Appendix 1: Abbreviations of TCM herbs and ingredients of GMTG

Abbreviation	Ingredient
HBIN011688	5'-hydroxyiso-muronulatol-2',5'-di-O-glucoside_qt
HBIN013410	7-O-methylisomucronulatol
HBIN014399	acetic acid
HBIN014685	adeninenucleoside
HBIN017246	astramembrannin i
HBIN018006	beta carotene
HBIN018100	βetaine
HBIN018163	betaine
HBIN018278	beta-sitosterol
HBIN019690	capsaicin
HBIN021608	coumarin
HBIN022577	daidzein
HBIN026662	formononetin
HBIN029382	higenamine
HBIN029419	Hirsutrin
HBIN030735	isoferulic acid
HBIN031753	kaempferol
HBIN033339	linolenic acid
HBIN035847	Mucronulatol
HBIN037325	nordihyolroguaiaretic acid
HBIN038680	palmitic acid
HBIN041495	quercetin
HBIN042670	rutin
HBIN048715	(Z)-1-(2,4-dihydroxyphenyl)-3-(4-hydroxyphenyl)prop-2-en-1-one
HBIN000841	1,2-DT-Quinone
HBIN027746	ginsenoside rg1
HBIN027751	Ginsenoside Rg3
HBIN027764	ginsenoside rh2
HBIN030731	isoevodiamine
HBIN033793	Lutein
HBIN045506	tanshinone iia
HBIN037138	n,n-dimethyl-5-methoxy tryptamine
HBIN042657	rutaecarpine
HBIN015584	alpha-linolenic acid
HBIN016282	anthracene
HBIN020903	cis-oleic acid
HBIN020908	cis-palmitoleic acid
HBIN026067	eugenol
HBIN027450	geniposide
HBIN038627	paeonol
HBIN044158	sitosterol
HBIN012533	6-Methoxyl-2-acetyl-3-methyl-1,4-naphthoquinone-8-O-beta-D-glucopyranoside_qt

HBIN039072	pelargonidin
HBIN012122	6,8-Dihydroxy-7-methoxyxanthone
HBIN020619	cinaroside
HBIN020984	citric acid
HBIN025041	emodin
HBIN027030	gallic acid
HBIN037171	nobiletin
HBIN040403	polydatin
HBIN041726	quercitin
HBIN042111	resveratrol
HBIN042116	resveratrol- 3-O-β-D-glucoside
HBIN046831	trans-resveratrol
HBIN025099	enoxaparin
HBIN029056	heparin
HBIN029420	hirudin
HBIN026267	evodin
HBIN026385	farnesol
HBIN027729	ginsenoside rb1
HBIN027742	ginsenoside re
HBIN027745	ginsenoside rf
HBIN014693	adenosine
HBIN027456	genistein
HBIN032754	lauric acid
HBIN035353	methyl palmitate
HBIN044918	stigmasterol
HBIN046945	trichosanthin
HBIN046960	tricin
HBIN048051	vitamin e
HBIN049051	zoomaric acid
HBIN017893	berberine
HBIN021430	coptisine
HBIN024325	d-mannitol
HBIN024823	eckol
HBIN026440	FER
HBIN028430	groenlandicine
HBIN029438	histamine
HBIN029771	hydroxytyrosol
HBIN031501	jatrorrizine
HBIN037638	obaculactone
HBIN037644	obakulactone
HBIN038666	palmatine
HBIN046110	tetrandrine
HBIN015580	alpha-limonene
HBIN019111	butylated hydroxytoluene

HBIN023204	delta-elemene
HBIN023519	DFV
HBIN023977	dihydrorutaecarpine
HBIN024310	d-limonene
HBIN026262	evoden
HBIN026264	evodiamine
HBIN047613	ursolic acid
HBIN001564	15,16-dihydrotanshinone i
HBIN002684	1-ketoisocryptotanshinone
HBIN004404	2-(4-hydroxy-3-methoxyphenyl)-5-(3-hydroxypropyl)-7-methoxy-3-benzofurancarboxaldehyde
HBIN005860	2-isopropyl-8-methylphenanthrene-3,4-dione
HBIN010697	4-methylenemiltirone
HBIN015286	aloeemodin
HBIN015368	alpha-amyrin
HBIN016408	apigenin
HBIN017343	aucubin
HBIN019298	caffeic acid
HBIN021795	cryptotanshinone
HBIN022076	cyanidol
HBIN022650	danshensu
HBIN022658	dan-shexinkum a
HBIN022659	dan-shexinkum b
HBIN022661	dan-shexinkum d
HBIN023376	deoxyneocryptotanshinone
HBIN023910	dihydroisotanshinoneI
HBIN023990	dihydrotanshinlactone
HBIN025329	epidanshenspiroketallactone
HBIN030624	isocryptotanshi-none
HBIN031285	Isotanshinone II
HBIN032488	labiatenicacid
HBIN033803	luteolin
HBIN035537	miltionone I
HBIN036604	neocryptotanshinone ii
HBIN037940	oleanolic acid
HBIN038026	oleic acid
HBIN042418	Rosemary acid
HBIN042901	salvianolic acid b
HBIN045505	tanshinone i

Abbreviation	Chinese name	Academic Name	English name
HQ	HUANG QI	Radix Astragali	root of Membranous Milkvetch
DS	DAN SHEN	Radix Salviae liguliobae	root of Ligulilobe sage
GL	GUA LOU	Trichosanthis Fructus	Trichosanthes Kirilowii Maxim
HL	HUANG LIAN	Rhizoma Coptidis	rhizome of Chinese Goldthread

SQ	SAN QI	Radix Notoginseng	Sanchi
XS	XUAN SHEN	Radix Scrophulariae	Figwort Root
ZBM	ZHE BEI MU	Bulbus Fritillariae thunbergii	bulb of Thunberg Fritillary
HZ	HU ZHANG	Rhizoma Polygoni cuspidati	rhizome of Gaint Knotweed
SZ	SHUI ZHI	Gardenia jasminoides var.grandiflora	Bigflower Cape Jasmine

Appendix 2: The result of KEGG pathway enrichment analysis

ID	Description	Gene Ratio	BgRatio	pvalue	p.adjust	qvalue	geneID	Count
hsa04933	AGE-RAGE signaling pathway in diabetic complications	47/384	100/8115	2.96757E-36	8.93238E-34	3.43613E-34	AGT/AKT1/BAX/BCL2/CASP3/CCL2/CCND1/CDC42/CDK4/COL1A1/COL3A1/CXCL8/EDN1/F3/FN1/FOXO1/ICAM1/IL1A/IL1B/IL6/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP2/NFKB1/NOS3/NOX4/PRKCA/PRKCB/PRKCD/RAC1/RELA/SELE/SERPINE1/SMAD2/SMAD3/STAT1/STAT3/TGFB1/TGFB2/THBD/TNF/VCAM1/VEGFA	47
hsa05417	Lipid and atherosclerosis	65/384	215/8115	7.42068E-36	1.11681E-33	4.29618E-34	AKT1/APOB/BAD/BAX/BCL2/BCL2L1/CALM3/CASP1/CASP3/CASP7/CASP8/CASP9/CCL2/CD40/CD40LG/CDC42/CXCL1/CXCL2/CXCL3/CXCL8/CYCS/CYP1A1/EIF2S1/FOS/GSK3B/HSPA5/ICAM1/IKBKB/IL12A/IL12B/IL1B/IL6/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP1/MMP9/MYD88/NCF1/NFE2L2/NFKB1/NFKBIA/NOS3/OLR1/PPARG/PRKCA/RAC1/RELA/RXRA/SELE/SELP/SOD2/SRC/STAT3/TLR4/TNF/TNFRSF10A/TP53/TRAF2/VCAM1	65
hsa05167	Kaposi sarcoma-associated herpesvirus infection	59/384	194/8115	1.09196E-32	1.0956E-30	4.21457E-31	AKT1/BAK1/BAX/C3/CALM3/CASP3/CASP8/CASP9/CCND1/CCR1/CCR3/CCR4/CCR5/CCR8/CD86/CDK4/CDK6/CDKN1A/CREB1/CTNNB1/CXCL1/CXCL2/CXCL3/CXCL8/CYCS/E2F1/FADD/FGF2/FOS/GSK3B/HIF1A/HLA-A/HLA-B/HLA-C/HLA-G/ICAM1/IKBKB/IL6/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MTOR/MYC/NFKB1/NFKBIA/PTGS2/	59

							RAC1/RAF1/RB1/RELA/SRC/STAT1/STAT3/TP53/TRAF2/VEGFA	
hsa05212	Pancreatic cancer	38/384	76/8115	1.00128E-30	7.53461E-29	2.89843E-29	AKT1/BAD/BAK1/BAX/BCL2L1/BRCA2/CASP9/CCND1/CDC42/CDK4/CDK6/CDKN1A/CDKN2A/E2F1/EGF/EGFR/ERBB2/IKBKB/MAPK1/MAPK3/MAPK8/MAPK9/MTOR/NFKB1/RAC1/RAD51/RAF1/RB1/RELA/SMAD2/SMAD3/STAT1/STAT3/TGFA/TGFB1/TGFB2/TP53/VEGFA	38
hsa04062	Chemokine signaling pathway	54/384	192/8115	5.00619E-28	3.01373E-26	1.15933E-26	AKT1/BAD/CCL19/CCL2/CCL20/CCL21/CCL25/CCL27/CCL28/CCR1/CCR2/CCR3/CCR4/CCR5/CCR6/CCR7/CCR8/CDC42/CX3CL1/CXCL1/CXCL10/CXCL11/CXCL12/CXCL13/CXCL16/CXCL2/CXCL3/CXCL5/CXCL6/CXCL8/CXCL9/CXCR1/CXCR2/CXCR3/CXCR5/GNAI1/GNAI2/GSK3A/GSK3B/IKBKB/MAPK1/MAPK3/NCF1/NFKB1/NFKBIA/PPBP/PRKCB/PRKCD/RAC1/RAF1/RELA/SRC/STAT1/STAT3	54
hsa05163	Human cytomegalovirus infection	58/384	225/8115	7.09945E-28	3.56156E-26	1.37007E-26	AKT1/BAK1/BAX/CALM3/CASP3/CASP8/CASP9/CCL2/CCND1/CCR1/CCR3/CCR5/CDK4/CDK6/CDKN1A/CDKN2A/CREB1/CTNNB1/CX3CL1/CXCL12/CXCL8/CXCR2/CYCS/E2F1/EGFR/FADD/GNAI1/GNAI2/GSK3B/HLA-A/HLA-B/HLA-C/HLA-G/IKBKB/IL1B/IL6/MAPK1/MAPK14/MAPK3/MDM2/MTOR/MYC/NFKB1/NFKBIA/PRKCA/PRKCB/PTGER3/PTGS2/RAC1/RAF1/RB1/RELA/SRC/STAT3/TNF/TP53/TRAF2/VEGFA	58

hsa05418	Fluid shear stress and atherosclerosis	45/384	139/8115	2.58209E-26	1.1103E-24	4.27113E-25	ACTB/ACTG1/AKT1/BCL2/BMP4/CALM3/CAV1/CCL2/CTNNB1/EDN1/FOS/GSTM1/GSTM2/GSTP1/HMOX1/ICAM1/IFNG/IKBKB/IL1A/IL1B/JUN/MAP3K7/MAPK14/MAPK8/MAPK9/MMP2/MMP9/NCF1/NFE2L2/NFKB1/NOS3/NQO1/PECAM1/PRKAA1/PRKAA2/RAC1/RELA/SELE/SRC/THBD/TNF/TP53/TRPV4/VCAM1/VEGFA	45
hsa04936	Alcoholic liver disease	45/384	142/8115	7.20508E-26	2.71091E-24	1.04284E-24	ACACA/ADIPOR1/ADIPOR2/AKT1/ALDH2/C3/C3AR1/C5/C5AR1/CASP3/CASP8/CCND1/CTNNB1/CXCL1/CXCL2/CXCL3/CXCL8/FADD/FASN/FOXO1/GSK3B/IKBKB/IL12A/IL12B/IL1B/IL6/IRAK4/MAP3K7/MAPK14/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/NOX4/PPARA/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/RELA/SIRT1/SREBF1/TLR4/TNF	45
hsa05133	Pertussis	34/384	76/8115	1.58452E-25	5.29935E-24	2.03857E-24	C3/C4BPB/C5/CALM3/CASP1/CASP3/CASP7/CXCL5/CXCL6/CXCL8/FOS/GNAI1/GNAI2/IL10/IL12A/IL12B/IL1A/IL1B/IL6/IRAK4/IRF1/ITGB1/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NOS2/RELA/TLR4/TNF	34
hsa05145	Toxoplasmosis	40/384	112/8115	2.47955E-25	7.3912E-24	2.84327E-24	AKT1/ALOX5/BAD/BCL2/BCL2L1/CASP3/CASP8/CASP9/CCR5/CD40/CD40LG/CYCS/GNAI1/GNAI2/IFNG/IKBKB/IL10/IL12A/IL12B/IRAK4/ITGB1/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/NOS2/PPIF/RELA/STAT1/STAT3/TGFB1/TGFB2/TLR4/TNF/XIAP	40
hsa05162	Measles	44/384	139/8115	2.75718E-25	7.3912E-24	2.84327E-24	ADAR/AKT1/BAD/BAK1/BAX/BCL2/BCL2L1/CASP3/CASP8/CASP9/CCND1/CCND2/CCNE1/CD209/CD28/CDK2/CDK4/CDK6/CYCS/EIF2S1/FADD/FOS/GSK3B/IKBKB/IL12A/IL12B/IL1A/IL1B/IL2/IL2RA/IL6/IRAK4/JUN/MAP3K7/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/RELA/ST	44

							AT1/STAT3/TLR4/TP53	
hsa04061	Viral protein interaction with cytokine and cytokine receptor	38/384	100/8115	2.94666E-25	7.3912E-24	2.84327E-24	CCL19/CCL2/CCL20/CCL21/CCL25/CCL27/CCL28/CCR1/CCR2/CCR3/CCR4/CCR5/CCR6/CCR7/CCR8/CX3CL1/CXCL1/CXCL10/CXCL11/CXCL12/CXCL13/CXCL2/CXCL3/CXCL5/CXCL6/CXCL8/CXCL9/CXCR1/CXCR2/CXCR3/CXCR5/IL10/IL2/IL2RA/IL6/PPBP/TNF/TNFRSF10A	38
hsa05161	Hepatitis B	47/384	162/8115	4.19533E-25	9.71381E-24	3.73673E-24	AKT1/BAD/BAX/BCL2/BIRC5/CASP3/CASP8/CASP9/CCNA2/CCNE1/CDK2/CDKN1A/CREB1/CXCL8/CYCS/E2F1/FADD/FOS/IKBKB/IL6/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP9/MYC/MYD88/NFKB1/NFKBIA/PRKCA/PRKCB/RAF1/RB1/RELA/SMAD3/SRC/STAT1/STAT3/TGFB1/TGFB2/TLR4/TNF/TP53	47
hsa04668	TNF signaling pathway	39/384	112/8115	3.02711E-24	6.50828E-23	2.50362E-23	AKT1/CASP3/CASP7/CASP8/CCL2/CCL20/CFLAR/CREB1/CX3CL1/CXCL1/CXCL10/CXCL2/CXCL3/CXCL5/CXCL6/EDN1/FADD/FOS/ICAM1/IKBKB/IL1B/IL6/IRF1/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP9/NFKB1/NFKBIA/PTGS2/RELA/SELE/TNF/TRAF2/VCAM1	39
hsa04657	IL-17 signaling pathway	36/384	94/8115	4.10434E-24	8.23603E-23	3.16826E-23	CASP3/CASP8/CCL2/CCL20/CXCL1/CXCL10/CXCL2/CXCL3/CXCL5/CXCL6/CXCL8/FADD/FOS/GSK3B/IFNG/IKBKB/IL13/IL17B/IL1B/IL4/IL6/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP1/MMP9/NFKB1/NFKBIA/PTGS2/RELA/TNF/TRAF2	36

hsa05142	Chagas disease	37/384	102/8115	8.95821E-24	1.68526E-22	6.48291E-23	ACE/AKT1/C3/CASP8/CCL2/CFLAR/CXCL8/FADD/FOS/GNAI1/GNAI2/IFNG/IKBKB/IL10/IL12A/IL12B/IL1B/IL2/IL6/IRAK4/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/NOS2/RELA/SERPINE1/SMAD2/TGFB1/TGFB2/TLR4/TNF	37
hsa05215	Prostate cancer	35/384	97/8115	1.893E-22	3.35172E-21	1.28935E-21	AKT1/AR/BAD/BCL2/CASP9/CCND1/CCNE1/CDK2/CDKN1A/CREB1/CTNNB1/E2F1/EGF/EGFR/ERBB2/FOXO1/GSK3B/GSTP1/IGF1R/IKBKB/INS/MAPK1/MAPK3/MDM2/MMP9/MTOR/NFKB1/NFKBIA/PLAU/PTEN/RAF1/RB1/RELA/TGFA/TP53	35
hsa05207	Chemical carcinogenesis - receptor activation	49/384	212/8115	2.35847E-21	3.94389E-20	1.51715E-20	ADRB1/ADRB2/ADRB3/AHR/AKT1/AR/BAD/BCL2/BIRC5/CCND1/CHRNA7/CREB1/CYP1A1/CYP1A2/CYP1B1/CYP3A4/E2F1/EGF/EGFR/EPHX1/ESR1/ESR2/FGF2/FGF7/FOS/GNAI1/GNAI2/GSTM1/GSTM2/JUN/KPNA2/MAPK1/MAPK3/MTOR/MYC/NFKB1/NR1I3/PGR/PPARA/PRKCA/PRKCB/RAF1/RB1/RELA/RXRA/SRC/STAT3/VEGFA/XIAP	49
hsa04932	Non-alcoholic fatty liver disease	42/384	155/8115	3.06086E-21	4.84905E-20	1.86535E-20	ADIPOR1/ADIPOR2/AKT1/BAX/BCL2L11/CASP3/CASP7/CASP8/CDC42/CXCL8/CYCS/EIF2S1/FOS/GSK3A/GSK3B/IKBKB/IL1A/IL1B/IL6/INS/INSR/IRS1/JUN/MAPK14/MAPK8/MAPK9/NFKB1/NR1H3/PPARA/PPARG/PRKAA1/PRKAA2/PRKAG2/RAC1/RELA/RXRA/SDHA/SDHB/SREBF1/TGFB1/TNF/TRAF2	42
hsa04218	Cellular senescence	42/384	156/8115	4.01336E-21	6.04011E-20	2.32353E-20	AKT1/CALM3/CCNA2/CCNB1/CCND1/CCND2/CCNE1/CDK2/CDK4/CDK6/CDKN1A/CDKN2A/CHEK2/CXCL8/E2F1/FOXO1/HLA-A/HLA-B/HLA-C/HLA-G/IGFBP3/IL1A/IL6/MAPK1/MAPK14/MAPK3/MDM2/MTOR/MYC/NFKB1/PTEN/RAF1/RB1/RELA/SERPINE1/SIRT1/SMAD2/SMAD3/TGFB1/TGFB2/TP53/TRPV4	42

hsa05210	Colorectal cancer	32/384	86/8115	4.34319E-21	6.22524E-20	2.39474E-20	AKT1/BAD/BAK1/BAX/BCL2/BCL2L11/BIRC5/CASP3/CASP9/CCND1/CDKN1A/CTNNB1/CYCS/EGF/EGFR/FOS/GSK3B/JUN/MAPK1/MAPK3/MAPK8/MAPK9/MTOR/MYC/RAC1/RAF1/SMAD2/SMAD3/TGFA/TGFB1/TGFB2/TP53	32
hsa04210	Apoptosis	39/384	136/8115	9.31504E-21	1.27447E-19	4.90266E-20	ACTB/ACTG1/AKT1/BAD/BAK1/BAX/BCL2/BCL2A1/BCL2L1/BCL2L11/BIRC5/CASP3/CASP7/CASP8/CASP9/CFLAR/CTSD/CYCS/EIF2S1/FADD/FOS/IKBKB/JUN/MAPK1/MAPK3/MAPK8/MAPK9/MCL1/NFKB1/NFKBIA/NTRK1/PARP1/RAF1/RELA/TNF/TNFRSF10A/TP53/TRAF2/XIAP	39
hsa05169	Epstein-Barr virus infection	47/384	202/8115	1.22671E-20	1.60539E-19	6.17567E-20	AKT1/BAK1/BAX/BCL2/BCL2L11/CASP3/CASP8/CASP9/CCNA2/CCND1/CCND2/CCNE1/CD40/CDK2/CDK4/CDK6/CDKN1A/CXCL10/CYCS/E2F1/FADD/HLA-A/HLA-B/HLA-C/HLA-G/ICAM1/IKBKB/IL6/IRAK4/JUN/MAP3K7/MAPK14/MAPK8/MAPK9/MDM2/MYC/MYD88/NFKB1/NFKBIA/RAC1/RB1/RELA/STAT1/STAT3/TNF/TP53/TRAF2	47
hsa04068	FoxO signaling pathway	38/384	131/8115	1.92257E-20	2.41123E-19	9.27557E-20	AKT1/BCL2L11/CAT/CCNB1/CCND1/CCND2/CDK2/CDKN1A/EGF/EGFR/FOXO1/HOMER2/IGF1R/IKBKB/IL10/IL6/INS/INSR/IRS1/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MDM2/PRKAA1/PRKAA2/PRKAG2/PTEN/RAF1/S1PR1/SIRT1/SLC2A4/SMAD3/SOD2/STAT3/TGFB1/TGFB2	38
hsa04060	Cytokine-cytokine receptor interaction	56/384	295/8115	6.23396E-20	7.50569E-19	2.88731E-19	BMP2/BMP4/BMP6/CCL19/CCL2/CCL20/CCL21/CCL25/CCL27/CCL28/CCR1/CCR2/CCR3/CCR4/CCR5/CCR6/CCR7/CCR8/CD40/CD40LG/CX3CL1/CXCL1/CXCL10/CXCL11/CXCL12/CXCL13/CXCL16/CXCL2/CXCL3/CXCL5/CXCL6/CXCL8/CXCL9/CXCR1/CXCR2/CXCR3/CXCR5/EPO/GH1/IFNG/IL10/IL12A/IL12B/IL1	56

							3/IL17B/IL1A/IL1B/IL2/IL2RA/IL4/IL6/PPBP/TGFB1/TGFB2/TNF/TNFRSF10A	
hsa05164	Influenza A	42/384	171/8115	1.79501E-19	2.07806E-18	7.99395E-19	ACTB/ACTG1/ADAR/AKT1/BAK1/BAX/CASP1/CASP3/CASP8/CASP9/CCL2/CDK4/CDK6/CXCL10/CXCL8/CYCS/EIF2S1/FADD/ICAM1/IFNG/IKBKB/IL12A/IL12B/IL1A/IL1B/IL6/IRAK4/KPNA2/MAPK1/MAPK3/MYD88/NFKB1/NFKBIA/PRKCA/PRKCB/PRSS1/RAF1/RELA/STAT1/TLR4/TNF/TNFRSF10A	42
hsa04151	PI3K-Akt signaling pathway	61/384	354/8115	1.8984E-19	2.11636E-18	8.14127E-19	AKT1/BAD/BCL2/BCL2L1/BCL2L11/BRCA1/CASP9/CCND1/CCND2/CCNE1/CDK2/CDK4/CDK6/CDKN1A/CHRM1/CHRM2/COL1A1/COL2A1/CREB1/EGF/EGFR/EPO/ERBB2/FGF2/FGF7/FN1/GH1/GSK3B/IGF1R/IKBKB/IL2/IL2RA/IL4/IL6/INS/INSR/IRS1/ITGB1/MAPK1/MAPK3/MCL1/MDM2/MTOR/MYC/NFKB1/NOS3/NTRK1/PRKAA1/PRKAA2/PRKCA/PTEN/RAC1/RAF1/RELA/RXRA/SPP1/TGFA/TLR4/TP53/VEGFA/VWF	61
hsa05140	Leishmaniasis	29/384	77/8115	2.20285E-19	2.36806E-18	9.10951E-19	C3/FOS/IFNG/IL10/IL12A/IL12B/IL1A/IL1B/IL4/IRAK4/ITGB1/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MYD88/NCF1/NFKB1/NFKBIA/NOS2/PRKCB/PTGS2/RELA/STAT1/TGFB1/TGFB2/TLR4/TNF	29
hsa04620	Toll-like receptor signaling pathway	33/384	104/8115	3.18166E-19	3.30234E-18	1.27035E-18	AKT1/CASP8/CD40/CD80/CD86/CXCL10/CXCL11/CXCL8/CXCL9/FADD/FOS/IKBKB/IL12A/IL12B/IL1B/IL6/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/RAC1/RELA/SPP1/STAT1/TLR4/TNF	33

hsa05160	Hepatitis C	40/384	157/8115	3.30683E-19	3.31786E-18	1.27632E-18	AKT1/BAD/BAK1/BAX/CASP3/CASP8/CASP9/CCND1/CDK2/CDK4/CDK6/CDKN1A/CFLAR/CTNNB1/CXCL10/CYCS/E2F1/EGF/EGFR/EIF2S1/FADD/GSK3B/IFNG/IKBKB/MAPK1/MAPK3/MYC/NFKB1/NFKBIA/NR1H3/PPARA/RAF1/RB1/RELA/RXRA/STAT1/STAT3/TNF/TP53/TRAF2	40
hsa04066	HIF-1 signaling pathway	33/384	109/8115	1.62015E-18	1.57312E-17	6.05151E-18	AKT1/BCL2/CDKN1A/EDN1/EGF/EGFR/ENO1/ENO2/ENO3/EPO/ERBB2/HIF1A/HMOX1/IFNG/IGF1R/IL6/INS/INSR/MAPK1/MAPK3/MTOR/NFKB1/NOS2/NOS3/NPPA/PRKCA/PRKCB/RELA/SERPINE1/STAT3/TIMP1/TLR4/VEGFA	33
hsa05222	Small cell lung cancer	30/384	92/8115	5.94751E-18	5.59437E-17	2.15206E-17	AKT1/BAK1/BAX/BCL2/BCL2L1/CASP3/CASP9/CCND1/CCNE1/CDK2/CDK4/CDK6/CDKN1A/CYCS/E2F1/FN1/IKBKB/ITGB1/MYC/NFKB1/NFKBIA/NOS2/PTEN/PTGS2/RB1/RELA/RXRA/TP53/TRAF2/XIAP	30
hsa05219	Bladder cancer	21/384	41/8115	9.88872E-18	9.01971E-17	3.46973E-17	CCND1/CDK4/CDKN1A/CDKN2A/CXCL8/E2F1/EGF/EGFR/ERBB2/MAPK1/MAPK3/MDM2/MMP1/MMP2/MMP9/MYC/RAF1/RB1/SRC/TP53/VEGFA	21
hsa04064	NF-kappa B signaling pathway	31/384	104/8115	3.04971E-17	2.69989E-16	1.0386E-16	BCL2/BCL2A1/BCL2L1/CCL19/CCL21/CD40/CD40LG/CFLAR/CXCL1/CXCL12/CXCL2/CXCL3/CXCL8/ICAM1/IKBKB/IL1B/IRAK4/MAP3K7/MYD88/NFKB1/NFKBIA/PARP1/PLAU/PRKCB/PTGS2/RELA/TLR4/TNF/TRAF2/VCAM1/XIAP	31
hsa05225	Hepatocellular carcinoma	39/384	168/8115	3.14245E-17	2.70251E-16	1.03961E-16	ACTB/ACTG1/AKT1/BAD/BAK1/BAX/BCL2L1/CCND1/CDK4/CDK6/CDKN1A/CDKN2A/CTNNB1/E2F1/EGFR/GSK3B/GSTM1/GSTM2/GSTP1/HMOX1/IGF1R/MAPK1/MAPK3/MTOR/MYC/NFE2L2/NQO1/PRKCA/PRKCB/PTEN/RAF1/RB1/SMAD2/SMAD3/TGFA/TGFB1/TGFB2/TP53/WNT4	39

hsa01522	Endocrine resistance	30/384	98/8115	4.40598E-17	3.68389E-16	1.41713E-16	AKT1/BAD/BAX/BCL2/CCND1/CDK4/CDKN1A/CDKN2A/E2F1/EGFR/ERBB2/ESR1/ESR2/FOS/GPER1/IGF1R/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MDM2/MMP2/MMP9/MTOR/RAF1/RB1/SRC/TP53	30
hsa05152	Tuberculosis	40/384	180/8115	6.21822E-17	5.0586E-16	1.94596E-16	AKT1/BAD/BAX/BCL2/C3/CALM3/CASP3/CASP8/CASP9/CD209/CLEC7A/CREB1/CTSD/CYCS/FADD/IFNG/IL10/IL12A/IL12B/IL1A/IL1B/IL6/IRAK4/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NOS2/RAF1/RELA/SPHK1/SRC/STAT1/TGFB1/TGFB2/TLR4/TNF	40
hsa04931	Insulin resistance	31/384	108/8115	1.015E-16	8.03988E-16	3.0928E-16	AGT/AKT1/CREB1/FOXO1/GSK3B/IKBKB/IL6/INS/INSR/IRS1/MAPK8/MAPK9/MTOR/NFKB1/NFKBIA/NOS3/NR1H3/PPARA/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/PRKCB/PRKCD/PTEN/RELA/SLC2A2/SLC2A4/SREBF1/STAT3/TNF	31
hsa05205	Proteoglycans in cancer	42/384	205/8115	2.27303E-16	1.75431E-15	6.74854E-16	ACTB/ACTG1/AKT1/CASP3/CAV1/CCND1/CDC42/CDKN1A/COL1A1/CTNNB1/EGFR/ERBB2/ESR1/FGF2/FN1/HIF1A/IGF1R/IL12B/ITGB1/MAPK1/MAPK14/MAPK3/MDM2/MMP2/MMP9/MTOR/MYC/PLAU/PRKCA/PRKCB/RAC1/RAF1/SMAD2/SRC/STAT3/TGFB1/TGFB2/TLR4/TNF/TP53/VEGFA/WNT4	42
hsa04625	C-type lectin receptor signaling pathway	30/384	104/8115	2.7797E-16	2.09173E-15	8.0465E-16	AKT1/CALM3/CASP1/CASP8/CD209/CLEC7A/IKBKB/IL10/IL12A/IL12B/IL1B/IL2/IL6/IRF1/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MDM2/NFKB1/NFKBIA/PRKCD/PTGS2/RAF1/RELA/SRC/STAT1/TNF	30
hsa05170	Human immunodeficiency virus 1 infection	42/384	212/8115	8.09422E-16	5.94234E-15	2.28592E-15	AKT1/BAD/BAK1/BAX/BCL2/BCL2L1/CALM3/CASP3/CASP8/CASP9/CCNB1/CCR5/CYCS/FADD/FOS/GNAI1/GNAI2/HLA-A/HLA-B/HLA-C/HLA-G/IKBKB/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MTOR/MYD88/NFKB1/NFKBIA/PRKCA/PRKCB/RAC1/RA	42

							F1/RELA/TLR4/TNF/TRAF2	
hsa05166	Human T-cell leukemia virus 1 infection	43/384	222/8115	8.47783E-16	6.07578E-15	2.33725E-15	AKT1/BAX/BCL2L1/CCNA2/CCND1/CCND2/CCNE1/CD40/CDK2/CDK4/CDKN1A/CDKN2A/CHEK2/CREB1/E2F1/FOS/HLA-A/HLA-B/HLA-C/HLA-G/ICAM1/IKBKB/IL2/IL2RA/IL6/JUN/MAPK1/MAPK3/MAPK8/MAPK9/MYC/NFKB1/NFKBIA/PTEN/RB1/RELA/SMAD2/SMAD3/TGFB1/TGFB2/TNF/TP53/XIAP	43
hsa05220	Chronic myeloid leukemia	25/384	76/8115	2.96814E-15	2.04119E-14	7.85209E-15	AKT1/BAD/BAK1/BAX/BCL2L1/CCND1/CDK4/CDK6/CDKN1A/CDKN2A/E2F1/IKBKB/MAPK1/MAPK3/MDM2/MYC/NFKB1/NFKBIA/RAF1/RB1/RELA/SMAD3/TGFB1/TGFB2/TP53	25
hsa05134	Legionellosis	22/384	57/8115	2.98379E-15	2.04119E-14	7.85209E-15	ARF1/C3/CASP1/CASP3/CASP7/CASP8/CASP9/CXCL1/CXCL2/CXCL3/CXCL8/CYCS/IL12A/IL12B/IL1B/IL6/MYD88/NFKB1/NFKBIA/RELA/TLR4/TNF	22
hsa05135	Yersinia infection	33/384	137/8115	3.05733E-15	2.04502E-14	7.86682E-15	ACTB/ACTG1/AKT1/CASP1/CCL2/CDC42/CXCL8/FN1/FOS/GSK3B/IKBKB/IL10/IL1B/IL2/IL6/IRAK4/ITGB1/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/RAC1/RELA/SRC/TLR4/TNF/TRAF2	33
hsa05208	Chemical carcinogenesis - reactive oxygen species	42/384	223/8115	5.31572E-15	3.47833E-14	1.33805E-14	AHR/AKT1/ATP5F1B/BAD/CAT/CYP1A1/CYP1A2/CYP1B1/EGF/EGFR/EPHX1/FOS/GSTM1/GSTM2/HIF1A/HMOX1/IKBKB/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NCF1/NFE2L2/NFKB1/NFKBIA/NOX4/NQO1/PPIF/PRKCD/PRKD1/PTEN/RAC1/RAF1/RELA/SDHA/SDHB/SOD1/SOD2/SRC/VEGFA	42

hsa05223	Non-small cell lung cancer	24/384	72/8115	7.70069E-15	4.93172E-14	1.89715E-14	AKT1/BAD/BAK1/BAX/CASP9/CCND1/CDK4/CDK6/CDKN1A/CDKN2A/E2F1/EGF/EGFR/ERBB2/MAPK1/MAPK3/PRKCA/PRKCB/RAF1/RB1/RXRA/STAT3/TGFA/TP53	24
hsa05130	Pathogenic Escherichia coli infection	39/384	197/8115	9.57557E-15	6.00468E-14	2.3099E-14	ACTB/ACTG1/ARF1/BAK1/BAX/CASP1/CASP3/CASP7/CASP8/CASP9/CDC42/CXCL8/CYCS/F2/FADD/FOS/FYN/IKBKB/IL1B/IL6/IRAK4/ITGB1/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/RAC1/RELA/SRC/TLR4/TNF/TNFRSF10A/TRAF2	39
hsa01524	Platinum drug resistance	24/384	73/8115	1.09815E-14	6.61084E-14	2.54308E-14	AKT1/BAD/BAK1/BAX/BCL2/BCL2L1/BIRC5/BRCA1/CASP3/CASP8/CASP9/CDKN1A/CDKN2A/CYCS/ERBB2/FADD/GSTM1/GSTM2/GSTP1/MAPK1/MAPK3/MDM2/TP53/XIAP	24
hsa04115	p53 signaling pathway	24/384	73/8115	1.09815E-14	6.61084E-14	2.54308E-14	BAX/BCL2/BCL2L1/CASP3/CASP8/CASP9/CCNB1/CCND1/CCND2/CCNE1/CDK2/CDK4/CDK6/CDKN1A/CDKN2A/CHEK2/CYCS/IGFBP3/MDM2/PTEN/RRM2/SERPINE1/TNFRSF10A/TP53	24
hsa05214	Glioma	24/384	75/8115	2.18987E-14	1.29245E-13	4.97184E-14	AKT1/BAK1/BAX/CALM3/CCND1/CDK4/CDK6/CDKN1A/CDKN2A/E2F1/EGF/EGFR/IGF1R/MAPK1/MAPK3/MDM2/MTOR/PRKCA/PRKCB/PTEN/RAF1/RB1/TGFA/TP53	24
hsa04926	Relaxin signaling pathway	31/384	129/8115	2.35491E-14	1.36313E-13	5.24373E-14	ACTA2/AKT1/COL1A1/COL3A1/CREB1/EDN1/EGFR/FOS/GNAI1/GNAI2/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP1/MMP2/MMP9/NFKB1/NFKBIA/NOS1/NOS2/NOS3/PRKCA/RAF1/RELA/SMAD2/SRC/TGFB1/VEGFA	31
hsa05144	Malaria	20/384	50/8115	2.48511E-14	1.41135E-13	5.42923E-14	CCL2/CD40/CD40LG/CXCL8/ICAM1/IFNG/IL10/IL12A/IL1B/IL6/KLRK1/MYD88/PECAM1/SELE/SELP/TGFB1/TGFB2/TLR4/TNF/VCAM1	20

hsa05224	Breast cancer	33/384	147/8115	2.76278E-14	1.53999E-13	5.92408E-14	AKT1/BAK1/BAX/BRCA1/BRCA2/CCND1/CDK4/CDK6/CDKN1A/CTNNB1/E2F1/EGF/EGFR/ERBB2/ESR1/ESR2/FGF2/FGF7/FOS/GSK3B/IGF1R/JUN/MAPK1/MAPK3/MTOR/MYC/NCOA1/PGR/PTEN/RAF1/RB1/TP53/WNT4	33
hsa04920	Adipocytokine signaling pathway	23/384	69/8115	2.84613E-14	1.55761E-13	5.99185E-14	ADIPOR1/ADIPOR2/AKT1/IKBKB/IRS1/MAPK8/MAPK9/MTOR/NFKB1/NFKBIA/NPY/POMC/PPARA/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/RELA/RXRA/SLC2A4/STAT3/TNF/TRAF2	23
hsa04917	Prolactin signaling pathway	23/384	70/8115	4.0574E-14	2.18085E-13	8.38937E-14	AKT1/CCND1/CCND2/ESR1/ESR2/FOS/GSK3B/INS/IRF1/LHCGR/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NFKB1/RAF1/RELA/SLC2A2/SRC/STAT1/STAT3/TH	23
hsa01521	EGFR tyrosine kinase inhibitor resistance	24/384	79/8115	8.09864E-14	4.27665E-13	1.64515E-13	AKT1/BAD/BAX/BCL2/BCL2L1/BCL2L11/EGF/EGFR/ERBB2/FGF2/GSK3B/IGF1R/IL6/MAPK1/MAPK3/MTOR/PRKCA/PRKCB/PTEN/RAF1/SRC/STAT3/TGFA/VEGFA	24
hsa05165	Human papillomavirus infection	50/384	331/8115	1.12125E-13	5.81889E-13	2.23843E-13	AKT1/BAD/BAK1/BAX/CASP3/CASP8/CCNA2/CCND1/CCND2/CCNE1/CDC42/CDK2/CDK4/CDK6/CDKN1A/COL1A1/COL2A1/CREB1/CTNNB1/E2F1/EGF/EGFR/FADD/FN1/FOXO1/GSK3B/HLA-A/HLA-B/HLA-C/HLA-G/IKBKB/IRF1/ITGB1/MAPK1/MAPK3/MDM2/MTOR/NFKB1/PTEN/PTGS2/RAF1/RB1/RELA/SPP1/STAT1/TNF/TP53/VEGFA/VWF/WNT4	50
hsa05415	Diabetic cardiomyopathy	38/384	203/8115	1.41012E-13	7.19402E-13	2.76741E-13	ACE/AGT/AKT1/ATP5F1B/COL1A1/COL3A1/CTSD/G6PD/GSK3B/INS/INSR/IRS1/MAPK14/MAPK8/MAPK9/MMP2/MMP9/MTOR/NCF1/NFKB1/NOS3/PARP1/PPARA/PPIF/PRKCA/PRKCB/PRKCD/PTEN/RAC1/RELA/REN/SDHA/SDHB/SLC2A4/SMAD2/SMAD3/TGFB1/TGFB2	38

hsa05203	Viral carcinogenesis	38/384	204/8115	1.65956E-13	8.32547E-13	3.20266E-13	BAD/BAK1/BAX/C3/CASP3/CASP8/CCNA2/CCND1/CCND2/CCNE1/CCR3/CCR4/CCR5/CCR8/CDC42/CDK2/CDK4/CDK6/CDKN1A/CDKN2A/CREB1/HLA-A/HLA-B/HLA-C/HLA-G/JUN/MAPK1/MAPK3/MDM2/NFKB1/NFKBIA/RAC1/RB1/RELA/SRC/STAT3/TP53/TRAF2	38
hsa05171	Coronavirus disease - COVID-19	40/384	232/8115	5.18972E-13	2.56083E-12	9.85107E-13	ACE/ADAR/C3/C3AR1/C5/C5AR1/CASP1/CCL2/CXCL10/CXCL8/EGFR/F2/FOS/IKBKB/IL12A/IL12B/IL1B/IL2/IL6/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP1/MYD88/NFKB1/NFKBIA/PRKCA/PRKCB/RELA/SELP/STAT1/STAT3/TLR4/TNF/VWF	40
hsa05323	Rheumatoid arthritis	25/384	93/8115	5.41582E-13	2.62929E-12	1.01144E-12	CCL2/CCL20/CD28/CD80/CD86/CXCL1/CXCL12/CXCL2/CXCL3/CXCL5/CXCL6/CXCL8/FOS/ICAM1/IFNG/IL1A/IL1B/IL6/JUN/MMP1/TGFB1/TGFB2/TLR4/TNF/VEGFA	25
hsa05321	Inflammatory bowel disease	21/384	65/8115	7.80274E-13	3.72797E-12	1.43409E-12	IFNG/IL10/IL12A/IL12B/IL13/IL1A/IL1B/IL2/IL4/IL6/JUN/NFKB1/RELA/SMAD2/SMAD3/STAT1/STAT3/TGFB1/TGFB2/TLR4/TNF	21
hsa05218	Melanoma	22/384	72/8115	7.94323E-13	3.7358E-12	1.4371E-12	AKT1/BAD/BAK1/BAX/CCND1/CDK4/CDK6/CDKN1A/CDKN2A/E2F1/EGF/EGFR/FGF2/FGF7/IGF1R/MAPK1/MAPK3/MDM2/PTEN/RAF1/RB1/TP53	22
hsa04660	T cell receptor signaling pathway	26/384	104/8115	1.1676E-12	5.40689E-12	2.07994E-12	AKT1/CD28/CD40LG/CDC42/CDK4/FOS/FYN/GSK3B/IFNG/IKBKB/IL10/IL2/IL4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NFKB1/NFKBIA/RAF1/RASGRP1/RELA/TNF	26
hsa05416	Viral myocarditis	20/384	60/8115	1.42665E-12	6.5064E-12	2.5029E-12	ACTB/ACTG1/CASP3/CASP8/CASP9/CAV1/CCND1/CD28/CD40/CD40LG/CD80/CD86/CYCS/FYN/HLA-A/HLA-B/HLA-C/HLA-G/ICAM1/RAC1	20

hsa04510	Focal adhesion	36/384	201/8115	2.54316E-12	1.14252E-11	4.39509E-12	ACTB/ACTG1/AKT1/BAD/BCL2/CAV1/CCND1/CCND2/CDC42/COL1A1/COL2A1/CTNNB1/EGF/EGFR/ERBB2/FN1/FYN/GSK3B/IGF1R/ITGB1/JUN/MAPK1/MAPK3/MAPK8/MAPK9/MYLK/PRKCA/PRKCB/PTEN/RAC1/RAF1/SPP1/SRC/VEGFA/VWF/XIAP	36
hsa04215	Apoptosis - multiple species	15/384	32/8115	2.76383E-12	1.2234E-11	4.70621E-12	BAK1/BAX/BCL2/BCL2L1/BCL2L11/BIRC5/CASP3/CASP7/CASP8/CASP9/CYCS/FADD/MAPK8/MAPK9/XIAP	15
hsa04659	Th17 cell differentiation	26/384	108/8115	3.00344E-12	1.3102E-11	5.04011E-12	AHR/FOS/HIF1A/IFNG/IKBKB/IL1B/IL2/IL2RA/IL4/IL6/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MTOR/NFKB1/NFKBIA/RELA/RXRA/SMAD2/SMAD3/STAT1/STAT3/TGFB1	26
hsa05330	Allograft rejection	16/384	38/8115	3.97438E-12	1.70899E-11	6.57417E-12	CD28/CD40/CD40LG/CD80/CD86/HLA-A/HLA-B/HLA-C/HLA-G/IFNG/IL10/IL12A/IL12B/IL2/IL4/TNF	16
hsa04071	Sphingolipid signaling pathway	27/384	119/8115	5.13518E-12	2.17703E-11	8.37465E-12	AKT1/BAX/BCL2/CTSD/FYN/GNAI1/GNAI2/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NFKB1/NOS3/PRKCA/PRKCB/PTEN/RAC1/RAF1/RELA/S1PR1/S1PR2/S1PR3/SPHK1/TNF/TP53/TRAF2	27
hsa04919	Thyroid hormone signaling pathway	27/384	121/8115	7.81524E-12	3.26721E-11	1.25684E-11	ACTB/ACTG1/AKT1/BAD/BMP4/CASP9/CCND1/CTNNB1/ESR1/FOXO1/GSK3B/HIF1A/MAPK1/MAPK3/MDM2/MTOR/MYC/NCOA1/PRKCA/PRKCB/RAF1/RXRA/SRC/STAT1/THRB/TP53/WNT4	27
hsa05226	Gastric cancer	30/384	149/8115	8.58366E-12	3.53929E-11	1.3615E-11	ABCB1/AKT1/BAK1/BAX/BCL2/CCND1/CCNE1/CDK2/CDKN1A/CTNNB1/E2F1/EGF/EGFR/ERBB2/FGF2/FGF7/GSK3B/MAPK1/MAPK3/MTOR/MYC/RAF1/RB1/RXRA/SMAD2/SMAD3/TGFB1/TGFB2/TP53/WNT4	30
hsa05235	PD-L1 expression and PD-1 checkpoint pathway in	23/384	89/8115	1.15644E-11	4.70389E-11	1.80951E-11	AKT1/CD28/EGF/EGFR/FOS/HIF1A/IFNG/IKBKB/JUN/MAPK1/MAPK14/MAPK3/MTOR/MYD88/NFKB1/NFKBIA/PTEN/RAF1/RASGRP1/RELA/STAT1/STAT3/TLR4	23

	cancer							
hsa05131	Shigellosis	39/384	247/8115	1.7726E-11	7.11402E-11	2.73664E-11	ACTB/ACTG1/AKT1/ARF1/BAX/BCL2/BCL2L1/C3/CASP1/CDC42/CXCL8/CYCS/EGFR/FOXO1/GSK3A/GSK3B/IKBKB/IL1B/ITGB1/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MDM2/MTOR/MYD88/NFKB1/NFKBIA/PRKCD/RAC1/RELA/SRC/TLR4/TNF/TP53/TRAF2	39
hsa05132	Salmonella infection	39/384	249/8115	2.28697E-11	9.05761E-11	3.48431E-11	ACTB/ACTG1/AKT1/ARF1/BAK1/BAX/BCL2/CASP1/CASP3/CASP7/CASP8/CDC42/CTNNB1/CXCL8/CYCS/FADD/FOS/IKBKB/IL1B/IL6/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYC/MYD88/NFKB1/NFKBIA/RAC1/RAF1/RELA/TLR4/TNF/TNFRSF10A/TRAF2	39
hsa05146	Amoebiasis	24/384	102/8115	3.56625E-11	1.39408E-10	5.36278E-11	CASP3/COL1A1/COL3A1/CXCL1/CXCL2/CXCL3/CXCL8/FN1/HSPB1/IFNG/IL10/IL12A/IL12B/IL1B/IL6/NFKB1/NOS2/PRKCA/PRKCB/RELA/TGFB1/TGFB2/TLR4/TNF	24
hsa04024	cAMP signaling pathway	36/384	221/8115	4.4695E-11	1.72477E-10	6.63488E-11	ADRB1/ADRB2/AKT1/BAD/CALM3/CHRM1/CHRM2/CREB1/DRD2/EDN1/FOS/GCG/GHRL/GNAI1/GNAI2/HCAR2/HCAR3/JUN/LHCGR/MAPK1/MAPK3/MAPK8/MAPK9/NFKB1/NFKBIA/NPPA/NPY/OXT/POMC/PPARA/PTGER3/RAC1/RAF1/RELA/SST/SUCNR1	36
hsa05213	Endometrial cancer	18/384	58/8115	7.52201E-11	2.86598E-10	1.10249E-10	AKT1/BAD/BAK1/BAX/CASP9/CCND1/CDKN1A/CTNNB1/EGF/EGFR/ERBB2/GSK3B/MAPK1/MAPK3/MYC/PTEN/RAF1/TP53	18
hsa04010	MAPK signaling pathway	42/384	294/8115	7.81907E-11	2.94193E-10	1.13171E-10	AKT1/CASP3/CDC42/EGF/EGFR/ERBB2/FGF2/FGF7/FOS/HSPB1/IGF1R/IKBKB/IL1A/IL1B/INS/INSR/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYC/MYD88/NFKB1/NTRK1/PPM1A/PRKCA/PRKCB/RAC1/RAF1/RASGRP1/R	42

							ELA/TGFA/TGFB1/TGFB2/TNF/TP53/TRAF2/VEGFA	
hsa04211	Longevity regulating pathway	22/384	89/8115	8.4827E-11	3.15221E-10	1.2126E-10	ADIPOR1/ADIPOR2/AKT1/BAX/CAT/CREB1/FOXO1/IGF1R/INS/INSR/IRS1/MTOR/NFKB1/PPARG/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/RELA/SIRT1/SOD2/TP53	22
hsa04621	NOD-like receptor signaling pathway	32/384	184/8115	9.92579E-11	3.64349E-10	1.40159E-10	BCL2/BCL2L1/CASP1/CASP8/CCL2/CXCL1/CXCL2/CXCL3/CXCL8/FADD/IKBKB/IL1B/IL6/IRAK4/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MYD88/NFKB1/NFKBIA/PRKCD/RELA/STAT1/TLR4/TNF/TRAF2/TRPV2/XIAP	32
hsa04380	Osteoclast differentiation	26/384	128/8115	1.80221E-10	6.53572E-10	2.51418E-10	AKT1/CREB1/FOS/FYN/IFNG/IKBKB/IL1A/IL1B/JUN/MAP3K7/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NCF1/NFKB1/NFKBIA/PPARG/RAC1/RELA/STAT1/TGFB1/TGFB2/TNF/TRAF2	26
hsa05120	Epithelial cell signaling in Helicobacter pylori infection	19/384	70/8115	2.96199E-10	1.06138E-09	4.08294E-10	CASP3/CDC42/CXCL1/CXCL2/CXCL3/CXCL8/CXCR1/CXCR2/EGFR/IKBKB/JUN/MAPK14/MAPK8/MAPK9/NFKB1/NFKBIA/RAC1/RELA/SRC	19
hsa04940	Type I diabetes mellitus	15/384	43/8115	4.5838E-10	1.6232E-09	6.24418E-10	CD28/CD80/CD86/HLA-A/HLA-B/HLA-C/HLA-G/IFNG/IL12A/IL12B/IL1A/IL1B/IL2/INS/TNF	15
hsa05143	African trypanosomiasis	14/384	37/8115	5.04029E-10	1.7641E-09	6.7862E-10	ICAM1/IFNG/IL10/IL12A/IL12B/IL1B/IL6/MYD88/NPPA/PRKCA/PRKCB/SELE/TNF/VCAM1	14
hsa04080	Neuroactive ligand-receptor interaction	45/384	353/8115	7.32901E-10	2.53567E-09	9.75428E-10	ADORA2B/ADRA2A/ADRA2C/ADRB1/ADRB2/ADRB3/AGT/C3/C3AR1/C5/C5AR1/CALCA/CHRM1/CHRM2/CHRNA7/DRD2/EDN1/F2/FPR1/GAL/GCG/GH1/GHRL/GRM8/HCRT/LHCGR/MTNR1A/MTNR1B/NPB/NPY/OPRM1/OXT/P2RY1/P2RY4/PDYN/POMC/PRSS1/PTGER3/PYY/S1PR1/S1PR2/S1PR3/SST/THRB/TRP	45

V1

hsa04370	VEGF signaling pathway	17/384	59/8115	9.39319E-10	3.2129E-09	1.23595E-09	AKT1/BAD/CASP9/CDC42/HSPB1/MAPK1/MAPK14/MAPK3/NOS3/PRKCA/PRKCB/PTGS2/RAC1/RAF1/SPHK1/SRC/VEGFA	17
hsa04915	Estrogen signaling pathway	26/384	138/8115	1.01624E-09	3.43693E-09	1.32213E-09	AKT1/BCL2/CALM3/CREB1/CTSD/EGFR/ESR1/ESR2/FOS/GNAI1/GNAI2/GPER1/JUN/MAPK1/MAPK3/MMP2/MMP9/NCOA1/NOS3/OPRM1/PGR/POMC/PRKCD/RAF1/SRC/TGFA	26
hsa04722	Neurotrophin signaling pathway	24/384	119/8115	1.0768E-09	3.60129E-09	1.38535E-09	AKT1/BAD/BAX/BCL2/CALM3/CDC42/GSK3B/IKBKB/IRAK4/IRS1/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NFKB1/NFKBIA/NTRK1/PRKCD/RAC1/RAF1/RELA/TP53	24
hsa04152	AMPK signaling pathway	24/384	120/8115	1.28832E-09	4.26138E-09	1.63928E-09	ACACA/ADIPOR1/ADIPOR2/AKT1/CCNA2/CCND1/CREB1/FASN/FOXO1/HMGCR/IGF1R/INS/INSR/IRS1/MAP3K7/MTOR/PPARG/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/SIRT1/SLC2A4/SREBF1	24
hsa04012	ErbB signaling pathway	19/384	85/8115	1.02982E-08	3.36932E-08	1.29612E-08	AKT1/BAD/CDKN1A/EGF/EGFR/ERBB2/GSK3B/JUN/MAPK1/MAPK3/MAPK8/MAPK9/MTOR/MYC/PRKCA/PRKCB/RAF1/SRC/TGFA	19
hsa04910	Insulin signaling pathway	24/384	137/8115	2.03788E-08	6.59572E-08	2.53726E-08	ACACA/AKT1/BAD/CALM3/FASN/FOXO1/GSK3B/IKBKB/INPPL1/INS/INSR/IRS1/MAPK1/MAPK3/MAPK8/MAPK9/MTOR/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/RAF1/SLC2A4/SREBF1	24
hsa04935	Growth hormone synthesis, secretion and action	22/384	119/8115	2.91926E-08	9.34784E-08	3.59595E-08	AKT1/CREB1/FOS/GH1/GHRL/GNAI1/GNAI2/GSK3B/IGFBP3/IRS1/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MTOR/PRKCA/PRKCB/RAF1/SST/STAT1/STAT3	22

hsa05332	Graft-versus-host disease	13/384	42/8115	3.55744E-08	1.12715E-07	4.33594E-08	CD28/CD80/CD86/HLA-A/HLA-B/HLA-C/HLA-G/IFNG/IL1A/IL1B/IL2/IL6/TNF	13
hsa04658	Th1 and Th2 cell differentiation	19/384	92/8115	4.07692E-08	1.27828E-07	4.91734E-08	FOS/IFNG/IKBKB/IL12A/IL12B/IL13/IL2/IL2RA/IL4/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NFKB1/NFKBIA/RELA/STAT1	19
hsa04015	Rap1 signaling pathway	30/384	210/8115	4.60214E-08	1.42809E-07	5.4936E-08	ACTB/ACTG1/ADORA2B/AKT1/CALM3/CDC42/CTNNB1/DRD2/EGF/EGFR/FGF2/FGF7/FPR1/GNAI1/GNAI2/IGF1R/INS/INSR/ITGB1/MAPK1/MAPK14/MAPK3/P2RY1/PRKCA/PRKCB/PRKD1/RAC1/RAF1/SRC/VEGFA	30
hsa05206	MicroRNAs in cancer	38/384	310/8115	4.97902E-08	1.52927E-07	5.88284E-08	ABCB1/BAK1/BCL2/BCL2L11/BRCA1/CASP3/CCND1/CCND2/CCNE1/CDK6/CDKN1A/CDKN2A/CYP1B1/E2F1/EGFR/ERBB2/HMOX1/IKBKB/IRS1/MAPK1/MAPK3/MCL1/MDM2/MMP9/MTOR/MYC/NFKB1/PLAU/PRKCA/PRKCB/PTEN/PTGS2/RAF1/SIRT1/STAT3/TGFB2/TP53/VEGFA	38
hsa05221	Acute myeloid leukemia	16/384	67/8115	5.66833E-08	1.7234E-07	6.62963E-08	AKT1/BAD/BCL2A1/CCNA2/CCND1/IKBKB/MAPK1/MAPK3/MPO/MTOR/MYC/NFKB1/PPARD/RAF1/RELA/STAT3	16
hsa04613	Neutrophil extracellular trap formation	28/384	190/8115	6.68954E-08	2.00187E-07	7.70085E-08	ACTB/ACTG1/AKT1/C3/C5/C5AR1/CASP1/CLEC7A/FPR1/HMGB1/MAP3K7/MAPK1/MAPK14/MAPK3/MPO/MTOR/NCF1/NFKB1/PPIF/PRKCA/PRKCB/RAC1/RAF1/RELA/SELP/SRC/TLR4/VWF	28
hsa05216	Thyroid cancer	12/384	37/8115	6.71724E-08	2.00187E-07	7.70085E-08	BAK1/BAX/CCND1/CDKN1A/CTNNB1/MAPK1/MAPK3/MYC/NTRK1/PPARG/RXRA/TP53	12
hsa04110	Cell cycle	22/384	126/8115	8.53933E-08	2.51994E-07	9.69377E-08	CCNA2/CCNB1/CCND1/CCND2/CCNE1/CDK2/CDK4/CDK6/CDK7/CDKN1A/CDKN2A/CHEK2/E2F1/GSK3B/MDM2/MYC/RB1/SMAD2/SMAD3/TGFB1/TGFB2/TP53	22

hsa05010	Alzheimer disease	43/384	384/8115	8.96936E-08	2.62114E-07	1.00831E-07	AKT1/APP/ATP5F1B/BAD/CALM3/CASP3/CASP7/CASP8/CASP9/CHRM1/CHRNA7/CTNNB1/CYCS/EIF2S1/FADD/GSK3B/IKBKB/IL1A/IL1B/IL6/INS/INSR/IRS1/LPL/MAPK1/MAPK3/MAPK8/MAPK9/MME/MTOR/NFKB1/NOS1/NOS2/NOX4/PPIF/PTGS2/RAF1/RELA/SDHA/SDHB/TNF/TRAF2/WNT4	43
hsa04622	RIG-I-like receptor signaling pathway	16/384	70/8115	1.09768E-07	3.17695E-07	1.22212E-07	CASP8/CXCL10/CXCL8/FADD/IKBKB/IL12A/IL12B/MAP3K7/MAPK14/MAPK8/MAPK9/NFKB1/NFKBIA/RELA/TNF/TRAF2	16
hsa04930	Type II diabetes mellitus	13/384	46/8115	1.1932E-07	3.42051E-07	1.31581E-07	IKBKB/INS/INSR/IRS1/MAPK1/MAPK3/MAPK8/MAPK9/MTOR/PRKCD/SLC2A2/SLC2A4/TNF	13
hsa04371	Apelin signaling pathway	23/384	139/8115	1.20966E-07	3.43497E-07	1.32137E-07	ACTA2/AKT1/CALM3/CCND1/GNAI1/GNAI2/MAPK1/MAPK3/MTOR/MYLK/NOS1/NOS2/NOS3/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/RAF1/SERPINE1/SMAD2/SMAD3/SPHK1/SPP1	23
hsa04630	JAK-STAT signaling pathway	25/384	162/8115	1.38865E-07	3.9064E-07	1.50272E-07	AKT1/BCL2/BCL2L1/CCND1/CCND2/CDKN1A/EGF/EGFR/EPO/GH1/IFNG/IL10/IL12A/IL12B/IL13/IL2/IL2RA/IL4/IL6/MCL1/MTOR/MYC/RAF1/STAT1/STAT3	25
hsa05022	Pathways of neurodegeneration - multiple diseases	49/384	476/8115	1.52277E-07	4.24402E-07	1.6326E-07	APP/ATP5F1B/BAD/BAK1/BAX/BCL2/BCL2L1/CALM3/CASP3/CASP7/CASP8/CASP9/CAT/CHRM1/CHRNA7/CTNNB1/CYCS/EIF2S1/FADD/GSK3B/HSPA5/IL1A/IL1B/IL6/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MTOR/NFKB1/NOS1/NOS2/NOX4/PDYN/PPIF/PRKCA/PRKCB/PTGS2/RAC1/RAF1/RELA/SDHA/SDHB/SLC6A3/SOD1/TNF/TRAF2/WNT4	49
hsa04140	Autophagy - animal	23/384	141/8115	1.58452E-07	4.3756E-07	1.68322E-07	AKT1/BAD/BCL2/BCL2L1/CFLAR/CTSD/EIF2S1/HIF1A/HMGB1/IGF1R/INS/IRS1/MAP3K7/MAPK1/MAPK3/MAPK8/MAPK9/MTOR/PRKAA1/PRKAA2/PRKCD/PTEN/RAF1	23

hsa04921	Oxytocin signaling pathway	24/384	154/8115	2.05796E-07	5.63131E-07	2.16627E-07	ACTB/ACTG1/CALM3/CCND1/CDKN1A/EGFR/FOS/GNAI1/GNAI2/JUN/MAPK1/MAPK3/MYLK/NOS3/NPPA/OXT/PRKAA1/PRKAA2/PRKAG2/PRKCA/PRKCB/PTGS2/RAF1/SRC	24
hsa04923	Regulation of lipolysis in adipocytes	14/384	56/8115	2.09957E-07	5.69343E-07	2.19016E-07	ADRB1/ADRB2/ADRB3/AKT1/GNAI1/GNAI2/INS/INSR/IRS1/NPPA/NPY/PTGER3/PTGS1/PTGS2	14
hsa04672	Intestinal immune network for IgA production	13/384	49/8115	2.7043E-07	7.2035E-07	2.77106E-07	CCL25/CCL28/CD28/CD40/CD40LG/CD80/CD86/CXCL12/IL10/IL2/IL4/IL6/TGFB1	13
hsa05030	Cocaine addiction	13/384	49/8115	2.7043E-07	7.2035E-07	2.77106E-07	CREB1/DDC/DRD2/GNAI1/GNAI2/JUN/MAOA/MAOB/NFKB1/PDYN/RELA/SLC6A3/TH	13
hsa04611	Platelet activation	21/384	124/8115	2.88907E-07	7.62817E-07	2.93442E-07	ACTB/ACTG1/AKT1/COL1A1/COL3A1/F2/FYN/GNAI1/GNAI2/ITGB1/MAPK1/MAPK14/MAPK3/MYLK/NOS3/P2RY1/P2RY12/PTGS1/RASGRP1/SRC/VWF	21
hsa04213	Longevity regulating pathway - multiple species	14/384	62/8115	8.10913E-07	2.12248E-06	8.16479E-07	AKT1/CAT/FOXO1/IGF1R/INS/INSR/IRS1/MTOR/PRKAA1/PRKAA2/PRKAG2/SIRT1/SOD1/SOD2	14
hsa04520	Adherens junction	15/384	71/8115	8.18565E-07	2.12403E-06	8.17079E-07	ACTB/ACTG1/CDC42/CTNNB1/EGFR/ERBB2/FYN/IGF1R/INSR/MAP3K7/MAPK1/MAPK3/RAC1/SMAD3/SRC	15
hsa05202	Transcriptional misregulation in cancer	26/384	193/8115	1.18816E-06	3.05671E-06	1.17586E-06	BAK1/BAX/BCL2A1/BCL2L1/CCNA2/CCND2/CD40/CD86/CDKN1A/CXCL8/FOXO1/IGF1R/IGFBP3/IL6/MDM2/MMP9/MPO/MYC/NFKB1/NTRK1/PLAU/PPARG/RELA/RUNX2/RXRA/TP53	26
hsa04664	Fc epsilon RI signaling pathway	14/384	68/8115	2.65016E-06	6.76015E-06	2.60051E-06	AKT1/ALOX5/FYN/IL13/IL4/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/PRKCA/RAC1/RAF1/TNF	14
hsa05231	Choline metabolism in cancer	17/384	98/8115	2.82334E-06	7.14138E-06	2.74717E-06	AKT1/EGF/EGFR/FOS/HIF1A/JUN/MAPK1/MAPK3/MAPK8/MAPK9/MTOR/PCYT1A/PRKCA/PRKCB/RAC1/RAF1/SLC5A7	17

hsa05211	Renal cell carcinoma	14/384	69/8115	3.1839E-06	7.98629E-06	3.07219E-06	AKT1/BAD/CDC42/CDKN1A/HIF1A/JUN/MAPK1/MAPK3/RAC1/RAF1/TGFA/TGFB1/TGFB2/VEGFA	14
hsa05230	Central carbon metabolism in cancer	14/384	70/8115	3.8113E-06	9.48101E-06	3.64718E-06	AKT1/EGFR/ERBB2/G6PD/HIF1A/MAPK1/MAPK3/MTOR/MYC/NTRK1/PTEN/RAF1/SLC2A2/TP53	14
hsa05320	Autoimmune thyroid disease	12/384	53/8115	4.85812E-06	1.1986E-05	4.61081E-06	CD28/CD40/CD40LG/CD80/CD86/HLA-A/HLA-B/HLA-C/HLA-G/IL10/IL2/IL4	12
hsa04960	Aldosterone-regulated sodium reabsorption	10/384	37/8115	5.53121E-06	1.34319E-05	5.16703E-06	INS/INSR/IRS1/MAPK1/MAPK3/PRKCA/PRKCB/SCNN1A/SCNN1B/SCNN1G	10
hsa04662	B cell receptor signaling pathway	15/384	82/8115	5.53342E-06	1.34319E-05	5.16703E-06	AKT1/CD79A/FOS/GSK3B/IKBKB/INPPL1/JUN/MAPK1/MAPK3/NFKB1/NFKBIA/PRKCB/RAC1/RAF1/RELA	15
hsa04670	Leukocyte transendothelial migration	18/384	114/8115	5.80309E-06	1.39739E-05	5.3755E-06	ACTB/ACTG1/CDC42/CTNNB1/CXCL12/GNAI1/GNAI2/ICAM1/ITGB1/MAPK14/MMP2/MMP9/NCF1/PECAM1/PRKCA/PRKCB/RAC1/VCAM1	18
hsa04022	cGMP-PKG signaling pathway	22/384	167/8115	1.15109E-05	2.74982E-05	1.05781E-05	ADRA2A/ADRA2C/ADRB1/ADRB2/ADRB3/AKT1/BAD/CALM3/CREB1/GNAI1/GNAI2/INS/INSR/IRS1/MAPK1/MAPK3/MYLK/NOS3/NPPA/PDE5A/PPIF/RAF1	22
hsa04934	Cushing syndrome	21/384	155/8115	1.17625E-05	2.78781E-05	1.07242E-05	AGT/AHR/CCND1/CCNE1/CDK2/CDK4/CDK6/CDKN1A/CDKN2A/CREB1/CTNNB1/E2F1/EGFR/GNAI1/GNAI2/GSK3B/MAPK1/MAPK3/POMC/RB1/WNT4	21
hsa04014	Ras signaling pathway	27/384	232/8115	1.24392E-05	2.92515E-05	1.12525E-05	AKT1/BAD/BCL2L1/CALM3/CDC42/EGF/EGFR/FGF2/FGF7/IGF1R/IKBKB/INS/INSR/MAPK1/MAPK3/MAPK8/MAPK9/NFKB1/NTRK1/PRKCA/PRKCB/RAC1/RAF1/RASGRP1/RELA/TGFA/VEGFA	27
hsa04728	Dopaminergic synapse	19/384	132/8115	1.27948E-05	2.98545E-05	1.14845E-05	AKT1/CALM3/CREB1/DDC/DRD2/FOS/GNAI1/GNAI2/GSK3A/GSK3B/MAOA/MAOB/MAPK14/MAPK8/MAPK9/PRKCA/PRKCB/SLC6A3/TH	19
hsa050	Amphetamine addiction	13/384	69/8115	1.67906E-05	3.88767E-05	1.49552E-05	CALM3/CREB1/DDC/FOS/JUN/MAOA/MAOB/PDYN/PRKCA/PRKCB/	13

31							SIRT1/SLC6A3/TH	
hsa04726	Serotonergic synapse	17/384	115/8115	2.57079E-05	5.90694E-05	2.2723E-05	ALOX5/APP/CASP3/DDC/GNAI1/GNAI2/HTR3A/MAOA/MAOB/MAPK1/MAPK3/PRKCA/PRKCB/PTGS1/PTGS2/RAF1/SLC6A4	17
hsa04912	GnRH signaling pathway	15/384	93/8115	2.6923E-05	6.13926E-05	2.36167E-05	CALM3/CDC42/EGFR/JUN/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/MMP2/PRKCA/PRKCB/PRKCD/RAF1/SRC	15
hsa05020	Prion disease	29/384	273/8115	3.41166E-05	7.72113E-05	2.97018E-05	ATP5F1B/BAD/BAX/C5/CASP3/CASP9/CAV1/CREB1/CYCS/EIF2S1/FYN/GSK3B/HSPA5/IL1A/IL1B/IL6/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/NCF1/PPIF/PRKCD/RAC1/SDHA/SDHB/SOD1/TNF	29
hsa04610	Complement and coagulation cascades	14/384	85/8115	3.91844E-05	8.80187E-05	3.38593E-05	C3/C3AR1/C4BPB/C5/C5AR1/F2/F3/PLAU/SERPINA1/SERPINA5/SERPINC1/SERPINE1/THBD/VWF	14
hsa04217	Necroptosis	20/384	159/8115	5.64767E-05	0.000125922	4.84401E-05	BAX/BCL2/CASP1/CASP8/CFLAR/FADD/HMGB1/IFNG/IL1A/IL1B/MAPK8/MAPK9/PARP1/STAT1/STAT3/TLR4/TNF/TNFRSF10A/TRAF2/XIAP	20
hsa04072	Phospholipase D signaling pathway	19/384	148/8115	6.53008E-05	0.000144526	5.55967E-05	AGT/AKT1/ARF1/CXCL8/CXCR1/CXCR2/EGF/EGFR/F2/FYN/GRM8/INS/INSR/MAPK1/MAPK3/MTOR/PRKCA/RAF1/SPHK1	19
hsa05410	Hypertrophic cardiomyopathy	14/384	90/8115	7.51272E-05	0.000165061	6.34959E-05	ACE/ACTB/ACTC1/ACTG1/AGT/EDN1/IL6/ITGB1/PRKAA1/PRKAA2/PRKAG2/TGFB1/TGFB2/TNF	14
hsa04725	Cholinergic synapse	16/384	113/8115	7.57124E-05	0.000165141	6.35268E-05	ACHE/AKT1/BCL2/CHRM1/CHRM2/CHRNA7/CREB1/FOS/FYN/GNAI1/GNAI2/MAPK1/MAPK3/PRKCA/PRKCB/SLC5A7	16
hsa04924	Renin secretion	12/384	69/8115	8.08166E-05	0.000175006	6.73217E-05	ACE/ADRB1/ADRB2/ADRB3/AGT/CALM3/CREB1/EDN1/GNAI1/GNAI2/NPPA/REN	12
hsa04914	Progesterone-mediated oocyte maturation	15/384	102/8115	8.14445E-05	0.000175106	6.73601E-05	AKT1/CCNA2/CCNB1/CDK2/GNAI1/GNAI2/IGF1R/INS/MAPK1/MAPK14/MAPK3/MAPK8/MAPK9/PGR/RAF1	15

hsa04913	Ovarian steroidogenesis	10/384	51/8115	0.000112036	0.000239168	9.20038E-05	ALOX5/BMP6/CYP19A1/CYP1A1/CYP1B1/IGF1R/INS/INSR/LHCGR/PTGS2	10
hsa04928	Parathyroid hormone synthesis, secretion and action	15/384	106/8115	0.000127345	0.000269936	0.00010384	BCL2/BGLAP/CDKN1A/CREB1/EGFR/FOS/GNAI1/GNAI2/MAPK1/MAPK3/PRKCA/PRKCB/RAF1/RUNX2/RXRA	15
hsa04650	Natural killer cell mediated cytotoxicity	17/384	131/8115	0.000137709	0.000289863	0.000111505	CASP3/FYN/HLA-A/HLA-B/HLA-C/HLA-G/ICAM1/IFNG/KLRK1/MAPK1/MAPK3/PRKCA/PRKCB/RAC1/RAF1/TNF/TNFRSF10A	17
hsa04020	Calcium signaling pathway	25/384	240/8115	0.000162925	0.000340559	0.000131007	ADORA2B/ADRB1/ADRB2/ADRB3/CALM3/CHRM1/CHRM2/CHRNA7/EGF/EGFR/ERBB2/FGF2/FGF7/LHCGR/MYLK/NOS1/NOS2/NOS3/NTRK1/PPIF/PRKCA/PRKCB/PTGER3/SPHK1/VEGFA	25
hsa04540	Gap junction	13/384	88/8115	0.000230476	0.000478436	0.000184046	ADRB1/DRD2/EGF/EGFR/GJA1/GNAI1/GNAI2/MAPK1/MAPK3/PRKCA/PRKCB/RAF1/SRC	13
hsa04916	Melanogenesis	14/384	101/8115	0.000265465	0.000547293	0.000210534	CALM3/CREB1/CTNNB1/EDN1/GNAI1/GNAI2/GSK3B/MAPK1/MAPK3/POMC/PRKCA/PRKCB/RAF1/WNT4	14
hsa04150	mTOR signaling pathway	18/384	156/8115	0.000392971	0.000804655	0.000309537	AKT1/GSK3B/IGF1R/IKBKB/INS/INSR/IRS1/MAPK1/MAPK3/MTOR/PRKAA1/PRKAA2/PRKCA/PRKCB/PTEN/RAF1/TNF/WNT4	18
hsa01523	Antifolate resistance	7/384	30/8115	0.000397362	0.000808148	0.000310881	ABCG2/IKBKB/IL1B/IL6/NFKB1/RELA/TNF	7
hsa04350	TGF-beta signaling pathway	13/384	94/8115	0.000447114	0.000903231	0.000347457	BMP2/BMP4/BMP6/FST/IFNG/MAPK1/MAPK3/MYC/SMAD2/SMAD3/TGFB1/TGFB2/TNF	13
hsa00380	Tryptophan metabolism	8/384	42/8115	0.000668727	0.001339845	0.000515415	ALDH2/CAT/CYP1A1/CYP1A2/CYP1B1/DDC/MAOA/MAOB	8
hsa04750	Inflammatory mediator regulation of TRP channels	13/384	98/8115	0.000672148	0.001339845	0.000515415	CALM3/IL1B/MAPK14/MAPK8/MAPK9/NTRK1/PRKCA/PRKCB/PRKCD/SRC/TRPV1/TRPV2/TRPV4	13
hsa049	GnRH secretion	10/384	64/8115	0.000767271	0.001519399	0.000584486	AKT1/ESR2/GPER1/KCNN4/MAPK1/MAPK3/PRKCA/PRKCB/RAF1/SP	10

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hsa04145	Phagosome	17/384	152/8115	0.000811197	0.001595884	0.000613909	ACTB/ACTG1/C3/CD209/CLEC7A/HLA-A/HLA-B/HLA-C/HLA-G/ITGB1/MARCO/MPO/NCF1/NOS1/OLR1/RAC1/TLR4	17
hsa04390	Hippo signaling pathway	17/384	157/8115	0.001168176	0.002283253	0.000878328	ACTB/ACTG1/BIRC5/BMP2/BMP4/BMP6/CCND1/CCND2/CTNNB1/GSK3B/MYC/SERPINE1/SMAD2/SMAD3/TGFB1/TGFB2/WNT4	17
hsa04922	Glucagon signaling pathway	13/384	107/8115	0.001542392	0.002995226	0.001152212	ACACA/AKT1/CALM3/CREB1/FOXO1/GCG/PPARA/PPARGC1A/PRKAA1/PRKAA2/PRKAG2/SIRT1/SLC2A2	13
hsa04270	Vascular smooth muscle contraction	15/384	134/8115	0.001606674	0.003100056	0.001192538	ACTA2/ACTG2/ADORA2B/AGT/CALCA/CALM3/EDN1/MAPK1/MAPK3/MYLK/NPPA/PRKCA/PRKCB/PRKCD/RAF1	15
hsa05012	Parkinson disease	24/384	266/8115	0.001732111	0.003320798	0.001277453	ATP5F1B/BAX/BCL2L1/CALM3/CASP3/CASP9/CYCS/DRD2/EIF2S1/GNAI1/GNAI2/HSPA5/MAOA/MAOB/MAPK8/MAPK9/NFE2L2/PPIF/SDHA/SDHB/SLC6A3/SOD1/TH/TP53	24
hsa04514	Cell adhesion molecules	16/384	149/8115	0.001763968	0.003360472	0.001292715	CD28/CD40/CD40LG/CD80/CD86/HLA-A/HLA-B/HLA-C/HLA-G/ICAM1/ITGB1/PECAM1/SELE/SELL/SELP/VCAM1	16
hsa04730	Long-term depression	9/384	60/8115	0.001876341	0.003552068	0.001366419	GNAI1/GNAI2/IGF1R/MAPK1/MAPK3/NOS1/PRKCA/PRKCB/RAF1	9
hsa04666	Fc gamma R-mediated phagocytosis	12/384	97/8115	0.001980966	0.003703544	0.001424689	AKT1/CDC42/INPPL1/MAPK1/MAPK3/NCF1/PRKCA/PRKCB/PRKCD/RAC1/RAF1/SPHK1	12
hsa04713	Circadian entrainment	12/384	97/8115	0.001980966	0.003703544	0.001424689	CALM3/CREB1/FOS/GNAI1/GNAI2/MAPK1/MAPK3/MTNR1A/MTNR1B/NOS1/PRKCA/PRKCB	12
hsa00330	Arginine and proline metabolism	8/384	51/8115	0.002488417	0.00462354	0.001778595	ALDH2/GATM/MAOA/MAOB/NOS1/NOS2/NOS3/ODC1	8
hsa04623	Cytosolic DNA-sensing pathway	9/384	63/8115	0.002655166	0.004866767	0.001872161	ADAR/CASP1/CXCL10/IKBKB/IL1B/IL6/NFKB1/NFKBIA/RELA	9

hsa05217	Basal cell carcinoma	9/384	63/8115	0.00265166	0.004866767	0.001872161	BAK1/BAX/BMP2/BMP4/CDKN1A/CTNNB1/GSK3B/TP53/WNT4	9
hsa05310	Asthma	6/384	31/8115	0.00290 2464	0.005294799	0.002036817	CD40/CD40LG/IL10/IL13/IL4/TNF	6
hsa04971	Gastric acid secretion	10/384	76/8115	0.00292 1491	0.005297402	0.002037818	ACTB/ACTG1/CA2/CALM3/GNAI1/GNAI2/MYLK/PRKCA/PRKCB/SST	10
hsa04550	Signaling pathways regulating pluripotency of stem cells	15/384	143/8115	0.00305 2626	0.005502038	0.002116539	AKT1/BMP4/CTNNB1/FGF2/GSK3B/IGF1R/MAPK1/MAPK14/MAPK3/MYC/RAF1/SMAD2/SMAD3/STAT3/WNT4	15
hsa04810	Regulation of actin cytoskeleton	20/384	218/8115	0.00338 4565	0.006064012	0.002332 72	ACTB/ACTG1/CDC42/CHRM1/CHRM2/CXCL12/EGF/EGFR/F2/FGF2/FGF7/FN1/INS/ITGB1/MAPK1/MAPK3/MYLK/RAC1/RAF1/SRC	20
hsa05168	Herpes simplex virus 1 infection	37/384	495/8115	0.00356 8042	0.006354915	0.002444625	AKT1/BAD/BAK1/BAX/BCL2/BCL2L1/C3/C5/CASP3/CASP8/CASP9/CCL2/CYCS/EIF2S1/FADD/HLA-A/HLA-B/HLA-C/HLA-G/IFNG/IKBKB/IL12A/IL12B/IL1B/IL6/IRAK4/MAP3K7/MTOR/MYD88/NFKB1/NFKBIA/RELA/SRC/STAT1/TNF/TP53/TRAF2	37
hsa04261	Adrenergic signaling in cardiomyocytes	15/384	150/8115	0.00480 5271	0.008508156	0.003272 94	ACTC1/ADRB1/ADRB2/AGT/AKT1/BCL2/CALM3/CREB1/GNAI1/GNAI2/MAPK1/MAPK14/MAPK3/PRKCA/SCN5A	15
hsa05204	Chemical carcinogenesis - DNA adducts	9/384	69/8115	0.00495 0345	0.008713765	0.003352034	CYP1A1/CYP1A2/CYP1B1/CYP3A4/EPHX1/GSTM1/GSTM2/GSTP1/PTGS2	9
hsa04310	Wnt signaling pathway	16/384	167/8115	0.00553 6907	0.009689587	0.003727416	CCND1/CCND2/CTNNB1/GSK3B/JUN/MAP3K7/MAPK8/MAPK9/MYC/PPARD/PRKCA/PRKCB/RAC1/SMAD3/TP53/WNT4	16
hsa04137	Mitophagy - animal	9/384	72/8115	0.00656 6809	0.011425488	0.004395187	BCL2L1/E2F1/HIF1A/JUN/MAPK8/MAPK9/RELA/SRC/TP53	9
hsa00790	Folate biosynthesis	5/384	26/8115	0.00667 3338	0.011544108	0.004440818	AKR1B1/ALPL/ALPP/GCH1/TH	5

hsa05100	Bacterial invasion of epithelial cells	9/384	77/8115	0.010125645	0.01741611	0.006699675	ACTB/ACTG1/CAV1/CDC42/CTNNB1/FN1/ITGB1/RAC1/SRC	9
hsa00260	Glycine, serine and threonine metabolism	6/384	40/8115	0.010582376	0.018098269	0.00696209	BHMT/CTH/GATM/MAOA/MAOB/SARDH	6
hsa04530	Tight junction	15/384	169/8115	0.013894434	0.023628389	0.009089431	ACTB/ACTG1/CCND1/CDC42/CDK4/ERBB2/ITGB1/JUN/MAPK8/MAPK9/PRKAA1/PRKAA2/PRKAG2/RAC1/SRC	15
hsa05034	Alcoholism	16/384	187/8115	0.015596952	0.026374621	0.010145859	ADORA2B/CALM3/CREB1/DDC/DRD2/GNAI1/GNAI2/MAOA/MAOB/MAPK1/MAPK3/NPY/PDYN/RAF1/SLC6A3/TH	16
hsa00220	Arginine biosynthesis	4/384	22/8115	0.018340383	0.030840532	0.011863817	GPT/NOS1/NOS2/NOS3	4
hsa00480	Glutathione metabolism	7/384	58/8115	0.018884602	0.031579251	0.01214799	G6PD/GSTM1/GSTM2/GSTP1/ODC1/PRDX6/RRM2	7
hsa04614	Renin-angiotensin system	4/384	23/8115	0.021394035	0.035577925	0.01368621	ACE/AGT/MME/REN	4
hsa03320	PPAR signaling pathway	8/384	75/8115	0.024759365	0.04094818	0.015752054	LPL/MMP1/NR1H3/OLR1/PPARA/PPARD/PPARG/RXRA	8
hsa00980	Metabolism of xenobiotics by cytochrome P450	8/384	78/8115	0.030483088	0.049866356	0.019182721	CYP1A1/CYP1A2/CYP1B1/CYP3A4/EPHX1/GSTM1/GSTM2/GSTP1	8
hsa04612	Antigen processing and presentation	8/384	78/8115	0.030483088	0.049866356	0.019182721	CREB1/HLA-A/HLA-B/HLA-C/HLA-G/HSPA5/IFNG/TNF	8
hsa04970	Salivary secretion	9/384	93/8115	0.031329183	0.050973428	0.019608593	ADRB1/ADRB2/ADRB3/CALM3/KCNN4/NOS1/PRKCA/PRKCB/TRPV6	9
hsa00360	Phenylalanine metabolism	3/384	16/8115	0.037204434	0.060158446	0.02314191	DDC/MAOA/MAOB	3
hsa05414	Dilated cardiomyopathy	9/384	96/8115	0.037374184	0.060158446	0.02314191	ACTB/ACTC1/ACTG1/ADRB1/AGT/ITGB1/TGFB1/TGFB2/TNF	9

hsa05014	Amyotrophic lateral sclerosis	25/384	364/8115	0.038351937	0.061403899	0.023621014	ACTB/ACTG1/ATP5F1B/BAD/BAX/BCL2/BCL2L1/CASP1/CASP3/CASP9/CAT/CYCS/EIF2S1/HSPA5/MAPK14/MTOR/NOS1/NOS2/RAC1/SDHA/SDHB/SOD1/TNF/TP53/TRAF2	25
hsa01200	Carbon metabolism	10/384	115/8115	0.045332071	0.072195521	0.027772363	CAT/CS/ENO1/ENO2/ENO3/G6PD/GPT/H6PD/SDHA/SDHB	10
hsa04114	Oocyte meiosis	11/384	131/8115	0.045722486	0.072434044	0.027864119	AR/CALM3/CCNB1/CCNE1/CDK2/IGF1R/INS/MAPK1/MAPK14/MAPK3/PGR	11
hsa04360	Axon guidance	14/384	182/8115	0.049567751	0.078114243	0.030049193	CDC42/CXCL12/FYN/GNAI1/GNAI2/GSK3B/ITGB1/MAPK1/MAPK3/PRKCA/RAC1/RAF1/SRC/WNT4	14