

Supplementary Table 6. Pathway level analysis of lncRNAs in the 16th, 19th and 20th modules.

Modules	Pathways	Subpathway	P-value	LncRNAs	PCGs
the 16th module	Fc epsilon RI signaling pathway	path:04664_1	0.012337077	CTD-2314B22.3 LINC00675	FCER1A
	Asthma	path:05310_4	0.012337077	CTD-2314B22.3 LINC00675	FCER1A
		path:05310_5	0.012337077	CTD-2314B22.3 LINC00675	FCER1A
	Pancreatic secretion	path:04972_2	0.020478054	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1	CLCA4
	Wnt signaling pathway	path:04310_8	0.02399774	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1 RP11-56L13.1 LL22NC03-2H8.5	WNT2 SFRP4
	Starch and sucrose metabolism	path:00500_1 4	0.028552666	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1 RP11-56L13.1	GYS2
	Cardiac muscle contraction	path:04260_1	0.032565253	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1 RP11-56L13.1 LL22NC03-2H8.5	TNNC1
		path:04260_2	0.032565253	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1 RP11-56L13.1 LL22NC03-2H8.5	TNNC1
	Hypertrophic cardiomyopathy (HCM)	path:05410_3	0.032565253	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1 RP11-56L13.1 LL22NC03-2H8.5	TNNC1
	Dilated cardiomyopathy	path:05414_4	0.032565253	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1 RP11-56L13.1 LL22NC03-2H8.5	TNNC1
Wnt signaling pathway	path:04310_9	0.035759176	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1 RP11-56L13.1 LL22NC03-2H8.5	WNT2 SFRP4	
Drug metabolism - cytochrome P450	path:00982_1 2	0.044504935	CTD-2314B22.3 RP11-283G6.4 LINC00675 SLC8A1-AS1 RP11-369C8.1	ADH1B	
the 19th module	Amoebiasis	path:05146_1 1	0.00157669	RP11-38P22.2 RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	SERPINB3 SERPINB4
	Cell adhesion molecules (CAMs)	path:04514_1 6	0.013443535	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	PVRL3
		path:04514_4 1	0.013443535	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	PVRL3
		path:04514_4 2	0.013443535	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	PVRL3
		path:04514_4 3	0.013443535	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	PVRL3
		path:04514_4 4	0.013443535	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	PVRL3
	Axon guidance	path:04360_7	0.016281519	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	EPHA2 PAK6
	Cell cycle	path:04110_5	0.017368217	RP11-38P22.2 RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	ESPL1 CDC14B

Pentose phosphate pathway	path:00030_6	0.020097834	RP11-38P22.2 RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 MIR205HG	PGD
O-Glycan biosynthesis	path:00512_3	0.020097834	RP11-351J23.1 CTB-113P19.4	GCNT1
Metabolism of xenobiotics by cytochrome P450	path:00980_1	0.020806425	RP11-38P22.2 RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD- 2651B20.1	ADH7 CYP2E1
Basal cell carcinoma	path:05217_5	0.022010387	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	FZD10 WNT4
Melanogenesis	path:04916_7	0.023242568	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	FZD10 WNT4
Basal cell carcinoma	path:05217_4	0.024502537	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	FZD10 WNT4
Pathways in cancer	path:05200_2	0.02578987	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	FZD10 WNT4
Galactose metabolism	path:00052_3	0.026707553	C5orf66-AS1 CTD-2619J13.13	GANC
MAPK signaling pathway	path:04010_1 4	0.026707553	RP11-38P22.2 RP11-351J23.1 CTB-113P19.4 MIR205HG	MAP3K4
Axon guidance	path:04360_2	0.026707553	RP11-38P22.2 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	GNAI3
Basal cell carcinoma	path:05217_2	0.027104145	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	FZD10 WNT4
	path:05217_1	0.029811859	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	FZD10 WNT4
Drug metabolism - cytochrome P450	path:00982_1 1	0.03327299	RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG CTD-2651B20.1	CYP2E1
Cytokine-cytokine receptor interaction	path:04060_1 8	0.03327299	C5orf66-AS1 CTD-2619J13.13 MIR205HG	IL1A
Long-term depression	path:04730_7	0.038539166	RP11-38P22.2 RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	GNAI3 RYR1
Toxoplasmosis	path:05145_5	0.039794438	RP11-38P22.2 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	GNAI3
Starch and sucrose metabolism	path:00500_1	0.04627219	C5orf66-AS1 CTD-2619J13.13	GANC
Protein processing in endoplasmic reticulum	path:04141_9	0.04627219	RP11-38P22.2 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	ERO1L
Long-term depression	path:04730_2	0.046457677	RP11-38P22.2 RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	GNAI3 RYR1
	path:04730_6	0.046457677	RP11-38P22.2 RP11-351J23.1 C5orf66-AS1 CTD-2619J13.13 CTB-113P19.4 MIR205HG	GNAI3 RYR1
Regulation of actin cytoskeleton	path:04810_6	0.004224273	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 CTD-2651B20.1 RP3-512B11.3 RP3-428L16.2	PIP5K1B IQGAP2
	path:04810_9	0.004224273	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 CTD-2651B20.1 RP3-512B11.3 RP3-428L16.2	PIP5K1B IQGAP2
	path:04810_5	0.014587967	RP11-351J23.1 C5orf66-AS1 CTD-2651B20.1 RP3-512B11.3	PIP5K1B
Maturity onset diabetes of the young	path:04950_3	0.016035373	C5orf66-AS1 CTD-2651B20.1 RP3-512B11.3 RP3-428L16.2	FOXA3
TGF-beta signaling pathway	path:04350_9	0.021804428	RP11-351J23.1	BMP2

the 20th module

Toxoplasmosis	path:05145_1	0.023241564	RP11-351J23.1 CTD-2651B20.1	PLA2G10
alpha-Linolenic acid metabolism	path:00592_1	0.024676655	RP11-351J23.1 CTD-2651B20.1	PLA2G10
Regulation of actin cytoskeleton	path:04810_1 1	0.024676655	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 RP3-512B11.3 RP3-428L16.2 LINC00261	IQGAP2
Glycolysis / Gluconeogenesis	path:00010_5	0.026109702	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Fructose and mannose metabolism	path:00051_3	0.026109702	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Fc gamma R-mediated phagocytosis	path:04666_1 2	0.026109702	RP11-351J23.1 C5orf66-AS1 CTD-2651B20.1 RP3-512B11.3	PIP5K1B
Glycolysis / Gluconeogenesis	path:00010_7	0.02754071	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Fructose and mannose metabolism	path:00051_9	0.02754071	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Glycolysis / Gluconeogenesis	path:00010_2	0.028969681	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
	path:00010_6	0.030396618	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Inositol phosphate metabolism	path:00562_6	0.033244399	RP11-351J23.1 C5orf66-AS1 CTD-2651B20.1 RP3-512B11.3	PIP5K1B
Ether lipid metabolism	path:00565_3	0.033244399	RP11-351J23.1 CTD-2651B20.1	PLA2G10
Pentose phosphate pathway	path:00030_1	0.03466525	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
	path:00030_2	0.03466525	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Fc epsilon RI signaling pathway	path:04664_7	0.03466525	RP11-351J23.1 CTD-2651B20.1	PLA2G10
Fructose and mannose metabolism	path:00051_7	0.036084077	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
	path:00051_1 1	0.037500884	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Inositol phosphate metabolism	path:00562_1 1	0.037500884	RP11-351J23.1 C5orf66-AS1 CTD-2651B20.1 RP3-512B11.3	PIP5K1B
Pentose phosphate pathway	path:00030_3	0.038915674	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Fructose and mannose	path:00051_1	0.040328449	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1

metabolism	path:00051_2	0.040328449	RP11-351J23.1 C5orf66-AS1 CTB-113P19.4 MIR205HG CTD- 2651B20.1 RP3-512B11.3 LINC00261	FBP1
Linoleic acid metabolism	path:00591_1	0.040328449	RP11-351J23.1 CTD-2651B20.1	PLA2G10
Fc gamma R-mediated phagocytosis	path:04666_1 4	0.040328449	RP11-351J23.1 C5orf66-AS1 CTD-2651B20.1 RP3-512B11.3	PIP5K1B
Ether lipid metabolism	path:00565_2	0.043147966	RP11-351J23.1 CTD-2651B20.1	PLA2G10
Pathways in cancer	path:05200_3	0.043147966	RP11-351J23.1	BMP2
Inositol phosphate metabolism	path:00562_4	0.0473622	RP11-351J23.1 C5orf66-AS1 CTD-2651B20.1 RP3-512B11.3	PIP5K1B