

Wang et al. Supplementary Fig.1

H. SAPIENS	1	-----MAEQVALSRTQVCGILREELFQGDAFHQSDTHIFIIMGASGDLAKKKIYPTIWWLF	56
M. MUSCULUS	1	-----MAEQVALSRTQVCGILREELYQGDAFHQADTHIFIIMGASGDLAKKKIYPTIWWLF	56
D. MELANOGASTER	1	-MATQKEDHTALDLIISLKSPTMVCBEGTHFDGKIPHTFVIFGASGDLAKKKIYPTLWWLY	60
C. ELEGANS	1	MACKRHSVSDPISK-DLVECLRESMQRDLKFE--TPYVFVIFGASGDLAKKKIYPTLWWLF	58
S. POMBE	1	-----MSSANLSIKENG--AMVVFASGDLSSKKKTFPALFSLF	36
S. CEREVISIAE	1	-----MSEGPVKFEKNT--VISVFASGDLAKKKTFPALFGLF	36
A. THALIANA	1	-MSGG--QWVHEKRSTFRNDSFVREYIVPETGCLSI-IVL GASGDLAKKKTFPALFNLY	63

GxxGDLA: nucleotide-binding fingerprint

K89



H. SAPIENS	57	RDGLL-PENTFIVGYARSRLT-VADIRKQSEPPFKATP---EEKLKLEDFFARNSYVAGQY	112
M. MUSCULUS	57	RDGLL-PEDTFIVGYARSRLT-VDDIRKQSEPPFKATP---EERPKLEEFFARNSYVAGQY	112
D. MELANOGASTER	61	RDDL-L-PKPTKFCGYARSMLT-VDSIKEQCLPYMKVQP---HEQKKYEEFWALNEVYSGRY	116
C. ELEGANS	59	RDNLL-PVNIKFIIGYARSDLT-VFKLRESFEKNCKVRE---NEKCAFDDFIKCCSYVQGQY	114
S. POMBE	37	SEGR-L-PKDIRIVGYARSKIE-HEDFLDRITQNIKIDEEDSQAKEKLEEFKRCYSYRGSY	92
S. CEREVISIAE	37	REGYL-DPSTKIFGYARSKLSMEEDLKSRLPHLKKPHGE-ADDSKVEQFFKMVSYISGNY	93
A. THALIANA	44	RQGFLNPDEVHIFGYARTKIS-DEELRDRIRGYLVDEKNA-EQAEALSKFLQLIKYVSGPY	113

K171



Nine-residue peptide: G6P binding and catalysis

H. SAPIENS	161	Q---IGWNRIVIEKPFGRDLQSSDRLSNHISLFRDQIYRIDHYLGKEMVQNLMLVLRVAN	218
M. MUSCULUS	161	Q---TGWNRIVIEKPFGRDLQSSNQLSNHISLFRDQIYRIDHYLGKEMVQNLMLVLRVAN	218
D. MELANOGASTER	165	V---CGWNRVIEKPFGRDDASSQALS DHLAGLFQEDQLYRIDHYLGKEMVQNLMTIRFGN	222
C. ELEGANS	166	HG--DSWTRVIEKPFGRHDLKSSCELSTHLAKLFKEDQIYRIDHYLGKEMVQNLMLVLRFGN	224
S. POMBE	145	E---KGIARLVIEKPFVLDLKSQAELQSQLAPLFDKEIYRIDHYLGKEMVQNLVHLRFCN	202
S. CEREVISIAE	147	E---NGITRVIVIEKPFGRHDLASARELQKNLGPLFKEEELYRIDHYLGKELVKNLLVLRFGN	204
A. THALIANA	169	KSDLGGWTRIVIEKPFGRDLKLESAEQQLSSQIGALFEPEQIYRIDHYLGKELVQNLMLVLRVAN	229

EKPxG : nucleotide-binding fingerprint

K386



K403



H. SAPIENS	361	ALNERKAEVRLQFHDVAGDIF-HQQCKRNLVIRVQPNNAVYTKMMTKKPGMFFNPEESEL	420
M. MUSCULUS	361	ALNERKAEVRLQFRDVAGDIF-HQQCKRNLVIRVQPNNAVYTKMMTKKPGMFFNPEESEL	420
D. MELANOGASTER	366	ALNERKAEVRIQYQDVPDGF-EGNTKRNLVIRVQPGAEALYFKMMTKKSPGITFDIEETEL	425
C. ELEGANS	368	ALNEKKAEVRIQFKEVSGDIYPSGELKRSELVIRVQPNNAVYTKMMTKKPGMGFVEETEL	428
S. POMBE	342	AMDIGKVEIRVQFKAAANGLF--KDAYHNELVIRVQPDIAIYFKMNIKQPGLEAPLLTDL	400
S. CEREVISIAE	344	ALNESKVEIRLQYKAVASGVF--KDI PNDELVIRVQPDAAVYLKFNAPKTPGLSNATQVTDL	402
A. THALIANA	362	AMSSKKADIRIQFKDVPDGFDFKQCNQGRNEFVIRLQVSEAMYMKLTVKQPGLDMNTVQSEL	421

K432



H. SAPIENS	421	DLTYGNRYKNVLPDAYERLILDVFCGSMHFVRSDELREAWRIFTPLLHQIEL-EKPKPI	480
M. MUSCULUS	421	DLTYGNRYKNVLPDAYERLILDVFCGSMHFVRSDELREAWRIFTPLLHKIDR-EKQPPI	480
D. MELANOGASTER	426	DLTYEHRKDSYLPDAYERLILDVFCGSMHFVRSDELREAWRIFTPILHQIEK-EHIRPI	485
C. ELEGANS	429	DLTYNNRFKEVRLPDAYERLFLEVFMSQINFVRTDELEYAWRILTPVLEELK-KKVQPV	488
S. POMBE	401	DLTYSRRFKNKLHEA YEALFLDAFAGDQSRFARIDELECAWSLVDP LLKYMEE-EKPVPE	460
S. CEREVISIAE	403	NLTYASRYQDFWIPEAYEVLIRDALLDGHSNFVRDDELDISWGIFTPLLKHIERPDGPTPE	463
A. THALIANA	422	DLSYGQRYQGVAIPEAYERLILDTIKGDQQHFVRRDELKVAVEIFTPLLHRIDK-GEV KSI	481

K497



K514



H. SAPIENS	481	PYIYGSRGPTAEDELMKRVGFQYE--GTYK--WV-----NPHKL	515
M. MUSCULUS	481	PYVYGSRGPTAEDELMKRVGFQYE--GTYK--WV-----NPHKL	515
D. MELANOGASTER	486	TYQYGSRGPKADRCKEENNFKYS--GSYK--WHGGKAATSNH---	524
C. ELEGANS	489	QYKFGSRGPTGDELMMKYGFIFT--GTYK--WV-----APK-L	522
S. POMBE	461	PYEGSDGPECLYSFLKKGFIYDSDPYD--YVMS---VPSDH	500
S. CEREVISIAE	464	IYPYGSRGPKGLKEYMQKHKYVMPEKHPYA--WPVTKPEDTKDN-	505
A. THALIANA	482	PYKPGSRGPKAQDQLEKAGYLQT--HGVI--WI-----PPTL	515

Supplementary Fig.1 K403 of G6PD is evolutionarily conserved from yeast to human.

Sequences of G6PD from various species were aligned, and the acetylated lysine residues of G6PD identified by MS study (Choudhary et al, 2009) were colored in red.