

Table S16: Acetylated N-termini identified in the TAILS experiment comparing wild-type and *Ctsb*^{-/-} skin (replicate 2). Up to two potential protein IDs per peptide are stated.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	AAAAAAAAAAGAAGGR	N-ter + 42.01 Da	64.5	73.6	2	1239.72	n.d.	n.d.	PABP2_MOUSE		Polyadenylate-binding protein 2;	Nuclear poly(A)-binding protein 1;Poly(A)-binding protein II;Polyadenylate-binding nuclear protein 1;
MA	AAAAAAAAAAGAAGGR	N-ter + 42.01 Da	51.5	79.1	2	1168.69	n.d.	n.d.	PABP2_MOUSE		Polyadenylate-binding protein 2;	Nuclear poly(A)-binding protein 1;Poly(A)-binding protein II;Polyadenylate-binding nuclear protein 1;
MAA	AAAAAAAAAAGRGSGPGRR	N-ter + 42.01 Da	48.5	31.4	3	1764.96	n.d.	n.d.	PABP2_MOUSE		Polyadenylate-binding protein 2;	Nuclear poly(A)-binding protein 1;Poly(A)-binding protein II;Polyadenylate-binding nuclear protein 1;
AAAAAVAAA	AAAAAAEPPASGTTKR	N-ter + 42.01 Da, K +34.06 Da	41.3	28.1	3	1778.99	-2.56	0.30	ALKB5_MOUSE		Probable alpha-ketoglutarate-dependent dioxygenase ABH5;	Alkylated DNA repair protein alkB homolog 5; ERT2;Extracellular signal-regulated kinase 1;Insulin-stimulated MAP2 kinase;MAP kinase isoform p44;MNK1;Microtubule-associated protein 2 kinase;Mitogen-activated protein kinase 1;p44-ERK1;
M	AAAAAPGGGGGEPR	N-ter + 42.01 Da	37.4	75.4	2	1250.70	n.d.	n.d.	MK03_MOUSE	D323G6_MOUSE	Mitogen-activated protein kinase 3;	
M	AAAAAVAGAGR	N-ter + 42.01 Da	48.2	74.7	2	997.61	n.d.	n.d.	E9QN6_MOUSE			
M	AAAAAGPASSQR	N-ter + 42.01 Da	40.9	94.8	2	1098.65	n.d.	n.d.	SUGT1_MOUSE		Suppressor of G2 allele of SKP1 homolog;	
MA	AAAAAGPEMVR	N-ter + 42.01 Da	33.6	58.8	2	1084.60	n.d.	n.d.	MK01_MOUSE	E9QAI2_MOUSE	Mitogen-activated protein kinase 1;	
M	AAAAASGAGVAVAGAGGAPAGR	N-ter + 42.01 Da	41.0	96.4	3	1836.10	n.d.	n.d.	E9PU87_MOUSE			
M	AAAAATAATKNGGGSGR	N-ter + 42.01 Da, K +34.06 Da	39.3	61.6	3	1563.91	-0.60	0.05	HACD2_MOUSE		3-hydroxyacyl-CoA dehydratase 2;	Protein-tyrosine phosphatase-like member B; Modulator of estrogen-induced transcription;SAF-like transcription modulator;
M	AAAAGAVVASAASGPAEGKKTCLR	N-ter + 42.01 Da, K +34.06 Da	42.0	93.6	4	2405.62	1.24	0.13	SLTM_MOUSE		SAFB-like transcription modulator;	26S proteasome regulatory subunit RPN6;26S proteasome regulatory subunit S9;26S proteasome regulatory subunit p44.5;
M	AAAAVVEFQR	N-ter + 42.01 Da	36.8	54.1	2	1102.64	n.d.	n.d.	PSD11_MOUSE		26S proteasome non-ATPase regulatory subunit 11;	
M	AAAECCGVGVEDDR	N-ter + 42.01 Da, C +57.02 Da	30.7	77.1	2	1575.77	n.d.	n.d.	PEX19_MOUSE		Peroxisomal biogenesis factor 19;	Peroxin-19;Peroxisomal farnesylated protein;
M	AAAGGGAAAAAGR	N-ter + 42.01 Da	64.0	87.5	2	1012.59	n.d.	n.d.	RAB21_MOUSE	Q6A0C7_MOUSE	Ras-related protein Rab-21;	Rab-12; Synaptosomal-associated protein 25-binding protein;
M	AAAGSAVSGAGTPVAGPTGR	N-ter + 42.01 Da	36.5	108.9	3	1767.08	n.d.	n.d.	SNAPN_MOUSE		SNARE-associated protein Snapin;	
M	AAAKDGCGLTAAGNGR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	61.8	75.8	3	1687.92	0.89	0.09	PF3_MOUSE	Q3TIR6_MOUSE	Prefoldin subunit 3;	Von Hippel-Lindau-binding protein 1;
M	AAAMDVDTPSGTNSGAGKRR	N-ter + 42.01 Da, K +34.06 Da	37.2	37.7	3	2043.15	0.71	0.07	RBX1_MOUSE		E3 ubiquitin-protein ligase RBX1;	RING finger protein 75;RING-box protein 1; AC40;DNA-directed RNA polymerases I and III 40 kDa polypeptide;RPC40;
M	AAAQAVEEMR	N-ter + 42.01 Da	35.1	84.9	2	1116.62	n.d.	n.d.	RPAC1_MOUSE	F6ZXK9_MOUSE	DNA-directed RNA polymerases I and III subunit RPAC1;	Probable alpha-ketoglutarate-dependent dioxygenase ABH5;
M	AAASGYDLR	N-ter + 42.01 Da	39.0	73.6	2	1065.59	n.d.	n.d.	ALKB5_MOUSE			Alkylated DNA repair protein alkB homolog 5; Component of oligomeric Golgi complex 1;Low density lipoprotein receptor defect B-complementing protein;
M	AAATASSALKR	N-ter + 42.01 Da, K +28.03 Da	43.2	30.1	2	1115.66	-1.03	0.06	COG1_MOUSE	Q81057_MOUSE	Conserved oligomeric Golgi complex subunit 1;	Imidazole receptor 1;Imidazole receptor I-1-like protein;Imidazole-1 receptor;
M	AAATLSFGPER	N-ter + 42.01 Da	37.6	76.3	2	1160.67	n.d.	n.d.	NISCH_MOUSE	E9PWZ1_MOUSE	Nischarin;	
M	AAATPTETPAPEGSLGMDAR	N-ter + 42.01 Da	31.9	109.6	3	2041.17	n.d.	n.d.	PGM2_MOUSE		Phosphoglucosyltransferase 2;	Glucose phosphomutase 2;Phosphodeoxyribomutase;Phosphopentomutase;
M	AAAVAVAAASR	N-ter + 42.01 Da	47.6	74.0	2	998.62	n.d.	n.d.	E9Q1P8_MOUSE			25 kDa FK506-binding protein;FK506-binding protein 3;Immunophilin FKBP25;Rapamycin-selective 25 kDa immunophilin;Rotamase;
M	AAAVPQR	N-ter + 42.01 Da	27.3	84.1	2	753.48	n.d.	n.d.	FKBP3_MOUSE		Peptidyl-prolyl cis-trans isomerase FKBP3;	
M	AAAVVEEAAAGDVQR	N-ter + 42.01 Da	55.1	66.7	2	1497.84	n.d.	n.d.	NLE1_MOUSE		Notchless protein homolog 1;	
M	AADIEQVFR	N-ter + 42.01 Da	34.8	89.9	2	1089.64	n.d.	n.d.	SON_MOUSE		Protein SON;	Negative regulatory element-binding protein;
M	AADISQWAGPLCLQEVDEPPQHALR	N-ter + 42.01 Da, C +57.02 Da	58.9	61.1	3	2842.54	n.d.	n.d.	PEBP1_MOUSE	D321V4_MOUSE	Phosphatidylethanolamine-binding protein 1;	HCNPPp;
M	AAEEATLTVR	N-ter + 42.01 Da	43.4	80.4	2	1101.66	n.d.	n.d.	CB076_MOUSE		UPF0538 protein C2orf76 homolog;	
ARSVRTRRLA	AAEENLEVAR	N-ter + 42.01 Da	30.0	67.4	2	1142.63	n.d.	n.d.	ASH11_MOUSE		Histone-lysine N-methyltransferase ASH11;	ASH1-like protein;Absent small and homeotic disks protein 1 homolog;
M	AAGAAAALAFLNQESR	N-ter + 42.01 Da	33.9	70.8	2	1601.93	n.d.	n.d.	NPM3_MOUSE		Nucleoplasm-3;	
M	AAGDGDVKLSTLGGSGEGDGGSPGGAGATAAR	N-ter + 42.01 Da, K +34.06 Da	78.1	72.9	3	2878.59	-1.89	0.49	PGRC2_MOUSE		Membrane-associated progesterone receptor component 2;	
RGVSEGSAAAM	AAGESMAQR	N-ter + 42.01 Da	41.8	100.6	2	961.53	n.d.	n.d.	ORN_MOUSE		Oligoribonuclease, mitochondrial;	RNA exonuclease 2 homolog;Small fragment nuclease;
M	AAGFKTVEPLEYR	N-ter + 42.01 Da, K +28.03 Da	38.6	65.2	3	1712.99	-0.97	0.08	EXOS8_MOUSE	D3YYN3_MOUSE	Exosome complex component RRP43;	Exosome component 8;Ribosomal RNA-processing protein 43;
M	AAGGAVAVAPECR	N-ter + 42.01 Da, C +57.02 Da	40.7	74.0	2	1269.71	n.d.	n.d.	MKLN1_MOUSE		Muskelin;	
M	AAGTLYTYPENWR	N-ter + 42.01 Da	32.8	73.6	2	1582.86	n.d.	n.d.	EF1G_MOUSE		Elongation factor 1-gamma;	eEF-1B gamma;
M	AAGTSNYWEDLR	N-ter + 42.01 Da	27.9	75.9	2	1423.74	n.d.	n.d.	GOSR1_MOUSE	Q91VU9_MOUSE	Golgi SNAP receptor complex member 1;	28 kDa Golgi SNARE protein;28 kDa cis-Golgi SNARE p28;
M	AAKPKLYFNGR	N-ter + 42.01 Da, K +28.03 Da	25.5	56.4	3	1524.93	-1.15	0.10	GSTA4_MOUSE		Glutathione S-transferase A4;	GST A4-4;GST class-alpha member 4;Glutathione S-transferase 5.7;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	AALGEPVR	N-ter + 42.01 Da	27.0	74.9	2	853.53	n.d.	n.d.	LIN7C_MOUSE		Protein lin-7 homolog C;	Mammalian lin-seven protein 3;Vertebrate lin-7 homolog 3;
M	AALGSSSQNVTEYVVR	N-ter + 42.01 Da	31.5	110.8	3	1722.05	n.d.	n.d.	TZFA_MOUSE	E9Q7N7_MOUSE	General transcription factor IIF subunit 1;	Transcription initiation factor IIF subunit alpha;
M	AALTAEHFVALQSLKASSKDVVR	N-ter + 42.01 Da, K +34.06 Da	23.7	108.2	4	2663.85	0.16	0.01	COMD9_MOUSE		COMM domain-containing protein 9;	
M	AALVSETAEPGSR	N-ter + 42.01 Da	33.6	75.7	2	1427.83	n.d.	n.d.	DPH1_MOUSE		Diphthamide biosynthesis protein 1;	DPH1 homolog;Diphthamide biosynthesis protein 2 homolog-like 1;Ovarian cancer-associated gene 1 protein homolog;
M	AALYGGVEGGGTR	N-ter + 42.01 Da	33.9	78.1	2	1248.71	n.d.	n.d.	NAGK_MOUSE	D3YXG2_MOUSE	N-acetyl-D-glucosamine kinase;	GlcNAc kinase;
M	AAMAVGGAGGSR	N-ter + 42.01 Da	47.6	70.2	2	1045.57	n.d.	n.d.	ANM5_MOUSE		Protein arginine N-methyltransferase 5;	Histone-arginine N-methyltransferase PRMT5;Jak-binding protein 1;Shk1 kinase-binding protein 1 homolog;
M	AANATMATSGSAR	N-ter + 42.01 Da	41.5	82.5	2	1249.68	n.d.	n.d.	IF4A3_MOUSE	A2AFK7_MOUSE	Eukaryotic initiation factor 4A-III;	ATP-dependent RNA helicase DDX48;ATP-dependent RNA helicase eIF4A-3;DEAD box protein 48;Eukaryotic translation initiation factor 4A isoform 3;
M	AANATTNPQLLELVKICGSR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	45.6	64.5	3	2637.55	0.66	0.20	LSM5_MOUSE		U6 snRNA-associated Sm-like protein LSM5;	
M	AAPAAPAAAGETGPDAR	N-ter + 42.01 Da	40.8	56.8	2	1463.78	n.d.	n.d.	GLGB_MOUSE		1,4-alpha-glucan-branching enzyme;	Brancher enzyme;Glycogen-branching enzyme;
M	AAPAGGGSAVSLAPNGR	N-ter + 42.01 Da	36.5	118.1	3	1650.04	n.d.	n.d.	ASPC1_MOUSE		Tether containing UBX domain for GLUT4;	Alveolar soft part sarcoma chromosomal region candidate gene 1 protein homolog;
ADTSKQESNM	AAPAKGENLSLVVHGPDJR	N-ter + 42.01 Da, K +28.03 Da	58.2	52.2	3	2070.23	0.30	0.05	DHSO_MOUSE		Sorbitol dehydrogenase;	L-iditol 2-dehydrogenase;
M	AAPEDVAALQAEITR	N-ter + 42.01 Da	47.7	71.1	2	1595.93	n.d.	n.d.	MOC53_MOUSE		Adenylyltransferase and sulfurtransferase MOC53;	Molybdenum cofactor synthesis protein 3;
M	AAPPGYFVSGVQVSCR	N-ter + 42.01 Da, C +57.02 Da	29.3	98.4	3	1853.02	n.d.	n.d.	LSM12_MOUSE		Protein LSM12 homolog;	
M	AAPQDVHVR	N-ter + 42.01 Da	30.8	63.9	2	1033.60	n.d.	n.d.	SEC20_MOUSE	B8JJI4_MOUSE	Vesicle transport protein SEC20;	
M	AAPQLFR	N-ter + 42.01 Da	20.9	86.6	2	843.53	n.d.	n.d.	THTM_MOUSE	Q3UW66_MOUSE	3-mercaptopyruvate sulfurtransferase;	
M	AAPSEPAGFPR	N-ter + 42.01 Da	28.0	73.1	2	1140.64	n.d.	n.d.	ALR_MOUSE		FAD-linked sulphydryl oxidase ALR;	Augmenter of liver regeneration;
M	AAQALAAQAVASR	N-ter + 42.01 Da	41.0	73.8	2	1268.78	n.d.	n.d.	SYTC2_MOUSE		Probable threonine-tRNA ligase 2, cytoplasmic;	Threonyl-tRNA synthetase;Threonyl-tRNA synthetase-like protein 2;
M	AAQAVSLLR	N-ter + 42.01 Da	45.3	81.6	2	969.64	n.d.	n.d.	PSMD5_MOUSE		26S proteasome non-ATPase regulatory subunit 5;	26S protease subunit 55 basic;26S proteasome subunit 55B;
M	AAQVAPAAASSLGNPPPPSELKKAEEQQQR	N-ter + 42.01 Da, K +28.03 Da	26.5	88.9	4	3135.95	1.42	0.06	ARI1A_MOUSE	E9QAQ7_MOUSE	AT-rich interactive domain-containing protein 1A;	BRG1-associated factor 250a;BRG1-associated factor 250a;Osa homolog 1;SWI-like protein;SWI/SNF complex protein p270;SWI/SNF-related, matrix-associated, actin-dependent regulator of chromatin subfamily F member 1;
SSGFLSFHKM	AASEDELLPR	N-ter + 42.01 Da	37.1	64.6	2	1254.73	n.d.	n.d.	IGBP1_MOUSE	E9Q2M7_MOUSE	Immunoglobulin-binding protein 1;	Alpha4 phosphoprotein;CD79a-binding protein 1;Lymphocyte signal transduction molecule alpha 4;p52;
M	AASGDPGSAESYR	N-ter + 42.01 Da	34.6	85.5	2	1308.67	n.d.	n.d.	PUR8_MOUSE	E9Q0A0_MOUSE	Adenylosuccinate lyase;	Adenylosuccinase;
M	AASKVKQDMPPPGYGPIDYKR	N-ter + 42.01 Da, K +34.06 Da	52.5	80.5	4	2518.61	-2.25	0.11	NDUAD_MOUSE		NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13;	Cell death regulatory protein GRIM-19;Complex I-B16.6;Gene associated with retinoic and interferon-induced mortality 19 protein;NADH-ubiquinone oxidoreductase B16.6 subunit;
M	AASPSKTEIQTIFKR	N-ter + 42.01 Da, K +34.06 Da	39.5	60.5	3	1786.17	-0.71	0.13	ARFG2_MOUSE		ADP-ribosylation factor GTPase-activating protein 2;	GTPase-activating protein ZNF289;Zinc finger protein 289;
M	AASTDIAGLEESFR	N-ter + 42.01 Da	40.5	73.0	2	1507.83	n.d.	n.d.	TPPP3_MOUSE		Tubulin polymerization-promoting protein family member 3;	
M	AATAAEVAASGSGEAR	N-ter + 42.01 Da	51.6	72.7	2	1459.80	n.d.	n.d.	HIF1N_MOUSE		Hypoxia-inducible factor 1-alpha inhibitor;	Hypoxia-inducible factor asparagine hydroxylase;
M	AATAAVPGAAAAGR	N-ter + 42.01 Da	22.7	67.9	2	1124.67	n.d.	n.d.	EI2BE_MOUSE		Translation initiation factor eIF-2B subunit epsilon;	eIF-2B GDP-GTP exchange factor subunit epsilon;
M	AATFFGEVVKAPCR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	26.6	63.3	3	1621.93	0.35	0.05	PSMG1_MOUSE	D3Z795_MOUSE	Proteasome assembly chaperone 1;	Down syndrome critical region protein 2 homolog;
M	AATTGSQVIVPR	N-ter + 42.01 Da, K +34.06 Da	61.9	49.0	2	1218.77	1.18	0.14	UB2V1_MOUSE		Ubiquitin-conjugating enzyme E2 variant 1;	CROC-1;
M	AAVGSPPGLESAPR	N-ter + 42.01 Da	34.1	79.8	2	1339.78	n.d.	n.d.	TGT_MOUSE		Queuine tRNA-ribosyltransferase;	Guanine insertion enzyme;tRNA-guanine transglycosylase;
M	AAVKTLNPKAEVAR	N-ter + 42.01 Da, K +34.06 Da	39.2	82.5	3	1577.12	0.16	0.03	TCPZ_MOUSE	E9QPA6_MOUSE	T-complex protein 1 subunit zeta;	CCT-zeta-1;
M	AAVPSAVHLPR	N-ter + 42.01 Da	41.4	18.9	2	1158.67	n.d.	n.d.	LYPL1_MOUSE	E9QLB2_MOUSE	Lysophospholipase-like protein 1;	
M	AAVTEVVPAADGAEARPLAAEELAAQKR	N-ter + 42.01 Da, K +34.06 Da	31.5	95.2	4	2907.86	0.99	0.14	SYF2_MOUSE		Pre-mRNA-splicing factor SYF2;	CCNDBP1-interactor;mp29;p29;
M	AAVTVNSAKR	N-ter + 42.01 Da, K +28.03 Da	44.6	51.3	2	1085.68	-0.14	0.02	MTHF5_MOUSE	B2KF83_MOUSE	5-formyltetrahydrofolate cyclo-ligase;	5,10-methenyl-tetrahydrofolate synthetase;
M	AAYKLVLR	N-ter + 42.01 Da, K +28.03 Da	44.7	53.9	2	1115.77	-0.47	0.05	PGAM1_MOUSE		Phosphoglycerate mutase 1;	BPG-dependent PGAM 1;Phosphoglycerate mutase isozyme B;
MTLESIM	ACCLSEAKEAR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	54.4	54.8	2	1498.78	-2.40	0.38	GNAQ_MOUSE		Guanine nucleotide-binding protein G(q) subunit alpha;	Guanine nucleotide-binding protein alpha-q;
M	ACGLVASNLNLPKGECLKVR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	43.0	31.6	2	2308.38	0.12	0.00	LEG1_MOUSE		Galectin-1;	14 kDa lectin;Beta-galactoside-binding lectin L-14-I;Galactin;Lactose-binding lectin 1;Lectin galactoside-binding soluble 1;S-Lac lectin 1;
NNQGLTPLHL	ACKMGKQEMVR	N-ter + 42.01 Da, K +34.06 Da, C +28.03 Da, C +57.02 Da	25.1	5.6	2	1440.75	n.d.	n.d.	PA2G6_MOUSE		85 kDa calcium-independent phospholipase A2;	Group VI phospholipase A2;
M	ADAAAAPVQKR	N-ter + 42.01 Da, K +28.03 Da	50.8	40.2	2	1111.64	0.44	0.05	KDM3B_MOUSE	B9EK52_MOUSE	Lysine-specific demethylase 3B;	JmjC domain-containing histone demethylation protein 2B;Jumonji domain-containing protein 1B;
M	ADDVQQQTNTTVEEPLDIR	N-ter + 42.01 Da	31.1	100.8	3	2441.40	n.d.	n.d.	LSM3_MOUSE		U6 snRNA-associated Sm-like protein LSM3;	

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	ADEALAGLDEGALR	N-ter + 42.01 Da	40.4	73.1	2	1441.81	n.d.	n.d.	SMTN_MOUSE	D3VZ10_MOUSE	Smoothelin;	
M	ADEDEGEGIHPSAPHR	N-ter + 42.01 Da	34.8	92.9	3	1628.87	n.d.	n.d.	SNX27_MOUSE	D6RE54_MOUSE	Sorting nexin-27;	
M	ADEEKLPPGWKEKR	N-ter + 42.01 Da, K +28.03 Da	50.9	92.0	3	1652.01	0.59	0.02	PINI_MOUSE		Peptidyl-prolyl cis-trans isomerase NIMA-interacting 1;	Peptidyl-prolyl cis-trans isomerase Pin1;
M	ADEIAKAQVAQGGDTIFGKIIR	N-ter + 42.01 Da, K +28.03 Da	54.4	98.0	4	2495.62	-0.42	0.02	HINT1_MOUSE	B0R1E3_MOUSE	Histidine triad nucleotide-binding protein 1;	Adenosine 5'-monophosphoramidase;Protein kinase C inhibitor 1;Protein kinase C-interacting protein 1;
NIYKPNKKAM	ADEVTEKQVYDAHTKEIDLVR	N-ter + 42.01 Da, K +28.03 Da	46.2	73.1	4	2670.55	-1.64	0.26	CAV1_MOUSE	D3Z148_MOUSE	Caveolin-1;	Williams-Beuren syndrome chromosomal region 1 protein homolog;
M	ADFDTYDDR	N-ter + 42.01 Da	30.2	101.2	2	1158.56	n.d.	n.d.	IF4H_MOUSE	Q80U88_MOUSE	Eukaryotic translation initiation factor 4H;	
M	ADFLKGLPVYKNSFSR	N-ter + 42.01 Da, K +28.03 Da	52.1	69.3	3	2053.24	-0.67	0.13	DDA1_MOUSE	D3YXY5_MOUSE	DET1- and DDB1-associated protein 1;	
M	ADGELNVDSLITR	N-ter + 42.01 Da	37.0	101.4	2	1443.87	n.d.	n.d.	PP1B_MOUSE		Serine/threonine-protein phosphatase PP1-beta catalytic subunit;	
M	ADGGAASQDESSAAAAAADS	N-ter + 42.01 Da	57.4	111.2	3	1991.07	n.d.	n.d.	E9Q6Z8_MOUSE			SH3 domain-containing protein SH3P3;SH3-containing adapter molecule 1;Sorbin and SH3 domain-containing protein 3;
SSRPLSPHRM	ADGGGSPFLGR	N-ter + 42.01 Da	35.7	96.3	2	1074.61	n.d.	n.d.	VINEX_MOUSE		Vinexin;	
M	ADIDKLNDSIIQR	N-ter + 42.01 Da, K +34.06 Da	53.0	65.8	3	1689.06	-0.67	0.19	PP1G_MOUSE		Serine/threonine-protein phosphatase PP1-gamma catalytic subunit;	Protein phosphatase 1C catalytic subunit; HCNPpp;
MA	ADISQWAGLCLQEVDEPQHALR	N-ter + 42.01 Da, K +57.02 Da	38.0	50.7	3	2771.47	n.d.	n.d.	PEBP1_MOUSE	D3Z1V4_MOUSE	Phosphatidylethanolamine-binding protein 1;	Chromatin assembly factor I subunit C;Chromatin assembly factor I p48 subunit;Nucleosome-remodeling factor subunit RBAP48;Retinoblastoma-binding protein 4;Retinoblastoma-binding protein p48;
M	ADKEAAFDDAVEER	N-ter + 42.01 Da, K +28.03 Da	67.9	31.0	2	1634.79	0.21	0.02	RBBP4_MOUSE	E9PYH8_MOUSE	Histone-binding protein RBBP4;	
M	ADKMDMSLDDIKNLR	N-ter + 42.01 Da, K +28.03 Da	60.2	33.6	3	1975.08	0.77	0.19	REFP2_MOUSE	THOC4_MOUSE	RNA and export factor-binding protein 2;	
M	ADLEEQLSDEEKVR	N-ter + 42.01 Da, K +34.06 Da	54.2	34.1	3	1735.93	-0.84	0.15	CAZA2_MOUSE	D6RCW7_MOUSE	F-actin-capping protein subunit alpha-2;	Cap2 alpha-2;
NKCVYHILR	ADLPPPEEEK	N-ter + 42.01 Da, K +34.06 Da	23.6	38.8	2	1199.66	-3.06	0.51	ECSIT_MOUSE		Evolutionarily conserved signaling intermediate in Toll pathway, mitochondrial;	Protein SITPEC;
M	ADLSLVLDALTEPPEIEGEIKR	N-ter + 42.01 Da, K +28.03 Da	45.0	58.0	3	2461.44	0.52	0.14	MAP4_MOUSE	Q78TF3_MOUSE	Microtubule-associated protein 4;	
M	ADMQNQLVER	N-ter + 42.01 Da	42.7	94.5	2	1116.63	n.d.	n.d.	CAP1_MOUSE	B1AR50_MOUSE	Adenylyl cyclase-associated protein 1;	
MPVAVM	ADNAFSFR	N-ter + 42.01 Da	28.8	67.1	2	968.50	n.d.	n.d.	CSN8_MOUSE		COP9 signalosome complex subunit 8;	COP9 homolog;JAB1-containing signalosome subunit 8;
M	ADNPVLELLR	N-ter + 42.01 Da	31.6	67.1	2	1293.82	n.d.	n.d.	SYFA_MOUSE	Q88JG2_MOUSE	Phenylalanine-tRNA ligase alpha chain;	Phenylalanyl-tRNA synthetase alpha chain;
M	ADPESPWSQIGR	N-ter + 42.01 Da	30.9	56.4	2	1383.72	n.d.	n.d.	STAR4_MOUSE	Q80SX0_MOUSE	StAR-related lipid transfer protein 4;	START domain-containing protein 4;
PVAAEPAAL	ADQGAAMAAADIAR	N-ter + 42.01 Da	48.6	82.7	2	1301.71	n.d.	n.d.	A2A3W1_MOUSE			
M	ADSGPAGGAAALAPAPGGSGTGPR	N-ter + 42.01 Da	27.1	96.7	3	2188.26	n.d.	n.d.	PP14B_MOUSE		Protein phosphatase 1 regulatory subunit 14B;	Phosphatase holoenzyme inhibitor 1;Phospholipase C-beta-3 neighbouring gene protein;
M	ADTAPQLKR	N-ter + 42.01 Da, K +34.06 Da	40.9	58.0	2	1074.69	-0.27	0.03	DCPS_MOUSE	Q3TBW9_MOUSE	Scavenger mRNA-decapping enzyme Dcp5;	DCS-1;Hint-related 7meGMP-directed hydrolase;Histidine triad protein member 5;
IQTQQLHAAM	ADTFLEHMCR	N-ter + 42.01 Da, C +57.02 Da	49.6	78.1	2	1320.66	n.d.	n.d.	KPYM_MOUSE		Pyruvate kinase isozymes M1/M2;	Pyruvate kinase muscle isozyme;
M	ADTPSVYETR	N-ter + 42.01 Da	37.8	86.3	2	1179.64	n.d.	n.d.	ACBD5_MOUSE	E9QNH7_MOUSE	Acyl-CoA-binding domain-containing protein 5;	
M	ADTQYILPNDIGVSSLDRCR	N-ter + 42.01 Da, C +57.02 Da	39.3	110.6	3	2178.27	n.d.	n.d.	DPP3_MOUSE		Dipeptidyl peptidase 3;	Dipeptidyl aminopeptidase III;Dipeptidyl arylamidase III;Dipeptidyl peptidase III;
M	ADTYAVVQKR	N-ter + 42.01 Da, K +28.03 Da	48.6	46.4	2	1219.71	0.28	0.04	PTN18_MOUSE	Q3V441_MOUSE	Tyrosine-protein phosphatase non-receptor type 18;	Fetal liver phosphatase 1;PTP-K1;
M	ADYSTVPPSSGSAGGGGVVNDAFKDALQR	N-ter + 42.01 Da, K +28.03 Da	41.3	86.3	4	3103.75	1.12	0.03	FUBP1_MOUSE	Q3TUE1_MOUSE	Far upstream element-binding protein 1;	
M	AEAIDPR	N-ter + 42.01 Da	24.6	90.0	2	883.52	n.d.	n.d.	LSP1_MOUSE	A2A6J7_MOUSE	Lymphocyte-specific protein 1;	52 kDa phosphoprotein;Lymphocyte-specific antigen WP34;S37 protein;
M	AEAEAALKEEGNR	N-ter + 42.01 Da, K +34.06 Da	30.2	63.9	3	1590.91	-2.06	0.17	UN45B_MOUSE		Protein unc-45 homolog B;	
M	AEAPQVETDPDFEPLPR	N-ter + 42.01 Da	34.5	110.4	3	2051.21	n.d.	n.d.	FOXO1_MOUSE		Forkhead box protein O1A;	Forkhead in rhabdomyosarcoma;
M	AEFPSKVSTR	N-ter + 42.01 Da, K +28.03 Da	45.9	43.1	2	1190.68	-1.94	0.08	PLL_MOUSE		Plasmolipin;	Plasma membrane proteolipid;
M	AEGEDVGVVWR	N-ter + 42.01 Da	36.0	81.8	2	1245.64	n.d.	n.d.	BSDC1_MOUSE	D6RDC8_MOUSE	BSD domain-containing protein 1;	
M	AEGGAADLTQR	N-ter + 42.01 Da	46.1	85.4	2	1244.67	n.d.	n.d.	UBP15_MOUSE	Q3UZHO_MOUSE	Ubiquitin carboxyl-terminal hydrolase 15;	Deubiquitinating enzyme 15;Ubiquitin thiolesterase 15;Ubiquitin-specific-processing protease 15;
M	AEGGQAQQPPQLGPGAAAR	N-ter + 42.01 Da	28.2	110.5	3	1973.19	n.d.	n.d.	RF0X2_MOUSE		RNA binding protein fox-1 homolog 2;	Fox-1 homolog B;Fox-1 homolog Fxh;Hexaribonucleotide-binding protein 2;RNA-binding motif protein 9;RNA-binding protein 9; Class II mMOB1;Mob1 homolog 3;Mps one binder kinase activator-like 3;Preimplantation protein 3;
MVM	AEGTAVLR	N-ter + 42.01 Da	36.9	82.3	2	857.53	n.d.	n.d.	MOBL3_MOUSE	E0CX17_MOUSE	MOB-like protein phocein;	
M	AEKTQKSVKIAPGAVVCESEIR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	37.0	73.3	4	2642.75	0.10	0.01	DCTN6_MOUSE	D3Z6A1_MOUSE	Dynactin subunit 6;	Dynactin subunit p27;Protein WS-3;
GTDPTSRKM	AELLEVTLDGKPLQALR	N-ter + 42.01 Da, K +34.06 Da	48.1	55.7	3	1957.20	1.60	0.49	ACINU_MOUSE	E9Q9R4_MOUSE	Apoptotic chromatin condensation inducer in the nucleus;	
M	AELQEVQITEEKPLPGQTPETAKEAELAAR	N-ter + 42.01 Da, K +34.06 Da	39.9	82.2	4	3499.20	-1.56	0.23	NDRG2_MOUSE		Protein NDRG2;	Protein Ndr2;
M	AELVQGQSAPVGMKAEGFVDALHR	N-ter + 42.01 Da, K +28.03 Da	45.9	93.9	4	2579.56	0.71	0.14	A2AJ72_MOUSE	Q3TIX6_MOUSE		
M	AENGESSPPRPSR	N-ter + 42.01 Da	28.6	79.9	3	1481.80	n.d.	n.d.	UBQL2_MOUSE		Ubiquilin-2;	Chap1;DSK2 homolog;Protein linking IAP with cytoskeleton 2;Ubiquitin-like product Chap1/Dsk2;
M	AENHCELLPPASGLGAGLGGGLCR	N-ter + 42.01 Da, C +57.02 Da	52.6	77.5	3	2544.42	n.d.	n.d.	KCTD5_MOUSE		BTB/POZ domain-containing protein KCTD5;	

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	AENLDGPPNPKR	N-ter + 42.01 Da, K +28.03 Da	27.7	22.5	2	1489.82	1.01	0.04	CBP_MOUSE	F8VPR5_MOUSE	CREB-binding protein;	
M	AENNAQNKAKLISETR	N-ter + 42.01 Da, K +28.03 Da	32.3	84.0	3	1884.17	-0.36	0.08	MSPD2_MOUSE	B1AU74_MOUSE	Motile sperm domain-containing protein 2;	
M	AENPGLENHR	N-ter + 42.01 Da	35.5	62.6	2	1177.62	n.d.	n.d.	IMA3_MOUSE	E9Q1R3_MOUSE	Importin subunit alpha-3;	Importin alpha Q2;Karyopherin subunit alpha-3;
M	AEPGTGSDPAFGPGASESGTR	N-ter + 42.01 Da	38.0	106.2	3	2046.11	n.d.	n.d.	SAFB2_MOUSE	D6RJ78_MOUSE	Scaffold attachment factor B2;	
M	AEPWGNELASAAAR	N-ter + 42.01 Da	47.4	79.2	2	1483.82	n.d.	n.d.	CDN2C_MOUSE		Cyclin-dependent kinase 4 inhibitor C;	Cyclin-dependent kinase 6 inhibitor;p18-INK4c;p18-INK6;
M	AEQVALSR	N-ter + 42.01 Da	26.4	96.9	2	914.57	n.d.	n.d.	G6PD1_MOUSE	A3KG36_MOUSE	Glucose-6-phosphate 1-dehydrogenase X;	
M	AERPEDLNLPNAVITR	N-ter + 42.01 Da	40.5	48.2	3	1849.06	n.d.	n.d.	DPOE3_MOUSE	D6RDT4_MOUSE	DNA polymerase epsilon subunit 3;	DNA polymerase II subunit 3;DNA polymerase epsilon subunit p17;NF-YB-like protein;YB-like protein 1;
M	AESDWDVTVTLR	N-ter + 42.01 Da	36.9	76.9	2	1432.79	n.d.	n.d.	EDF1_MOUSE		Endothelial differentiation-related factor 1;	Multiprotein-bridging factor 1;
M	AESNEEVAVLVQR	N-ter + 42.01 Da	30.7	69.5	2	1484.85	n.d.	n.d.	E9QA66_MOUSE			
M	AESPFLSAKDEGSFAYLTIKDR	N-ter + 42.01 Da, K +28.03 Da	33.6	55.7	3	2613.48	-0.52	0.03	CF211_MOUSE	D6RG65_MOUSE	UPF0364 protein C6orf211 homolog;	
M	AESPAPGAAAESGEEQER	N-ter + 42.01 Da, C +57.02 Da	37.0	106.2	3	1987.03	n.d.	n.d.	E9QL96_MOUSE			
M	AESSELSASSPAR	N-ter + 42.01 Da	50.0	83.3	2	1419.77	n.d.	n.d.	MCM2_MOUSE		DNA replication licensing factor MCM2;	Minichromosome maintenance protein 2 homolog;Nuclear protein BM28;
M	AETAASGGGGSDGSGVACER	N-ter + 42.01 Da, C +57.02 Da	43.9	108.6	3	1878.97	n.d.	n.d.	DUS3L_MOUSE		tRNA-dihydrouridine(47) synthase [NAD(P)(+)]-like;	tRNA-dihydrouridine synthase 3-like;
M	AETLSGLGDASAAGAAVSSAASSETGTR	N-ter + 42.01 Da	39.1	98.2	3	2520.44	n.d.	n.d.	D3YXK2_MOUSE	E9PZM6_MOUSE		
MAFPPLWE	AEVEETLKR	N-ter + 42.01 Da, K +28.03 Da	51.5	42.9	2	1143.66	1.16	0.11	DLR81_MOUSE	A2AVR9_MOUSE	Dynein light chain roadblock-type 1;	Dynein light chain 2A, cytoplasmic; 60 kDa Tat-interactive protein;Histone acetyltransferase HTATIP;Lysine acetyltransferase 5;
M	AEVGEIEGCR	N-ter + 42.01 Da, C +57.02 Da	31.2	75.7	2	1273.69	n.d.	n.d.	KAT5_MOUSE	E9PXP9_MOUSE	Histone acetyltransferase KAT5;	
M	AFASDENVVHSSNAVYR	N-ter + 42.01 Da	40.2	32.9	3	1970.94	n.d.	n.d.	S29A3_MOUSE	D6R195_MOUSE	Equilibrative nucleoside transporter 3;	Solute carrier family 29 member 3;
M	AFCAAPPAYLTHQKVLRL	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	28.2	64.2	3	2069.22	0.23	0.03	NDUB9_MOUSE		NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9;	Complex I-B22;NADH-ubiquinone oxidoreductase B22 subunit;
M	AFKDTGKTPVEVAIHR	N-ter + 42.01 Da, K +34.06 Da	41.8	74.3	4	2104.35	0.72	0.05	RS20_MOUSE		40S ribosomal protein S20;	
M	AFSQVQLCLDDHNNWNWR	N-ter + 42.01 Da, C +57.02 Da	40.7	77.3	3	2030.06	n.d.	n.d.	FA83G_MOUSE		Protein FAM83G;	
M	AGAACCFSDEQFR	N-ter + 42.01 Da, C +57.02 Da	31.8	115.5	3	1559.79	n.d.	n.d.	PPCT_MOUSE	Q5SV41_MOUSE	Phosphatidylcholine transfer protein;	START domain-containing protein 2;STAR-related lipid transfer protein 2;
M	AGARPGVHALQLEPPTVETLR	N-ter + 42.01 Da	46.1	78.2	3	2352.48	n.d.	n.d.	PLCB3_MOUSE		1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase beta-3;	Phosphoinositide phospholipase C-beta-3;Phospholipase C-beta-3; Protein kinase C-like 1;Protein kinase C-like PKN;Protein-kinase C-related kinase 1;Serine-threonine protein kinase N;
M	AGDAVQSEPR	N-ter + 42.01 Da	30.9	52.2	2	1070.56	n.d.	n.d.	PKN1_MOUSE		Serine/threonine-protein kinase N1;	
M	AGEGLGQGSASATAAPETR	N-ter + 42.01 Da	37.3	119.6	3	1813.08	n.d.	n.d.	RAB32_MOUSE		Ras-related protein Rab-32;	
M	AGGEAGVTLGQPILSR	N-ter + 42.01 Da	45.8	55.7	3	1590.90	n.d.	n.d.	IF2H_MOUSE		Eukaryotic translation initiation factor 2 subunit 3, Y-linked;	Eukaryotic translation initiation factor 2 subunit gamma, Y-linked;
M	AGGEGVTLGQPILSR	N-ter + 42.01 Da	53.5	50.1	3	1576.87	n.d.	n.d.	IF2G_MOUSE	A2AAW9_MOUSE	Eukaryotic translation initiation factor 2 subunit 3, X-linked;	Eukaryotic translation initiation factor 2 subunit gamma, X-linked;
M	AGKKVCIVGSGNWGSAIAKIVGNSNAGR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	49.0	105.8	4	2800.92	-0.92	0.05	GPDA_MOUSE	E0CXN5_MOUSE	Glycerol-3-phosphate dehydrogenase [NAD+], cytoplasmic;	
M	AGKPVLYHFDGR	N-ter + 42.01 Da, K +28.03 Da	44.7	49.2	3	1428.82	-0.81	0.09	GSTA3_MOUSE		Glutathione S-transferase A3;	GST class-alpha member 3;Glutathione S-transferase Ya3;Glutathione S-transferase Yc; GST class-alpha member 1;Glutathione S-transferase Ya;Glutathione S-transferase Ya1;
M	AGKPVLYHFNAR	N-ter + 42.01 Da, K +34.06 Da	23.3	46.7	3	1447.88	0.47	0.05	GSTA1_MOUSE	GSTA2_MOUSE	Glutathione S-transferase A1;	
M	AGLGHPSAFGR	N-ter + 42.01 Da	49.7	71.6	2	1110.64	n.d.	n.d.	DDAH1_MOUSE		N-(G),N(G)-dimethylarginine dimethylaminohydrolyase 1;	DDAH1;Dimethylargininase-1;
M	AGLDQHEGTVQVQGNLFFR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	46.6	93.9	4	2433.57	-2.25	0.11	NDUA5_MOUSE		NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5;	Complex I subunit B13;Complex I-13kD-B;NADH-ubiquinone oxidoreductase 13 kDa-B subunit;
M	AGLNSLEAVKR	N-ter + 42.01 Da, K +28.03 Da	51.4	45.9	2	1226.76	-0.17	0.01	TPM4_MOUSE		Tropomyosin alpha-4 chain;	Tropomyosin-4;
M	AGNKVPALASHQPDR	N-ter + 42.01 Da, K +34.06 Da	30.3	69.8	3	1733.06	1.19	0.13	TRUA_MOUSE	D3Z092_MOUSE	tRNA pseudouridine synthase A, mitochondrial;	tRNA pseudouridylate synthase I;tRNA-uridine isomerase I;
M	AGPGPGAALLESPR	N-ter + 42.01 Da	48.5	81.7	2	1220.71	n.d.	n.d.	HECD3_MOUSE		E3 ubiquitin-protein ligase HECTD3;	HECT domain-containing protein 3;
M	AGSSAEQAADYR	N-ter + 42.01 Da	40.8	86.1	2	1266.66	n.d.	n.d.	SYCC_MOUSE		Cysteine-tRNA ligase, cytoplasmic;	CysteinyI-tRNA synthetase;
M	AGSVADSDAVKLLDDGHLNLSGSPQADVYFPR	N-ter + 42.01 Da, K +28.03 Da	49.2	87.0	4	3583.07	0.28	0.08	LEGLA_MOUSE		Galectin-related protein A;	Lectin galactoside-binding-like protein A;
M	AGTTTIEAVKR	N-ter + 42.01 Da, K +34.06 Da	50.4	38.4	2	1221.76	1.40	0.18	Q8C7C3_MOUSE	D3Z618_MOUSE		
M	AGVDQHEGTVQVQGNLFFR	N-ter + 42.01 Da	47.5	56.4	3	2285.25	n.d.	n.d.	ABHEB_MOUSE		Abhydrolase domain-containing protein 14B;	CCG1-interacting factor B;
LLADAYSGRM	AGVRPDNPVAEVVAGAR	N-ter + 42.01 Da	48.6	35.4	3	1621.91	n.d.	n.d.	KBTBB_MOUSE		Kelch repeat and BTB domain-containing protein 11;	
M	AHIFVYGTLLKR	N-ter + 42.01 Da, K +28.03 Da	29.6	55.9	3	1373.86	-0.64	0.07	A2LD1_MOUSE	E0CZ04_MOUSE	Gamma-glutamylaminocyclotransferase;	
M	AKIAQGAMYR	N-ter + 42.01 Da, K +34.06 Da	51.6	50.2	2	1183.72	0.59	0.03	ANXA6_MOUSE	F8WIT2_MOUSE	Annexin A6;	
EVSSVPTNGM	AKNGSEADIDESLYSR	N-ter + 42.01 Da, K +28.03 Da	54.1	61.4	3	1823.97	-0.09	0.01	UBA1_MOUSE		Ubiquitin-like modifier-activating enzyme 1;	AIG2-like domain-containing protein 1; 67 kDa calelectrin;Annexin VI;Annexin-6;Calphobindin-II;Chromobindin-20;Lipocortin VI;Protein III;p68;p70;
M	AKTEEMVQTEEMETPR	N-ter + 42.01 Da, K +28.03 Da	42.8	60.7	3	1978.02	0.16	0.02	BAG1_MOUSE	F6TFC9_MOUSE	BAG family molecular chaperone regulator 1;	Bcl-2-associated athanogene 1;
M	AKVAKDLNPGVQKMSLGGQQQSAR	N-ter + 42.01 Da, K +34.06 Da	37.6	71.9	4	2597.70	-0.71	0.09	LMCD1_MOUSE	E9Q306_MOUSE	LIM and cysteine-rich domains protein 1;	
M	AKVEQVLSLEPQHELKFR	N-ter + 42.01 Da, K +28.03 Da	48.5	70.0	4	2248.42	-0.12	0.01	VAPB_MOUSE	Q88H80_MOUSE	Vesicle-associated membrane protein-associated protein B;	VAMP-associated protein 33b;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	ALDGPEQMELEEGKAGSGLR	N-ter + 42.01 Da, K +34.06 Da	54.5	42.8	3	2162.17	0.44	0.05	PRSS_MOUSE		26S proteasome AAA-ATPase subunit RPT6;Proteasome 26S subunit ATPase	26S proteasome AAA-ATPase subunit RPT6;Proteasome 26S subunit ATPase
M	ALKQISSNR	N-ter + 42.01 Da, K +28.03 Da	46.8	84.1	2	1085.71	-1.06	0.09	ESTD_MOUSE		5-Formylglutathione hydrolase;	5-Formylglutathione hydrolase;
M	ALLAEHLKPLPADR	N-ter + 42.01 Da, K +34.06 Da	36.9	24.0	3	1732.09	-0.89	0.26	GLTP_MOUSE	D3Z1H9_MOUSE	Glycolipid transfer protein;	Esterase 10;Esterase D;Sid 478;
M	ALQALHSSGVGLR	N-ter + 42.01 Da	57.1	23.9	2	1349.77	n.d.	n.d.	MMP37_MOUSE	D6RGT1_MOUSE	Mitochondrial translocator assembly and maintenance protein 41 homolog;	MMP37-like protein, mitochondrial;
HKLVDNWARD	AMNLSGRR	N-ter + 42.01 Da	11.2	61.5	2	945.54	n.d.	n.d.	WNK1_MOUSE	F6TAR7_MOUSE	Serine/threonine-protein kinase WNK1;	Protein kinase lysine-deficient 1;Protein kinase with no lysine 1;
M	AMQKIFAR	N-ter + 42.01 Da, K +34.06 Da	42.6	41.7	2	1039.65	-0.58	0.01	ENOB_MOUSE	Q5SX59_MOUSE	Beta-enolase;	2-phospho-D-glycerate hydro-lyase;Enolase
M	AMVSEFLKQAR	N-ter + 42.01 Da, K +28.03 Da	56.1	76.1	2	1348.82	0.71	0.09	ANXA1_MOUSE	E9QA30_MOUSE	Annexin A1;	3;Muscle-specific enolase;Skeletal muscle enolase;
M	ANEVQLVPLPKGR	N-ter + 42.01 Da, K +28.03 Da	39.7	32.3	3	1576.94	0.31	0.04	DAPL1_MOUSE		Death-associated protein-like 1;	Annexin I;Annexin-1;Calpactin II;Calpactin-2;Chromobindin-9;Lipocortin I;Phospholipase A2 inhibitory protein;p35;
M	ANHAPFETDISTLTR	N-ter + 42.01 Da	40.8	56.4	3	1713.93	n.d.	n.d.	F16P1_MOUSE	E9Q0T7_MOUSE	Fructose-1,6-bisphosphatase 1;	Early epithelial differentiation-associated protein;
M	ANKAPSQMER	N-ter + 42.01 Da, K +34.06 Da	27.2	47.7	2	1206.68	-0.64	0.09	S10A9_MOUSE		Protein S100-A9;	D-fructose-1,6-bisphosphate 1-phosphohydrolase 1;
M	ANKGPSYGMRSR	N-ter + 42.01 Da, K +34.06 Da	47.9	54.8	2	1242.69	-0.38	0.03	TAGL_MOUSE		Transgelin;	Calgranulin-B;Leukocyte L1 complex heavy chain;Migration inhibitory factor-related protein
M	ANSANTNTVPKLYR	N-ter + 42.01 Da, K +28.03 Da	35.2	65.7	3	1617.95	0.77	0.04	TF2AA_MOUSE		Transcription initiation factor IIA subunit 1;	14;S100 calcium-binding protein A9;
M	ANVADTKLYDILGVPPGASENELKKAYR	N-ter + 42.01 Da, K +28.03 Da	34.5	82.2	4	3157.96	0.61	0.02	DNIA2_MOUSE		Dnaj homolog subfamily A member 2;	Actin-associated protein p27;Smooth muscle protein 22-alpha;
M	APKVSDSVQRLR	N-ter + 42.01 Da, K +28.03 Da	32.3	86.0	3	1397.87	0.44	0.05	TOM34_MOUSE		Mitochondrial import receptor subunit TOM34;	General transcription factor IIA subunit 1;
M	AQALSEEEFQR	N-ter + 42.01 Da	34.0	88.3	2	1348.74	n.d.	n.d.	GRAP1_MOUSE	AZAEW6_MOUSE	GRIP1-associated protein 1;	mDj3;
M	AQAPAKCPSYPGSGDGMGKLR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	56.2	73.0	3	2386.38	-0.74	0.12	GMDS_MOUSE		GDP-mannose 4,6 dehydratase;	GDP-D-mannose dehydratase;
M	AQAPTIVITQPGFVR	N-ter + 42.01 Da	31.9	102.6	3	1625.06	n.d.	n.d.	PLAC8_MOUSE		Placenta-specific gene 8 protein;	Onzin;Protein C15;
M	AQDGVLEKSVR	N-ter + 42.01 Da, K +28.03 Da	47.8	44.9	2	1399.79	0.30	0.03	CS066_MOUSE		UPF0515 protein C19orf66 homolog;	
M	AQDLSEKELLR	N-ter + 42.01 Da, K +28.03 Da	35.9	3.0	2	1370.74	-0.30	0.02	GBGT2_MOUSE		Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-T2;	G gamma-C;G-gamma-8;
M	AQDQGEKENPMR	N-ter + 42.01 Da, K +34.06 Da	51.0	41.4	2	1477.77	0.47	0.06	RL11_MOUSE	D3Z3K1_MOUSE	60S ribosomal protein L11;	
M	AQELQHPFAR	N-ter + 42.01 Da	51.3	42.7	2	1366.72	n.d.	n.d.	ADSV_MOUSE	E9QM03_MOUSE	Adseverin;	Gelsolin-like protein;Scinderin;
M	AQERPSCAVEPEHVQR	N-ter + 42.01 Da, C +57.02 Da	45.7	91.1	3	1934.08	n.d.	n.d.	CDD_MOUSE		Cytidine deaminase;	Cytidine aminohydrolase;
M	AQEVSEYLSQNPR	N-ter + 42.01 Da	36.9	71.8	2	1561.85	n.d.	n.d.	CARF_MOUSE		CDKN2A-interacting protein;	Collaborator of ARF;
M	AQGSHQIDFVLHDLR	N-ter + 42.01 Da	57.7	53.3	3	1905.05	n.d.	n.d.	TAB2_MOUSE	D3Z216_MOUSE	TGF-beta-activated kinase 1 and MAP3K7-binding protein 2;	Mitogen-activated protein kinase kinase kinase 7-interacting protein 2;TAK1-binding protein 2;TGF-beta-activated kinase 1-binding protein 2;
SALARETRAM	AQKPDGGAGLR	N-ter + 42.01 Da, K +28.03 Da	35.0	47.2	2	1138.66	0.79	0.09	MAGD1_MOUSE	F6YTL0_MOUSE	Melanoma-associated antigen D1;	Dlxin-1;MAGE-D1 antigen;Neurotrophin receptor-interacting MAGE homolog;
M	AQNLKDLAGR	N-ter + 42.01 Da, K +34.06 Da	44.0	33.3	2	1160.71	-1.60	0.19	PHB2_MOUSE	E9Q313_MOUSE	Prohibitin-2;	B-cell receptor-associated protein BAP37;Repressor of estrogen receptor activity;
M	AQPGPAPQPDVSLQQR	N-ter + 42.01 Da	31.9	116.0	3	1730.08	n.d.	n.d.	RABE1_MOUSE	Q5QNU4_MOUSE	Rab GTPase-binding effector protein 1;	Rabaptin-5;Rabaptin-5alpha;
EERSVNCGTM	AQPKNLEGVVGFANLPNQVYR	N-ter + 42.01 Da, K +34.06 Da	65.8	70.1	3	2453.46	-0.27	0.05	SEPT7_MOUSE	E9Q9F5_MOUSE	Septin-7;	CDC10 protein homolog;
M	AQWNQLQLDTR	N-ter + 42.01 Da	32.3	64.8	2	1541.86	n.d.	n.d.	STAT3_MOUSE	B7ZC18_MOUSE	Signal transducer and activator of transcription 3;	Acute-phase response factor;
M	ASALEQFVNSVR	N-ter + 42.01 Da	36.4	86.4	2	1361.81	n.d.	n.d.	CSN3_MOUSE	Q8BX58_MOUSE	COP9 signalosome complex subunit 3;	JAB1-containing signalosome subunit 3;
M	ASAMAGAGPAPGLPVAGGPVPGVIGIPGKSGE	N-ter + 42.01 Da, K +34.06 Da	33.2	84.4	4	3239.99	0.85	0.11	D3YYW8_MOUSE			
M	ER	N-ter + 42.01 Da	26.7	78.9	2	1110.62	n.d.	n.d.	RAB3D_MOUSE	D3YVW3_MOUSE	Ras-related protein Rab-3D;	
M	ASASYHISNLEKMTSSDKDFR	N-ter + 42.01 Da, K +34.06 Da	26.8	107.1	4	2609.62	-0.64	0.13	CAND1_MOUSE		Cullin-associated NEDD8-dissociated protein 1;	Cullin-associated and neddylation-dissociated protein 1;p120 CAND1;
M	ASAVSPANLPAVLLQPR	N-ter + 42.01 Da	33.2	119.7	3	1745.19	n.d.	n.d.	HCF1_MOUSE	B1AUX2_MOUSE	Host cell factor 1;	C1 factor;
M	ASCASIDIEDATQHLLR	N-ter + 42.01 Da, C +57.02 Da	51.5	71.8	3	1827.97	n.d.	n.d.	EDC4_MOUSE	D6RE33_MOUSE	Enhancer of mRNA-decapping protein 4;	
M	ASCDEIKEHPR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	21.1	86.1	3	1416.81	0.12	0.01	SEP10_MOUSE		Septin-10;	
M	ASDTPGFYMDKLNKYR	N-ter + 42.01 Da, K +34.06 Da	30.0	82.9	3	2015.21	-0.22	0.03	E2AK2_MOUSE		Interferon-induced, double-stranded RNA-activated protein kinase;	Eukaryotic translation initiation factor 2-alpha kinase 2;Interferon-inducible RNA-dependent protein kinase;P1/eIF-2A protein kinase;Protein kinase RNA-activated;Serine/threonine-protein kinase TIK;Tyrosine-protein kinase EIF2AK2;p68 kinase;
M	ASEAGGIGGGGGKIR	N-ter + 42.01 Da, K +28.03 Da	30.4	66.7	3	1469.86	0.39	0.02	E9Q3G8_MOUSE			
M	ASESGKLWGGR	N-ter + 42.01 Da, K +34.06 Da	56.2	54.6	2	1222.72	-0.76	0.05	ARLY_MOUSE	E0CY49_MOUSE	Argininosuccinate lyase;	Argininosuccinase;
M	ASESSPLLAR	N-ter + 42.01 Da	31.5	67.0	2	1234.70	n.d.	n.d.	S12A9_MOUSE	D3Z362_MOUSE	Solute carrier family 12 member 9;	Cation-chloride cotransporter-interacting protein 1;Potassium-chloride transporter 9;
M	ASGCKIGPSILNSDLNLAEGAECLR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	55.0	50.4	3	2585.42	0.60	0.18	RPE_MOUSE	B2KGF0_MOUSE	Ribulose-phosphate 3-epimerase;	Ribulose-5-phosphate-epimerase;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M AMLATGTARM	ASGNAIQKSPDFTATAVVDGAFKEIKLSDYR ASGRPEELWEAVVGAER	N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da	37.9 63.5	47.3 69.1	4 3	3553.01 1968.11	-1.03 n.d.	0.19 n.d.	PRDX2_MOUSE AKT51_MOUSE	D3Z4A4_MOUSE D3YWZ1_MOUSE	Peroxioredoxin-2; Proline-rich AKT1 substrate 1; cAMP-dependent protein kinase type I-alpha regulatory subunit;	Thiol-specific antioxidant protein;Thioredoxin peroxidase 1;Thioredoxin-dependent peroxidase reductase 1;
M	ASGSMATSEER ASGSPPSQPPASGSGYVPGVSAAFVTCNPKVAK	N-ter + 42.01 Da N-ter + 42.01 Da, K +28.03 Da, C	38.4	96.5	2	1295.65	n.d.	n.d.	KAPO_MOUSE	A2A169_MOUSE		Brain acetylcholinesterase putative membrane anchor;
LLLPRALLSM	ASGVAVSDGVKIKVFNMDMKVR	N-ter + 42.01 Da, K +28.03 Da	29.9	79.5	4	4052.35	-0.42	0.03	CUTA_MOUSE	D5MCW4_MOUSE	Protein CutA;	
M	ASGVQVADEVCR	N-ter + 42.01 Da, C +57.02 Da	39.5	67.3	3	2189.34	0.71	0.14	COF1_MOUSE	E9Q1T2_MOUSE	Cofilin-1;	Brain acetylcholinesterase putative membrane anchor;
M	ASGVTVNDEVIKVFNDMKVR	N-ter + 42.01 Da, K +34.06 Da	40.6	77.3	2	1331.72	n.d.	n.d.	DEST_MOUSE		Destrin;	Cofilin, non-muscle isoform;
M			40.9	81.0	3	2330.48	-0.43	0.11	COF2_MOUSE		Cofilin-2;	Cofilin, muscle isoform;
M	ASKEMFEDTVEER	N-ter + 42.01 Da, K +34.06 Da	51.4	16.3	2	1645.80	0.83	0.11	RBBP7_MOUSE	A2AF19_MOUSE	Histone-binding protein RBBP7;	Histone acetyltransferase type B subunit 2;Nucleosome-remodeling factor subunit RBAP46;Retinoblastoma-binding protein 7;Retinoblastoma-binding protein p46;
M	ASLKDLGKWR	N-ter + 42.01 Da, K +28.03 Da	54.7	43.7	2	1399.84	3.26	0.08	FABP5_MOUSE	E9Q964_MOUSE	Fatty acid-binding protein, epidermal;	Epidermal-type fatty acid-binding protein;Fatty acid-binding protein 5;Keratinocyte lipid-binding protein;Psoriasis-associated fatty acid-binding protein homolog;
M	ASLSLAPVNIKAGADEER	N-ter + 42.01 Da, K +28.03 Da	39.3	48.1	3	2057.18	0.63	0.18	TCPB_MOUSE		T-complex protein 1 subunit beta;	CCT-beta;
M	ASNFKTTMASSAQR	N-ter + 42.01 Da, K +28.03 Da	30.3	95.2	3	1725.05	0.62	0.17	CETN2_MOUSE		Centrin-2;	Caltractin isoform 1;
M	ASNNTASIAQAR	N-ter + 42.01 Da	32.7	52.0	2	1244.68	n.d.	n.d.	GBG2_MOUSE		Guanine nucleotide-binding protein G(i1)/G(s)/G(o) subunit gamma-2;	G gamma-1;
M	ASNPRDGEILLTELQGDSR	N-ter + 42.01 Da	36.6	57.4	3	2112.17	n.d.	n.d.	PKN2_MOUSE	E9QAV1_MOUSE	Serine/threonine-protein kinase N2;	PKN gamma;Protein kinase C-like 2;Protein-kinase C-related kinase 2;
M	ASPAAGGVVIVGSLIGR	N-ter + 42.01 Da	56.2	77.5	2	1622.04	n.d.	n.d.	CRYL1_MOUSE	Q9D221_MOUSE	Lambda-crystallin homolog;	L-gulonate 3-dehydrogenase;
M	ASQSQGIQLLQAEKR	N-ter + 42.01 Da, K +28.03 Da	46.1	34.0	3	1854.06	0.39	0.05	VATG1_MOUSE		V-type proton ATPase subunit G 1;	V-ATPase 13 kDa subunit 1;Vacuolar proton pump subunit G 1;
M	ASSAQSSGSGGPAVPTVQR	N-ter + 42.01 Da	28.7	113.8	3	1872.11	n.d.	n.d.	SND1_MOUSE	Q3TJ56_MOUSE	Staphylococcal nuclease domain-containing protein 1;	100 kDa coactivator;p100 co-activator;
M	ASSDIQVKELEKR	N-ter + 42.01 Da, K +28.03 Da	34.4	58.1	3	1599.98	2.68	0.11	STMN1_MOUSE	D3Z1Z8_MOUSE	Stathmin;	Leukemia-associated gene protein;Leukemia-associated phosphoprotein p18;Metablastin;Oncoprotein 18;Phosphoprotein p19;Protein Pr22;pp17;
M	ASSHTVLMR	N-ter + 42.01 Da	42.3	49.2	2	1042.57	n.d.	n.d.	BPNT1_MOUSE	D3Z5X0_MOUSE	3'(2'),5'-bisphosphate nucleotidase 1;	Bisphosphate 3'-nucleotidase 1;PAP-inositol-1,4-phosphatase;
M	ASSKVTLSVLSR	N-ter + 42.01 Da, K +28.03 Da	34.6	71.5	3	1473.00	-0.25	0.05	PIR_MOUSE	A2AIH8_MOUSE	Pirin;	Probable quercetin 2,3-dioxygenase PIR;
QAQHSSPGEM	ASSPQGLDNPALLR	N-ter + 42.01 Da	35.5	111.5	3	1479.93	n.d.	n.d.	DDI2_MOUSE		Protein DDI1 homolog 2;	
M	ASSSGNDDLTIPR	N-ter + 42.01 Da	34.6	71.9	2	1488.78	n.d.	n.d.	NC2B_MOUSE		Protein Dr1;	Down-regulator of transcription 1;Negative cofactor 2-beta;TATA-binding protein-associated phosphoprotein
M	ASYEILDVPR	N-ter + 42.01 Da	33.4	79.6	2	1366.79	n.d.	n.d.	DNJB2_MOUSE	Q3TB24_MOUSE	DnaJ homolog subfamily B member 2;	DnaJ homolog subfamily B member 10;mDj8;
M	ATATPVQQQR	N-ter + 42.01 Da	31.1	9.0	2	1140.60	n.d.	n.d.	LMNB1_MOUSE		Lamin-B1;	
M	ATDDKSSPTLDSANDLPR	N-ter + 42.01 Da, K +28.03 Da	34.3	86.3	3	1972.11	0.73	0.04	FYV1_MOUSE	D3Z5N5_MOUSE	1-phosphatidylinositol-3-phosphate 5-kinase;	FYVE finger-containing phosphoinositide kinase;PIKfyve;Phosphatidylinositol-3-phosphate 5-kinase type III;p235;
M	ATDELASKLSR	N-ter + 42.01 Da, K +28.03 Da	61.0	34.6	2	1259.72	1.01	0.15	EFHD2_MOUSE	Q8C845_MOUSE	EF-hand domain-containing protein D2;	Swi5prosin-1;
M	ATDISSESGADCKGDKNSAKLDADYPLR	+57.02 Da	32.4	65.5	4	3228.84	0.49	0.05	DENR_MOUSE	E9Q0G1_MOUSE	Density-regulated protein;	
M	ATEGDVLELETETSGPERPPEKPR	N-ter + 42.01 Da, K +34.06 Da	42.4	61.1	3	2841.58	1.08	0.15	HYPK_MOUSE		Huntingtin-interacting protein K;	Huntingtin yeast partner K;
M	ATEGMILTNHHDQIR	N-ter + 42.01 Da	38.0	66.7	3	1776.98	n.d.	n.d.	GEPH_MOUSE	A0JNY3_MOUSE	Gephyrin;	
M	ATESGSDSQR	N-ter + 42.01 Da	29.2	78.2	2	1191.63	n.d.	n.d.	PPWD1_MOUSE	E9Q873_MOUSE	Peptidylprolyl isomerase domain and WD repeat-containing protein 1;	
M	ATESSPLTHVLDTASGLPAQGLCLR	N-ter + 42.01 Da, C +57.02 Da	32.9	51.4	3	2736.52	n.d.	n.d.	HIUH_MOUSE		5-hydroxyisourate hydrolase;	
M	ATGANATPLDFPSKRR	N-ter + 42.01 Da, K +34.06 Da	39.8	80.2	3	1783.17	1.14	0.04	SF01_MOUSE	Q3UI45_MOUSE	Splicing factor 1;	Transthyretin-related protein;
M	ATGQKLMR	N-ter + 42.01 Da, K +34.06 Da	30.0	50.9	2	979.62	-0.45	0.02	QOR_MOUSE	D3Z2X0_MOUSE	Quinone oxidoreductase;	CW17;Mammalian branch point-binding protein;Transcription factor ZFM1;Zinc finger gene in MEN1 locus;Zinc finger protein 162;
M	ATIATMPVPETR	N-ter + 42.01 Da	26.5	78.6	2	1327.79	n.d.	n.d.	SNRPA_MOUSE	E9Q4T6_MOUSE	U1 small nuclear ribonucleoprotein A;	NADPH:quinone reductase;Zeta-crystallin;
M	ATIGPSGLHPGER	N-ter + 42.01 Da	51.6	36.8	2	1332.73	n.d.	n.d.	HXX3_MOUSE	D6RCV7_MOUSE	Hexokinase-3;	Hexokinase type III;
M	ATKCTKCGPYSTPLEAMKGR	+57.02 Da	55.3	83.3	4	2535.48	0.48	0.02	SBP1_MOUSE	D6RHN2_MOUSE	Selenium-binding protein 1;	56 kDa selenium-binding protein;
M	ATLCLFDMDGTLTAPR	N-ter + 42.01 Da, C +57.02 Da	42.6	114.3	3	1823.07	n.d.	n.d.	PMM2_MOUSE		Phosphomannosidase 2;	
MFLCRFWGKM	ATNDAVLKR	N-ter + 42.01 Da, K +34.06 Da	50.8	64.6	2	1062.67	0.77	0.09	AIMP1_MOUSE	Q3UZG4_MOUSE	Aminoacyl tRNA synthase complex-interacting multifunctional protein 1;	Multisynthase complex auxiliary component p43;
M	ATPDSLALFTGLGLSENKAR	N-ter + 42.01 Da, K +34.06 Da	49.1	45.4	3	2136.30	-0.25	0.07	Q8BML9_MOUSE	D3Z1S8_MOUSE		
M	ATPEASGSGEKVEGSEPSVTYYR	N-ter + 42.01 Da, K +28.03 Da	36.0	79.2	3	2470.35	-1.74	0.35	CYB5B_MOUSE		Cytochrome b5 type B;	Cytochrome b5 outer mitochondrial membrane isoform;
M	ATQVEPLLAPAGAPLLQAEHGLAR	N-ter + 42.01 Da	55.0	45.0	3	2522.46	n.d.	n.d.	LARP1_MOUSE		La-related protein 1;	La ribonucleoprotein domain family member 1;
M	ATLSGSNTYNR	N-ter + 42.01 Da	30.9	63.5	2	1224.65	n.d.	n.d.	RBM22_MOUSE		Pre-mRNA-splicing factor RBM22;	RNA-binding motif protein 22;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	ATTSSEEVLLIVKVR	N-ter + 42.01 Da, K +28.03 Da	41.2	77.2	3	1769.20	0.30	0.02	TF2H1_MOUSE	D6RJL7_MOUSE	General transcription factor IIH subunit 1;	Basic transcription factor 2 62 kDa subunit;General transcription factor IIH polypeptide 1;TFIIH basal transcription factor complex p62 subunit;
M	ATTAQSQPQPVAGKR	N-ter + 42.01 Da, K +28.03 Da	45.6	0.2	3	1608.86	0.63	0.16	THUM1_MOUSE		THUMP domain-containing protein 1;	
M	ATTFQLTSSTFGGSSSTR	N-ter + 42.01 Da	27.2	101.7	3	1790.03	n.d.	n.d.	K1C15_MOUSE	B1AQ77_MOUSE	Keratin, type I cytoskeletal 15;	Cytokeratin-15;Keratin-15;
M	ATVAATTKVPEIR	N-ter + 42.01 Da, K +28.03 Da	55.3	29.7	2	1425.86	-1.60	0.15	RUVB2_MOUSE	D3YXQ8_MOUSE	RuvB-like 2;	p47 protein;
M	ATVDLEKLR	N-ter + 42.01 Da, K +34.06 Da	45.7	23.4	2	1119.70	-1.29	0.06	K6PL_MOUSE		6-phosphofructokinase, liver type;	Phosphofructo-1-kinase isozyme B;Phosphofructokinase 1;Phosphohexokinase;
M	AVAAAAATAMSAAGGGASAAR	N-ter + 42.01 Da	55.2	110.2	3	1873.12	n.d.	n.d.	ARHL2_MOUSE		Poly(ADP-ribose) glycohydrolase ARH3;	ADP-ribosylhydrolase 3;Protein ADP-ribosylarginine] hydrolase-like protein 2;
M	AVAAAAVAAPAGGGGAR	N-ter + 42.01 Da	37.2	61.6	2	1378.82	n.d.	n.d.	SNTB1_MOUSE		Beta-1-syntrophin;	59 kDa dystrophin-associated protein A1 basic component 1;Syntrophin-2;
MADGEEPM	AVDGGCGDTGDWEGR	N-ter + 42.01 Da, C +57.02 Da	37.5	80.1	2	1592.74	n.d.	n.d.	UBA3_MOUSE	Q3TL72_MOUSE	NEDD8-activating enzyme E1 catalytic subunit;	NEDD8-activating enzyme E1C;Ubiquitin-activating enzyme 3;
M	AVEELQSIKR	N-ter + 42.01 Da, K +34.06 Da	52.6	12.4	2	1360.83	4.83	0.48	GLMN_MOUSE	Q3T9A5_MOUSE	Glomulin;	FK506-binding protein-associated protein;FKBP-associated protein;
M	AVFPWHSR	N-ter + 42.01 Da	33.1	52.3	2	1040.57	n.d.	n.d.	CP062_MOUSE	D3YW19_MOUSE	UPF0505 protein C16orf62 homolog;	
M	AVNVYSTVSDNLSR	N-ter + 42.01 Da	35.0	76.7	2	1753.98	n.d.	n.d.	MARE1_MOUSE		Microtubule-associated protein RP/EB family member 1;	APC-binding protein EB1;End-binding protein 1;
M	AVPPTYADLGKRSAR	N-ter + 42.01 Da, K +34.06 Da	40.5	24.4	2	1520.88	-2.40	0.00	VDAC1_MOUSE	F2Z471_MOUSE	Voltage-dependent anion-selective channel protein 1;	Outer mitochondrial membrane protein porin 1;Plasmalemmal porin;Voltage-dependent anion-selective channel protein 5;
M	AVSTGVKVR	N-ter + 42.01 Da, K +28.03 Da	47.2	36.3	2	1082.68	-0.07	0.02	UB2V2_MOUSE		Ubiquitin-conjugating enzyme E2 variant 2;	Ubc-like protein MMS2;
MA	AYKLVLR	N-ter + 42.01 Da, K +34.06 Da	24.8	4.3	2	1050.71	-0.20	0.01	PGAM1_MOUSE		Phosphoglycerate mutase 1;	BPG-dependent PGAM 1;Phosphoglycerate mutase isozyme B;
EKPFPCFPFG	CGKIFAR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	23.8	98.1	2	926.61	-1.00	0.04	ZIC3_MOUSE	A2AWK3_MOUSE	Zinc finger protein ZIC 3;	Zinc finger protein of the cerebellum 3;
KQVQYAEKLR	CGSHSPLR	N-ter + 42.01 Da, C +57.02 Da	22.8	104.5	2	954.53	n.d.	n.d.	MCTP2_MOUSE		Multiple C2 and transmembrane domain-containing protein 2;	
LGVLEYWMRL	CLPLKSLQACNKR	N-ter + 42.01 Da, K +34.06 Da, K +28.03 Da, C +57.02 Da	30.3	57.5	3	1788.10	n.d.	n.d.	RPGR1_MOUSE	E9QQ97_MOUSE	X-linked retinitis pigmentosa GTPase regulator-interacting protein 1;	
M	DAATLYDTLR	N-ter + 42.01 Da	37.4	57.7	2	1411.75	n.d.	n.d.	ATG4B_MOUSE		Cysteine protease ATG4B;	AUT-like 1 cysteine endopeptidase;Autophagin-1;Autophagy-related cysteine endopeptidase
NTKEVDKIVF	DAGFFR	N-ter + 42.01 Da	26.7	90.6	2	884.47	n.d.	n.d.	SRRM1_MOUSE	A2A8V8_MOUSE	Serine/arginine repetitive matrix protein 1;	1;Autophagy-related protein 4 homolog B;
M	DAQSSAKVNSR	N-ter + 42.01 Da, K +28.03 Da	68.3	44.5	2	1362.72	-0.34	0.06	PCY1A_MOUSE	D3Z3T5_MOUSE	Choline-phosphate cytidylyltransferase A;	Plenty-of-prolines 101;
M	DDIAALVDNGSGMCKAGFAGDDAPR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	66.8	48.7	3	2806.39	0.77	0.14	ACTB_MOUSE	E9Q1F2_MOUSE	Actin, cytoplasmic 1;	Beta-actin;
M	DDIFTQCR	N-ter + 42.01 Da, C +57.02 Da	30.6	89.8	2	1226.62	n.d.	n.d.	ILK_MOUSE	D3YZA5_MOUSE	Integrin-linked protein kinase;	
M	DDREDLVYQAKLAEQAER	N-ter + 42.01 Da, K +34.06 Da	51.9	73.5	3	2355.33	0.44	0.06	D6REF3_MOUSE		14-3-3 protein epsilon;	
MC	DEDETTALVCDNGSLVKAGFAGDDAPR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	67.5	67.5	3	2955.56	0.15	0.01	ACTS_MOUSE		Actin, alpha skeletal muscle;	
PLREEAAGAE	DEKYYTDR	N-ter + 42.01 Da, K +34.06 Da	20.5	59.7	2	1100.62	-3.18	0.29	CAMP2_MOUSE	E9Q4Q5_MOUSE	Calmodulin-regulated spectrin-associated protein 2;	Alpha-actin-1;
M	DETSPLVSPER	N-ter + 42.01 Da	29.7	84.1	2	1401.76	n.d.	n.d.	P4K2A_MOUSE		Phosphatidylinositol 4-kinase type 2-alpha;	Calmodulin-regulated spectrin-associated protein 1-like protein 1;
M	DFSKLPKIR	N-ter + 42.01 Da, K +28.03 Da	25.0	72.5	3	1331.86	-1.29	0.19	VATA_MOUSE	D3YWH3_MOUSE	V-type proton ATPase catalytic subunit A;	Phosphatidylinositol 4-kinase type II-alpha;
M	DFSKLPK	N-ter + 42.01 Da, K +34.06 Da	39.9	23.2	2	1074.67	-0.94	0.11	VATA_MOUSE	D3YWH3_MOUSE	V-type proton ATPase catalytic subunit A;	V-ATPase 69 kDa subunit;Vacuolar proton pump subunit alpha;
M	DGAAGPGEPAHETLQTLRSR	N-ter + 42.01 Da	42.3	17.0	3	2264.09	n.d.	n.d.	EMAL3_MOUSE		Echinoderm microtubule-associated protein-like 3;	V-ATPase 69 kDa subunit;Vacuolar proton pump subunit alpha;
M	DGEDDSNLVIKRR	N-ter + 42.01 Da, K +28.03 Da	28.7	78.6	3	1717.01	-0.67	0.10	F192A_MOUSE		Protein FAM192A;	
M	DGIVPDIAGVTKR	N-ter + 42.01 Da, K +34.06 Da	46.1	22.6	2	1546.89	1.33	0.10	PTBP1_MOUSE	Q922I7_MOUSE	Polypyrimidine tract-binding protein 1;	NEFA-interacting nuclear protein NIP30;
M	DGLVAQCSAR	N-ter + 42.01 Da, C +57.02 Da	41.0	84.6	2	1248.66	n.d.	n.d.	SYRC_MOUSE		Arginine-tRNA ligase, cytoplasmic;	Heterogeneous nuclear ribonucleoprotein 1;
M	DGSEDDPTFSAR	N-ter + 42.01 Da	30.0	70.3	2	1581.77	n.d.	n.d.	ATHL1_MOUSE	E9QA85_MOUSE	Acid trehalase-like protein 1;	Arginyl-tRNA synthetase;
M	DIAIHPWIR	N-ter + 42.01 Da	28.9	74.3	3	1429.84	n.d.	n.d.	CRYAB_MOUSE		Alpha-crystallin B chain;	Alpha(B)-crystallin;P23;
M	DILKSEILR	N-ter + 42.01 Da, K +28.03 Da	32.2	26.6	2	1286.76	0.36	0.04	PRP18_MOUSE		Pre-mRNA-splicing factor 18;	Alpha-crystallin B chain;
M	DKNELVQAKLAEQAER	N-ter + 42.01 Da, K +34.06 Da	40.6	46.0	3	2244.40	-0.15	0.01	1433Z_MOUSE	D3YXF4_MOUSE	14-3-3 protein zeta/delta;	Protein kinase C inhibitor protein 1;SEZ-2;
M	DKVCAVFGGSR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	33.3	37.3	2	1401.75	0.03	0.00	CBR4_MOUSE	D3Z6C4_MOUSE	Carbonyl reductase family member 4;	3-oxoacyl-[acyl-carrier-protein] reductase;Quinone reductase CBR4;
M	DLEAVCKR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	50.5	66.4	2	1190.66	-0.25	0.02	AGM1_MOUSE	Q8BWW3_MOUSE	Phosphoacetylglucosamine mutase;	Acetylglucosamine phosphomutase;N-acetylglucosamine-phosphate mutase;Phosphoglucomutase-3;
M	DLGTAESTR	N-ter + 42.01 Da	40.7	75.4	2	1121.59	n.d.	n.d.	CASZ1_MOUSE	B1AS47_MOUSE	Zinc finger protein castor homolog 1;	Castor-related protein;
M	DLLFGR	N-ter + 42.01 Da	23.9	86.4	2	892.52	n.d.	n.d.	CHM2A_MOUSE		Charged multivesicular body protein 2a;	Chromatin-modifying protein 2a;Vacuolar protein sorting-associated protein 2;
YATAVTPGVH	DMDDDEMPNYAR	N-ter + 42.01 Da	9.3	59.4	4	1627.67	n.d.	n.d.	PAR3L_MOUSE	Q5SV55_MOUSE	Partitioning defective 3 homolog B;	Amyotrophic lateral sclerosis 2 chromosomal region candidate gene 19 protein homolog;PAR3-
M	DMGNQHPSISR	N-ter + 42.01 Da	46.0	48.8	2	1413.68	n.d.	n.d.	BAG5_MOUSE	E0CX76_MOUSE	BAG family molecular chaperone regulator 5;	beta;Partitioning defective 3-like protein;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
SMEAKRKAE FAPEQSPAKM	EKDSLRS EKEEETR	N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +28.03 Da	32.5 32.3	55.7 57.2	2 2	1040.60 1221.62	0.18 0.04	0.01 0.01	CDK6_MOUSE Q8R2L7_MOUSE	E9Q616_MOUSE	Cyclin-dependent kinase 6; 6;Serine/threonine-protein kinase PLSTIRE;	CR2 protein kinase;Cell division protein kinase 6;Serine/threonine-protein kinase PLSTIRE;
M	EKPAASTEPOQSRPALGR	N-ter + 42.01 Da, K +34.06 Da	29.0	83.4	3	2058.25	0.31	0.06	PCTL_MOUSE	Q66R2_MOUSE	PCTP-like protein;	START domain-containing protein 10;Serologically defined colon cancer antigen 28 homolog;STAR-related lipid transfer protein 10; START domain-containing protein 10;Serologically defined colon cancer antigen 28 homolog;STAR-related lipid transfer protein 10;
M PARRSPSLAM PARRSPSLAM PARRSPSLAM M M M M M M	EKPAASTEPOQSR EKTELIQKAKLAEQAER EKTELIQKAK EKTELIQK EKLTETVPLER EKVPGDMEIERR EKVPGDMEIER ELGELLYNKSEYIETASGNKVSR ELSADYLR ELSESVQR ELSGEVYVGDGEPQQR	N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da, C +57.02 Da	36.3 30.2 35.8 24.8 50.8 30.5 32.5 52.2 34.2 34.5 39.6	52.0 53.5 78.5 28.8 23.6 78.8 28.0 66.5 88.7 79.5 110.8	3 4 3 2 2 3 2 3 2 2 3	1563.86 2241.36 1462.05 1228.77 1520.87 1664.98 1502.75 2840.68 1138.63 1119.61 1867.98	-0.34 1.04 0.36 2.00 1.17 -1.00 -0.86 0.79 n.d. n.d. n.d.	0.03 0.08 0.08 0.18 0.16 0.06 0.05 0.22 n.d. n.d. n.d.	PCTL_MOUSE 1433T_MOUSE 1433T_MOUSE 1433T_MOUSE ROA2_MOUSE CYGB_MOUSE CYGB_MOUSE DCTN5_MOUSE BOLA2_MOUSE COMD3_MOUSE CN142_MOUSE	F6VW30_MOUSE	PCTP-like protein; 14-3-3 protein theta; 14-3-3 protein theta; 14-3-3 protein tau; 14-3-3 protein theta; Heterogeneous nuclear ribonucleoproteins A2/B1; Cytoglobin; Cytoglobin; Dynactin subunit 5; Bola-like protein 2; COMM domain-containing protein 3; Uncharacterized protein C14orf142 homolog; NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12;	Histoglobin; Histoglobin; Dynactin subunit p25; Bmi-1 upstream gene protein; Complex I-B17.2;NADH-ubiquinone oxidoreductase subunit B17.2; Nicotinate phosphoribosyltransferase domain-containing protein 1;
M M M M	ELVEVLKR EMELDSEGR EMTSTSLKR ENEYKR ENQLTKSVEER	N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +34.06 Da	57.1 27.6 42.1 37.8 56.1	39.2 86.2 53.6 67.6 20.9	2 2 2 2 2	1191.76 1237.60 1252.68 1044.58 1538.81	-1.36 n.d. 0.39 -0.20 0.37	0.38 n.d. 0.05 0.03 0.03	NDUAC_MOUSE PNCB_MOUSE B7ZNL8_MOUSE IFISA_MOUSE OCTC_MOUSE	Q3ULP8_MOUSE	Nicotinate phosphoribosyltransferase; Nicotinate phosphoribosyltransferase domain-containing protein 1; Interferon-activable protein 205-A; Peroxisomal carnitine O-octanoyltransferase;	Complex I-B17.2;NADH-ubiquinone oxidoreductase subunit B17.2; Nicotinate phosphoribosyltransferase domain-containing protein 1; Interferon-inducible protein p205-A;Protein D3'; Peroxisomal carnitine O-octanoyltransferase;
M M M M M	EPAMEPETLEAR EPDIIIR EPGPAAPSSGAPRPAR EPGPAAPSSGAPR EPGPDGPAAPGPAAIR	N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	37.2 33.9 20.8 27.9 28.7	90.7 75.9 74.7 71.1 108.4	2 2 3 2 3	1544.83 914.52 1689.95 1365.73 1644.97	n.d. n.d. n.d. n.d. n.d.	n.d. n.d. n.d. n.d. n.d.	GGA1_MOUSE AFTIN_MOUSE E9QM38_MOUSE E9QM38_MOUSE SPEE_MOUSE		ADP-ribosylation factor-binding protein GGA1; Aftiphilin; Spermidine synthase;	Gamma-adaptin-related protein 1;Golgi-localized, gamma ear-containing, ARF-binding protein 1; Putrescine aminopropyltransferase;
M M M M	EPKAPCPAAVPSSEER EPLYQQNTKQVIEIQSHMGR EPSSGGGLGPR EPSPDAAEAHTVR	N-ter + 42.01 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da N-ter + 42.01 Da	41.9 26.0 32.9 59.4	74.2 110.0 81.1 34.7	3 4 2 2	1838.01 2620.58 1155.63 1609.76	-0.32 -1.15 n.d. n.d.	0.05 0.15 n.d. n.d.	COAC_MOUSE GOSR2_MOUSE DIAP1_MOUSE SMTL2_MOUSE	A2A910_MOUSE E9PV41_MOUSE	Phosphopantothenoylcysteine decarboxylase; Golgi SNAP receptor complex member 2; Protein diaphanous homolog 1; Smoothelin-like protein 2; Sterol-4-alpha-carboxylate 3-dehydrogenase, decarboxylating;	CoaC; 27 kDa Golgi SNARE protein;Membrin; Diaphanous-related formin-1;p140MDIA;
M M M M M	EQAVHGESKR EQTETLTR ESEMSDPQLQEEER ESEQMLEGQTQVAENPHSEYGLTDSVER ESFTNDR	N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da	29.0 28.6 32.7 40.4 31.8	80.8 81.2 108.7 78.4 108.3	3 2 3 4 2	1346.79 1149.63 1846.97 3335.72 1040.54	-0.79 n.d. n.d. n.d. n.d.	0.12 n.d. n.d. n.d. n.d.	NSDHL_MOUSE Q8QZV8_MOUSE CASPE_MOUSE DPY30_MOUSE LCAP_MOUSE	Q1HDU4_MOUSE	Caspase-14; Protein dpy-30 homolog; Leucyl-cystinyl aminopeptidase; Mitochondrial import inner membrane translocase subunit Tim8 A;	Mini-ICE; Dpy-30-like protein; Oxytocinase;
M	ESSTSSGSLGAVDPLQLQHFIEVETQKQR	N-ter + 42.01 Da, K +28.03 Da	30.4	79.6	4	3416.92	0.93	0.28	TIM8A_MOUSE		Deafness dystonia protein 1 homolog; DPH2 homolog;Diphthamide biosynthesis protein 2 homolog-like 2;MmDph2;	Deafness dystonia protein 1 homolog; DPH2 homolog;Diphthamide biosynthesis protein 2 homolog-like 2;MmDph2;
M M M M M M M M M M M M	ESTFSSPAEALQR ETGPAPLVAAPR ETILEQQR ETLLKR ETPKPR ETPLDVLSR EVHELFR EVKPPGPRPQDPSGR EVKVVESGGGLVQPGGSLR EVLATDTSQQER EVSQAASGTDGVR FAHCHVYTVKV FAKAFR	N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da N-ter + 42.01 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da, K +34.06 Da	40.3 44.9 37.6 38.3 37.5 40.7 46.2 26.9 27.8 30.5 41.2 28.3 26.0	115.5 76.2 85.3 53.2 59.2 85.2 59.7 91.4 81.3 67.1 78.0 93.0 64.3	3 2 2 2 2 2 2 3 2 2 2 3 2	1665.96 1376.82 1188.68 965.63 927.54 1201.70 1101.59 1823.12 1937.22 1619.85 1448.77 1427.95 945.59	n.d. n.d. n.d. -0.86 -0.03 n.d. n.d. 0.84 1.66 n.d. n.d. n.d. 4.39 0.08	n.d. n.d. n.d. 0.05 0.00 n.d. n.d. 0.04 0.19 n.d. n.d. 0.14 0.01	DPH2_MOUSE TB10B_MOUSE SF3A3_MOUSE KT3K_MOUSE IRF3_MOUSE Q3TQ19_MOUSE ACSL1_MOUSE ROA3_MOUSE HVM26_MOUSE PALM_MOUSE CD003_MOUSE ACOX1_MOUSE EIF2D_MOUSE	D3Z130_MOUSE D3Z041_MOUSE A2AL12_MOUSE	Diphthamide biosynthesis protein 2; TBC1 domain family member 10B; Splicing factor 3A subunit 3; Ketosamine-3-kinase; Interferon regulatory factor 3; Long-chain-fatty-acid-CoA ligase 1; Heterogeneous nuclear ribonucleoprotein A3; Ig heavy chain V region M167; Paralemmin-1; Uncharacterized protein C4orf3 homolog; Peroxisomal acyl-coenzyme A oxidase 1; Eukaryotic translation initiation factor 2D;	Protein w23-85; SF3a60;Spliceosome-associated protein 61; Fructosamine-3-kinase-related protein;
M M M M M M M M M M M	FAKKGSAVPSDQGAR FNVSVER FQGADSQAGKSGSR FSEQAAQR FSWVSKDAR FVQEEKIFAGKVLRL GAGGALFVHR	N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da N-ter + 42.01 Da, K +34.06 Da N-ter + 42.01 Da, K +28.03 Da N-ter + 42.01 Da	33.2 35.8 55.3 29.9 36.1 42.9 53.2	79.8 86.3 41.1 33.9 32.6 57.5 57.8	3 2 2 2 2 3 2	1816.14 1151.63 1595.80 1108.53 1301.71 1892.17 1025.60	-0.34 n.d. 1.73 n.d. -1.18 -0.36 n.d.	0.03 n.d. 0.27 n.d. 0.16 0.07 n.d.	SSBP3_MOUSE HOOK3_MOUSE HN1L_MOUSE DPOD2_MOUSE EHD1_MOUSE UBAC1_MOUSE NDUV2_MOUSE	B1AS34_MOUSE E9Q272_MOUSE A8Y5G7_MOUSE F6Y7R7_MOUSE	Single-stranded DNA-binding protein 3; Protein Hook homolog 3; Hematological and neurological expressed 1-like protein; DNA polymerase delta subunit 2; EH domain-containing protein 1;	Lck-associated signal transducer;Sequence-specific single-stranded-DNA-binding protein; DNA polymerase delta subunit p50; E3 ubiquitin-protein ligase subunit KPC2;Kip1 ubiquitin-promoting complex protein 2; NADH-ubiquinone oxidoreductase 24 kDa subunit;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	GAVTDDEVIR	N-ter + 42.01 Da	37.5	80.3	2	1115.64	n.d.	n.d.	THOC7_MOUSE		THO complex subunit 7 homolog;	Ngg1-interacting factor 3-like protein 1-binding protein 1;
M	GDPLNINIQEPR	N-ter + 42.01 Da	40.6	79.8	2	1519.92	n.d.	n.d.	SFXN3_MOUSE	Q3U4F0_MOUSE	Sideroflexin-3;	
R	RVSTQDLTFE	N-ter + 42.01 Da	41.6	70.9	2	967.54	n.d.	n.d.	POTE1_MOUSE	Q3UXR7_MOUSE	Protection of telomeres protein 1;	POT1-like telomere end-binding protein;
M	GEQPIFTR	N-ter + 42.01 Da	33.4	68.8	2	1089.62	n.d.	n.d.	HOME2_MOUSE		Homer protein homolog 2;	Cupidin;VASP/Ena-related gene up-regulated during seizure and LTP 2;
M	GEVAGGAAPGPPR	N-ter + 42.01 Da	44.2	85.3	2	1176.69	n.d.	n.d.	ARHG1_MOUSE	E9PUF7_MOUSE	Rho guanine nucleotide exchange factor 1;	Lbc's second cousin;Lymphoid blast crisis-like 2;
M	FRILEVGC GA	N-ter + 42.01 Da	28.0	24.8	3	1499.85	n.d.	n.d.	Q8CA70_MOUSE			
M	LAGAGAAWHH	N-ter + 42.01 Da, K +28.03 Da	32.3	63.2	3	1326.83	2.60	0.29	EFHA1_MOUSE		EF-hand domain-containing family member A1;	
M	GTALVYHEDMTATR	N-ter + 42.01 Da	33.1	35.8	2	1605.80	n.d.	n.d.	HDA10_MOUSE	D3Z7T4_MOUSE	Histone deacetylase 10;	
M	ILTRLRLQKR	N-ter + 42.01 Da	53.4	85.2	3	2034.14	n.d.	n.d.	KCRM_MOUSE		Creatine kinase M-type;	Creatine kinase M chain;M-CK;
M	SLRAVSTSSM	N-ter + 42.01 Da, K +34.06 Da	32.8	56.1	3	1730.21	-1.06	0.07	HMGCL_MOUSE		Hydroxymethylglutaryl-CoA lyase, mitochondrial;	3-hydroxy-3-methylglutarate-CoA lyase;
M	HSLATAAPVPALAQVDR	N-ter + 42.01 Da	28.1	47.5	3	1990.13	n.d.	n.d.	RCD1_MOUSE		Cell differentiation protein RCD1 homolog;	CCR4-NOT transcription complex subunit 9;EPO-induced protein FL10;
M	HVTSSVGVYKFKAPPTGASQKK	N-ter + 42.01 Da, K +34.06 Da, K +28.03 Da	24.8	43.5	4	2573.59	n.d.	n.d.	ACTT2_MOUSE		Actin-related protein T2;	Actin-related protein M2;
D	IQMTQSTSLASLGDR	N-ter + 42.01 Da	43.1	84.1	3	1938.06	n.d.	n.d.	KVSAD_MOUSE		Ig kappa chain V-V region HP 123E6;	
M	KAGLAGTR	N-ter + 42.01 Da, K +34.06 Da	34.9	41.9	2	848.56	-0.34	0.01	ARPM1_MOUSE		Actin-related protein M1 homolog;	
M	KDFDPIIQDR	N-ter + 42.01 Da, K +34.06 Da, K +28.03 Da	26.9	39.8	3	1434.85	-0.76	0.04	KCRM_MOUSE		Creatine kinase M-type;	Creatine kinase M chain;M-CK;
M	KGELELAELKTR	N-ter + 42.01 Da, K +34.06 Da, K +28.03 Da	30.4	7.6	3	1489.90	n.d.	n.d.	EXO5_MOUSE		Probable exonuclease V;	Defects in morphology protein 1 homolog;
M	KKVAVVR	N-ter + 42.01 Da, K +34.06 Da, K +28.03 Da	15.7	119.5	2	902.76	n.d.	n.d.	TAU_MOUSE	B1AQW2_MOUSE	Microtubule-associated protein tau;	Neurofibrillary tangle protein;Paired helical filament- τ ;
M	KLNF5GLR	N-ter + 42.01 Da, K +28.03 Da	33.6	31.8	2	1134.66	-0.97	0.13	CBR2_MOUSE		Carbonyl reductase [NADPH] 2;	Adipocyte protein P27;Lung carbonyl reductase;NADPH-dependent carbonyl reductase 2;
M	KNKEMDIDESLYSR	N-ter + 42.01 Da, K +28.03 Da	42.9	61.0	3	1825.00	1.14	0.11	UBA1Y_MOUSE		Ubiquitin-like modifier-activating enzyme 1 Y;	Ubiquitin-activating enzyme E1;Ubiquitin-activating enzyme E1 Y;
M	KPPASIFAR	N-ter + 42.01 Da, K +28.03 Da	20.1	65.1	2	1055.68	9.81	0.60	CNTN4_MOUSE		Contactin-4;	Brain-derived immunoglobulin superfamily protein 2;
M	KQPKNLEGYVGFANLPNQVYR	N-ter + 42.01 Da, K +34.06 Da	49.4	59.5	3	2544.56	-0.36	0.03	E9Q1G8_MOUSE			HIB homolog 1;PDX-1 C-terminal-interacting factor 1;
M	LADELGLGWENSR	N-ter + 42.01 Da	26.3	85.2	3	1500.85	n.d.	n.d.	SPOP_MOUSE	E9Q6N9_MOUSE	Speckle-type POZ protein;	
M	LGGLGKLAEEGLAHR	N-ter + 42.01 Da, K +34.06 Da	61.1	53.3	3	1669.04	-0.15	0.04	FAM25_MOUSE		Protein FAM25;	
M	LGSGFKAER	N-ter + 42.01 Da, K +34.06 Da	39.7	29.8	2	1170.66	0.23	0.02	IST1_MOUSE	Q88HC2_MOUSE	IST1 homolog;	
M	LKPQPPQQTSPQPPTQQA VAR	N-ter + 42.01 Da, K +28.03 Da	28.3	86.2	4	2850.73	0.39	0.02	ATX2L_MOUSE		Ataxin-2-like protein;	
M	LNMWVKVR	N-ter + 42.01 Da, K +34.06 Da	45.8	30.7	2	1152.67	0.35	0.02	Q5SUH6_MOUSE	Q5SUH7_MOUSE		
M	LSEAEPR	N-ter + 42.01 Da	33.1	96.8	2	1102.60	n.d.	n.d.	TFIP8_MOUSE	D3Z3Z5_MOUSE	Tumor necrosis factor alpha-induced protein 8;	
M	LSFYPDVYR	N-ter + 42.01 Da	40.9	83.9	2	1459.80	n.d.	n.d.	PPCE_MOUSE	E9Q0H7_MOUSE	Prolyl endopeptidase;	Post-proline cleaving enzyme;
M	LYLGHNYVTAIR	N-ter + 42.01 Da	35.3	89.3	3	1460.91	n.d.	n.d.	TRFE_MOUSE	E9Q035_MOUSE	Serotransferrin;	Beta-1 metal-binding globulin;Siderophilin;
M	MDAVLSDVYR	N-ter + 42.01 Da	37.7	83.5	2	1193.67	n.d.	n.d.	OTU7A_MOUSE	B2RUR8_MOUSE	OTU domain-containing protein 7A;	Zinc finger protein Gezanne 2;
M	MDFNVKKLAADAGTFLSR	N-ter + 42.01 Da, K +34.06 Da	47.4	94.7	3	2093.36	0.68	0.15	SHLB1_MOUSE	Q3TYR7_MOUSE	Endophilin-B1;	SH3 domain-containing GRB2-like protein B1;
M	MDGEPKPVDAEEKR	N-ter + 42.01 Da, K +34.06 Da	50.9	96.5	3	1700.04	-0.74	0.15	SYT1_MOUSE		Threonine--tRNA ligase, cytoplasmic;	Threonyl-tRNA synthetase;
M	MDLVKSHLMYAVR	N-ter + 42.01 Da, K +34.06 Da	39.9	98.1	3	1638.05	0.50	0.07	T22D1_MOUSE	D3Z0V7_MOUSE	TSC22 domain family protein 1;	Regulatory protein TSC-22;TGFB-stimulated clone 22 homolog;TSC22-related inducible leucine zipper 1b;Transforming growth factor beta-1-induced transcript 4 protein;
M	MDSAEELLAPLR	N-ter + 42.01 Da	36.5	85.8	2	1385.80	n.d.	n.d.	SYG_MOUSE		Glycine--tRNA ligase;	Diadenosine tetraphosphate synthetase;Glycyl-tRNA synthetase;
M	MDTGAGSIR	N-ter + 42.01 Da	32.8	95.2	2	948.52	n.d.	n.d.	ATIF1_MOUSE	Q9D879_MOUSE	ATPase inhibitor, mitochondrial;	Inhibitor of F(1)F(o)-ATPase;
M	MEAADVFHR	N-ter + 42.01 Da	43.2	40.9	2	1116.55	n.d.	n.d.	CPPED_MOUSE	D3Z7F7_MOUSE	Calcineurin-like phosphoesterase domain-containing protein 1;	
M	MEEGSVKMFLR	N-ter + 42.01 Da, K +34.06 Da	41.5	38.3	2	1401.77	-0.25	0.02	EMAL2_MOUSE	D6RGM3_MOUSE	Echinoderm microtubule-associated protein-like 2;	
M	MEGTMEGPEAVQR	N-ter + 42.01 Da	36.5	77.9	2	1475.75	n.d.	n.d.	ANKR2_MOUSE		Ankyrin repeat domain-containing protein 2;	Skeletal muscle ankyrin repeat protein;
M	MEGYSEASLLR	N-ter + 42.01 Da	49.9	82.1	2	1425.76	n.d.	n.d.	SYNPO_MOUSE	E9Q3E2_MOUSE	Synaptopodin;	
M	MEKPSLLVGR	N-ter + 42.01 Da, K +28.03 Da	27.0	6.2	2	1295.74	-0.01	0.00	G3BP1_MOUSE	G3BP2_MOUSE	Ras GTPase-activating protein-binding protein 1;	ATP-dependent DNA helicase VIII;GAP SH3 domain-binding protein 1;HDH-VIII;
M	MEMLPDITGKGMALMFAKR	N-ter + 42.01 Da, K +28.03 Da	28.4	89.0	3	2094.25	-0.03	0.00	SYNP2_MOUSE		Synaptopodin-2;	Myopodin;
M	MENCLGDSR	N-ter + 42.01 Da, C +57.02 Da	37.8	102.6	2	1122.56	n.d.	n.d.	LIMA1_MOUSE	Q8CD09_MOUSE	LIM domain and actin-binding protein 1;	Epithelial protein lost in neoplasm;
M	MENLFLQVR	N-ter + 42.01 Da	44.5	72.4	2	1190.70	n.d.	n.d.	CARKD_MOUSE		Carbohydrate kinase domain-containing protein;	
M	MENVEVFTSEKGR	N-ter + 42.01 Da, K +34.06 Da	63.1	20.8	2	1657.85	-2.00	0.56	SMYD1_MOUSE		SET and MYND domain-containing protein 1;	CD8b-opposite;Zinc finger protein BOP;
M	MEPETLEAR	N-ter + 42.01 Da	33.6	90.6	2	1116.61	n.d.	n.d.	GGA1_MOUSE		ADP-ribosylation factor-binding protein GGA1;	Gamma-adaptin-related protein 1;Golgi-localized, gamma ear-containing, ARF-binding protein 1;
M	MEYTEGISQR	N-ter + 42.01 Da	26.0	106.9	2	1254.69	n.d.	n.d.	MFF_MOUSE	E0CY13_MOUSE	Mitochondrial fission factor;	
M	MKVFTVTPPQAEGR	N-ter + 42.01 Da, K +28.03 Da	36.4	63.0	3	1570.95	-0.06	0.01	GRHPR_MOUSE	D6REG4_MOUSE	Glyoxylate reductase/hydroxypruvate reductase;	
M	MLGAEAGGEGVYKVR	N-ter + 42.01 Da, K +28.03 Da	63.0	30.1	2	1617.90	0.63	0.10	HNRH1_MOUSE	Q8C2Q7_MOUSE	Heterogeneous nuclear ribonucleoprotein H;	
M	MLGPEGEGEVVVKLR	N-ter + 42.01 Da, K +28.03 Da	40.3	54.0	3	1673.97	0.99	0.10	HNRPF_MOUSE		Heterogeneous nuclear ribonucleoprotein F;	
M	MLSTEGR	N-ter + 42.01 Da	25.3	82.7	2	965.51	n.d.	n.d.	HNRH2_MOUSE		Heterogeneous nuclear ribonucleoprotein H2;	Heterogeneous nuclear ribonucleoprotein H';
M	MMAAAAAR	N-ter + 42.01 Da	24.9	107.6	2	1022.54	n.d.	n.d.	CP013_MOUSE	D3Y2M4_MOUSE	UPF0585 protein C16orf13 homolog;	
M	MNTEQSQNTVSR	N-ter + 42.01 Da	24.8	109.8	3	1548.89	n.d.	n.d.	SH319_MOUSE	F8WI17_MOUSE	SH3 domain-containing protein 19;	Kryn;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
MA	MQKIFAR	N-ter + 42.01 Da, K +28.03 Da	34.6	24.3	2	962.56	-1.60	0.44	ENOB_MOUSE	Q5SX59_MOUSE	Beta-enolase;	2-phospho-D-glycerate hydro-lyase;Enolase
PGLGGNFASQ	MSYGYDEKSAGVSVPGPMGSPGR	N-ter + 42.01 Da, K +28.03 Da	22.3	71.8	3	2495.33	-0.20	0.02	CO1A1_MOUSE	F8WGB7_MOUSE	Collagen alpha-1(I) chain;	3;Muscle-specific enolase;Skeletal muscle enolase; Alpha-1 type I collagen;
M	MTEEHTDLEAR	N-ter + 42.01 Da	36.1	36.1	2	1503.69	n.d.	n.d.	CAV3_MOUSE		Caveolin-3;	M-caveolin;
M	NAGSDPVVIVSAAR	N-ter + 42.01 Da	38.5	61.0	2	1527.87	n.d.	n.d.	THIC_MOUSE		Acetyl-CoA acetyltransferase, cytosolic;	Cytosolic acetoacetyl-CoA thiolase;
PEPSIRPQIM	NGPLHPR	N-ter + 42.01 Da	29.7	72.9	2	962.55	n.d.	n.d.	Q91YZ2_MOUSE			
M	NHDFQALALESR	N-ter + 42.01 Da	21.2	74.3	3	1572.85	n.d.	n.d.	PUM2_MOUSE	Q3UR91_MOUSE	Pumilio homolog 2;	
M	NHTSQAFITASGGQPPNYER	N-ter + 42.01 Da	41.7	28.2	3	2418.17	n.d.	n.d.	IFM3_MOUSE		Interferon-induced transmembrane protein 3;	Fragilis protein;Interferon-inducible protein 15;Mouse iftm-like protein 1;
M	NILAPVRR	N-ter + 42.01 Da	36.0	47.2	2	1110.69	n.d.	n.d.	RAB34_MOUSE	81AQD3_MOUSE	Ras-related protein Rab-34;	Ras-related homolog;Ras-related protein Rab-39;Ras-related protein Rah;
M	NKAPQPTGPPPAR	N-ter + 42.01 Da, K +34.06 Da	40.9	56.9	3	1536.92	0.93	0.05	IF4G1_MOUSE	D3YWC6_MOUSE	Eukaryotic translation initiation factor 4 gamma 1;	
LSPTAHLALE	NKGFIVTR	N-ter + 42.01 Da, K +28.03 Da	25.2	38.7	2	1132.67	0.82	0.07	Q88XH3_MOUSE	E9Q6H0_MOUSE		
M	NNQKQKPTLSGQR	N-ter + 42.01 Da, K +34.06 Da	32.0	74.5	3	1867.18	-0.18	0.03	BZW1_MOUSE		Basic leucine zipper and W2 domain-containing protein 1;	
EQQQMKETIM	NQEKLAKLQAQVR	N-ter + 42.01 Da, K +28.03 Da	36.6	85.9	3	1754.14	1.58	0.23	BT3L4_MOUSE	BTf3_MOUSE	Transcription factor BTf3 homolog 4;	Basic transcription factor 3-like 4; Protein-tyrosine phosphatase 4a2;Protein-tyrosine phosphatase of regenerating liver 2; Protein 15E1.1;WF-1;p53-inducible cell-survival factor;
M	NRPAPVEISYENMR	N-ter + 42.01 Da	38.3	49.4	3	1847.96	n.d.	n.d.	TP4A2_MOUSE		Protein tyrosine phosphatase type IVA 2;	
M	NSVGEACTDMKR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	60.6	41.1	2	1567.74	0.51	0.09	TRIA1_MOUSE		TP53-regulated inhibitor of apoptosis 1;	
M	NVEHEVNLVVEIHR	N-ter + 42.01 Da	68.3	93.3	3	2002.18	n.d.	n.d.	CF115_MOUSE	E9QM2_MOUSE	Costars family protein C6orf115 homolog;	
M	NVNDLKQR	N-ter + 42.01 Da, K +28.03 Da	57.9	57.9	2	1186.68	-0.86	0.08	UAP1_MOUSE	Q3UH27_MOUSE	UDP-N-acetylhexosamine pyrophosphorylase;	
SFETTEESLR	NYEQWVGK	N-ter + 42.01 Da, K +28.03 Da	24.0	25.9	2	1156.55	3.25	0.20	ROA2_MOUSE	F6U106_MOUSE	Heterogeneous nuclear ribonucleoproteins A2/B1;	
M	QDAENVAVPEAAEER	N-ter + 42.01 Da	33.0	68.1	2	1799.92	n.d.	n.d.	E1F3B_MOUSE	E9PX78_MOUSE	Eukaryotic translation initiation factor 3 subunit B;	Eukaryotic translation initiation factor 3 subunit 9;eIF-3-eta;eIF3 p116;
HGYAAAGQIW	QEGDKVHPGVSOQAGEMEQFGQGVK	N-ter + 42.01 Da, K +34.06 Da	26.3	69.4	4	2887.60	-3.84	0.55	SBSN_MOUSE		Suprabasin;	
NTEENRRFYR	QLLLTADDR	N-ter + 42.01 Da	30.3	60.8	2	1085.64	n.d.	n.d.	ALDOA_MOUSE	Q9CPQ9_MOUSE	Fructose-bisphosphate aldolase A;	Aldolase 1;Muscle-type aldolase;
MAALGSSS	QNDAGEFVLDVYVPR	N-ter + 42.01 Da	33.4	117.5	3	1795.04	n.d.	n.d.	RS21_MOUSE		40S ribosomal protein S21;	
	QNVTEYVVR	N-ter + 42.01 Da	24.6	95.4	2	1148.69	n.d.	n.d.	T2FA_MOUSE	E9Q7N7_MOUSE	General transcription factor IIF subunit 1;	Transcription initiation factor IIF subunit alpha; Cytosolic prostaglandin E2 synthase;Hsp90 co-chaperone;Progesterone receptor complex p23;Sid 3177;Telomerase-binding protein p23; Interferon-gamma-inducible protein Mg11; HS1-binding protein 3; ITBA2 protein homolog;
M	QPASAKWYDR	N-ter + 42.01 Da, K +34.06 Da	37.4	31.6	2	1427.75	1.10	0.09	TEBP_MOUSE	D3Z7C6_MOUSE	Prostaglandin E synthase 3;	
SQPRVSEVAM	QSPALEQPAKRRP	N-ter + 42.01 Da, K +28.03 Da	24.0	62.8	3	1678.00	-0.47	0.09	SAMH1_MOUSE	E9Q0K6_MOUSE	SAM domain and HD domain-containing protein 1;	
M	QSPAVLR	N-ter + 42.01 Da	31.7	56.2	2	942.55	n.d.	n.d.	H1BP3_MOUSE		HCL1-binding protein 3;	
M	QTAHTGLSHTADGADGQTSR	N-ter + 42.01 Da	42.2	85.4	3	2183.15	n.d.	n.d.	LAGE3_MOUSE		L antigen family member 3;	
M	SAAEVDGLGVVRPHTYGSVLDNER	N-ter + 42.01 Da	36.5	41.3	3	2610.38	n.d.	n.d.	IQGA1_MOUSE	F6Z1B0_MOUSE	Ras GTPase-activating-like protein IQGAP1;	
M	SAAETGSEPSQGAGSEATLHSR	N-ter + 42.01 Da	63.9	57.5	3	2381.25	n.d.	n.d.	E9Q3E1_MOUSE		Aldehyde dehydrogenase;	
M	SADAAAGEPLPR	N-ter + 42.01 Da	34.0	82.8	2	1195.68	n.d.	n.d.	NHRF1_MOUSE		Na(+)/H(+) exchange regulatory cofactor NHE-RF1;	Ezrin-radixin-moesin-binding phosphoprotein 50;Regulatory cofactor of Na(+)/H(+) exchanger;Sodium-hydrogen exchanger regulatory factor 1;Solute carrier family 9 isoform A3 regulatory carrier 1;
M	SANFNLHLVTKSQPVAPR	N-ter + 42.01 Da, K +28.03 Da	48.1	50.9	3	2047.26	0.39	0.11	MSRB3_MOUSE	D3YUC9_MOUSE	Methionine-R-sulfoxide reductase B3, mitochondrial;	
M	SAGDFGNPLR	N-ter + 42.01 Da	38.3	82.3	2	1131.62	n.d.	n.d.	RAB6A_MOUSE	RAB6B_MOUSE	Ras-related protein Rab-6A;	
M	SAHLQWVVRR	N-ter + 42.01 Da	45.3	29.5	2	1267.69	n.d.	n.d.	RL28_MOUSE		60S ribosomal protein L28;	
M	SAKAISEQTKELLYKICTTSAIQNR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	31.5	86.2	4	3217.07	-0.79	0.14	ACLY_MOUSE	Q3TS02_MOUSE	ATP-citrate synthase;	ATP-citrate (pro-S-)-lyase;Citrate cleavage enzyme;
M	SAKSAISKEIFALPDR	N-ter + 42.01 Da, K +28.03 Da	38.6	69.9	3	1959.20	1.01	0.09	STXB6_MOUSE	Q3TYA4_MOUSE	Syntaxin-binding protein 6;	
KM	SALKAVFQYIDENQDR	N-ter + 42.01 Da, K +34.06 Da	49.3	48.3	3	1972.11	-0.45	0.13	CNDP2_MOUSE	F6XEL6_MOUSE	Cytosolic non-specific dipeptidase;	CNDP dipeptidase 2;Glutamate carboxypeptidase-like protein 1;
M	SALLEQEIQDEN	N-ter + 42.01 Da, K +34.06 Da	30.8	60.3	3	1533.91	0.10	0.01	ANR40_MOUSE		Ankyrin repeat domain-containing protein 40;	
M	SAMEAADVFHR	N-ter + 42.01 Da	54.2	32.9	2	1274.61	n.d.	n.d.	CPPED_MOUSE	D3Z7F7_MOUSE	Calcineurin-like phosphoesterase domain-containing protein 1;	
M	SAPAGSPHPAAGAR	N-ter + 42.01 Da	47.4	57.3	2	1287.71	n.d.	n.d.	Q80ZXO_MOUSE			
MCGNNM	SAPMPAVVPAAR	N-ter + 42.01 Da	39.5	75.1	2	1207.73	n.d.	n.d.	LYP1A1_MOUSE	D3Z269_MOUSE	Acyl-protein thioesterase 1;	Lysophospholipase 1;Lysophospholipase I;
M	SASVVSVIR	N-ter + 42.01 Da	29.5	81.4	2	1045.66	n.d.	n.d.	DAD1_MOUSE		Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit DAD1;	Defender against cell death 1;
M	SATQHKTSLPQGVK	N-ter + 42.01 Da, K +34.06 Da	61.9	60.0	3	1584.97	1.14	0.04	Q9CRB1_MOUSE	D3Z141_MOUSE		
M	SGTKEGKEKR	N-ter + 42.01 Da, K +34.06 Da, C +28.03 Da, C +57.02 Da	9.2	24.3	3	1969.12	n.d.	n.d.	A3KFM6_MOUSE	A3KFM7_MOUSE		
M	SDKLPYKVADIGLAAWGR	N-ter + 42.01 Da, K +34.06 Da	47.8	57.3	3	2069.31	-0.47	0.16	SAHH_MOUSE	A2ALT5_MOUSE	Adenosylhomocysteinase;	CUBP;Liver copper-binding protein;S-adenosyl-L-homocysteine hydrolase;
M	SDNGELEDKPPAPPVVR	N-ter + 42.01 Da, K +34.06 Da	43.6	63.3	3	1796.03	1.83	0.21	PAK2_MOUSE		Serine/threonine-protein kinase PAK 2;	Gamma-PAK;p21-activated kinase 2;
M	SDSEKLNLSIIGR	N-ter + 42.01 Da, K +34.06 Da	51.2	31.6	2	1621.93	-0.27	0.03	PP1A_MOUSE		Serine/threonine-protein phosphatase PP1-alpha catalytic subunit;	
M	SDSLDNEEKPPAPPLR	N-ter + 42.01 Da, K +34.06 Da	35.7	75.1	3	1840.08	-1.22	0.06	PAK3_MOUSE	A3KGC2_MOUSE	Serine/threonine-protein kinase PAK 3;	Beta-PAK;CDC42/RAC effector kinase PAK-B;p21-activated kinase 3;
NKLHHHHHQ	SDSLVCEVDPPELKETLR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	41.8	79.2	3	2158.25	-0.07	0.01	GMFG_MOUSE		Glia maturation factor gamma;	
LQTRGFVSDS	SDSMDTGAGSIR	N-ter + 42.01 Da	38.5	87.2	2	1237.63	n.d.	n.d.	ATIF1_MOUSE	Q9D879_MOUSE	ATPase inhibitor, mitochondrial;	Inhibitor of F(1)F(o)-ATPase;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	SDSMESKTQQVVIPEDEECLMSGTR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	54.4	61.1	3	2931.52	-1.15	0.28	C209D_MOUSE	CD209_MOUSE	CD209 antigen-like protein D;	DC-SIGN-related protein 3;
M	MKVLQTRGFV	SDSSDSMDTGAGSIR	38.3	72.5	2	1526.73	n.d.	n.d.	ATIF1_MOUSE	Q9D879_MOUSE	ATPase inhibitor, mitochondrial;	Inhibitor of F(1)F(o)-ATPase;
M	SDTPASTFGGR	N-ter + 42.01 Da	39.2	89.3	2	1136.61	n.d.	n.d.	F13A_MOUSE	Q3TQH1_MOUSE	Coagulation factor XIII A chain;	Protein-glutamine gamma-glutamyltransferase A chain;Transglutaminase A chain;
M	SEAFDCAKCNESLYGR	N-ter + 42.01 Da	40.7	40.7	3	1981.95	-0.64	0.07	FHL3_MOUSE	A6H6N4_MOUSE	Four and a half LIM domains protein 3;	Skeletal muscle LIM-protein 2;
M	SEDSALPWSINR	N-ter + 42.01 Da	32.1	73.2	2	1502.81	n.d.	n.d.	OXSRI_MOUSE	D6RFV0_MOUSE	Serine/threonine-protein kinase OSR1;	Oxidative stress-responsive 1 protein;
M	SEGDVSGSVHGKPSVYR	N-ter + 42.01 Da, K +28.03 Da	35.2	88.7	3	2044.17	-2.12	0.37	RER1_MOUSE		Protein RER1;	
M	GPSSYKVGTM	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	30.6	83.2	3	1470.72	-0.43	0.07	FHL1_MOUSE	A2AEX8_MOUSE	Four and a half LIM domains protein 1;	Kyot;RBP-associated molecule 14-1;Skeletal muscle LIM-protein 1;
M	SELDQLRQEAELKNQIR	N-ter + 42.01 Da, K +28.03 Da	34.1	70.8	3	2267.35	-1.43	0.31	GBB1_MOUSE		Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-1;	Transducin beta chain 1;
M	SELEQLRQEAELQR	N-ter + 42.01 Da	33.7	74.3	3	1770.02	n.d.	n.d.	GBB2_MOUSE	GBB4_MOUSE	Guanine nucleotide-binding protein G(I)/G(S)/G(T) subunit beta-2;	G protein subunit beta-2;Transducin beta chain 2;
M	SEPELKLVAR	N-ter + 42.01 Da, K +28.03 Da	35.2	21.4	2	1210.72	0.93	0.11	APT_MOUSE	Q6PK77_MOUSE	Adenine phosphoribosyltransferase;	
M	SEPGGGEDGSAGLEVSAVQNVADVAVLQKHLR	N-ter + 42.01 Da, K +34.06 Da	48.0	84.9	4	3264.96	-1.00	0.20	DYHC1_MOUSE		Cytoplasmic dynein 1 heavy chain 1;	Cytoplasmic dynein heavy chain 1;Dynein heavy chain, cytosolic;
M	SESLVCDVAEDLVEKLR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	64.7	80.9	3	2130.26	-0.27	0.07	GMFB_MOUSE		Glia maturation factor beta;	
M	SETVICSSR	N-ter + 42.01 Da, C +57.02 Da	26.5	98.0	2	1079.60	n.d.	n.d.	VASP_MOUSE		Vasodilator-stimulated phosphoprotein;	
M	SFLKSFPPPGSADGLR	N-ter + 42.01 Da, K +28.03 Da	42.2	49.7	3	1745.00	0.25	0.00	ICLN_MOUSE	Q923F1_MOUSE	Methylosome subunit pICln;	Chloride channel, nucleotide sensitive 1A;Chloride conductance regulatory protein IClN;Chloride ion current inducer protein;
M	SGAPPSYFVALPPR	N-ter + 42.01 Da	51.9	68.8	2	1586.92	n.d.	n.d.	SCRN1_MOUSE	D3YXW0_MOUSE	Secernin-1;	
M	SGEDEQQEQTIAEDLVVTKYKMGDIANR	N-ter + 42.01 Da, K +34.06 Da	28.1	92.9	4	3333.98	0.28	0.07	PAZG4_MOUSE	D3YVH7_MOUSE	Proliferation-associated protein 2G4;	IRES-specific cellular trans-acting factor 45 kDa;Mpp1;Proliferation-associated protein 1;Protein p38-2G4;
M	SGEDGPAAGGAAAAAAR	N-ter + 42.01 Da	44.1	115.3	3	1679.98	n.d.	n.d.	PP12C_MOUSE		Protein phosphatase 1 regulatory subunit 12C;	Protein phosphatase 1 myosin-binding subunit of 85 kDa;
M	SGEGENPASKPTPVQDVGQDGR	N-ter + 42.01 Da, K +34.06 Da	62.9	70.3	3	2300.27	-0.27	0.08	PA1B3_MOUSE	Q8CA83_MOUSE	Platelet-activating factor acetylhydrolase IB subunit gamma;	PAF acetylhydrolase 29 kDa subunit;PAF-AH subunit gamma;
M	SGGEVVCSGWLR	N-ter + 42.01 Da, C +57.02 Da	33.8	73.9	2	1347.72	n.d.	n.d.	GAB1_MOUSE		GRB2-associated-binding protein 1;	GRB2-associated binder 1;Growth factor receptor bound protein 2-associated protein 1;
M	SGGKYVDSGHLTVPIR	N-ter + 42.01 Da, K +28.03 Da	51.2	63.3	3	2047.17	-0.09	0.01	CAV1_MOUSE		Caveolin-1;	
M	SGLLKALR	N-ter + 42.01 Da, K +28.03 Da	30.6	12.1	2	983.62	0.20	0.00	NCBP2_MOUSE	D3Z3D2_MOUSE	Nuclear cap-binding protein subunit 2;	20 kDa nuclear cap-binding protein;NCBP 20 kDa subunit;
M	RKDLFANTVL	SGGSTMYPGIADR	33.9	79.3	2	1352.71	n.d.	n.d.	ACTBL_MOUSE		Beta-actin-like protein 2;	Kappa-actin;
M	TGLTPLMEAA	SGGYAEVGR	31.1	81.3	2	936.51	n.d.	n.d.	ANR17_MOUSE	E9Q1M6_MOUSE	Ankyrin repeat domain-containing protein 17;	Ankyrin repeat domain-containing protein FOE;Gene trap ankyrin repeat protein
M	SGSKYKPAPLATLPSTLDPAEYDVPETR	N-ter + 42.01 Da, K +34.06 Da	47.9	89.4	4	3199.98	-2.06	0.26	NDUB4_MOUSE		NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4;	Complex I-B15;NADH-ubiquinone oxidoreductase B15 subunit;
M	SGSSVAAMKVKVQQLR	N-ter + 42.01 Da, K +34.06 Da	31.4	60.4	3	1885.22	-0.43	0.05	GBG5_MOUSE		Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-5;	
M	SGYTPDEKLR	N-ter + 42.01 Da, K +34.06 Da	38.0	53.2	2	1240.72	-1.74	0.12	NDUB6_MOUSE	A2AP32_MOUSE	NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6;	Complex I-B17;NADH-ubiquinone oxidoreductase B17 subunit;
M	SHGFTKEEVAEFAAFNR	N-ter + 42.01 Da, K +28.03 Da	27.9	90.0	4	2137.22	-0.94	0.09	CALM4_MOUSE		Calmodulin-4;	Calcium-binding protein Dd112;
M	SHPSWLPKSTGEPLGHVPPAR	N-ter + 42.01 Da, K +28.03 Da	35.6	87.1	4	2319.42	0.57	0.01	LPP_MOUSE		Lipoma-preferred partner homolog;	
M	SHQTGIQASEDVEKIEFAR	N-ter + 42.01 Da, K +34.06 Da	41.1	84.9	3	2091.26	0.06	0.01	TWF1_MOUSE		Twinfilin-1;	Protein A6;
M	SHVAVENALGLDQQFAGLDLNSSDNQSGSTASKGR	N-ter + 42.01 Da, K +28.03 Da	52.2	86.2	4	3700.09	1.22	0.32	DDX3X_MOUSE		ATP-dependent RNA helicase DDX3X;	D1Pas1-related sequence 2;DEAD box RNA helicase DEAD3;DEAD box protein 3, X-chromosomal;Embryonic RNA helicase;
M	SIEKIWAR	N-ter + 42.01 Da, K +34.06 Da	45.4	22.0	2	1077.66	-0.86	0.09	ENOG_MOUSE	D3Z6E4_MOUSE	Gamma-enolase;	2-phospho-D-glycerate hydro-lyase;Enolase 2;Neural enolase;Neuron-specific enolase;
M	SIFPTNQIR	N-ter + 42.01 Da	35.2	65.9	2	1217.72	n.d.	n.d.	SBDS_MOUSE	D6REV5_MOUSE	Ribosome maturation protein SBDS;	Protein 22A3;Shwachman-Bodian-Diamond syndrome protein homolog;
M	SIGVPIKVLHEAEGHVTCETNTGEVYR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	42.4	81.4	4	3183.90	0.87	0.12	SMD3_MOUSE		Small nuclear ribonucleoprotein Sm D3;	snRNP core protein D3;
M	SILVSPHPDAFPLSR	N-ter + 42.01 Da	45.4	55.1	3	1840.05	n.d.	n.d.	SYVC_MOUSE		Valine-tRNA ligase;	Protein G7a;Valyl-tRNA synthetase;
M	SISSESPAATSLPNGDCGRPR	N-ter + 42.01 Da, C +57.02 Da	43.7	55.4	3	2200.14	n.d.	n.d.	PUR2_MOUSE		Adenylosuccinate synthetase isozyme 2;	Adenylosuccinate synthetase, acidic isozyme;Adenylosuccinate synthetase, liver isozyme;IMP-aspartate ligase 2;
M	SISLSGIGKGR	N-ter + 42.01 Da, K +34.06 Da	49.8	23.2	2	1236.75	1.23	0.13	B1AXE7_MOUSE	A2BI37_MOUSE		
M	SKQPTQFINPETPGYVFANLNQVHR	N-ter + 42.01 Da, K +28.03 Da	47.9	72.3	4	3236.87	-0.47	0.06	SEPT2_MOUSE	D3Z3C0_MOUSE	Septin-2;	Neural precursor cell expressed developmentally down-regulated protein 5;
M	SKSEKIDAVDLGAIGGNIQQVVGVGPTQER	N-ter + 42.01 Da, K +28.03 Da	60.1	92.5	4	3162.98	1.62	0.30	TCHL1_MOUSE	F8VQ46_MOUSE	Trichohyalin-like protein 1;	
M	SKSESPKEPEQLR	N-ter + 42.01 Da, K +34.06 Da	40.9	85.2	3	1624.05	0.58	0.12	ROA1_MOUSE	Q5EBP8_MOUSE	Heterogeneous nuclear ribonucleoprotein A1;	HDP-1;Helix-destabilizing protein;Single-strand-binding protein;Topoisomerase-inhibitor suppressed;hnRNP core protein A1;
M	SKSFQSSLGR	N-ter + 42.01 Da, K +34.06 Da	43.7	53.8	2	1299.77	0.68	0.06	MATR3_MOUSE	Q6ZQ61_MOUSE	Matrin-3;	

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
LKIDGITVQ	SLAIMELEYETRIPIPR	N-ter + 42.01 Da	27.5	79.6	3	1959.17	n.d.	n.d.	MAA1_MOUSE		Maleylacetacetate isomerase;	GSTZ1-1;Glutathione S-transferase zeta 1;
TRRLHCAPT	SLDIQCEQLSDAR	N-ter + 42.01 Da, C +57.02 Da	36.0	72.5	2	1575.83	n.d.	n.d.	RINI_MOUSE		Ribonuclease inhibitor;	Ribonuclease/angiogenin inhibitor 1;
M	SLGGVSEASR	N-ter + 42.01 Da	34.7	82.6	2	1003.58	n.d.	n.d.	CYT1_MOUSE	Q497J0_MOUSE	Stefin-1;	
M	SLHQLLEPITCHAWNR	N-ter + 42.01 Da, C +57.02 Da	53.3	76.7	3	2163.23	n.d.	n.d.	ARCI1_MOUSE	D3YV15_MOUSE	Actin-related protein 2/3 complex subunit 1A;	SOP2-like protein;Sid 329;
M	SLICSISNEVPEHCVPSPNVHYER	N-ter + 42.01 Da, C +57.02 Da	40.2	99.6	4	3050.73	n.d.	n.d.	PRP19_MOUSE		Pre-mRNA-processing factor 19;	Nuclear matrix protein 200;PRP19/PSO4
CEPVYGPLTM	SLKQPQPAPATGR	N-ter + 42.01 Da, K +28.03 Da	22.7	63.1	3	1613.99	0.49	0.02	ATX2_MOUSE	E9QQ60_MOUSE	Ataxin-2;	homolog;Senescence evasion factor;
M	SLVAVFPYQKR	N-ter + 42.01 Da, K +34.06 Da	44.2	28.2	2	1382.85	-1.12	0.12	Q14B15_MOUSE			Spinocerebellar ataxia type 2 protein homolog;
M	SLVDLGLKLEEAR	N-ter + 42.01 Da, K +34.06 Da	31.3	98.5	3	1622.20	0.26	0.07	GABP1_MOUSE	A2AQ71_MOUSE	GA-binding protein subunit beta-1;	GABP subunit beta-2;
M	SLVDLGR	N-ter + 42.01 Da, K +34.06 Da	31.3	15.1	2	962.61	-0.54	0.04	GABP2_MOUSE	Q8C2T8_MOUSE	GA-binding protein subunit beta-2;	GA-binding protein beta-2-1;
EVVALDAIH	SMGLIHR	N-ter + 42.01 Da	35.0	64.6	2	854.50	n.d.	n.d.	ROCK2_MOUSE	F8VPK5_MOUSE	Rho-associated protein kinase 2;	Rho-associated, coiled-coil-containing protein kinase 2;Rho-associated, coiled-coil-containing protein kinase II;p164 ROCK-2;
ASVILQHLRM	SMHTEAAEVLLER	N-ter + 42.01 Da	37.7	11.3	2	1526.76	n.d.	n.d.	HIBCH_MOUSE	E0CX19_MOUSE	3-hydroxyisobutyryl-CoA hydrolase, mitochondrial;	3-hydroxyisobutyryl-coenzyme A hydrolase;
M	SMNKGPTLDDGLPEQENVLQR	N-ter + 42.01 Da, K +34.06 Da	47.6	55.6	3	2529.44	0.42	0.06	PLIN1_MOUSE		Perilipin-1;	Lipid droplet-associated protein;Perilipin A;
PATGTSLLLS	SMTVDIVCEKLR	N-ter + 42.01 Da, C +57.02 Da	34.5	22.7	2	1519.81	1.68	0.24	E9PXC4_MOUSE	E9Q9B7_MOUSE		
M	SNEPAPPYGGPTAPLLEKSGAPLTGR	N-ter + 42.01 Da, K +34.06 Da	36.3	91.0	4	3001.83	-1.52	0.13	LITFL_MOUSE		LITAF-like protein;	
M	SNGYEDHMAEDCRDDIGR	N-ter + 42.01 Da, C +57.02 Da	41.8	56.0	3	2180.97	n.d.	n.d.	ELAV1_MOUSE		ElAV-like protein 1;	Elav-like generic protein;Hu-antigen R;MeIG;
M	SNGYEDHMAEDCR	N-ter + 42.01 Da, C +57.02 Da	56.1	51.8	2	1624.67	n.d.	n.d.	ELAV1_MOUSE		ElAV-like protein 1;	Elav-like generic protein;Hu-antigen R;MeIG;
M	SQAEFDKAAEEVKR	N-ter + 42.01 Da, K +28.03 Da	58.4	65.1	2	1704.98	1.42	0.05	ACBP_MOUSE		Acyl-CoA-binding protein;	Diazepam-binding inhibitor;Endozepine;
M	SQERPTFYR	N-ter + 42.01 Da	24.7	57.5	2	1224.66	n.d.	n.d.	MK14_MOUSE	B2KF35_MOUSE	Mitogen-activated protein kinase 14;	CRK1;Mitogen-activated protein kinase p38 alpha;
M	SOGDSNPAIPIAHAEDIQDGR	N-ter + 42.01 Da	53.5	56.8	3	2305.15	n.d.	n.d.	PA1B2_MOUSE	F8W1W7_MOUSE	Platelet-activating factor acetylhydrolase IB subunit beta;	beta;
KTTWKEVSKA	SOKTEGHR	N-ter + 42.01 Da, K +34.06 Da	27.2	57.2	2	1017.60	-0.94	0.04	F6VUL6_MOUSE			
PSRWPRSDPE	SQPLGGGAGGSGAGATAPPPR	N-ter + 42.01 Da	26.6	4.8	3	2054.06	n.d.	n.d.	NMDE4_MOUSE	E9PYG0_MOUSE	Glutamate [NMDA] receptor subunit epsilon-4;	N-methyl D-aspartate receptor subtype 2D;
CGGLPKDRP	SRGKDAIAPKR	N-ter + 42.01 Da, K +34.06 Da	27.0	27.9	3	1307.87	-0.14	0.00	FHD01_MOUSE		FH2 domain-containing protein 1;	
M	SSDAEMAVFGAAAPYL	N-ter + 42.01 Da	43.8	73.9	2	1854.98	n.d.	n.d.	MYH1_MOUSE	MYH4_MOUSE	Myosin-1;	Myosin heavy chain 1;Myosin heavy chain 2x;Myosin heavy chain, skeletal muscle, adult 1;
RSPGASRAAM	SSDAQWLTAEER	N-ter + 42.01 Da	32.1	77.9	2	1433.75	n.d.	n.d.	PHS2_MOUSE		Pterin-4-alpha-carbinolamine dehydratase 2;	alpha dimerization cofactor;
M	SSDTSAPAVTTTPPPSPMPHKER	N-ter + 42.01 Da, K +34.06 Da	39.2	80.2	3	2393.40	-1.00	0.08	ADDG_MOUSE		Gamma-adducin;	Adducin-like protein 70;
M	SSEPPPPQLPPTQTSVGLLDTPR	N-ter + 42.01 Da	42.9	82.1	4	2689.59	n.d.	n.d.	CHSP1_MOUSE		Calcium-regulated heat stable protein 1;	Calcium-regulated heat-stable protein of 24 kDa;
M	SSGALLPKPQMR	N-ter + 42.01 Da, K +34.06 Da	30.4	7.0	2	1359.79	-1.74	0.12	COX6C_MOUSE	D3Z6E1_MOUSE	Cytochrome c oxidase subunit 6C;	Cytochrome c oxidase polypeptide VIc;
M	SSGASVSALQR	N-ter + 42.01 Da	39.2	73.4	2	1103.64	n.d.	n.d.	GBG10_MOUSE		Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-10;	
M	SSIIGTGYDLASTFSPDGR	N-ter + 42.01 Da	33.6	106.6	3	1959.09	n.d.	n.d.	PSA3_MOUSE	E0CZ34_MOUSE	Proteasome subunit alpha type-3;	Macropain subunit C8;Multicatalytic endopeptidase complex subunit C8;Proteasome component C8;Proteasome subunit K;
M	SSIIPFTPPVVKR	N-ter + 42.01 Da, K +28.03 Da	30.8	35.6	2	1509.95	0.33	0.02	SMAD2_MOUSE	E9Q3M0_MOUSE	Mothers against decapentaplegic homolog 2;	Mad-related protein 2;SMAD family member 2;
M	SSKSMVLGVWDIR	N-ter + 42.01 Da, K +28.03 Da	39.5	90.1	3	1610.96	-1.18	0.16	GSTM5_MOUSE	E9PVM7_MOUSE	Glutathione S-transferase Mu 5;	Fibrous sheath component 2;GST class-mu 5;
M	SSKTASTNSIAQAR	N-ter + 42.01 Da, K +34.06 Da	40.1	71.1	3	1496.91	-1.22	0.28	GBG12_MOUSE		Guanine nucleotide-binding protein G(I)/G(S)/G(O) subunit gamma-12;	
M	SSLEISNCFSPETR	N-ter + 42.01 Da, C +57.02 Da	33.8	65.5	2	1754.89	n.d.	n.d.	MOC2B_MOUSE		Molybdopterin synthase catalytic subunit;	Molybdenum cofactor synthesis protein 2 large subunit;Molybdenum cofactor synthesis protein 2B;
M	SSMTQQLR	N-ter + 42.01 Da	35.1	74.2	2	977.53	n.d.	n.d.	ACO13_MOUSE		Acyl-coenzyme A thioesterase 13;	Thioesterase superfamily member 2;
M	SSNECFKGR	N-ter + 42.01 Da, K +34.06 Da, C +57.02 Da	35.5	59.6	2	1319.66	-0.43	0.08	CNBP_MOUSE	D3YF6_MOUSE	Cellular nucleic acid-binding protein;	Zinc finger protein 9;
SMNRLWRNKR	SSQPGFCIGVDLNR	N-ter + 42.01 Da, C +57.02 Da	27.5	5.4	3	1703.84	n.d.	n.d.	CBPA5_MOUSE	E9PYY7_MOUSE	Carboxypeptidase A5;	
M	SSSAASPLFAPGEDCGPAWR	N-ter + 42.01 Da, C +57.02 Da	36.1	96.1	3	2104.13	n.d.	n.d.	GAMT_MOUSE		Guanidinoacetate N-methyltransferase;	
M	SSSLAGGHMVSLLTPEESR	N-ter + 42.01 Da, C +57.02 Da	38.0	76.5	3	2159.16	n.d.	n.d.	TENS4_MOUSE		Tensin-4;	
M	SSSRPVALVTGANKGIGFAITR	N-ter + 42.01 Da, K +28.03 Da	51.0	82.3	3	2271.46	-0.40	0.08	CBR1_MOUSE		Carbonyl reductase [NADPH] 1;	15-hydroxyprostaglandin dehydrogenase [NADP+];NADPH-dependent carbonyl reductase 1;Prostaglandin 9-ketoreductase;Prostaglandin-E(2) 9-reductase;
M	SSSQFNKGPSVGLSAEYKNR	N-ter + 42.01 Da, K +28.03 Da	52.4	85.1	3	2267.35	1.59	0.33	CNN2_MOUSE	D3Z7R6_MOUSE	Calponin-2;	Calponin H2, smooth muscle;Neutral calponin;
M	SSVAVLTIQESFAEHR	N-ter + 42.01 Da	40.4	63.1	3	1701.94	n.d.	n.d.	VIGLN_MOUSE		Vigilin;	High density lipoprotein-binding protein;
M	STPLQRIGISM	SSVTVTKEVADESPPPLTR	42.8	76.0	3	1941.15	0.01	0.00	SSFA2_MOUSE	Q3TEM8_MOUSE	Sperm-specific antigen 2 homolog;	Ki-ras-induced actin-interacting protein;
M	STAGVAAQDIR	N-ter + 42.01 Da	41.4	85.8	2	1129.67	n.d.	n.d.	ERRF1_MOUSE		ERBB receptor feedback inhibitor 1;	Mitogen-inducible gene 6 protein homolog;
M	STEASARPLR	N-ter + 42.01 Da	29.9	50.0	2	1128.65	n.d.	n.d.	DCTN1_MOUSE	D3YYG9_MOUSE	Dynactin subunit 1;	150 kDa dynein-associated polypeptide;DAP-150;p150-glu2;
IHRAAAVAAM	STGTFVVSQQLNYR	N-ter + 42.01 Da	36.2	75.2	2	1609.93	n.d.	n.d.	AL9A1_MOUSE	Q3U367_MOUSE	4-trimethylaminobutyraldehyde dehydrogenase;	Aldehyde dehydrogenase family 9 member A1;
M	STLIIHPQYAWLQDLGLR	N-ter + 42.01 Da	45.6	60.3	3	2302.36	n.d.	n.d.	AL7A1_MOUSE	E9Q1G1_MOUSE	Alpha-aminoacidipic semialdehyde dehydrogenase;	Aldehyde dehydrogenase family 7 member A1;Antiquitin-1;Betaine aldehyde dehydrogenase;Delta1-piperidine-6-carboxylate dehydrogenase;
M	STNTDLSLSDYEGQSGKFIK	N-ter + 42.01 Da, K +34.06 Da	49.1	54.1	3	2380.29	-2.47	0.55	HIG1A_MOUSE		HIG1 domain family member 1A;	Hypoxia-inducible gene 1 protein;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASARatio	FC-error of ASARatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
M	STPGKENFR	N-ter + 42.01 Da, K +34.06 Da	33.2	57.7	2	1110.65	0.61	0.04	IMA1_MOUSE		Importin subunit alpha-1; Importin alpha-S1;Karyopherin subunit alpha-1;Nucleoprotein interactor 1;RAG cohort protein 2;SRP1-beta;	Importin subunit alpha-1; Epidermal growth factor receptor kinase substrate 8-like protein 1;
M	STTTGPEAAPKPSAKSIYEQR	N-ter + 42.01 Da, K +28.03 Da	27.0	81.8	3	2316.39	-0.64	0.14	ES8L1_MOUSE	E9Q4X5_MOUSE	Epidermal growth factor receptor pathway substrate 8-related protein 1; Protein SYT;Synovial sarcoma-associated Ss18-alpha;	
M	SVAFAPR	N-ter + 42.01 Da	27.5	76.6	2	859.52	n.d.	n.d.	SSXT_MOUSE	Q88K1_MOUSE	Protein SSXT;	
M	SVAVAPVAVHPDMSLSEAEPR	N-ter + 42.01 Da	36.6	69.2	3	2332.30	n.d.	n.d.	D32325_MOUSE	D3Z205_MOUSE		
M	SVNTDELRL	N-ter + 42.01 Da	34.2	96.3	2	974.56	n.d.	n.d.	F100B_MOUSE	D3YZA3_MOUSE	Protein FAM100B;	
M	SVPAFIDISEEQAAELR	N-ter + 42.01 Da	34.1	86.5	3	2031.16	n.d.	n.d.	E1F3M_MOUSE		Eukaryotic translation initiation factor 3 subunit M;	
MCGNTM	SVPLTDAATVSGAER	N-ter + 42.01 Da	48.2	73.9	2	1627.96	n.d.	n.d.	LYPEA_MOUSE		Acyl-protein thioesterase 2;	PCI domain-containing protein 1; Lysophospholipase 2;Lysophospholipase II; Cadherin-associated Src substrate;p120 catenin;p120(cas);
YTEEDPEGAM	SVSVVETDDGTTR	N-ter + 42.01 Da	31.2	73.8	2	1507.81	n.d.	n.d.	CTND1_MOUSE	E9Q8Z9_MOUSE	Catenin delta-1;	Kinase-enhanced PP1 inhibitor;PKC-potentiated PP1 inhibitory protein;
M	SVVTGGGEEAAGGGGGGAR	N-ter + 42.01 Da	57.6	71.0	2	1514.82	n.d.	n.d.	PP14C_MOUSE		Protein phosphatase 1 regulatory subunit 14C;	
M	SWFADLAGR	N-ter + 42.01 Da	28.3	78.9	2	1063.59	n.d.	n.d.	GOGA5_MOUSE		Golgin subfamily A member 5;	Golgin-84; Protein Ret-II;Protein Sumiko;
M	SYGPLDMYR	N-ter + 42.01 Da	34.6	83.1	2	1142.60	n.d.	n.d.	STX12_MOUSE		Syntaxin-12;	
LGSRRRFAAM	SYGRPPDPVEGMSLTKVDNLTYS	N-ter + 42.01 Da, K +28.03 Da	57.1	77.3	3	2664.53	-0.03	0.00	SRSF2_MOUSE	E9Q975_MOUSE	Serine/arginine-rich splicing factor 2;	Protein PR264;Putative myelin regulatory factor 1;Splicing component, 35 kDa;Splicing factor SC35;Splicing factor, arginine/serine-rich 2;
M	SYTPGGGDSQAQALQR	N-ter + 42.01 Da	31.3	113.4	3	1661.99	n.d.	n.d.	STX7_MOUSE	Q88H40_MOUSE	Syntaxin-7;	
M	SYTPGQPVTAVVQR	N-ter + 42.01 Da	41.3	71.2	2	1543.91	n.d.	n.d.	TX1B3_MOUSE	B1AUD9_MOUSE	Tax1-binding protein 3;	Tax interaction protein 1;
M	TAFFKTLR	N-ter + 42.01 Da, K +34.06 Da	35.5	27.1	2	1058.66	-0.45	0.01	AGK_MOUSE		Acylglycerol kinase, mitochondrial;	Multiple substrate lipid kinase;
M	TAIHKIVSR	N-ter + 42.01 Da, K +28.03 Da	53.7	44.6	2	1198.78	-0.14	0.03	PTEH_MOUSE		Phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase and dual-specificity protein phosphatase PTEN;	Mutated in multiple advanced cancers 1;Phosphatase and tensin homolog;
M	TATLRPYLSAVR	N-ter + 42.01 Da	37.0	26.1	2	1388.81	n.d.	n.d.	ARPC4_MOUSE		Actin-related protein 2/3 complex subunit 4;	Arp2/3 complex 20 kDa subunit;
M	TDMAGLMER	N-ter + 42.01 Da	31.1	101.2	2	1064.57	n.d.	n.d.	CAP2_MOUSE	D3YTR7_MOUSE	Adenylyl cyclase-associated protein 2;	
LQSQRSLDM	TDNTNSQLVVR	N-ter + 42.01 Da	32.0	67.9	2	1287.73	n.d.	n.d.	ARHG7_MOUSE	D3Z0V2_MOUSE	Rho guanine nucleotide exchange factor 7;	Beta-Pix;PAK-interacting exchange factor beta;p85SPR;
SVMRTDSSEM	TDVESVITSFASSAR	N-ter + 42.01 Da	42.8	75.6	2	1610.90	n.d.	n.d.	IPKB_MOUSE	Q3TZU5_MOUSE	cAMP-dependent protein kinase inhibitor beta;	PKI-beta;cAMP-dependent protein kinase inhibitor, testis isoform;
M	TDVETTYADFIASGR	N-ter + 42.01 Da	37.6	72.5	2	1686.90	n.d.	n.d.	IPKA_MOUSE		cAMP-dependent protein kinase inhibitor alpha;	muscle/brain isoform;
MM	TEETHDLEAR	N-ter + 42.01 Da	48.4	58.1	2	1241.63	n.d.	n.d.	CAV3_MOUSE		Caveolin-3;	M-caveolin;
M	TEELITPVYCTGVSQAQVKR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	29.1	62.7	3	2504.49	-0.89	0.20	CAN1_MOUSE		Calpain-1 catalytic subunit;	Calcium-activated neutral proteinase 1;Calpain mu-type;Calpain-1 large subunit;Micromolar-calpain;
M	TEKEVVESSPPPPGGETPQSGLQR	N-ter + 42.01 Da, K +34.06 Da	45.2	84.3	4	2712.61	-0.17	0.02	STAC3_MOUSE		SH3 and cysteine-rich domain-containing protein 3;	
M	TETDGFYKSR	N-ter + 42.01 Da, K +34.06 Da	40.9	58.4	2	1278.71	-0.27	0.02	CASP6_MOUSE		Caspase-6;	Apoptotic protease Mch-2;
M	THSSQDAGSHGIEEGR	N-ter + 42.01 Da	53.2	106.0	3	1836.99	n.d.	n.d.	CG053_MOUSE		Coiled-coil domain-containing transmembrane protein C7orf53 homolog;	
M	VTEKQVYDAH	N-ter + 42.01 Da, K +34.06 Da	30.2	0.8	2	1162.68	-1.36	0.10	CAV1_MOUSE	D3Z148_MOUSE	Caveolin-1;	
M	TLKSSEGGGNMSMR	N-ter + 42.01 Da, K +28.03 Da	43.1	74.1	3	1521.82	0.29	0.02	EM55_MOUSE	B7ZCM1_MOUSE	55 kDa erythrocyte membrane protein;	Membrane protein, palmitoylated 1;
M	TMDKSELVQKAKLAEQAEER	N-ter + 42.01 Da, K +28.03 Da	41.7	72.0	4	2300.41	0.07	0.00	1433B_MOUSE	A2A5N1_MOUSE	14-3-3 protein beta/alpha;	Protein kinase C inhibitor protein 1; Chromosome region maintenance 1 protein homolog;
M	TMLADHAAR	N-ter + 42.01 Da	40.5	75.0	2	1026.57	n.d.	n.d.	XPO1_MOUSE	A2AKT6_MOUSE	Exportin-1;	
M	TQEEAGRPLQVVLAR	N-ter + 42.01 Da	41.9	11.2	3	1608.88	n.d.	n.d.	Q8BGM4_MOUSE	Q8BY07_MOUSE		
M	TQEYDNKRPLVLQNEALYR	N-ter + 42.01 Da, K +28.03 Da	27.6	96.8	4	2743.70	0.55	0.07	GRHL1_MOUSE		Grainyhead-like protein 1 homolog;	Transcription factor CP2-like 2;Transcription factor LBP-32;
M	TSALEYINR	N-ter + 42.01 Da	30.4	91.9	2	1221.71	n.d.	n.d.	NAA38_MOUSE		N-alpha-acetyltransferase 38, NatC auxiliary subunit;	U6 snRNA-associated 5m-like protein L5m8;
M	TSPEGAQNKEIDCLPEAQR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	38.2	81.7	3	2299.26	0.72	0.13	LRRF1_MOUSE	E9Q9T1_MOUSE	Leucine-rich repeat flightless-interacting protein 1;	FLI-LRR-associated protein 1;H186 FLAP;
M	TTYSHVHLR	N-ter + 42.01 Da	55.3	50.3	2	1189.63	n.d.	n.d.	PRRX1_MOUSE		Paired mesoderm homeobox protein 1;	Homeobox protein K-2;Homeobox protein mHox;Paired-related homeobox protein 1;
M	TTKDPSEHPVTLFR	N-ter + 42.01 Da, K +28.03 Da	32.8	69.2	3	1913.09	0.08	0.01	ACY1_MOUSE		Aminoacylase-1;	N-acyl-L-amino-acid amidohydrolase;
M	TTNTVPLHPYWR	N-ter + 42.01 Da	32.0	66.5	3	1622.93	n.d.	n.d.	EBP_MOUSE	A2AC29_MOUSE	3-beta-hydroxysteroid-Delta(8),Delta(7)-isomerase;	Cholesterol Delta-isomerase;Delta(8)-Delta(7) sterol isomerase;Emopamil-binding protein;
M	TTQQIVLQGGPWGFR	N-ter + 42.01 Da	42.3	114.5	3	1826.16	n.d.	n.d.	PDLI1_MOUSE		PDZ and LIM domain protein 1;	C-terminal LIM domain protein 1;E1fn;LIM domain protein CLP-36;
M	TTSGALFPSLVPGR	N-ter + 42.01 Da	30.3	69.0	2	1530.91	n.d.	n.d.	ADRM1_MOUSE	D3YUD8_MOUSE	Proteasomal ubiquitin receptor ADRM1;	110 kDa cell membrane glycoprotein;Adhesion-regulating molecule 1;Rpn13 homolog;
M	TTSLQDGGQAAGR	N-ter + 42.01 Da	46.5	75.1	2	1332.73	n.d.	n.d.	GRB14_MOUSE		Growth factor receptor-bound protein 14;	GRB14 adapter protein;
M	TTTTTFKGVDPNSR	N-ter + 42.01 Da, K +28.03 Da	27.6	71.6	3	1593.91	1.38	0.16	HN1_MOUSE		Hematological and neurological expressed 1 protein;	
M	TTVLEFIQQNEER	N-ter + 42.01 Da	37.6	84.7	2	1711.95	n.d.	n.d.	SC23A_MOUSE	E9Q153_MOUSE	Protein transport protein Sec23A;	SEC23-related protein A;
VDIRKDLFAN	TVLSGGSTMYPGIADR	N-ter + 42.01 Da	28.2	73.2	3	1665.92	n.d.	n.d.	ACTBL_MOUSE		Beta-actin-like protein 2;	Kappa-actin;
M	VEAAPGSGLR	N-ter + 42.01 Da	39.7	85.2	2	1165.71	n.d.	n.d.	CAMP3_MOUSE	E9Q580_MOUSE	Calmodulin-regulated spectrin-associated protein 3;	Protein Nezh2a;
M	VEKEEAGGGGGGSEEEAAQYDR	N-ter + 42.01 Da, K +34.06 Da	82.2	77.8	3	2470.32	-0.43	0.13	SAE1_MOUSE		SUMO-activating enzyme subunit 1;	Ubiquitin-like 1-activating enzyme E1A;
GDMMLDTPDPY	VELFISITPDSRRK	N-ter + 42.01 Da, K +28.03 Da	11.2	82.3	3	1718.08	1.76	0.19	PA24A_MOUSE	Q9DBX5_MOUSE	Cytosolic phospholipase A2;	Phospholipase A2 group IVA;
HQTKAEILNL	VKMKLKTGKALNLGYALDYALR	N-ter + 42.01 Da, K +34.06 Da, C +28.03 Da	24.2	116.4	3	2800.14	n.d.	n.d.	E9PWQ3_MOUSE	D3YWD1_MOUSE		
PVDKML	VKVGNGVFR	N-ter + 42.01 Da, K +34.06 Da	50.8	42.5	2	1107.71	-0.92	0.12	G3P_MOUSE	E9PX99_MOUSE	Glyceraldehyde-3-phosphate dehydrogenase;	Peptidyl-cysteine S-nitrosylase GAPDH;

Table S16, Tholen et al.

Non Prime Site	Prime Site	Modifications	Hyperscore	Mass error in ppm	Charge	Precursor neutral mass in Da	Fold change (log ₂) of ASAPRatio	FC-error of ASAPRatio	Uniprot ID 1	Uniprot ID 2	Protein Name 1	Protein Name 2
VDIRSPAISW	VNNLEVDSR	N-ter + 42.01 Da	25.1	109.4	2	1086.65	n.d.	n.d.	UGGG1_MOUSE		UDP-glucose:glycoprotein glucosyltransferase 1;	UDP-Glc:glycoprotein glucosyltransferase;UDP-glucose ceramide glucosyltransferase-like 1; Cyclophilin A;Cyclosporin A-binding protein;Rotamase A;SP18;
M	VNPTVFFDITADDEPLGR	N-ter + 42.01 Da	37.1	114.0	3	2047.22	n.d.	n.d.	PPIA_MOUSE	E9Q1E3_MOUSE	Peptidyl-prolyl cis-trans isomerase A;	Spermatogenic cell-specific glyceraldehyde 3-phosphate dehydrogenase 2;Spermatogenic glyceraldehyde-3-phosphate dehydrogenase; SEC13-like protein 1;SEC13-related protein; Spermatogenic cell-specific glyceraldehyde 3-phosphate dehydrogenase 2;Spermatogenic glyceraldehyde-3-phosphate dehydrogenase; Carbonic anhydrase 3; Ig kappa chain V-II region 26-10;
NGKLTGMAFR	VPTPNVSVVDLTCR	N-ter + 42.01 Da, C +57.02 Da	29.3	73.9	3	1597.93	n.d.	n.d.	G3PT_MOUSE	G3P_MOUSE	Glyceraldehyde-3-phosphate dehydrogenase, testis-specific;	
M	VSMNTVDTSHEDIHQMDYYGTR	N-ter + 42.01 Da	32.5	99.6	4	3056.60	n.d.	n.d.	SEC13_MOUSE		Protein SEC13 homolog;	
GMAFRVPTPN	VSVVDLTCR	N-ter + 42.01 Da, C +57.02 Da	30.4	74.6	2	1089.63	n.d.	n.d.	G3PT_MOUSE	G3P_MOUSE	Glyceraldehyde-3-phosphate dehydrogenase, testis-specific;	
TILNNGKTCR	VVFDDTYDR	N-ter + 42.01 Da	30.5	74.1	2	1170.61	n.d.	n.d.	CAH3_MOUSE		Carbonic anhydrase 3;	
MFWIPASSSD	VVMTQTPLSLPVSLGDDQASISCR	N-ter + 42.01 Da, C +57.02 Da	53.9	76.1	3	2615.49	n.d.	n.d.	KV2A7_MOUSE		Ig kappa chain V-II region 26-10;	
EKLNEVMQEA	WKYNRECKLLR	N-ter + 42.01 Da, K +34.06 Da, K +28.03 Da, C +57.02 Da	9.4	6.8	3	1668.95	n.d.	n.d.	MAPK5_MOUSE	D3Z2B0_MOUSE	MAP kinase-activated protein kinase 5;	
M	WPPDAEPEPDPEAHGPR	N-ter + 42.01 Da	44.2	31.4	3	2155.99	n.d.	n.d.	CKLF3_MOUSE		CKLF-like MARVEL transmembrane domain-containing protein 3;	Chemokine-like factor superfamily member 3;
M	YAPGGAGLPGGR	N-ter + 42.01 Da	26.5	95.9	2	1244.72	n.d.	n.d.	TM127_MOUSE		Transmembrane protein 127;	
ASKQIMADKQ	YKGIIDCVVR	N-ter + 42.01 Da, K +28.03 Da, C +57.02 Da	27.7	83.6	3	1291.80	-0.74	0.03	ADT1_MOUSE	ADT2_MOUSE	ADP/ATP translocase 1;	ADP,ATP carrier protein 1;ADP,ATP carrier protein, heart/skeletal muscle isoform T1;Adenine nucleotide translocator 1;Solute carrier family 25 member 4;mANC1;
M	YTIPIQSGSPFPASVQDPLHIWR	N-ter + 42.01 Da	32.8	56.9	3	2822.55	n.d.	n.d.	CAPG_MOUSE	Q99LB4_MOUSE	Macrophage-capping protein;	Actin regulatory protein CAP-G;Actin-capping protein GCAP39;Myc basic motif homolog 1;