

Table S1. Phosphorylation motifs found amongst kinase and phosphatase interactors**A. Kinases**

Symbol	Gene	Motif	Z-score	Best Match (** = known)
YBR160W	Cdc28	SP.[RK]	295	***CDK substrate motif ([ST]P.[RK])
YJR059W	Ptk2	RR.[SHP]	122	***PKA substrate motif (R[RK].S)
YJL164C	Tpk1	R[RK].S	96	***PKA substrate motif (R[RK].S)
YBR160W	Cdc28	V..[TSP]P	79	CDK substrate motif (SP)
YMR139W	Rim11	[GSQ]S..[ANV]SP	72	***GSK3 substrate motif (S...S)
YGL180W	Atg1	[SNG]D..S	67	Casein kinase I motif ([STDE]..S)
YHR135C	Yck1	[SEN]D.D[SDE]	67	***Casein kinase II motif ([ST]..[DE])
YHR135C	Yck1	S.[SEV]D	65	***Casein kinase II motif ([ST]..[DE])
YGL059W	Pkp2	R[RQK][ARK]S	62	PKA substrate motif (R[RK].S)
YPL153C	Rad53	[NIT]SN[NRA]	61	
YJL187C	Swe1	SD.[SDW][DSR]	59	Casein kinase II motif ([ST]..[DE])
YDR477W	Snf1	[SLV]S[SND]S	57	
YBR059C	Akl1	[SVI]S.DE[SWH]	55	Casein kinase II motif ([ST]..[DE])
YER118C	Sho1	S[SFV]AS[RTG]	55	
YPL153C	Rad53	[ATR]S...D	53	
YPL153C	Rad53	[DES]E[DEK]E	53	Casein kinase II motif ([ST]..[DE])
YLR423C	Atg17	[RQY]RLS[ILW]	50	PKA substrate motif (R[RK].S)
YNL298W	Cla4	SS..[KSQ][SRT]D	50	
YPL153C	Rad53	TN[VMT]	50	
YPL153C	Rad53	[QKP]R..S	49	CaM kinase or PKA substrate motif (R..[ST])
YPL153C	Rad53	[SPA]S.E	45	
YJL164C	Tpk1	T.T[TKN]	45	
YAR019C	Cdc15	H[KHT]..S[SHN]	44	
YGL019W	Ckb1	[SDY]D[SEM]D	44	***Casein kinase II motif ([ST]..[DE])
YNL307C	Mck1	R..S[VIN]	44	CaM kinase or PKA substrate motif (R..[ST])
YIL095W	Prk1	S[PD]SR[SG]	44	
YPL203W	Tpk2	[RHG]R.S[VFS]	44	
YJR066W	Tor1	AS..[SEG]	43	
YHR135C	Yck1	PT	42	
YBL016W	Fus3	K..S[RPA]	41	
YMR139W	Rim11	[TAI]NT[SNV]	38	
YJR059W	Ptk2	ST[SAP]	37	
YHL007C	Ste20	N.S[SVY]	37	
YHR135C	Yck1	A.[TSD]G	37	
YPL031C	Pho85	SS[PTG]	36	
YJL164C	Tpk1	T.[SEQ]P	36	
YNL154C	Yck2	N[NDF]S	36	
YHR082C	Ksp1	[IRT]G.S	34	
YGL180W	Atg1	T..K	33	
YHR082C	Ksp1	S.[ADY]D	32	Casein kinase II motif ([ST]..[DE])
YNL307C	Mck1	[STF]P..[SAQ]P	32	***GSK3 substrate motif (S...S)
YJR059W	Ptk2	S..P[TSK]	32	GSK3 substrate motif (S...S)
YHL007C	Ste20	S..[TND]N	32	Casein kinase II motif ([ST]..[DE])
YHL007C	Ste20	S.[PLD]K	32	
YJL095W	Bck1	P[VPI]..S[QSK]	31	
YPL031C	Pho85	TP[PMA]	31	
YJL164C	Tpk1	S..[PRV]K	31	
YAR019C	Cdc15	S..[PWH]S	30	GSK3 substrate motif (S...S)
YJL164C	Tpk1	S[DKS]Q	30	
YNL307C	Mck1	S.E[ESY]	29	
YPL031C	Pho85	D.D[TIY]	27	
YPL203W	Tpk2	NT[SQF][SRQ]	25	
YER118C	Sho1	R..[SHY]L	23	CaM kinase or PKA substrate motif (R..[ST])
YNL307C	Mck1	T..T	22	
YNL298W	Cla4	S.K[EWA]	17	

B. Phosphatases

Symbol	Gene	Motif	Z-score	Best Match
YER133W	Glc7	P[SIM]..RS[RK]	57	GSK3 substrate motif (S...S)
YDL188C	Pph22	SP.[GD]R[LYN]	52	CDK substrate motif ([ST]P)
YFR028C	Cdc14	RK.S[LK][EPR]	48	PKA substrate motif (R[RK].S)
YER133W	Glc7	[KSQ]K[SKE]K	44	TGFBR kinase substrate motif (KKK[ST])
YDL188C	Pph22	[TIV][FH]SP	36	CDK substrate motif ([ST]P)
YER133W	Glc7	[DET]D..[SKP]S	36	Casein kinase I motif ([STDE]..S)
YDL047W	Sit4	A[SHY].[SCW]N	31	
YER133W	Glc7	[STV]Y.[NRQ]S	28	SH2_GRB2 (Y.N)

Select serine- and threonine-containing motifs found by FIRE-pro to be enriched among proteins that interact with a particular kinase or phosphatase. Known motifs, i.e. those that match known motifs in both sequence and biological context, are denoted by asterisks.