such as cell adhesion, motility, migration and cell cycle, functions in neuron growth and ion channel regulation, and is involved in immune response, cancer cell invasion and regulation of apoptosis. May be involved in the regulation of the insulin-induced phosphorylation and activation of AKT1.
PKCh	T655	-0.71	-1.35	Calcium-independent, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that is involved in the regulation of cell differentiation in keratinocytes, mediates regulation of epithelial tight junction integrity. Regulates epithelial tight junctions (TJs) by phosphorylating occludin (OCLN) on threonine residues, which is necessary for the assembly and maintenance of TJs.
PKCm (PKD)	S738+S742	-0.87	-1.96	Serine/threonine-protein kinase that converts transient diacylglycerol (DAG) signals into prolonged physiological effects downstream of PKC. Aids in regulation of JNK and Ras signaling, Golgi membrane integrity and trafficking, cell survival through NFκB activation, cell migration, cell differentiation by mediating HDAC7 nuclear export, cell proliferation via ERK1/2 signaling, and plays a role in cardiac hypertrophy, VEGFA-induced angiogenesis, genotoxic-induced apoptosis and flagellin-stimulated inflammatory response.
PLCg1	Y771	-0.69	-1.41	Mediates the production of the second messenger molecules diacylglycerol (DAG) and inositol 1,4,5-trisphosphate (IP3). Plays an important role in the regulation of intracellular signaling cascades. Becomes activated in response to ligand-mediated activation of receptor-type tyrosine kinases, such as PDGFRA, PDGFRB, FGFR1, FGFR2, FGFR3 and FGFR4. Plays a role in actin reorganization and cell migration.
	Y783	-0.82	-1.76	
PP2A/Ca	Pan-specific	-0.54	-1.19	PP2A is the major phosphatase for microtubule-associated proteins (MAPs). Modulates the activity of phosphorylase B kinase casein kinase 2, mitogen-stimulated S6 kinase, and MAP-2 kinase. Can dephosphorylate SV40 large T antigen and p53/TP53. Activates RAF1 by dephosphorylating it at 'Ser-259'.
PRK2 (PKN2)	Pan-specific	0.90	1.04	PKC-related serine/threonine-protein kinase and Rho/Rac effector protein: regulates cell cycle progression, actin cytoskeleton assembly, cell migration, cell adhesion, tumor cell invasion and transcription activation signaling processes. Phosphorylates CTTN and HDAC5. Direct RhoA target required for the regulation of the maturation of primordial junctions into apical junction formation in bronchial epithelial cells. Required for G2/M phases of the cell cycle progression and abscission during cytokinesis. Stimulates FYN kinase activity that is required for skin cell-cell adhesion during keratinocyte differentiation.
ROKa (ROCK2)	Pan-specific	0.81	0.97	Protein kinase that regulates the actin cytoskeleton, cell polarity, smooth muscle contraction, stress fiber and focal adhesion formation, neurite retraction, cell adhesion and motility. Phosphorylates ADD1, BRCA2, CNN1, EZR, DPYSL2, EP300, MSN, MYL9/MLC2, NPM1, RDX, PPP1R12A, VIM, SORL1 and IRF4. Acts as a negative regulator of VEGF-induced angiogenic endothelial cell activation. Positively regulates the activation of p42/MAPK1-p44/MAPK3 and of p90RSK/RPS6KA1 during myogenic differentiation. Inhibits keratinocyte terminal differentiation.
Src	Y530	1.71	1.70	Non-receptor protein tyrosine kinase: activated following engagement of many different classes of cellular receptors (i.e. immune response receptors, integrins and other adhesion receptors, receptor protein tyrosine kinases, G protein-coupled receptors and cytokine receptors). Participates in signaling pathways that control a diverse spectrum of biological activities including gene transcription, immune response, cell adhesion, cell cycle progression, apoptosis, migration, and transformation. Also plays a role in EGF-mediated calcium-activated chloride channel activation.
	Pan-specific	1.28	1.33	
	Pan-specific	1.56	1.30	
	Pan-specific	1.36	1.24	
Tau	S516	0.84	0.95	Promotes microtubule assembly and stability, as well as establishment and maintenance of neuronal polarity. The short isoforms allow plasticity of the cytoskeleton whereas the longer isoforms may preferentially play a role in its stabilization.
Tyro10 (DDR2)	Pan-specific	-0.46	-0.99	Tyrosine kinase: functions as cell surface receptor for fibrillar collagen and regulates cell differentiation, remodeling of the extracellular matrix (via collagenases MMP1, MMP2 and MMP13) , cell migration and cell proliferation. Also required for normal bone development by regulating osteoblast differentiation and chondrocyte maturation via MAPK signaling. Promotes fibroblast migration and proliferation to allow cutaneous wound healing.
Vimentin	S34	-1.00	-2.16	Vimentins are class-III intermediate filaments found in various non-epithelial cells, especially mesenchymal cells. Vimentin is attached to the nucleus, endoplasmic reticulum, and mitochondria, either laterally or terminally.
DNA Damage Repair and Remodeling				
Acet. Lysine	Pan-specific	1.60	1.52	DNA-remodeling (regulates histone interactions)
BRCA1	S1423	0.92	0.99	E3 ubiquitin-protein ligase: plays a central role in DNA repair by facilitating cellular responses to DNA damage. Required for normal cell cycle progression from G2 to mitosis as well as for appropriate cell cycle arrests after ionizing irradiation. Involved in transcriptional regulation of P21 in response to DNA damage and in targeting FANCD2 to sites of DNA damage.
DNAPK	Pan-specific	-0.48	-1.01	Serine/threonine-protein kinase that acts as a molecular sensor for DNA damage. Involved in DNA non-homologous end joining (NHEJ) required for double-strand break (DSB) repair and V(D)J recombination. Must be bound to DNA to express its catalytic properties. May also act as a scaffold protein to aid the localization of DNA repair proteins to the site of damage. Phosphorylates H2AX/H2AFX, DCLRE1C, c-Abl/ABL1, histone H1, HSPCA, c-jun/JUN, p53/TP53, PARP1, POU2F1, DHX9, SRF, XRCC1, XRCC1, XRCC4, XRCC5, XRCC6, WRN, MYC and RFA2.
hHR23B	Pan-specific	-0.64	-1.28	Involved in global genome nucleotide excision repair (GG-NER) by acting as component of the XPC complex. Cooperatively with CETN2 appears to stabilize XPC. Multiubiquitin chain receptor involved in modulation of proteasomal degradation; binds simultaneously to the 26S proteasome and polyubiquitinated substrates to deliver ubiquitinated proteins to the proteasome.
MSH2	Pan-specific	1.12	1.13	Component of the post-replicative DNA mismatch repair system (MMR). Forms two different heterodimers: MutS alpha (MSH2-MSH6 heterodimer) and MutS beta (MSH2-MSH3 heterodimer) which bind to DNA mismatches thereby initiating DNA repair. MutS has ATPase activity, and mismatched DNA provokes the ADP to ATP exchange to allow repair. MutS alpha may also aid DNA homologous recombination repair.
PARP1	Pan-specific	-0.81	-1.75	Involved in the base excision repair pathway: catalyzes the poly(ADP-ribosyl)ation of proteins involved in chromatin architecture and in DNA metabolism to signal for DNA repair. PARP1-dependent PARP9-DTX3L-mediated ubiquitination promotes the rapid and specific recruitment of 53BP1/TP53BP1, UIMC1/RAP80, and BRCA1 to DNA damage sites.
SMC1	S957	1.42	1.38	Involved in chromosome cohesion of sister chromatids during the cell cycle and in DNA repair via its interaction with BRCA1 and ATM.
Cell Cycle Regulation				
CDKL1	Pan-specific	-0.45	-1.30	Cyclin dependent kinase with Ser/Thr kinase activity.
p107	Pan-specific	-0.84	-1.57	Key regulator of transcription and entry into cell division: maintains overall chromatin structure and stabilizes histone methylation by recruiting histone methyltransferases SUV420H1 and SUV420H2. Forms a complex with adenovirus E1A and with SV40 large T antigen.
p27 Kip1	T187	2.40	1.04	Regulates cell cycle progression: involved in G1 arrest and inhibits cyclin E- and cyclin A-CDK2 complexes. Complexes with cyclin type D-CDK4 complexes and aids in assembly and stabilization of CCND1-CDK4 complex.

Plk1	Pan-specific	-0.54	-1.53	Serine/threonine-protein kinase: regulates the M phase of the cell cycle by controling centrosome maturation and spindle assembly, the removal of cohesins from chromosome arms, the inactivation of anaphase-promoting complex/cyclosome (APC/C) inhibitors, and the regulation of mitotic exit and cytokinesis. Also negatively regulates p53 family members and is required for recovery after the DNA damage checkpoint to enter mitosis.
Plk2	Pan-specific	-0.39	-0.96	Tumor suppressor serine/threonine-protein kinase: involved in synaptic plasticity, centriole duplication and G1/S phase transition. Polo-like kinases bind and phosphorylate proteins are that already phosphorylated on a specific motif recognized by the POLO box domains. Phosphorylates CENPJ, NPM1, RAPGEF2, RASGRF1, SNCA, SIPA1L1 and SYNGAP1. Plays a key role in synaptic plasticity and memory by regulating the Ras and Rap protein signaling.
PP1/Ca	T320	-0.60	-1.57	Protein phosphatase that associates with over 200 regulatory proteins to form highly specific holoenzymes which dephosphorylate hundreds of biological targets. Essential for cell division and participates in the regulation of glycogen metabolism, muscle contractility, protein synthesis, and changes in chromatin structure. Also involved in regulation of ionic conductances and long-term synaptic plasticity.
PRK2 (PKN2)	Pan-specific	0.90	1.04	PKC-related serine/threonine-protein kinase and Rho/Rac effector protein: regulates cell cycle progression, actin cytoskeleton assembly, cell migration, cell adhesion, tumor cell invasion and transcription activation signaling processes. Phosphorylates CTTN and HDAC5. Direct RhoA target required for the regulation of the maturation of primordial junctions into apical junction formation in bronchial epithelial cells. Required for G2/M phases of the cell cycle progression and abscission during cytokinesis. Stimulates FYN kinase activity that is required for skin cell-cell adhesion during keratinocyte differentiation.
Rb	Pan-specific	2.43	2.13	Key regulator of entry into cell division and a major tumor suppressor. Promotes G0-G1 transition upon phosphorylation by CDK3/cyclin-C. The underphosphorylated, active form of RB1 interacts with E2F1 and represses its transcription activity, leading to cell cycle arrest. Directly involved in heterochromatin formation by maintaining overall chromatin structure and stabilizes histone methylation. Recruits and targets histone methyltransferases SUV39H1, SUV420H1 and SUV420H2. Inhibits TAF1 and transcription of SMARCA4/BRG1 by recruiting the HDAC complex to the c-FOS promoter. Upon calcium influx, RB1 is dephosphorylated by calcineurin, which leads to release of the repressor complex.
Vrk1	Pan-specific	-0.63	-1.41	Serine/threonine kinase involved in Golgi disassembly during the cell cycle: following phosphorylation by PLK3 during mitosis, required to induce Golgi fragmentation. Prevents the interaction between p53/TP53 and MDM2. Phosphorylates casein, histone H3, ATF2 and BANF1.
Wee1	Pan-specific	-0.92	-2.00	Acts as a negative regulator of entry into mitosis (G2 to M transition): phosphorylates and inactivates cyclin B1-complexed CDK1. Its activity increases during S and G2 phases and decreases at M phase when it is hyperphosphorylated.
WIP1	Pan-specific	-0.77	-1.59	Required for the relief of p53-dependent checkpoint mediated cell cycle arrest. Binds to and dephosphorylates p53 and CHEK1 to inactivate them.
Translation				
eIF2a	Pan-specific	-0.43	-1.01	Protein synthesis: forms a complex with GTP and initiator tRNA, which then binds to 40S ribosomal subunits.
	S52	-0.69	-1.35	
eIF4E	S209	-0.58	-1.30	Protein synthesis: recognizes and binds the 7-methylguanosine-containing mRNA cap in the initiation of protein synthesis and facilitates ribosome binding by inducing the unwinding of the mRNAs secondary structures.
eIF4E	Pan-specific	-0.84	-1.83	
eIF4G	S1107	-0.61	-1.02	Protein synthesis: component of the protein complex eIF4F, which is involved in the recognition of the mRNA cap, ATP-dependent unwinding of 5'-terminal secondary structure and recruitment of mRNA to the ribosome.
PKR1	Pan-specific	-0.49	-1.05	Negative regulator of translation: IFN-induced dsRNA-dependent serine/threonine-protein kinase which plays a key role in the innate immune response to viral infection and is also involved in the regulation of signal transduction, apoptosis, cell proliferation and differentiation. Inhibits viral replication via phosphorylation of the alpha subunit of EIF2S1.
	T446	-0.80	-1.73	
ZIPK	Pan-specific	-0.61	-1.29	Inhibitor of translation: Serine/threonine kinase which is involved in the regulation of apoptosis, autophagy, transcription, translation, actin cytoskeleton reorganization, cell motility, smooth muscle contraction, and mitosis, particularly cytokinesis. Acts by phosphorylating RPL13A in response to interferon-gamma activation.
Possible Roles in Other Cell and Tissue Types				
Brain Function				
CaMK1d	Pan-specific	1.47	1.54	Calcium/calmodulin-dependent protein kinase that operates in the calcium-triggered CaMKK-CaMK1 signaling cascade and activates CREB-dependent gene transcriptionin response to calcium influx. Also promotes basal dendritic growth of hippocampal neurons and activates the transcription factor CREB1.
CPG16/CaMKinase V	Pan-specific	2.81	2.27	Probable kinase that may be involved in a calcium-signaling pathway controlling neuronal migration in the developing brain. May also participate in functions of the mature nervous system.
GluR1	S849	1.60	1.70	Ionotropic glutamate receptor. L-glutamate acts as an excitatory neurotransmitter at many synapses in the central nervous system. Binding of the excitatory neurotransmitter L-glutamate induces a conformation change, leading to the opening of the cation channel, and thereby converts the chemical signal to an electrical impulse.
GRK2 (BARK1)	Pan-specific	0.84	1.09	Specifically phosphorylates the agonist-occupied form of the beta-adrenergic and closely related receptors, probably inducing their desensitization.
	S670	0.69	0.97	
PP1/Ca	T320	-0.60	-1.57	Protein phosphatase that associates with over 200 regulatory proteins to form highly specific holoenzymes which dephosphorylate hundreds of biological targets. Essential for cell division and participates in the regulation of glycogen metabolism, muscle contractility, protein synthesis, and changes in chromatin structure. Also involved in regulation of ionic conductances and long-term synaptic plasticity.
PKCg	T674	-0.90	-1.77	Calcium-activated, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that plays diverse roles in neuronal cells and eye tissues, such as regulation of the neuronal receptors GRIA4/GLUR4 and GRIN1/NMDAR1, modulation of receptors and neuronal functions related to sensitivity to opiates, pain and alcohol, mediation of synaptic function and cell survival after ischemia, and inhibition of gap junction activity after oxidative stress.
PKG1a	Pan-specific	-0.54	-1.39	Serine/threonine protein kinase: key mediator of the nitric oxide (NO)/cGMP signaling pathway and aids in the regulation of platelet activation and adhesion, smooth muscle contraction, cardiac function, gene expression, axon guidance, hippocampal and cerebellar learning, circadian rhythm and nociception. Regulates intracellular calcium levels via several pathways.
PKG1	Pan-specific	-0.78	-1.71	
PSD-95	Pan-specific	1.20	1.25	Interacts with the cytoplasmic tail of NMDA receptor subunits and shaker-type potassium channels. Required for synaptic plasticity associated with NMDA receptor signaling.
SNCA	S129	2.82	2.10	May be involved in the regulation of dopamine release and transport. Induces fibrillization of microtubule-associated protein tau. Reduces neuronal responsiveness to various apoptotic stimuli, leading to a decreased caspase-3 activation.
Synapsin 1	S9	2.92	1.85	Neuronal phosphoprotein that coats synaptic vesicles, binds to the cytoskeleton, and is believed to function in the regulation of neurotransmitter release. The complex formed with NOS1 and CAPON proteins is necessary for specific nitric-oxid functions at a presynaptic level.
Tyrosine Hydroxylase	S18	-0.76	-1.77	Plays an important role in the physiology of adrenergic neurons.
	S70	-1.14	-2.95	
Muscle and Skeletal Tissue				
SOX9	S181	1.62	1.86	Plays an important role in the normal skeletal development. May regulate the expression of other genes involved in chondrogenesis by acting as a transcription factor for these genes.

MLC(MLRC2)	S19	0.79	1.11	Myosin regulatory subunit that plays an important role in regulation of both smooth muscle and nonmuscle cell contractile activity via its phosphorylation. Implicated in cytokinesis, receptor capping, and cell locomotion.
Endothelial Cell Signaling				
PKCb1	Pan-specific	-0.91	-1.90	In endothelial cells, induces increased phosphorylation of RB1, increased VEGFA-induced cell proliferation, and inhibits PI3K/AKT-dependent nitric oxide synthase (NOS3/eNOS) regulation by insulin, which causes endothelial dysfunction. Also involved in triglyceride homeostasis. Phosphorylates the ATF2 transcription factor.
VEGF-C	Pan-specific	-0.91	-1.85	Growth factor active in angiogenesis and endothelial cell growth: stimulates proliferation and migration and regulates blood vessle permeability. Binds and activates VEGFR-2 (KDR/FLK1) and VEGFR-3 (FLT4) receptors.
VEGFR2 (KDR)	Y1059	-0.99	-2.07	Tyrosine-protein kinase: cell-surface receptor for VEGFA, VEGFC and VEGFD. Regulates angiogenesis, vascular development, vascular permeability, and embryonic hematopoiesis. Promotes proliferation, survival, migration and differentiation of endothelial cells. Promotes reorganization of the actin cytoskeleton. Activation leads to the production of the cellular signaling molecules diacylglycerol and inositol 1,4,5-trisphosphate and the activation of protein kinase C. Also mediates activation of ERK1/2, AKT1, and PIK3R1 (regulatory subunit of PI3K) and promotes phosphorylation of FYN, NCK1, NOS3, PIK3R1, PTK2/FAK1 and SRC.
	Y1214	-1.10	-2.57	
Leukocyte Signaling				
CaMK1d	Pan-specific	1.47	1.54	Calcium/calmodulin-dependent protein kinase that operates in the calcium-triggered CaMKK-CaMK1 signaling cascade and CREB-dependent gene transcription. Regulates calcium-mediated granulocyte functions, including cytokine-induced proliferative responses and activation of the respiratory burst.
Csk	Pan-specific	3.55	2.73	Non-receptor tyrosine-protein kinase that plays an important role in the regulation of cell growth, differentiation, migration and immune response. Phosphorylates Src-family kinases (LCK, SRC, HCK, FYN, LYN and YES1). Suppresses signaling by various surface receptors, including T-cell receptor (TCR) and B-cell receptor (BCR) by phosphorylating and maintaining inactive several positive effectors such as FYN or LCK.
Fyn	Pan-specific	1.44	1.54	Non-receptor tyrosine-protein kinase that plays a role in many biological processes including regulation of cell growth and survival, cell adhesion, integrin-mediated signaling, cytoskeletal remodeling, cell motility, immune response and axon guidance. Participates in the downstream signaling pathways that lead to T-cell differentiation and proliferation following T-cell receptor (TCR) stimulation. Also participates in negative feedback regulation of TCR signaling through phosphorylation of PAG1, thereby promoting interaction between PAG1 and CSK and recruitment of CSK to lipid rafts.
JAK1	Y1034	0.98	0.95	Tyrosine kinase of the non-receptor type, involved in the IFN-alpha/beta/gamma signal pathway. Kinase partner for the interleukin (IL)-2 receptor.
Lck	Y192	-0.71	-1.21	Non-receptor tyrosine-protein kinase that plays an essential role in the selection and maturation of developing T-cells in the thymus, in the function of mature T-cells, and in T-cell proliferation. Plays a key role in T-cell antigen receptor (TCR)-linked signal transduction pathways and associates with the cytoplasmic portions of the CD4 and CD8 surface receptors. Association of the TCR with a peptide antigen-bound MHC complex facilitates the interaction of CD4 and CD8 with MHC class II and class I molecules, respectively, thereby recruiting the associated LCK protein to the vicinity of the TCR/CD3 complex. Also phosphorylates other substrates including RUNX3, PTK2B/PYK2, the microtubule-associated protein MAPT, RHOH or TYROBP.
	S158	-0.74	-1.22	
	Pan-specific	-0.68	-1.22	
	Y394	-0.73	-1.56	
	Y505	-0.80	-1.57	
	Pan-specific	-0.79	-1.70	
PKCb1	Pan-specific	-0.91	-1.90	Calcium-activated, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase involved in regulation of B-cell receptor (BCR) signaling, oxidative stress-induced apoptosis, androgen receptor-dependent transcription regulation, insulin signaling and endothelial cells proliferation.
PKCd	S645	-0.74	-1.60	Regulates TNF-elicited superoxide anion production in neutrophils through phosphorylation of NCF1 or ERK1/2 signaling pathways. Also regulates NADPH oxidase activity in eosinophils after stimulation with IL5, leukotriene B4 or PMA and acts a negative regulator of filopodia formation and actin polymerization. Regulates the interaction between MUC1 and beta-catenin by phosphorylating MUC1. Also phosphorylates 14-3-3 proteins (YWHAB, YWHAZ and YWHAH) in a sphingosine-dependent fashion.
PKCq	S695	-0.78	-1.69	Calcium-independent, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that mediates non-redundant functions in T-cell receptor (TCR) signaling, including T-cell activation, proliferation, differentiation and survival, by mediating activation of NFκB, JUN, NFATC1 and NFATC2. Essential for IL2 production and participates in NFATC1 and NFATC2 transactivation. Aids in the regulation of inositol 1,4,5-trisphosphate generation and intracellular calcium mobilization. Promotes the development of T-helper 2 (Th2) cells and is necessary for the activation of IL17-producing Th17 cells. Mediates T-cell survival by phosphorylating BAD and by up-regulating BCL-X(L)/BCL2L1 levels. In platelets, regulates signal transduction downstream of ITGA2B, CD36/GP4, F2R/PAR1 and F2RL3/PAR4. Also phosphorylates PDPK1 to inhibit AKT1.
PKCz/l	T410/T412	-1.20	-3.27	Calcium- and diacylglycerol-independent serine/threonine-protein kinase that functions in PI3K, MAPK, and NFκB signaling cascades. Also regulates mitogenic signaling, cell proliferation, cell polarity, the inflammatory response and maintenance of long-term potentiation (LTP). Required for T-helper 2 (Th2) differentiation and efficient activation of JAK1 and STAT6.
Striatin	Pan-specific	1.14	1.37	Calmodulin-binding protein which functions as scaffolding or signaling protein and plays a role in dendritic Ca2+ signaling.
ZAP70	Pan-specific	-1.23	-2.98	Tyrosine kinase that regulates the adaptive immune response, motility, adhesion and cytokine expression of mature T-cells, as well as thymocyte and B-lymphocyte development. Induces recruitment of ZAP70 to the phosphorylated TCR components CD247/CD3Z through ITAM motifs at the plasma membrane. Promotes lymphokine production, T-cell proliferation and differentiation. During thymocyte development, ZAP70 promotes survival and cell-cycle progression of developing thymocytes before positive selection. Contributes to primary B-cell formation and activation through BCR.
ZAP70/Syk	Y319/Y352	-0.77	-2.07	