

Supplementary Tab. S2. Oligonucleotide Sequence for all the primers used in the study.

Name	Oligonucleotide sequence (5' - 3')	
	Forward	Reverse
hsa-miR-195-5p	CatNo: HmiRQP0283, GeneCopoeia, USA	
SMAP2	atgatgcctccaccagtagg	gggtggtcatcattccattc
DCUN1D1	tgccactggaaacttagtgct	ctgcaatcatcgtactgaagtct
SMAD4	gatacgtggacccttctgga	tgacccaaacatcaccttca
IPO9	ttcacagcaagcatggaaag	gcttcaatctgggacagctc
RPS6KB1	gctgtggattggtggagttt	gtgtgaggtagggaggcaaa
CAPZA2	gaaagccatcagttccaagc	ttcaagatgccaccacttg
CPNE1	tatggccctaccaactttgc	acagcaccatcagtcagcag
GAPDH	catgggtgtgaacctagagaagta	cagtagaggcagggatgatgttct
U6	CatNo: HmiRQP9001, GeneCopoeia, USA	

Supplementary Tab.S3. The antibodies used in this study.

Name	Description	Product code	Company
anti- RPS6KB1	rabbit monoclonal	ab32359	Abcam Co Ltd, USA
anti-MMP-9	rabbit monoclonal	ZA-0562	ZSGB-BIO, China
anti-VEGF	rabbit polyclonal	BA0407	BOSTER, China
anti-BAD	rabbit polyclonal	BA0530	BOSTER, China
anti-E-cadherin	rabbit monoclonal	ZA-0565	ZSGB-BIO, China
anti-CD31	rabbit monoclonal	ZA-0568	ZSGB-BIO, China
anti-Vimentin	rabbit monoclonal	ZA-0511	ZSGB-BIO, China
anti-GAPDH	rabbit monoclonal	M30008	Abmart, China

Supplementary Tab.S4. Associations of miR-195 and RPS6KB1 protein expression with clinicopathological features of prostate cancer (PCa) patients

Clinical features	Taylor dataset			Tissue microarray (MGH)			
	N	hsa-miR-195	<i>P</i>	N	RPS6KB1		<i>P</i>
		Median (Q1, Q3)			Positive n=174	Negative n=51	
Age (years)							
< 66	93	11.28 (10.84,11.61)	0.801	225	62.05±6.26	61.59±6.06	0.64
≥66	20	11.15 (10.73,11.67)					
Preoperation PSA (ng/ml)							
≤4	20	11.18 (10.82,11.49)	0.504	32	24 (75)	8 (25)	0.912
> 4	91	11.26 (10.81,11.64)		151	119 (78.8)	32 (21.2)	
Gleason Score							
≤ 6	32	11.29 (11.07,11.53)	0.001	88	64 (72.7)	24 (27.3)	0.413
7	55	11.35 (11.02,11.74)		103	83 (80.6)	20 (19.4)	

≥8	19	10.82 (10.11,11.09)		34	27 (79.4)	7 (20.6)	
Clinical Stage							
<T2A	65	11.17 (10.76,11.56)	0.159	—	—	—	—
≥T2A	44	11.32 (11.06,11.67)					
Pathological Stage							
T2A-T2C	71	11.30 (10.88,11.61)	0.194	169	125 (74)	44 (26)	0.036
T3A-T4	37	11.12 (10.73,11.46)		56	49 (87.5)	7 (12.5)	
Surgical margin status							
Negative	—	—	—	141	102 (72.3)	35 (27.7)	0.02
Positive				84	72 (85.7)	12 (14.3)	
Metastasis failure							
Negative	94	11.29 (11.02,11.63)	<0.001	206	156 (75.7)	50 (24.3)	0.058
Positive	19	10.71 (9.44,11.08)		19	18 (94.7)	1 (5.3)	
Biochemical recurrence							
Negative	80	11.33 (11.05,11.70)	<0.001	140	101 (72.1)	39 (27.9)	0.017
Positive	27	10.95 (10.26,11.26)		85	73 (85.9)	12 (14.1)	

Overall survival

Alive	99	11.24 (10.87,11.62)	0.252	182	135 (74.2)	47 (25.8)	0.02
Died	14	10.82 (9.40,11.58)		43	39 (90.7)	4 (9.3)	

Note: “-“ means there are lack of relative information of patients in our cohort.

Supplementary Tab.S5. Prognostic value of miR-195 expression for the biochemical recurrence-free survival in univariate and multivariate analysis by Cox Regression

	Univaviable analysis		Multivaviable analysis	
	HR (95% CI)	<i>P</i>	HR (95% CI)	<i>P</i>
Age	1.04 (0.98-1.09)	0.186	0.73 (0.28-2.07)	0.593
Clinical tumor stage	0.83 (0.39-1.89)	0.692	0.67 (0.27-1.63)	0.665
Pathological tumor stage	5.32 (2.36-11.99)	<0.001	2.79 (0.98-7.92)	0.054
Preoperative PSA	1.37 (0.56-4.79)	0.366	1.17 (0.32-4.26)	0.81
Gleason score	8.11 (3.98-16.52)	<0.001	6.24(2.82-13.80)	<0.001
miR-195	0.53 (0.40-0.71)	<0.001	0.61 (0.41-0.93)	0.022

HR, Hazard ratio; CI, confidence interval; Age, between age ≤ 66 and age > 66 ; Clinical tumor stage, between $< T2A$ and $\geq T2A$; Pathological tumor stage, between $T2A-T2C$ and $T3A-T4$; Preoperative PSA (ng/ml), between ≤ 4 and > 4 ; Gleason score, among Gleason score $\leq 6, 7$ and ≥ 8 ; miR-195, continuous miR-195 expression levels.

Supplementary Tab. S6 Differentially expressed proteins detected by iTRAQ

Uniprot_accession/ID	Official Symbol	Ratio	P_value
sp P05091 ALDH2_HUMAN	ALDH2	4.195667267	0.03428
sp P13861 KAP2_HUMAN	PRKAR2A	3.42925328	0.04925
sp Q16836 HCDH_HUMAN	HADH	3.355118454	0.02164
sp P35232 PHB_HUMAN	PHB	3.224297464	0.00235
sp P38646 GRP75_HUMAN	HSPA9	2.752338052	0.0222
sp Q9Y697 NFS1_HUMAN	NFS1	2.632053494	0.01185
sp Q9H3P2 NELFA_HUMAN	NELFA	2.479489744	0.02854
sp Q6XZF7 DNMBP_HUMAN	DNMBP	2.425709888	0.01218
sp Q9BX68 HINT2_HUMAN	HINT2	2.279932439	0.04065
sp Q9NSE4 SYIM_HUMAN	IARS2	2.250578523	0.03209
sp Q6NVY1 HIBCH_HUMAN	HIBCH	2.119951993	0.03158
sp P23381 SYWC_HUMAN	WARS	2.11467427	0.04801
sp P04844 RPN2_HUMAN	RPN2	2.079105943	0.04058
sp P54886 P5CS_HUMAN	ALDH18A1	2.069828957	0.04518
sp O43815 STRN_HUMAN	STRN	1.975410998	0.01713
sp Q15717 ELAV1_HUMAN	ELAVL1	1.974220246	0.04615
sp Q8NB5 GT251_HUMAN	COLGALT1	1.915514767	0.03446
sp P50213 IDH3A_HUMAN	IDH3A	1.906443238	0.01252
sp O60832 DKC1_HUMAN	DKC1	1.902412027	0.02959
sp O00148 DX39A_HUMAN	DDX39A	1.840716213	0.00951
sp P31040 DHSA_HUMAN	SDHA	1.82615447	0.01935
sp P51572 BAP31_HUMAN	BCAP31	1.770583719	0.04167
sp P29083 T2EA_HUMAN	GTF2E1	1.729170263	0.03563
sp Q9UI12 VATH_HUMAN	ATP6V1H	1.727126241	0.00458
sp P12268 IMDH2_HUMAN	IMPDH2	1.622033745	0.01718
sp P23919 KTHY_HUMAN	DTYMK	1.534812003	0.02571
sp Q9NX18 SDHF2_HUMAN	SDHAF2	1.522305518	0.02044
sp O75367 H2AY_HUMAN	H2AFY	1.508617014	0.04558
sp Q96PZ0 PUS7_HUMAN	PUS7	0.739721179	0.00255
sp O95302 FKBP9_HUMAN	FKBP9	0.736306727	0.03217
sp Q9UP95 S12A4_HUMAN	SLC12A4	0.722360298	0.04439
sp O75909 CCNK_HUMAN	CCNK	0.721757635	0.02487
sp Q9NZL4 HPBP1_HUMAN	HSPBP1	0.721199125	0.04093
sp O43809 CPSF5_HUMAN	NUDT21	0.717672423	0.04304
sp Q93009 UBP7_HUMAN	USP7	0.705983415	0.03583
sp Q8WU79 SMAP2_HUMAN	SMAP2	0.698306456	0.01474
sp P62841 RS15_HUMAN	RPS15	0.695385486	0.04636
sp Q9BSJ8 ESYT1_HUMAN	ESYT1	0.680789188	0.0129
sp Q96GG9 DCNL1_HUMAN	DCUN1D1	0.671341419	0.03208
sp Q13045 FLII_HUMAN	FLII	0.647168115	0.03531
sp P30530 UFO_HUMAN	AXL	0.645879164	0.0056
sp Q13485 SMAD4_HUMAN	SMAD4	0.640501678	0.01217
sp P00390 GSHR_HUMAN	GSR	0.635484383	0.00961
sp Q14558 KPRA_HUMAN	PRPSAP1	0.630326912	0.01955
sp Q13033 STRN3_HUMAN	STRN3	0.590797544	0.02777
sp O00303 EIF3F_HUMAN	EIF3F	0.589347705	0.00831
sp Q96P70 IPO9_HUMAN	IPO9	0.587161526	0.02756
sp P23443 KS6B1_HUMAN	RPS6KB1	0.583525553	0.00346
sp Q86W92 LIPB1_HUMAN	PPFIBP1	0.580734506	0.01276

sp Q01433 AMPD2_HUMAN	AMPD2	0.579529971	0.02144
sp P47755 CAZA2_HUMAN	CAPZA2	0.576990873	0.03222
sp P55145 MANF_HUMAN	MANF	0.573241577	0.00051
sp Q9NZM1 MYOF_HUMAN	MYOF	0.572868854	0.01999
sp Q15052 ARHG6_HUMAN	ARHGEF6	0.5594327	0.03733
sp Q9H4A6 GOLP3_HUMAN	GOLPH3	0.556864768	0.01408
sp Q4G0F5 VP26B_HUMAN	VPS26B	0.547502913	0.04771
sp O95819 M4K4_HUMAN	MAP4K4	0.540254667	0.01086
sp Q99829 CPNE1_HUMAN	CPNE1	0.526200175	0.02093
sp P52306 GDS1_HUMAN	RAP1GDS1	0.504384212	0.02283
sp Q9UQB8 BAIP2_HUMAN	BAIAP2	0.486005686	0.04721
sp Q8IXI2 MIRO1_HUMAN	RHOT1	0.477038652	0.03104
sp Q9H0C5 BTBD1_HUMAN	BTBD1	0.476638153	0.01737
sp Q02218 ODO1_HUMAN	OGDH	0.427827843	0.01335
sp Q9UMX0 UBQL1_HUMAN	UBQLN1	0.402540468	0.04082
sp Q5EBL4 RIPL1_HUMAN	RILPL1	0.402213	0.01472
sp Q9Y371 SHLB1_HUMAN	SH3GLB1	0.395100318	0.04244
sp P21980 TGM2_HUMAN	TGM2	0.391278729	0.00883
sp P54687 BCAT1_HUMAN	BCAT1	0.380259246	0.01514
sp P09601 HMOX1_HUMAN	HMOX1	0.376833893	0.04515
sp P48200 IREB2_HUMAN	IREB2	0.359795123	0.04353
sp O14737 PDCD5_HUMAN	PDCD5	0.359399945	0.01548
sp P37173 TGFR2_HUMAN	TGFBR2	0.327228926	0.00972
sp Q9NZN4 EHD2_HUMAN	EHD2	0.316448867	0.00021
sp Q32P44 EMAL3_HUMAN	EML3	0.308072053	0.02469
sp Q6DKJ4 NXN_HUMAN	NXN	0.304598354	0.00429
sp Q9UBV8 PEF1_HUMAN	PEF1	0.278009277	0.03426
sp P54652 HSP72_HUMAN	HSPA2	0.232927844	0.00693
sp Q15149 PLEC_HUMAN	PLEC	0.22473355	0.01253

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Ingenuity Canonical Pathways	-log(p-value)	Ratio	Molecules
TCA Cycle II (Eukaryotic)	3.94E00	7.5E-02	SDHA, IDH3A, OGDH
mTOR Signaling	3.74E00	2.82E-02	HMOX1, RPS6KB1, EIF3F, PLD2, RHOT1, RPS15
Pancreatic Adenocarcinoma Signaling	2.92E00	3.12E-02	TGFBR2, HMOX1, PLD2, SMAD4
IL-8 Signaling	2.88E00	2.22E-02	HMOX1, RPS6KB1, PLD2, RHOT1, MAP4K4
Choline Biosynthesis III	2.85E00	9.09E-02	HMOX1, PLD2
Valine Degradation I	2.56E00	5.71E-02	HIBCH, BCAT1
Phospholipase C Signaling	2.45E00	1.89E-02	TGM2, HMOX1, PLD2, RHOT1, ARHGEF6
Alanine Biosynthesis III	2.36E00	3.33E-01	NFS1
Glucocorticoid Receptor Signaling	2.25E00	1.67E-02	TGFBR2, GTF2E1, HSPA9, SMAD4, HSPA2
Antiproliferative Role of TOB in T Cell Signal	2.25E00	7.69E-02	TGFBR2, SMAD4
PPARα/RXRα Activation	2.13E00	2E-02	TGFBR2, PRKAR2A, SMAD4, MAP4K4
Fcy Receptor-mediated Phagocytosis in Mac	2.11E00	2.83E-02	HMOX1, RPS6KB1, PLD2
Antioxidant Action of Vitamin C	2.06E00	2.7E-02	HMOX1, PLD2, NXN
tRNA Charging	1.93E00	2.47E-02	WARS, IARS2
Coenzyme A Biosynthesis	1.89E00	7.14E-02	COASY
Glutathione Redox Reactions II	1.89E00	1.43E-01	GSR
Huntington's Disease Signaling	1.79E00	1.59E-02	SDHA, TGM2, HSPA9, HSPA2
Role of Oct4 in Mammalian Embryonic Stem	1.79E00	3.85E-02	PHB, SH3GLB1
Molecular Mechanisms of Cancer	1.78E00	1.29E-02	TGFBR2, RHOT1, ARHGEF6, PRKAR2A, SMAD4
Cardiac Hypertrophy Signaling	1.78E00	1.6E-02	TGFBR2, RPS6KB1, RHOT1, PRKAR2A
2-ketoglutarate Dehydrogenase Complex	1.76E00	1.11E-01	OGDH
Heme Degradation	1.76E00	9.09E-02	HMOX1
Phenylethylamine Degradation I	1.76E00	9.09E-02	ALDH2
Proline Biosynthesis I	1.76E00	7.14E-02	ALDH18A1
Molybdenum Cofactor Biosynthesis	1.76E00	6.25E-02	NFS1
eNOS Signaling	1.71E00	1.94E-02	HSPA9, PRKAR2A, HSPA2
Insulin Receptor Signaling	1.7E00	2.01E-02	RPS6KB1, PRKAR2A, LIPE
AMPK Signaling	1.68E00	1.66E-02	RPS6KB1, PRKAR2A, LIPE
Colorectal Cancer Metastasis Signaling	1.67E00	1.49E-02	TGFBR2, RHOT1, PRKAR2A, SMAD4
Actin Nucleation by ARP-WASP Complex	1.61E00	2.99E-02	RHOT1, BAIAP2
Thioredoxin Pathway	1.59E00	1.25E-01	NXN
Phospholipases	1.58E00	2.94E-02	HMOX1, PLD2
Regulation of eIF4 and p70S6K Signaling	1.57E00	1.71E-02	RPS6KB1, EIF3F, RPS15
Gαq Signaling	1.57E00	1.75E-02	HMOX1, PLD2, RHOT1
Tight Junction Signaling	1.54E00	1.8E-02	TGFBR2, NUDT21, PRKAR2A
Citrulline Biosynthesis	1.47E00	3.85E-02	ALDH18A1
IL-10 Signaling	1.45E00	2.56E-02	HMOX1, MAP4K4
Mitochondrial Dysfunction	1.45E00	1.4E-02	SDHA, GSR, OGDH
Leucine Degradation I	1.42E00	3.85E-02	BCAT1
BMP signaling pathway	1.36E00	2.33E-02	PRKAR2A, SMAD4
Regulation of IL-2 Expression in Activated ar	1.33E00	2.25E-02	TGFBR2, SMAD4
Thrombin Signaling	1.3E00	1.42E-02	RPS6KB1, RHOT1, ARHGEF6
Regulation of Actin-based Motility by Rho	1.3E00	2.17E-02	RHOT1, BAIAP2
Cleavage and Polyadenylation of Pre-mRNA	1.29E00	7.69E-02	NUDT21
Glutaryl-CoA Degradation	1.29E00	4.17E-02	HADH
Purine Nucleotides De Novo Biosynthesis II	1.29E00	2.38E-02	IMPDH2
Melanocyte Development and Pigmentation	1.27E00	2.11E-02	RPS6KB1, PRKAR2A
TGF-β Signaling	1.26E00	2.13E-02	TGFBR2, SMAD4
Histamine Degradation	1.26E00	3.45E-02	ALDH2
Factors Promoting Cardiogenesis in Vertebr	1.24E00	2.02E-02	TGFBR2, SMAD4
G Beta Gamma Signaling	1.24E00	1.65E-02	ARHGEF6, PRKAR2A
Superpathway of Citrulline Metabolism	1.23E00	2.63E-02	ALDH18A1
Urate Biosynthesis/Inosine 5'-phosphate De	1.23E00	4.35E-02	IMPDH2
Phenylalanine Degradation IV (Mammalian, v	1.23E00	2.56E-02	ALDH2
Vitamin-C Transport	1.23E00	4.55E-02	NXN
Chronic Myeloid Leukemia Signaling	1.2E00	1.89E-02	TGFBR2, SMAD4
Isoleucine Degradation I	1.2E00	3.33E-02	BCAT1
IGF-1 Signaling	1.18E00	1.87E-02	RPS6KB1, PRKAR2A
Fatty Acid α-oxidation	1.17E00	4.35E-02	ALDH2
Oxidative Ethanol Degradation III	1.17E00	2.5E-02	ALDH2
Glutathione Redox Reactions I	1.15E00	4.17E-02	GSR
Putrescine Degradation III	1.15E00	3.33E-02	ALDH2
Rac Signaling	1.12E00	1.56E-02	RPS6KB1, BAIAP2
Tryptophan Degradation X (Mammalian, via	1.12E00	3.45E-02	ALDH2
Ethanol Degradation IV	1.12E00	3.45E-02	ALDH2
Signaling by Rho Family GTPases	1.1E00	1.14E-02	RHOT1, ARHGEF6, BAIAP2
Cardiomyocyte Differentiation via BMP Rece	1.1E00	4.55E-02	SMAD4
Purine Nucleotides Degradation II (Aerobic)	1.08E00	2.7E-02	IMPDH2
Protein Kinase A Signaling	1.07E00	9.78E-03	TGFBR2, PRKAR2A, LIPE, SMAD4
Androgen Signaling	1.07E00	1.38E-02	GTF2E1, PRKAR2A
Tryptophan Degradation III (Eukaryotic)	1.06E00	2.08E-02	HADH
PTEN Signaling	1.04E00	1.45E-02	TGFBR2, RPS6KB1
p38 MAPK Signaling	1.03E00	1.67E-02	TGFBR2, RPS6KB1
p70S6K Signaling	1.02E00	1.52E-02	RPS6KB1, BCAP31
Dopamine Degradation	1E00	2.63E-02	ALDH2
Pyrimidine Deoxyribonucleotides De Novo Bi	1E00	2.27E-02	DTYMK
Protein Ubiquitination Pathway	1E00	1.11E-02	USP7, HSPA9, HSPA2
Estrogen Receptor Signaling	9.77E-01	1.47E-02	THRAP3, GTF2E1
Triacylglycerol Degradation	9.7E-01	3.03E-02	LIPE
Ovarian Cancer Signaling	9.44E-01	1.32E-02	RPS6KB1, PRKAR2A
Human Embryonic Stem Cell Pluripotency	9.33E-01	1.23E-02	TGFBR2, SMAD4
Hepatic Fibrosis / Hepatic Stellate Cell Acti	9.12E-01	1.29E-02	TGFBR2, SMAD4
Fatty Acid β-oxidation I	9.12E-01	2.22E-02	HADH
Hedgehog Signaling	9.12E-01	2.86E-02	PRKAR2A, DCUN1D1
Aryl Hydrocarbon Receptor Signaling	9.07E-01	1.17E-02	TGM2, ALDH18A1
Epithelial Adherens Junction Signaling	8.77E-01	1.3E-02	TGFBR2, BAIAP2
Ethanol Degradation II	8.73E-01	2.33E-02	ALDH2
Glioblastoma Multiforme Signaling	8.73E-01	1.19E-02	RPS6KB1, RHOT1
Inhibition of Angiogenesis by TSP1	8.61E-01	2.38E-02	TGFBR2
Retinol Biosynthesis	8.49E-01	2.22E-02	LIPE
Aldosterone Signaling in Epithelial Cells	8.45E-01	1.18E-02	HSPA9, HSPA2
Noradrenaline and Adrenaline Degradation	8.38E-01	1.89E-02	ALDH2
Germ Cell-Sertoli Cell Junction Signaling	8.31E-01	1.18E-02	TGFBR2, RHOT1
Cdc42 Signaling	8.1E-01	1.08E-02	ARHGEF6, BAIAP2
Netrin Signaling	8.06E-01	1.72E-02	PRKAR2A
Mechanisms of Viral Exit from Host Cells	7.96E-01	2.22E-02	SH3GLB1
Neuroprotective Role of THOP1 in Alzheimer	7.96E-01	1.82E-02	PRKAR2A
Endothelin-1 Signaling	7.65E-01	1.04E-02	HMOX1, PLD2
NF-κB Signaling	7.61E-01	1.1E-02	TGFBR2, MAP4K4
RhoGDI Signaling	7.57E-01	9.9E-03	RHOT1, ARHGEF6
RAR Activation	7.46E-01	1.03E-02	PRKAR2A, SMAD4
NRF2-mediated Oxidative Stress Response	7.35E-01	1.03E-02	GSR, HMOX1
GABA Receptor Signaling	7.32E-01	1.79E-02	UBQLN1
Regulation of the Epithelial-Mesenchymal Tr	7.31E-01	1.02E-02	TGFBR2, SMAD4
Role of NFAT in Cardiac Hypertrophy	7.27E-01	9.57E-03	TGFBR2, PRKAR2A
EIF2 Signaling	7.2E-01	9.95E-03	EIF3F, RPS15
ILK Signaling	7.09E-01	9.76E-03	RHOT1, ARHGEF6
Assembly of RNA Polymerase II Complex	7.08E-01	1.79E-02	GTF2E1
Heparan Sulfate Biosynthesis (Late Stages)	7.08E-01	1.61E-02	LIPE
Amyloid Processing	7E-01	1.64E-02	PRKAR2A
CNTF Signaling	6.93E-01	1.75E-02	RPS6KB1
Semaphorin Signaling in Neurons	6.93E-01	1.85E-02	RHOT1
Breast Cancer Regulation by Stathmin1	6.89E-01	9.35E-03	ARHGEF6, PRKAR2A
UVB-Induced MAPK Signaling	6.85E-01	1.72E-02	RPS6KB1
Phototransduction Pathway	6.85E-01	1.49E-02	PRKAR2A
Toll-like Receptor Signaling	6.64E-01	1.56E-02	MAP4K4
EGF Signaling	6.64E-01	1.56E-02	RPS6KB1
Glioma Invasiveness Signaling	6.51E-01	1.52E-02	RHOT1
Heparan Sulfate Biosynthesis	6.51E-01	1.33E-02	LIPE
Death Receptor Signaling	6.51E-01	1.47E-02	MAP4K4

IL-15 Signaling	6.31E-01	1.39E-02	AXL
Serotonin Degradation	6.31E-01	1.28E-02	ALDH2
Actin Cytoskeleton Signaling	6.23E-01	8.26E-03	ARHGEF6,BAIAP2
ERK5 Signaling	6.13E-01	1.47E-02	RPS6KB1
Cell Cycle: G1/S Checkpoint Regulation	6.02E-01	1.39E-02	SMAD4
PXR/RXR Activation	5.96E-01	1.09E-02	PRKAR2A
Erythropoietin Signaling	5.96E-01	1.27E-02	RPS6KB1
Mitotic Roles of Polo-Like Kinase	5.96E-01	1.35E-02	STAG2
Retinoic acid Mediated Apoptosis Signaling	5.96E-01	1.37E-02	DAP3
Agrin Interactions at Neuromuscular Junction	5.91E-01	1.43E-02	ARHGEF6
T Helper Cell Differentiation	5.85E-01	1.39E-02	TGFBR2
Growth Hormone Signaling	5.85E-01	1.28E-02	RPS6KB1
Melatonin Signaling	5.8E-01	1.23E-02	PRKAR2A
STAT3 Pathway	5.64E-01	1.25E-02	TGFBR2
IL-4 Signaling	5.59E-01	1.25E-02	RPS6KB1
FLT3 Signaling in Hematopoietic Progenitor	5.54E-01	1.27E-02	RPS6KB1
Leptin Signaling in Obesity	5.54E-01	1.18E-02	PRKAR2A
Dopamine Receptor Signaling	5.49E-01	1.04E-02	PRKAR2A
Acute Myeloid Leukemia Signaling	5.45E-01	1.19E-02	RPS6KB1
Axonal Guidance Signaling	5.36E-01	6.16E-03	ARHGEF6,BAIAP2,PRKAR2A
Reelin Signaling in Neurons	5.35E-01	1.18E-02	ARHGEF6
ErbB Signaling	5.09E-01	1.11E-02	RPS6KB1
FAK Signaling	5E-01	9.43E-03	ARHGEF6
Neuregulin Signaling	4.96E-01	9.62E-03	RPS6KB1
α -Adrenergic Signaling	4.96E-01	9.17E-03	PRKAR2A
CDK5 Signaling	4.96E-01	1.03E-02	PRKAR2A
PAK Signaling	4.96E-01	9.09E-03	ARHGEF6
Apoptosis Signaling	4.96E-01	1E-02	MAP4K4
UVA-Induced MAPK Signaling	4.84E-01	1.02E-02	RPS6KB1
Xenobiotic Metabolism Signaling	4.82E-01	6.94E-03	HMOX1,ALDH18A1
VEGF Signaling	4.8E-01	9.17E-03	ELAVL1
HMGB1 Signaling	4.77E-01	9.17E-03	RHOT1
IL-1 Signaling	4.77E-01	9.17E-03	PRKAR2A
PPAR Signaling	4.73E-01	9.35E-03	MAP4K4
Mouse Embryonic Stem Cell Pluripotency	4.69E-01	1.01E-02	SMAD4
SAPK/JNK Signaling	4.69E-01	9.52E-03	MAP4K4
p53 Signaling	4.58E-01	8.85E-03	CCNK
Neuropathic Pain Signaling In Dorsal Horn N	4.51E-01	9.17E-03	PRKAR2A
Cholecystokinin/Gastrin-mediated Signaling	4.48E-01	9.43E-03	RHOT1
Paxillin Signaling	4.48E-01	8.55E-03	ARHGEF6
Telomerase Signaling	4.48E-01	9.43E-03	DKC1
Nitric Oxide Signaling in the Cardiovascular	4.48E-01	8E-03	PRKAR2A
NGF Signaling	4.28E-01	8.2E-03	RPS6KB1
Oxidative Phosphorylation	4.25E-01	8.33E-03	SDHA
Renin-Angiotensin Signaling	4.22E-01	7.94E-03	PRKAR2A
Sphingosine-1-phosphate Signaling	4.18E-01	8.13E-03	RHOT1
Role of Tissue Factor in Cancer	4.15E-01	7.69E-03	RPS6KB1
Role of NANOG in Mammalian Embryonic S	4.12E-01	8.4E-03	SMAD4
Gas Signaling	4.12E-01	8E-03	PRKAR2A
Corticotropin Releasing Hormone Signaling	4.09E-01	6.9E-03	PRKAR2A
IL-6 Signaling	4.01E-01	8.06E-03	MAP4K4
RhoA Signaling	3.95E-01	8.13E-03	BAIAP2
Sperm Motility	3.92E-01	6.94E-03	PRKAR2A
Synaptic Long Term Potentiation	3.89E-01	7.69E-03	PRKAR2A
LXR/RXR Activation	3.87E-01	7.19E-03	HADH
P2Y Purigenic Receptor Signaling Pathway	3.84E-01	6.94E-03	PRKAR2A
Gai Signaling	3.84E-01	7.41E-03	PRKAR2A
PI3K/AKT Signaling	3.81E-01	6.58E-03	RPS6KB1
Cellular Effects of Sildenafil (Viagra)	3.66E-01	6.45E-03	PRKAR2A
GNRH Signaling	3.63E-01	6.54E-03	PRKAR2A
Cardiac β -adrenergic Signaling	3.51E-01	6.33E-03	PRKAR2A
Relaxin Signaling	3.46E-01	6.1E-03	PRKAR2A
Hepatic Cholestasis	3.42E-01	5.46E-03	PRKAR2A
CXCR4 Signaling	3.12E-01	5.75E-03	RHOT1
Gap Junction Signaling	3.06E-01	5.52E-03	PRKAR2A
Tec Kinase Signaling	3.06E-01	5.43E-03	RHOT1
B Cell Receptor Signaling	3E-01	5.71E-03	RPS6KB1
Dopamine-DARPP32 Feedback in cAMP Sign	2.93E-01	5.35E-03	PRKAR2A
Acute Phase Response Signaling	2.82E-01	5.52E-03	HMOX1
Wnt/ β -catenin Signaling	2.78E-01	5.71E-03	TGFBR2
CREB Signaling in Neurons	2.72E-01	4.83E-03	PRKAR2A
Ephrin Receptor Signaling	2.72E-01	4.76E-03	MAP4K4
Sertoli Cell-Sertoli Cell Junction Signaling	2.68E-01	5.05E-03	PRKAR2A
Production of Nitric Oxide and Reactive Oxy	2.65E-01	4.72E-03	RHOT1
Calcium Signaling	2.63E-01	4.61E-03	PRKAR2A
Clathrin-mediated Endocytosis Signaling	2.56E-01	5.05E-03	SH3GLB1
ERK/MAPK Signaling	2.51E-01	4.74E-03	PRKAR2A
Integrin Signaling	2.38E-01	4.81E-03	RHOT1
Role of Osteoblasts, Osteoclasts and Chond	2.09E-01	4E-03	SMAD4
cAMP-mediated signaling	2.09E-01	4.42E-03	PRKAR2A
LPS/IL-1 Mediated Inhibition of RXR Functio	2.07E-01	4.08E-03	ALDH18A1

Dermatological Diseases and Conditions	autosomal recessive cutis laxa type IIIA	4.35E-03	ALDH18A1	1
Connective Tissue Disorders	autosomal recessive cutis laxa type IIIA	4.35E-03	ALDH18A1	1
Developmental Disorder	autosomal recessive cutis laxa type IIIA	4.35E-03	ALDH18A1	1
Hereditary Disorder	autosomal recessive cutis laxa type IIIA	4.35E-03	ALDH18A1	1
Metabolic Disease	autosomal recessive cutis laxa type IIIA	4.35E-03	ALDH18A1	1
Hereditary Disorder	beta-hydroxyisobutyryl-coa deacylase deficiency	4.35E-03	HIBCH	1
Metabolic Disease	beta-hydroxyisobutyryl-coa deacylase deficiency	4.35E-03	HIBCH	1
Cancer	brain astrocytoma	4.35E-03	GSR	1
Neurological Disease	brain astrocytoma	4.35E-03	GSR	1
Cancer	brainstem glioma	4.35E-03	GSR	1
Neurological Disease	brainstem glioma	4.35E-03	GSR	1
Small Molecule Biochemistry	breakdown of heme	4.35E-03	HMOX1	1
Cancer	cell viability of chronic myelogenous leukemia cells	4.35E-03	HMOX1	1
Cell Death and Survival	cell viability of chronic myelogenous leukemia cells	4.35E-03	HMOX1	1
Tumor Morphology	cell viability of chronic myelogenous leukemia cells	4.35E-03	HMOX1	1
Cancer	chemosensitivity of glioblastoma cells	4.35E-03	TGM2	1
Developmental Disorder	chromosome Xq28 microdeletion syndrome	4.35E-03	BCAP31	1
Hereditary Disorder	chromosome Xq28 microdeletion syndrome	4.35E-03	BCAP31	1
Tissue Morphology	collapse of dorsal aorta	4.35E-03	SMAD4	1
Small Molecule Biochemistry	conjugation of histamine	4.35E-03	TGM2	1
Neurological Disease	damage of nigrostriatum	4.35E-03	TGM2	1
Organismal Injury and Abnormalities	damage of nigrostriatum	4.35E-03	TGM2	1
Hereditary Disorder	deficiency of 3-hydroxyacyl-coa dehydrogenase	4.35E-03	HADH	1
Metabolic Disease	deficiency of 3-hydroxyacyl-coa dehydrogenase	4.35E-03	HADH	1
Embryonic Development	degeneration of embryo	4.35E-03	FLII	1
Cellular Compromise	degeneration of keratinocytes	4.35E-03	PLEC	1
Small Molecule Biochemistry	degradation of acetaldehyde	4.35E-03	ALDH2	1
Cellular Growth and Proliferation	delay in growth of colon cancer cell lines	4.35E-03	TGFBR2	1
Cellular Development	delay in growth of colon cancer cell lines	4.35E-03	TGFBR2	1
Cell Death and Survival	delay in initiation of regeneration of goblet cells	4.35E-03	TGFBR2	1
Cellular Development	delay in initiation of regeneration of goblet cells	4.35E-03	TGFBR2	1
Tissue Morphology	density of beta islet cells	4.35E-03	RPS6KB1	1
Endocrine System Development and Fur	density of beta islet cells	4.35E-03	RPS6KB1	1
Connective Tissue Development and Fur	density of osteocytes	4.35E-03	TGFBR2	1
Tissue Morphology	density of osteocytes	4.35E-03	TGFBR2	1
Skeletal and Muscular System Developm	density of osteocytes	4.35E-03	TGFBR2	1
Tissue Morphology	deposition of vascular smooth muscle cells	4.35E-03	HMOX1	1
Cellular Assembly and Organization	development of intercalated disks	4.35E-03	PLEC	1
Embryonic Development	development of intercalated disks	4.35E-03	PLEC	1
Organismal Development	development of intercalated disks	4.35E-03	PLEC	1
Tissue Development	development of intercalated disks	4.35E-03	PLEC	1
Organ Development	development of intercalated disks	4.35E-03	PLEC	1
Skeletal and Muscular System Developm	development of intercalated disks	4.35E-03	PLEC	1
Cardiovascular System Development an	development of intercalated disks	4.35E-03	PLEC	1
Cell-To-Cell Signaling and Interaction	development of intercalated disks	4.35E-03	PLEC	1
Tissue Development	differentiation of calvaria	4.35E-03	TGFBR2	1
Cellular Development	differentiation of calvaria	4.35E-03	TGFBR2	1
Cellular Development	differentiation of spermatocytes	4.35E-03	HSPA2	1
Reproductive System Development and	differentiation of spermatocytes	4.35E-03	HSPA2	1
Cellular Assembly and Organization	dissociation of mitochondrial matrix	4.35E-03	SH3GLB1	1
Cellular Assembly and Organization	dissociation of mitochondrial outer membrane	4.35E-03	SH3GLB1	1
Dermatological Diseases and Conditions	dyskeratosis	4.35E-03	DKC1	1
Inflammatory Response	endotoxin tolerance of fibroblast cell lines	4.35E-03	SMAD4	1
Organismal Injury and Abnormalities	epidermolysis bullosa simplex with muscular dystrop	4.35E-03	PLEC	1
Dermatological Diseases and Conditions	epidermolysis bullosa simplex with muscular dystrop	4.35E-03	PLEC	1
Connective Tissue Disorders	epidermolysis bullosa simplex with muscular dystrop	4.35E-03	PLEC	1
Developmental Disorder	epidermolysis bullosa simplex with muscular dystrop	4.35E-03	PLEC	1
Hereditary Disorder	epidermolysis bullosa simplex with muscular dystrop	4.35E-03	PLEC	1
Skeletal and Muscular Disorders	epidermolysis bullosa simplex with muscular dystrop	4.35E-03	PLEC	1
Organismal Injury and Abnormalities	epidermolysis bullosa simplex with pyloric atresia	4.35E-03	PLEC	1
Dermatological Diseases and Conditions	epidermolysis bullosa simplex with pyloric atresia	4.35E-03	PLEC	1
Connective Tissue Disorders	epidermolysis bullosa simplex with pyloric atresia	4.35E-03	PLEC	1
Developmental Disorder	epidermolysis bullosa simplex with pyloric atresia	4.35E-03	PLEC	1
Hereditary Disorder	epidermolysis bullosa simplex with pyloric atresia	4.35E-03	PLEC	1
Organismal Injury and Abnormalities	epidermolysis bullosa simplex, ogna type	4.35E-03	PLEC	1
Dermatological Diseases and Conditions	epidermolysis bullosa simplex, ogna type	4.35E-03	PLEC	1
Connective Tissue Disorders	epidermolysis bullosa simplex, ogna type	4.35E-03	PLEC	1
Developmental Disorder	epidermolysis bullosa simplex, ogna type	4.35E-03	PLEC	1
Hereditary Disorder	epidermolysis bullosa simplex, ogna type	4.35E-03	PLEC	1
Cellular Growth and Proliferation	expansion of invariant natural killer T cells	4.35E-03	SMAD4	1
Cellular Development	expansion of invariant natural killer T cells	4.35E-03	SMAD4	1
Hematological System Development and	expansion of invariant natural killer T cells	4.35E-03	SMAD4	1
Cellular Movement	extravasation of breast cancer cell lines	4.35E-03	AXL	1
Embryonic Development	formation of smooth muscle cells	4.35E-03	TGM2	1
Organismal Development	formation of smooth muscle cells	4.35E-03	TGM2	1
Tissue Development	formation of smooth muscle cells	4.35E-03	TGM2	1
Cellular Growth and Proliferation	formation of smooth muscle cells	4.35E-03	TGM2	1
Cellular Development	formation of smooth muscle cells	4.35E-03	TGM2	1
Organ Development	formation of smooth muscle cells	4.35E-03	TGM2	1
Skeletal and Muscular System Developm	formation of smooth muscle cells	4.35E-03	TGM2	1
Tissue Development	formation of squamous epithelium	4.35E-03	SMAD4	1
Cellular Assembly and Organization	formation of syncytial-lipoid structures	4.35E-03	LIPE	1
Cancer	generalized mycosis fungoides	4.35E-03	GSR	1
Hematological Disease	generalized mycosis fungoides	4.35E-03	GSR	1
Dermatological Diseases and Conditions	generalized mycosis fungoides	4.35E-03	GSR	1
Immunological Disease	generalized mycosis fungoides	4.35E-03	GSR	1
Inflammatory Disease	generalized mycosis fungoides	4.35E-03	GSR	1
Inflammatory Response	generalized mycosis fungoides	4.35E-03	GSR	1
Cancer	generalized sezary syndrome	4.35E-03	GSR	1
Hematological Disease	generalized sezary syndrome	4.35E-03	GSR	1
Dermatological Diseases and Conditions	generalized sezary syndrome	4.35E-03	GSR	1
Immunological Disease	generalized sezary syndrome	4.35E-03	GSR	1
Small Molecule Biochemistry	generation of bilirubin	4.35E-03	HMOX1	1
Cancer	growth of vulva cancer cells	4.35E-03	EIF3F	1
Cellular Growth and Proliferation	growth of vulva cancer cells	4.35E-03	EIF3F	1
Cellular Development	growth of vulva cancer cells	4.35E-03	EIF3F	1
Tumor Morphology	growth of vulva cancer cells	4.35E-03	EIF3F	1
Digestive System Development and Fun	healing of colon	4.35E-03	TGFBR2	1
Organismal Functions	healing of colon	4.35E-03	TGFBR2	1
Organismal Functions	healing of gastric mucosa	4.35E-03	HMOX1	1
Hematological Disease	heme oxygenase-1 deficiency	4.35E-03	HMOX1	1
Developmental Disorder	heme oxygenase-1 deficiency	4.35E-03	HMOX1	1
Hereditary Disorder	heme oxygenase-1 deficiency	4.35E-03	HMOX1	1
Metabolic Disease	heme oxygenase-1 deficiency	4.35E-03	HMOX1	1
Cancer	hereditary nonpolyposis colorectal cancer type 6	4.35E-03	TGFBR2	1
Gastrointestinal Disease	hereditary nonpolyposis colorectal cancer type 6	4.35E-03	TGFBR2	1
Hereditary Disorder	hereditary nonpolyposis colorectal cancer type 6	4.35E-03	TGFBR2	1
Small Molecule Biochemistry	hydrolysis of monooleoyl-2-O-monooleylglycerol	4.35E-03	LIPE	1
Lipid Metabolism	hydrolysis of monooleoyl-2-O-monooleylglycerol	4.35E-03	LIPE	1
Cardiovascular Disease	hypertension of lung	4.35E-03	HMOX1	1
Respiratory Disease	hypertension of lung	4.35E-03	HMOX1	1
Gene Expression	initiation of synthesis of mRNA	4.35E-03	GTF2E1	1
Gastrointestinal Disease	injury of gastric mucosa	4.35E-03	HMOX1	1
Organismal Injury and Abnormalities	injury of gastric mucosa	4.35E-03	HMOX1	1
Gastrointestinal Disease	juvenile gastric polyposis	4.35E-03	SMAD4	1
Cardiovascular Disease	juvenile polyposis/hereditary hemorrhagic telangiect	4.35E-03	SMAD4	1
Gastrointestinal Disease	juvenile polyposis/hereditary hemorrhagic telangiect	4.35E-03	SMAD4	1
Dermatological Diseases and Conditions	juvenile polyposis/hereditary hemorrhagic telangiect	4.35E-03	SMAD4	1
Hereditary Disorder	juvenile polyposis/hereditary hemorrhagic telangiect	4.35E-03	SMAD4	1
Organ Morphology	lack of basal layer of epidermis	4.35E-03	PLEC	1
Cellular Function and Maintenance	localization of germ cells	4.35E-03	LIPE	1
Cellular Movement	localization of germ cells	4.35E-03	LIPE	1
Reproductive System Development and	localization of germ cells	4.35E-03	LIPE	1
Cell Death and Survival	loss of macrophages	4.35E-03	LIPE	1

Gastrointestinal Disease	malformation of first molar	4.35E-03	SMAD4	1
Connective Tissue Disorders	malformation of first molar	4.35E-03	SMAD4	1
Dental Disease	malformation of first molar	4.35E-03	SMAD4	1
Developmental Disorder	malformation of first molar	4.35E-03	SMAD4	1
Skeletal and Muscular Disorders	malformation of first molar	4.35E-03	SMAD4	1
Gastrointestinal Disease	malformation of incisor	4.35E-03	SMAD4	1
Connective Tissue Disorders	malformation of incisor	4.35E-03	SMAD4	1
Dental Disease	malformation of incisor	4.35E-03	SMAD4	1
Developmental Disorder	malformation of incisor	4.35E-03	SMAD4	1
Skeletal and Muscular Disorders	malformation of incisor	4.35E-03	SMAD4	1
Connective Tissue Development and Function	mass of periovarial white adipose tissue	4.35E-03	LIPE	1
Tissue Morphology	mass of periovarial white adipose tissue	4.35E-03	LIPE	1
Cancer	mitosis of squamous carcinoma cells	4.35E-03	TGFBR2	1
Cell Cycle	mitosis of squamous carcinoma cells	4.35E-03	TGFBR2	1
Tumor Morphology	mitosis of squamous carcinoma cells	4.35E-03	TGFBR2	1
Post-Translational Modification	oxidation of L-glutamine	4.35E-03	HADH	1
Small Molecule Biochemistry	oxidation of L-glutamine	4.35E-03	HADH	1
Amino Acid Metabolism	oxidation of L-glutamine	4.35E-03	HADH	1
Energy Production	oxidation of L-glutamine	4.35E-03	HADH	1
Cellular Compromise	oxidative stress response of macrophage cancer cell lines	4.35E-03	HMOX1	1
Cellular Compromise	oxidative stress response of melanoma cell lines	4.35E-03	HMOX1	1
Cellular Function and Maintenance	paired-pulse facilitation of collateral synapses	4.35E-03	BAIAP2	1
Cell-To-Cell Signaling and Interaction	paired-pulse facilitation of collateral synapses	4.35E-03	BAIAP2	1
Nervous System Development and Function	paired-pulse facilitation of collateral synapses	4.35E-03	BAIAP2	1
Cancer	paragangliomas type 2	4.35E-03	SDHAF2	1
Cancer	paragangliomas type 5	4.35E-03	SDHA	1
Nucleic Acid Metabolism	phosphorylation of dTMP	4.35E-03	DTYMK	1
Small Molecule Biochemistry	phosphorylation of dTMP	4.35E-03	DTYMK	1
Cellular Function and Maintenance	presence of spermatocytes	4.35E-03	HSPA2	1
Reproductive System Development and Function	presence of spermatocytes	4.35E-03	HSPA2	1
Connective Tissue Development and Function	quantity of adipoblasts	4.35E-03	LIPE	1
Tissue Morphology	quantity of adipoblasts	4.35E-03	LIPE	1
Tissue Morphology	quantity of lung tissue	4.35E-03	HMOX1	1
Respiratory System Development and Function	quantity of lung tissue	4.35E-03	HMOX1	1
Cancer	relapsed Hodgkin disease	4.35E-03	GSR	1
Hematological Disease	relapsed Hodgkin disease	4.35E-03	GSR	1
Immunological Disease	relapsed Hodgkin disease	4.35E-03	GSR	1
Cell-To-Cell Signaling and Interaction	responsiveness of lung cell lines	4.35E-03	TGFBR2	1
Respiratory System Development and Function	responsiveness of lung cell lines	4.35E-03	TGFBR2	1
Cell Morphology	size of postsynaptic density	4.35E-03	BAIAP2	1
Cellular Assembly and Organization	size of postsynaptic density	4.35E-03	BAIAP2	1
Nervous System Development and Function	size of postsynaptic density	4.35E-03	BAIAP2	1
Cancer	sphere formation of ovarian cancer cell lines	4.35E-03	TGM2	1
Cancer	susceptibility to alcohol-related esophageal cancer	4.35E-03	ALDH2	1
Gastrointestinal Disease	susceptibility to alcohol-related esophageal cancer	4.35E-03	ALDH2	1
Hereditary Disorder	susceptibility to alcohol-related esophageal cancer	4.35E-03	ALDH2	1
Organismal Injury and Abnormalities	susceptibility to hangover	4.35E-03	ALDH2	1
Neurological Disease	tethered cord	4.35E-03	SMAD4	1
Developmental Disorder	tethered cord	4.35E-03	SMAD4	1
Skeletal and Muscular Disorders	tethered cord	4.35E-03	SMAD4	1
Connective Tissue Development and Function	thickness of articular cartilage	4.35E-03	TGFBR2	1
Tissue Morphology	thickness of articular cartilage	4.35E-03	TGFBR2	1
Skeletal and Muscular System Development and Function	thickness of articular cartilage	4.35E-03	TGFBR2	1
Tissue Morphology	thickness of fibrous cap	4.35E-03	HMOX1	1
Small Molecule Biochemistry	transamidation of histamine	4.35E-03	TGM2	1
Cellular Development	transdifferentiation of mammary epithelial cells	4.35E-03	SMAD4	1
Reproductive System Development and Function	transdifferentiation of mammary epithelial cells	4.35E-03	SMAD4	1
Cellular Development	transdifferentiation of squamous epithelial cells	4.35E-03	SMAD4	1
Carbohydrate Metabolism	utilization of glycogen	4.35E-03	LIPE	1
Reproductive System Development and Function	vacuolation of seminiferous epithelium	4.35E-03	LIPE	1
Hereditary Disorder	variation in IMPDH2 enzyme activity	4.35E-03	IMPDH2	1
Inflammatory Response	variation in IMPDH2 enzyme activity	4.35E-03	IMPDH2	1
Metabolic Disease	variation in IMPDH2 enzyme activity	4.35E-03	IMPDH2	1
Organismal Development	vascularization of prostate gland	4.35E-03	TGFBR2	1
Cardiovascular System Development and Function	vascularization of prostate gland	4.35E-03	TGFBR2	1
Cardiovascular Disease	vasospasm of basilar artery	4.35E-03	HMOX1	1
Embryonic Development	gastrulation of embryo	4.45E-03	SMAD4,TGFBR2	2
Organismal Development	gastrulation of embryo	4.45E-03	SMAD4,TGFBR2	2
Cell-To-Cell Signaling and Interaction	response of Th2 cells	4.45E-03	HMOX1,TGFBR2	2
Hematological System Development and Function	response of Th2 cells	4.45E-03	HMOX1,TGFBR2	2
Organismal Injury and Abnormalities	Lesion Formation	4.51E-03	AXL,HMOX1,LIPE,RPS6KB1,SMAD4,TGFBR2,TGM2	7
Hematological Disease	hemolytic anemia	4.75E-03	GSR,HMOX1,IMPDH2	3
Cell Death and Survival	cell death of spermatocytes	4.84E-03	ELAVL1,HSPA2	2
Cancer	metastasis of cancer cells	4.84E-03	PHB,TGFBR2	2
Cellular Growth and Proliferation	metastasis of cancer cells	4.84E-03	PHB,TGFBR2	2
Cellular Development	metastasis of cancer cells	4.84E-03	PHB,TGFBR2	2
Tumor Morphology	metastasis of cancer cells	4.84E-03	PHB,TGFBR2	2
Small Molecule Biochemistry	synthesis of glutamine family amino acid	4.84E-03	ALDH18A1,BCAT1	2
Amino Acid Metabolism	synthesis of glutamine family amino acid	4.84E-03	ALDH18A1,BCAT1	2
Cellular Movement	invasion of lung cancer cell lines	4.93E-03	AXL,PHB,SLC12A4	3
Post-Translational Modification	folding of protein	5.10E-03	FKBP9,HSPBP1,SH3GLB1	3
Protein Folding	folding of protein	5.10E-03	FKBP9,HSPBP1,SH3GLB1	3
Molecular Transport	quantity of heavy metal	5.10E-03	HMOX1,IREB2,SMAD4	3
Neurological Disease	Alzheimer's disease	5.65E-03	ALDH2,HMOX1,IREB2,PRKAR2A,RPS6KB1,TGFBR2,TGM2,UBQLN1	8
Psychological Disorders	Alzheimer's disease	5.65E-03	ALDH2,HMOX1,IREB2,PRKAR2A,RPS6KB1,TGFBR2,TGM2,UBQLN1	8
Metabolic Disease	Alzheimer's disease	5.65E-03	ALDH2,HMOX1,IREB2,PRKAR2A,RPS6KB1,TGFBR2,TGM2,UBQLN1	8
Molecular Transport	abnormal quantity of fatty acid	5.66E-03	HADH,LIPE	2
Small Molecule Biochemistry	abnormal quantity of fatty acid	5.66E-03	HADH,LIPE	2
Lipid Metabolism	abnormal quantity of fatty acid	5.66E-03	HADH,LIPE	2
Cell Death and Survival	cell death of tumor cell lines	5.86E-03	ARHGEF6,AXL,DAP3,DTYMK,EIF3F,ELAVL1,HMOX1,HSPA9,PHB,RAP1GC1	16
Small Molecule Biochemistry	synthesis of porphyrin	6.10E-03	HMOX1,IREB2	2
Cell Death and Survival	cell death of muscle cells	6.26E-03	HMOX1,MANF,PHB,PLD2,PLEC,RPS6KB1	6
Organismal Injury and Abnormalities	size of lesion	6.42E-03	HMOX1,LIPE,RPS6KB1,TGFBR2,TGM2	5
Tissue Morphology	size of lesion	6.42E-03	HMOX1,LIPE,RPS6KB1,TGFBR2,TGM2	5
Cellular Development	epithelial-mesenchymal transition	6.43E-03	PHB,SMAD4,TGFBR2,TGM2	4
Cellular Development	development of muscle cell lines	6.55E-03	ELAVL1,RPS6KB1	2
Cellular Compromise	fragmentation of mitochondria	6.55E-03	BCAP31,DAP3	2
Cellular Function and Maintenance	phagocytosis of leukemia cell lines	6.55E-03	PLD2,TGM2	2
Cell-To-Cell Signaling and Interaction	phagocytosis of leukemia cell lines	6.55E-03	PLD2,TGM2	2
Inflammatory Response	phagocytosis of leukemia cell lines	6.55E-03	PLD2,TGM2	2
Organismal Injury and Abnormalities	congenital anomaly of skin	6.84E-03	ALDH18A1,DKC1,HMOX1,PLEC	4
Dermatological Diseases and Conditions	congenital anomaly of skin	6.84E-03	ALDH18A1,DKC1,HMOX1,PLEC	4
Developmental Disorder	congenital anomaly of skin	6.84E-03	ALDH18A1,DKC1,HMOX1,PLEC	4
Cell Death and Survival	apoptosis of exocrine cells	7.02E-03	HMOX1,TGFBR2	2
Nucleic Acid Metabolism	synthesis of purine nucleotide	7.40E-03	ALDH2,COASY,HMOX1,IMPDH2	4
Small Molecule Biochemistry	synthesis of purine nucleotide	7.40E-03	ALDH2,COASY,HMOX1,IMPDH2	4
Embryonic Development	growth of embryo	7.55E-03	FLII,RPS6KB1,SMAD4,USP7	4
Organismal Development	growth of embryo	7.55E-03	FLII,RPS6KB1,SMAD4,USP7	4
Cell Death and Survival	apoptosis	8.22E-03	ALDH2,ARHGEF6,AXL,BCAP31,DAP3,DKC1,DTYMK,EIF3F,ELAVL1,GSR,H2A	24
Tissue Morphology	abnormal quantity of leukocytes	8.45E-03	ARHGEF6,HMOX1,IMPDH2	3
Hematological System Development and Function	abnormal quantity of leukocytes	8.45E-03	ARHGEF6,HMOX1,IMPDH2	3
Cellular Movement	migration of microvascular endothelial cells	8.50E-03	ARHGEF6,TGFBR2	2
Cardiovascular System Development and Function	migration of microvascular endothelial cells	8.50E-03	ARHGEF6,TGFBR2	2
Tissue Morphology	quantity of Purkinje cells	8.50E-03	IREB2,SMAD4	2
Nervous System Development and Function	quantity of Purkinje cells	8.50E-03	IREB2,SMAD4	2
Developmental Disorder	Hoyeraal-Hreidarsson syndrome	8.67E-03	DKC1	1
Hereditary Disorder	Hoyeraal-Hreidarsson syndrome	8.67E-03	DKC1	1
Cell Morphology	abnormal morphology of spongiotrophoblasts	8.67E-03	ELAVL1	1
Reproductive System Development and Function	abnormal morphology of spongiotrophoblasts	8.67E-03	ELAVL1	1
Organ Morphology	abnormal morphology of spongiotrophoblasts	8.67E-03	ELAVL1	1
Cellular Assembly and Organization	accumulation of actin stress fibers	8.67E-03	PLEC	1
Cellular Assembly and Organization	accumulation of focal adhesions	8.67E-03	PLEC	1
Tissue Development	accumulation of focal adhesions	8.67E-03	PLEC	1
Cell-To-Cell Signaling and Interaction	accumulation of focal adhesions	8.67E-03	PLEC	1

Reproductive System Development and Cell-To-Cell Signaling and Interaction	activation of breast cell lines	8.67E-03	AXL	1
Cellular Assembly and Organization	activation of breast cell lines	8.67E-03	AXL	1
Tissue Development	aggregation of insect cell lines	8.67E-03	AXL	1
Cancer	aggregation of insect cell lines	8.67E-03	AXL	1
Neurological Disease	anaplastic oligodendroglioma	8.67E-03	GSR	1
Cell Death and Survival	anaplastic oligodendroglioma	8.67E-03	GSR	1
Cellular Growth and Proliferation	apoptosis of gastric mucous cells	8.67E-03	HMOX1	1
Cellular Development	arrest in growth of skin cancer cell lines	8.67E-03	SMAD4	1
Nucleic Acid Metabolism	arrest in growth of skin cancer cell lines	8.67E-03	SMAD4	1
Small Molecule Biochemistry	biosynthesis of dTDP	8.67E-03	DTYMK	1
Small Molecule Biochemistry	biosynthesis of dTDP	8.67E-03	DTYMK	1
Organismal Development	biosynthesis of protoporphyrinogen	8.67E-03	IREB2	1
Cellular Development	branching of bile duct	8.67E-03	SMAD4	1
Digestive System Development and Function	branching of bile duct	8.67E-03	SMAD4	1
Small Molecule Biochemistry	branching of bile duct	8.67E-03	SMAD4	1
Lipid Metabolism	catabolism of diacylglycerol	8.67E-03	LIPE	1
Small Molecule Biochemistry	catabolism of diacylglycerol	8.67E-03	LIPE	1
Tissue Morphology	cleavage of heme	8.67E-03	HMOX1	1
Cardiovascular System Development and Function	contraction of arteriole	8.67E-03	HMOX1	1
Protein Synthesis	contraction of arteriole	8.67E-03	HMOX1	1
Drug Metabolism	conversion of glutathione	8.67E-03	GSR	1
Small Molecule Biochemistry	conversion of glutathione	8.67E-03	GSR	1
Neurological Disease	conversion of heme	8.67E-03	HMOX1	1
Organismal Injury and Abnormalities	damage of brain tissue	8.67E-03	HMOX1	1
Embryonic Development	damage of brain tissue	8.67E-03	HMOX1	1
Organismal Development	development of testis cord	8.67E-03	SMAD4	1
Tissue Development	development of testis cord	8.67E-03	SMAD4	1
Organismal Development	development of testis cord	8.67E-03	SMAD4	1
Tissue Development	development of vascular endothelial tissue	8.67E-03	TGFBR2	1
Cardiovascular System Development and Function	development of vascular endothelial tissue	8.67E-03	TGFBR2	1
Cellular Development	development of vascular endothelial tissue	8.67E-03	TGFBR2	1
Reproductive System Development and Function	differentiation of prostate cell lines	8.67E-03	TGFBR2	1
Developmental Disorder	differentiation of prostate cell lines	8.67E-03	TGFBR2	1
Inflammatory Response	dysplasia of bile duct	8.67E-03	SMAD4	1
Inflammatory Response	endotoxin tolerance of bone marrow-derived macrophages	8.67E-03	SMAD4	1
Organismal Development	endotoxin tolerance of leukemia cell lines	8.67E-03	SMAD4	1
Protein Synthesis	formation of ascitic fluid	8.67E-03	TGFBR2	1
Cancer	frameshifting of ribosome	8.67E-03	DKC1	1
Cellular Growth and Proliferation	initiation of formation of papilloma	8.67E-03	TGFBR2	1
Cellular Development	initiation of formation of papilloma	8.67E-03	TGFBR2	1
Dermatological Diseases and Conditions	initiation of formation of papilloma	8.67E-03	TGFBR2	1
Tumor Morphology	initiation of formation of papilloma	8.67E-03	TGFBR2	1
Cancer	intimal hyperplasia of femoral artery	8.67E-03	AXL	1
Cardiovascular Disease	intimal hyperplasia of femoral artery	8.67E-03	AXL	1
Cardiovascular System Development and Function	intimal hyperplasia of femoral artery	8.67E-03	AXL	1
Cancer	intramucosal carcinoma	8.67E-03	SMAD4	1
Cancer	keratocystic odontogenic tumor	8.67E-03	SMAD4	1
Organismal Injury and Abnormalities	macroorchidism	8.67E-03	RPS6KB1	1
Reproductive System Disease	macroorchidism	8.67E-03	RPS6KB1	1
Developmental Disorder	macroorchidism	8.67E-03	RPS6KB1	1
Hereditary Disorder	macroorchidism	8.67E-03	RPS6KB1	1
Cardiovascular System Development and Function	mass of right ventricle	8.67E-03	HMOX1	1
Organ Morphology	mass of right ventricle	8.67E-03	HMOX1	1
Connective Tissue Disorders	metaplasia of cartilage tissue	8.67E-03	TGFBR2	1
Developmental Disorder	metaplasia of cartilage tissue	8.67E-03	TGFBR2	1
Skeletal and Muscular Disorders	metaplasia of cartilage tissue	8.67E-03	TGFBR2	1
Cancer	metastasis of forestomach	8.67E-03	SMAD4	1
Gastrointestinal Disease	metastasis of forestomach	8.67E-03	SMAD4	1
Cancer	metastasis of liver cells	8.67E-03	TGFBR2	1
Gastrointestinal Disease	metastasis of liver cells	8.67E-03	TGFBR2	1
Hepatic System Disease	metastasis of liver cells	8.67E-03	TGFBR2	1
Cellular Movement	migration of adenocarcinoma cell lines	8.67E-03	TGM2	1
Cell Cycle	mitogenesis of Schwann cells	8.67E-03	RPS6KB1	1
Nervous System Development and Function	mitogenesis of Schwann cells	8.67E-03	RPS6KB1	1
Cell Morphology	modification of ovarian cancer cell lines	8.67E-03	TGM2	1
Respiratory System Development and Function	morphogenesis of bronchus	8.67E-03	TGFBR2	1
Connective Tissue Development and Function	morphology of synovial membrane	8.67E-03	TGFBR2	1
Tissue Morphology	morphology of synovial membrane	8.67E-03	TGFBR2	1
Skeletal and Muscular System Development and Function	morphology of synovial membrane	8.67E-03	TGFBR2	1
Post-Translational Modification	nitrosation of protein	8.67E-03	ALDH2	1
Small Molecule Biochemistry	oxidation of heme	8.67E-03	HMOX1	1
Energy Production	oxidation of heme	8.67E-03	HMOX1	1
Cancer	pancreatic intraductal papillary mucinous tumor	8.67E-03	SMAD4	1
Endocrine System Disorders	pancreatic intraductal papillary mucinous tumor	8.67E-03	SMAD4	1
Gastrointestinal Disease	pancreatic intraductal papillary mucinous tumor	8.67E-03	SMAD4	1
Endocrine System Development and Function	proportion of beta islet cells	8.67E-03	RPS6KB1	1
Amino Acid Metabolism	quantity of L-aspartic acid	8.67E-03	HADH	1
Cancer	recurrent breast cancer	8.67E-03	TGFBR2	1
Organismal Injury and Abnormalities	recurrent breast cancer	8.67E-03	TGFBR2	1
Reproductive System Disease	recurrent breast cancer	8.67E-03	TGFBR2	1
Cancer	recurrent non Hodgkin's lymphoma	8.67E-03	GSR	1
Hematological Disease	recurrent non Hodgkin's lymphoma	8.67E-03	GSR	1
Immunological Disease	recurrent non Hodgkin's lymphoma	8.67E-03	GSR	1
Cellular Function and Maintenance	reorganization of cortical actin filaments	8.67E-03	PLD2	1
Cell Morphology	reorganization of cortical actin filaments	8.67E-03	PLD2	1
Cellular Assembly and Organization	reorganization of cortical actin filaments	8.67E-03	PLD2	1
Cell Morphology	ruffling of melanoma cell lines	8.67E-03	DNMBP	1
Free Radical Scavenging	scavenging of superoxide	8.67E-03	GSR	1
Cell-To-Cell Signaling and Interaction	signaling of carcinoma cell lines	8.67E-03	GOLPH3	1
Cell-To-Cell Signaling and Interaction	signaling of lung cancer cell lines	8.67E-03	GOLPH3	1
Cell-To-Cell Signaling and Interaction	signaling of melanocytes	8.67E-03	GOLPH3	1
Cell Morphology	size of carcinoma cell lines	8.67E-03	GOLPH3	1
Cell Morphology	size of lung cancer cell lines	8.67E-03	GOLPH3	1
Cellular Assembly and Organization	stabilization of hemidesmosomes	8.67E-03	PLEC	1
Developmental Disorder	succinate-coenzyme q reductase deficiency	8.67E-03	SDHA	1
Hereditary Disorder	succinate-coenzyme q reductase deficiency	8.67E-03	SDHA	1
Metabolic Disease	succinate-coenzyme q reductase deficiency	8.67E-03	SDHA	1
Cardiovascular Disease	surface area of fatty lesion	8.67E-03	TGFBR2	1
Organismal Injury and Abnormalities	surface area of fatty lesion	8.67E-03	TGFBR2	1
Tissue Morphology	surface area of fatty lesion	8.67E-03	TGFBR2	1
Cardiovascular System Development and Function	survival of heart	8.67E-03	HMOX1	1
Cell Death and Survival	survival of invariant natural killer T cells	8.67E-03	SMAD4	1
Hematological System Development and Function	survival of invariant natural killer T cells	8.67E-03	SMAD4	1
Cancer	tumorigenesis of cholangiocarcinoma	8.67E-03	SMAD4	1
Gastrointestinal Disease	tumorigenesis of cholangiocarcinoma	8.67E-03	SMAD4	1
Cellular Growth and Proliferation	tumorigenesis of cholangiocarcinoma	8.67E-03	SMAD4	1
Cellular Development	tumorigenesis of cholangiocarcinoma	8.67E-03	SMAD4	1
Tumor Morphology	tumorigenesis of cholangiocarcinoma	8.67E-03	SMAD4	1
Hepatic System Disease	tumorigenesis of cholangiocarcinoma	8.67E-03	SMAD4	1
Cell Death and Survival	apoptosis of vascular endothelial cells	8.69E-03	ALDH2,AXL,HMOX1	3
Gene Expression	initiation of expression of RNA	8.93E-03	EIF3F,LIPE,THRSP3	3
Nucleic Acid Metabolism	synthesis of nucleotide	8.94E-03	ALDH2,COASY,DTYMK,HMOX1,IMPDH2,PRPSAP1	6
Small Molecule Biochemistry	synthesis of nucleotide	8.94E-03	ALDH2,COASY,DTYMK,HMOX1,IMPDH2,PRPSAP1	6
Cellular Growth and Proliferation	proliferation of cervical cancer cell lines	8.94E-03	ELAVL1,H2AFY,NFS1,SLC12A4	4
Cellular Development	proliferation of cervical cancer cell lines	8.94E-03	ELAVL1,H2AFY,NFS1,SLC12A4	4
Cancer	recurrent cancer	9.02E-03	GSR,TGFBR2	2
Cardiovascular Disease	aortic disorder	9.19E-03	HMOX1,SMAD4,TGFBR2	3
Small Molecule Biochemistry	synthesis of L-amino acid	9.56E-03	ALDH18A1,BCAT1	2
Amino Acid Metabolism	synthesis of L-amino acid	9.56E-03	ALDH18A1,BCAT1	2
Cell Death and Survival	anoikis	9.70E-03	DAP3,SMAD4,TGM2	3
Cellular Growth and Proliferation	proliferation of cells	9.83E-03	ARHGEF6,AXL,BCAP31,BCAT1,DAP3,DKC1,DTYMK,EIF3F,ELAVL1,FLII,GC	30
Cellular Growth and Proliferation	proliferation of smooth muscle cells	9.88E-03	ELAVL1,HMOX1,RPS6KB1,TGFBR2,TGM2	5
Cellular Development	proliferation of smooth muscle cells	9.88E-03	ELAVL1,HMOX1,RPS6KB1,TGFBR2,TGM2	5

Skeletal and Muscular System Development	proliferation of smooth muscle cells	9.88E-03	ELAVL1,HMOX1,RPS6KB1,TGFBR2,TGM2	5
Cancer	incidence of carcinoma	1.01E-02	DKC1,SMAD4	2
Cell Morphology	ruffling	1.05E-02	BAIAP2,DNMBP,HMOX1	3
Cancer	tumorigenesis of adenocarcinoma	1.05E-02	DKC1,SMAD4,TGFBR2	3
Cellular Growth and Proliferation	tumorigenesis of adenocarcinoma	1.05E-02	DKC1,SMAD4,TGFBR2	3
Cellular Development	tumorigenesis of adenocarcinoma	1.05E-02	DKC1,SMAD4,TGFBR2	3
Tumor Morphology	tumorigenesis of adenocarcinoma	1.05E-02	DKC1,SMAD4,TGFBR2	3
Cellular Movement	invasion of ovarian cancer cell lines	1.07E-02	AXL,MAP4K4	2
Gene Expression	stabilization of mRNA	1.07E-02	ELAVL1,THRAP3	2
RNA Post-Transcriptional Modification	stabilization of mRNA	1.07E-02	ELAVL1,THRAP3	2
RNA Damage and Repair	stabilization of mRNA	1.07E-02	ELAVL1,THRAP3	2
Embryonic Development	development of muscle	1.12E-02	ELAVL1,MYOF,PLEC,RPS6KB1,TGFBR2,TGM2	6
Organismal Development	development of muscle	1.12E-02	ELAVL1,MYOF,PLEC,RPS6KB1,TGFBR2,TGM2	6
Tissue Development	development of muscle	1.12E-02	ELAVL1,MYOF,PLEC,RPS6KB1,TGFBR2,TGM2	6
Organ Development	development of muscle	1.12E-02	ELAVL1,MYOF,PLEC,RPS6KB1,TGFBR2,TGM2	6
Skeletal and Muscular System Development	development of muscle	1.12E-02	ELAVL1,MYOF,PLEC,RPS6KB1,TGFBR2,TGM2	6
Cellular Growth and Proliferation	proliferation of mammary epithelial cells	1.13E-02	SMAD4,TGM2	2
Cellular Development	proliferation of mammary epithelial cells	1.13E-02	SMAD4,TGM2	2
Reproductive System Development and	proliferation of mammary epithelial cells	1.13E-02	SMAD4,TGM2	2
Cancer	tumorigenesis of neuroendocrine tumor	1.13E-02	DKC1,SMAD4	2
Cellular Growth and Proliferation	tumorigenesis of neuroendocrine tumor	1.13E-02	DKC1,SMAD4	2
Cellular Development	tumorigenesis of neuroendocrine tumor	1.13E-02	DKC1,SMAD4	2
Tumor Morphology	tumorigenesis of neuroendocrine tumor	1.13E-02	DKC1,SMAD4	2
Molecular Transport	quantity of insulin in blood	1.22E-02	HADH,LIPE,RPS6KB1,TGM2	4
Small Molecule Biochemistry	quantity of insulin in blood	1.22E-02	HADH,LIPE,RPS6KB1,TGM2	4
Protein Synthesis	quantity of insulin in blood	1.22E-02	HADH,LIPE,RPS6KB1,TGM2	4
Endocrine System Development and Function	quantity of insulin in blood	1.22E-02	HADH,LIPE,RPS6KB1,TGM2	4
Embryonic Development	gametogenesis	1.29E-02	AXL,ELAVL1,GSR,HSPA2,LIPE,RPS6KB1	6
Organismal Development	gametogenesis	1.29E-02	AXL,ELAVL1,GSR,HSPA2,LIPE,RPS6KB1	6
Tissue Development	gametogenesis	1.29E-02	AXL,ELAVL1,GSR,HSPA2,LIPE,RPS6KB1	6
Cellular Development	gametogenesis	1.29E-02	AXL,ELAVL1,GSR,HSPA2,LIPE,RPS6KB1	6
Organ Development	gametogenesis	1.29E-02	AXL,ELAVL1,GSR,HSPA2,LIPE,RPS6KB1	6
Reproductive System Development and	gametogenesis	1.29E-02	AXL,ELAVL1,GSR,HSPA2,LIPE,RPS6KB1	6
Tissue Development	accumulation of carcinoma cell lines	1.30E-02	HMOX1	1
Skeletal and Muscular System Development	activation of smooth muscle cell lines	1.30E-02	TGM2	1
Cell-To-Cell Signaling and Interaction	activation of smooth muscle cell lines	1.30E-02	TGM2	1
Connective Tissue Development and Function	adhesion of hOB cells	1.30E-02	TGM2	1
Tissue Development	adhesion of hOB cells	1.30E-02	TGM2	1
Skeletal and Muscular System Development	adhesion of hOB cells	1.30E-02	TGM2	1
Cell-To-Cell Signaling and Interaction	adhesion of hOB cells	1.30E-02	TGM2	1
Connective Tissue Development and Function	adipogenesis of white adipocytes	1.30E-02	LIPE	1
Cellular Development	adipogenesis of white adipocytes	1.30E-02	LIPE	1
Embryonic Development	anoikis of embryonic cell lines	1.30E-02	DAP3	1
Cell Death and Survival	anoikis of embryonic cell lines	1.30E-02	DAP3	1
Cell Cycle	arrest in G1 phase of keratinocytes	1.30E-02	TGFBR2	1
Hair and Skin Development and Function	arrest in G1 phase of keratinocytes	1.30E-02	TGFBR2	1
Cellular Growth and Proliferation	arrest in growth of muscle cell lines	1.30E-02	RPS6KB1	1
Cellular Development	arrest in growth of muscle cell lines	1.30E-02	RPS6KB1	1
Skeletal and Muscular System Development	arrest in growth of muscle cell lines	1.30E-02	RPS6KB1	1
Tissue Development	attachment of cervical cancer cell lines	1.30E-02	BCAP31	1
Cell-To-Cell Signaling and Interaction	attachment of cervical cancer cell lines	1.30E-02	BCAP31	1
Cellular Function and Maintenance	axonal transport of mitochondria	1.30E-02	RHOT1	1
Cellular Assembly and Organization	axonal transport of mitochondria	1.30E-02	RHOT1	1
Nervous System Development and Function	axonal transport of mitochondria	1.30E-02	RHOT1	1
Cardiovascular Disease	bleeding of atherosclerotic lesion	1.30E-02	TGFBR2	1
Organismal Injury and Abnormalities	bleeding of atherosclerotic lesion	1.30E-02	TGFBR2	1
Cellular Movement	chemokinesis of macrophage cancer cell lines	1.30E-02	PLD2	1
Neurological Disease	chronic progressive external ophthalmoplegia	1.30E-02	GOLPH3	1
Ophthalmic Disease	chronic progressive external ophthalmoplegia	1.30E-02	GOLPH3	1
Skeletal and Muscular Disorders	chronic progressive external ophthalmoplegia	1.30E-02	GOLPH3	1
Cellular Assembly and Organization	compaction of Golgi apparatus	1.30E-02	GOLPH3	1
Free Radical Scavenging	concentration of reactive oxygen species	1.30E-02	HMOX1	1
Small Molecule Biochemistry	conversion of triacylglycerol	1.30E-02	LIPE	1
Lipid Metabolism	conversion of triacylglycerol	1.30E-02	LIPE	1
Cellular Growth and Proliferation	cytostasis of acinar gland cells	1.30E-02	TGFBR2	1
Endocrine System Development and Function	cytostasis of acinar gland cells	1.30E-02	TGFBR2	1
Cellular Compromise	degeneration of nucleus	1.30E-02	TGFBR2	1
Cell Cycle	delay in G1/S phase transition of breast cancer cell lines	1.30E-02	ELAVL1	1
Molecular Transport	delay in clearance of D-glucose	1.30E-02	LIPE	1
Small Molecule Biochemistry	delay in clearance of D-glucose	1.30E-02	LIPE	1
Carbohydrate Metabolism	delay in clearance of D-glucose	1.30E-02	LIPE	1
Tissue Morphology	density of skeletal muscle cells	1.30E-02	MYOF	1
Embryonic Development	development of cumulus cells	1.30E-02	SMAD4	1
Organismal Development	development of cumulus cells	1.30E-02	SMAD4	1
Tissue Development	development of cumulus cells	1.30E-02	SMAD4	1
Cellular Development	development of cumulus cells	1.30E-02	SMAD4	1
Organ Development	development of cumulus cells	1.30E-02	SMAD4	1
Reproductive System Development and	development of cumulus cells	1.30E-02	SMAD4	1
Renal and Urological System Development and	development of cumulus cells	1.30E-02	SMAD4	1
Cellular Assembly and Organization	disruption of PML nuclear bodies	1.30E-02	USP7	1
Cellular Compromise	disruption of PML nuclear bodies	1.30E-02	USP7	1
Cellular Development	epithelial-mesenchymal transition of hepatocytes	1.30E-02	SMAD4	1
Embryonic Development	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Organismal Development	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Tissue Development	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Cellular Development	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Organ Development	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Hematological System Development and	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Hematopoiesis	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Lymphoid Tissue Structure and Development	erythropoiesis of bone marrow cells	1.30E-02	AXL	1
Gene Expression	inactivation of mouse X chromosome	1.30E-02	DKC1	1
Cancer	invasion of submucosa	1.30E-02	SMAD4	1
Connective Tissue Disorders	invasion of submucosa	1.30E-02	SMAD4	1
Small Molecule Biochemistry	lipolysis of fat	1.30E-02	LIPE	1
Lipid Metabolism	lipolysis of fat	1.30E-02	LIPE	1
Embryonic Development	misalignment of outflow tract	1.30E-02	SMAD4	1
Cellular Movement	mobility of breast cancer cell lines	1.30E-02	TGFBR2	1
Embryonic Development	morphogenesis of metanephric mesenchyme	1.30E-02	SMAD4	1
Organismal Development	morphogenesis of metanephric mesenchyme	1.30E-02	SMAD4	1
Tissue Development	morphogenesis of metanephric mesenchyme	1.30E-02	SMAD4	1
Tissue Morphology	morphology of ductal epithelium	1.30E-02	TGFBR2	1
Cellular Function and Maintenance	organization of kidney cell lines	1.30E-02	RILPL1	1
Cancer	progression of secondary tumor	1.30E-02	TGFBR2	1
Tumor Morphology	progression of secondary tumor	1.30E-02	TGFBR2	1
Embryonic Development	proliferation of blastocyst	1.30E-02	SMAD4	1
Organ Development	recovery of heart ventricle	1.30E-02	HMOX1	1
Cardiovascular System Development and	recovery of heart ventricle	1.30E-02	HMOX1	1
Cardiovascular Disease	reperfusion injury of liver	1.30E-02	HMOX1	1
Gastrointestinal Disease	reperfusion injury of liver	1.30E-02	HMOX1	1
Organismal Injury and Abnormalities	reperfusion injury of liver	1.30E-02	HMOX1	1
Hepatic System Disease	reperfusion injury of liver	1.30E-02	HMOX1	1
Respiratory Disease	rhinophyma	1.30E-02	TGFBR2	1
Dermatological Diseases and Conditions	rhinophyma	1.30E-02	TGFBR2	1
Molecular Transport	secretion of taurocholic acid	1.30E-02	HMOX1	1
Small Molecule Biochemistry	secretion of taurocholic acid	1.30E-02	HMOX1	1
Lipid Metabolism	secretion of taurocholic acid	1.30E-02	HMOX1	1
Cellular Assembly and Organization	stabilization of cytoplasmic aggregates	1.30E-02	AXL	1
Small Molecule Biochemistry	storage of fatty acid	1.30E-02	LIPE	1
Lipid Metabolism	storage of fatty acid	1.30E-02	LIPE	1
Nucleic Acid Metabolism	synthesis of dTTP	1.30E-02	DTYMK	1
Small Molecule Biochemistry	synthesis of dTTP	1.30E-02	DTYMK	1
Post-Translational Modification	threonine phosphorylation of protein	1.30E-02	MAP4K4	1
Cell Signaling	threonine phosphorylation of protein	1.30E-02	MAP4K4	1
Cancer	vascularization of malignant tumor	1.30E-02	TGFBR2	1

Cardiovascular System Development an	vascularization of malignant tumor	1.30E-02	TGFBR2	1
Tumor Morphology	vascularization of malignant tumor	1.30E-02	TGFBR2	1
Cancer	vascularization of papilloma	1.30E-02	TGFBR2	1
Dermatological Diseases and Conditions	vascularization of papilloma	1.30E-02	TGFBR2	1
Cardiovascular System Development an	vascularization of papilloma	1.30E-02	TGFBR2	1
Tumor Morphology	vascularization of papilloma	1.30E-02	TGFBR2	1
Cancer	thyroid cancer	1.30E-02	AXL,DAP3,RPS6KB1,TGFBR2	4
Endocrine System Disorders	thyroid cancer	1.30E-02	AXL,DAP3,RPS6KB1,TGFBR2	4
Gene Expression	synthesis of RNA	1.31E-02	DDX39A,GTF2E1	2
Molecular Transport	secretion of steroid	1.31E-02	HMOX1,PHB,PLD2	3
Small Molecule Biochemistry	secretion of steroid	1.31E-02	HMOX1,PHB,PLD2	3
Lipid Metabolism	secretion of steroid	1.31E-02	HMOX1,PHB,PLD2	3
Cancer	gastroesophageal cancer	1.38E-02	ALDH2,IARS2,PHB,PUS7,SMAD4,TGFBR2	6
Gastrointestinal Disease	gastroesophageal cancer	1.38E-02	ALDH2,IARS2,PHB,PUS7,SMAD4,TGFBR2	6
Cellular Function and Maintenance	autophagy	1.39E-02	BAIAP2,PLD2,RPS6KB1,SH3GLB1,SMAD4	5
Cell Morphology	autophagy	1.39E-02	BAIAP2,PLD2,RPS6KB1,SH3GLB1,SMAD4	5
Tissue Development	development of cardiovascular tissue	1.41E-02	AXL,HMOX1,MYOF,PLEC,SMAD4,TGFBR2	6
Cardiovascular System Development an	development of cardiovascular tissue	1.41E-02	AXL,HMOX1,MYOF,PLEC,SMAD4,TGFBR2	6
Protein Synthesis	polymerization of protein	1.50E-02	HMOX1,IMPDH2,PRKAR2A,SH3GLB1,TGM2	5
Cellular Movement	cell movement of ovarian cancer cell lines	1.50E-02	MAP4K4,SMAD4	2
Cellular Growth and Proliferation	arrest in growth of tumor cell lines	1.51E-02	HMOX1,SMAD4,TGFBR2	3
Cellular Development	arrest in growth of tumor cell lines	1.51E-02	HMOX1,SMAD4,TGFBR2	3
Cellular Growth and Proliferation	arrest in growth of cells	1.55E-02	HMOX1,RPS6KB1,SMAD4,TGFBR2	4
Cellular Compromise	dysfunction of mitochondria	1.57E-02	OGDH,SDHA	2
Cellular Function and Maintenance	transmembrane potential of mitochondria	1.57E-02	BCAP31,HMOX1,PHB,TGM2	4
Cell Morphology	transmembrane potential of mitochondria	1.57E-02	BCAP31,HMOX1,PHB,TGM2	4
Protein Synthesis	oligomerization of protein	1.62E-02	HMOX1,PRKAR2A,SH3GLB1,TGM2	4
Cancer	hematological neoplasia	1.62E-02	AXL,BCAT1,DKC1,GSR,HMOX1,IMPDH2,MAP4K4,PLD2,RPS6KB1,SMAD4,SH3GLB1,TGM2	13
Hematological Disease	hematological neoplasia	1.62E-02	AXL,BCAT1,DKC1,GSR,HMOX1,IMPDH2,MAP4K4,PLD2,RPS6KB1,SMAD4,SH3GLB1,TGM2	13
Small Molecule Biochemistry	metabolism of diacylglycerol	1.64E-02	LIPE,PLD2	2
Lipid Metabolism	metabolism of diacylglycerol	1.64E-02	LIPE,PLD2	2
Neurological Disease	damage of brain	1.65E-02	HMOX1,PHB,TGM2	3
Organismal Injury and Abnormalities	damage of brain	1.65E-02	HMOX1,PHB,TGM2	3
Gastrointestinal Disease	injury of liver	1.65E-02	HMOX1,SMAD4,TGFBR2	3
Organismal Injury and Abnormalities	injury of liver	1.65E-02	HMOX1,SMAD4,TGFBR2	3
Hepatic System Disease	injury of liver	1.65E-02	HMOX1,SMAD4,TGFBR2	3
Cellular Movement	migration of endothelial cells	1.70E-02	ARHGEF6,AXL,PLD2,TGFBR2,WARS	5
Cardiovascular System Development an	migration of endothelial cells	1.70E-02	ARHGEF6,AXL,PLD2,TGFBR2,WARS	5
Cardiovascular Disease	aortic coarctation	1.73E-02	SMAD4	1
Cardiovascular Disease	aortitis	1.73E-02	HMOX1	1
Inflammatory Disease	aortitis	1.73E-02	HMOX1	1
Cell Death and Survival	apoptosis of lens fiber cells	1.73E-02	TGFBR2	1
Cellular Movement	chemotaxis of cervical cancer cell lines	1.73E-02	PLD2	1
Cellular Movement	chemotaxis of ovarian cancer cell lines	1.73E-02	SMAD4	1
Cancer	chemotherapy resistance of lung cancer cell lines	1.73E-02	AXL	1
Respiratory Disease	chemotherapy resistance of lung cancer cell lines	1.73E-02	AXL	1
Cellular Response to Therapeutics	chemotherapy resistance of lung cancer cell lines	1.73E-02	AXL	1
Molecular Transport	concentration of retinaldehyde	1.73E-02	LIPE	1
Small Molecule Biochemistry	concentration of retinaldehyde	1.73E-02	LIPE	1
Lipid Metabolism	concentration of retinaldehyde	1.73E-02	LIPE	1
Vitamin and Mineral Metabolism	concentration of retinaldehyde	1.73E-02	LIPE	1
Ophthalmic Disease	congenital nystagmus	1.73E-02	SMAD4	1
Developmental Disorder	congenital nystagmus	1.73E-02	SMAD4	1
Hereditary Disorder	congenital nystagmus	1.73E-02	SMAD4	1
Cellular Growth and Proliferation	cytostasis of hepatocytes	1.73E-02	TGFBR2	1
Hepatic System Development and Funct	cytostasis of hepatocytes	1.73E-02	TGFBR2	1
Cellular Growth and Proliferation	cytostasis of keratinocytes	1.73E-02	TGFBR2	1
Hair and Skin Development and Functio	cytostasis of keratinocytes	1.73E-02	TGFBR2	1
Cellular Growth and Proliferation	cytostasis of skin cell lines	1.73E-02	SMAD4	1
Hair and Skin Development and Functio	cytostasis of skin cell lines	1.73E-02	SMAD4	1
Cell-To-Cell Signaling and Interaction	cytotoxic reaction of macrophages	1.73E-02	HMOX1	1
Inflammatory Response	cytotoxic reaction of macrophages	1.73E-02	HMOX1	1
Cellular Assembly and Organization	dispersal of Golgi apparatus	1.73E-02	GOLPH3	1
Organ Development	expansion of cumulus oocyte complex	1.73E-02	SMAD4	1
Reproductive System Development and	expansion of cumulus oocyte complex	1.73E-02	SMAD4	1
Organ Morphology	expansion of cumulus oocyte complex	1.73E-02	SMAD4	1
Endocrine System Disorders	familial hyperinsulinemic hypoglycemia	1.73E-02	HADH	1
Hereditary Disorder	familial hyperinsulinemic hypoglycemia	1.73E-02	HADH	1
Metabolic Disease	familial hyperinsulinemic hypoglycemia	1.73E-02	HADH	1
Cardiovascular Disease	fibrosis of atherosclerotic lesion	1.73E-02	TGFBR2	1
Organismal Injury and Abnormalities	fibrosis of atherosclerotic lesion	1.73E-02	TGFBR2	1
Embryonic Development	formation of atrioventricular canal cushion	1.73E-02	SMAD4	1
Organismal Development	formation of atrioventricular canal cushion	1.73E-02	SMAD4	1
Tissue Development	formation of atrioventricular canal cushion	1.73E-02	SMAD4	1
Embryonic Development	formation of dorsal mesoderm	1.73E-02	SMAD4	1
Organismal Development	formation of dorsal mesoderm	1.73E-02	SMAD4	1
Tissue Development	formation of dorsal mesoderm	1.73E-02	SMAD4	1
Cellular Assembly and Organization	formation of gamma H2AX nuclear focus	1.73E-02	HMOX1	1
DNA Replication, Recombination, and R	formation of gamma H2AX nuclear focus	1.73E-02	HMOX1	1
Cell-mediated Immune Response	frequency of TREG cells	1.73E-02	TGFBR2	1
Cancer	hereditary paraganglioma-pheochromocytoma syndr	1.73E-02	SDHAF2	1
Hereditary Disorder	hereditary paraganglioma-pheochromocytoma syndr	1.73E-02	SDHAF2	1
Cancer	hyperplasia of mammary alveolus	1.73E-02	SMAD4	1
Organismal Injury and Abnormalities	hyperplasia of mammary alveolus	1.73E-02	SMAD4	1
Reproductive System Disease	hyperplasia of mammary alveolus	1.73E-02	SMAD4	1
Cellular Function and Maintenance	initiation of autophagy of cells	1.73E-02	SH3GLB1	1
Cell Morphology	initiation of autophagy of cells	1.73E-02	SH3GLB1	1
Cell Death and Survival	loss of endothelial cells	1.73E-02	TGFBR2	1
Cellular Movement	migration of eye cells	1.73E-02	TGFBR2	1
Embryonic Development	morphogenesis of trachea	1.73E-02	TGFBR2	1
Organismal Development	morphogenesis of trachea	1.73E-02	TGFBR2	1
Tissue Development	morphogenesis of trachea	1.73E-02	TGFBR2	1
Organ Development	morphogenesis of trachea	1.73E-02	TGFBR2	1
Organ Morphology	morphogenesis of trachea	1.73E-02	TGFBR2	1
Respiratory System Development and Fu	morphogenesis of trachea	1.73E-02	TGFBR2	1
Cell Morphology	morphology of skin cell lines	1.73E-02	SMAD4	1
Organismal Injury and Abnormalities	nephrotoxic acute renal failure	1.73E-02	HMOX1	1
Renal and Urological Disease	nephrotoxic acute renal failure	1.73E-02	HMOX1	1
Neurological Disease	nonsyndromic X-linked mental retardation	1.73E-02	ARHGEF6	1
Developmental Disorder	nonsyndromic X-linked mental retardation	1.73E-02	ARHGEF6	1
Hereditary Disorder	nonsyndromic X-linked mental retardation	1.73E-02	ARHGEF6	1
Cancer	progression of papilloma	1.73E-02	TGFBR2	1
Dermatological Diseases and Conditions	progression of papilloma	1.73E-02	TGFBR2	1
Tumor Morphology	progression of papilloma	1.73E-02	TGFBR2	1
Cellular Growth and Proliferation	proliferation of acinar gland cells	1.73E-02	TGFBR2	1
Cellular Development	proliferation of acinar gland cells	1.73E-02	TGFBR2	1
Cellular Growth and Proliferation	proliferation of basal cells	1.73E-02	TGFBR2	1
Cell-To-Cell Signaling and Interaction	response of adaptive T-regulatory cells	1.73E-02	HMOX1	1
Hematological System Development anc	response of adaptive T-regulatory cells	1.73E-02	HMOX1	1
Cardiovascular System Stabilization an	stabilization of vasculature	1.73E-02	TGFBR2	1
Connective Tissue Development and Fu	strength of vertebrae	1.73E-02	TGFBR2	1
Skeletal and Muscular System Developm	strength of vertebrae	1.73E-02	TGFBR2	1
Nucleic Acid Metabolism	synthesis of coenzyme A	1.73E-02	COASY	1
Small Molecule Biochemistry	synthesis of coenzyme A	1.73E-02	COASY	1
Cancer	tumorigenesis of neuroendocrine carcinoma	1.73E-02	SMAD4	1
Cellular Growth and Proliferation	tumorigenesis of neuroendocrine carcinoma	1.73E-02	SMAD4	1
Cellular Development	tumorigenesis of neuroendocrine carcinoma	1.73E-02	SMAD4	1
Tumor Morphology	tumorigenesis of neuroendocrine carcinoma	1.73E-02	SMAD4	1
Cancer	astrocytoma	1.79E-02	FKBP9,GSR,HSPA2,IMPDH2,MAP4K4,SMAD4	6
Neurological Disease	astrocytoma	1.79E-02	FKBP9,GSR,HSPA2,IMPDH2,MAP4K4,SMAD4	6
Cellular Growth and Proliferation	proliferation of pancreatic cancer cell lines	1.79E-02	EIF3F,RPS6KB1,SMAD4	3
Cellular Development	proliferation of pancreatic cancer cell lines	1.79E-02	EIF3F,RPS6KB1,SMAD4	3
Organismal Injury and Abnormalities	glomerulosclerosis	1.83E-02	DKC1,HMOX1,SMAD4	3
Renal and Urological Disease	glomerulosclerosis	1.83E-02	DKC1,HMOX1,SMAD4	3

Hematological System Development and	hematocrit	1.83E-02	HMOX1,IREB2,TGM2	3
Cancer	head and neck cancer	1.83E-02	AXL,DAP3,GSR,HSPA2,MAP4K4,RPS6KB1,SMAD4,TGFBR2,TGM2	9
Organismal Injury and Abnormalities	atresia	1.85E-02	AXL,SMAD4	2
Cardiovascular Disease	occlusion of artery	1.90E-02	HIBCH,HMOX1,IMPDH2,LIPE,MAP4K4,OGDH,SMAD4,TGFBR2	8
Cell Death and Survival	cell viability of neuroblastoma cell lines	2.00E-02	HMOX1,TGM2	2
Gene Expression	initiation of transcription of RNA	2.00E-02	LIPE,THRAP3	2
RNA Post-Transcriptional Modification	modification of rRNA	2.00E-02	DKC1,RPS15	2
Cell-To-Cell Signaling and Interaction	cell-mediated response of T lymphocytes	2.07E-02	AXL,TGFBR2	2
Hematological System Development and	cell-mediated response of T lymphocytes	2.07E-02	AXL,TGFBR2	2
Inflammatory Response	cell-mediated response of T lymphocytes	2.07E-02	AXL,TGFBR2	2
Cancer	lymphohematopoietic cancer	2.11E-02	AXL,BCAT1,DKC1,GSR,HMOX1,IMPDH2,MAP4K4,PLD2,RPS6KB1,SMAD4	13
Cancer	stomach tumor	2.11E-02	IARS2,PHB,PUS7,SMAD4,TGFBR2	5
Gastrointestinal Disease	stomach tumor	2.11E-02	IARS2,PHB,PUS7,SMAD4,TGFBR2	5
Hematological System Development and	mean corpuscular volume	2.15E-02	HMOX1,IREB2	2
Neurological Disease	ophthalmoplegia	2.15E-02	GOLPH3,TGM2	2
Ophthalmic Disease	ophthalmoplegia	2.15E-02	GOLPH3,TGM2	2
Cell-To-Cell Signaling and Interaction	TH1 immune response of naive T lymphocytes	2.15E-02	AXL	1
Hematological System Development and	TH1 immune response of naive T lymphocytes	2.15E-02	AXL	1
Inflammatory Response	TH1 immune response of naive T lymphocytes	2.15E-02	AXL	1
Cell-mediated Immune Response	TH1 immune response of naive T lymphocytes	2.15E-02	AXL	1
Embryonic Development	adhesion of embryonic stem cells	2.15E-02	BCAP31	1
Tissue Development	adhesion of embryonic stem cells	2.15E-02	BCAP31	1
Cell-To-Cell Signaling and Interaction	adhesion of embryonic stem cells	2.15E-02	BCAP31	1
Gene Expression	binding of C/ebp beta binding site	2.15E-02	SMAD4	1
Cellular Compromise	collapse of intermediate filaments	2.15E-02	PLEC	1
Post-Translational Modification	cross-linkage of protein	2.15E-02	TGM2	1
Protein Folding	cross-linkage of protein	2.15E-02	TGM2	1
Tissue Morphology	density of red blood cells	2.15E-02	SLC12A4	1
Cellular Assembly and Organization	depolymerization of actin	2.15E-02	PLEC	1
Cellular Compromise	depolymerization of actin	2.15E-02	PLEC	1
Connective Tissue Development and Fu	development of calvaria	2.15E-02	TGFBR2	1
Embryonic Development	development of calvaria	2.15E-02	TGFBR2	1
Organismal Development	development of calvaria	2.15E-02	TGFBR2	1
Tissue Development	development of calvaria	2.15E-02	TGFBR2	1
Organ Development	development of calvaria	2.15E-02	TGFBR2	1
Skeletal and Muscular System Developm	development of calvaria	2.15E-02	TGFBR2	1
Cell Morphology	elongation of lens fiber cells	2.15E-02	TGFBR2	1
Cell Cycle	entry into S phase of lung cancer cell lines	2.15E-02	HMOX1	1
Cellular Development	epithelial-mesenchymal transition of liver cell lines	2.15E-02	SMAD4	1
Embryonic Development	formation of trachea	2.15E-02	TGFBR2	1
Organismal Development	formation of trachea	2.15E-02	TGFBR2	1
Tissue Development	formation of trachea	2.15E-02	TGFBR2	1
Organ Development	formation of trachea	2.15E-02	TGFBR2	1
Respiratory System Development and Fu	formation of trachea	2.15E-02	TGFBR2	1
Cellular Function and Maintenance	function of endothelial progenitor cells	2.15E-02	HMOX1	1
Cellular Function and Maintenance	glycolysis of leukocyte cell lines	2.15E-02	RPS6KB1	1
Carbohydrate Metabolism	glycolysis of leukocyte cell lines	2.15E-02	RPS6KB1	1
Connective Tissue Development and Fu	homeostasis of bone	2.15E-02	ALDH2	1
Skeletal and Muscular System Developm	homeostasis of bone	2.15E-02	ALDH2	1
Cancer	hormone refractory prostate cancer	2.15E-02	HMOX1	1
Organismal Injury and Abnormalities	hormone refractory prostate cancer	2.15E-02	HMOX1	1
Reproductive System Disease	hormone refractory prostate cancer	2.15E-02	HMOX1	1
Organismal Injury and Abnormalities	immune complex nephritis	2.15E-02	TGM2	1
Inflammatory Disease	immune complex nephritis	2.15E-02	TGM2	1
Inflammatory Response	immune complex nephritis	2.15E-02	TGM2	1
Renal and Urological Disease	immune complex nephritis	2.15E-02	TGM2	1
Molecular Transport	influx of cholesterol	2.15E-02	LIPE	1
Small Molecule Biochemistry	influx of cholesterol	2.15E-02	LIPE	1
Lipid Metabolism	influx of cholesterol	2.15E-02	LIPE	1
Neurological Disease	loss of dendrites	2.15E-02	TGFBR2	1
Cellular Development	maturation of osteoblasts	2.15E-02	HMOX1	1
Skeletal and Muscular System Developm	maturation of osteoblasts	2.15E-02	HMOX1	1
Carbohydrate Metabolism	metabolism of isocitric acid	2.15E-02	IDH3A	1
Cell Cycle	mitogenesis of epithelial tissue	2.15E-02	RPS6KB1	1
Dermatological Diseases and Conditions	pemphigus vulgaris	2.15E-02	IMPDH2	1
Immunological Disease	pemphigus vulgaris	2.15E-02	IMPDH2	1
Cell Signaling	progesterone receptor signaling pathway	2.15E-02	PHB	1
Embryonic Development	proliferation of cranial neural crest cells	2.15E-02	TGFBR2	1
Cellular Growth and Proliferation	proliferation of cranial neural crest cells	2.15E-02	TGFBR2	1
Cellular Development	proliferation of cranial neural crest cells	2.15E-02	TGFBR2	1
Nervous System Development and Func	proliferation of cranial neural crest cells	2.15E-02	TGFBR2	1
Molecular Transport	quantity of AMP	2.15E-02	AMPD2	1
Nucleic Acid Metabolism	quantity of AMP	2.15E-02	AMPD2	1
Small Molecule Biochemistry	quantity of AMP	2.15E-02	AMPD2	1
Cellular Assembly and Organization	quantity of hemidesmosomes	2.15E-02	PLEC	1
Cardiovascular Disease	stabilization of atherosclerotic lesion	2.15E-02	HMOX1	1
Nucleic Acid Metabolism	synthesis of NADPH	2.15E-02	ALDH2	1
Small Molecule Biochemistry	synthesis of NADPH	2.15E-02	ALDH2	1
Small Molecule Biochemistry	synthesis of glycerol	2.15E-02	LIPE	1
Carbohydrate Metabolism	synthesis of glycerol	2.15E-02	LIPE	1
Cancer	transformation of keratinocytes	2.15E-02	TGFBR2	1
Cancer	tumorigenesis of pancreatic tumor	2.15E-02	SMAD4	1
Endocrine System Disorders	tumorigenesis of pancreatic tumor	2.15E-02	SMAD4	1
Gastrointestinal Disease	tumorigenesis of pancreatic tumor	2.15E-02	SMAD4	1
Cellular Growth and Proliferation	tumorigenesis of pancreatic tumor	2.15E-02	SMAD4	1
Cellular Development	tumorigenesis of pancreatic tumor	2.15E-02	SMAD4	1
Tumor Morphology	tumorigenesis of pancreatic tumor	2.15E-02	SMAD4	1
Cellular Function and Maintenance	autophagy of cells	2.17E-02	BAIAP2,PLD2,RPS6KB1,SH3GLB1	4
Cell Morphology	autophagy of cells	2.17E-02	BAIAP2,PLD2,RPS6KB1,SH3GLB1	4
Cancer	hematologic cancer	2.17E-02	AXL,BCAT1,GSR,HMOX1,IMPDH2,PLD2,SMAD4,STAG2,STRN,TGFBR2	10
Hematological Disease	hematologic cancer	2.17E-02	AXL,BCAT1,GSR,HMOX1,IMPDH2,PLD2,SMAD4,STAG2,STRN,TGFBR2	10
Cancer	pancreatic tumor	2.29E-02	AXL,EIF3F,MANF,RPS6KB1,SMAD4	5
Endocrine System Disorders	pancreatic tumor	2.29E-02	AXL,EIF3F,MANF,RPS6KB1,SMAD4	5
Gastrointestinal Disease	pancreatic tumor	2.29E-02	AXL,EIF3F,MANF,RPS6KB1,SMAD4	5
Cancer	hyperplasia	2.29E-02	AXL,DDX39A,DKC1,HMOX1,PHB,SMAD4,TGFBR2	7
Neurological Disease	mitochondrial cytopathy	2.31E-02	GOLPH3,SDHA	2
Metabolic Disease	mitochondrial cytopathy	2.31E-02	GOLPH3,SDHA	2
Skeletal and Muscular Disorders	mitochondrial cytopathy	2.31E-02	GOLPH3,SDHA	2
Cellular Function and Maintenance	engulfment of tumor cell lines	2.31E-02	AXL,PLD2,TGM2	3
Tissue Morphology	quantity of red blood cells	2.35E-02	DKC1,HMOX1,IREB2,TGM2	4
Hematological System Development and	quantity of red blood cells	2.35E-02	DKC1,HMOX1,IREB2,TGM2	4
Hematopoiesis	quantity of red blood cells	2.35E-02	DKC1,HMOX1,IREB2,TGM2	4
Cancer	malignant ovarian neoplasm	2.35E-02	FLII,H2AFY,SMAD4,TGFBR2,TGM2,USP7	6
Endocrine System Disorders	malignant ovarian neoplasm	2.35E-02	FLII,H2AFY,SMAD4,TGFBR2,TGM2,USP7	6
Organismal Injury and Abnormalities	malignant ovarian neoplasm	2.35E-02	FLII,H2AFY,SMAD4,TGFBR2,TGM2,USP7	6
Reproductive System Disease	malignant ovarian neoplasm	2.35E-02	FLII,H2AFY,SMAD4,TGFBR2,TGM2,USP7	6
Tissue Development	attachment of cells	2.35E-02	BCAP31,IPO9,TGM2	3
Cell-To-Cell Signaling and Interaction	attachment of cells	2.35E-02	BCAP31,IPO9,TGM2	3
Nucleic Acid Metabolism	synthesis of cyclic GMP	2.39E-02	ALDH2,HMOX1	2
Small Molecule Biochemistry	synthesis of cyclic GMP	2.39E-02	ALDH2,HMOX1	2
Cellular Movement	chemotaxis of tumor cell lines	2.40E-02	AXL,PLD2,SMAD4	3
Gastrointestinal Disease	damage of gastrointestinal tract	2.47E-02	HMOX1,PHB	2
Cellular Growth and Proliferation	proliferation of melanoma cell lines	2.49E-02	EIF3F,GOLPH3,HMOX1	3
Cellular Development	proliferation of melanoma cell lines	2.49E-02	EIF3F,GOLPH3,HMOX1	3
Organismal Survival	mortality	2.53E-02	HMOX1,TGFBR2,TGM2	3
Cell Death and Survival	cell death of germ cells	2.58E-02	AXL,ELAVL1,HSPA2	3
Reproductive System Development and	abnormal morphology of chorionic plate	2.58E-02	ELAVL1	1
Organ Morphology	abnormal morphology of chorionic plate	2.58E-02	ELAVL1	1
Cell Death and Survival	apoptosis of prostate cells	2.58E-02	TGFBR2	1
Connective Tissue Development and Fu	attachment of fibroblast cell lines	2.58E-02	IPO9	1
Tissue Development	attachment of fibroblast cell lines	2.58E-02	IPO9	1
Cell-To-Cell Signaling and Interaction	attachment of fibroblast cell lines	2.58E-02	IPO9	1
Cell Death and Survival	cell death of chronic myelogenous leukemia cells	2.58E-02	HMOX1	1
Tumor Morphology	cell death of chronic myelogenous leukemia cells	2.58E-02	HMOX1	1

Cellular Compromise	dysfunction of cardiomyocytes	2.58E-02	ALDH2	1
Cell Morphology	elongation of spermatids	2.58E-02	ELAVL1	1
Embryonic Development	elongation of spermatids	2.58E-02	ELAVL1	1
Organismal Development	elongation of spermatids	2.58E-02	ELAVL1	1
Tissue Development	elongation of spermatids	2.58E-02	ELAVL1	1
Cellular Development	elongation of spermatids	2.58E-02	ELAVL1	1
Organ Development	elongation of spermatids	2.58E-02	ELAVL1	1
Reproductive System Development and Cell Cycle	elongation of spermatids	2.58E-02	ELAVL1	1
Gastrointestinal Disease	entry into S phase of carcinoma cell lines	2.58E-02	HMOX1	1
Organismal Injury and Abnormalities	experimentally-induced hepatic fibrosis	2.58E-02	TGFBR2	1
Hepatic System Disease	experimentally-induced hepatic fibrosis	2.58E-02	TGFBR2	1
Organismal Injury and Abnormalities	fibrosis of dermis	2.58E-02	TGFBR2	1
Dermatological Diseases and Conditions	fibrosis of dermis	2.58E-02	TGFBR2	1
Embryonic Development	formation of myoblasts	2.58E-02	MYOF	1
Organismal Development	formation of myoblasts	2.58E-02	MYOF	1
Tissue Development	formation of myoblasts	2.58E-02	MYOF	1
Cellular Growth and Proliferation	formation of myoblasts	2.58E-02	MYOF	1
Cellular Development	formation of myoblasts	2.58E-02	MYOF	1
Organ Development	formation of myoblasts	2.58E-02	MYOF	1
Skeletal and Muscular System Development	formation of myoblasts	2.58E-02	MYOF	1
Embryonic Development	formation of myofibroblasts	2.58E-02	TGFBR2	1
Organismal Development	formation of myofibroblasts	2.58E-02	TGFBR2	1
Tissue Development	formation of myofibroblasts	2.58E-02	TGFBR2	1
Cellular Growth and Proliferation	formation of myofibroblasts	2.58E-02	TGFBR2	1
Cellular Development	formation of myofibroblasts	2.58E-02	TGFBR2	1
Organ Development	formation of myofibroblasts	2.58E-02	TGFBR2	1
Skeletal and Muscular System Development	formation of myofibroblasts	2.58E-02	TGFBR2	1
Cardiovascular System Development and Connective Tissue Development and Function	formation of vascular plexus	2.58E-02	TGFBR2	1
Tissue Development	function of brown adipose tissue	2.58E-02	LIPE	1
Infectious Disease	infection of fibrosarcoma cell lines	2.58E-02	AXL	1
Cardiovascular Disease	inflammation of atherosclerotic lesion	2.58E-02	TGFBR2	1
Inflammatory Response	inflammation of atherosclerotic lesion	2.58E-02	TGFBR2	1
Nucleic Acid Metabolism	metabolism of succinyl-coenzyme A	2.58E-02	OGDH	1
Small Molecule Biochemistry	metabolism of succinyl-coenzyme A	2.58E-02	OGDH	1
Lipid Metabolism	metabolism of succinyl-coenzyme A	2.58E-02	OGDH	1
Embryonic Development	morphogenesis of lung lobe	2.58E-02	TGFBR2	1
Organismal Development	morphogenesis of lung lobe	2.58E-02	TGFBR2	1
Tissue Development	morphogenesis of lung lobe	2.58E-02	TGFBR2	1
Organ Development	morphogenesis of lung lobe	2.58E-02	TGFBR2	1
Respiratory System Development and Function	morphogenesis of lung lobe	2.58E-02	TGFBR2	1
Cellular Function and Maintenance	phagocytosis by Sertoli cells	2.58E-02	AXL	1
Cell-To-Cell Signaling and Interaction	phagocytosis by Sertoli cells	2.58E-02	AXL	1
Inflammatory Response	phagocytosis by Sertoli cells	2.58E-02	AXL	1
Molecular Transport	quantity of heme	2.58E-02	HMOX1	1
Small Molecule Biochemistry	quantity of heme	2.58E-02	HMOX1	1
Molecular Transport	quantity of melanin	2.58E-02	PLD2	1
Small Molecule Biochemistry	quantity of melanin	2.58E-02	PLD2	1
Cellular Assembly and Organization	rearrangement of actin stress fibers	2.58E-02	PLEC	1
Cellular Movement	recruitment of mast precursor cells	2.58E-02	TGFBR2	1
Cell-To-Cell Signaling and Interaction	recruitment of mast precursor cells	2.58E-02	TGFBR2	1
Hematological System Development and Function	recruitment of mast precursor cells	2.58E-02	TGFBR2	1
Inflammatory Response	recruitment of mast precursor cells	2.58E-02	TGFBR2	1
Hypersensitivity Response	recruitment of mast precursor cells	2.58E-02	TGFBR2	1
Immune Cell Trafficking	recruitment of mast precursor cells	2.58E-02	TGFBR2	1
Connective Tissue Development and Function	strength of femur	2.58E-02	TGFBR2	1
Skeletal and Muscular System Development	strength of femur	2.58E-02	TGFBR2	1
Embryonic Development	spermatogenesis	2.59E-02	AXL,ELAVL1,GSR,HSPA2,LIPE	5
Organismal Development	spermatogenesis	2.59E-02	AXL,ELAVL1,GSR,HSPA2,LIPE	5
Tissue Development	spermatogenesis	2.59E-02	AXL,ELAVL1,GSR,HSPA2,LIPE	5
Cellular Development	spermatogenesis	2.59E-02	AXL,ELAVL1,GSR,HSPA2,LIPE	5
Organ Development	spermatogenesis	2.59E-02	AXL,ELAVL1,GSR,HSPA2,LIPE	5
Reproductive System Development and Function	spermatogenesis	2.59E-02	AXL,ELAVL1,GSR,HSPA2,LIPE	5
Cardiovascular System Development and Function	morphology of cardiovascular system	2.64E-02	AXL,DKC1,ELAVL1,HMOX1,IREB2,RPS6KB1,TGFBR2,TGM2	8
Cancer	breast or ovarian cancer	2.68E-02	AXL,BCAT1,CAPZA2,DKC1,FLII,H2AFY,HMOX1,IDH3A,PHB,PLEC,SMAD4	15
Organismal Development	development of multicellular organism	2.71E-02	ELAVL1,FLII,NELFA	3
Organismal Injury and Abnormalities	aciduria	2.72E-02	HADH,OGDH	2
Metabolic Disease	aciduria	2.72E-02	HADH,OGDH	2
Renal and Urological Disease	aciduria	2.72E-02	HADH,OGDH	2
Cellular Growth and Proliferation	proliferation of muscle cell lines	2.72E-02	RPS6KB1,TGM2	2
Cellular Development	proliferation of muscle cell lines	2.72E-02	RPS6KB1,TGM2	2
Skeletal and Muscular System Development	proliferation of muscle cell lines	2.72E-02	RPS6KB1,TGM2	2
Cancer	progression of tumor	2.90E-02	AXL,SMAD4,TGFBR2	3
Tumor Morphology	progression of tumor	2.90E-02	AXL,SMAD4,TGFBR2	3
Cancer	myeloid leukemia	2.93E-02	AXL,IMPDPH2,SMAD4,STAG2	4
Hematological Disease	myeloid leukemia	2.93E-02	AXL,IMPDPH2,SMAD4,STAG2	4
Organismal Development	abnormal morphology of nephron	2.95E-02	AMPD2,DKC1,HMOX1	3
Organ Morphology	abnormal morphology of nephron	2.95E-02	AMPD2,DKC1,HMOX1	3
Renal and Urological System Development	abnormal morphology of nephron	2.95E-02	AMPD2,DKC1,HMOX1	3
Cellular Movement	infiltration of macrophages	2.95E-02	HMOX1,SMAD4,TGFBR2	3
Hematological System Development and Function	infiltration of macrophages	2.95E-02	HMOX1,SMAD4,TGFBR2	3
Inflammatory Response	infiltration of macrophages	2.95E-02	HMOX1,SMAD4,TGFBR2	3
Immune Cell Trafficking	infiltration of macrophages	2.95E-02	HMOX1,SMAD4,TGFBR2	3
Molecular Transport	concentration of lipid	2.96E-02	GOLPH3,HADH,HMOX1,LIPE,PLD2,RPS6KB1,SMAD4,TGFBR2,TGM2	9
Small Molecule Biochemistry	concentration of lipid	2.96E-02	GOLPH3,HADH,HMOX1,LIPE,PLD2,RPS6KB1,SMAD4,TGFBR2,TGM2	9
Lipid Metabolism	concentration of lipid	2.96E-02	GOLPH3,HADH,HMOX1,LIPE,PLD2,RPS6KB1,SMAD4,TGFBR2,TGM2	9
Organismal Injury and Abnormalities	genodermatosis	2.98E-02	DKC1,PLEC	2
Dermatological Diseases and Conditions	genodermatosis	2.98E-02	DKC1,PLEC	2
Developmental Disorder	genodermatosis	2.98E-02	DKC1,PLEC	2
Cell-To-Cell Signaling and Interaction	T cell response	3.00E-02	AXL,HMOX1,TGFBR2	3
Hematological System Development and Function	T cell response	3.00E-02	AXL,HMOX1,TGFBR2	3
Cardiovascular Disease	Wegener's granulomatosis	3.00E-02	IMPDPH2	1
Inflammatory Disease	Wegener's granulomatosis	3.00E-02	IMPDPH2	1
Molecular Transport	accumulation of diacylglycerol	3.00E-02	LIPE	1
Small Molecule Biochemistry	accumulation of diacylglycerol	3.00E-02	LIPE	1
Lipid Metabolism	accumulation of diacylglycerol	3.00E-02	LIPE	1
Connective Tissue Development and Function	accumulation of fibroblasts	3.00E-02	HMOX1	1
Tissue Development	accumulation of fibroblasts	3.00E-02	HMOX1	1
Tissue Development	accumulation of lung cancer cell lines	3.00E-02	HMOX1	1
Embryonic Development	angiogenesis of retina	3.00E-02	WARS	1
Organismal Development	angiogenesis of retina	3.00E-02	WARS	1
Tissue Development	angiogenesis of retina	3.00E-02	WARS	1
Organ Development	angiogenesis of retina	3.00E-02	WARS	1
Cardiovascular System Development and Function	angiogenesis of retina	3.00E-02	WARS	1
Visual System Development and Function	angiogenesis of retina	3.00E-02	WARS	1
Cell Death and Survival	anoikis of kidney cell lines	3.00E-02	DAP3	1
Cellular Growth and Proliferation	arrest in growth of colon cancer cell lines	3.00E-02	TGFBR2	1
Cellular Development	arrest in growth of colon cancer cell lines	3.00E-02	TGFBR2	1
Cellular Growth and Proliferation	arrest in growth of hematopoietic progenitor cells	3.00E-02	SMAD4	1
Cellular Development	arrest in growth of hematopoietic progenitor cells	3.00E-02	SMAD4	1
Hematological System Development and Function	arrest in growth of hematopoietic progenitor cells	3.00E-02	SMAD4	1
Hematopoiesis	arrest in growth of hematopoietic progenitor cells	3.00E-02	SMAD4	1
Protein Synthesis	arrest in translation of protein	3.00E-02	RPS6KB1	1
Gene Expression	binding of mRNA	3.00E-02	RPS6KB1	1
RNA Post-Transcriptional Modification	binding of mRNA	3.00E-02	RPS6KB1	1
Connective Tissue Development and Function	bone mineral content	3.00E-02	TGFBR2	1
Skeletal and Muscular System Development	bone mineral content	3.00E-02	TGFBR2	1
Cell Morphology	branching of vasculature	3.00E-02	TGFBR2	1
Cellular Development	branching of vasculature	3.00E-02	TGFBR2	1
Cardiovascular System Development and Function	branching of vasculature	3.00E-02	TGFBR2	1
Cell Death and Survival	cell death of adenocarcinoma cell lines	3.00E-02	TGM2	1
Cellular Function and Maintenance	differentiation of natural killer T lymphocytes	3.00E-02	TGFBR2	1
Cellular Development	differentiation of natural killer T lymphocytes	3.00E-02	TGFBR2	1

Hematological System Development and Hematopoiesis	differentiation of natural killer T lymphocytes	3.00E-02	TGFBR2	1
Lymphoid Tissue Structure and Development	differentiation of natural killer T lymphocytes	3.00E-02	TGFBR2	1
Cell-mediated Immune Response	differentiation of natural killer T lymphocytes	3.00E-02	TGFBR2	1
Cellular Development	epithelial-mesenchymal transition of lung cancer cell	3.00E-02	PHB	1
Cellular Assembly and Organization	formation of actin comet	3.00E-02	DNMBP	1
Cell-To-Cell Signaling and Interaction	formation of actin comet	3.00E-02	DNMBP	1
Organismal Injury and Abnormalities	formation of epidermoid	3.00E-02	SMAD4	1
Cellular Function and Maintenance	formation of myosin filaments	3.00E-02	RAP1GDS1	1
Cellular Assembly and Organization	formation of myosin filaments	3.00E-02	RAP1GDS1	1
Tissue Development	formation of myosin filaments	3.00E-02	RAP1GDS1	1
Skeletal and Muscular System Development	formation of myosin filaments	3.00E-02	RAP1GDS1	1
Organismal Injury and Abnormalities	hyperkeratosis of epidermis	3.00E-02	TGFBR2	1
Dermatological Diseases and Conditions	hyperkeratosis of epidermis	3.00E-02	TGFBR2	1
Organismal Injury and Abnormalities	hypoplasia of labyrinthine zone of placenta	3.00E-02	ELAVL1	1
Reproductive System Disease	hypoplasia of labyrinthine zone of placenta	3.00E-02	ELAVL1	1
Developmental Disorder	hypoplasia of labyrinthine zone of placenta	3.00E-02	ELAVL1	1
Cell Morphology	mineralization of vascular smooth muscle cells	3.00E-02	AXL	1
Cardiovascular Disease	mineralization of vascular smooth muscle cells	3.00E-02	AXL	1
Embryonic Development	morphogenesis of nephrogenic mesenchyme	3.00E-02	SMAD4	1
Organismal Development	morphogenesis of nephrogenic mesenchyme	3.00E-02	SMAD4	1
Tissue Development	morphogenesis of nephrogenic mesenchyme	3.00E-02	SMAD4	1
Cancer	progression of squamous-cell carcinoma	3.00E-02	TGFBR2	1
Tumor Morphology	progression of squamous-cell carcinoma	3.00E-02	TGFBR2	1
Cellular Growth and Proliferation	proliferation of prostate cells	3.00E-02	TGFBR2	1
Cellular Development	proliferation of prostate cells	3.00E-02	TGFBR2	1
Reproductive System Development and Cellular Assembly and Organization	proliferation of prostate cells	3.00E-02	TGFBR2	1
DNA Replication, Recombination, and Repair	quantity of PML nuclear bodies	3.00E-02	USP7	1
Molecular Transport	quantity of retinyl ester	3.00E-02	LIPE	1
Small Molecule Biochemistry	quantity of retinyl ester	3.00E-02	LIPE	1
Lipid Metabolism	quantity of retinyl ester	3.00E-02	LIPE	1
Vitamin and Mineral Metabolism	quantity of retinyl ester	3.00E-02	LIPE	1
Cardiovascular System Development and Organ Morphology	relaxation of heart ventricle	3.00E-02	TGM2	1
Cell Cycle	senescence of keratinocytes	3.00E-02	TGFBR2	1
Cellular Development	senescence of keratinocytes	3.00E-02	TGFBR2	1
Hair and Skin Development and Function	senescence of keratinocytes	3.00E-02	TGFBR2	1
Infectious Disease	viral entry by Zaire ebolavirus	3.00E-02	AXL	1
Cellular Growth and Proliferation	proliferation of lung cancer cell lines	3.04E-02	AXL,GOLPH3,H2AFY,HMOX1	4
Cellular Development	proliferation of lung cancer cell lines	3.04E-02	AXL,GOLPH3,H2AFY,HMOX1	4
Cardiovascular Disease	damage of heart	3.07E-02	ALDH2,HMOX1	2
Organismal Injury and Abnormalities	damage of heart	3.07E-02	ALDH2,HMOX1	2
Cell Morphology	elongation of cells	3.07E-02	ELAVL1,TGFBR2	2
Cellular Development	differentiation of muscle cells	3.11E-02	HMOX1,SMAD4,TGFBR2,TGM2	4
Skeletal and Muscular System Development	differentiation of muscle cells	3.11E-02	HMOX1,SMAD4,TGFBR2,TGM2	4
Cardiovascular Disease	atherosclerosis	3.24E-02	HMOX1,IMPDH2,LIPE,OGDH,SMAD4,TGFBR2	6
Cellular Growth and Proliferation	proliferation of tumor cell lines	3.25E-02	AXL,EIF3F,ELAVL1,GOLPH3,H2AFY,HMOX1,MAP4K4,NFS1,PHB,RPS6KB1	14
Cellular Development	proliferation of tumor cell lines	3.25E-02	AXL,EIF3F,ELAVL1,GOLPH3,H2AFY,HMOX1,MAP4K4,NFS1,PHB,RPS6KB1	14
Tissue Development	formation of endothelial tube	3.25E-02	SMAD4,TGFBR2	2
Cardiovascular System Development and Endocrine System Disorders	formation of endothelial tube	3.25E-02	SMAD4,TGFBR2	2
Gastrointestinal Disease	hyperinsulinism	3.25E-02	HADH,LIPE	2
Metabolic Disease	hyperinsulinism	3.25E-02	HADH,LIPE	2
Molecular Transport	abnormal quantity of lipid	3.25E-02	HADH,LIPE,RPS6KB1	3
Small Molecule Biochemistry	abnormal quantity of lipid	3.25E-02	HADH,LIPE,RPS6KB1	3
Lipid Metabolism	abnormal quantity of lipid	3.25E-02	HADH,LIPE,RPS6KB1	3
Cellular Movement	cell movement of macrophages	3.26E-02	HMOX1,PLEC,SMAD4,TGFBR2	4
Hematological System Development and Inflammatory Response	cell movement of macrophages	3.26E-02	HMOX1,PLEC,SMAD4,TGFBR2	4
Immune Cell Trafficking	cell movement of macrophages	3.26E-02	HMOX1,PLEC,SMAD4,TGFBR2	4
Cellular Function and Maintenance	phagocytosis of cells	3.26E-02	AXL,HMOX1,PLD2,TGM2	4
Cell-To-Cell Signaling and Interaction	phagocytosis of cells	3.26E-02	AXL,HMOX1,PLD2,TGM2	4
Inflammatory Response	phagocytosis of cells	3.26E-02	AXL,HMOX1,PLD2,TGM2	4
Reproductive System Disease	infection of cervical cancer cell lines	3.29E-02	AXL,FLII,GBAS,GOLPH3,HIBCH,HSPA9	6
Infectious Disease	infection of cervical cancer cell lines	3.29E-02	AXL,FLII,GBAS,GOLPH3,HIBCH,HSPA9	6
Cellular Movement	cell movement of breast cancer cell lines	3.29E-02	AXL,MAP4K4,SMAD4,TGM2	4
Protein Synthesis	metabolism of protein	3.32E-02	DKC1,EIF3F,ELAVL1,IPO9,IREB2,RPS6KB1,TGM2,USP7,WARS	9
Cellular Development	epithelial-mesenchymal transition of tumor cell lines	3.34E-02	PHB,TGM2	2
Molecular Transport	nuclear export of molecule	3.34E-02	DDX39A,HSPA9	2
Dermatological Diseases and Conditions	psoriasis	3.41E-02	DDX39A,GBAS,H2AFY,HMOX1,IDH3A,MANF,PHB	7
Cell Morphology	abnormal morphology of alpha islet cells	3.42E-02	HADH	1
Organismal Development	abnormal morphology of alpha islet cells	3.42E-02	HADH	1
Digestive System Development and Endocrine System Development and Organ Morphology	abnormal morphology of alpha islet cells	3.42E-02	HADH	1
Organismal Development	abnormal morphology of alpha islet cells	3.42E-02	HADH	1
Organismal Development	abnormal morphology of enlarged uterus	3.42E-02	AXL	1
Reproductive System Development and Organ Morphology	abnormal morphology of enlarged uterus	3.42E-02	AXL	1
Organismal Injury and Abnormalities	bleeding of retina	3.42E-02	TGFBR2	1
Ophthalmic Disease	bleeding of retina	3.42E-02	TGFBR2	1

Supplementary Tab.S9. Prognostic value of RPS6KB1 expression for the biochemical recurrence-free survival in univariate and multivariate analysis by Cox Regression

	BCR-free survival		Overall survival	
	HR (95% CI)	<i>P</i>	HR (95% CI)	<i>P</i>
(a) Univariate analysis				
RPS6KB1	2.149 (1.167-3.959)	0.014	3.123 (1.116-8.741)	0.03
Preoperative PSA	1.727 (0.86-3.469)	0.125	1.094 (0.456-2.623)	0.841
AJCC Pathological tumor stage	2.052 (1.315-3.204)	0.002	1.619 (0.855-3.065)	0.139
Surgical margin status	1.995 (1.303-3.053)	0.001	1.203 (0.656-2.205)	0.55
Gleason score	2.59 (1.91-3.513)	<0.001	2.037(1.331-3.118)	0.001
PSA failure	-	-	2.311(1.266-4.22)	0.006
(b) Multivariate analysis				
RPS6KB1	2.041 (1.098-3.792)	0.024	2.992 (1.058-8.462)	0.039
AJCC Pathological tumor stage	1.313 (0.819-2.107)	0.258	1.078 (0.537-2.164)	0.832
Surgical margin status	1.27 (0.809-1.994)	0.299	0.77 (0.405-1.467)	0.428
Gleason score	2.426 (1.751-3.361)	<0.001	1.896 (1.161-3.097)	0.011
PSA failure	-	-	1.59 (0.826-3.063)	0.165

HR, Hazard ratio; CI, confidence interval; RPS6KB1, between positive and negative; Preoperative PSA (ng/ml), between ≤ 4 and >4 ; AJCC Pathological tumor stage, between T2A-T2C and T3A-T4; Surgical margin status, between positive and negative; Gleason score, among Gleason score ≤ 6 , 7 and ≥ 8 ; PSA failure, between yes and no.