

Table S5. Data of KEGG analysis

Pathways	genesymbol	FDR
Pathways in cancer	AKT1	1.2556E-26
Pathways in cancer	AR	1.2556E-26
Pathways in cancer	BRAF	1.2556E-26
Pathways in cancer	CASP3	1.2556E-26
Pathways in cancer	CASP7	1.2556E-26
Pathways in cancer	CDK2	1.2556E-26
Pathways in cancer	ESR1	1.2556E-26
Pathways in cancer	F2	1.2556E-26
Pathways in cancer	MTOR	1.2556E-26
Pathways in cancer	GSTM1	1.2556E-26
Pathways in cancer	GSTM2	1.2556E-26
Pathways in cancer	GSTP1	1.2556E-26
Pathways in cancer	HGF	1.2556E-26
Pathways in cancer	IGF1	1.2556E-26
Pathways in cancer	IL2	1.2556E-26
Pathways in cancer	KIT	1.2556E-26
Pathways in cancer	MMP1	1.2556E-26
Pathways in cancer	MMP2	1.2556E-26
Pathways in cancer	NOS2	1.2556E-26
Pathways in cancer	PIK3CA	1.2556E-26
Pathways in cancer	PIK3CB	1.2556E-26
Pathways in cancer	PIK3CD	1.2556E-26
Pathways in cancer	PIK3R1	1.2556E-26
Pathways in cancer	PPARD	1.2556E-26
Pathways in cancer	PPARG	1.2556E-26
Pathways in cancer	MAPK1	1.2556E-26
Pathways in cancer	PTGS2	1.2556E-26
Lipid and atherosclerosis	AKT1	6.99E-20
Lipid and atherosclerosis	CASP1	6.99E-20
Lipid and atherosclerosis	CASP3	6.99E-20
Lipid and atherosclerosis	CASP7	6.99E-20
Lipid and atherosclerosis	MAPK14	6.99E-20
Lipid and atherosclerosis	HSPA1A	6.99E-20
Lipid and atherosclerosis	HSPA1B	6.99E-20
Lipid and atherosclerosis	MMP1	6.99E-20
Lipid and atherosclerosis	PIK3CA	6.99E-20
Lipid and atherosclerosis	PIK3CB	6.99E-20
Lipid and atherosclerosis	PIK3CD	6.99E-20
Lipid and atherosclerosis	PIK3R1	6.99E-20
Lipid and atherosclerosis	PPARG	6.99E-20
Lipid and atherosclerosis	MAPK1	6.99E-20
Lipid and atherosclerosis	CCL5	6.99E-20
Lipid and atherosclerosis	SOD2	6.99E-20
Lipid and atherosclerosis	TNF	6.99E-20
Proteoglycans in cancer	AKT1	3.5683E-17
Proteoglycans in cancer	BRAF	3.5683E-17
Proteoglycans in cancer	CASP3	3.5683E-17
Proteoglycans in cancer	MAPK14	3.5683E-17
Proteoglycans in cancer	ESR1	3.5683E-17
Proteoglycans in cancer	MTOR	3.5683E-17
Proteoglycans in cancer	HGF	3.5683E-17
Proteoglycans in cancer	IGF1	3.5683E-17

Proteoglycans in cancer	MMP2	3.5683E-17
Proteoglycans in cancer	PIK3CA	3.5683E-17
Proteoglycans in cancer	PIK3CB	3.5683E-17
Proteoglycans in cancer	PIK3CD	3.5683E-17
Proteoglycans in cancer	PIK3R1	3.5683E-17
Proteoglycans in cancer	MAPK1	3.5683E-17
Proteoglycans in cancer	TNF	3.5683E-17
Chemical carcinogenesis - reactive oxygen species	AHR	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	AKT1	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	BRAF	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	CBR1	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	MAPK14	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	GSTM1	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	GSTM2	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	HGF	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	PIK3CA	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	PIK3CB	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	PIK3CD	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	PIK3R1	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	MAPK1	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	PTPN1	9.5327E-17
Chemical carcinogenesis - reactive oxygen species	SOD2	9.5327E-17
Endocrine resistance	AKT1	9.8997E-17
Endocrine resistance	BRAF	9.8997E-17
Endocrine resistance	MAPK14	9.8997E-17
Endocrine resistance	ESR1	9.8997E-17
Endocrine resistance	MTOR	9.8997E-17
Endocrine resistance	IGF1	9.8997E-17
Endocrine resistance	MMP2	9.8997E-17
Endocrine resistance	PIK3CA	9.8997E-17
Endocrine resistance	PIK3CB	9.8997E-17
Endocrine resistance	PIK3CD	9.8997E-17
Endocrine resistance	PIK3R1	9.8997E-17
Endocrine resistance	MAPK1	9.8997E-17
C-type lectin receptor signaling pathway	AKT1	1.7343E-16
C-type lectin receptor signaling pathway	CASP1	1.7343E-16
C-type lectin receptor signaling pathway	MAPK14	1.7343E-16
C-type lectin receptor signaling pathway	IL2	1.7343E-16
C-type lectin receptor signaling pathway	PIK3CA	1.7343E-16
C-type lectin receptor signaling pathway	PIK3CB	1.7343E-16
C-type lectin receptor signaling pathway	PIK3CD	1.7343E-16
C-type lectin receptor signaling pathway	PIK3R1	1.7343E-16
C-type lectin receptor signaling pathway	MAPK1	1.7343E-16
C-type lectin receptor signaling pathway	PTGS2	1.7343E-16
C-type lectin receptor signaling pathway	SYK	1.7343E-16
C-type lectin receptor signaling pathway	TNF	1.7343E-16
TNF signaling pathway	AKT1	3.7375E-16
TNF signaling pathway	CASP3	3.7375E-16
TNF signaling pathway	CASP7	3.7375E-16
TNF signaling pathway	MAPK14	3.7375E-16
TNF signaling pathway	PIK3CA	3.7375E-16
TNF signaling pathway	PIK3CB	3.7375E-16
TNF signaling pathway	PIK3CD	3.7375E-16
TNF signaling pathway	PIK3R1	3.7375E-16

TNF signaling pathway	MAPK1	3.7375E-16
TNF signaling pathway	PTGS2	3.7375E-16
TNF signaling pathway	CCL5	3.7375E-16
TNF signaling pathway	TNF	3.7375E-16
Longevity regulating pathway - multiple species	AKT1	1.752E-15
Longevity regulating pathway - multiple species	MTOR	1.752E-15
Longevity regulating pathway - multiple species	HSPA1A	1.752E-15
Longevity regulating pathway - multiple species	HSPA1B	1.752E-15
Longevity regulating pathway - multiple species	IGF1	1.752E-15
Longevity regulating pathway - multiple species	PIK3CA	1.752E-15
Longevity regulating pathway - multiple species	PIK3CB	1.752E-15
Longevity regulating pathway - multiple species	PIK3CD	1.752E-15
Longevity regulating pathway - multiple species	PIK3R1	1.752E-15
Longevity regulating pathway - multiple species	SOD2	1.752E-15
EGFR tyrosine kinase inhibitor resistance	AKT1	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	BRAF	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	MTOR	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	HGF	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	IGF1	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	PIK3CA	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	PIK3CB	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	PIK3CD	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	PIK3R1	2.0152E-14
EGFR tyrosine kinase inhibitor resistance	MAPK1	2.0152E-14
Hepatocellular carcinoma	AKT1	1.9131E-14
Hepatocellular carcinoma	BRAF	1.9131E-14
Hepatocellular carcinoma	MTOR	1.9131E-14
Hepatocellular carcinoma	GSTM1	1.9131E-14
Hepatocellular carcinoma	GSTM2	1.9131E-14
Hepatocellular carcinoma	GSTP1	1.9131E-14
Hepatocellular carcinoma	HGF	1.9131E-14
Hepatocellular carcinoma	PIK3CA	1.9131E-14
Hepatocellular carcinoma	PIK3CB	1.9131E-14
Hepatocellular carcinoma	PIK3CD	1.9131E-14
Hepatocellular carcinoma	PIK3R1	1.9131E-14
Hepatocellular carcinoma	MAPK1	1.9131E-14
Human cytomegalovirus infection	AKT1	4.0245E-14
Human cytomegalovirus infection	CASP3	4.0245E-14
Human cytomegalovirus infection	MAPK14	4.0245E-14
Human cytomegalovirus infection	MTOR	4.0245E-14
Human cytomegalovirus infection	PIK3CA	4.0245E-14
Human cytomegalovirus infection	PIK3CB	4.0245E-14
Human cytomegalovirus infection	PIK3CD	4.0245E-14
Human cytomegalovirus infection	PIK3R1	4.0245E-14
Human cytomegalovirus infection	MAPK1	4.0245E-14
Human cytomegalovirus infection	PTGS2	4.0245E-14
Human cytomegalovirus infection	CCL5	4.0245E-14
Human cytomegalovirus infection	TAP1	4.0245E-14
Human cytomegalovirus infection	TNF	4.0245E-14
FoxO signaling pathway	AKT1	6.7626E-14
FoxO signaling pathway	BRAF	6.7626E-14
FoxO signaling pathway	CDK2	6.7626E-14
FoxO signaling pathway	MAPK14	6.7626E-14
FoxO signaling pathway	IGF1	6.7626E-14

FoxO signaling pathway	PIK3CA	6.7626E-14
FoxO signaling pathway	PIK3CB	6.7626E-14
FoxO signaling pathway	PIK3CD	6.7626E-14
FoxO signaling pathway	PIK3R1	6.7626E-14
FoxO signaling pathway	MAPK1	6.7626E-14
FoxO signaling pathway	SOD2	6.7626E-14
Phospholipase D signaling pathway	AKT1	2.428E-13
Phospholipase D signaling pathway	F2	2.428E-13
Phospholipase D signaling pathway	MTOR	2.428E-13
Phospholipase D signaling pathway	KIT	2.428E-13
Phospholipase D signaling pathway	PIK3CA	2.428E-13
Phospholipase D signaling pathway	PIK3CB	2.428E-13
Phospholipase D signaling pathway	PIK3CD	2.428E-13
Phospholipase D signaling pathway	PIK3CG	2.428E-13
Phospholipase D signaling pathway	PIK3R1	2.428E-13
Phospholipase D signaling pathway	MAPK1	2.428E-13
Phospholipase D signaling pathway	SYK	2.428E-13
HIF-1 signaling pathway	AKT1	3.6049E-13
HIF-1 signaling pathway	MTOR	3.6049E-13
HIF-1 signaling pathway	IGF1	3.6049E-13
HIF-1 signaling pathway	NOS2	3.6049E-13
HIF-1 signaling pathway	PFKFB3	3.6049E-13
HIF-1 signaling pathway	PIK3CA	3.6049E-13
HIF-1 signaling pathway	PIK3CB	3.6049E-13
PI3K-Akt signaling pathway	AKT1	4.9671E-13
PI3K-Akt signaling pathway	CDK2	4.9671E-13
PI3K-Akt signaling pathway	MTOR	4.9671E-13
PI3K-Akt signaling pathway	HGF	4.9671E-13
PI3K-Akt signaling pathway	IGF1	4.9671E-13
PI3K-Akt signaling pathway	IL2	4.9671E-13
PI3K-Akt signaling pathway	KIT	4.9671E-13
PI3K-Akt signaling pathway	PIK3CA	4.9671E-13
PI3K-Akt signaling pathway	PIK3CB	4.9671E-13
PI3K-Akt signaling pathway	PIK3CD	4.9671E-13
PI3K-Akt signaling pathway	PIK3CG	4.9671E-13
PI3K-Akt signaling pathway	PIK3R1	4.9671E-13
PI3K-Akt signaling pathway	MAPK1	4.9671E-13
PI3K-Akt signaling pathway	SYK	4.9671E-13
Hepatitis B	AKT1	5.3586E-13
Hepatitis B	BRAF	5.3586E-13
Hepatitis B	CASP3	5.3586E-13
Hepatitis B	CDK2	5.3586E-13
Hepatitis B	MAPK14	5.3586E-13
Hepatitis B	PIK3CA	5.3586E-13
Hepatitis B	PIK3CB	5.3586E-13
Hepatitis B	PIK3CD	5.3586E-13
Hepatitis B	PIK3R1	5.3586E-13
Hepatitis B	MAPK1	5.3586E-13
Hepatitis B	TNF	5.3586E-13
mTOR signaling pathway	AKT1	1.1079E-11
mTOR signaling pathway	BRAF	1.1079E-11
mTOR signaling pathway	MTOR	1.1079E-11
mTOR signaling pathway	IGF1	1.1079E-11
mTOR signaling pathway	PIK3CA	1.1079E-11

mTOR signaling pathway	PIK3CB	1.1079E-11
mTOR signaling pathway	PIK3CD	1.1079E-11
mTOR signaling pathway	PIK3R1	1.1079E-11
mTOR signaling pathway	MAPK1	1.1079E-11
Toxoplasmosis	AKT1	1.5666E-11
Toxoplasmosis	CASP3	1.5666E-11
Toxoplasmosis	MAPK14	1.5666E-11
Toxoplasmosis	HSPA1A	1.5666E-11
Toxoplasmosis	HSPA1B	1.5666E-11
Toxoplasmosis	NOS2	1.5666E-11
Toxoplasmosis	PIK3CG	1.5666E-11
Toxoplasmosis	MAPK1	1.5666E-11
Toxoplasmosis	TNF	1.5666E-11
AMPK signaling pathway	AKT1	2.7782E-11
AMPK signaling pathway	MTOR	2.7782E-11
AMPK signaling pathway	IGF1	2.7782E-11
AMPK signaling pathway	PFKFB3	2.7782E-11
AMPK signaling pathway	PIK3CA	2.7782E-11
AMPK signaling pathway	PIK3CB	2.7782E-11
AMPK signaling pathway	PIK3CD	2.7782E-11
AMPK signaling pathway	PIK3R1	2.7782E-11
AMPK signaling pathway	PPARG	2.7782E-11
MAPK signaling pathway	AKT1	2.6956E-10
MAPK signaling pathway	BRAF	2.6956E-10
MAPK signaling pathway	CASP3	2.6956E-10
MAPK signaling pathway	MAPK14	2.6956E-10
MAPK signaling pathway	HGF	2.6956E-10
MAPK signaling pathway	HSPA1A	2.6956E-10
MAPK signaling pathway	HSPA1B	2.6956E-10
MAPK signaling pathway	IGF1	2.6956E-10
MAPK signaling pathway	KIT	2.6956E-10
MAPK signaling pathway	MAPK1	2.6956E-10
MAPK signaling pathway	TNF	2.6956E-10