

SUPPLEMENTARY TABLES

Supplementary Table 3. The activation states of biological pathways in distinct ICD subtypes.

ID	Description	GeneRatio	BgRatio	p-value	p.adjust	q-value	geneID	Count
hsa04060	Cytokine-cytokine receptor interaction	73/625	295/8142	2.82E-20	8.89E-18	6.98E-18		73
hsa04640	Hematopoietic cell lineage	39/625	99/8142	7.34E-19	1.16E-16	9.07E-17		39
hsa04061	Viral protein interaction with cytokine and cytokine receptor	38/625	100/8142	8.98E-18	9.43E-16	7.41E-16		38
hsa04658	Th1 and Th2 cell differentiation	34/625	92/8142	1.35E-15	1.06E-13	8.32E-14		34
hsa04659	Th17 cell differentiation	36/625	108/8142	8.31E-15	5.24E-13	4.11E-13		36
hsa04380	Osteoclast differentiation	39/625	128/8142	1.81E-14	9.52E-13	7.48E-13		39
hsa05321	Inflammatory bowel disease	27/625	65/8142	4.12E-14	1.85E-12	1.45E-12		27
hsa04062	Chemokine signaling pathway	48/625	192/8142	7.93E-14	3.12E-12	2.45E-12		48
hsa04064	NF-kappa B signaling pathway	34/625	104/8142	9.03E-14	3.16E-12	2.48E-12		34
hsa04514	Cell adhesion molecules	41/625	149/8142	1.78E-13	5.61E-12	4.40E-12		41
hsa04660	T cell receptor signaling pathway	33/625	104/8142	5.49E-13	1.57E-11	1.23E-11		33
hsa05140	Leishmaniasis	28/625	77/8142	7.29E-13	1.91E-11	1.50E-11		28
hsa04662	B cell receptor signaling pathway	28/625	82/8142	4.35E-12	1.00E-10	7.88E-11		28
hsa05330	Allograft rejection	19/625	38/8142	4.46E-12	1.00E-10	7.88E-11		19
hsa04650	Natural killer cell mediated cytotoxicity	36/625	131/8142	5.79E-12	1.22E-10	9.55E-11		36
hsa05152	Tuberculosis	42/625	180/8142	3.42E-11	6.74E-10	5.29E-10		42
hsa05340	Primary immunodeficiency	18/625	38/8142	5.28E-11	9.78E-10	7.68E-10		18
hsa04672	Intestinal immune network for IgA production	20/625	49/8142	1.27E-10	2.23E-09	1.75E-09		20
hsa04940	Type I diabetes mellitus	18/625	43/8142	6.63E-10	1.10E-08	8.63E-09		18
hsa05150	Staphylococcus aureus infection	27/625	96/8142	1.54E-09	2.42E-08	1.90E-08		27
hsa05323	Rheumatoid arthritis	26/625	93/8142	3.57E-09	5.33E-08	4.19E-08		26
hsa05332	Graft-versus-host disease	17/625	42/8142	3.72E-09	5.33E-08	4.19E-08		17
hsa05169	Epstein-Barr virus infection	41/625	202/8142	5.28E-09	7.23E-08	5.67E-08		41
hsa05166	Human T-cell leukemia virus 1 infection	43/625	222/8142	9.77E-09	1.28E-07	1.01E-07		43
hsa04630	JAK-STAT signaling pathway	34/625	162/8142	4.65E-08	5.86E-07	4.60E-07		34
hsa04612	Antigen processing and presentation	22/625	78/8142	4.84E-08	5.87E-07	4.61E-07		22
hsa04610	Complement and coagulation cascades	23/625	85/8142	5.63E-08	6.57E-07	5.16E-07		23
hsa05144	Malaria	17/625	50/8142	8.03E-08	9.03E-07	7.09E-07		17
hsa04145	Phagosome	32/625	152/8142	1.08E-07	1.17E-06	9.18E-07		32
hsa05320	Autoimmune thyroid disease	17/625	53/8142	2.12E-07	2.22E-06	1.75E-06		17
hsa05145	Toxoplasmosis	26/625	112/8142	2.26E-07	2.30E-06	1.81E-06		26
hsa05235	PD-L1 expression and PD-1 checkpoint pathway in cancer	22/625	89/8142	6.14E-07	6.04E-06	4.74E-06		22
hsa05202	Transcriptional misregulation in cancer	35/625	193/8142	1.23E-06	1.18E-05	9.24E-06		35
hsa05310	Asthma	12/625	31/8142	1.37E-06	1.27E-05	9.94E-06		12

hsa05416	Viral myocarditis	17/625	60/8142	1.52E-06	1.37E-05	1.08E-05	17
hsa05135	Yersinia infection	27/625	137/8142	4.09E-06	3.58E-05	2.81E-05	27
hsa05170	Human immunodeficiency virus 1 infection	36/625	212/8142	4.29E-06	3.66E-05	2.87E-05	36
hsa04010	MAPK signaling pathway	45/625	294/8142	5.09E-06	4.22E-05	3.31E-05	45
hsa05142	Chagas disease	22/625	102/8142	7.02E-06	5.67E-05	4.45E-05	22
hsa04625	C-type lectin receptor signaling pathway	22/625	104/8142	9.78E-06	7.70E-05	6.05E-05	22
hsa04670	Leukocyte transendothelial migration	23/625	114/8142	1.41E-05	0.000108	8.50E-05	23
hsa04620	Toll-like receptor signaling pathway	21/625	104/8142	3.27E-05	0.000245	0.000192	21
hsa04668	TNF signaling pathway	22/625	112/8142	3.34E-05	0.000245	0.000192	22
hsa04664	Fc epsilon RI signaling pathway	16/625	68/8142	4.06E-05	0.00029	0.000228	16
hsa05133	Pertussis	17/625	76/8142	4.71E-05	0.000325	0.000255	17
hsa05162	Measles	25/625	139/8142	4.74E-05	0.000325	0.000255	25
hsa05163	Human cytomegalovirus infection	34/625	225/8142	9.53E-05	0.000639	0.000502	34
hsa04666	Fc gamma R-mediated phagocytosis	19/625	97/8142	0.000118	0.000775	0.000609	19
hsa04014	Ras signaling pathway	34/625	232/8142	0.000175	0.001127	0.000885	34
hsa05417	Lipid and atherosclerosis	32/625	215/8142	0.000203	0.001277	0.001003	32
hsa05164	Influenza A	27/625	171/8142	0.000238	0.001473	0.001156	27
hsa05221	Acute myeloid leukemia	14/625	67/8142	0.000459	0.002783	0.002185	14
hsa04613	Neutrophil extracellular trap formation	27/625	190/8142	0.001281	0.007613	0.005979	27
hsa04210	Apoptosis	21/625	136/8142	0.001524	0.00867	0.006809	21
hsa05322	Systemic lupus erythematosus	21/625	136/8142	0.001524	0.00867	0.006809	21
hsa05143	African trypanosomiasis	9/625	37/8142	0.001541	0.00867	0.006809	9
hsa05171	Coronavirus disease - COVID-19	31/625	232/8142	0.00162	0.008953	0.007031	31
hsa04657	IL-17 signaling pathway	16/625	94/8142	0.001949	0.010583	0.008311	16
hsa04611	Platelet activation	19/625	124/8142	0.002742	0.014639	0.011496	19
hsa04621	NOD-like receptor signaling pathway	25/625	184/8142	0.003536	0.018563	0.014578	25
hsa05161	Hepatitis B	22/625	162/8142	0.006041	0.031193	0.024496	22
hsa04151	PI3K-Akt signaling pathway	40/625	354/8142	0.008194	0.041631	0.032693	40
hsa05134	Legionellosis	10/625	57/8142	0.010598	0.052991	0.041614	10
hsa04142	Lysosome	18/625	132/8142	0.011819	0.05805	0.045586	18
hsa04936	Alcoholic liver disease	19/625	142/8142	0.011979	0.05805	0.045586	19
hsa05167	Kaposi sarcoma-associated herpesvirus infection	24/625	194/8142	0.013246	0.06322	0.049647	24

Supplementary Table 4. Prognostic analysis of 5 subtype-associated genes with a multifactorial Cox regression analysis.

ID	Coef	HR	HR.95L	HR.95H	P-value
NT5E	0.1087	1.1148	1.003	1.239	0.0438
HSP90AA1	0.4088	1.505	1.0901	2.0779	0.013
EIF2AK3	-0.5949	0.5516	0.4097	0.7426	0.0001
PIK3CA	0.5066	1.6597	1.1893	2.3161	0.0029
P2RX7	-0.3506	0.7043	0.5827	0.8512	0.0003