

Pathway identifier	Pathway name	Proteins found	Total Proteins Pathway
R-MMU-73843	5-Phosphoribose 1-diphosphate biosynthesis	2	4
R-MMU-1971475	A tetrasaccharide linker sequence is required for GAG synthesis	6	26
R-MMU-2161541	Abacavir metabolism	1	3
R-MMU-2161522	Abacavir transport and metabolism	1	6
R-MMU-73930	Abasic sugar-phosphate removal via the single-nucleotide replacement pathway	1	2
R-MMU-1369062	ABC transporters in lipid homeostasis	6	17
R-MMU-382556	ABC-family proteins mediated transport	68	100
R-MMU-156582	Acetylation	1	3
R-MMU-264642	Acetylcholine Neurotransmitter Release Cycle	5	17
R-MMU-399997	Acetylcholine regulates insulin secretion	4	9
R-MMU-2122948	Activated NOTCH1 Transmits Signal to the Nucleus	2	10
R-MMU-9028731	Activated NTRK2 signals through FRS2 and FRS3	2	6
R-MMU-9032500	Activated NTRK2 signals through FYN	2	5
R-MMU-9026527	Activated NTRK2 signals through PLCG1	1	4
R-MMU-9034793	Activated NTRK3 signals through PLCG1	1	3
R-MMU-5625886	Activated PKN1 stimulates transcription of AR (androgen receptor) regulated genes KLK2 and KLK3	9	39
R-MMU-450302	activated TAK1 mediates p38 MAPK activation	12	22
R-MMU-111452	Activation and oligomerization of BAK protein	2	2
R-MMU-165158	Activation of AKT2	2	4
R-MMU-176814	Activation of APC/C and APC/C:Cdc20 mediated degradation of mitotic proteins	63	75
R-MMU-176187	Activation of ATR in response to replication stress	25	37
R-MMU-111447	Activation of BAD and translocation to mitochondria	10	12
R-MMU-114452	Activation of BH3-only proteins	14	18
R-MMU-111446	Activation of BIM and translocation to mitochondria	3	3
R-MMU-139910	Activation of BMF and translocation to mitochondria	2	3
R-MMU-174577	Activation of C3 and C5	3	7
R-MMU-451308	Activation of Ca-permeable Kainate Receptor	2	10
R-MMU-1296041	Activation of G protein gated Potassium channels	8	25
R-MMU-991365	Activation of GABAB receptors	11	39
R-MMU-936964	Activation of IRF3/IRF7 mediated by TBK1/IKK epsilon	8	17
R-MMU-451326	Activation of kainate receptors upon glutamate binding	12	30
R-MMU-1592389	Activation of Matrix Metalloproteinases	3	52
R-MMU-1169091	Activation of NF-kappaB in B cells	57	64
R-MMU-2980767	Activation of NIMA Kinases NEK9, NEK6, NEK7	4	5
R-MMU-442755	Activation of NMDA receptors and postsynaptic events	14	38
R-MMU-9619229	Activation of RAC1 downstream of NMDARs	3	4
R-MMU-1169092	Activation of RAS in B cells	3	5
R-MMU-5635838	Activation of SMO	5	14
R-MMU-450341	Activation of the AP-1 family of transcription factors	6	10
R-MMU-72662	Activation of the mRNA upon binding of the cap-binding complex and eIFs, and subsequent binding to 43S	57	60
R-MMU-2485179	Activation of the phototransduction cascade	2	9

R-MMU-68962	Activation of the pre-replicative complex	25	32
R-MMU-8866907	Activation of the TFAP2 (AP-2) family of transcription factors	3	12
R-MMU-75108	Activation, myristoylation of BID and translocation to mitochondria	3	11
R-MMU-114294	Activation, translocation and oligomerization of BAX	2	2
R-MMU-1482798	Acyl chain remodeling of CL	4	5
R-MMU-1482883	Acyl chain remodeling of DAG and TAG	2	7
R-MMU-1482788	Acyl chain remodelling of PC	6	28
R-MMU-1482839	Acyl chain remodelling of PE	5	28
R-MMU-1482925	Acyl chain remodelling of PG	4	19
R-MMU-1482922	Acyl chain remodelling of PI	1	17
R-MMU-1482801	Acyl chain remodelling of PS	5	23
R-MMU-1280218	Adaptive Immune System	359	780
R-MMU-170660	Adenylate cyclase activating pathway	1	10
R-MMU-170670	Adenylate cyclase inhibitory pathway	3	14
R-MMU-418990	Adherens junctions interactions	8	33
R-MMU-418592	ADP signalling through P2Y purinoceptor 1	11	25
R-MMU-392170	ADP signalling through P2Y purinoceptor 12	10	22
R-MMU-400042	Adrenaline,noradrenaline inhibits insulin secretion	9	23
R-MMU-879415	Advanced glycosylation endproduct receptor signaling	4	7
R-MMU-5423646	Aflatoxin activation and detoxification	3	22
R-MMU-9646399	Aggrephagy	20	35
R-MMU-198323	AKT phosphorylates targets in the cytosol	7	11
R-MMU-198693	AKT phosphorylates targets in the nucleus	3	10
R-MMU-211163	AKT-mediated inactivation of FOXO1A	2	4
R-MMU-8964540	Alanine metabolism	1	2
R-MMU-1462054	Alpha-defensins	1	35
R-MMU-2046104	alpha-linolenic (omega3) and linoleic (omega6) acid metabolism	9	14
R-MMU-2046106	alpha-linolenic acid (ALA) metabolism	9	14
R-MMU-389599	Alpha-oxidation of phytanate	4	6
R-MMU-9645460	Alpha-protein kinase 1 signaling pathway	5	11
R-MMU-173736	Alternative complement activation	2	6
R-MMU-140179	Amine Oxidase reactions	3	4
R-MMU-352230	Amino acid transport across the plasma membrane	11	32
R-MMU-9639288	Amino acids regulate mTORC1	28	55
R-MMU-163680	AMPK inhibits chREBP transcriptional activation activity	1	6
R-MMU-141444	Amplification of signal from unattached kinetochores via a MAD2 inhibitory signal	66	93
R-MMU-141424	Amplification of signal from the kinetochores	66	93
R-MMU-5620912	Anchoring of the basal body to the plasma membrane	54	98
R-MMU-193048	Androgen biosynthesis	1	16
R-MMU-983695	Antigen activates B Cell Receptor (BCR) leading to generation of second messengers	15	84
R-MMU-983170	Antigen Presentation: Folding, assembly and peptide loading of class I MHC	15	47
R-MMU-983168	Antigen processing: Ubiquitination & Proteasome degradation	156	297
R-MMU-1236975	Antigen processing-Cross presentation	62	97
R-MMU-6803157	Antimicrobial peptides	5	92
R-MMU-1169410	Antiviral mechanism by IFN-stimulated genes	25	35
R-MMU-174048	APC/C:Cdc20 mediated degradation of Cyclin B	15	23

R-MMU-176409	APC/C:Cdc20 mediated degradation of mitotic proteins	62	74
R-MMU-174154	APC/C:Cdc20 mediated degradation of Securin	56	66
R-MMU-174178	APC/C:Cdh1 mediated degradation of Cdc20 and other APC/C:Cdh1 targeted proteins in late mitosis/early G1	59	71
R-MMU-174143	APC/C-mediated degradation of cell cycle proteins	66	82
R-MMU-179419	APC:Cdc20 mediated degradation of cell cycle proteins prior to satisfaction of the cell cycle checkpoint	60	72
R-MMU-179409	APC-Cdc20 mediated degradation of Nek2A	16	25
R-MMU-5649702	APEX1-Independent Resolution of AP Sites via the Single Nucleotide Replacement Pathway	3	7
R-MMU-109581	Apoptosis	66	105
R-MMU-140342	Apoptosis induced DNA fragmentation	12	13
R-MMU-351906	Apoptotic cleavage of cell adhesion proteins	3	11
R-MMU-111465	Apoptotic cleavage of cellular proteins	23	38
R-MMU-75153	Apoptotic execution phase	35	51
R-MMU-111471	Apoptotic factor-mediated response	8	9
R-MMU-445717	Aquaporin-mediated transport	12	39
R-MMU-426048	Arachidonate production from DAG	3	5
R-MMU-2142753	Arachidonic acid metabolism	18	57
R-MMU-5624958	ARL13B-mediated ciliary trafficking of INPP5E	1	3
R-MMU-170984	ARMS-mediated activation	2	5
R-MMU-8937144	Aryl hydrocarbon receptor signalling	4	7
R-MMU-446203	Asparagine N-linked glycosylation	162	265
R-MMU-8963693	Aspartate and asparagine metabolism	5	11
R-MMU-8963889	Assembly of active LPL and LIPC lipase complexes	4	11
R-MMU-2022090	Assembly of collagen fibrils and other multimeric structures	7	62
R-MMU-68616	Assembly of the ORC complex at the origin of replication	2	6
R-MMU-68867	Assembly of the pre-replicative complex	53	67
R-MMU-390471	Association of TriC/CCT with target proteins during biosynthesis	8	10
R-MMU-4608870	Asymmetric localization of PCP proteins	44	61
R-MMU-381033	ATF6 (ATF6-alpha) activates chaperones	1	3
R-MMU-162791	Attachment of GPI anchor to uPAR	6	7
R-MMU-3371568	Attenuation phase	10	14
R-MMU-450408	AUF1 (hnRNP D0) binds and destabilizes mRNA	47	55
R-MMU-8854518	AURKA Activation by TPX2	51	73
R-MMU-174084	Autodegradation of Cdh1 by Cdh1:APC/C	53	62
R-MMU-349425	Autodegradation of the E3 ubiquitin ligase COP1	45	51
R-MMU-9612973	Autophagy	78	117
R-MMU-422475	Axon guidance	125	279
R-MMU-193634	Axonal growth inhibition (RHOA activation)	3	8
R-MMU-209563	Axonal growth stimulation	2	4
R-MMU-73884	Base Excision Repair	31	77
R-MMU-73929	Base-Excision Repair, AP Site Formation	5	49
R-MMU-210991	Basigin interactions	13	25
R-MMU-5620922	BBSome-mediated cargo-targeting to cilium	9	23
R-MMU-1461957	Beta defensins	1	14
R-MMU-77352	Beta oxidation of butanoyl-CoA to acetyl-CoA	3	3
R-MMU-77346	Beta oxidation of decanoyl-CoA to octanoyl-CoA-CoA	6	6
R-MMU-77350	Beta oxidation of hexanoyl-CoA to butanoyl-CoA	5	5

R-MMU-77310	Beta oxidation of lauroyl-CoA to decanoyl-CoA-CoA	5	5
R-MMU-77285	Beta oxidation of myristoyl-CoA to lauroyl-CoA	3	3
R-MMU-77348	Beta oxidation of octanoyl-CoA to hexanoyl-CoA	5	5
R-MMU-77305	Beta oxidation of palmitoyl-CoA to myristoyl-CoA	3	3
R-MMU-3858494	Beta-catenin independent WNT signaling	75	126
R-MMU-196299	Beta-catenin phosphorylation cascade	13	17
R-MMU-389887	Beta-oxidation of pristanoyl-CoA	6	9
R-MMU-390247	Beta-oxidation of very long chain fatty acids	9	11
R-MMU-111453	BH3-only proteins associate with and inactivate anti-apoptotic BCL-2 members	5	7
R-MMU-425381	Bicarbonate transporters	3	10
R-MMU-194068	Bile acid and bile salt metabolism	14	45
R-MMU-2173782	Binding and Uptake of Ligands by Scavenger Receptors	9	93
R-MMU-141333	Biogenic amines are oxidatively deaminated to aldehydes by MAOA and MAOB	1	2
R-MMU-211859	Biological oxidations	64	211
R-MMU-9020265	Biosynthesis of aspirin-triggered D-series resolvins	3	3
R-MMU-9018677	Biosynthesis of DHA-derived SPMs	4	16
R-MMU-9018683	Biosynthesis of DPA-derived SPMs	2	4
R-MMU-9025094	Biosynthesis of DPAn-3 SPMs	2	4
R-MMU-9026403	Biosynthesis of DPAn-3-derived 13-series resolvins	1	1
R-MMU-9026290	Biosynthesis of DPAn-3-derived maresins	1	2
R-MMU-9026286	Biosynthesis of DPAn-3-derived protectins and resolvins	1	2
R-MMU-9018676	Biosynthesis of D-series resolvins	3	4
R-MMU-9027604	Biosynthesis of electrophilic 1%-3 PUFA oxo-derivatives	2	2
R-MMU-9018679	Biosynthesis of EPA-derived SPMs	4	6
R-MMU-9023661	Biosynthesis of E-series 18(R)-resolvins	3	4
R-MMU-9018896	Biosynthesis of E-series 18(S)-resolvins	3	5
R-MMU-9018682	Biosynthesis of maresins	1	7
R-MMU-9018681	Biosynthesis of protectins	1	3
R-MMU-9018678	Biosynthesis of specialized proresolving mediators (SPMs)	5	17
R-MMU-446193	Biosynthesis of the N-glycan precursor (dolichol lipid-linked oligosaccharide, LLO) and transfer to a nascent protein	37	72
R-MMU-196780	Biotin transport and metabolism	8	11
R-MMU-9033658	Blood group systems biosynthesis	2	17
R-MMU-70895	Branched-chain amino acid catabolism	19	19
R-MMU-352238	Breakdown of the nuclear lamina	3	3
R-MMU-450385	Butyrate Response Factor 1 (BRF1) binds and destabilizes mRNA	17	17
R-MMU-8851680	Butyrophilin (BTN) family interactions	1	7
R-MMU-5250924	B-WICH complex positively regulates rRNA expression	27	64
R-MMU-75102	C6 deamination of adenosine	1	2
R-MMU-1296052	Ca ²⁺ activated K ⁺ channels	1	9
R-MMU-4086398	Ca ²⁺ pathway	17	46
R-MMU-111996	Ca-dependent events	10	27
R-MMU-2025928	Calcineurin activates NFAT	6	7
R-MMU-111933	Calmodulin induced events	8	25
R-MMU-901042	Calnexin/calreticulin cycle	4	7
R-MMU-111997	CaM pathway	8	25
R-MMU-111932	CaMK IV-mediated phosphorylation of CREB	2	4

R-MMU-111957	Cam-PDE 1 activation	1	4
R-MMU-72737	Cap-dependent Translation Initiation	107	117
R-MMU-8955332	Carboxyterminal post-translational modifications of tubulin	9	26
R-MMU-5576891	Cardiac conduction	20	125
R-MMU-5694530	Cargo concentration in the ER	18	33
R-MMU-8856825	Cargo recognition for clathrin-mediated endocytosis	58	101
R-MMU-5620920	Cargo trafficking to the periciliary membrane	24	50
R-MMU-200425	Carnitine metabolism	5	14
R-MMU-71262	Carnitine synthesis	2	3
R-MMU-5218900	CASP8 activity is inhibited	5	10
R-MMU-140534	Caspase activation via Death Receptors in the presence of ligand	7	15
R-MMU-418889	Caspase activation via Dependence Receptors in the absence of ligand	3	4
R-MMU-5357769	Caspase activation via extrinsic apoptotic signalling pathway	10	19
R-MMU-264870	Caspase-mediated cleavage of cytoskeletal proteins	10	12
R-MMU-426117	Cation-coupled Chloride cotransporters	4	8
R-MMU-5621575	CD209 (DC-SIGN) signaling	16	18
R-MMU-5690714	CD22 mediated BCR regulation	2	66
R-MMU-389356	CD28 co-stimulation	18	33
R-MMU-389357	CD28 dependent PI3K/Akt signaling	11	22
R-MMU-389359	CD28 dependent Vav1 pathway	9	12
R-MMU-174184	Cdc20:Phospho-APC/C mediated degradation of Cyclin A	60	71
R-MMU-68689	CDC6 association with the ORC:origin complex	3	11
R-MMU-69017	CDK-mediated phosphorylation and removal of Cdc6	56	71
R-MMU-68827	CDT1 association with the CDC6:ORC:origin complex	47	58
R-MMU-1640170	Cell Cycle	354	553
R-MMU-69620	Cell Cycle Checkpoints	183	268
R-MMU-69278	Cell Cycle, Mitotic	317	481
R-MMU-204998	Cell death signalling via NRAGE, NRIF and NADE	33	71
R-MMU-446728	Cell junction organization	23	68
R-MMU-202733	Cell surface interactions at the vascular wall	51	185
R-MMU-1500931	Cell-Cell communication	34	90
R-MMU-421270	Cell-cell junction organization	9	41
R-MMU-446353	Cell-extracellular matrix interactions	13	18
R-MMU-189200	Cellular hexose transport	4	19
R-MMU-3371556	Cellular response to heat stress	72	88
R-MMU-1234174	Cellular response to hypoxia	54	70
R-MMU-8953897	Cellular responses to external stimuli	261	413
R-MMU-2262752	Cellular responses to stress	261	411
R-MMU-2559583	Cellular Senescence	64	141
R-MMU-380287	Centrosome maturation	57	80
R-MMU-418457	cGMP effects	3	12
R-MMU-390466	Chaperonin-mediated protein folding	22	43
R-MMU-380108	Chemokine receptors bind chemokines	1	50
R-MMU-75035	Chk1/Chk2(Cds1) mediated inactivation of Cyclin B:Cdk1 complex	9	12
R-MMU-191273	Cholesterol biosynthesis	20	25
R-MMU-6807047	Cholesterol biosynthesis via desmosterol	3	4
R-MMU-6807062	Cholesterol biosynthesis via lathosterol	3	4
R-MMU-6798163	Choline catabolism	2	6

R-MMU-2022870	Chondroitin sulfate biosynthesis	1	20
R-MMU-1793185	Chondroitin sulfate/dermatan sulfate metabolism	13	50
R-MMU-163765	ChREBP activates metabolic gene expression	3	6
R-MMU-3247509	Chromatin modifying enzymes	65	159
R-MMU-4839726	Chromatin organization	65	159
R-MMU-73886	Chromosome Maintenance	37	91
R-MMU-8963888	Chylomicron assembly	3	10
R-MMU-8964026	Chylomicron clearance	3	5
R-MMU-8963901	Chylomicron remodeling	2	10
R-MMU-5617833	Cilium Assembly	92	198
R-MMU-71403	Citric acid cycle (TCA cycle)	20	22
R-MMU-373076	Class A/1 (Rhodopsin-like receptors)	12	311
R-MMU-373080	Class B/2 (Secretin family receptors)	10	58
R-MMU-420499	Class C/3 (Metabotropic glutamate/pheromone receptors)	1	31
R-MMU-983169	Class I MHC mediated antigen processing & presentation	184	361
R-MMU-9603798	Class I peroxisomal membrane protein import	13	19
R-MMU-173623	Classical antibody-mediated complement activation	3	70
R-MMU-8856828	Clathrin-mediated endocytosis	91	142
R-MMU-110331	Cleavage of the damaged purine	5	42
R-MMU-5607763	CLEC7A (Dectin-1) induces NFAT activation	6	7
R-MMU-5607764	CLEC7A (Dectin-1) signaling	73	87
R-MMU-5660668	CLEC7A/inflammasome pathway	3	4
R-MMU-196741	Cobalamin (Cbl, vitamin B12) transport and metabolism	9	22
R-MMU-196783	Coenzyme A biosynthesis	4	8
R-MMU-2470946	Cohesin Loading onto Chromatin	7	10
R-MMU-1650814	Collagen biosynthesis and modifying enzymes	8	64
R-MMU-1442490	Collagen degradation	6	57
R-MMU-1474290	Collagen formation	15	88
R-MMU-140875	Common Pathway of Fibrin Clot Formation	6	21
R-MMU-166658	Complement cascade	11	117
R-MMU-6799198	Complex I biogenesis	46	53
R-MMU-2514853	Condensation of Prometaphase Chromosomes	7	8
R-MMU-2299718	Condensation of Prophase Chromosomes	15	47
R-MMU-176407	Conversion from APC/C:Cdc20 to APC/C:Cdh1 in late anaphase	12	19
R-MMU-6814122	Cooperation of PDCL (PhLP1) and TRiC/CCT in G-protein beta folding	22	42
R-MMU-6811434	COPI-dependent Golgi-to-ER retrograde traffic	60	95
R-MMU-204005	COPII-mediated vesicle transport	44	68
R-MMU-6811436	COPI-independent Golgi-to-ER retrograde traffic	37	49
R-MMU-6807878	COPI-mediated anterograde transport	66	96
R-MMU-388841	Costimulation by the CD28 family	30	72
R-MMU-140180	COX reactions	1	1
R-MMU-71288	Creatine metabolism	4	10
R-MMU-166786	Creation of C4 and C2 activators	4	78
R-MMU-199920	CREB phosphorylation	5	7
R-MMU-442742	CREB1 phosphorylation through NMDA receptor-mediated activation of RAS signaling	3	5
R-MMU-442720	CREB1 phosphorylation through the activation of Adenylate Cyclase	3	5
R-MMU-442729	CREB1 phosphorylation through the activation of CaMKII/CaMKK/CaMKIV cascade	2	4
R-MMU-8949613	Cristae formation	14	18
R-MMU-399956	CRMPs in Sema3A signaling	8	16
R-MMU-2243919	Crosslinking of collagen fibrils	1	19

R-MMU-1236973	Cross-presentation of particulate exogenous antigens (phagosomes)	7	8
R-MMU-1236978	Cross-presentation of soluble exogenous antigens (endosomes)	43	48
R-MMU-2024101	CS/DS degradation	4	14
R-MMU-389513	CTLA4 inhibitory signaling	14	21
R-MMU-5621481	C-type lectin receptors (CLRs)	88	107
R-MMU-69273	Cyclin A/B1/B2 associated events during G2/M transition	16	25
R-MMU-69656	Cyclin A:Cdk2-associated events at S phase entry	56	72
R-MMU-69231	Cyclin D associated events in G1	23	40
R-MMU-69202	Cyclin E associated events during G1/S transition	56	70
R-MMU-1614603	Cysteine formation from homocysteine	1	2
R-MMU-111461	Cytochrome c-mediated apoptotic response	2	2
R-MMU-211897	Cytochrome P450 - arranged by substrate type	9	73
R-MMU-1280215	Cytokine Signaling in Immune system	235	545
R-MMU-1834949	Cytosolic sensors of pathogen-associated DNA	24	32
R-MMU-156584	Cytosolic sulfonation of small molecules	7	20
R-MMU-379716	Cytosolic tRNA aminoacylation	1	1
R-MMU-1489509	DAG and IP3 signaling	8	26
R-MMU-2172127	DAP12 interactions	21	66
R-MMU-2424491	DAP12 signaling	20	57
R-MMU-180024	DARPP-32 events	9	16
R-MMU-418885	DCC mediated attractive signaling	8	11
R-MMU-168928	DDX58/IFIH1-mediated induction of interferon-alpha/beta	23	32
R-MMU-3769402	Deactivation of the beta-catenin transactivating complex	14	32
R-MMU-429947	Deadenylation of mRNA	21	27
R-MMU-429914	Deadenylation-dependent mRNA decay	48	57
R-MMU-73887	Death Receptor Signalling	66	128
R-MMU-5607761	Dectin-1 mediated noncanonical NF-kB signaling	51	57
R-MMU-5621480	Dectin-2 family	5	8
R-MMU-1461973	Defensins	2	49
R-MMU-4641257	Degradation of AXIN	45	54
R-MMU-195253	Degradation of beta-catenin by the destruction complex	62	79
R-MMU-1614558	Degradation of cysteine and homocysteine	8	12
R-MMU-4641258	Degradation of DVL	45	56
R-MMU-916853	Degradation of GABA	1	2
R-MMU-5610780	Degradation of GLI1 by the proteasome	47	55
R-MMU-1474228	Degradation of the extracellular matrix	21	136
R-MMU-4419969	Depolymerisation of the Nuclear Lamina	9	14
R-MMU-606279	Deposition of new CENPA-containing nucleosomes at the centromere	13	58
R-MMU-73927	Depurination	5	42
R-MMU-2022923	Dermatan sulfate biosynthesis	2	11
R-MMU-3299685	Detoxification of Reactive Oxygen Species	24	31
R-MMU-5688426	Deubiquitination	150	251
R-MMU-1266738	Developmental Biology	143	542
R-MMU-3134963	DEx/H-box helicases activate type I IFN and inflammatory cytokines production	6	7
R-MMU-8963743	Digestion and absorption	1	24
R-MMU-69416	Dimerization of procaspase-8	5	10
R-MMU-4641262	Disassembly of the destruction complex and recruitment of AXIN to the membrane	15	30
R-MMU-114516	Disinhibition of SNARE formation	3	5

R-MMU-110357	Displacement of DNA glycosylase by APEX1	1	9
R-MMU-75205	Dissolution of Fibrin Clot	5	13
R-MMU-73893	DNA Damage Bypass	31	48
R-MMU-5696394	DNA Damage Recognition in GG-NER	26	38
R-MMU-73942	DNA Damage Reversal	2	2
R-MMU-2559586	DNA Damage/Telomere Stress Induced Senescence	21	67
R-MMU-5693606	DNA Double Strand Break Response	29	57
R-MMU-5693532	DNA Double-Strand Break Repair	74	145
R-MMU-73894	DNA Repair	154	310
R-MMU-69306	DNA Replication	98	125
R-MMU-68952	DNA replication initiation	8	8
R-MMU-69002	DNA Replication Pre-Initiation	68	83
R-MMU-69190	DNA strand elongation	23	24
R-MMU-379401	Dopamine clearance from the synaptic cleft	2	4
R-MMU-212676	Dopamine Neurotransmitter Release Cycle	8	23
R-MMU-8863795	Downregulation of ERBB2 signaling	11	29
R-MMU-1358803	Downregulation of ERBB2:ERBB3 signaling	4	13
R-MMU-1253288	Downregulation of ERBB4 signaling	2	9
R-MMU-2173795	Downregulation of SMAD2/3:SMAD4 transcriptional activity	13	22
R-MMU-2173788	Downregulation of TGF-beta receptor signaling	8	16
R-MMU-186763	Downstream signal transduction	17	29
R-MMU-1168372	Downstream signaling events of B Cell Receptor (BCR)	66	76
R-MMU-5654687	Downstream signaling of activated FGFR1	10	31
R-MMU-5654696	Downstream signaling of activated FGFR2	9	30
R-MMU-5654708	Downstream signaling of activated FGFR3	9	25
R-MMU-5654716	Downstream signaling of activated FGFR4	9	27
R-MMU-202424	Downstream TCR signaling	63	96
R-MMU-376172	DSCAM interactions	4	10
R-MMU-5696400	Dual Incision in GG-NER	28	41
R-MMU-6782135	Dual incision in TC-NER	47	65
R-MMU-113510	E2F mediated regulation of DNA replication	9	10
R-MMU-8866654	E3 ubiquitin ligases ubiquitinate target proteins	29	44
R-MMU-3000178	ECM proteoglycans	6	51
R-MMU-114508	Effects of PIP2 hydrolysis	10	25
R-MMU-182971	EGFR downregulation	15	31
R-MMU-212718	EGFR interacts with phospholipase C-gamma	1	9
R-MMU-2179392	EGFR Transactivation by Gastrin	5	10
R-MMU-391903	Eicosanoid ligand-binding receptors	1	14
R-MMU-211979	Eicosanoids	1	16
R-MMU-1566948	Elastic fibre formation	9	43
R-MMU-2395516	Electron transport from NADPH to Ferredoxin	3	4
R-MMU-139853	Elevation of cytosolic Ca2+ levels	5	13
R-MMU-9648025	EML4 and NUDC in mitotic spindle formation	75	108
R-MMU-211976	Endogenous sterols	8	28
R-MMU-917729	Endosomal Sorting Complex Required For Transport (ESCRT)	24	30
R-MMU-1236977	Endosomal/Vacuolar pathway	2	31
R-MMU-380972	Energy dependent regulation of mTOR by LKB1-AMPK	19	29
R-MMU-203615	eNOS activation	7	11
R-MMU-379397	Enzymatic degradation of dopamine by COMT	2	3
R-MMU-379398	Enzymatic degradation of Dopamine by monoamine oxidase	2	2
R-MMU-3928663	EPHA-mediated growth cone collapse	4	20
R-MMU-3928662	EPHB-mediated forward signaling	22	39
R-MMU-3928665	EPH-ephrin mediated repulsion of cells	9	38

R-MMU-2682334	EPH-Ephrin signaling	33	71
R-MMU-3928664	Ephrin signaling	8	19
R-MMU-212165	Epigenetic regulation of gene expression	37	82
R-MMU-901032	ER Quality Control Compartment (ERQC)	1	4
R-MMU-199977	ER to Golgi Anterograde Transport	99	149
R-MMU-6785631	ERBB2 Regulates Cell Motility	3	15
R-MMU-198753	ERK/MAPK targets	12	19
R-MMU-202670	ERKs are inactivated	8	13
R-MMU-1236974	ER-Phagosome pathway	11	40
R-MMU-1237044	Erythrocytes take up carbon dioxide and release oxygen	4	12
R-MMU-1247673	Erythrocytes take up oxygen and release carbon dioxide	2	8
R-MMU-9027276	Erythropoietin activates Phosphoinositide-3-kinase (PI3K)	5	12
R-MMU-9027284	Erythropoietin activates RAS	5	10
R-MMU-8939211	ESR-mediated signaling	77	164
R-MMU-2468052	Establishment of Sister Chromatid Cohesion	7	11
R-MMU-193144	Estrogen biosynthesis	2	8
R-MMU-9018519	Estrogen-dependent gene expression	44	93
R-MMU-9634638	Estrogen-dependent nuclear events downstream of ESR-membrane signaling	6	9
R-MMU-9634635	Estrogen-stimulated signaling through PRKCZ	5	6
R-MMU-71384	Ethanol oxidation	4	10
R-MMU-156842	Eukaryotic Translation Elongation	5	5
R-MMU-72613	Eukaryotic Translation Initiation	107	117
R-MMU-72764	Eukaryotic Translation Termination	5	6
R-MMU-9036866	Expression and Processing of Neurotrophins	1	4
R-MMU-180786	Extension of Telomeres	24	26
R-MMU-1474244	Extracellular matrix organization	53	295
R-MMU-9009391	Extra-nuclear estrogen signaling	31	70
R-MMU-983231	Factors involved in megakaryocyte development and platelet production	66	119
R-MMU-6783310	Fanconi Anemia Pathway	13	38
R-MMU-75157	FasL/ CD95L signaling	3	4
R-MMU-8978868	Fatty acid metabolism	93	172
R-MMU-211935	Fatty acids	1	22
R-MMU-434316	Fatty Acids bound to GPR40 (FFAR1) regulate insulin secretion	3	8
R-MMU-75105	Fatty acyl-CoA biosynthesis	19	33
R-MMU-8854050	FBXL7 down-regulates AURKA during mitotic entry and in early mitosis	46	54
R-MMU-2454202	Fc epsilon receptor (FCERI) signaling	97	179
R-MMU-2871809	FCERI mediated Ca ²⁺ mobilization	19	87
R-MMU-2871796	FCERI mediated MAPK activation	25	92
R-MMU-2871837	FCERI mediated NF-kB activation	60	133
R-MMU-2029480	Fcgamma receptor (FCGR) dependent phagocytosis	63	147
R-MMU-2029481	FCGR activation	8	78
R-MMU-1187000	Fertilization	1	25
R-MMU-6803529	FGFR2 alternative splicing	21	26
R-MMU-5658623	FGFRL1 modulation of FGFR1 signaling	2	13
R-MMU-1566977	Fibronectin matrix formation	2	10
R-MMU-2855086	Ficolins bind to repetitive carbohydrate structures on the target cell surface	1	4
R-MMU-9607240	FLT3 Signaling	116	257
R-MMU-72689	Formation of a pool of free 40S subunits	90	99
R-MMU-196025	Formation of annular gap junctions	8	10
R-MMU-111458	Formation of apoptosome	2	2

R-MMU-163210	Formation of ATP by chemiosmotic coupling	14	18
R-MMU-77042	Formation of editosomes by ADAR proteins	1	2
R-MMU-140877	Formation of Fibrin Clot (Clotting Cascade)	9	38
R-MMU-5696395	Formation of Incision Complex in GG-NER	28	43
R-MMU-112382	Formation of RNA Pol II elongation complex	45	56
R-MMU-2559584	Formation of Senescence-Associated Heterochromatin Foci (SAHF)	10	16
R-MMU-6781823	Formation of TC-NER Pre-Incision Complex	39	53
R-MMU-173599	Formation of the active cofactor, UDP-glucuronate	2	3
R-MMU-201722	Formation of the beta-catenin:TCF transactivating complex	19	61
R-MMU-6809371	Formation of the cornified envelope	4	121
R-MMU-113418	Formation of the Early Elongation Complex	26	33
R-MMU-75094	Formation of the Editosome	2	5
R-MMU-72695	Formation of the ternary complex, and subsequently, the 43S complex	49	52
R-MMU-5661270	Formation of xylulose-5-phosphate	4	5
R-MMU-444473	Formyl peptide receptors bind formyl peptides and many other ligands	3	14
R-MMU-9614085	FOXO-mediated transcription	14	22
R-MMU-9617828	FOXO-mediated transcription of cell cycle genes	3	8
R-MMU-9615017	FOXO-mediated transcription of oxidative stress, metabolic and neuronal genes	1	2
R-MMU-400451	Free fatty acids regulate insulin secretion	5	11
R-MMU-170968	Frs2-mediated activation	7	12
R-MMU-5654693	FRS-mediated FGFR1 signaling	6	23
R-MMU-5654700	FRS-mediated FGFR2 signaling	6	25
R-MMU-5654706	FRS-mediated FGFR3 signaling	6	20
R-MMU-5654712	FRS-mediated FGFR4 signaling	6	22
R-MMU-5652227	Fructose biosynthesis	2	2
R-MMU-70350	Fructose catabolism	1	5
R-MMU-5652084	Fructose metabolism	3	7
R-MMU-416482	G alpha (12/13) signalling events	36	77
R-MMU-418594	G alpha (i) signalling events	60	364
R-MMU-416476	G alpha (q) signalling events	42	210
R-MMU-418555	G alpha (s) signalling events	20	527
R-MMU-418597	G alpha (z) signalling events	10	33
R-MMU-8964315	G beta:gamma signalling through BTK	9	18
R-MMU-8964616	G beta:gamma signalling through CDC42	11	20
R-MMU-392451	G beta:gamma signalling through PI3Kgamma	15	25
R-MMU-418217	G beta:gamma signalling through PLC beta	10	20
R-MMU-1296059	G protein gated Potassium channels	8	25
R-MMU-1538133	G0 and Early G1	8	18
R-MMU-69236	G1 Phase	23	40
R-MMU-69615	G1/S DNA Damage Checkpoints	52	66
R-MMU-69206	G1/S Transition	84	106
R-MMU-68911	G2 Phase	2	5
R-MMU-69481	G2/M Checkpoints	101	147
R-MMU-69473	G2/M DNA damage checkpoint	42	75
R-MMU-69478	G2/M DNA replication checkpoint	3	5
R-MMU-69275	G2/M Transition	132	182
R-MMU-180292	GAB1 signalosome	6	17
R-MMU-977444	GABA B receptor activation	11	39
R-MMU-977443	GABA receptor activation	11	55
R-MMU-888590	GABA synthesis, release, reuptake and degradation	7	19
R-MMU-70370	Galactose catabolism	5	5

R-MMU-163841	Gamma carboxylation, hypusine formation and arylsulfatase activation	16	33
R-MMU-159740	Gamma-carboxylation of protein precursors	2	9
R-MMU-159854	Gamma-carboxylation, transport, and amino-terminal cleavage of proteins	3	11
R-MMU-190861	Gap junction assembly	8	31
R-MMU-190873	Gap junction degradation	8	11
R-MMU-190828	Gap junction trafficking	16	41
R-MMU-157858	Gap junction trafficking and regulation	16	43
R-MMU-5696397	Gap-filling DNA repair synthesis and ligation in GG-NER	17	22
R-MMU-6782210	Gap-filling DNA repair synthesis and ligation in TC-NER	49	64
R-MMU-881907	Gastrin-CREB signalling pathway via PKC and MAPK	11	19
R-MMU-6787639	GDP-fucose biosynthesis	4	6
R-MMU-74160	Gene expression (Transcription)	473	1047
R-MMU-211000	Gene Silencing by RNA	51	89
R-MMU-202433	Generation of second messenger molecules	8	34
R-MMU-212436	Generic Transcription Pathway	315	820
R-MMU-5610785	GLI3 is processed to GLI3R by the proteasome	48	56
R-MMU-5696399	Global Genome Nucleotide Excision Repair (GG-NER)	58	81
R-MMU-163359	Glucagon signaling in metabolic regulation	3	7
R-MMU-381676	Glucagon-like Peptide-1 (GLP1) regulates insulin secretion	14	31
R-MMU-420092	Glucagon-type ligand receptors	9	33
R-MMU-70263	Gluconeogenesis	22	34
R-MMU-70326	Glucose metabolism	60	82
R-MMU-156588	Glucuronidation	5	22
R-MMU-8964539	Glutamate and glutamine metabolism	7	13
R-MMU-399721	Glutamate binding, activation of AMPA receptors and synaptic plasticity	10	30
R-MMU-210500	Glutamate Neurotransmitter Release Cycle	8	24
R-MMU-156590	Glutathione conjugation	12	31
R-MMU-174403	Glutathione synthesis and recycling	5	12
R-MMU-1483206	Glycerophospholipid biosynthesis	47	119
R-MMU-6814848	Glycerophospholipid catabolism	2	3
R-MMU-6783984	Glycine degradation	2	4
R-MMU-70221	Glycogen breakdown (glycogenolysis)	9	13
R-MMU-8982491	Glycogen metabolism	13	18
R-MMU-3322077	Glycogen synthesis	7	8
R-MMU-70171	Glycolysis	48	62
R-MMU-1630316	Glycosaminoglycan metabolism	35	122
R-MMU-1660662	Glycosphingolipid metabolism	23	40
R-MMU-389661	Glyoxylate metabolism and glycine degradation	18	30
R-MMU-432722	Golgi Associated Vesicle Biogenesis	41	55
R-MMU-162658	Golgi Cisternae Pericentriolar Stack Reorganization	9	10
R-MMU-8856688	Golgi-to-ER retrograde transport	89	130
R-MMU-430116	GP1b-IX-V activation signalling	4	12
R-MMU-388396	GPCR downstream signalling	129	1072
R-MMU-500792	GPCR ligand binding	23	399
R-MMU-202040	G-protein activation	10	28
R-MMU-397795	G-protein beta:gamma signalling	21	32
R-MMU-112040	G-protein mediated events	14	40
R-MMU-114604	GPVI-mediated activation cascade	23	34
R-MMU-179812	GRB2 events in EGFR signaling	5	13
R-MMU-1963640	GRB2 events in ERBB2 signaling	5	14

R-MMU-354194	GRB2:SOS provides linkage to MAPK signaling for Integrins	7	15
R-MMU-982772	Growth hormone receptor signaling	6	12
R-MMU-72706	GTP hydrolysis and joining of the 60S ribosomal subunit	101	110
R-MMU-3214847	HATs acetylate histones	13	43
R-MMU-8963896	HDL assembly	3	6
R-MMU-8964011	HDL clearance	2	3
R-MMU-8964058	HDL remodeling	2	9
R-MMU-3214842	HDMs demethylate histones	10	26
R-MMU-5685942	HDR through Homologous Recombination (HRR)	33	66
R-MMU-5693567	HDR through Homologous Recombination (HRR) or Single Strand Annealing (SSA)	56	111
R-MMU-5685939	HDR through MMEJ (alt-NHEJ)	8	10
R-MMU-5685938	HDR through Single Strand Annealing (SSA)	21	37
R-MMU-5358346	Hedgehog ligand biogenesis	49	62
R-MMU-5610787	Hedgehog 'off' state	67	106
R-MMU-5632684	Hedgehog 'on' state	55	82
R-MMU-189451	Heme biosynthesis	13	14
R-MMU-189483	Heme degradation	7	13
R-MMU-109582	Hemostasis	249	597
R-MMU-1638091	Heparan sulfate/heparin (HS-GAG) metabolism	13	54
R-MMU-70921	Histidine catabolism	2	7
R-MMU-5693579	Homologous DNA Pairing and Strand Exchange	22	42
R-MMU-5693538	Homology Directed Repair	61	117
R-MMU-3371511	HSF1 activation	7	8
R-MMU-3371571	HSF1-dependent transactivation	15	24
R-MMU-2022928	HS-GAG biosynthesis	5	30
R-MMU-2024096	HS-GAG degradation	4	22
R-MMU-3371497	HSP90 chaperone cycle for steroid hormone receptors (SHR)	38	53
R-MMU-450520	HuR (ELAVL1) binds and stabilizes mRNA	6	9
R-MMU-2142850	Hyaluronan biosynthesis and export	1	5
R-MMU-2142845	Hyaluronan metabolism	9	17
R-MMU-2160916	Hyaluronan uptake and degradation	8	12
R-MMU-1483115	Hydrolysis of LPC	2	9
R-MMU-204626	Hypusine synthesis from eIF5A-lysine	3	4
R-MMU-2428924	IGF1R signaling cascade	15	50
R-MMU-937041	IKK complex recruitment mediated by RIP1	11	20
R-MMU-6788467	IL-6-type cytokine receptor ligand interactions	4	17
R-MMU-168256	Immune System	832	1855
R-MMU-198933	Immunoregulatory interactions between a Lymphoid and a non-Lymphoid cell	19	187
R-MMU-141430	Inactivation of APC/C via direct inhibition of the APC/C complex	15	20
R-MMU-2514859	Inactivation, recovery and regulation of the phototransduction cascade	9	28
R-MMU-622312	Inflammasomes	11	14
R-MMU-997272	Inhibition of voltage gated Ca ²⁺ channels via Gbeta/gamma subunits	8	25
R-MMU-113501	Inhibition of replication initiation of damaged DNA by RB1/E2F1	9	10
R-MMU-141405	Inhibition of the proteolytic activity of APC/C required for the onset of anaphase by mitotic spindle checkpoint components	15	20
R-MMU-165181	Inhibition of TSC complex formation by PKB	3	3
R-MMU-166663	Initial triggering of complement	7	86
R-MMU-2995383	Initiation of Nuclear Envelope Reformation	12	12
R-MMU-168249	Innate Immune System	536	1033

R-MMU-1483249	Inositol phosphate metabolism	25	46
R-MMU-9609523	Insertion of tail-anchored proteins into the endoplasmic reticulum membrane	11	17
R-MMU-163754	Insulin effects increased synthesis of Xylulose-5-Phosphate	2	2
R-MMU-264876	Insulin processing	11	15
R-MMU-77387	Insulin receptor recycling	13	27
R-MMU-74751	Insulin receptor signalling cascade	16	52
R-MMU-163685	Integration of energy metabolism	30	80
R-MMU-216083	Integrin cell surface interactions	16	81
R-MMU-354192	Integrin signaling	14	27
R-MMU-445095	Interaction between L1 and Ankyrins	5	10
R-MMU-8854521	Interaction between PHLDA1 and AURKA	1	2
R-MMU-2534343	Interaction With Cumulus Cells And The Zona Pellucida	1	10
R-MMU-880009	Interconversion of 2-oxoglutarate and 2-hydroxyglutarate	3	3
R-MMU-499943	Interconversion of nucleotide di- and triphosphates	19	29
R-MMU-351200	Interconversion of polyamines	2	3
R-MMU-909733	Interferon alpha/beta signaling	12	30
R-MMU-877300	Interferon gamma signaling	9	17
R-MMU-913531	Interferon Signaling	39	72
R-MMU-912526	Interleukin receptor SHC signaling	13	23
R-MMU-446652	Interleukin-1 family signaling	74	110
R-MMU-448706	Interleukin-1 processing	4	7
R-MMU-9020702	Interleukin-1 signaling	70	96
R-MMU-6783783	Interleukin-10 signaling	4	5
R-MMU-447115	Interleukin-12 family signaling	7	18
R-MMU-9020591	Interleukin-12 signaling	3	8
R-MMU-8983432	Interleukin-15 signaling	6	13
R-MMU-448424	Interleukin-17 signaling	36	57
R-MMU-451927	Interleukin-2 family signaling	18	38
R-MMU-9020558	Interleukin-2 signaling	5	11
R-MMU-8854691	Interleukin-20 family signaling	8	18
R-MMU-9020958	Interleukin-21 signaling	4	10
R-MMU-9020933	Interleukin-23 signaling	3	9
R-MMU-9020956	Interleukin-27 signaling	6	11
R-MMU-512988	Interleukin-3, Interleukin-5 and GM-CSF signaling	27	43
R-MMU-9014843	Interleukin-33 signaling	1	3
R-MMU-8984722	Interleukin-35 Signalling	5	10
R-MMU-9014826	Interleukin-36 pathway	1	7
R-MMU-9008059	Interleukin-37 signaling	2	2
R-MMU-9007892	Interleukin-38 signaling	1	4
R-MMU-6785807	Interleukin-4 and Interleukin-13 signaling	6	14
R-MMU-6783589	Interleukin-6 family signaling	8	24
R-MMU-1059683	Interleukin-6 signaling	7	11
R-MMU-1266695	Interleukin-7 signaling	8	18
R-MMU-8985947	Interleukin-9 signaling	4	9
R-MMU-8963676	Intestinal absorption	1	5
R-MMU-8981373	Intestinal hexose absorption	1	4
R-MMU-434313	Intracellular metabolism of fatty acids regulates insulin secretion	2	3
R-MMU-9006925	Intracellular signaling by second messengers	132	264
R-MMU-5620924	Intraflagellar transport	19	53
R-MMU-6811442	Intra-Golgi and retrograde Golgi-to-ER traffic	133	188
R-MMU-6811438	Intra-Golgi traffic	27	37
R-MMU-109606	Intrinsic Pathway for Apoptosis	25	38
R-MMU-140837	Intrinsic Pathway of Fibrin Clot Formation	5	22

R-MMU-8941237	Invadopodia formation	2	4
R-MMU-1296065	Inwardly rectifying K ⁺ channels	8	31
R-MMU-983712	Ion channel transport	56	175
R-MMU-5578775	Ion homeostasis	18	50
R-MMU-6803544	Ion influx/efflux at host-pathogen interface	2	4
R-MMU-936837	Ion transport by P-type ATPases	18	53
R-MMU-451306	Ionotropic activity of kainate receptors	2	10
R-MMU-937039	IRAK1 recruits IKK complex	3	8
R-MMU-975144	IRAK1 recruits IKK complex upon TLR7/8 or 9 stimulation	3	8
R-MMU-937042	IRAK2 mediated activation of TAK1 complex	5	10
R-MMU-975163	IRAK2 mediated activation of TAK1 complex upon TLR7/8 or 9 stimulation	7	15
R-MMU-1606341	IRF3 mediated activation of type 1 IFN	1	1
R-MMU-3270619	IRF3-mediated induction of type I IFN	3	5
R-MMU-917937	Iron uptake and transport	31	57
R-MMU-112399	IRS-mediated signalling	13	45
R-MMU-2428928	IRS-related events triggered by IGF1R	14	49
R-MMU-1169408	ISG15 antiviral mechanism	22	31
R-MMU-450321	JNK (c-Jun kinases) phosphorylation and activation mediated by activated human TAK1	11	21
R-MMU-5689877	Josephin domain DUBs	6	11
R-MMU-2022854	Keratan sulfate biosynthesis	6	27
R-MMU-2022857	Keratan sulfate degradation	5	13
R-MMU-1638074	Keratan sulfate/keratin metabolism	11	33
R-MMU-6805567	Keratinization	4	212
R-MMU-74182	Ketone body metabolism	4	11
R-MMU-983189	Kinesins	31	56
R-MMU-450604	KSRP (KHSRP) binds and destabilizes mRNA	15	15
R-MMU-156827	L13a-mediated translational silencing of Ceruloplasmin expression	100	109
R-MMU-373760	L1CAM interactions	43	66
R-MMU-5653890	Lactose synthesis	2	3
R-MMU-69186	Lagging Strand Synthesis	19	20
R-MMU-3000157	Laminin interactions	3	29
R-MMU-8964038	LDL clearance	14	17
R-MMU-8964041	LDL remodeling	1	2
R-MMU-69109	Leading Strand Synthesis	13	14
R-MMU-166662	Lectin pathway of complement activation	1	8
R-MMU-9037629	Lewis blood group biosynthesis	2	15
R-MMU-2046105	Linoleic acid (LA) metabolism	4	8
R-MMU-446343	Localization of the PINCH-ILK-PARVIN complex to focal adhesions	3	4
R-MMU-9620244	Long-term potentiation	1	2
R-MMU-380259	Loss of Nlp from mitotic centrosomes	48	70
R-MMU-380284	Loss of proteins required for interphase microtubule organization from the centrosome	48	70
R-MMU-3134973	LRR FLII-interacting protein 1 (LRRFIP1) activates type I IFN production	4	4
R-MMU-71064	Lysine catabolism	7	12
R-MMU-8853383	Lysosomal oligosaccharide catabolism	4	4
R-MMU-432720	Lysosome Vesicle Biogenesis	25	34
R-MMU-68886	M Phase	239	355
R-MMU-1632852	Macroautophagy	78	117
R-MMU-6791226	Major pathway of rRNA processing in the nucleolus and cytosol	151	175
R-MMU-450294	MAP kinase activation	36	57
R-MMU-5674135	MAP2K and MAPK activation	25	40
R-MMU-5684264	MAP3K8 (TPL2)-dependent MAPK1/3 activation	9	13

R-MMU-5683057	MAPK family signaling cascades	121	272
R-MMU-450282	MAPK targets/ Nuclear events mediated by MAP kinases	17	28
R-MMU-112411	MAPK1 (ERK2) activation	6	9
R-MMU-5684996	MAPK1/MAPK3 signaling	110	248
R-MMU-110056	MAPK3 (ERK1) activation	7	10
R-MMU-5687128	MAPK6/MAPK4 signaling	55	73
R-MMU-2465910	MASTL Facilitates Mitotic Progression	1	2
R-MMU-199991	Membrane Trafficking	362	564
R-MMU-8851907	MET activates PI3K/AKT signaling	2	6
R-MMU-8874081	MET activates PTK2 signaling	3	29
R-MMU-8865999	MET activates PTPN11	2	5
R-MMU-8875555	MET activates RAP1 and RAC1	7	11
R-MMU-8851805	MET activates RAS signaling	8	11
R-MMU-8875791	MET activates STAT3	1	3
R-MMU-8875513	MET interacts with TNS proteins	2	5
R-MMU-8875878	MET promotes cell motility	11	40
R-MMU-8875656	MET receptor recycling	7	10
R-MMU-1430728	Metabolism	878	1770
R-MMU-71291	Metabolism of amino acids and derivatives	135	252
R-MMU-2022377	Metabolism of Angiotensinogen to Angiotensins	3	17
R-MMU-71387	Metabolism of carbohydrates	133	268
R-MMU-8978934	Metabolism of cofactors	8	14
R-MMU-6806667	Metabolism of fat-soluble vitamins	8	51
R-MMU-196757	Metabolism of folate and pterines	10	17
R-MMU-5263617	Metabolism of ingested MeSeO ₂ H into MeSeH	1	1
R-MMU-2408508	Metabolism of ingested SeMet, Sec, MeSec into H ₂ Se	1	2
R-MMU-556833	Metabolism of lipids	300	616
R-MMU-202131	Metabolism of nitric oxide: eNOS activation and regulation	11	15
R-MMU-194441	Metabolism of non-coding RNA	44	49
R-MMU-15869	Metabolism of nucleotides	62	100
R-MMU-351202	Metabolism of polyamines	47	58
R-MMU-189445	Metabolism of porphyrins	18	25
R-MMU-392499	Metabolism of proteins	883	1645
R-MMU-8953854	Metabolism of RNA	467	567
R-MMU-380612	Metabolism of serotonin	2	2
R-MMU-196071	Metabolism of steroid hormones	10	43
R-MMU-8957322	Metabolism of steroids	50	128
R-MMU-196854	Metabolism of vitamins and cofactors	79	184
R-MMU-196849	Metabolism of water-soluble vitamins and cofactors	63	119
R-MMU-425410	Metal ion SLC transporters	6	21
R-MMU-5689901	Metalloprotease DUBs	17	37
R-MMU-1237112	Methionine salvage pathway	4	4
R-MMU-156581	Methylation	10	13
R-MMU-2132295	MHC class II antigen presentation	81	133
R-MMU-203927	MicroRNA (miRNA) biogenesis	4	7
R-MMU-190840	Microtubule-dependent trafficking of connexons from Golgi to the plasma membrane	8	15
R-MMU-211958	Miscellaneous substrates	1	25
R-MMU-5223345	Miscellaneous transport and binding events	9	25
R-MMU-5358508	Mismatch Repair	11	15
R-MMU-5358606	Mismatch repair (MMR) directed by MSH2:MSH3 (MutSbeta)	8	10
R-MMU-5358565	Mismatch repair (MMR) directed by MSH2:MSH6 (MutSalpha)	11	14
R-MMU-1369007	Mitochondrial ABC transporters	4	4

R-MMU-1592230	Mitochondrial biogenesis	21	26
R-MMU-8949215	Mitochondrial calcium ion transport	15	17
R-MMU-77289	Mitochondrial Fatty Acid Beta-Oxidation	30	38
R-MMU-77286	mitochondrial fatty acid beta-oxidation of saturated fatty acids	9	9
R-MMU-77288	mitochondrial fatty acid beta-oxidation of unsaturated fatty acids	3	3
R-MMU-1362409	Mitochondrial iron-sulfur cluster biogenesis	11	12
R-MMU-1268020	Mitochondrial protein import	6	10
R-MMU-163282	Mitochondrial transcription initiation	3	3
R-MMU-5368287	Mitochondrial translation	85	89
R-MMU-5389840	Mitochondrial translation elongation	82	86
R-MMU-5419276	Mitochondrial translation termination	84	88
R-MMU-379726	Mitochondrial tRNA aminoacylation	1	1
R-MMU-5205647	Mitophagy	17	29
R-MMU-68882	Mitotic Anaphase	147	193
R-MMU-453279	Mitotic G1 phase and G1/S transition	95	130
R-MMU-453274	Mitotic G2-G2/M phases	132	184
R-MMU-2555396	Mitotic Metaphase and Anaphase	147	194
R-MMU-68881	Mitotic Metaphase/Anaphase Transition	1	2
R-MMU-68877	Mitotic Prometaphase	134	194
R-MMU-68875	Mitotic Prophase	62	105
R-MMU-69618	Mitotic Spindle Checkpoint	77	109
R-MMU-68884	Mitotic Telophase/Cytokinesis	9	13
R-MMU-2129379	Molecules associated with elastic fibres	6	36
R-MMU-947581	Molybdenum cofactor biosynthesis	4	5
R-MMU-72187	mRNA 3'-end processing	43	57
R-MMU-72086	mRNA Capping	23	29
R-MMU-429958	mRNA decay by 3' to 5' exoribonuclease	14	16
R-MMU-430039	mRNA decay by 5' to 3' exoribonuclease	13	14
R-MMU-75072	mRNA Editing	3	7
R-MMU-75064	mRNA Editing: A to I Conversion	1	2
R-MMU-72200	mRNA Editing: C to U Conversion	2	5
R-MMU-72172	mRNA Splicing	156	189
R-MMU-72163	mRNA Splicing - Major Pathway	155	182
R-MMU-72165	mRNA Splicing - Minor Pathway	38	50
R-MMU-165159	mTOR signalling	28	40
R-MMU-166208	mTORC1-mediated signalling	18	23
R-MMU-427601	Multifunctional anion exchangers	1	9
R-MMU-397014	Muscle contraction	41	186
R-MMU-975871	MyD88 cascade initiated on plasma membrane	44	73
R-MMU-975155	MyD88 dependent cascade initiated on endosome	51	84
R-MMU-166058	MyD88:MAL(TIRAP) cascade initiated on plasma membrane	44	74
R-MMU-166166	MyD88-independent TLR4 cascade	56	90
R-MMU-525793	Myogenesis	9	25
R-MMU-442660	Na ⁺ /Cl ⁻ dependent neurotransmitter transporters	2	19
R-MMU-205025	NADE modulates death signalling	2	6
R-MMU-389542	NADPH regeneration	1	1
R-MMU-375165	NCAM signaling for neurite out-growth	15	40
R-MMU-419037	NCAM1 interactions	1	22
R-MMU-420597	Nectin/Necl trans heterodimerization	2	7
R-MMU-8951664	Neddylation	122	225
R-MMU-5250941	Negative epigenetic regulation of rRNA expression	8	38
R-MMU-5674499	Negative feedback regulation of MAPK pathway	5	6
R-MMU-8866904	Negative regulation of activity of TFAP2 (AP-2) family transcription factors	3	9

R-MMU-5654726	Negative regulation of FGFR1 signaling	11	32
R-MMU-5654727	Negative regulation of FGFR2 signaling	11	34
R-MMU-5654732	Negative regulation of FGFR3 signaling	11	29
R-MMU-5654733	Negative regulation of FGFR4 signaling	11	31
R-MMU-5675221	Negative regulation of MAPK pathway	23	40
R-MMU-6807004	Negative regulation of MET activity	13	21
R-MMU-9604323	Negative regulation of NOTCH4 signaling	1	2
R-MMU-3772470	Negative regulation of TCF-dependent signaling by WNT ligand antagonists	1	8
R-MMU-199418	Negative regulation of the PI3K/AKT network	36	111
R-MMU-936440	Negative regulators of DDX58/IFIH1 signaling	11	14
R-MMU-373753	Nephrin family interactions	4	10
R-MMU-373752	Netrin-1 signaling	12	26
R-MMU-6794361	Neurexins and neuroligins	9	33
R-MMU-447043	Neurofascin interactions	1	3
R-MMU-112316	Neuronal System	67	342
R-MMU-194306	Neurophilin interactions with VEGF and VEGFR	2	4
R-MMU-112311	Neurotransmitter clearance	3	8
R-MMU-112314	Neurotransmitter receptors and postsynaptic signal transmission	34	147
R-MMU-112310	Neurotransmitter release cycle	16	51
R-MMU-6798695	Neutrophil degranulation	306	548
R-MMU-209560	NF-kB is activated and signals survival	5	13
R-MMU-167060	NGF processing	1	4
R-MMU-975577	N-Glycan antennae elongation	6	15
R-MMU-975576	N-glycan antennae elongation in the medial/trans-Golgi	10	25
R-MMU-964739	N-glycan trimming and elongation in the cis-Golgi	4	5
R-MMU-532668	N-glycan trimming in the ER and Calnexin/Calreticulin cycle	12	15
R-MMU-197264	Nicotinamide salvaging	9	19
R-MMU-196807	Nicotinate metabolism	13	31
R-MMU-5676590	NIK-->noncanonical NF-kB signaling	51	57
R-MMU-392154	Nitric oxide stimulates guanylate cyclase	3	15
R-MMU-168638	NOD1/2 Signaling Pathway	18	33
R-MMU-9017802	Noncanonical activation of NOTCH3	5	8
R-MMU-5693571	Nonhomologous End-Joining (NHEJ)	21	49
R-MMU-3000171	Non-integrin membrane-ECM interactions	6	39
R-MMU-975957	Nonsense Mediated Decay (NMD) enhanced by the Exon Junction Complex (EJC)	98	113
R-MMU-975956	Nonsense Mediated Decay (NMD) independent of the Exon Junction Complex (EJC)	83	92
R-MMU-927802	Nonsense-Mediated Decay (NMD)	98	113
R-MMU-427413	NoRC negatively regulates rRNA expression	6	35
R-MMU-181430	Norepinephrine Neurotransmitter Release Cycle	6	18
R-MMU-203754	NOSIP mediated eNOS trafficking	1	2
R-MMU-203641	NOSTRIN mediated eNOS trafficking	3	5
R-MMU-2122947	NOTCH1 Intracellular Domain Regulates Transcription	4	11
R-MMU-9013507	NOTCH3 Activation and Transmission of Signal to the Nucleus	8	20
R-MMU-9013700	NOTCH4 Activation and Transmission of Signal to the Nucleus	1	2
R-MMU-350054	Notch-HLH transcription pathway	13	26
R-MMU-9623433	NR1H2 & NR1H3 regulate gene expression to control bile acid homeostasis	4	7
R-MMU-9024446	NR1H2 and NR1H3-mediated signaling	10	13
R-MMU-9029569	NR1H3 & NR1H2 regulate gene expression linked to cholesterol transport and efflux	10	13

R-MMU-193648	NRAGE signals death through JNK	25	52
R-MMU-205043	NRIF signals cell death from the nucleus	6	15
R-MMU-9032759	NTRK2 activates RAC1	2	5
R-MMU-2980766	Nuclear Envelope Breakdown	40	49
R-MMU-2995410	Nuclear Envelope Reassembly	12	12
R-MMU-198725	Nuclear Events (kinase and transcription factor activation)	14	22
R-MMU-3301854	Nuclear Pore Complex (NPC) Disassembly	28	32
R-MMU-383280	Nuclear Receptor transcription pathway	8	53
R-MMU-1251985	Nuclear signaling by ERBB4	6	12
R-MMU-8956320	Nucleobase biosynthesis	14	15
R-MMU-8956319	Nucleobase catabolism	15	36
R-MMU-774815	Nucleosome assembly	13	58
R-MMU-5696398	Nucleotide Excision Repair	80	109
R-MMU-8956321	Nucleotide salvage	15	25
R-MMU-168643	Nucleotide-binding domain, leucine rich repeat containing receptor (NLR) signaling pathways	29	47
R-MMU-1480926	O2/CO2 exchange in erythrocytes	4	12
R-MMU-8983711	OAS antiviral response	4	5
R-MMU-5173214	O-glycosylation of TSR domain-containing proteins	2	39
R-MMU-381753	Olfactory Signaling Pathway	5	400
R-MMU-5173105	O-linked glycosylation	16	109
R-MMU-913709	O-linked glycosylation of mucins	11	60
R-MMU-2559585	Oncogene Induced Senescence	6	13
R-MMU-111885	Opioid Signalling	28	71
R-MMU-68949	Orc1 removal from chromatin	57	70
R-MMU-1852241	Organelle biogenesis and maintenance	113	224
R-MMU-428643	Organic anion transporters	3	10
R-MMU-549127	Organic cation transport	2	10
R-MMU-549132	Organic cation/anion/zwitterion transport	2	14
R-MMU-449836	Other interleukin signaling	8	17
R-MMU-416700	Other semaphorin interactions	8	14
R-MMU-5689896	Ovarian tumor domain proteases	16	32
R-MMU-2559580	Oxidative Stress Induced Senescence	31	79
R-MMU-1234176	Oxygen-dependent proline hydroxylation of Hypoxia-inducible Factor Alpha	51	65
R-MMU-372708	p130Cas linkage to MAPK signaling for integrins	6	15
R-MMU-171007	p38MAPK events	6	8
R-MMU-69563	p53-Dependent G1 DNA Damage Response	51	64
R-MMU-69580	p53-Dependent G1/S DNA damage checkpoint	51	64
R-MMU-69610	p53-Independent DNA Damage Response	45	51
R-MMU-69613	p53-Independent G1/S DNA damage checkpoint	45	51
R-MMU-193704	p75 NTR receptor-mediated signalling	42	86
R-MMU-209543	p75NTR recruits signalling complexes	5	13
R-MMU-193697	p75NTR regulates axonogenesis	3	9
R-MMU-193639	p75NTR signals via NF-kB	7	16
R-MMU-171306	Packaging Of Telomere Ends	5	38
R-MMU-141334	PAOs oxidise polyamines to amines	2	2
R-MMU-5651801	PCNA-Dependent Long Patch Base Excision Repair	19	21
R-MMU-4086400	PCP/CE pathway	58	87
R-MMU-389948	PD-1 signaling	3	26
R-MMU-210990	PECAM1 interactions	7	12
R-MMU-71336	Pentose phosphate pathway	11	15
R-MMU-156902	Peptide chain elongation	1	1
R-MMU-2980736	Peptide hormone metabolism	20	65
R-MMU-375276	Peptide ligand-binding receptors	11	189
R-MMU-381042	PERK regulates gene expression	4	4

R-MMU-390918	Peroxisomal lipid metabolism	20	29
R-MMU-9033241	Peroxisomal protein import	40	66
R-MMU-5576892	Phase 0 - rapid depolarisation	4	43
R-MMU-5576893	Phase 2 - plateau phase	1	25
R-MMU-5576890	Phase 3 - rapid repolarisation	1	7
R-MMU-211945	Phase I - Functionalization of compounds	27	111
R-MMU-156580	Phase II - Conjugation of compounds	34	94
R-MMU-8963691	Phenylalanine and tyrosine metabolism	3	11
R-MMU-8964208	Phenylalanine metabolism	2	6
R-MMU-8850843	Phosphate bond hydrolysis by NTPDase proteins	1	8
R-MMU-2393930	Phosphate bond hydrolysis by NUDT proteins	4	7
R-MMU-5654219	Phospholipase C-mediated cascade: FGFR1	1	16
R-MMU-5654221	Phospholipase C-mediated cascade; FGFR2	1	18
R-MMU-5654227	Phospholipase C-mediated cascade; FGFR3	1	13
R-MMU-5654228	Phospholipase C-mediated cascade; FGFR4	1	15
R-MMU-1483257	Phospholipid metabolism	100	194
R-MMU-111995	phospho-PLA2 pathway	2	2
R-MMU-202427	Phosphorylation of CD3 and TCR zeta chains	4	25
R-MMU-176417	Phosphorylation of Emi1	4	6
R-MMU-69200	Phosphorylation of proteins involved in G1/S transition by active Cyclin E:Cdk2 complexes	2	4
R-MMU-176412	Phosphorylation of the APC/C	14	19
R-MMU-1483196	PI and PC transport between ER and Golgi membranes	1	1
R-MMU-1483255	PI Metabolism	54	76
R-MMU-109704	PI3K Cascade	12	44
R-MMU-5654689	PI-3K cascade:FGFR1	3	21
R-MMU-5654695	PI-3K cascade:FGFR2	3	23
R-MMU-5654710	PI-3K cascade:FGFR3	3	18
R-MMU-5654720	PI-3K cascade:FGFR4	3	20
R-MMU-1963642	PI3K events in ERBB2 signaling	2	16
R-MMU-1250342	PI3K events in ERBB4 signaling	1	10
R-MMU-198203	PI3K/AKT activation	4	9
R-MMU-6811555	PI5P Regulates TP53 Acetylation	8	9
R-MMU-6811558	PI5P, PP2A and IER3 Regulate PI3K/AKT Signaling	33	104
R-MMU-5205685	Pink/Parkin Mediated Mitophagy	13	22
R-MMU-1257604	PIP3 activates AKT signaling	124	238
R-MMU-163615	PKA activation	5	15
R-MMU-164378	PKA activation in glucagon signalling	3	5
R-MMU-111931	PKA-mediated phosphorylation of CREB	5	15
R-MMU-3214841	PKMTs methylate histone lysines	24	48
R-MMU-8963898	Plasma lipoprotein assembly	6	17
R-MMU-174824	Plasma lipoprotein assembly, remodeling, and clearance	28	58
R-MMU-8964043	Plasma lipoprotein clearance	17	29
R-MMU-8963899	Plasma lipoprotein remodeling	7	25
R-MMU-75896	Plasmalogen biosynthesis	3	3
R-MMU-76002	Platelet activation, signaling and aggregation	120	252
R-MMU-75892	Platelet Adhesion to exposed collagen	3	11
R-MMU-76009	Platelet Aggregation (Plug Formation)	15	37
R-MMU-418360	Platelet calcium homeostasis	10	25
R-MMU-114608	Platelet degranulation	51	122
R-MMU-418346	Platelet homeostasis	38	76
R-MMU-432142	Platelet sensitization by LDL	15	17
R-MMU-112043	PLC beta mediated events	14	39
R-MMU-110362	POLB-Dependent Long Patch Base Excision Repair	7	8
R-MMU-156711	Polo-like kinase mediated events	2	5

R-MMU-69091	Polymerase switching	13	14
R-MMU-174411	Polymerase switching on the C-strand of the telomere	13	14
R-MMU-5250913	Positive epigenetic regulation of rRNA expression	27	64
R-MMU-438064	Post NMDA receptor activation events	9	16
R-MMU-426496	Post-transcriptional silencing by small RNAs	3	7
R-MMU-163125	Post-translational modification: synthesis of GPI-anchored proteins	13	88
R-MMU-597592	Post-translational protein modification	627	1284
R-MMU-8957275	Post-translational protein phosphorylation	36	112
R-MMU-1296071	Potassium Channels	10	98
R-MMU-212300	PRC2 methylates histones and DNA	14	47
R-MMU-196108	Pregnenolone biosynthesis	7	13
R-MMU-1912422	Pre-NOTCH Expression and Processing	3	7
R-MMU-1912420	Pre-NOTCH Processing in Golgi	2	5
R-MMU-1912408	Pre-NOTCH Transcription and Translation	1	2
R-MMU-500657	Presynaptic function of Kainate receptors	10	21
R-MMU-5693616	Presynaptic phase of homologous DNA pairing and strand exchange	22	39
R-MMU-3215018	Processing and activation of SUMO	6	10
R-MMU-72203	Processing of Capped Intron-Containing Pre-mRNA	196	240
R-MMU-75067	Processing of Capped Intronless Pre-mRNA	23	28
R-MMU-5693607	Processing of DNA double-strand break ends	41	78
R-MMU-77595	Processing of Intronless Pre-mRNAs	16	19
R-MMU-8949664	Processing of SMDT1	15	16
R-MMU-174414	Processive synthesis on the C-strand of the telomere	10	11
R-MMU-69183	Processive synthesis on the lagging strand	14	15
R-MMU-5357801	Programmed Cell Death	70	112
R-MMU-964827	Progressive trimming of alpha-1,2-linked mannose residues from Man9/8/7GlcNAc2 to produce Man5GlcNAc2	2	3
R-MMU-1170546	Prolactin receptor signaling	3	9
R-MMU-70688	Proline catabolism	1	3
R-MMU-169893	Prolonged ERK activation events	8	14
R-MMU-71032	Propionyl-CoA catabolism	5	5
R-MMU-392851	Prostacyclin signalling through prostacyclin receptor	10	19
R-MMU-391908	Prostanoid ligand receptors	1	9
R-MMU-391251	Protein folding	22	43
R-MMU-9609507	Protein localization	66	107
R-MMU-8876725	Protein methylation	12	17
R-MMU-5676934	Protein repair	4	6
R-MMU-8852135	Protein ubiquitination	47	64
R-MMU-6794362	Protein-protein interactions at synapses	19	69
R-MMU-427975	Proton/oligopeptide cotransporters	2	4
R-MMU-433692	Proton-coupled monocarboxylate transport	2	6
R-MMU-6807070	PTEN Regulation	84	113
R-MMU-8849474	PTK6 Activates STAT3	1	4
R-MMU-8849472	PTK6 Down-Regulation	1	3
R-MMU-8857538	PTK6 promotes HIF1A stabilization	1	6
R-MMU-8849470	PTK6 Regulates Cell Cycle	4	6
R-MMU-8849468	PTK6 Regulates Proteins Involved in RNA Processing	2	5
R-MMU-8849471	PTK6 Regulates RHO GTPases, RAS GTPase and MAP kinases	10	14
R-MMU-8849469	PTK6 Regulates RTKs and Their Effectors AKT1 and DOK1	5	9

R-MMU-74259	Purine catabolism	12	19
R-MMU-73817	Purine ribonucleoside monophosphate biosynthesis	11	12
R-MMU-74217	Purine salvage	10	14
R-MMU-500753	Pyrimidine biosynthesis	3	3
R-MMU-73621	Pyrimidine catabolism	2	11
R-MMU-73614	Pyrimidine salvage	6	12
R-MMU-71737	Pyrophosphate hydrolysis	2	2
R-MMU-70268	Pyruvate metabolism	14	28
R-MMU-71406	Pyruvate metabolism and Citric Acid (TCA) cycle	36	52
R-MMU-5365859	RA biosynthesis pathway	7	21
R-MMU-8876198	RAB GEFs exchange GTP for GDP on RABs	58	89
R-MMU-8873719	RAB geranylgeranylation	40	62
R-MMU-9007101	Rab regulation of trafficking	76	115
R-MMU-5673000	RAF activation	22	30
R-MMU-5673001	RAF/MAP kinase cascade	106	242
R-MMU-112409	RAF-independent MAPK1/3 activation	9	22
R-MMU-392517	Rap1 signalling	8	14
R-MMU-975578	Reactions specific to the complex N-glycan synthesis pathway	4	9
R-MMU-8934903	Receptor Mediated Mitophagy	6	11
R-MMU-388844	Receptor-type tyrosine-protein phosphatases	6	20
R-MMU-110330	Recognition and association of DNA glycosylase with site containing an affected purine	5	40
R-MMU-110314	Recognition of DNA damage by PCNA-containing replication complex	25	30
R-MMU-5693565	Recruitment and ATM-mediated phosphorylation of repair and signaling proteins at DNA double strand breaks	28	56
R-MMU-380270	Recruitment of mitotic centrosome proteins and complexes	57	80
R-MMU-380320	Recruitment of NuMA to mitotic centrosomes	62	90
R-MMU-159418	Recycling of bile acids and salts	5	15
R-MMU-72731	Recycling of eIF2:GDP	7	8
R-MMU-437239	Recycling pathway of L1	25	35
R-MMU-418359	Reduction of cytosolic Ca ⁺⁺ levels	5	12
R-MMU-8866376	Reelin signalling pathway	3	5
R-MMU-5218859	Regulated Necrosis	10	19
R-MMU-193692	Regulated proteolysis of p75NTR	7	11
R-MMU-3371378	Regulation by c-FLIP	5	10
R-MMU-2029482	Regulation of actin dynamics for phagocytic cup formation	49	126
R-MMU-176408	Regulation of APC/C activators between G1/S and early anaphase	20	28
R-MMU-169911	Regulation of Apoptosis	1	2
R-MMU-186712	Regulation of beta-cell development	2	4
R-MMU-1655829	Regulation of cholesterol biosynthesis by SREBP (SREBF)	4	7
R-MMU-977606	Regulation of Complement cascade	10	106
R-MMU-446388	Regulation of cytoskeletal remodeling and cell spreading by IPP complex components	6	8
R-MMU-9010553	Regulation of expression of SLITs and ROBOs	2	8
R-MMU-9617629	Regulation of FOXO transcriptional activity by acetylation	4	7
R-MMU-4641263	Regulation of FZD by ubiquitination	3	20
R-MMU-1234158	Regulation of gene expression by Hypoxia-inducible Factor	3	7
R-MMU-210745	Regulation of gene expression in beta cells	2	4

R-MMU-170822	Regulation of Glucokinase by Glucokinase Regulatory Protein	26	31
R-MMU-9634600	Regulation of glycolysis by fructose 2,6-bisphosphate metabolism	2	4
R-MMU-3371453	Regulation of HSF1-mediated heat shock response	57	68
R-MMU-912694	Regulation of IFNA signaling	9	25
R-MMU-877312	Regulation of IFNG signaling	5	11
R-MMU-3134975	Regulation of innate immune responses to cytosolic DNA	8	13
R-MMU-422356	Regulation of insulin secretion	22	61
R-MMU-381426	Regulation of Insulin-like Growth Factor (IGF) transport and uptake by Insulin-like Growth Factor Binding Proteins (IGFBPs)	36	118
R-MMU-1433559	Regulation of KIT signaling	6	14
R-MMU-400206	Regulation of lipid metabolism by PPARalpha	13	20
R-MMU-9614399	Regulation of localization of FOXO transcription factors	6	12
R-MMU-9022692	Regulation of MECP2 expression and activity	4	6
R-MMU-453276	Regulation of mitotic cell cycle	66	82
R-MMU-450531	Regulation of mRNA stability by proteins that bind AU-rich elements	74	86
R-MMU-5675482	Regulation of necroptotic cell death	8	17
R-MMU-350562	Regulation of ornithine decarboxylase (ODC)	42	50
R-MMU-2565942	Regulation of PLK1 Activity at G2/M Transition	58	87
R-MMU-8943724	Regulation of PTEN gene transcription	27	43
R-MMU-8948747	Regulation of PTEN localization	5	9
R-MMU-8948751	Regulation of PTEN stability and activity	55	68
R-MMU-204174	Regulation of pyruvate dehydrogenase (PDH) complex	7	16
R-MMU-5658442	Regulation of RAS by GAPs	53	68
R-MMU-8934593	Regulation of RUNX1 Expression and Activity	7	8
R-MMU-8939902	Regulation of RUNX2 expression and activity	45	51
R-MMU-8941858	Regulation of RUNX3 expression and activity	45	53
R-MMU-912631	Regulation of signaling by CBL	13	21
R-MMU-9627069	Regulation of the apoptosome activity	2	2
R-MMU-5686938	Regulation of TLR by endogenous ligand	7	18
R-MMU-5357905	Regulation of TNFR1 signaling	20	33
R-MMU-5633007	Regulation of TP53 Activity	83	156
R-MMU-6804758	Regulation of TP53 Activity through Acetylation	21	30
R-MMU-6804759	Regulation of TP53 Activity through Association with Co-factors	5	14
R-MMU-6804760	Regulation of TP53 Activity through Methylation	9	18
R-MMU-6804756	Regulation of TP53 Activity through Phosphorylation	46	91
R-MMU-6804757	Regulation of TP53 Degradation	20	35
R-MMU-6804754	Regulation of TP53 Expression	1	1
R-MMU-6806003	Regulation of TP53 Expression and Degradation	20	35
R-MMU-111457	Release of apoptotic factors from the mitochondria	3	4
R-MMU-159782	Removal of aminoterminal propeptides from gamma-carboxylated proteins	2	10
R-MMU-69166	Removal of the Flap Intermediate	13	14
R-MMU-174437	Removal of the Flap Intermediate from the C-strand	9	10
R-MMU-4641265	Repression of WNT target genes	4	10
R-MMU-1474165	Reproduction	1	25
R-MMU-73933	Resolution of Abasic Sites (AP sites)	26	38

R-MMU-110373	Resolution of AP sites via the multiple-nucleotide patch replacement pathway	23	25
R-MMU-110381	Resolution of AP sites via the single-nucleotide replacement pathway	3	4
R-MMU-5693537	Resolution of D-Loop Structures	11	33
R-MMU-5693568	Resolution of D-loop Structures through Holliday Junction Intermediates	11	32
R-MMU-5693554	Resolution of D-loop Structures through Synthesis-Dependent Strand Annealing (SDSA)	10	26
R-MMU-2500257	Resolution of Sister Chromatid Cohesion	83	120
R-MMU-611105	Respiratory electron transport	49	58
R-MMU-163200	Respiratory electron transport, ATP synthesis by chemiosmotic coupling, and heat production by uncoupling proteins.	63	81
R-MMU-76005	Response to elevated platelet cytosolic Ca ²⁺	54	127
R-MMU-8853659	RET signaling	14	39
R-MMU-975634	Retinoid metabolism and transport	8	46
R-MMU-177504	Retrograde neurotrophin signalling	6	10
R-MMU-6811440	Retrograde transport at the Trans-Golgi-Network	35	45
R-MMU-888593	Reuptake of GABA	1	4
R-MMU-73943	Reversal of alkylation damage by DNA dioxygenases	2	2
R-MMU-1475029	Reversible hydration of carbon dioxide	2	12
R-MMU-194840	Rho GTPase cycle	61	136
R-MMU-195258	RHO GTPase Effectors	177	284
R-MMU-5625900	RHO GTPases activate CIT	7	8
R-MMU-5663220	RHO GTPases Activate Formins	92	133
R-MMU-5626467	RHO GTPases activate IQGAPs	18	27
R-MMU-5625970	RHO GTPases activate KTN1	9	11
R-MMU-5668599	RHO GTPases Activate NADPH Oxidases	15	24
R-MMU-5627123	RHO GTPases activate PAKs	15	20
R-MMU-5625740	RHO GTPases activate PKNs	24	58
R-MMU-5666185	RHO GTPases Activate Rhotekin and Rhophilins	2	6
R-MMU-5627117	RHO GTPases Activate ROCKs	5	5
R-MMU-5663213	RHO GTPases Activate WASPs and WAVEs	30	36
R-MMU-5627083	RHO GTPases regulate CFTR trafficking	1	3
R-MMU-72702	Ribosomal scanning and start codon recognition	56	59
R-MMU-5213460	RIPK1-mediated regulated necrosis	10	19
R-MMU-1810476	RIP-mediated NFkB activation via ZBP1	10	12
R-MMU-3214858	RMTs methylate histone arginines	28	49
R-MMU-77075	RNA Pol II CTD phosphorylation and interaction with CE	21	27
R-MMU-73854	RNA Polymerase I Promoter Clearance	39	81
R-MMU-73772	RNA Polymerase I Promoter Escape	25	64
R-MMU-73728	RNA Polymerase I Promoter Opening	8	37
R-MMU-73864	RNA Polymerase I Transcription	39	82
R-MMU-73762	RNA Polymerase I Transcription Initiation	31	44
R-MMU-73863	RNA Polymerase I Transcription Termination	18	30
R-MMU-674695	RNA Polymerase II Pre-transcription Events	55	78
R-MMU-73776	RNA Polymerase II Promoter Escape	28	46
R-MMU-6807505	RNA polymerase II transcribes snRNA genes	46	73
R-MMU-73857	RNA Polymerase II Transcription	401	940
R-MMU-75955	RNA Polymerase II Transcription Elongation	45	56
R-MMU-75953	RNA Polymerase II Transcription Initiation	28	46
R-MMU-76042	RNA Polymerase II Transcription Initiation And Promoter Clearance	28	46
R-MMU-73779	RNA Polymerase II Transcription Pre-Initiation And Promoter Opening	28	46
R-MMU-73856	RNA Polymerase II Transcription Termination	50	66

R-MMU-74158	RNA Polymerase III Transcription	17	34
R-MMU-76046	RNA Polymerase III Transcription Initiation	17	34
R-MMU-76061	RNA Polymerase III Transcription Initiation From Type 1 Promoter	15	27
R-MMU-76066	RNA Polymerase III Transcription Initiation From Type 2 Promoter	15	26
R-MMU-76071	RNA Polymerase III Transcription Initiation From Type 3 Promoter	12	26
R-MMU-428890	Role of ABL in ROBO-SLIT signaling	2	4
R-MMU-2730905	Role of LAT2/NTAL/LAB on calcium mobilization	12	75
R-MMU-2029485	Role of phospholipids in phagocytosis	14	87
R-MMU-1222556	ROS and RNS production in phagocytes	18	36
R-MMU-72312	rRNA processing	151	175
R-MMU-8868773	rRNA processing in the nucleus and cytosol	151	175
R-MMU-444257	RSK activation	2	4
R-MMU-8877330	RUNX1 and FOXP3 control the development of regulatory T lymphocytes (Tregs)	2	3
R-MMU-8939243	RUNX1 interacts with co-factors whose precise effect on RUNX1 targets is not known	19	37
R-MMU-8931987	RUNX1 regulates estrogen receptor mediated transcription	2	3
R-MMU-8936459	RUNX1 regulates genes involved in megakaryocyte differentiation and platelet function	18	57
R-MMU-8939245	RUNX1 regulates transcription of genes involved in BCR signaling	3	4
R-MMU-8939236	RUNX1 regulates transcription of genes involved in differentiation of HSCs	50	67
R-MMU-8939242	RUNX1 regulates transcription of genes involved in differentiation of keratinocytes	1	4
R-MMU-8939246	RUNX1 regulates transcription of genes involved in differentiation of myeloid cells	3	3
R-MMU-8939247	RUNX1 regulates transcription of genes involved in interleukin signaling	3	3
R-MMU-8941326	RUNX2 regulates bone development	4	6
R-MMU-8941855	RUNX3 regulates CDKN1A transcription	4	6
R-MMU-8941856	RUNX3 regulates NOTCH signaling	4	12
R-MMU-8951936	RUNX3 regulates p14-ARF	7	8
R-MMU-8951430	RUNX3 regulates WNT signaling	1	6
R-MMU-69242	S Phase	112	146
R-MMU-3000480	Scavenging by Class A Receptors	4	10
R-MMU-3000471	Scavenging by Class B Receptors	2	5
R-MMU-3000497	Scavenging by Class H Receptors	2	4
R-MMU-2168880	Scavenging of heme from plasma	3	78
R-MMU-187577	SCF(Skp2)-mediated degradation of p27/p21	50	60
R-MMU-9663891	Selective autophagy	36	59
R-MMU-2408522	Selenoamino acid metabolism	3	4
R-MMU-2408557	Selenocysteine synthesis	1	1
R-MMU-399954	Sema3A PAK dependent Axon repulsion	10	15
R-MMU-399955	SEMA3A-Plexin repulsion signaling by inhibiting Integrin adhesion	7	10
R-MMU-400685	Sema4D in semaphorin signaling	8	15
R-MMU-416572	Sema4D induced cell migration and growth-cone collapse	6	11
R-MMU-416550	Sema4D mediated inhibition of cell attachment and migration	4	8
R-MMU-373755	Semaphorin interactions	29	52
R-MMU-2559582	Senescence-Associated Secretory Phenotype (SASP)	29	70

R-MMU-5693548	Sensing of DNA Double Strand Breaks	4	6
R-MMU-2467813	Separation of Sister Chromatids	137	183
R-MMU-977347	Serine biosynthesis	3	9
R-MMU-380615	Serotonin clearance from the synaptic cleft	2	3
R-MMU-181429	Serotonin Neurotransmitter Release Cycle	6	18
R-MMU-180336	SHC1 events in EGFR signaling	6	14
R-MMU-1250196	SHC1 events in ERBB2 signaling	3	17
R-MMU-1250347	SHC1 events in ERBB4 signaling	6	14
R-MMU-5654688	SHC-mediated cascade:FGFR1	6	21
R-MMU-5654699	SHC-mediated cascade:FGFR2	6	23
R-MMU-5654704	SHC-mediated cascade:FGFR3	6	18
R-MMU-5654719	SHC-mediated cascade:FGFR4	6	20
R-MMU-2428933	SHC-related events triggered by IGF1R	4	6
R-MMU-4085001	Sialic acid metabolism	12	33
R-MMU-392518	Signal amplification	14	32
R-MMU-74749	Signal attenuation	5	11
R-MMU-391160	Signal regulatory protein family interactions	7	12
R-MMU-162582	Signal Transduction	758	2487
R-MMU-445144	Signal transduction by L1	15	21
R-MMU-1502540	Signaling by Activin	4	13
R-MMU-201451	Signaling by BMP	4	28
R-MMU-177929	Signaling by EGFR	26	46
R-MMU-1227986	Signaling by ERBB2	23	49
R-MMU-1236394	Signaling by ERBB4	15	37
R-MMU-9006335	Signaling by Erythropoietin	9	17
R-MMU-190236	Signaling by FGFR	42	85
R-MMU-5654736	Signaling by FGFR1	21	49
R-MMU-5654738	Signaling by FGFR2	39	72
R-MMU-5654741	Signaling by FGFR3	18	40
R-MMU-5654743	Signaling by FGFR4	18	41
R-MMU-372790	Signaling by GPCR	132	1098
R-MMU-5358351	Signaling by Hedgehog	80	138
R-MMU-2028269	Signaling by Hippo	9	20
R-MMU-74752	Signaling by Insulin receptor	29	76
R-MMU-449147	Signaling by Interleukins	142	261
R-MMU-2586552	Signaling by Leptin	1	2
R-MMU-6806834	Signaling by MET	37	78
R-MMU-1181150	Signaling by NODAL	4	6
R-MMU-9006927	Signaling by Non-Receptor Tyrosine Kinases	24	51
R-MMU-157118	Signaling by NOTCH	18	42
R-MMU-1980143	Signaling by NOTCH1	6	20
R-MMU-9012852	Signaling by NOTCH3	8	20
R-MMU-9013694	Signaling by NOTCH4	2	3
R-MMU-187037	Signaling by NTRK1 (TRKA)	37	59
R-MMU-9006115	Signaling by NTRK2 (TRKB)	5	10
R-MMU-9034015	Signaling by NTRK3 (TRKC)	1	4
R-MMU-166520	Signaling by NTRKs	41	72
R-MMU-9006931	Signaling by Nuclear Receptors	101	215
R-MMU-186797	Signaling by PDGF	20	59
R-MMU-8848021	Signaling by PTK6	24	51
R-MMU-9006934	Signaling by Receptor Tyrosine Kinases	186	416
R-MMU-5362517	Signaling by Retinoic Acid	17	42
R-MMU-194315	Signaling by Rho GTPases	230	410
R-MMU-376176	Signaling by ROBO receptors	8	22
R-MMU-1433557	Signaling by SCF-KIT	23	41
R-MMU-9006936	Signaling by TGF-beta family members	36	91
R-MMU-170834	Signaling by TGF-beta Receptor Complex	33	62
R-MMU-983705	Signaling by the B Cell Receptor (BCR)	82	161

R-MMU-2404192	Signaling by Type 1 Insulin-like Growth Factor 1 Receptor (IGF1R)	15	51
R-MMU-194138	Signaling by VEGF	59	99
R-MMU-195721	Signaling by WNT	131	273
R-MMU-198765	Signalling to ERK5	1	1
R-MMU-187687	Signalling to ERKs	17	27
R-MMU-167044	Signalling to RAS	9	13
R-MMU-427359	SIRT1 negatively regulates rRNA expression	8	37
R-MMU-77588	SLBP Dependent Processing of Replication-Dependent Histone Pre-mRNAs	9	11
R-MMU-111367	SLBP independent Processing of Histone Pre-mRNAs	8	10
R-MMU-425407	SLC-mediated transmembrane transport	59	238
R-MMU-8985586	SLIT2:ROBO1 increases RHOA activity	2	4
R-MMU-111463	SMAC (DIABLO) binds to IAPs	3	3
R-MMU-111464	SMAC(DIABLO)-mediated dissociation of IAP:caspase complexes	3	3
R-MMU-111469	SMAC, XIAP-regulated apoptotic response	4	5
R-MMU-2173796	SMAD2/SMAD3:SMAD4 heterotrimer regulates transcription	12	25
R-MMU-426486	Small interfering RNA (siRNA) biogenesis	6	9
R-MMU-445355	Smooth Muscle Contraction	16	31
R-MMU-191859	snRNP Assembly	44	49
R-MMU-425561	Sodium/Calcium exchangers	2	11
R-MMU-425986	Sodium/Proton exchangers	3	9
R-MMU-427652	Sodium-coupled phosphate cotransporters	1	5
R-MMU-112412	SOS-mediated signalling	2	4
R-MMU-1660661	Sphingolipid de novo biosynthesis	23	44
R-MMU-428157	Sphingolipid metabolism	46	84
R-MMU-1295596	Spry regulation of FGF signaling	11	16
R-MMU-1799339	SRP-dependent cotranslational protein targeting to membrane	80	90
R-MMU-69541	Stabilization of p53	47	55
R-MMU-3249367	STAT6-mediated induction of chemokines	3	3
R-MMU-2672351	Stimuli-sensing channels	27	100
R-MMU-1834941	STING mediated induction of host immune responses	5	7
R-MMU-390522	Striated Muscle Contraction	9	36
R-MMU-1614517	Sulfide oxidation to sulfate	3	5
R-MMU-1614635	Sulfur amino acid metabolism	15	23
R-MMU-3108232	SUMO E3 ligases SUMOylate target proteins	84	149
R-MMU-3065676	SUMO is conjugated to E1 (UBA2:SAE1)	3	3
R-MMU-3065679	SUMO is proteolytically processed	3	6
R-MMU-3065678	SUMO is transferred from E1 to E2 (UBE2I, UBC9)	4	5
R-MMU-2990846	SUMOylation	86	155
R-MMU-4551638	SUMOylation of chromatin organization proteins	38	54
R-MMU-3108214	SUMOylation of DNA damage response and repair proteins	50	74
R-MMU-4655427	SUMOylation of DNA methylation proteins	3	4
R-MMU-4615885	SUMOylation of DNA replication proteins	34	43
R-MMU-4755510	SUMOylation of immune response proteins	7	11
R-MMU-4090294	SUMOylation of intracellular receptors	7	27
R-MMU-4570464	SUMOylation of RNA binding proteins	34	46
R-MMU-4085377	SUMOylation of SUMOylation proteins	29	34
R-MMU-3899300	SUMOylation of transcription cofactors	18	38
R-MMU-3232118	SUMOylation of transcription factors	8	15
R-MMU-3232142	SUMOylation of ubiquitylation proteins	31	38
R-MMU-5683826	Surfactant metabolism	6	24

R-MMU-69052	Switching of origins to a post-replicative state	68	89
R-MMU-8849932	Synaptic adhesion-like molecules	5	21
R-MMU-3000170	Syndecan interactions	6	16
R-MMU-2142712	Synthesis of 12-eicosatetraenoic acid derivatives	2	7
R-MMU-2142770	Synthesis of 15-eicosatetraenoic acid derivatives	3	6
R-MMU-2142688	Synthesis of 5-eicosatetraenoic acids	4	6
R-MMU-8866652	Synthesis of active ubiquitin: roles of E1 and E2 enzymes	24	30
R-MMU-192105	Synthesis of bile acids and bile salts	11	37
R-MMU-193775	Synthesis of bile acids and bile salts via 24-hydroxycholesterol	1	16
R-MMU-193807	Synthesis of bile acids and bile salts via 27-hydroxycholesterol	3	18
R-MMU-193368	Synthesis of bile acids and bile salts via 7alpha-hydroxycholesterol	6	27
R-MMU-1483076	Synthesis of CL	1	1
R-MMU-5358493	Synthesis of diphthamide-EEF2	5	7
R-MMU-69239	Synthesis of DNA	95	117
R-MMU-446199	Synthesis of Dolichyl-phosphate	2	6
R-MMU-162699	Synthesis of dolichyl-phosphate mannose	2	3
R-MMU-480985	Synthesis of dolichyl-phosphate-glucose	2	2
R-MMU-446205	Synthesis of GDP-mannose	3	3
R-MMU-162710	Synthesis of glycosylphosphatidylinositol (GPI)	1	17
R-MMU-1855183	Synthesis of IP2, IP, and Ins in the cytosol	8	12
R-MMU-1855204	Synthesis of IP3 and IP4 in the cytosol	16	26
R-MMU-1855231	Synthesis of IPs in the ER lumen	1	1
R-MMU-77111	Synthesis of Ketone Bodies	3	8
R-MMU-2142691	Synthesis of Leukotrienes (LT) and Eoxins (EX)	7	25
R-MMU-2142700	Synthesis of Lipoxins (LX)	2	5
R-MMU-1483166	Synthesis of PA	16	40
R-MMU-1483191	Synthesis of PC	12	26
R-MMU-1483213	Synthesis of PE	4	12
R-MMU-1483148	Synthesis of PG	1	1
R-MMU-1483226	Synthesis of PI	2	5
R-MMU-1660516	Synthesis of PIPs at the early endosome membrane	13	15
R-MMU-1483248	Synthesis of PIPs at the ER membrane	5	5
R-MMU-1660514	Synthesis of PIPs at the Golgi membrane	13	17
R-MMU-1660517	Synthesis of PIPs at the late endosome membrane	9	10
R-MMU-1660499	Synthesis of PIPs at the plasma membrane	35	50
R-MMU-8847453	Synthesis of PIPs in the nucleus	4	4
R-MMU-2162123	Synthesis of Prostaglandins (PG) and Thromboxanes (TX)	6	12
R-MMU-1855167	Synthesis of pyrophosphates in the cytosol	4	10
R-MMU-446219	Synthesis of substrates in N-glycan biosynthesis	32	61
R-MMU-446210	Synthesis of UDP-N-acetyl-glucosamine	7	8
R-MMU-75876	Synthesis of very long-chain fatty acyl-CoAs	9	22
R-MMU-422085	Synthesis, secretion, and deacylation of Ghrelin	6	16
R-MMU-445989	TAK1 activates NFkB by phosphorylation and activation of IKKs complex	16	30
R-MMU-8854214	TBC/RABGAPs	24	34
R-MMU-201681	TCF dependent signaling in response to WNT	92	192
R-MMU-202403	TCR signaling	75	115
R-MMU-174417	Telomere C-strand (Lagging Strand) Synthesis	23	24
R-MMU-174430	Telomere C-strand synthesis initiation	8	8
R-MMU-171319	Telomere Extension By Telomerase	1	2
R-MMU-157579	Telomere Maintenance	29	64
R-MMU-977068	Termination of O-glycan biosynthesis	1	22

R-MMU-5656169	Termination of translesion DNA synthesis	20	32
R-MMU-1474151	Tetrahydrobiopterin (BH4) synthesis, recycling, salvage and regulation	5	9
R-MMU-8866911	TFAP2 (AP-2) family regulates transcription of cell cycle factors	1	3
R-MMU-8869496	TFAP2A acts as a transcriptional repressor during retinoic acid induced cell differentiation	1	2
R-MMU-2173789	TGF-beta receptor signaling activates SMADs	14	23
R-MMU-2173791	TGF-beta receptor signaling in EMT (epithelial to mesenchymal transition)	5	15
R-MMU-1663150	The activation of arylsulfatases	4	8
R-MMU-844615	The AIM2 inflammasome	1	1
R-MMU-2453902	The canonical retinoid cycle in rods (twilight vision)	4	20
R-MMU-1428517	The citric acid (TCA) cycle and respiratory electron transport	99	133
R-MMU-844455	The NLRP1 inflammasome	2	3
R-MMU-844456	The NLRP3 inflammasome	8	10
R-MMU-2514856	The phototransduction cascade	10	29
R-MMU-2187335	The retinoid cycle in cones (daylight vision)	1	6
R-MMU-8852276	The role of GTSE1 in G2/M progression after G2 checkpoint	60	73
R-MMU-8849175	Threonine catabolism	2	5
R-MMU-456926	Thrombin signalling through proteinase activated receptors (PARs)	16	32
R-MMU-428930	Thromboxane signalling through TP receptor	10	23
R-MMU-9013973	TICAM1-dependent activation of IRF3/IRF7	1	2
R-MMU-210993	Tie2 Signaling	11	18
R-MMU-420029	Tight junction interactions	1	6
R-MMU-5676594	TNF receptor superfamily (TNFSF) members mediating non-canonical NF-kB pathway	3	18
R-MMU-75893	TNF signaling	26	43
R-MMU-5357956	TNFR1-induced NFkappaB signaling pathway	18	29
R-MMU-5357786	TNFR1-induced proapoptotic signaling	7	12
R-MMU-5626978	TNFR1-mediated ceramide production	2	6
R-MMU-5668541	TNFR2 non-canonical NF-kB pathway	56	99
R-MMU-5669034	TNFs bind their physiological receptors	1	27
R-MMU-168142	Toll Like Receptor 10 (TLR10) Cascade	44	73
R-MMU-181438	Toll Like Receptor 2 (TLR2) Cascade	44	74
R-MMU-168164	Toll Like Receptor 3 (TLR3) Cascade	43	70
R-MMU-166016	Toll Like Receptor 4 (TLR4) Cascade	64	109
R-MMU-168176	Toll Like Receptor 5 (TLR5) Cascade	44	73
R-MMU-168181	Toll Like Receptor 7/8 (TLR7/8) Cascade	51	84
R-MMU-168138	Toll Like Receptor 9 (TLR9) Cascade	55	88
R-MMU-168179	Toll Like Receptor TLR1:TLR2 Cascade	44	74
R-MMU-168188	Toll Like Receptor TLR6:TLR2 Cascade	44	74
R-MMU-168898	Toll-like Receptor Cascades	84	138
R-MMU-5628897	TP53 Regulates Metabolic Genes	34	49
R-MMU-6804115	TP53 regulates transcription of additional cell cycle genes whose exact role in the p53 pathway remain uncertain	11	18
R-MMU-6791312	TP53 Regulates Transcription of Cell Cycle Genes	20	35
R-MMU-5633008	TP53 Regulates Transcription of Cell Death Genes	7	15
R-MMU-6803211	TP53 Regulates Transcription of Death Receptors and Ligands	1	2
R-MMU-6796648	TP53 Regulates Transcription of DNA Repair Genes	36	44

R-MMU-6803204	TP53 Regulates Transcription of Genes Involved in Cytochrome C Release	3	7
R-MMU-6804116	TP53 Regulates Transcription of Genes Involved in G1 Cell Cycle Arrest	4	10
R-MMU-6804114	TP53 Regulates Transcription of Genes Involved in G2 Cell Cycle Arrest	5	7
R-MMU-6803205	TP53 regulates transcription of several additional cell death genes whose specific roles in p53-dependent apoptosis remain uncertain	3	3
R-MMU-918233	TRAF3-dependent IRF activation pathway	3	4
R-MMU-975138	TRAF6 mediated induction of NFkB and MAP kinases upon TLR7/8 or 9 activation	51	83
R-MMU-933541	TRAF6 mediated IRF7 activation	3	4
R-MMU-975110	TRAF6 mediated IRF7 activation in TLR7/8 or 9 signaling	5	8
R-MMU-933542	TRAF6 mediated NF-kB activation	10	15
R-MMU-937072	TRAF6-mediated induction of TAK1 complex within TLR4 complex	7	16
R-MMU-1679131	Trafficking and processing of endosomal TLR	10	12
R-MMU-399719	Trafficking of AMPA receptors	10	30
R-MMU-416993	Trafficking of GluR2-containing AMPA receptors	6	16
R-MMU-5624138	Trafficking of myristoylated proteins to the cilium	2	4
R-MMU-75158	TRAIL signaling	2	5
R-MMU-75944	Transcription from mitochondrial promoters	3	4
R-MMU-69895	Transcriptional activation of cell cycle inhibitor p21	2	2
R-MMU-2151201	Transcriptional activation of mitochondrial biogenesis	7	8
R-MMU-69560	Transcriptional activation of p53 responsive genes	2	2
R-MMU-2173793	Transcriptional activity of SMAD2/SMAD3:SMAD4 heterotrimer	21	40
R-MMU-8953750	Transcriptional Regulation by E2F6	13	25
R-MMU-8986944	Transcriptional Regulation by MECP2	4	6
R-MMU-8878171	Transcriptional regulation by RUNX1	91	170
R-MMU-8878166	Transcriptional regulation by RUNX2	53	62
R-MMU-8878159	Transcriptional regulation by RUNX3	56	81
R-MMU-5578749	Transcriptional regulation by small RNAs	45	80
R-MMU-8864260	Transcriptional regulation by the AP-2 (TFAP2) family of transcription factors	8	23
R-MMU-3700989	Transcriptional Regulation by TP53	167	277
R-MMU-8853884	Transcriptional Regulation by VENTX	1	7
R-MMU-9616222	Transcriptional regulation of granulopoiesis	2	6
R-MMU-6781827	Transcription-Coupled Nucleotide Excision Repair (TC-NER)	59	77
R-MMU-166020	Transfer of LPS from LBP carrier to CD14	1	2
R-MMU-917977	Transferrin endocytosis and recycling	18	31
R-MMU-199992	trans-Golgi Network Vesicle Budding	53	71
R-MMU-72766	Translation	208	225
R-MMU-72649	Translation initiation complex formation	56	59
R-MMU-110320	Translesion Synthesis by POLH	13	19
R-MMU-5656121	Translesion synthesis by POLI	10	17
R-MMU-5655862	Translesion synthesis by POLK	10	17
R-MMU-110312	Translesion synthesis by REV1	10	16
R-MMU-110313	Translesion synthesis by Y family DNA polymerases bypasses lesions on DNA template	23	39
R-MMU-112315	Transmission across Chemical Synapses	52	214
R-MMU-174362	Transport and synthesis of PAPS	2	6
R-MMU-425366	Transport of bile salts and organic acids, metal ions and amine compounds	14	79

R-MMU-190872	Transport of connexons to the plasma membrane	8	16
R-MMU-804914	Transport of fatty acids	2	7
R-MMU-159763	Transport of gamma-carboxylated protein precursors from the endoplasmic reticulum to the Golgi apparatus	1	9
R-MMU-425393	Transport of inorganic cations/anions and amino acids/oligopeptides	30	106
R-MMU-159236	Transport of Mature mRNA derived from an Intron-Containing Transcript	56	73
R-MMU-159231	Transport of Mature mRNA Derived from an Intronless Transcript	36	41
R-MMU-159234	Transport of Mature mRNAs Derived from Intronless Transcripts	37	42
R-MMU-72202	Transport of Mature Transcript to Cytoplasm	63	82
R-MMU-83936	Transport of nucleosides and free purine and pyrimidine bases across the plasma membrane	5	11
R-MMU-727802	Transport of nucleotide sugars	3	9
R-MMU-879518	Transport of organic anions	1	11
R-MMU-382551	Transport of small molecules	262	674
R-MMU-159230	Transport of the SLBP Dependant Mature mRNA	32	35
R-MMU-159227	Transport of the SLBP independent Mature mRNA	31	34
R-MMU-425397	Transport of vitamins, nucleosides, and related molecules	13	41
R-MMU-948021	Transport to the Golgi and subsequent modification	113	179
R-MMU-937061	TRIF(TICAM1)-mediated TLR4 signaling	56	90
R-MMU-2562578	TRIF-mediated programmed cell death	6	9
R-MMU-75109	Triglyceride biosynthesis	2	12
R-MMU-163560	Triglyceride catabolism	3	11
R-MMU-8979227	Triglyceride metabolism	5	23
R-MMU-450513	Tristetraprolin (TTP, ZFP36) binds and destabilizes mRNA	16	17
R-MMU-379724	tRNA Aminoacylation	2	2
R-MMU-3295583	TRP channels	8	28
R-MMU-71240	Tryptophan catabolism	2	11
R-MMU-446107	Type I hemidesmosome assembly	3	11
R-MMU-8963684	Tyrosine catabolism	1	5
R-MMU-2142789	Ubiquinol biosynthesis	2	4
R-MMU-69601	Ubiquitin Mediated Degradation of Phosphorylated Cdc25A	45	51
R-MMU-75815	Ubiquitin-dependent degradation of Cyclin D	45	50
R-MMU-5689880	Ub-specific processing proteases	110	182
R-MMU-5689603	UCH proteinases	62	95
R-MMU-438066	Unblocking of NMDA receptors, glutamate binding and activation	6	22
R-MMU-381119	Unfolded Protein Response (UPR)	5	11
R-MMU-176974	Unwinding of DNA	4	4
R-MMU-70635	Urea cycle	3	10
R-MMU-77108	Utilization of Ketone Bodies	2	5
R-MMU-432040	Vasopressin regulates renal water homeostasis via Aquaporins	12	32
R-MMU-4420097	VEGFA-VEGFR2 Pathway	57	91
R-MMU-5218921	VEGFR2 mediated cell proliferation	7	14
R-MMU-5218920	VEGFR2 mediated vascular permeability	16	27
R-MMU-5653656	Vesicle-mediated transport	370	656
R-MMU-2187338	Visual phototransduction	22	93
R-MMU-196819	Vitamin B1 (thiamin) metabolism	2	5
R-MMU-196843	Vitamin B2 (riboflavin) metabolism	2	6

R-MMU-199220	Vitamin B5 (pantothenate) metabolism	8	13
R-MMU-196836	Vitamin C (ascorbate) metabolism	6	8
R-MMU-196791	Vitamin D (calciferol) metabolism	2	8
R-MMU-964975	Vitamins B6 activation to pyridoxal phosphate	2	3
R-MMU-8866423	VLDL assembly	2	5
R-MMU-8964046	VLDL clearance	2	5
R-MMU-8866427	VLDLR internalisation and degradation	6	11
R-MMU-1296072	Voltage gated Potassium channels	1	43
R-MMU-5620916	VxPx cargo-targeting to cilium	13	21
R-MMU-8848584	Wax and plasmalogen biosynthesis	4	7
R-MMU-9640463	Wax biosynthesis	1	4
R-MMU-3238698	WNT ligand biogenesis and trafficking	6	25
R-MMU-201688	WNT mediated activation of DVL	5	8
R-MMU-5140745	WNT5A-dependent internalization of FZD2, FZD5 and ROR2	7	12
R-MMU-5099900	WNT5A-dependent internalization of FZD4	10	14
R-MMU-211981	Xenobiotics	1	28
R-MMU-1606322	ZBP1(DAI) mediated induction of type I IFNs	11	13
R-MMU-435368	Zinc efflux and compartmentalization by the SLC30 family	2	4
R-MMU-442380	Zinc influx into cells by the SLC39 gene family	3	8
R-MMU-435354	Zinc transporters	5	12