

**Table S6: NetworKIN kinase groups:** The left column lists NetworKIN kinase groups as shown in Figure 5 A. The right column highlights members of respective groups that are the most likely kinases phosphorylating identified motifs.

Group	Members
ACTR2/ACTR2B/TGFbR2	TGFBR2;ACVR2B
AMPK	PRKAA1;PRKAA2
ATM/ATR	ATM;ATR
AURKA	AURKA
AURKC/AURKB	AURKB
CAMK2A/CAMK2D	CAMK2A
CAMK2B/CAMK2G	CAMK2G
CDK2/CDK3	CDK2;CDK3
CSNK2	CSNK2A2;CSNK2A1
CLK	CLK1;CLK2;CLK3;CLK4
DMPK	DMPK;CDC42BPA
DNAPK	PRKDC
GSK3	GSK3B;GSK3A
JNK	MAPK8;MAPK10;MAPK9
NEK1/5/3/4/11/2	NEK2
MAPK	MAPK14;MAPK11;MAPK13;MAPK12
RPS6KB	RPS6KB1;RPS6KB2
PAKA	PAK1;PAK2;PAK3
PAKB	PAK4;PAK7;PAK6
PIM2	PIM2
PIM3/PIM1	PIM3;PIM1
PKA	PRKACB;PRKACA;PRKACG
PKB	AKT1;AKT2;AKT3
PKC	PRKCD;PRKCI;PRKCZ;PRKCA;PRKCQ;PRKCG;PRKCB;PRKCE
PKD	PRKD1
RCK	MOK;ICK
SGK	SGK1
TLK	TLK1