

TABLE S1: Proteins showing ERK1 Primed GSK-3 $\beta$  Phosphorylation\*

ABL2	EYA1	LIMD1	RBPMS
AFF4	EYA4	LOC51035	Rkhd2
AIPL1	FLJ20105	MAGEA4	RNUT1
ANKS1	FMNL2	MAGEA9	RPA2
ard	FOSL1	MAGEB6	SAFB2
ASPSCR1	FOSL2	MAGED1	SART3
ATF1	FOXP4	MBNL3	SF3B4
ATF6	FUBP1	MEF2C	SIAHBP1
BCL11A	GMEB1	MEOX1	SLX5
BCOR	HCLS1	MGC10334	SMAD4
BTBD12	HIP2	MGC20255	SOX9
C14orf106	HIRIP3	MGC27016	SP192
C19orf21	HOXD3	MGC4614	SPF45
C20orf19	HPCA	MGC5395	SRA1
C21orf66	HSA272196	NAP1L5	SSBP2
C5orf16	HSF1	NFATC1	SSBP4
CARHSP1	HSRNAFEV	NFATC3	SUHW4
CBFA2T3	ID1	NFATC4	TBC1D22A
CC2D1A	IL17B	NUP133	TBX20
CENTG1	MAPK1	NUP35	TCEAL6
CHAF1B	PECI	PCBD1	TEAD3
CITED1	HSPA2	PCTK3	TFPT
CNOT2	MPP1	PER1	TRIM16
CRK	UBE2N	PHF1	TRIM26
CSL4	ANXA2	PIPPIN	TRIP10
CSRP3	GSN	PITX1	TSC22D3
CSTF2T	GDI2	PKNOX1	UPLC1
CTTN	STUB1	POLRID	USF2
DAZAP1	ZXDC	PPP1R13L	WHSC2
DCP1A	IOH6695	PQBP1	Zfp185
E2F7	PRDX1	PSMC3	ZHX1
EEF1B2	CKM	PTTG1	ZNF261
EIF3S4	SCP2	PYGO2	ZNF306
EIF4B	JMJD2D	RAD23B	ZNF397
ELK1	KIAA1442	RBM12	ZNF503
EP400	KLF4	RBM5	ZNF655
ERF	KIG1	RBM9	ZYX

\*Proteins showing 2-fold or greater signal intensity after ERK1 primed GSK-3 phosphorylation and not detected on the control array incubated with [ $\gamma$ ]<sup>32</sup>P-ATP alone or the array detecting residual ERK1 activity.

TABLE S2. Mapped phosphorylation sites

AFF4	
HGSEHSK <u>S</u> RS <u>S</u> SPGK	S176/S180
BCOR	
TALLP <u>P</u> SPR <u>P</u> SPRV	S336/S340
C20orf19	
EVEEKRA <u>S</u> PPV <u>S</u> PIP	S214/S218
CARHSP1	
GLLTPR <u>S</u> PER <u>S</u> PSP	S26/S30
CC2D1A	
IGKGPAST <u>T</u> PTY <u>S</u> PAP	T204/S208
CNOT2	
RTNSM <u>S</u> SS <u>G</u> LG <u>S</u> PNR	S161/S165
DCP1A	
ERNQM <u>G</u> D <u>S</u> NI <u>S</u> SPGL	S176/S180
PTYTIPL <u>S</u> PVL <u>S</u> P <u>T</u> L	S315/S319
EIF3S4	
LKGIPLAT <u>T</u> GDT <u>S</u> PEP	T38/S42
EIF4B	
ARSQSSD <u>T</u> EQQ <u>S</u> PTS	T500/S504
ERF	
RFPPSTP <u>S</u> EVL <u>S</u> PTE	S150/S154
FMNL2	
IEDLHRG <u>S</u> NLP <u>S</u> PVG	S179/S183
FOSL2	
MSNPYPR <u>S</u> HPY <u>S</u> PLP	S79/S83
FOXP4	
QFLQQA <u>S</u> GL <u>S</u> SPGN	S82/S86
HIRIP3	
NSESESG <u>S</u> EAS <u>S</u> PDY	S104/S108
*HSF1	
RVKEEPP <u>S</u> PQ <u>S</u> PRV	S303/S307
*NFATC3	
AARFTLG <u>S</u> P <u>L</u> T <u>S</u> PGG <u>S</u>	S207/S211/S215
VCYAGSL <u>S</u> PH <u>H</u> SPV <u>S</u> PGH <u>S</u>	S288/S292/S296/S300
*NFATC4	
ASRFGLG <u>S</u> PL <u>P</u> SPR <u>R</u> AS <u>P</u>	S213/S217/S221
NUP133	
PKGLPLG <u>S</u> AV <u>S</u> SPVL	S41/S45
PPP1R13L	
DFLGRAG <u>S</u> PRG <u>S</u> PLA	S183/S187
STUB1	
RLGAGGG <u>S</u> PEK <u>S</u> PSA	S19/S23
TRIP10	
MNRAPSD <u>S</u> SLG <u>T</u> PSD	S298/T302
SMAD4	
GSRTAPY <u>T</u> PNLPHHQ	T277
CENTG1	
RNLARAL <u>S</u> TDCTPSG	S802

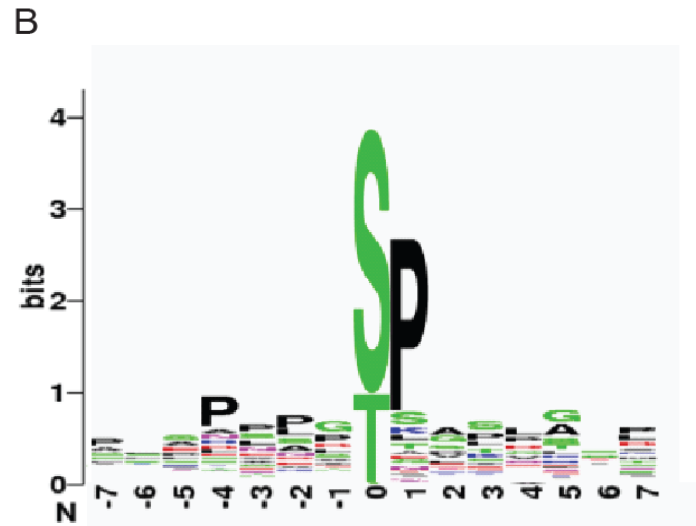
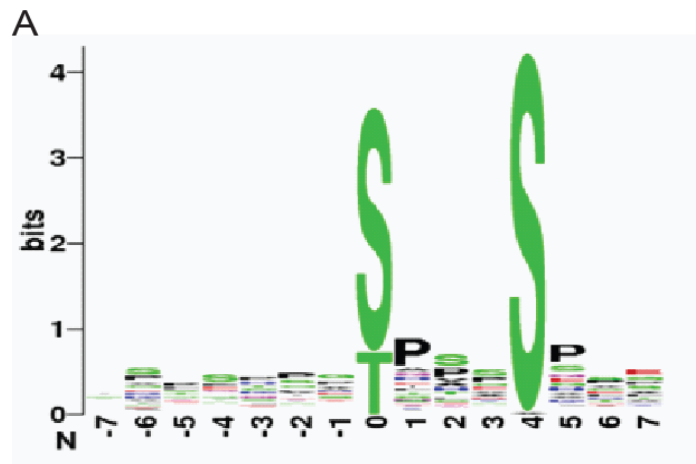


FIG. S1. Dominant LOGOs identified in the 148 potential ERK1 primed GSK-3 $\beta$  substrates.