Table SIV. Kyoto Encyclopedia of Genes and Genomes pathway enrichment analysis results in the brown module.

ID	Description	Gene Ratio	Bg Ratio	P-value	p.adjust	q-value	geneID	Count
hsa04110	Cell cycle	26/156	124/7528	1.46×10^{-19}	2.75×10^{-17}	2.48×10^{-17}	991/701/4171/9133/891/699/4173/7272/9232/5111/983/890/23594/995/4085/898/8318/1029/990/1111/9134/4175/1031/5347/10926/6502	26
hsa03030	DNA replication	12/156	36/7528	3.34×10^{-12}	3.14×10^{-10}	2.83×10^{-10}	4171/2237/4173/5111/10535/5427/5984/6119/1763/4175/5985/5983	12
hsa04114	Oocyte meiosis	14/156	125/7528	2.53×10^{-7}	1.59×10^{-5}	1.43×10^{-5}	991/9133/891/6790/699/9232/983/995/4085/898/9134/5347/115/26271	14
hsa04115	p53 signaling pathway	10/156	72/7528	1.95×10^{-6}	9.15×10^{-5}	8.25×10^{-5}	9133/6241/891/983/898/1029/3486/1111/27244/9134	10
hsa03430	Mismatch repair	6/156	23/7528	5.42×10^{-6}	0.0002	0.0002	5111/5984/6119/9156/5985/5983	6
hsa03460	Fanconi anemia pathway	8/156	54/7528	1.32×10^{-5}	0.0004	0.0004	116028/29089/55215/80010/6119/55120/672/641	8
hsa04914	Progesterone-mediated oocyte maturation	10/156	99/7528	3.50×10^{-5}	0.0009	0.0008	9133/891/6790/699/983/890/995/4085/5347/115	10
hsa04974	Protein digestion and absorption	9/156	90/7528	9.43×10^{-5}	0.0022	0.0020	1300/1301/1277/1281/1290/1278/1289/1285/80781	9
hsa04218	Cellular senescence	12/156	160/7528	0.0001	0.0024	0.0021	9133/891/983/890/2305/898/4605/1029/3486/1111/1978/9134	12
hsa03440	Homologous recombination	6/156	41/7528	0.0002	0.0033	0.0030	6119/580/8438/25788/672/641	6
hsa03420	Nucleotide excision repair	6/156	47/7528	0.0004	0.0065	0.0059	5111/5427/5984/6119/5985/5983	6
hsa04512	ECM-receptor interaction	7/156	82/7528	0.0015	0.0232	0.0210	6696/1277/7058/1311/3161/1278/1285	7
hsa05166	Human T-cell leukemia virus 1 infection	12/156	219/7528	0.0019	0.0277	0.0249	991/701/9133/9232/890/4085/898/1029/1111/9134/1031/115	12
hsa04120	Ubiquitin mediated proteolysis	8/156	137/7528	0.0074	0.1000	0.0901	23327/991/11065/55120/6502/672/134111/27338	8
hsa05222	Small cell lung cancer	6/156	93/7528	0.0125	0.1564	0.1410	1163/898/1285/9134/6502/1164	6
hsa00790	Folate biosynthesis	3/156	26/7528	0.0160	0.1880	0.1695	1719/55034/8836	3
hsa04926	Relaxin signaling pathway	7/156	130/7528	0.0181	0.2006	0.1808	1277/1281/1278/4322/4312/1285/115	7
hsa05203	Viral carcinogenesis	9/156	201/7528	0.0236	0.2413	0.2175	991/8363/983/890/898/1029/1111/9134/6502	9
hsa00512	Mucin type O-glycan biosynthesis	3/156	31/7528	0.0257	0.2413	0.2175	79623/11226/2650	3
hsa01523	Antifolate resistance	3/156	31/7528	0.0257	0.2413	0.2175	1719/2348/8836	3

hsa00240	Pyrimidine metabolism	4/156	57/7528	0.0300	0.2584	0.2330	4830/6241/7083/56474	4
hsa03410	Base excision repair	3/156	33/7528	0.0302	0.2584	0.2330	2237/5111/5427	3
hsa05165	Human papillomavirus infection	12/156	330/7528	0.0409	0.3145	0.2835	6696/1277/7058/1311/1278/890/898/1285/55502/1978/9368/9134	12
hsa00590	Arachidonic acid metabolism	4/156	63/7528	0.0412	0.3145	0.2835	2878/493869/5319/5321	4
hsa04934	Cushing syndrome	7/156	155/7528	0.0418	0.3145	0.2835	2776/8622/898/1029/9134/1031/115	7
hsa04611	Platelet activation	6/156	124/7528	0.0436	0.3153	0.2842	1277/2776/1281/1278/115/5321	6
hsa05146	Amoebiasis	5/156	96/7528	0.0487	0.3390	0.3056	1277/2776/1281/1278/1285	5
hsa05219	Bladder cancer	3/156	41/7528	0.0525	0.3523	0.3176	4312/1029/1612	3
hsa01524	Platinum drug resistance	4/156	73/7528	0.0643	0.4167	0.3756	7153/332/1029/672	4
hsa04918	Thyroid hormone synthesis	4/156	74/7528	0.0670	0.4167	0.3756	2776/2878/493869/115	4
hsa04928	Parathyroid hormone synthesis, secretion and action	5/156	106/7528	0.0687	0.4167	0.3756	2776/4323/4322/9368/115	5
hsa03060	Protein export	2/156	23/7528	0.0813	0.4777	0.4306	23480/7095	2
hsa00592	α-Linolenic acid metabolism	2/156	25/7528	0.0939	0.5349	0.4822	5319/5321	2
hsa04540	Gap junction	4/156	88/7528	0.1094	0.5882	0.5302	2776/983/347733/115	4
hsa00480	Glutathione metabolism	3/156	56/7528	0.1095	0.5882	0.5302	6241/2878/493869	3
hsa00591	Linoleic acid metabolism	2/156	29/7528	0.1205	0.6147	0.5541	5319/5321	2
hsa00310	Lysine degradation	3/156	59/7528	0.1230	0.6147	0.5541	2146/5352/79723	3
hsa04912	GnRH signaling pathway	4/156	93/7528	0.1268	0.6147	0.5541	2776/4323/115/5321	4
hsa03013	RNA transport	6/156	165/7528	0.1275	0.6147	0.5541	55706/10799/1978/10460/9631/8487	6
hsa00230	Purine metabolism	5/156	130/7528	0.1324	0.6224	0.5611	4830/6241/8622/203/115	5
hsa04068	FoxO signaling pathway	5/156	132/7528	0.1387	0.6339	0.5714	114907/9133/891/5347/6502	5
hsa05215	Prostate cancer	4/156	97/7528	0.1416	0.6339	0.5714	898/5328/9134/4314	4
hsa04927	Cortisol synthesis and secretion	3/156	65/7528	0.1515	0.6543	0.5898	2776/8622/115	3
hsa04933	AGE-RAGE signaling pathway in diabetic complications	4/156	100/7528	0.1531	0.6543	0.5898	1277/1281/1278/1285	4
hsa05206	MicroRNAs in cancer	9/156	299/7528	0.1675	0.6996	0.6307	113130/995/2146/898/5328/1029/9493/9134/672	9
hsa04151	PI3K-Akt signaling pathway	10/156	354/7528	0.1986	0.8118	0.7318	6696/1277/7058/1311/1278/898/1285/1978/9134/672	10
hsa04145	Phagosome	5/156	152/7528	0.2073	0.8294	0.7477	7058/1311/23480/6441/347733	5
hsa00983	Drug metabolism - other enzymes	3/156	79/7528	0.2247	0.8622	0.7772	4830/6241/7083	3
hsa04610	Complement and coagulation cascades	3/156	79/7528	0.2247	0.8622	0.7772	2157/2161/5328	3

hsa04510	Focal adhesion	6/156	199/7528	0.2311	0.8643	0.7791	6696/1277/7058/1311/1278/1285	6
hsa03450	Non-homologous end-joining	1/156	13/7528	0.2385	0.8643	0.7791	2237	1
hsa02010	ABC transporters	2/156	45/7528	0.2391	0.8643	0.7791	21/26154	2
hsa05161	Hepatitis B	5/156	163/7528	0.2492	0.8729	0.7869	332/5111/890/898/9134	5
hsa00565	Ether lipid metabolism	2/156	47/7528	0.2545	0.8729	0.7869	5319/5321	2
hsa04961	Endocrine and other factor-regulated calcium reabsorption	2/156	48/7528	0.2622	0.8729	0.7869	2776/115	2
hsa04913	Ovarian steroidogenesis	2/156	49/7528	0.2699	0.8729	0.7869	115/5321	2
hsa05144	Malaria	2/156	49/7528	0.2699	0.8729	0.7869	7058/1311	2
hsa05170	Human immunodeficiency virus 1 infection	6/156	212/7528	0.2763	0.8729	0.7869	2776/9133/891/983/995/1111	6
hsa05110	Vibrio cholerae infection	2/156	50/7528	0.2777	0.8729	0.7869	23480/115	2
hsa04211	Longevity regulating pathway	3/156	89/7528	0.2805	0.8729	0.7869	27244/1978/115	3
hsa00730	Thiamine metabolism	1/156	16/7528	0.2849	0.8729	0.7869	203	1
hsa05323	Rheumatoid arthritis	3/156	91/7528	0.2919	0.8729	0.7869	4312/4314/1513	3
hsa04270	Vascular smooth muscle contraction	4/156	132/7528	0.2925	0.8729	0.7869	2776/5319/115/5321	4
hsa04657	IL-17 signaling pathway	3/156	93/7528	0.3032	0.8908	0.8030	4322/4312/4314	3
hsa04923	Regulation of lipolysis in adipocytes	2/156	55/7528	0.3162	0.9145	0.8244	11343/115	2
hsa01522	Endocrine resistance	3/156	98/7528	0.3318	0.9216	0.8308	1029/1031/115	3
hsa04972	Pancreatic secretion	3/156	98/7528	0.3318	0.9216	0.8308	2776/5319/115	3
hsa05202	Transcriptional misregulation in cancer	5/156	186/7528	0.3420	0.9216	0.8308	5328/7704/3486/4314/1031	5
hsa00670	One carbon pool by folate	1/156	20/7528	0.3425	0.9216	0.8308	1719	1
hsa04750	Inflammatory mediator regulation of TRP channels	3/156	100/7528	0.3432	0.9216	0.8308	2776/115/5321	3
hsa04730	Long-term depression	2/156	60/7528	0.3542	0.9379	0.8455	2776/5321	2
hsa04213	Longevity regulating pathway - multiple species	2/156	62/7528	0.3692	0.9641	0.8691	115/3170	2
hsa04921	Oxytocin signaling pathway	4/156	153/7528	0.3917	0.9942	0.8962	2776/9254/115/5321	4
hsa00534	Glycosaminoglycan biosynthesis - heparan sulfate / heparin	1/156	24/7528	0.3955	0.9942	0.8962	9653	1
hsa05221	Acute myeloid leukemia	2/156	66/7528	0.3988	0.9942	0.8962	7704/1978	2
hsa04950	Maturity onset diabetes of the young	1/156	26/7528	0.4204	0.9942	0.8962	3170	1
hsa04724	Glutamatergic synapse	3/156	114/7528	0.4221	0.9942	0.8962	2776/115/5321	3
hsa01040	Biosynthesis of unsaturated fatty acids	1/156	27/7528	0.4324	0.9942	0.8962	79071	1
hsa05412	Arrhythmogenic right ventricular cardiomyopathy (ARVC)	2/156	72/7528	0.4420	0.9942	0.8962	9254/1832	2

hsa04971	Gastric acid secretion	2/156	75/7528	0.4629	0.9942	0.8962	2776/115	2
hsa00030	Pentose phosphate pathway	1/156	30/7528	0.4671	0.9942	0.8962	2821	1
hsa00062	Fatty acid elongation	1/156	30/7528	0.4671	0.9942	0.8962	79071	1
hsa04215	Apoptosis - multiple species	1/156	33/7528	0.4997	0.9942	0.8962	332	1
hsa00500	Starch and sucrose metabolism	1/156	36/7528	0.5303	0.9942	0.8962	2821	1
hsa04911	Insulin secretion	2/156	86/7528	0.5356	0.9942	0.8962	2776/115	2
hsa04210	Apoptosis	3/156	136/7528	0.5387	0.9942	0.8962	332/4001/1513	3
hsa04960	Aldosterone-regulated sodium reabsorption	1/156	37/7528	0.5401	0.9942	0.8962	23327	1
hsa05143	African trypanosomiasis	1/156	37/7528	0.5401	0.9942	0.8962	2776	1
hsa04371	Apelin signaling pathway	3/156	137/7528	0.5437	0.9942	0.8962	6696/2776/115	3
hsa04970	Salivary secretion	2/156	90/7528	0.5603	0.9942	0.8962	2776/115	2
hsa04666	Fc gamma R-mediated phagocytosis	2/156	91/7528	0.5664	0.9942	0.8962	65108/5321	2
hsa05032	Morphine addiction	2/156	91/7528	0.5664	0.9942	0.8962	8622/115	2
hsa05414	Dilated cardiomyopathy (DCM)	2/156	91/7528	0.5664	0.9942	0.8962	9254/115	2
hsa00380	Tryptophan metabolism	1/156	40/7528	0.5682	0.9942	0.8962	6999	1
hsa04975	Fat digestion and absorption	1/156	41/7528	0.5772	0.9942	0.8962	5319	1
hsa04261	Adrenergic signaling in cardiomyocytes	3/156	145/7528	0.5824	0.9942	0.8962	2776/9254/115	3
hsa00860	Porphyrin and chlorophyll metabolism	1/156	42/7528	0.5860	0.9942	0.8962	1371	1
hsa04723	Retrograde endocannabinoid signaling	3/156	148/7528	0.5964	0.9942	0.8962	2776/11343/115	3
hsa00564	Glycerophospholipid metabolism	2/156	97/7528	0.6013	0.9942	0.8962	5319/5321	2
hsa04713	Circadian entrainment	2/156	97/7528	0.6013	0.9942	0.8962	2776/115	2
hsa04962	Vasopressin-regulated water reabsorption	1/156	44/7528	0.6031	0.9942	0.8962	115	1
hsa05169	Epstein-Barr virus infection	4/156	201/7528	0.6033	0.9942	0.8962	890/898/9134/6502	4
hsa04925	Aldosterone synthesis and secretion	2/156	98/7528	0.6069	0.9942	0.8962	2776/115	2
hsa05231	Choline metabolism in cancer	2/156	99/7528	0.6125	0.9942	0.8962	1978/5321	2
hsa04066	HIF-1 signaling pathway	2/156	100/7528	0.6180	0.9942	0.8962	112399/1978	2
hsa04916	Melanogenesis	2/156	101/7528	0.6234	0.9942	0.8962	2776/115	2
hsa00270	Cysteine and methionine metabolism	1/156	47/7528	0.6274	0.9942	0.8962	23382	1
hsa00520	Amino sugar and nucleotide sugar metabolism	1/156	48/7528	0.6352	0.9942	0.8962	2821	1
hsa04620	Toll-like receptor signaling pathway	2/156	104/7528	0.6394	0.9942	0.8962	6696/1513	2
hsa04310	Wnt signaling pathway	3/156	158/7528	0.6408	0.9942	0.8962	81839/6423/5176	3
hsa00510	N-Glycan biosynthesis	1/156	49/7528	0.6428	0.9942	0.8962	29929	1

hsa04668	TNF signaling pathway	2/156	110/7528	0.6697	0.9942	0.8962	4323/4314	2
hsa04141	Protein processing in endoplasmic reticulum	3/156	165/7528	0.6698	0.9942	0.8962	91319/23480/7095	3
hsa01212	Fatty acid metabolism	1/156	53/7528	0.6717	0.9942	0.8962	79071	1
hsa04725	Cholinergic synapse	2/156	112/7528	0.6793	0.9942	0.8962	2776/115	2
hsa05130	Pathogenic Escherichia coli infection	1/156	55/7528	0.6852	0.9942	0.8962	347733	1
hsa04530	Tight junction	3/156	170/7528	0.6894	0.9942	0.8962	23327/5111/9368	3
hsa05163	Human cytomegalovirus infection	4/156	225/7528	0.6912	0.9942	0.8962	2776/1029/1978/115	4
hsa04726	Serotonergic synapse	2/156	115/7528	0.6934	0.9942	0.8962	2776/5321	2
hsa04370	VEGF signaling pathway	1/156	59/7528	0.7107	0.9942	0.8962	5321	1
hsa04152	AMPK signaling pathway	2/156	120/7528	0.7156	0.9942	0.8962	890/1978	2
hsa00140	Steroid hormone biosynthesis	1/156	60/7528	0.7167	0.9942	0.8962	8630	1
hsa00561	Glycerolipid metabolism	1/156	61/7528	0.7227	0.9942	0.8962	11343	1
hsa04142	Lysosome	2/156	123/7528	0.7283	0.9942	0.8962	27074/1513	2
hsa04380	Osteoclast differentiation	2/156	128/7528	0.7484	0.9942	0.8962	2274/1513	2
hsa05223	Non-small cell lung cancer	1/156	66/7528	0.7505	0.9942	0.8962	1029	1
hsa00830	Retinol metabolism	1/156	67/7528	0.7557	0.9942	0.8962	8630	1
hsa04720	Long-term potentiation	1/156	67/7528	0.7557	0.9942	0.8962	2776	1
hsa00010	Glycolysis / Gluconeogenesis	1/156	68/7528	0.7608	0.9942	0.8962	2821	1
hsa04664	Fc epsilon RI signaling pathway	1/156	68/7528	0.7608	0.9942	0.8962	5321	1
hsa05162	Measles	2/156	132/7528	0.7636	0.9942	0.8962	898/9134	2
hsa04924	Renin secretion	1/156	69/7528	0.7658	0.9942	0.8962	2776	1
hsa05211	Renal cell carcinoma	1/156	69/7528	0.7658	0.9942	0.8962	112399	1
hsa05322	Systemic lupus erythematosus	2/156	133/7528	0.7673	0.9942	0.8962	94239/8363	2
hsa00982	Drug metabolism - cytochrome P450	1/156	72/7528	0.7802	0.9942	0.8962	2326	1
hsa04976	Bile secretion	1/156	72/7528	0.7802	0.9942	0.8962	115	1
hsa05218	Melanoma	1/156	72/7528	0.7802	0.9942	0.8962	1029	1
hsa04915	Estrogen signaling pathway	2/156	138/7528	0.7849	0.9942	0.8962	2776/115	2
hsa04550	Signaling pathways regulating pluripotency of stem cells	2/156	139/7528	0.7882	0.9942	0.8962	6657/130399	2
hsa03320	PPAR signaling pathway	1/156	74/7528	0.7893	0.9942	0.8962	4312	1
hsa05140	Leishmaniasis	1/156	74/7528	0.7893	0.9942	0.8962	65108	1
hsa05212	Pancreatic cancer	1/156	75/7528	0.7937	0.9942	0.8962	1029	1

hsa05214	Glioma	1/156	75/7528	0.7937	0.9942	0.8962	1029	1
hsa05220	Chronic myeloid leukemia	1/156	76/7528	0.7980	0.9942	0.8962	1029	1
hsa04260	Cardiac muscle contraction	1/156	78/7528	0.8064	0.9942	0.8962	9254	1
hsa04721	Synaptic vesicle cycle	1/156	78/7528	0.8064	0.9942	0.8962	10497	1
hsa01521	EGFR tyrosine kinase inhibitor resistance	1/156	79/7528	0.8104	0.9942	0.8962	1978	1
hsa04072	Phospholipase D signaling pathway	2/156	148/7528	0.8166	0.9942	0.8962	115/5321	2
hsa05226	Gastric cancer	2/156	149/7528	0.8195	0.9942	0.8962	898/9134	2
hsa04150	mTOR signaling pathway	2/156	153/7528	0.8309	0.9942	0.8962	1978/6502	2
hsa04012	ErbB signaling pathway	1/156	85/7528	0.8330	0.9942	0.8962	1978	1
hsa05410	Hypertrophic cardiomyopathy (HCM)	1/156	85/7528	0.8330	0.9942	0.8962	9254	1
hsa04390	Hippo signaling pathway	2/156	154/7528	0.8336	0.9942	0.8962	332/6657	2
hsa05210	Colorectal cancer	1/156	86/7528	0.8365	0.9942	0.8962	332	1
hsa04727	GABAergic synapse	1/156	89/7528	0.8466	0.9942	0.8962	115	1
hsa04350	TGF-beta signaling pathway	1/156	90/7528	0.8498	0.9942	0.8962	130399	1
hsa04217	Necroptosis	2/156	162/7528	0.8540	0.9942	0.8962	94239/5321	2
hsa04714	Thermogenesis	3/156	231/7528	0.8631	0.9942	0.8962	86/11343/115	3
hsa04022	cGMP-PKG signaling pathway	2/156	166/7528	0.8634	0.9942	0.8962	2776/115	2
hsa04064	NF-κB signaling pathway	1/156	95/7528	0.8649	0.9942	0.8962	5328	1
hsa05225	Hepatocellular carcinoma	2/156	168/7528	0.8679	0.9942	0.8962	86/1029	2
hsa04922	Glucagon signaling pathway	1/156	103/7528	0.8860	0.9942	0.8962	2776	1
hsa05142	Chagas disease (American trypanosomiasis)	1/156	103/7528	0.8860	0.9942	0.8962	2776	1
hsa03008	Ribosome biogenesis in eukaryotes	1/156	105/7528	0.8908	0.9942	0.8962	10799	1
hsa05034	Alcoholism	2/156	180/7528	0.8920	0.9942	0.8962	94239/8363	2
hsa05168	Herpes simplex virus 1 infection	2/156	185/7528	0.9008	0.9942	0.8962	983/6502	2
hsa04020	Calcium signaling pathway	2/156	188/7528	0.9057	0.9942	0.8962	2776/115	2
hsa04670	Leukocyte transendothelial migration	1/156	112/7528	0.9059	0.9942	0.8962	7070	1
hsa01200	Carbon metabolism	1/156	116/7528	0.9135	0.9942	0.8962	2821	1
hsa04071	Sphingolipid signaling pathway	1/156	119/7528	0.9189	0.9942	0.8962	2776	1
hsa05205	Proteoglycans in cancer	2/156	201/7528	0.9246	0.9942	0.8962	5328/7291	2
hsa04015	Rap1 signaling pathway	2/156	206/7528	0.9309	0.9942	0.8962	2776/115	2
hsa04140	Autophagy - animal	1/156	128/7528	0.9330	0.9942	0.8962	1612	1
hsa04728	Dopaminergic synapse	1/156	131/7528	0.9372	0.9942	0.8962	2776	1

hsa03040	Spliceosome	1/156	134/7528	0.9411	0.9942	0.8962	51645	1
hsa04910	Insulin signaling pathway	1/156	137/7528	0.9447	0.9942	0.8962	1978	1
hsa05012	Parkinson disease	1/156	142/7528	0.9503	0.9942	0.8962	120892	1
hsa05224	Breast cancer	1/156	147/7528	0.9553	0.9942	0.8962	672	1
hsa04014	Ras signaling pathway	2/156	232/7528	0.9564	0.9942	0.8962	5319/5321	2
hsa03010	Ribosome	1/156	153/7528	0.9607	0.9942	0.8962	51373	1
hsa04144	Endocytosis	2/156	244/7528	0.9648	0.9942	0.8962	23327/2348	2
hsa05010	Alzheimer disease	1/156	171/7528	0.9733	0.9942	0.8962	2776	1
hsa04062	Chemokine signaling pathway	1/156	190/7528	0.9822	0.9942	0.8962	115	1
hsa05016	Huntington disease	1/156	193/7528	0.9833	0.9942	0.8962	2776	1
hsa04060	Cytokine-cytokine receptor interaction	2/156	294/7528	0.9860	0.9942	0.8962	7292/130399	2
hsa04010	MAPK signaling pathway	2/156	295/7528	0.9863	0.9942	0.8962	9254/5321	2
hsa04024	cAMP signaling pathway	1/156	212/7528	0.9889	0.9942	0.8962	115	1
hsa04080	Neuroactive ligand-receptor interaction	1/156	338/7528	0.9993	0.9993	0.9008	84634	1