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Original Article

Transcriptome analysis of primary aldosteronism in adrenal glands and controls

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Abstract: Primary aldosteronism (PA) is the most common form of endocrine hypertension. This study was to investigate the gene expression profile in PA adrenal glands and normal controls using RNA-Sequencing. By performing transcriptome analyses for 3 PA adrenal glands and 3 controls on Illumina platform, we identified 1,093 transcripts as significantly differently expressed genes (DEGs), which provided clues for further study of these transcript changes during PA pathogenesis. Further, Gene Set Enrichment Analysis (GSEA) identified 35 significant Kyoto Encyclopedia of Genes and Genomes (KEGG) biological pathways, including 'ribosome', 'oxidative phosphorylation', 'histidine metabolism', 'xenobiotics metabolism by Cytochrome P450', 'drug metabolism by Cytochrome P450', 'tyrosine metabolism' and 'glutathione metabolism'. In summary, we identified novel genes that are associated with PA phenotype, as well as differently regulated biological pathways relating to protein synthesis, energy acquisition and metabolism. Our study provides new candidates for further elucidation of the molecular mechanisms underlying PA pathogenesis.

Keywords: Primary aldosteronism, RNA sequencing, gene set enrichment analysis

Introduction

Primary aldosteronism (PA), which was first described by Conn in 1955 [1], is the most common form of endocrine hypertension with a prevalence of 5% to 10% of all hypertensive patients [2]. Idiopathic hyperaldosteronism (IHA) and aldosterone-producing adenoma (APA) are two major forms of PA [3]. PA is characterized by excessive and autonomous aldosterone secretion, causing increased renal sodium retention and potassium excretion, hypervolemia, suppressed plasma renin activity (PRA) and hypertension [1, 4]. PA has long been considered relatively benign associated with a low incidence of cardiovascular events [5]. However, more recent studies suggest that prolonged exposure to elevated aldosterone might cause cardiovascular complications, renal damage and metabolic sequelae [6-8].

Gene expression profile analysis techniques offer powerful tools to identify biomarkers and understand the pathophysiology of various diseases at the molecular level [9-13]. Using microarray, several genes associated with APA phenotype have been identified [14-18], such as *CYP11B2* (Cytochrome P450, family 11, subfamily B, polypeptide 2), *PCP4* (Purkinje cell protein 4), *PRRX1* (paired related homeobox 1), *AKR1C3* (17β-hydroxysteroid dehydrogenase type 5), CYP17 (17α-hydroxylase/17, 20 lyase) and *CYB5* (cytochrome b5). RNA-sequencing (RNA-seq) technology offers substantially enhanced sensitivity to analyze gene expression and RNA-seq has not been employed for PA samples. The aim of the present study was to investigate the general pattern of the gene expression profile in PA adrenal glands and normal controls using RNA-Seq. We also conducted enrichment analysis to identify biological pathways that are preferentially associated with PA. Our study demonstrated differential expressed genes (DEGs) was involved in key metabolic pathways regulating histidine metabolism, Cytochrome P450-mediated xenobiotics

Table 1. Clinical and biochemical parameters of patients

	All patients (n=30)	Patients for RNA-sequencing (n=3)
Age (Years)	52 ± 9	52 ± 4
Gender, M/F	16/14	2/1
Systolic BP (mm Hg)	191.3 ± 17.1	198.0 ± 7.5
Diastolic BP (mm Hg)	114.6 ± 10.2	113.7 ± 9.5
K^+ (mmol/L)	2.7 ± 0.5	3.0 ± 0.6
Supine PRA (ng • L^{-1} • s^{-1})	0.094 ± 0.040	0.065 ± 0.031
Upright PRA (ng • L^{-1} • s^{-1})	0.149 ± 0.065	0.099 ± 0.044
Supine aldosterone (pmol/L)	556.7 ± 119.0	655.5 ± 160.4
Upright aldosterone (pmol/L)	1101.8 ± 269.5	922.0 ± 88.8

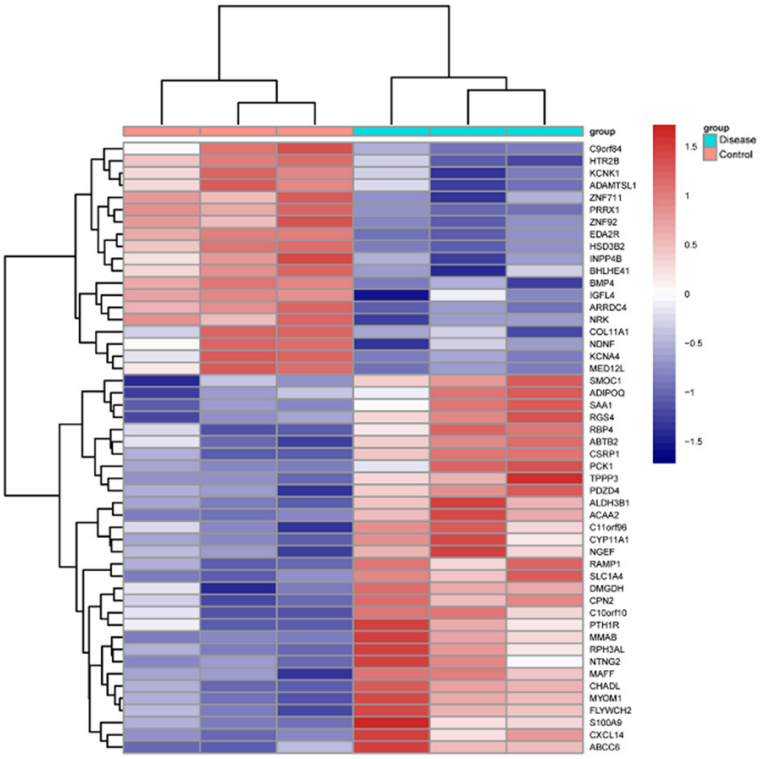

Figure 1. Hierarchical clustering of 50 transcripts and samples. The relative expression levels of each transcript (rows) in each sample (column) were shown.

and drug metabolism, tyrosine metabolism and glutathione metabolism.

Materials and methods

Study participants

Thirty patients with diagnosed PA (ages: 38-63 years) were enrolled into the study following written informed consent. The study received ethical approval from the ethics committee of Ruijin Hospital. The initial diagnosis of PA was based on the presence of hypertension, hypokalemia (< 3.5 mmol/l), suppressed plasma renin activity (PRA, < 0.2 ng/L/s) and high concentration of plasma aldosterone (> 400 pmol/l) followed by positron emission tomography and CT scanning (PET/CT). Clinical characteristics of the patients were summarized in **Table 1**. The patients were diagnosed with aldosterone-producing adenoma (APA) and underwent unilateral adrenalectomy based on adrenal venous sampling results. Adrenal tumor tissue and adjacent non-affected control tissues were surgically removed from these patients, snap-frozen using liquid nitrogen and stored at -70°C until use.

RNA extraction

RNA was extracted by using TRIzol reagent (Invitrogen, Carlsbad, CA, USA) per the manufacturer's instructions, and treated with RNase-free DNase (Sigma, St. Louis, MO, USA) to ensure degradation of DNA. RNA quality was assessed using the ND-1000 Spectrophotometer (NanoDrop Technologies, Wilmington, DE, USA). The integrity of the RNA samples was assessed by 2% agarose gel electrophoresis.

cDNA library preparation and sequencing

The cDNA libraries for 3 paired samples were constructed using Illumina's TruSeq Sample Preparation Kit (San Diego, CA, USA) according to the manufacturer's guide. In brief, poly (A) mRNA was isolated from total RNA and fragmented into small fragments. The RNA fragments were reverse-transcribed into first strand cDNA with random hexamer-primers, and then second-strand cDNA synthesis was performed with DNA polymerase I. The cDNAs were ligated

Table 2. Top 50 up-regulated genes in primary aldosteronism

Rank	Gene name	Fold change	*P* value
1	ATAD3C	46.6845	0.0171
2	ZC2HC1B	41.9095	0.0446
3	PROM1	41.4890	0.0036
4	LINC00664	41.3117	0.0044
5	KCNB1	35.4931	0.0004
6	IGLON5	34.0998	0.0087
7	RP11-380L11.4	32.9287	0.0015
8	TM4SF4	32.9287	0.0015
9	SCRT1	32.1499	0.0029
10	CDH1	32.0383	0.0370
11	RP1-69D17.3	30.2225	0.0306
12	HOXC9	27.7151	0.0027
13	TCL1A	27.3733	0.0092
14	SV2C	26.7295	0.0114
15	RP11-348H3.2	25.5858	0.0344
16	MB	25.1747	0.0042
17	RP5-1021I20.2	24.0022	0.0066
18	CD79A	22.9409	0.0179
19	ACSM2A	21.9568	0.0483
20	RP11-540A21.2	21.9077	0.0427
21	SLC25A41	21.7466	0.0159
22	LINC00842	19.4911	0.0292
23	C1orf186	19.3075	0.0412
24	CTD-2576D5.4	19.3075	0.0412
25	NEURL1	18.6808	0.0001
26	MIRLET7DHG	18.2149	0.0338
27	PRAME	18.1746	0.0073
28	KIAA1644	17.8406	0.0003
29	CMTM5	17.5691	0.0447
30	PLEKHB1	17.0321	0.0008
31	RAMP1	16.8890	0.0000
32	AC004069.2	16.3100	0.0418
33	CRABP1	15.9249	0.0457
34	MYBPC1	15.7775	0.0439
35	MYOM1	15.3843	0.0000
36	ADIPOQ	14.5844	0.0000
37	PRDM8	14.1741	0.0071
38	TCF15	14.1673	0.0052
39	CXCR2	14.1657	0.0382
40	RP11-797A18.4	13.9485	0.0493
41	PABPN1L	13.7754	0.0014
42	LRRC4B	13.4370	0.0030
43	SCGB2A1	12.6185	0.0129
44	CIDEA	12.6129	0.0118
45	C19orf35	12.3534	0.0462
46	C14orf180	12.3178	0.0010
47	MIR3648	12.0648	0.0398
48	LHB	11.7551	0.0363
49	GPR97	11.7532	0.0493
50	FOLR1	11.7308	0.0003

to Illumina sequencing adapters, purified by agrose gel, and then amplified by PCR. The cDNA library was sequenced on an Illumina Genome Analyzer II with the standard protocol and 36-bp RNA-Seq reads were obtained as previously described [19].

Gene set enrichment analysis (GSEA)

We identified differentially expressed genes (DEGs) between PA and control samples based on the following criteria: $P < 0.05$ and fold change > 1.5. Bioinformatics pathway analysis of DEGs was conducted with the Gene Set Enrichment Analysis (GSEA) software package. GSEA has been widely used to identify enriched gene-sets (pathways) in transcriptomics by calculating a weighted Kolmogorov-Smirnov test, adjusted for gene-set size (known as the Normalized Enrichment Score, NES) for each gene-set [20].

Real-time PCR

Total RNA extracted from 30 PA and 30 control subjects was reverse transcribed with RevertAid First Strand cDNA Synthesis Kit (Thermo Scientific, Rockford, IL, USA). Real-time PCR was carried out using SYBR-green PCR Master Mix (Thermo Scientific) on an ABI 7300 instrument (Applied Biosystems, Foster City, CA, USA). The real-time PCR thermo cycling was 95°C for 10 min, 40 cycles at 95°C for 15 s, 60°C for 45 s and 72°C for 10 s. Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) was served as reference gene and statistical significance was evaluated using the Student's t-test. All real-time PCR primers were listed in as follows:

Cytochrome P450, family 11, subfamily A, polypeptide 1 (CYP11A1), 5'-GCAGTGTCTCGGGACTTCG-3' and 5'-GGCAAAGCGGAACAGGTCA-3'; Aldehyde dehydrogenase 3 family member B1 (ALDH3B1), 5'-GGGCTGTGGTTATGCGATAGG-3' and 5'-GCTTTGGCTGAGTGGATGG-3'; Aldehyde dehydrogenase 2 family (ALDH2), 5'-GATCCTCGGCTACATCAACAC-3' and 5'-TCATGCCATCCTGCACATC-3'; CYP11B2, 5'-TTCAACCGCCCTCAACACTAC-3' and 5'-GGAAACGCTGTCGTGTCCA-3'; Glutathione S-transferase omega 2 (GSTO2), 5'-AGACCAGCCAATGTCAAC-3' and 5'-GCCAGAGGAGGTAATCAATC-3'; Glutathione peroxidase 3 (GPX3), 5'-TGGTCATTCTGGGCTTTC 3' and 5'-GGAGGACAGGAGTTCTTTAG-3'; Isocitrate dehydrogenase (NADP(+)) 2 (IDH2), 5'-GGCAGTG-

Table 3. Top 50 down-regulated genes in primary aldosteronism

Rank	Gene name	Fold change	*P* value
1	HAS2	0.0507	0.0014
2	HOXD10	0.0560	0.0449
3	DDX50P1	0.0573	0.0332
4	GALNT5	0.0587	0.0063
5	PTPRT	0.0627	0.0044
6	IGFL4	0.0707	0.0000
7	IGFN1	0.0731	0.0010
8	RIMKLBP2	0.0923	0.0024
9	RP11-219B17.1	0.0925	0.0087
10	HEXA-AS1	0.0932	0.0396
11	DHRS9	0.0942	0.0374
12	PTPN20CP	0.1011	0.0457
13	AC018766.6	0.1025	0.0445
14	COL11A1	0.1067	0.0001
15	RP5-1184F4.5	0.1084	0.0158
16	CLRN1-AS1	0.1088	0.0278
17	QRFPR	0.1138	0.0026
18	RP11-701H24.3	0.1195	0.0253
19	RP11-164N3.3	0.1210	0.0293
20	ANGPT2	0.1225	0.0007
21	SP5	0.1235	0.0059
22	HS6ST3	0.1258	0.0130
23	CLIC6	0.1306	0.0230
24	RP11-171A24.3	0.1366	0.0280
25	CABP7	0.1374	0.0039
26	SEMA3D	0.1397	0.0005
27	PRSS35	0.1405	0.0009
28	RP11-673E1.1	0.1410	0.0483
29	HOXA11	0.1420	0.0135
30	LMAN1L	0.1445	0.0483
31	RP11-134K13.2	0.1475	0.0121
32	AP000688.29	0.1557	0.0007
33	SPACA6P-AS	0.1559	0.0328
34	NDNF	0.1562	0.0003
35	RP11-276H19.1	0.1625	0.0128
36	CDKL5	0.1636	0.0357
37	ENPP6	0.1769	0.0253
38	HIST2H2BA	0.1847	0.0106
39	PCDHB12	0.1908	0.0157
40	MAL2	0.1925	0.0058
41	RP1-78O14.1	0.1933	0.0163
42	SLC9A2	0.1933	0.0020
43	RP11-384P7.7	0.1998	0.0327
44	RP3-468K18.6	0.2013	0.0351
45	AP001468.1	0.2048	0.0449
46	RP11-61A14.2	0.2052	0.0279
47	KCNA4	0.2056	0.0001
48	RELN	0.2066	0.0165
49	ATP2B2	0.2134	0.0028
50	DDIT4L	0.2269	0.0059

GTGTCAAGGAGTG-3' and 5'-CGCCCATCGTAGG-CTTTCAG -3'; Glyceraldehyde-3-phosphate dehydrogenase (GAPDH), 5'-CACCCACTCCTCCACC-TTTG-3' and 5'-CCACCACCCTGTTGCTGTAG-3'.

Western blot analysis

To extract protein, the tissue sample was lysed in RIPA lysis buffer (Beyotime, Shanghai, China) at 4°C. The protein concentration was quantified by using the Bradford method, and 50 μg protein of each sample was loaded on a SDS-PAGE gel for electrophoresis and then transferred to nitrocellulose membrane (Millipore, Bredford, MA, USA). The membranes were incubated with 5% shimmed milk at room temperature for 1 h to block non-specific background binding, followed by incubating overnight at 4°C with primary antibody, respectively: anti-CYP11A1 (no. ab75497; Abcam, Cambridge, MA, USA), anti-ALDH3B1 (no. ab84961; Abcam), anti-ALDH2 (no. ab108306; Abcam), anti-GSTO2 (no. ab191156; Abcam), anti-GPX3 (no. ab27325; Abcam), anti-IDH2 (no. ab55271, Abcam) and anti-GAPDH (no. 5174; Cell Signaling Technology Inc., Danvers, MA, USA). The membranes were then incubated with goat anti-rabbit or anti-mouse horseradish peroxidase-conjugated secondary antibody (Beyotime) at room temperature for 1 h. Specific protein bands were detected with ECL detection kits (Millipore). The intensity of the bands was quantified by ImageJ software (Bethesda, MD, USA) and normalized to densitometric values of GAPDH in each sample. Statistical significance was evaluated using the Student's t-test.

Results

Analysis of gene expression by RNA-Seq

We sequenced cDNA of 3 PA adrenal glands and 3 normal control. We identified 1,093 out of 56,643 transcripts displayed distinct expression different patterns between normal and PA subjects. 724 transcripts were up-regulated (Table S1), whereas 369 transcripts were shown to be down-regulated in PA samples (Table S2). The heat map generated indicated the differential expression profile of 50 genes between normal and PA subjects (**Figure 1**). The following transcripts showed the highest increase (**Table 2**): *ATAD3C* (ATPase Family, AAA Domain Containing 3C), *ZC2HC1B* (Zinc Finger C2HC-Type Containing 1B), *PROM1* (Prominin 1) and *LINC00664* (Long Intergenic Non-

Table 4. Enriched regulated (KEGG) biological pathways in primary aldosteronism

Pathway	Size	Nes	Nom *p*-val	FDR q-val
Ribosome	88	1.9619	0.0000	0.0000
Oxidative_phosphorylation	117	1.8973	0.0000	0.0000
Proteasome	46	1.8277	0.0000	0.0027
Metabolism_of_xenobiotics_by_cytochrome_p450	70	1.7441	0.0000	0.0198
Cardiac_muscle_contraction	73	1.6957	0.0021	0.0363
Parkinsons_disease	114	1.6879	0.0000	0.0335
Drug_metabolism_cytochrome_p450	72	1.6741	0.0000	0.0364
Olfactory_transduction	386	1.6561	0.0000	0.0418
Tyrosine_metabolism	42	1.5888	0.0040	0.0808
Glutathione_metabolism	50	1.5768	0.0040	0.0843
Neuroactive_ligand_receptor_interaction	271	1.5416	0.0000	0.1109
Type_i_diabetes_mellitus	43	1.5294	0.0103	0.1167
Long_term_depression	70	1.4925	0.0039	0.1583
Histidine_metabolism	28	1.4906	0.0239	0.1497
Prion_diseases	35	1.4563	0.0279	0.1924
Huntingtons_disease	173	1.4525	0.0000	0.1869
Glycine_serine_and_threonine_metabolism	31	1.4483	0.0367	0.1825
Pathogenic_escherichia_coli_infection	56	1.4373	0.0111	0.1923
Autoimmune_thyroid_disease	52	1.4060	0.0268	0.2384
Graft_versus_host_disease	40	1.4035	0.0397	0.2316
Dilated_cardiomyopathy	90	1.3973	0.0141	0.2321
Retinol_metabolism	64	1.3915	0.0273	0.2299
Complement_and_coagulation_cascades	69	1.3895	0.0204	0.2139
Bladder_cancer	42	1.3883	0.0412	0.2074
Hematopoietic_cell_lineage	87	1.3826	0.0108	0.2090
Drug_metabolism_other_enzymes	51	1.3672	0.0448	0.2192
Arginine_and_proline_metabolism	53	1.3617	0.0453	0.2205
Alzheimers_disease	157	1.3439	0.0147	0.2340
Hypertrophic_cardiomyopathy_hcm	83	1.3361	0.0270	0.2262
Glycolysis_gluconeogenesis	61	1.3302	0.0467	0.2305
Mapk_signaling_pathway	265	1.2885	0.0000	0.2754
Chemokine_signaling_pathway	189	1.2875	0.0169	0.2703
Cell_adhesion_molecules_cams	133	1.2819	0.0343	0.2687
Calcium_signaling_pathway	176	1.2666	0.0183	0.2741
Cytokine_cytokine_receptor_interaction	261	1.2600	0.0108	0.2634

Protein Coding RNA 664), whereas these transcripts were decreased the most (**Table 3**): *HAS2* (Hyaluronan Synthase 2), *HOXD10* (Homeobox D10) and *DDX50P1* (DEAD-Box Helicase 50 Pseudogene 1). *ATAD3C* encodes a mitochondrial membrane bound ATPase whose role is vital for embryonic development and tumor progression [21, 22]. PROM1 expression is linked to a resistant phenotype of lung cancer [23]. HOXD10 may suppress tumor invasive growth [24]. However, the roles of these transcripts in the PA progression have not been characterized. Our comprehensive analysis of different transcripts in PA adrenal glands provided clues for further study of these transcript changes during PA development.

Multiple pathways were altered in PA samples

GSEA was then performed to investigate functional associations of gene expression changes in the tissue samples (PA and normal control). We generated a gene list with greatest changes using RNA-seq data, and the enrichment of

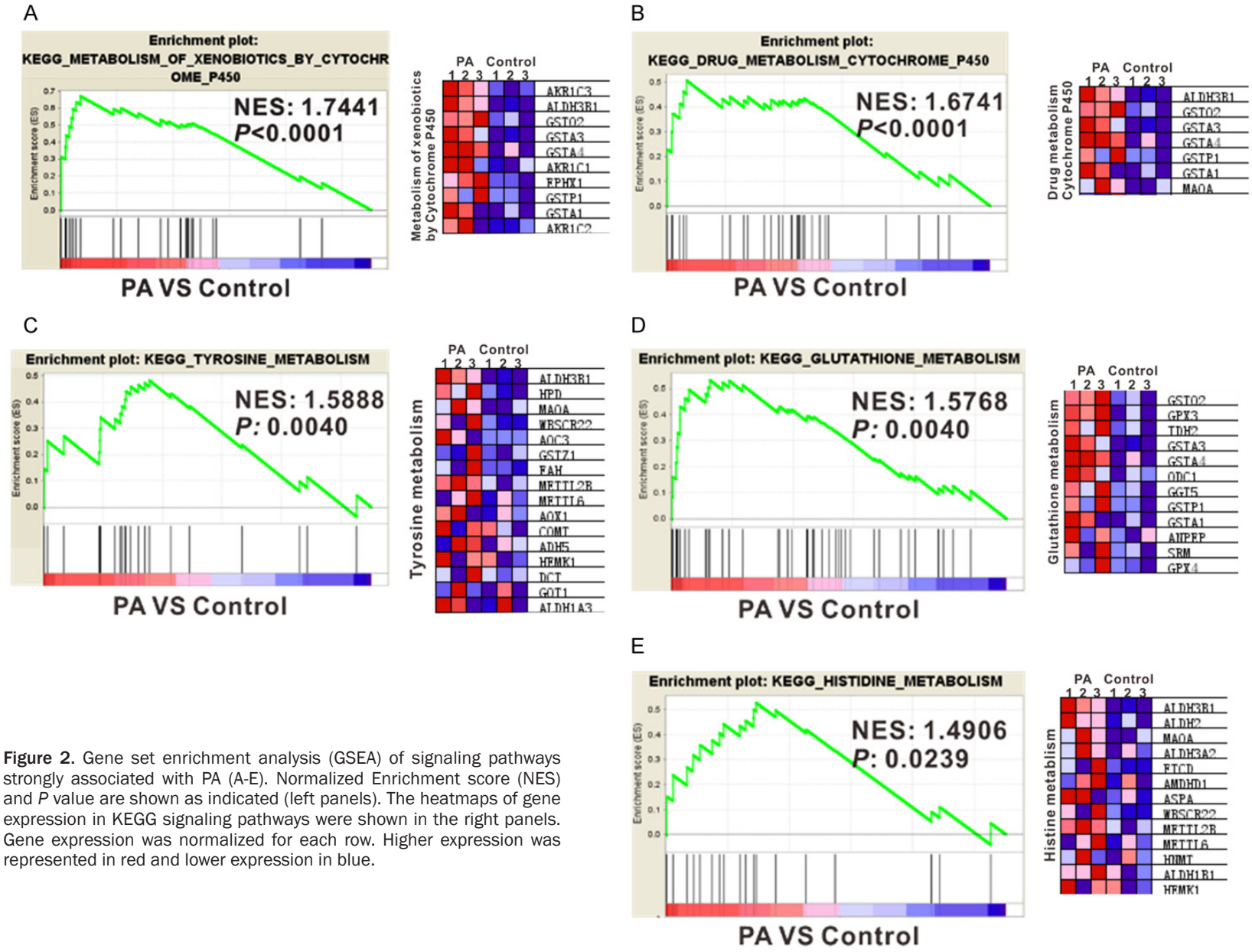

Figure 2. Gene set enrichment analysis (GSEA) of signaling pathways strongly associated with PA (A-E). Normalized Enrichment score (NES) and *P* value are shown as indicated (left panels). The heatmaps of gene expression in KEGG signaling pathways were shown in the right panels. Gene expression was normalized for each row. Higher expression was represented in red and lower expression in blue.

Table 5. Enriched regulated (KEGG) biological pathways in control

Pathway	Size	Nes	Nom *p*	Fdr q-val
Basal_cell_carcinoma	39	-1.8667	0.0039	0.0485
Cell_cycle	101	-1.5038	0.0118	0.6349
Wnt_signaling_pathway	111	-1.4218	0.0203	0.7496

Kyoto Encyclopedia of Genes and Genomes (KEGG) biological pathways was evaluated by GSEA. GSEA analysis indicated that 38 pathways were significantly altered in PA tissues, with *P* value less than 0.05. 35 KEGG pathways were enriched among genes differentially expressed in PA samples versus normal controls (**Table 4**), including 'ribosome', 'oxidative phosphorylation', 'histidine metabolism', 'xenobiotics metabolism by Cytochrome P450', 'drug metabolism by Cytochrome P450', 'tyrosine metabolism' and 'glutathione metabolism' (**Figure 2**). Control group had 3 signaling pathways enriched, including the 'basal cell carcinoma', 'cell cycle' and 'Wnt' signaling pathway (**Table 5**).

Confirmation of expression measurements with real-time PCR and Western blotting

To confirm the results of RNA-seq, real-time PCR was performed to detect the mRNA expression of 6 up-regulated genes. As shown in **Figure 3**, *CYP11A1*, *ALDH3B1*, *ALDH2*, *GSTO2*, *GPX3* and *IDH2* were up-regulated in all 30 PA samples (Group A) and the 3 PA samples used for RNA-seq (Group B), although the difference of IDH2 mRNA expression between PA and Control in Group B was not significant. The mRNA levels of *CYP11B2*, which is a well-known up-regulated gene [25, 26] and was not identified by RNA-seq, were also tested. *CYP11B2* mRNA expression was significantly increased in PA samples of Group A as compared to Control samples. In Group B, *CYP11B2* mRNA expression had an up-regulated trend in PA samples, although the change was not statistically significant.

Western blot analysis was also performed on 4 pairs of samples, which were not included for RNA-seq. Similar results were obtained at translational levels of *CYP11A1*, ALDH3B1, ALDH2, GSTO2, GPX3 and IDH2 (**Figure 4**). These findings were consistent with our RNA-seq results.

Discussion

Several studies have described expression profilinganalysisofaldosterone-producingadenomas compared to adjacent normal adrenal gland by using microarray [14-18]. To our knowledge, this is the first investigation using RNA-seq methodology to conduct gene expression profiling of human adrenal glands from patients with PA. Using RNA-seq analysis, 1,093 transcripts were significantly changed in PA affected samples. Some genes, such as *CYP11A1* (Cytochrome P450 Family 11 Subfamily A Member 1) [27], *VSNL1* (Visinin Like 1) [22, 28], *KCNJ5* (Potassium Voltage-Gated Channel Subfamily J Member 5) [14, 29], *ATP2B3* (ATPase Plasma Membrane Ca^{2+} Transporting 3) [30] *AKR1C3* (Aldo-Keto Reductase Family 1 Member C3) [15], *RGS4* (Regulator Of G-Protein Signaling 4) [17] have been identified by previous transcriptome studies and linked to PA pathogenesis, and numerous genes, such as *ATAD3C*, *PROM1* and *HOXD10*, have not previously been studied in PA. Our data suggest that the next generation RNA-sequencing is powerful and sensitive to detect changes in gene expression. Real-time PCR and Western blot assays confirmed the RNA-seq results for the genes of interest. The application of GSEA provided additional information of the biological processes that are differentially regulated in PA and control samples. Here, we also identified 38 signaling pathways altered in PA samples, some of which (e.g., 'ribosome', 'oxidative phosphorylation', 'xenobiotics metabolism by Cytochrome P450', 'drug metabolism by Cytochrome P450' and 'Wnt' pathways) were consistent with previous studies. Aldosterone is a well-known hormone to stimulate energy acquisition [31]. The observed up-regulation of the 'KEGG ribosome' pathway in PA subjects is consistent with a response to increased metabolism by excessive aldosterone secretion in PA patients [32]. A previous study showed that a single intraperitoneal injection of aldosterone produced a rapid oxidative phosphorylation in mouse liver mitochondria [33]. Cytochrome P450 family proteins can regulate aldosterone biosynthesis and are involved in the pathogenesis of PA [27, 34]. Oxidative stress was increased in PA patients [35]. It is not surprising that the 'KEGG oxidative phosphorylation', 'KEGG xenobiotics metabolism by Cytochrome P450' and 'KEGG

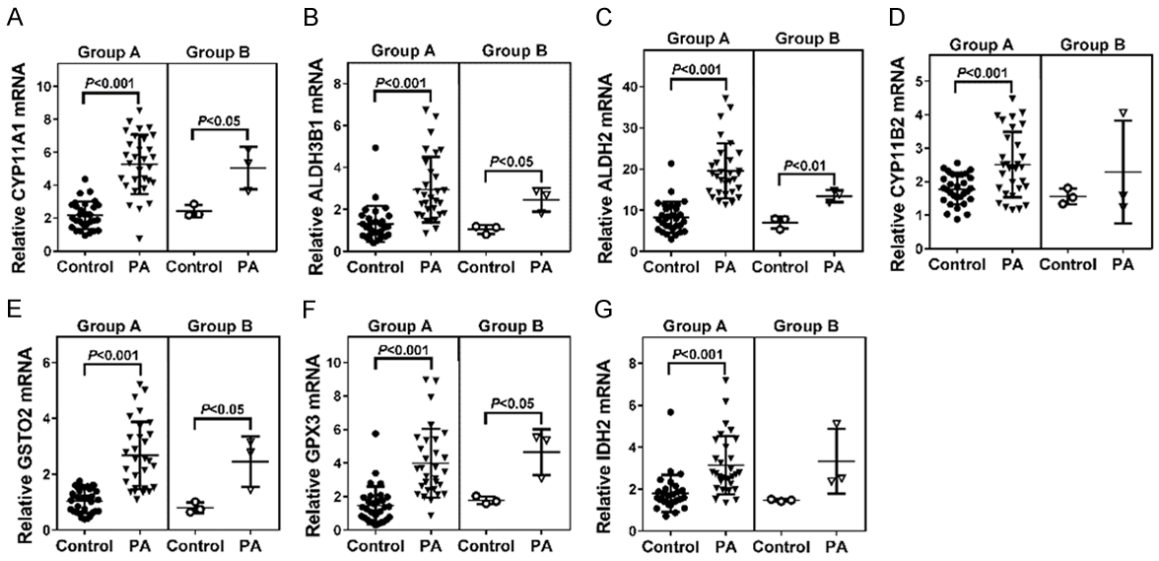

Figure 3. The mRNA levels of *CYP11A1* (A), *ALDH3B1* (B), *ALDH2* (C), *CYP11B2 (D), GSTO2* (E), *GPX3* (F) and *IDH2* (G) were detected by real-time PCR. GAPDH was served as an internal control. Statistical significance was evaluated using the Student's t-test. Group A: 30 pairs of Adrenal tumor tissue and adjacent normal adrenal samples. Group B: 3 pairs of Adrenal tumor tissue and adjacent normal adrenal samples which were also used for RNA-seq.

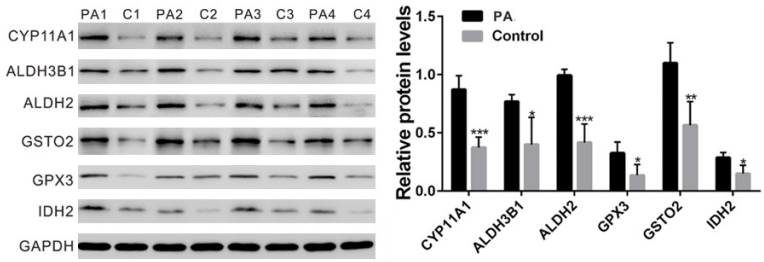

Figure 4. The protein levels of CYP11A1, ALDH3B1, ALDH2, GSTO2, GPX3 and IDH2 in PA (PA1, PA2, PA3 and PA4) and control samples (C1, C2, C3 and C4) were detected by Western blot. GAPDH was served as a loading control. Statistical significance was evaluated using the Student's t-test. $*P < 0.05$, $**P < 0.01$, $***P < 0.001$.

drug metabolism by Cytochrome P450' and 'glutathione metabolism' pathways were up-regulated in PA subjects. Finally, the down-regulated of 'KEGG Wnt' pathway is consistent with a previous study that the transcriptome profiles of Wnt pathway genes in APA adrenals were distinct from control adrenals [36]. More interestingly, several KEGG metabolism pathways, including histidine metabolism and tyrosine metabolism pathways were enriched in PA samples, which were discovered for the first time.

In summary, gene expression profiling in adrenal glands demonstrated significant differences in transcript levels between PA and control. GSEA further identified differences in biological pathways relating to protein synthesis, energy acquisition and metabolisms between the two groups. Our current study greatly extents the range of potential genes involved in PA pathogenesis, which have not been previously considered.

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Disclosure of conflict of interest

None.

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Table S1. Up-regulated genes in primary aldosteronism

Rank	Gene name	Fold change	*P* value	D1	D2	D3	C1	C2	C3
1	ATAD3C	46.6845	0.0171	0.7813	2.9554	34.9760	0.8292	0.0000	0.0000
2	ZC2HC1B	41.9095	0.0446	0.0000	4.4331	31.7964	0.0000	0.8645	0.0000
3	PROM1	41.4890	0.0036	1.5627	8.8663	25.4371	0.0000	0.8645	0.0000
4	LINC00664	41.3117	0.0044	12.5013	17.7326	0.0000	0.0000	0.0000	0.7318
5	KCNB1	35.4931	0.0004	5.4693	36.9428	9.5389	0.0000	0.0000	1.4637
6	IGLON5	34.0998	0.0087	0.7813	14.7771	12.7186	0.8292	0.0000	0.0000
7	RP11-380L11.4	32.9287	0.0015	5.4693	5.9109	12.7186	0.0000	0.0000	0.7318
8	TM4SF4	32.9287	0.0015	5.4693	5.9109	12.7186	0.0000	0.0000	0.7318
9	SCRT1	32.1499	0.0029	2.3440	14.7771	9.5389	0.8292	0.0000	0.0000
10	CDH1	32.0383	0.0370	0.7813	1.4777	25.4371	0.0000	0.8645	0.0000
11	RP1-69D17.3	30.2225	0.0306	1.5627	1.4777	19.0778	0.0000	0.0000	0.7318
12	HOXC9	27.7151	0.0027	2.3440	8.1274	54.0539	0.0000	0.8645	1.4637
13	TCL1A	27.3733	0.0092	1.5627	14.7771	6.3593	0.8292	0.0000	0.0000
14	SV2C	26.7295	0.0114	2.3440	14.0383	3.1796	0.0000	0.0000	0.7318
15	RP11-348H3.2	25.5858	0.0344	1.5627	1.4777	19.0778	0.0000	0.8645	0.0000
16	MB	25.1747	0.0042	8.5947	6.6497	3.1796	0.0000	0.0000	0.7318
17	RP5-1021I20.2	24.0022	0.0066	2.3440	8.8663	9.5389	0.0000	0.8645	0.0000
18	CD79A	22.9409	0.0179	10.1573	8.8663	0.0000	0.8292	0.0000	0.0000
19	ACSM2A	21.9568	0.0483	2.3440	0.7389	15.8982	0.0000	0.8645	0.0000
20	RP11-540A21.2	21.9077	0.0427	1.5627	1.4777	15.8982	0.0000	0.8645	0.0000
21	SLC25A41	21.7466	0.0159	3.1253	2.9554	12.7186	0.0000	0.8645	0.0000
22	LINC00842	19.4911	0.0292	10.9387	5.9109	0.0000	0.0000	0.8645	0.0000
23	C1orf186	19.3075	0.0412	7.0320	0.7389	6.3593	0.0000	0.0000	0.7318
24	CTD-2576D5.4	19.3075	0.0412	7.0320	0.7389	6.3593	0.0000	0.0000	0.7318
25	NEURL1	18.6808	0.0001	7.8133	26.5988	12.7186	1.6585	0.8645	0.0000
26	MIRLET7DHG	18.2149	0.0338	0.7813	2.2166	25.4371	0.8292	0.0000	0.7318
27	PRAME	18.1746	0.0073	6.2507	2.2166	34.9760	1.6585	0.0000	0.7318
28	KIAA1644	17.8406	0.0003	5.4693	23.6434	15.8982	1.6585	0.8645	0.0000
29	CMTM5	17.5691	0.0447	5.4693	7.3886	0.0000	0.0000	0.0000	0.7318
30	PLEKHB1	17.0321	0.0008	12.5013	72.4080	15.8982	0.0000	5.1868	0.7318
31	RAMP1	16.8890	0.0000	32.0346	130.0388	101.7485	3.3170	8.6447	3.6592
32	AC004069.2	16.3100	0.0418	2.3440	2.2166	9.5389	0.0000	0.8645	0.0000
33	CRABP1	15.9249	0.0457	8.5947	5.1720	0.0000	0.0000	0.8645	0.0000
34	MYBPC1	15.7775	0.0439	6.2507	7.3886	0.0000	0.0000	0.8645	0.0000
35	MYOM1	15.3843	0.0000	73.4453	63.5417	232.1137	6.6339	12.9671	4.3911
36	ADIPOQ	14.5844	0.0000	57.0373	79.7965	9.5389	3.3170	0.8645	5.8548
37	PRDM8	14.1741	0.0071	16.4080	18.4714	0.0000	0.0000	1.7289	0.7318
38	TCF15	14.1673	0.0052	7.0320	3.6943	22.2575	0.0000	0.8645	1.4637
39	CXCR2	14.1657	0.0382	3.1253	0.7389	28.6168	0.8292	0.0000	1.4637
40	RP11-797A18.4	13.9485	0.0493	1.5627	2.9554	15.8982	0.0000	0.0000	1.4637
41	PABPN1L	13.7754	0.0014	50.0053	9.6051	6.3593	0.0000	2.5934	2.1955
42	LRRC4B	13.4370	0.0030	5.4693	28.8154	6.3593	0.8292	0.0000	2.1955
43	SCGB2A1	12.6185	0.0129	3.9067	3.6943	31.7964	1.6585	0.0000	1.4637
44	CIDEA	12.6129	0.0118	10.9387	19.2103	0.0000	1.6585	0.0000	0.7318
45	C19orf35	12.3534	0.0462	2.3440	1.4777	15.8982	0.0000	0.8645	0.7318
46	C14orf180	12.3178	0.0010	30.4720	14.7771	6.3593	0.0000	3.4579	0.7318
47	MIR3648	12.0648	0.0398	4.6880	0.7389	25.4371	0.8292	1.7289	0.0000
48	LHB	11.7551	0.0363	2.3440	4.4331	12.7186	1.6585	0.0000	0.0000
49	GPR97	11.7532	0.0493	6.2507	0.0000	22.2575	0.8292	0.8645	0.7318

50	FOLR1	11.7308	0.0003	21.8773	17.7326	9.5389	0.0000	3.4579	0.7318
51	RP5-857K21.7	11.6931	0.0374	2.3440	0.7389	34.9760	1.6585	0.8645	0.7318
52	MPP2	11.2427	0.0017	6.2507	40.6371	9.5389	0.8292	3.4579	0.7318
53	MAP7D2	11.2405	0.0041	14.0640	21.4268	0.0000	0.8292	0.8645	1.4637
54	CIDEC	11.1910	0.0114	42.1920	26.5988	0.0000	2.4877	0.0000	3.6592
55	RND1	10.8981	0.0399	2.3440	2.2166	22.2575	0.0000	1.7289	0.7318
56	IGKV3-20	10.8584	0.0281	6.2507	11.0829	0.0000	0.0000	0.8645	0.7318
57	PPFIA4	10.8264	0.0168	1.5627	14.7771	9.5389	1.6585	0.0000	0.7318
58	PCK1	10.7372	0.0000	36.7226	44.3314	6.3593	2.4877	3.4579	2.1955
59	AJAP1	10.5921	0.0035	6.2507	8.1274	12.7186	0.8292	1.7289	0.0000
60	CTD-2619J13.8	10.0902	0.0263	2.3440	4.4331	25.4371	0.0000	1.7289	1.4637
61	RP11-678G14.3	9.8887	0.0221	42.9733	66.4971	0.0000	0.8292	9.5092	0.7318
62	TPPP3	9.7983	0.0000	21.8773	73.8857	15.8982	4.1462	4.3224	2.9274
63	S100A9	9.7059	0.0000	60.9439	64.2805	365.6586	14.9264	22.4762	13.1733
64	FOXO6	9.6411	0.0232	12.5013	9.6051	0.0000	0.8292	0.0000	1.4637
65	KRT8P3	9.5632	0.0215	7.0320	8.8663	25.4371	0.0000	4.3224	0.0000
66	ABCC6	9.5311	0.0002	14.8453	14.7771	44.5150	1.6585	1.7289	4.3911
67	SEC14L4	9.4361	0.0111	13.2827	9.6051	0.0000	0.8292	0.8645	0.7318
68	ARC	9.3407	0.0007	6.2507	49.5034	28.6168	4.9755	2.5934	1.4637
69	CTC-332L22.1	9.2137	0.0483	1.5627	4.4331	28.6168	0.8292	0.0000	2.9274
70	MYPN	9.1618	0.0045	26.5653	5.9109	9.5389	1.6585	0.0000	2.9274
71	SAA1	9.1487	0.0000	91.4159	117.4782	25.4371	10.7802	6.0513	8.7822
72	PPAP2C	9.0366	0.0043	31.2533	9.6051	79.4910	7.4632	0.0000	5.8548
73	RP11-403A21.2	8.9144	0.0415	2.3440	3.6943	15.8982	0.0000	1.7289	0.7318
74	CHADL	8.9061	0.0000	23.4400	19.9491	44.5150	2.4877	5.1868	2.1955
75	RP11-416N2.4	8.8752	0.0486	4.6880	10.3440	0.0000	0.8292	0.8645	0.0000
76	RADIL	8.8281	0.0407	5.4693	16.2548	0.0000	0.0000	1.7289	0.7318
77	NTSR2	8.7489	0.0271	7.8133	23.6434	6.3593	0.0000	4.3224	0.0000
78	RP11-73M18.9	8.7120	0.0158	9.3760	2.2166	9.5389	0.8292	0.8645	0.7318
79	RP3-467K16.4	8.5789	0.0337	3.1253	2.2166	47.6946	1.6585	0.8645	3.6592
80	CECR2	8.5643	0.0468	8.5947	5.9109	0.0000	0.8292	0.8645	0.0000
81	RSPH1	8.4308	0.0043	3.1253	15.5160	22.2575	1.6585	1.7289	1.4637
82	CTD-2319I12.1	8.3340	0.0179	5.4693	30.2931	6.3593	0.0000	4.3224	0.7318
83	RP11-475I24.3	8.3090	0.0499	4.6880	2.2166	6.3593	0.0000	0.8645	0.7318
84	OGDHL	8.2199	0.0025	13.2827	100.4845	133.5449	2.4877	22.4762	5.1229
85	SLC13A5	8.1584	0.0077	20.3146	9.6051	3.1796	0.0000	2.5934	1.4637
86	TDRD9	8.1441	0.0135	17.1893	9.6051	0.0000	0.8292	1.7289	0.7318
87	GIPR	8.1382	0.0401	4.6880	2.2166	19.0778	0.0000	1.7289	1.4637
88	SCNN1B	8.1249	0.0374	3.9067	2.9554	19.0778	0.0000	1.7289	1.4637
89	IL6	8.1183	0.0122	15.6267	11.0829	0.0000	0.8292	1.7289	0.7318
90	RASD2	8.0886	0.0066	10.1573	36.2040	6.3593	0.0000	4.3224	2.1955
91	CTC-786C10.1	8.0804	0.0397	13.2827	7.3886	0.0000	0.8292	1.7289	0.0000
92	RP1-214M20.2	8.0754	0.0025	21.0960	24.3823	66.7724	0.0000	9.5092	4.3911
93	CACNA1A	8.0649	0.0036	5.4693	36.2040	9.5389	0.8292	2.5934	2.9274
94	PRRT3-AS1	7.9611	0.0308	5.4693	2.9554	22.2575	1.6585	0.0000	2.1955
95	KRT8	7.8556	0.0029	185.1758	96.0514	642.2873	6.6339	93.3629	17.5643
96	CSF3	7.8191	0.0320	9.3760	0.7389	41.3353	1.6585	3.4579	1.4637
97	CXCR3	7.7811	0.0496	3.1253	3.6943	6.3593	0.8292	0.8645	0.0000
98	STRA6	7.7520	0.0125	3.9067	35.4651	38.1557	4.1462	0.0000	5.8548
99	SCGN	7.7110	0.0021	14.8453	42.1148	6.3593	0.8292	5.1868	2.1955
100	TTBK1	7.7029	0.0360	3.9067	14.7771	0.0000	0.8292	0.8645	0.7318
101	MMP11	7.6611	0.0100	11.7200	2.9554	47.6946	2.4877	3.4579	2.1955

102	DUSP2	7.6353	0.0042	20.3146	8.8663	114.4670	3.3170	10.3737	5.1229
103	MFSD2A	7.5227	0.0134	1.5627	26.5988	19.0778	2.4877	0.8645	2.9274
104	SLC19A3	7.3607	0.0112	13.2827	22.1657	0.0000	2.4877	0.8645	1.4637
105	SLPI	7.3517	0.0005	58.5999	11.8217	98.5688	9.9509	8.6447	4.3911
106	CPXM1	7.3394	0.0003	46.8800	16.9937	114.4670	4.1462	12.1026	8.0503
107	SLC29A4	7.2856	0.0090	14.0640	48.0257	12.7186	2.4877	7.7802	0.0000
108	REEP2	7.2677	0.0005	8.5947	39.8983	44.5150	2.4877	5.1868	5.1229
109	GGT6	7.1859	0.0117	10.1573	9.6051	3.1796	0.0000	1.7289	1.4637
110	UHRF1	7.1296	0.0182	10.1573	13.2994	0.0000	0.8292	1.7289	0.7318
111	RDH16	7.1243	0.0275	11.7200	1.4777	15.8982	2.4877	0.8645	0.7318
112	SEMA3B-AS1	6.9143	0.0099	22.6586	28.8154	0.0000	1.6585	4.3224	1.4637
113	HBA1	6.8717	0.0087	10.9387	5.9109	34.9760	2.4877	4.3224	0.7318
114	P2RX5-TAX1BP3	6.8520	0.0367	3.9067	8.8663	3.1796	0.0000	0.8645	1.4637
115	C10orf82	6.8115	0.0242	88.2906	31.0320	0.0000	2.4877	12.1026	2.9274
116	PALM2	6.7297	0.0034	35.1600	56.1531	104.9281	0.8292	22.4762	5.8548
117	MBL1P	6.6316	0.0136	31.2533	10.3440	25.4371	0.0000	8.6447	1.4637
118	LINC01057	6.6218	0.0076	17.1893	6.6497	12.7186	0.0000	2.5934	2.9274
119	IGHA1	6.5999	0.0004	53.1306	79.0577	22.2575	3.3170	16.4249	3.6592
120	TMEM179	6.5814	0.0059	50.7866	66.4971	6.3593	0.8292	12.1026	5.8548
121	KRT18	6.5745	0.0144	30.4720	22.1657	89.0299	0.0000	16.4249	5.1229
122	PON1	6.5677	0.0112	39.0666	6.6497	31.7964	0.8292	9.5092	1.4637
123	CXCL14	6.5501	0.0000	19.5333	34.7263	66.7724	4.9755	6.9158	6.5866
124	FMN2	6.4476	0.0081	32.0346	91.6182	50.8742	0.0000	19.0184	8.0503
125	MT1A	6.4472	0.0091	19.5333	41.3760	3.1796	0.8292	6.9158	2.1955
126	HAP1	6.3016	0.0103	3.1253	16.9937	15.8982	1.6585	2.5934	1.4637
127	FSD1	6.1862	0.0139	6.2507	5.9109	12.7186	0.8292	1.7289	1.4637
128	RANGRF	6.1224	0.0484	7.0320	1.4777	15.8982	1.6585	0.8645	1.4637
129	CA8	6.1065	0.0147	14.8453	33.2486	0.0000	2.4877	1.7289	3.6592
130	GPR176	6.0573	0.0063	8.5947	56.8920	31.7964	0.8292	8.6447	6.5866
131	TPBGL	6.0109	0.0426	3.9067	18.4714	3.1796	1.6585	2.5934	0.0000
132	GALNT6	6.0034	0.0230	8.5947	22.1657	3.1796	0.0000	3.4579	2.1955
133	MT1G	5.9126	0.0018	15.6267	11.0829	15.8982	4.1462	0.8645	2.1955
134	MT1X	5.7842	0.0051	32.0346	50.9811	295.7065	13.2679	39.7657	12.4414
135	PTGFR	5.6369	0.0460	66.4133	120.4336	0.0000	2.4877	23.3407	7.3185
136	GPR68	5.6163	0.0194	5.4693	22.9046	3.1796	0.8292	2.5934	2.1955
137	LYPD3	5.6010	0.0048	35.1600	77.5800	9.5389	5.8047	13.8315	2.1955
138	ADCY2	5.4982	0.0299	17.1893	33.2486	0.0000	1.6585	6.0513	1.4637
139	CTSW	5.4971	0.0336	10.1573	11.8217	69.9521	0.8292	12.9671	2.9274
140	NACAD	5.4860	0.0247	14.8453	47.2868	0.0000	5.8047	2.5934	2.9274
141	KIAA1324	5.4518	0.0373	8.5947	42.8537	0.0000	3.3170	1.7289	4.3911
142	LRG1	5.4471	0.0479	4.6880	3.6943	9.5389	0.8292	1.7289	0.7318
143	GABRB3	5.4335	0.0313	16.4080	66.4971	0.0000	2.4877	6.9158	5.8548
144	RIMS4	5.4285	0.0414	7.8133	13.2994	0.0000	0.8292	0.8645	2.1955
145	RP11-509E16.1	5.3975	0.0062	10.1573	24.3823	85.8503	4.1462	8.6447	9.5140
146	RAPSN	5.3431	0.0492	24.2213	6.6497	0.0000	3.3170	1.7289	0.7318
147	LINC00693	5.3430	0.0421	3.1253	15.5160	3.1796	2.4877	0.8645	0.7318
148	ADRA2C	5.3378	0.0014	30.4720	13.2994	31.7964	3.3170	8.6447	2.1955
149	RP11-303E16.2	5.3344	0.0027	14.8453	14.7771	57.2335	4.9755	6.9158	4.3911
150	RP11-89K11.1	5.2190	0.0335	6.2507	6.6497	34.9760	1.6585	6.0513	1.4637
151	CREB5	5.1678	0.0095	7.0320	46.5480	19.0778	2.4877	8.6447	2.9274
152	COCH	5.1662	0.0222	100.7919	56.8920	3.1796	7.4632	20.7473	2.9274
153	GC	5.1600	0.0308	10.9387	2.9554	28.6168	3.3170	3.4579	1.4637

154	NPFFR1	5.1324	0.0325	18.7520	11.0829	0.0000	2.4877	2.5934	0.7318
155	ADAP1	5.0751	0.0104	19.5333	5.1720	12.7186	3.3170	2.5934	1.4637
156	SLC25A34	5.0742	0.0015	107.8239	31.0320	25.4371	4.9755	16.4249	10.9777
157	ATP1A2	5.0533	0.0174	51.5679	67.9748	0.0000	8.2924	9.5092	5.8548
158	BRSK2	5.0441	0.0217	55.4746	43.5925	3.1796	4.9755	13.8315	1.4637
159	C19orf81	5.0246	0.0011	22.6586	15.5160	28.6168	3.3170	7.7802	2.1955
160	DSG2	4.9987	0.0282	9.3760	8.8663	6.3593	0.0000	3.4579	1.4637
161	CCR10	4.9844	0.0264	6.2507	6.6497	15.8982	3.3170	1.7289	0.7318
162	FAM101A	4.9768	0.0099	14.0640	10.3440	6.3593	1.6585	0.8645	3.6592
163	CCDC153	4.9579	0.0365	7.8133	3.6943	12.7186	0.8292	2.5934	1.4637
164	P2RX6	4.9539	0.0024	28.1280	26.5988	6.3593	2.4877	6.9158	2.9274
165	ARHGEF4	4.9453	0.0043	35.9413	33.9874	3.1796	5.8047	6.0513	2.9274
166	FOSL1	4.9269	0.0112	15.6267	16.9937	98.5688	4.1462	12.9671	9.5140
167	PXMP2	4.8795	0.0235	5.4693	7.3886	19.0778	2.4877	2.5934	1.4637
168	SGPP2	4.8685	0.0015	32.0346	53.1977	15.8982	4.1462	12.9671	3.6592
169	SCN11A	4.8488	0.0286	5.4693	15.5160	3.1796	1.6585	2.5934	0.7318
170	PPP1R1A	4.8183	0.0458	12.5013	16.9937	3.1796	1.6585	0.0000	5.1229
171	ANO3	4.8072	0.0279	10.1573	30.2931	3.1796	0.8292	6.0513	2.1955
172	IL1RL1	4.7800	0.0056	246.9011	195.7970	44.5150	9.9509	70.0222	21.9554
173	PTH1R	4.7769	0.0003	458.6422	292.5873	1061.9998	82.0950	216.9822	80.5032
174	DGAT2	4.7690	0.0097	10.1573	26.5988	6.3593	1.6585	5.1868	2.1955
175	RASGEF1A	4.7602	0.0114	36.7226	16.2548	9.5389	0.8292	8.6447	3.6592
176	NTNG2	4.7477	0.0002	59.3813	26.5988	98.5688	14.9264	12.9671	10.9777
177	KRT7	4.7431	0.0073	16.4080	13.2994	41.3353	7.4632	6.0513	1.4637
178	S100A13	4.7415	0.0063	37.5040	48.7645	260.7305	16.5849	39.7657	16.8325
179	DPYSL4	4.7406	0.0256	8.5947	14.7771	89.0299	13.2679	6.0513	4.3911
180	CPN2	4.7134	0.0002	22.6586	31.7708	38.1557	4.1462	10.3737	5.1229
181	PROK1	4.6853	0.0311	5.4693	48.7645	12.7186	3.3170	9.5092	1.4637
182	PLA2G2A	4.6270	0.0387	9.3760	3.6943	9.5389	0.8292	2.5934	1.4637
183	AQP3	4.6210	0.0136	14.8453	16.2548	15.8982	1.6585	7.7802	0.7318
184	ORM2	4.6194	0.0159	14.8453	13.2994	12.7186	0.0000	5.1868	3.6592
185	RP11-469M7.1	4.6035	0.0147	27.3466	48.7645	162.1616	5.8047	37.1723	8.7822
186	CTC-246B18.10	4.5951	0.0449	7.0320	4.4331	22.2575	4.1462	1.7289	1.4637
187	TRIM67	4.5886	0.0003	25.0026	19.9491	19.0778	4.9755	6.0513	2.9274
188	BHMT2	4.4641	0.0011	91.4159	118.2171	168.5209	8.2924	54.4617	21.9554
189	C11orf96	4.4630	0.0000	1148.5588	480.9957	788.5507	162.5316	282.6820	96.6038
190	AC010980.2	4.4604	0.0149	16.4080	9.6051	3.1796	2.4877	2.5934	1.4637
191	LGI4	4.4577	0.0339	34.3786	75.3634	0.0000	9.1217	10.3737	5.1229
192	AC017104.6	4.4563	0.0245	14.0640	10.3440	89.0299	6.6339	12.9671	5.8548
193	TRIM54	4.4462	0.0133	32.8160	27.3377	6.3593	1.6585	10.3737	2.9274
194	RBP4	4.4156	0.0001	82.0399	70.9302	31.7964	9.1217	22.4762	10.2459
195	AP001048.4	4.3924	0.0315	11.7200	30.2931	22.2575	0.0000	9.5092	5.1229
196	DMGDH	4.3842	0.0001	64.0693	67.2360	104.9281	9.1217	29.3920	15.3688
197	LINC00672	4.3802	0.0415	3.9067	16.9937	9.5389	0.8292	1.7289	4.3911
198	HIST1H2BC	4.3571	0.0138	8.5947	12.5606	6.3593	1.6585	1.7289	2.9274
199	LINC00313	4.3372	0.0113	40.6293	69.4525	41.3353	1.6585	25.9341	7.3185
200	AC115618.1	4.3242	0.0460	28.1280	11.0829	0.0000	4.1462	3.4579	1.4637
201	TMEM86B	4.3138	0.0136	23.4400	9.6051	76.3114	9.1217	10.3737	5.8548
202	HS6ST2	4.3045	0.0206	5.4693	22.1657	12.7186	1.6585	2.5934	5.1229
203	GZMA	4.3026	0.0470	19.5333	22.1657	162.1616	2.4877	30.2565	14.6369
204	ETNPPL	4.2988	0.0438	7.0320	36.2040	6.3593	0.8292	7.7802	2.9274
205	RP11-141O15.1	4.2951	0.0188	15.6267	9.6051	50.8742	2.4877	8.6447	6.5866

206	GPR153	4.2610	0.0078	22.6586	18.4714	3.1796	4.1462	2.5934	3.6592
207	CXCL2	4.2505	0.0026	30.4720	35.4651	95.3892	8.2924	21.6118	8.0503
208	HSPA6	4.2134	0.0354	49.2239	72.4080	419.7125	14.0971	96.8208	17.5643
209	AC116366.6	4.2045	0.0151	21.8773	18.4714	133.5449	17.4141	12.9671	10.9777
210	CYB5A	4.1921	0.0005	421.1382	546.0151	104.9281	87.0705	107.1944	61.4752
211	FOSB	4.1914	0.0329	508.6475	672.3596	2740.8498	53.0715	753.8188	128.8051
212	IGHM	4.1897	0.0071	40.6293	44.3314	9.5389	9.1217	11.2381	2.1955
213	RASGRF1	4.1893	0.0424	10.9387	15.5160	0.0000	1.6585	1.7289	2.9274
214	PRF1	4.1853	0.0125	14.0640	8.8663	22.2575	4.1462	5.1868	1.4637
215	GSTA2	4.1848	0.0450	9.3760	8.1274	15.8982	0.0000	4.3224	3.6592
216	PYY2	4.1731	0.0004	378.1649	76.8411	270.2694	63.8517	63.1064	46.8382
217	CDHR1	4.1714	0.0192	12.5013	38.4205	15.8982	3.3170	11.2381	1.4637
218	SOCS3	4.1627	0.0239	90.6346	430.7535	724.9579	24.8773	224.7625	49.7656
219	SPEG	4.1546	0.0136	79.6959	121.9114	6.3593	22.3896	18.1539	9.5140
220	EFS	4.1468	0.0429	31.2533	46.5480	0.0000	10.7802	4.3224	3.6592
221	RP3-508I15.21	4.1423	0.0274	15.6267	9.6051	57.2335	4.1462	12.1026	3.6592
222	MLXIPL	4.1356	0.0007	2340.8722	592.5631	1592.9997	254.5775	613.7744	226.1408
223	WISP2	4.1349	0.0021	305.5010	177.3256	47.6946	35.6574	64.8353	27.8102
224	RGS9	4.1300	0.0280	25.7840	21.4268	0.0000	3.3170	5.1868	2.9274
225	RPH3AL	4.1006	0.0001	111.7306	67.9748	200.3173	29.0235	38.0367	25.6147
226	MLPH	4.0858	0.0472	10.9387	4.4331	34.9760	5.8047	4.3224	2.1955
227	RP4-740C4.6	4.0638	0.0306	10.1573	6.6497	31.7964	4.9755	2.5934	4.3911
228	OSM	4.0448	0.0452	10.1573	3.6943	19.0778	2.4877	3.4579	2.1955
229	NAPRT1	4.0283	0.0201	84.3839	62.0640	337.0419	19.0726	85.5826	15.3688
230	SLC1A2	4.0281	0.0149	59.3813	303.6701	384.7365	18.2433	122.7549	44.6427
231	HLA-J	4.0049	0.0452	23.4400	4.4331	19.0778	5.8047	5.1868	0.7318
232	SMIM1	3.9994	0.0452	6.2507	7.3886	31.7964	4.9755	3.4579	2.9274
233	IER2	3.9975	0.0116	489.1142	449.9637	3138.3048	237.9926	555.8549	226.1408
234	CTD-2328D6.1	3.9892	0.0277	1551.7264	591.8242	8998.3815	1513.3678	885.2184	394.4657
235	RP11-566J3.4	3.9708	0.0277	10.9387	42.1148	158.9820	15.7556	25.9341	11.7096
236	SCARA5	3.9614	0.0192	56.2559	20.6880	12.7186	4.1462	15.5605	2.9274
237	RDH12	3.9604	0.0071	10.1573	29.5543	25.4371	4.1462	8.6447	3.6592
238	GS1-393G12.12	3.9550	0.0029	35.1600	13.2994	19.0778	6.6339	6.0513	4.3911
239	LCN12	3.9544	0.0120	171.1118	20.6880	66.7724	35.6574	17.2894	12.4414
240	SYT12	3.9397	0.0392	62.5066	76.8411	38.1557	0.8292	35.4433	8.7822
241	APOB	3.9370	0.0151	21.8773	7.3886	34.9760	4.1462	7.7802	4.3911
242	C8G	3.9353	0.0006	46.0986	25.1211	22.2575	9.1217	9.5092	5.1229
243	WNT9A	3.9174	0.0473	39.0666	14.0383	0.0000	4.9755	3.4579	5.1229
244	CPA2	3.9121	0.0190	10.9387	8.1274	9.5389	1.6585	3.4579	2.1955
245	MAP1LC3A	3.9043	0.0047	151.5785	126.3445	718.5987	89.5582	102.0076	63.6707
246	LINC01018	3.9001	0.0213	7.0320	22.1657	9.5389	4.1462	4.3224	1.4637
247	PDLIM4	3.8896	0.0009	17.9706	29.5543	22.2575	6.6339	6.9158	4.3911
248	TRIB1	3.8781	0.0114	93.7599	255.6444	632.7484	40.6329	159.9271	52.6930
249	CPA3	3.8756	0.0482	18.7520	5.1720	6.3593	0.8292	2.5934	4.3911
250	MT1E	3.8732	0.0070	467.2368	497.2506	2193.9517	213.1154	467.6788	134.6599
251	CCDC89	3.8619	0.0156	12.5013	14.7771	19.0778	0.8292	6.0513	5.1229
252	HHIPL1	3.8487	0.0238	7.0320	11.8217	12.7186	4.1462	2.5934	1.4637
253	MIRLET7D	3.8468	0.0384	10.9387	5.9109	19.0778	2.4877	1.7289	5.1229
254	FAM19A5	3.8322	0.0212	6.2507	22.1657	15.8982	3.3170	6.0513	2.1955
255	CBS	3.8283	0.0092	59.3813	49.5034	12.7186	9.9509	18.1539	3.6592
256	CD52	3.7932	0.0351	7.8133	10.3440	28.6168	2.4877	6.9158	2.9274
257	RGS4	3.7906	0.0000	136.7332	181.7587	82.6706	37.3159	26.7986	41.7153

258	ST6GALNAC2	3.7887	0.0436	25.0026	31.7708	3.1796	1.6585	11.2381	2.9274
259	WDR86	3.7476	0.0034	55.4746	16.9937	28.6168	11.6094	9.5092	5.8548
260	NMB	3.7221	0.0089	28.1280	51.7200	127.1856	16.5849	30.2565	8.7822
261	MT1M	3.7013	0.0130	50.7866	22.1657	69.9521	11.6094	23.3407	3.6592
262	CD6	3.6951	0.0115	20.3146	12.5606	19.0778	2.4877	8.6447	2.9274
263	CNTFR	3.6943	0.0066	53.1306	50.2423	9.5389	11.6094	13.8315	5.1229
264	COL9A3	3.6808	0.0202	26.5653	33.9874	3.1796	4.1462	9.5092	3.6592
265	AGT	3.6696	0.0341	39.8480	124.1279	95.3892	4.9755	56.1906	9.5140
266	PCOLCE2	3.6563	0.0027	39.0666	27.3377	9.5389	5.8047	6.9158	8.0503
267	FABP5P7	3.6411	0.0113	35.1600	39.8983	6.3593	7.4632	11.2381	3.6592
268	TMEM150B	3.6341	0.0276	15.6267	6.6497	15.8982	1.6585	5.1868	3.6592
269	NINJ2	3.6213	0.0455	7.0320	6.6497	9.5389	2.4877	1.7289	2.1955
270	GRID1	3.5966	0.0064	50.7866	25.1211	31.7964	5.8047	19.0184	5.1229
271	RP11-218E20.3	3.5881	0.0480	25.7840	6.6497	41.3353	10.7802	1.7289	8.0503
272	CTD-3193O13.9	3.5855	0.0106	11.7200	12.5606	19.0778	4.9755	3.4579	3.6592
273	FAM86FP	3.5631	0.0499	7.0320	6.6497	12.7186	2.4877	3.4579	1.4637
274	KIF26A	3.5608	0.0318	29.6906	77.5800	6.3593	4.9755	18.1539	8.7822
275	PTGS2	3.5412	0.0045	139.8585	87.1851	44.5150	12.4386	46.6814	17.5643
276	PRPS2	3.5318	0.0472	602.4074	793.5321	117.6467	26.5358	325.9056	76.1121
277	SPHK1	3.5272	0.0170	19.5333	9.6051	34.9760	5.8047	4.3224	8.0503
278	RP11-439C15.4	3.5166	0.0442	29.6906	3.6943	34.9760	5.8047	7.7802	5.8548
279	SNORD14E	3.4920	0.0456	11.7200	7.3886	34.9760	3.3170	7.7802	4.3911
280	MT2A	3.4917	0.0090	2619.0266	2014.8622	7949.1003	747.1476	2252.8116	603.7740
281	TTR	3.4851	0.0331	15.6267	6.6497	31.7964	5.8047	6.0513	3.6592
282	SELE	3.4595	0.0474	13.2827	33.9874	44.5150	1.6585	19.0184	5.8548
283	CASC15	3.4423	0.0467	37.5040	151.4656	76.3114	4.9755	59.6485	12.4414
284	GRAMD1C	3.4288	0.0048	28.1280	34.7263	15.8982	4.1462	12.9671	5.8548
285	BAI2	3.4148	0.0140	69.5386	51.7200	6.3593	15.7556	12.1026	9.5140
286	JUND	3.4018	0.0022	1442.3398	1183.6484	3923.6759	522.4229	996.7351	406.1752
287	REM1	3.3809	0.0322	17.1893	6.6497	28.6168	5.8047	6.0513	3.6592
288	ZFP36	3.3776	0.0059	1561.8837	1285.6106	4550.0650	492.5701	1276.8237	420.8122
289	FAM211B	3.3709	0.0098	32.8160	24.3823	92.2096	14.9264	19.8828	9.5140
290	SEMA3B	3.3687	0.0076	4871.6083	1916.5943	963.4310	602.0302	1262.1277	436.9128
291	PMEPA1	3.3681	0.0227	75.7893	178.8033	79.4910	13.2679	73.4800	12.4414
292	PDZD4	3.3664	0.0002	49.2239	67.2360	34.9760	16.5849	18.1539	10.2459
293	FGF17	3.3433	0.0146	79.6959	22.1657	19.0778	15.7556	13.8315	6.5866
294	RASD1	3.3372	0.0168	367.2263	616.2065	260.7305	40.6329	271.4439	60.7433
295	CES1	3.3240	0.0441	195.3331	73.1468	12.7186	14.0971	49.2748	21.2236
296	USP2	3.3185	0.0046	170.3305	131.5165	79.4910	17.4141	72.6156	24.8828
297	NME1-NME2	3.3151	0.0472	12.5013	8.1274	31.7964	6.6339	2.5934	6.5866
298	PNMA3	3.3080	0.0117	132.0452	23.6434	133.5449	38.1452	20.7473	28.5420
299	RP11-613M10.6	3.3012	0.0043	28.9093	15.5160	19.0778	7.4632	5.1868	6.5866
300	DUSP8	3.2806	0.0057	65.6319	35.4651	19.0778	19.0726	9.5092	8.0503
301	DMKN	3.2795	0.0174	82.8212	36.9428	44.5150	7.4632	34.5788	8.0503
302	HCST	3.2715	0.0242	28.1280	14.7771	69.9521	8.2924	18.1539	8.0503
303	UNC13D	3.2644	0.0015	112.5119	60.5862	31.7964	20.7311	25.9341	16.1006
304	CTD-2369P2.2	3.2595	0.0355	11.7200	14.0383	47.6946	4.9755	9.5092	8.0503
305	RPL18A	3.2584	0.0126	58.5999	37.6817	200.3173	36.4867	31.1210	23.4191
306	TF	3.2573	0.0092	71.1013	28.0766	85.8503	10.7802	32.8499	13.1733
307	PTPRN2	3.2488	0.0304	62.5066	182.4976	12.7186	20.7311	33.7144	24.8828
308	NRTN	3.2395	0.0148	21.8773	16.9937	41.3353	5.8047	13.8315	5.1229
309	PLIN5	3.2307	0.0192	68.7573	29.5543	44.5150	6.6339	30.2565	7.3185

310	NEGR1	3.2136	0.0148	33.5973	143.3382	50.8742	15.7556	39.7657	15.3688
311	RP5-1085F17.3	3.1963	0.0307	37.5040	34.7263	143.0838	15.7556	40.6301	10.9777
312	SMOC1	3.1862	0.0002	73.4453	99.0068	54.0539	31.5112	14.6960	24.8828
313	DAPL1	3.1859	0.0082	288.3117	227.5679	114.4670	26.5358	124.4838	46.8382
314	TIMP4	3.1772	0.0038	35.9413	48.0257	31.7964	4.9755	19.0184	12.4414
315	LIMS2	3.1753	0.0049	228.1491	77.5800	356.1197	93.7044	65.6998	49.0338
316	BCO2	3.1599	0.0099	298.4690	198.0136	60.4132	31.5112	94.2273	50.4975
317	CD36	3.1593	0.0233	122.6692	257.8610	25.4371	26.5358	58.7840	43.1790
318	RP5-882C2.2	3.1358	0.0313	34.3786	14.7771	104.9281	19.0726	14.6960	15.3688
319	TMEM91	3.1327	0.0155	60.9439	27.3377	143.0838	27.3650	31.1210	15.3688
320	ATP4A	3.1111	0.0021	371.1329	209.8353	750.3951	124.3864	194.5060	109.0452
321	SIDT1	3.1091	0.0445	10.1573	26.5988	12.7186	5.8047	8.6447	1.4637
322	TMEM217	3.1057	0.0136	54.6933	58.3697	63.5928	5.8047	37.1723	13.9051
323	SELENBP1	3.1056	0.0025	298.4690	116.7394	92.2096	48.9253	73.4800	40.9834
324	ADCY1	3.1041	0.0019	55.4746	73.1468	31.7964	12.4386	26.7986	12.4414
325	SCNN1A	3.0998	0.0420	193.7705	149.2491	25.4371	18.2433	78.6669	21.9554
326	C11orf86	3.0938	0.0443	20.3146	39.1594	9.5389	2.4877	14.6960	5.1229
327	RND2	3.0935	0.0349	20.3146	56.8920	15.8982	11.6094	15.5605	2.9274
328	IL1R2	3.0781	0.0056	40.6293	50.9811	22.2575	7.4632	20.7473	8.7822
329	RPS6KL1	3.0774	0.0082	50.7866	42.1148	9.5389	13.2679	11.2381	8.7822
330	SERPINE1	3.0674	0.0026	192.2078	134.4719	63.5928	26.5358	64.8353	35.8605
331	ECE2	3.0644	0.0109	35.1600	93.0959	19.0778	15.7556	19.8828	12.4414
332	HSPB1	3.0614	0.0188	1964.2700	685.6590	5224.1487	1107.8682	933.6287	530.5892
333	GDPD3	3.0595	0.0265	47.6613	13.2994	69.9521	16.5849	18.1539	8.0503
334	ABTB2	3.0548	0.0001	404.7302	477.3014	286.1676	106.1431	188.4547	87.8217
335	C14orf182	3.0339	0.0303	87.5092	237.1730	92.2096	21.5603	96.8208	19.0280
336	LGI2	3.0305	0.0409	14.8453	11.0829	3.1796	2.4877	3.4579	3.6592
337	ACRC	3.0136	0.0086	78.9146	78.3188	193.9580	21.5603	65.6998	29.2739
338	CELSR1	2.9949	0.0160	21.8773	15.5160	38.1557	5.8047	12.1026	7.3185
339	ISG20	2.9919	0.0108	32.8160	33.2486	95.3892	16.5849	24.2052	13.1733
340	TMEM81	2.9807	0.0483	20.3146	19.2103	66.7724	7.4632	21.6118	6.5866
341	TCAP	2.9783	0.0087	21.8773	17.7326	19.0778	5.8047	9.5092	4.3911
342	RAB20	2.9777	0.0013	1068.0816	768.4110	410.1736	189.8966	383.8251	180.7663
343	CH25H	2.9750	0.0433	27.3466	23.6434	89.0299	8.2924	28.5275	10.2459
344	NUDT10	2.9732	0.0470	7.8133	19.2103	6.3593	4.9755	2.5934	3.6592
345	PLCG2	2.9571	0.0021	63.2879	143.3382	92.2096	27.3650	51.0038	22.6873
346	CAMK2N2	2.9486	0.0085	33.5973	36.9428	22.2575	7.4632	18.1539	5.8548
347	CPLX1	2.9474	0.0090	63.2879	45.0703	127.1856	36.4867	30.2565	13.1733
348	ECEL1	2.9408	0.0122	23.4400	33.9874	44.5150	7.4632	19.8828	7.3185
349	FIGF	2.9318	0.0446	32.8160	23.6434	19.0778	2.4877	18.1539	5.1229
350	NFATC1	2.9184	0.0346	41.4106	31.7708	73.1317	4.9755	31.9854	13.1733
351	WDR66	2.9183	0.0228	26.5653	25.1211	73.1317	10.7802	22.4762	9.5140
352	CHRNA2	2.9147	0.0139	32.0346	25.8600	12.7186	7.4632	4.3224	12.4414
353	ZNF541	2.9128	0.0018	78.9146	34.7263	44.5150	16.5849	21.6118	16.1006
354	PDZK1IP1	2.9049	0.0157	31.2533	13.2994	38.1557	10.7802	10.3737	7.3185
355	PDE6A	2.9018	0.0384	28.1280	29.5543	3.1796	4.1462	9.5092	7.3185
356	DTX1	2.9014	0.0056	56.2559	49.5034	146.2634	26.5358	35.4433	24.8828
357	RP11-774O3.3	2.9003	0.0464	19.5333	19.2103	50.8742	9.9509	17.2894	3.6592
358	AC093642.3	2.8893	0.0305	12.5013	15.5160	6.3593	3.3170	3.4579	5.1229
359	CORO7	2.8856	0.0340	58.5999	19.9491	143.0838	31.5112	23.3407	21.9554
360	KRT19	2.8804	0.0269	16.4080	48.0257	60.4132	22.3896	7.7802	13.1733
361	SPATC1L	2.8772	0.0042	178.1438	84.9685	311.6047	71.3149	78.6669	49.7656

362	TUBB2A	2.8764	0.0202	20.3146	42.8537	12.7186	8.2924	12.9671	5.1229
363	WASH3P	2.8756	0.0275	296.9064	115.2616	903.0178	184.9211	153.8758	118.5593
364	FGG	2.8739	0.0148	30.4720	50.9811	12.7186	8.2924	16.4249	8.0503
365	TMOD1	2.8719	0.0049	208.6158	360.5621	111.2874	52.2423	121.0259	63.6707
366	MESP1	2.8673	0.0199	47.6613	18.4714	82.6706	19.9018	12.9671	19.0280
367	ADAMTS9	2.8575	0.0172	39.0666	64.2805	187.5988	31.5112	33.7144	36.5924
368	SERTAD1	2.8567	0.0407	58.5999	68.7137	273.4490	29.0235	81.2603	30.0057
369	BEX1	2.8460	0.0034	75.0079	254.1667	158.9820	68.8271	58.7840	43.9108
370	CD248	2.8424	0.0136	64.0693	22.9046	19.0778	14.0971	12.9671	10.2459
371	TECRP1	2.8423	0.0236	213.3038	110.0896	705.8801	128.5326	139.1798	94.4083
372	NGEF	2.8415	0.0003	832.9005	390.1163	457.8682	214.7738	237.7295	139.0510
373	EFHD1	2.8327	0.0006	40.6293	33.9874	41.3353	14.9264	12.1026	13.9051
374	PTK7	2.8204	0.0037	35.1600	35.4651	31.7964	12.4386	17.2894	6.5866
375	SLC8A1	2.8194	0.0455	89.8532	106.3954	12.7186	14.9264	42.3591	16.8325
376	PIGA	2.8170	0.0185	57.8186	189.1473	57.2335	22.3896	57.0551	28.5420
377	STARD10	2.8050	0.0088	1406.3985	721.1241	3421.2928	801.8776	612.0455	564.2542
378	HP	2.8030	0.0405	125.7945	37.6817	241.6526	23.2188	75.2090	46.1064
379	TUBB3	2.7983	0.0076	32.0346	118.9559	79.4910	30.6820	26.7986	24.8828
380	RPS28	2.7969	0.0241	57.8186	42.8537	162.1616	26.5358	48.4104	19.0280
381	XXyac-YRM2039.2	2.7953	0.0480	110.9492	51.7200	419.7125	77.1196	87.3116	43.9108
382	ID4	2.7896	0.0024	46.0986	29.5543	41.3353	13.2679	10.3737	18.2962
383	GPD1	2.7877	0.0152	60.1626	47.2868	9.5389	14.0971	14.6960	13.1733
384	MN1	2.7780	0.0176	45.3173	31.7708	15.8982	5.8047	18.1539	9.5140
385	MT1F	2.7727	0.0035	254.7144	256.3833	248.0119	87.8997	147.8245	38.0561
386	HLX	2.7715	0.0481	38.2853	9.6051	47.6946	11.6094	15.5605	7.3185
387	PSD	2.7661	0.0148	24.2213	68.7137	28.6168	20.7311	12.9671	10.2459
388	SOX18	2.7556	0.0027	80.4772	51.7200	73.1317	16.5849	38.9012	19.0280
389	CCL2	2.7498	0.0296	316.4397	232.0010	63.5928	47.2668	131.3996	43.9108
390	TMEM205	2.7449	0.0141	225.0238	144.8159	651.8262	138.4835	140.0443	93.6764
391	KIT	2.7371	0.0216	14.0640	32.5097	12.7186	8.2924	6.0513	7.3185
392	SMPD3	2.7209	0.0012	48.4426	42.8537	50.8742	24.0480	12.1026	16.1006
393	C10orf10	2.7209	0.0003	394.5729	251.2113	406.9939	100.3384	184.1323	102.4586
394	ADAMTS4	2.7141	0.0145	42.1920	20.6880	31.7964	14.9264	6.0513	13.9051
395	CSPG4	2.7103	0.0073	38.2853	35.4651	22.2575	9.9509	18.1539	7.3185
396	NKG7	2.7038	0.0467	18.7520	16.9937	50.8742	8.2924	16.4249	7.3185
397	LOXL4	2.7031	0.0046	39.8480	33.2486	38.1557	17.4141	16.4249	7.3185
398	FAM195A	2.7016	0.0163	766.4872	311.7975	1542.1255	410.4751	355.2976	204.1854
399	VASN	2.6995	0.0193	160.1732	116.0005	38.1557	31.5112	62.2419	22.6873
400	BHLHE40	2.6987	0.0286	344.5676	581.4802	1888.7062	274.4793	510.9024	257.6102
401	FSTL3	2.6894	0.0010	1127.4628	738.8567	629.5687	271.1623	460.7631	196.1351
402	SEMA5A	2.6886	0.0245	14.8453	44.3314	47.6946	9.9509	12.9671	16.8325
403	METRNL	2.6874	0.0038	78.9146	39.8983	82.6706	19.9018	34.5788	20.4917
404	ATF3	2.6816	0.0435	291.4370	414.4986	200.3173	45.6083	245.5098	46.8382
405	GNG2	2.6808	0.0490	30.4720	95.3125	15.8982	9.9509	26.7986	16.1006
406	GPIHBP1	2.6705	0.0316	52.3493	21.4268	104.9281	24.8773	16.4249	25.6147
407	TSSC4	2.6671	0.0300	158.6105	96.7902	527.8203	124.3864	96.8208	72.4529
408	KCNIP2	2.6664	0.0236	63.2879	25.8600	25.4371	23.2188	9.5092	10.2459
409	WDR25	2.6642	0.0295	70.3199	44.3314	209.8562	43.1206	50.1393	28.5420
410	PGF	2.6637	0.0175	60.1626	38.4205	19.0778	9.1217	23.3407	11.7096
411	AP000783.1	2.6625	0.0006	717.2633	386.4221	972.9699	302.6736	267.9860	209.3083
412	ABCC6P1	2.6524	0.0444	20.3146	11.8217	22.2575	4.1462	11.2381	5.1229
413	MAPK4	2.6447	0.0282	439.1089	552.6648	139.9042	70.4856	249.8321	107.5815

414	CISH	2.6420	0.0041	47.6613	58.3697	41.3353	9.9509	26.7986	19.0280
415	ALDH3B1	2.6419	0.0001	387.5409	232.7399	219.3952	101.9968	123.6194	92.2128
416	SLC29A1	2.6337	0.0361	1812.6915	791.3155	225.7544	383.1101	422.7263	268.5879
417	KCNIP4	2.6312	0.0048	32.8160	33.2486	41.3353	8.2924	16.4249	16.1006
418	SPRN	2.6299	0.0486	61.7253	22.1657	152.6227	35.6574	29.3920	24.8828
419	LFNG	2.6261	0.0053	62.5066	39.1594	47.6946	21.5603	25.0697	10.2459
420	MIIP	2.6245	0.0184	110.9492	53.9365	228.9341	62.1932	52.7327	35.1287
421	NFIL3	2.6231	0.0409	868.8418	1128.9730	734.4969	108.6308	743.4451	189.5484
422	TMEM160	2.6185	0.0191	70.3199	42.8537	130.3652	41.4621	35.4433	16.1006
423	EGFL7	2.6116	0.0123	343.7863	90.8794	295.7065	125.2156	71.7511	82.6987
424	CCDC151	2.6067	0.0182	57.0373	53.1977	19.0778	15.7556	25.0697	8.7822
425	HCFC1R1	2.6021	0.0374	157.0478	107.8731	562.7963	111.1185	137.4509	69.5255
426	AKR1C2	2.5933	0.0452	36.7226	62.0640	6.3593	11.6094	12.1026	16.8325
427	FLYWCH2	2.5903	0.0002	212.5224	200.9690	343.4011	96.1921	118.4325	77.5758
428	KLF2	2.5865	0.0145	471.1435	303.6701	143.0838	93.7044	190.1836	70.9892
429	PLEKHG2	2.5748	0.0154	88.2906	42.8537	165.3413	44.7791	38.9012	31.4694
430	CRIP1	2.5734	0.0179	85.1652	50.9811	38.1557	14.9264	38.9012	13.9051
431	TMEM52	2.5717	0.0070	187.5198	83.4908	263.9101	80.4365	77.8024	49.7656
432	CYP4F12	2.5687	0.0169	99.2292	30.2931	50.8742	28.1942	25.9341	16.1006
433	CXorf40B	2.5637	0.0136	810.2418	206.1410	305.2455	160.8731	212.6599	141.9784
434	RBP5	2.5624	0.0009	65.6319	55.4143	57.2335	23.2188	30.2565	16.1006
435	CDK2AP2	2.5560	0.0072	709.4499	572.6139	1659.7721	343.3065	527.3273	280.2975
436	ARHGAP24	2.5484	0.0202	25.0026	22.9046	25.4371	6.6339	15.5605	6.5866
437	CTA-445C9.15	2.5446	0.0112	20.3146	45.8091	31.7964	11.6094	12.9671	13.9051
438	PRKAR1B	2.5439	0.0060	53.1306	82.0131	127.1856	39.8036	40.6301	22.6873
439	DAK	2.5358	0.0439	2219.7657	1622.5293	381.5568	370.6715	923.2551	371.7784
440	ALPL	2.5353	0.0094	468.0182	986.3737	511.9221	160.0438	429.6421	185.8892
441	RAB4B	2.5296	0.0247	107.8239	39.1594	165.3413	55.5593	37.1723	30.7376
442	NFKBIA	2.5252	0.0180	1403.2732	1838.2755	4696.3284	779.4881	1622.6122	741.3612
443	EGFLAM	2.5240	0.0285	40.6293	123.3891	34.9760	16.5849	33.7144	28.5420
444	EXOSC4	2.5215	0.0341	108.6052	52.4588	254.3712	72.9734	54.4617	37.3242
445	C9orf142	2.5171	0.0165	255.4957	99.7457	391.0957	126.0449	104.6010	65.8663
446	CHST7	2.5099	0.0034	35.9413	41.3760	22.2575	13.2679	14.6960	11.7096
447	BSPRY	2.5061	0.0419	12.5013	22.9046	15.8982	4.9755	10.3737	5.1229
448	TST	2.4972	0.0056	951.6630	644.2830	2050.8679	490.0824	552.3970	417.8848
449	SNAI1	2.4748	0.0073	56.2559	28.8154	41.3353	14.0971	21.6118	15.3688
450	CEBPB	2.4732	0.0063	1104.8042	888.8446	1675.6703	359.0621	809.1449	315.4262
451	IL32	2.4687	0.0283	45.3173	39.8983	101.7485	20.7311	38.9012	16.1006
452	MRPL55	2.4603	0.0373	336.7543	133.7331	798.0897	199.0182	184.1323	132.4643
453	SARDH	2.4550	0.0289	18.7520	15.5160	12.7186	6.6339	5.1868	7.3185
454	SIGIRR	2.4527	0.0427	53.1306	36.2040	127.1856	30.6820	41.4946	16.1006
455	SLC44A3	2.4527	0.0033	45.3173	40.6371	25.4371	17.4141	15.5605	12.4414
456	CDYL2	2.4508	0.0266	27.3466	45.8091	85.8503	14.9264	25.0697	24.8828
457	OSGIN1	2.4508	0.0023	333.6290	178.0645	451.5089	141.8005	144.3667	106.8497
458	ALAS1	2.4483	0.0215	12181.7554	12033.7590	7205.0645	2133.6413	8046.4965	2653.6781
459	PLEKHA6	2.4449	0.0421	73.4453	162.5485	25.4371	33.1697	46.6814	27.0783
460	PPFIBP2	2.4442	0.0008	93.7599	125.6056	95.3892	33.9989	59.6485	35.1287
461	MAFF	2.4344	0.0000	334.4103	254.9056	352.9401	142.6297	147.8245	96.6038
462	TPBG	2.4314	0.0350	21.8773	54.6754	19.0778	16.5849	14.6960	8.0503
463	RP11-69E11.4	2.4312	0.0458	50.0053	19.9491	34.9760	14.0971	22.4762	6.5866
464	REC8	2.4307	0.0032	60.1626	58.3697	114.4670	33.9989	31.1210	30.7376
465	HTRA3	2.4220	0.0349	43.7546	40.6371	22.2575	10.7802	25.9341	7.3185

466	TUBA4A	2.4118	0.0075	200.0211	297.7592	473.7664	97.0214	199.6928	106.1178
467	H2AFY2	2.4035	0.0315	14.8453	21.4268	19.0778	7.4632	6.0513	9.5140
468	CYB561	2.3952	0.0160	335.1917	1074.2976	349.7604	288.5764	225.6269	220.2860
469	TNFRSF21	2.3930	0.0053	42.1920	50.2423	38.1557	13.2679	25.9341	15.3688
470	CSRNP1	2.3881	0.0212	436.7649	727.7738	833.0657	152.5806	503.1222	180.7663
471	DCXR	2.3842	0.0308	322.6903	180.2810	836.2453	214.7738	200.5573	146.3694
472	PTGDS	2.3817	0.0096	359.4130	174.3702	190.7784	110.2893	138.3154	55.6204
473	SDC4	2.3810	0.0019	723.5139	1044.7434	1774.2392	433.6939	574.0088	480.0918
474	AKR7A3	2.3788	0.0121	37.5040	28.8154	25.4371	14.0971	16.4249	8.0503
475	FUOM	2.3726	0.0133	27.3466	31.7708	38.1557	14.9264	17.2894	8.7822
476	TSPAN4	2.3724	0.0450	387.5409	153.6822	63.5928	90.3874	99.4142	65.1344
477	MACROD1	2.3658	0.0333	132.0452	79.7965	349.7604	92.0459	74.3445	70.9892
478	PALM	2.3632	0.0252	202.3651	161.8096	54.0539	40.6329	87.3116	49.0338
479	ID1	2.3620	0.0198	537.5568	199.4913	178.0598	149.2637	154.7403	83.4306
480	VAMP5	2.3561	0.0058	429.7329	217.2239	378.3772	165.0193	186.7257	83.4306
481	PVRL1	2.3550	0.0109	31.2533	56.8920	60.4132	27.3650	18.1539	17.5643
482	TGFB1I1	2.3536	0.0045	92.1972	71.6691	47.6946	25.7065	41.4946	22.6873
483	WNK3	2.3476	0.0293	109.3866	71.6691	22.2575	23.2188	36.3078	27.0783
484	SDC1	2.3468	0.0074	363.3196	206.1410	594.5927	153.4099	205.7441	136.8554
485	TMEM37	2.3465	0.0148	69.5386	35.4651	98.5688	29.0235	32.8499	24.8828
486	UCP2	2.3465	0.0476	194.5518	240.8673	50.8742	49.7546	110.6523	46.8382
487	HLA-A	2.3414	0.0320	1302.4813	1798.3772	4451.4962	762.9032	1698.6856	764.0485
488	ATP1B3	2.3353	0.0250	1191.5321	2137.5124	4139.8914	687.4421	1597.5425	913.3453
489	DIO2	2.3352	0.0009	95.3226	79.0577	136.7245	38.9744	46.6814	47.5701
490	TRAPPC2L	2.3268	0.0203	784.4579	668.6653	2276.6223	551.4464	609.4521	442.0357
491	H2AFJ	2.3254	0.0260	578.1861	464.7409	1561.2033	311.7952	525.5984	282.4930
492	SPTSSA	2.3237	0.0018	1052.4549	1390.5283	565.9759	376.4762	462.4920	455.9408
493	CFP	2.3235	0.0203	31.2533	20.6880	34.9760	14.9264	12.9671	9.5140
494	ALDOB	2.3230	0.0189	40.6293	28.0766	66.7724	17.4141	23.3407	17.5643
495	RUNX1	2.3221	0.0310	50.0053	74.6245	162.1616	28.1942	53.5972	41.7153
496	BOK	2.3194	0.0460	92.9786	58.3697	25.4371	24.8773	38.9012	12.4414
497	APOE	2.3102	0.0040	28070.1522	19075.0633	39929.9205	12853.2609	16758.6358	8080.3252
498	BCL6	2.3094	0.0094	654.7567	436.6643	1351.3470	367.3545	378.6383	311.7669
499	SOX6	2.3075	0.0364	29.6906	58.3697	63.5928	10.7802	24.2052	30.7376
500	TFEB	2.3056	0.0428	82.8212	33.2486	54.0539	27.3650	35.4433	10.9777
501	IRX3	2.2975	0.0312	77.3519	27.3377	34.9760	26.5358	18.1539	16.1006
502	GSDMB	2.2801	0.0464	38.2853	28.0766	12.7186	13.2679	15.5605	5.8548
503	ACSL5	2.2784	0.0235	50.0053	52.4588	130.3652	29.0235	38.0367	35.1287
504	ATP5D	2.2777	0.0304	713.3566	375.3392	1475.3530	438.6694	442.6092	244.4370
505	HOXC6	2.2764	0.0085	41.4106	50.2423	73.1317	30.6820	19.0184	22.6873
506	DCUN1D3	2.2724	0.0127	152.3598	121.1725	225.7544	50.5838	114.9746	54.1567
507	ADCK5	2.2711	0.0121	227.3678	108.6119	184.4191	99.5091	86.4471	43.1790
508	MIR24-2	2.2687	0.0138	90.6346	37.6817	79.4910	35.6574	25.9341	30.0057
509	MIDN	2.2658	0.0218	438.3275	599.2128	1370.4249	291.8934	492.7485	278.1019
510	PER1	2.2585	0.0061	2617.4640	1270.0947	1033.3830	759.5863	826.4343	592.7963
511	PHYHIP	2.2510	0.0011	546.9328	540.8431	912.5567	310.1367	355.2976	223.2134
512	GSTO2	2.2449	0.0149	40.6293	37.6817	50.8742	19.9018	25.9341	11.7096
513	GBP2	2.2433	0.0086	705.5433	732.2070	362.4790	193.2135	398.5212	210.7720
514	SLC25A25	2.2393	0.0004	240.6504	384.2055	251.1916	134.3373	147.8245	109.0452
515	ABLIM3	2.2389	0.0351	122.6692	87.1851	28.6168	27.3650	48.4104	30.7376
516	SLC26A1	2.2388	0.0439	153.9225	210.5742	57.2335	44.7791	101.1431	42.4471
517	AKR1C3	2.2355	0.0019	103.1359	84.9685	60.4132	43.1206	28.5275	39.5198

518	GUK1	2.2337	0.0049	1672.0516	714.4744	1389.5027	710.6609	542.8878	436.9128
519	RP11-73M18.8	2.2318	0.0054	71.8826	49.5034	95.3892	30.6820	37.1723	29.2739
520	BABAM1	2.2304	0.0434	113.2932	73.1468	292.5269	84.5827	70.8866	59.2796
521	BIN1	2.2278	0.0094	1700.1796	824.5641	629.5687	527.3983	515.2247	373.2421
522	RP11-568K15.1	2.2272	0.0033	264.8717	128.5611	155.8024	91.2167	68.2932	87.0898
523	SYT11	2.2248	0.0495	53.1306	249.7336	155.8024	66.3394	52.7327	87.0898
524	TEKT4P2	2.2128	0.0479	206.2718	53.9365	225.7544	93.7044	62.2419	63.6707
525	ABHD14B	2.2113	0.0112	623.5034	413.7597	1208.2632	377.3054	348.3818	289.8115
526	LDLR	2.2109	0.0282	3271.4393	5436.5076	1936.4008	1084.6494	2568.3435	1161.4416
527	PLB1	2.2070	0.0200	125.7945	108.6119	104.9281	29.8527	87.3116	36.5924
528	ZNRD1	2.2060	0.0461	75.7893	53.1977	136.7245	24.8773	64.8353	30.7376
529	CASP9	2.2018	0.0211	789.1458	795.0098	330.6826	214.7738	447.7960	207.1128
530	IFI27	2.2010	0.0279	747.7352	1307.7763	747.2154	254.5775	739.9872	278.8338
531	BACE2	2.1991	0.0395	59.3813	43.5925	85.8503	14.0971	43.2236	28.5420
532	MANF	2.1975	0.0168	291.4370	334.7021	807.6286	217.2616	255.8834	179.3026
533	CRIP2	2.1873	0.0312	308.6263	201.7079	85.8503	113.6062	101.1431	57.8159
534	CD14	2.1854	0.0039	636.0047	604.3848	438.7903	231.3587	370.8581	166.1293
535	MT1L	2.1791	0.0252	49.2239	36.2040	25.4371	14.0971	25.0697	11.7096
536	PPP2R1A	2.1789	0.0029	3133.9247	2539.4505	5583.4480	1949.5495	1652.0042	1564.6894
537	PDGFA	2.1788	0.0473	38.2853	54.6754	47.6946	9.9509	36.3078	18.2962
538	COL7A1	2.1774	0.0270	35.9413	29.5543	22.2575	14.0971	18.1539	8.0503
539	TP53I13	2.1740	0.0151	303.1570	120.4336	295.7065	126.8741	122.7549	81.2350
540	CEBPD	2.1731	0.0043	746.1726	584.4356	655.0059	248.7728	460.7631	204.1854
541	CYP11A1	2.1721	0.0002	24435.3933	14010.9395	18937.9365	8882.0179	9750.3690	7786.1227
542	GPX3	2.1707	0.0026	2138.5071	1692.7207	2308.4187	704.0270	1387.4760	736.9702
543	MYL6	2.1634	0.0188	3464.4284	2267.5512	7109.6753	1923.8429	2398.9072	1612.9913
544	PHYHD1	2.1615	0.0053	108.6052	59.1085	73.1317	32.3405	43.2236	35.8605
545	SLC22A15	2.1507	0.0126	59.3813	93.8348	50.8742	20.7311	39.7657	34.3968
546	MAPK11	2.1432	0.0118	72.6639	45.0703	63.5928	37.3159	26.7986	20.4917
547	GFPT2	2.1415	0.0231	48.4426	36.2040	34.9760	15.7556	27.6631	12.4414
548	TBC1D7	2.1405	0.0216	49.2239	75.3634	124.0060	35.6574	47.5459	32.9331
549	IL4R	2.1354	0.0321	291.4370	157.3765	136.7245	65.5102	148.6890	60.0115
550	NR6A1	2.1349	0.0307	25.0026	28.8154	44.5150	13.2679	18.1539	14.6369
551	FAM20C	2.1304	0.0222	166.4238	129.2999	257.5508	67.1687	133.9930	58.5478
552	EFEMP2	2.1301	0.0264	421.1382	180.2810	594.5927	191.5551	226.4914	143.4421
553	BRE	2.1292	0.0019	1227.4734	866.6789	753.5747	375.6469	597.3495	364.4599
554	LINC00205	2.1288	0.0095	73.4453	87.1851	108.1078	37.3159	59.6485	29.2739
555	IGFBP4	2.1287	0.0142	1132.9322	928.0040	505.5628	325.0631	587.8403	292.7389
556	SAMD1	2.1276	0.0296	98.4479	84.9685	238.4730	57.2177	75.2090	65.8663
557	COL4A2	2.1226	0.0290	627.4100	712.2579	209.8562	194.8720	311.2096	223.9453
558	FSTL4	2.1225	0.0250	28.1280	22.9046	19.0778	9.9509	12.1026	10.9777
559	LIPE	2.1221	0.0009	330.5037	282.9821	213.0359	157.5561	133.1285	98.7994
560	SOCS2	2.1188	0.0120	290.6557	359.8232	585.0538	140.9712	277.4952	164.6656
561	MYH14	2.1139	0.0325	24.2213	24.3823	12.7186	9.1217	10.3737	9.5140
562	ACAP1	2.1084	0.0181	72.6639	47.2868	95.3892	36.4867	41.4946	24.1510
563	SNHG15	2.1078	0.0085	225.0238	147.0325	305.2455	97.8506	140.0443	83.4306
564	PPP1R14A	2.1021	0.0443	1032.1403	297.0204	505.5628	335.0140	357.0265	180.7663
565	IFI35	2.0928	0.0056	332.8477	195.7970	190.7784	125.2156	136.5864	81.9669
566	MTSS1	2.0927	0.0058	457.0795	642.0665	992.0477	262.0407	388.1475	349.0911
567	DOK1	2.0922	0.0252	53.9119	36.9428	66.7724	33.1697	17.2894	24.8828
568	CYGB	2.0913	0.0226	35.1600	81.2742	47.6946	26.5358	28.5275	23.4191
569	ITM2C	2.0750	0.0316	182.8318	516.4608	282.9880	125.2156	223.0335	125.1459

570	RPS26	2.0745	0.0373	122.6692	114.5228	286.1676	63.8517	116.7036	71.7210
571	SLC27A5	2.0683	0.0232	55.4746	32.5097	66.7724	28.1942	22.4762	24.1510
572	A4GALT	2.0653	0.0248	54.6933	80.5354	25.4371	24.0480	25.9341	27.8102
573	DXO	2.0649	0.0431	550.0581	187.6696	327.5029	156.7269	251.5611	107.5815
574	TLE2	2.0641	0.0183	380.5089	159.5930	213.0359	157.5561	115.8391	91.4809
575	PDLIM1	2.0640	0.0022	160.9545	165.5039	120.8263	57.2177	95.0918	64.4026
576	SCAP	2.0521	0.0023	2894.8370	1505.7899	2034.9697	1216.4990	1025.2627	894.3173
577	MMAB	2.0484	0.0003	535.2128	461.7854	750.3951	291.0642	280.9531	281.0293
578	MOSPD3	2.0460	0.0297	225.8051	140.3828	384.7365	152.5806	128.8062	85.6261
579	IRF7	2.0413	0.0440	52.3493	31.7708	31.7964	17.4141	27.6631	11.7096
580	DECR2	2.0404	0.0271	196.1145	100.4845	254.3712	121.8987	73.4800	74.6484
581	EFNA1	2.0402	0.0153	135.1705	131.5165	251.1916	78.7781	110.6523	64.4026
582	WDR34	2.0388	0.0112	356.2876	192.1027	241.6526	161.7023	140.9088	84.8943
583	TMEM189	2.0374	0.0041	100.0106	92.3571	149.4431	53.9008	64.8353	49.0338
584	NUPR1	2.0369	0.0029	1320.4520	1070.6034	1834.6523	723.0996	837.6724	513.7568
585	TSPO	2.0306	0.0200	634.4420	356.1289	947.5328	373.1592	344.9239	236.3867
586	EIF4A3	2.0254	0.0190	1294.6680	919.1377	1316.3710	412.9628	931.8998	398.1249
587	CLTCL1	2.0238	0.0096	220.3358	149.2491	343.4011	123.5572	112.3812	116.3637
588	TMEM132C	2.0231	0.0421	30.4720	48.0257	15.8982	13.2679	17.2894	16.1006
589	NOXA1	2.0226	0.0457	149.2345	61.3251	60.4132	55.5593	48.4104	30.0057
590	TRAPPC2P1	2.0219	0.0343	81.2586	91.6182	127.1856	29.0235	76.9379	42.4471
591	DHRS3	2.0199	0.0065	147.6718	104.9177	190.7784	71.3149	88.1760	60.0115
592	GRK5	2.0198	0.0279	289.8744	190.6250	85.8503	95.3629	99.4142	85.6261
593	TUBA1A	2.0172	0.0142	425.8262	709.3024	550.0777	174.9702	402.8435	257.6102
594	MMP2	2.0113	0.0360	460.9862	374.6003	244.8323	109.4600	293.0557	134.6599
595	MYO15B	2.0084	0.0463	631.3167	200.2302	403.8143	269.5039	210.9309	134.6599
596	CRISPLD2	2.0036	0.0187	182.0505	221.6570	152.6227	56.3885	140.0443	81.2350
597	RAMP3	2.0032	0.0329	231.2744	188.4085	158.9820	69.6564	159.9271	59.2796
598	FTH1P11	1.9983	0.0338	153.1412	164.7650	400.6347	121.0694	133.1285	105.3860
599	IRF1	1.9896	0.0353	106.2612	82.7519	216.2155	58.8762	80.3958	64.4026
600	CERCAM	1.9883	0.0217	69.5386	46.5480	38.1557	29.0235	30.2565	18.2962
601	ZFAND2A	1.9846	0.0341	84.3839	90.8794	203.4970	69.6564	55.3261	65.8663
602	AVPI1	1.9834	0.0218	546.1514	493.5563	270.2694	194.0428	316.3964	150.0287
603	DGAT1	1.9834	0.0328	1375.9266	521.6328	823.5268	552.2756	524.7339	294.9344
604	DAGLB	1.9829	0.0241	238.3064	164.0262	432.4311	131.8496	162.5206	126.6096
605	LAGE3	1.9827	0.0280	181.2691	130.7776	270.2694	118.5817	115.8391	59.2796
606	C7orf50	1.9810	0.0304	239.0878	137.4273	378.3772	158.3853	115.8391	106.8497
607	PC	1.9787	0.0011	546.1514	452.1803	709.0597	337.5018	280.9531	244.4370
608	ADM	1.9716	0.0056	132.0452	85.7074	139.9042	66.3394	63.1064	51.9612
609	CMTM3	1.9664	0.0369	107.8239	119.6948	98.5688	30.6820	89.0405	46.1064
610	ACAA2	1.9655	0.0002	493.0208	370.9061	349.7604	199.8475	208.3375	209.3083
611	TRAPPC6A	1.9598	0.0176	167.9865	110.8285	200.3173	111.1185	72.6156	60.7433
612	IMPA2	1.9535	0.0053	78.1333	62.8028	73.1317	36.4867	42.3591	30.7376
613	NRIP3	1.9499	0.0356	53.1306	129.2999	82.6706	37.3159	56.1906	42.4471
614	MVD	1.9487	0.0397	303.9384	582.2191	416.5329	351.5989	138.3154	178.5707
615	S100A4	1.9442	0.0070	107.0426	107.8731	104.9281	39.8036	73.4800	51.2293
616	UBE2S	1.9426	0.0493	50.0053	33.2486	47.6946	25.7065	28.5275	13.1733
617	HBEGF	1.9411	0.0425	69.5386	39.1594	31.7964	19.9018	31.9854	20.4917
618	HECW2	1.9380	0.0211	70.3199	96.7902	92.2096	29.8527	62.2419	41.7153
619	JUP	1.9347	0.0080	135.9519	106.3954	92.2096	53.0715	75.2090	44.6427
620	TPST2	1.9293	0.0037	335.9730	243.8227	314.7844	162.5316	188.4547	112.7045
621	LDHD	1.9287	0.0338	82.8212	170.6759	184.4191	95.3629	76.0735	55.6204

622	FTH1P8	1.9231	0.0340	341.4423	336.9187	696.3412	208.9691	330.2279	175.6433
623	TUBB6	1.9219	0.0097	96.8852	85.7074	104.9281	55.5593	59.6485	34.3968
624	OCEL1	1.9209	0.0273	87.5092	60.5862	133.5449	55.5593	44.9525	46.1064
625	NSMCE1	1.9190	0.0152	381.2903	302.9312	664.5448	259.5529	242.0519	201.2580
626	CCDC12	1.9159	0.0303	531.3061	322.8804	833.0657	330.8678	330.2279	219.5542
627	SLC2A8	1.9137	0.0230	374.2583	263.0330	642.2873	258.7237	215.2533	194.6714
628	TMUB1	1.9046	0.0366	214.8664	131.5165	292.5269	155.0684	97.6852	82.6987
629	ARVCF	1.9026	0.0277	183.6131	113.7839	82.6706	80.4365	71.7511	47.5701
630	FBXO25	1.9018	0.0411	171.8932	217.9627	454.6885	123.5572	166.8429	153.6879
631	FTH1P20	1.9008	0.0204	218.7731	210.5742	441.9700	148.4344	169.4363	140.5147
632	TXN	1.8989	0.0463	357.0690	474.3460	1011.1256	274.4793	395.0633	300.7892
633	CRYAB	1.8929	0.0170	178.1438	234.2176	209.8562	91.2167	159.9271	77.5758
634	SRR	1.8924	0.0380	28.1280	29.5543	31.7964	15.7556	14.6960	16.8325
635	NSFL1C	1.8917	0.0091	927.4417	761.0224	1408.5806	495.8871	679.4742	461.7956
636	FGD4	1.8874	0.0333	107.8239	143.3382	73.1317	35.6574	62.2419	73.9166
637	TMCC2	1.8818	0.0141	58.5999	65.0194	54.0539	38.1452	32.8499	23.4191
638	CTSK	1.8754	0.0303	73.4453	71.6691	130.3652	39.8036	58.7840	48.3019
639	CLSTN3	1.8749	0.0053	266.4344	396.7660	343.4011	224.7248	140.9088	171.2523
640	MCF2L	1.8741	0.0369	46.0986	79.0577	41.3353	33.1697	33.7144	21.9554
641	SLC9A3R2	1.8559	0.0221	585.2181	315.4918	378.3772	218.9201	303.4293	166.8612
642	HOXA5	1.8547	0.0237	1087.6149	1745.9184	1370.4249	566.3727	1117.7611	582.5504
643	TSC22D3	1.8529	0.0039	3271.4393	2124.2130	3704.2807	1670.0947	1801.5577	1439.5435
644	RXRA	1.8526	0.0155	786.8019	554.8814	378.3772	271.1623	382.0962	275.1746
645	AKR1C1	1.8487	0.0446	60.1626	61.3251	31.7964	25.7065	19.8828	37.3242
646	ARRB1	1.8484	0.0274	64.8506	74.6245	120.8263	44.7791	53.5972	42.4471
647	PPP4R1L	1.8428	0.0452	93.7599	62.8028	31.7964	31.5112	36.3078	34.3968
648	SLC1A4	1.8413	0.0002	475.0502	622.8562	556.4370	281.9425	302.5649	313.9625
649	CTD-2517O10.6	1.8393	0.0433	78.9146	64.2805	82.6706	30.6820	61.3774	30.7376
650	ARHGEF17	1.8371	0.0036	234.3998	228.3067	162.1616	134.3373	110.6523	95.1401
651	AIFM2	1.8315	0.0078	247.6824	147.7713	209.8562	113.6062	121.0259	95.8720
652	MARVELD1	1.8252	0.0211	83.6026	82.0131	60.4132	53.0715	41.4946	29.2739
653	COL3A1	1.8190	0.0054	553.9648	504.6391	772.6525	275.3086	402.8435	328.5994
654	FBXW5	1.8121	0.0193	998.5430	574.8305	1096.9758	621.1027	438.2868	414.2255
655	CSRP1	1.8106	0.0003	806.3352	804.6149	648.6466	391.4025	469.4078	387.1472
656	COPZ2	1.8066	0.0271	137.5145	106.3954	190.7784	86.2412	95.0918	59.2796
657	TMSB10	1.8058	0.0292	1192.3134	1162.2216	1710.6464	566.3727	1111.7098	573.0364
658	RARA	1.8046	0.0451	150.7972	82.0131	111.2874	77.9488	71.7511	40.9834
659	CYB5R3	1.8017	0.0010	1593.1370	1377.2289	1151.0297	845.8275	796.1778	645.4893
660	TUB	1.8015	0.0454	181.2691	240.8673	98.5688	93.7044	123.6194	71.7210
661	GSTP1	1.7905	0.0363	1545.4757	1077.9919	2530.9935	1044.0165	1087.5046	747.2160
662	EBP	1.7862	0.0009	932.9110	1279.6998	998.4070	645.9800	618.9613	532.7848
663	DDAH2	1.7815	0.0291	182.0505	110.0896	216.2155	113.6062	89.0405	82.6987
664	WNT11	1.7772	0.0463	393.0103	201.7079	197.1377	138.4835	193.6415	113.4363
665	WWC3	1.7765	0.0215	382.0716	364.2564	648.6466	221.4078	321.5832	242.2414
666	IDH2	1.7703	0.0480	78.9146	57.6308	92.2096	42.2914	56.1906	30.7376
667	POLR2L	1.7696	0.0373	817.2738	391.5940	833.0657	466.0344	371.7226	316.1580
668	ZBED1	1.7662	0.0396	489.8955	861.5069	372.0179	275.3086	391.6054	308.8395
669	GZF1	1.7589	0.0319	407.0742	673.0984	565.9759	220.5785	431.3711	283.9567
670	FNDC4	1.7571	0.0156	959.4763	762.5001	1173.2872	508.3257	720.1044	419.3485
671	TMEM102	1.7513	0.0266	62.5066	72.4080	44.5150	41.4621	30.2565	30.7376
672	ITPK1	1.7491	0.0028	243.7757	259.3387	209.8562	156.7269	137.4509	113.4363
673	SAT1	1.7467	0.0219	2304.9309	2653.2344	2988.8617	1183.3292	2179.3315	1187.0562

674	SH2D3C	1.7395	0.0330	89.0719	75.3634	50.8742	38.9744	51.8683	32.9331
675	RRAS	1.7391	0.0292	277.3730	164.0262	178.0598	114.4355	149.5535	92.2128
676	IFITM3	1.7361	0.0295	1826.7554	1165.9159	1627.9757	765.3910	1239.6515	656.4670
677	ARAP3	1.7345	0.0313	119.5439	103.4399	73.1317	56.3885	72.6156	41.7153
678	NLGN3	1.7317	0.0359	179.7065	115.2616	79.4910	76.2903	72.6156	67.3299
679	GNG7	1.7273	0.0442	118.7625	68.7137	130.3652	63.0224	68.2932	52.6930
680	THAP2	1.7270	0.0166	87.5092	122.6502	85.8503	51.4130	66.5643	53.4248
681	HOTAIRM1	1.7257	0.0353	142.2025	114.5228	222.5748	84.5827	104.6010	88.5535
682	TIMP2	1.7152	0.0187	993.0736	1228.7187	1144.6704	460.2297	882.6249	619.8746
683	USP36	1.7110	0.0299	777.4259	381.9889	492.8442	364.8668	305.1583	295.6663
684	EZR	1.7068	0.0036	2145.5391	2407.1951	3090.6102	1359.1287	1721.1619	1397.8282
685	CRY1	1.6957	0.0264	131.2639	208.3576	130.3652	76.2903	107.1944	93.6764
686	PLXNA3	1.6955	0.0416	193.7705	150.7268	104.9281	105.3138	96.8208	62.9389
687	PXDN	1.6884	0.0383	112.5119	96.0514	92.2096	52.2423	81.2603	44.6427
688	PALLD	1.6809	0.0442	526.6181	797.9652	680.4430	265.3576	545.4812	382.0243
689	DMTN	1.6791	0.0208	185.1758	159.5930	228.9341	141.8005	95.9563	103.9223
690	NR1H3	1.6754	0.0269	202.3651	124.1279	178.0598	104.4846	113.2457	83.4306
691	ACTB	1.6722	0.0268	6443.6493	5180.8631	9465.7886	4046.7041	5038.1373	3527.5036
692	OAZ1	1.6720	0.0263	2293.9923	2031.1171	3691.5622	1441.2237	1865.5285	1487.8454
693	MYADM	1.6571	0.0314	106.2612	79.7965	73.1317	63.0224	45.8170	47.5701
694	DEAF1	1.6530	0.0236	246.9011	190.6250	260.7305	179.1164	126.2128	117.0956
695	C9orf3	1.6512	0.0178	228.9304	285.1987	248.0119	159.2146	186.7257	115.6319
696	EHD3	1.6504	0.0056	173.4558	148.5102	149.4431	103.6553	89.0405	92.9446
697	OTUD1	1.6401	0.0190	207.8345	281.5044	251.1916	128.5326	187.5902	135.3917
698	AGPAT2	1.6329	0.0288	217.2104	149.9879	213.0359	128.5326	133.1285	93.6764
699	SAMHD1	1.6304	0.0497	529.7435	681.2259	565.9759	254.5775	516.9537	318.3535
700	NAB2	1.6273	0.0395	175.0185	166.9816	117.6467	104.4846	110.6523	67.3299
701	PACSIN3	1.6193	0.0342	1051.6736	605.1236	957.0717	607.0056	568.8220	438.3765
702	ALDH2	1.6180	0.0271	2625.2773	1789.5109	1713.8260	1178.3538	1562.9637	1046.5415
703	NSDHL	1.6155	0.0174	352.3810	532.7157	387.9161	289.4057	273.1729	225.4089
704	GGT5	1.6123	0.0464	396.9169	311.0587	521.4610	268.6746	304.2938	189.5484
705	CDADC1	1.6089	0.0325	143.7652	164.7650	213.0359	98.6799	95.9563	129.5370
706	SOD1	1.6086	0.0072	3413.6418	3475.5819	4705.8674	2521.7269	2574.3948	2112.1111
707	VMP1	1.6029	0.0331	954.0070	942.0423	661.3651	416.2798	683.7966	495.4606
708	FZR1	1.5978	0.0400	497.7088	311.0587	321.1437	287.7472	215.2533	204.1854
709	BLVRB	1.5876	0.0320	298.4690	212.7907	317.9640	205.6522	170.3008	146.3694
710	OLFM1	1.5853	0.0476	114.8559	167.7205	155.8024	87.8997	113.2457	75.3803
711	TMEM55B	1.5808	0.0236	332.8477	358.3455	273.4490	252.9190	191.9126	165.3975
712	GSTA4	1.5743	0.0167	4096.5264	4022.3358	3761.5143	2085.5452	3238.3086	2222.6200
713	TAGLN2	1.5733	0.0162	799.3032	654.6270	947.5328	571.3482	519.5471	435.4491
714	STAT5A	1.5640	0.0291	515.6795	413.7597	356.1197	336.6725	253.2900	231.9956
715	GSTA3	1.5499	0.0142	321.9090	275.5935	219.3952	177.4579	179.8100	169.7886
716	MEPCE	1.5387	0.0130	603.1887	471.3906	581.8741	402.1827	359.6200	314.6943
717	NGFRAP1	1.5358	0.0172	2593.2426	2002.3016	2899.8318	1776.2377	1677.9383	1426.3702
718	FSTL1	1.5330	0.0400	2712.0052	2453.7431	3061.9934	1352.4947	2312.4601	1702.2767
719	VAPB	1.5309	0.0325	705.5433	820.8698	562.7963	362.3790	517.8182	484.4829
720	ARMCX2	1.5199	0.0379	593.8127	884.4115	553.2574	425.4015	486.6972	424.4714
721	GLUL	1.5186	0.0178	1168.0921	1197.6867	1634.3350	805.1946	935.3577	893.5855
722	QDPR	1.5134	0.0102	453.9542	530.4991	543.7185	334.1848	372.5870	302.9848
723	FTH1	1.5055	0.0372	1673.6143	1652.0836	1488.0716	1367.4211	995.0062	835.0377
724	DAZAP1	1.5054	0.0312	973.5403	721.1241	775.8322	658.4187	509.1734	473.5052

D1, D2 and D3: Disease affected-adrenals; C1, C2 and C3: Disease non-affected control tissues.

Table S2. Down-regulated genes in primary aldosteronism

Rank	Gene	Fold change	*P* value	D1	D2	D3	C1	C2	C3
1	HAS2	0.0507	0.0014	0.0000	3.6943	0.0000	9.1217	48.4104	15.3688
2	HOXD10	0.0560	0.0449	0.0000	0.7389	0.0000	4.1462	1.7289	7.3185
3	DDX50P1	0.0573	0.0332	0.0000	0.7389	0.0000	3.3170	5.1868	4.3911
4	GALNT5	0.0587	0.0063	0.0000	2.2166	0.0000	4.1462	23.3407	10.2459
5	PTPRT	0.0627	0.0044	1.5627	0.0000	0.0000	9.9509	6.9158	8.0503
6	IGFL4	0.0707	0.0000	11.7200	2.9554	0.0000	82.0950	54.4617	70.9892
7	IGFN1	0.0731	0.0010	3.9067	2.9554	0.0000	45.6083	4.3224	43.9108
8	RIMKLBP2	0.0923	0.0024	0.7813	2.2166	0.0000	10.7802	7.7802	13.9051
9	RP11-219B17.1	0.0925	0.0087	0.7813	1.4777	0.0000	9.1217	4.3224	10.9777
10	HEXA-AS1	0.0932	0.0396	0.0000	1.4777	0.0000	5.8047	3.4579	6.5866
11	DHRS9	0.0942	0.0374	1.5627	0.0000	0.0000	5.8047	3.4579	7.3185
12	PTPN20CP	0.1011	0.0457	1.5627	0.0000	0.0000	4.1462	6.9158	4.3911
13	AC018766.6	0.1025	0.0445	1.5627	0.0000	0.0000	5.8047	4.3224	5.1229
14	COL11A1	0.1067	0.0001	48.4426	13.2994	34.9760	421.2553	51.8683	433.2536
15	RP5-1184F4.5	0.1084	0.0158	1.5627	0.7389	0.0000	5.8047	5.1868	10.2459
16	CLRN1-AS1	0.1088	0.0278	2.3440	0.0000	0.0000	4.9755	7.7802	8.7822
17	QRFPR	0.1138	0.0026	2.3440	1.4777	3.1796	33.1697	3.4579	24.8828
18	RP11-701H24.3	0.1195	0.0253	0.7813	1.4777	0.0000	5.8047	4.3224	8.7822
19	RP11-164N3.3	0.1210	0.0293	1.5627	0.7389	0.0000	3.3170	6.9158	8.7822
20	ANGPT2	0.1225	0.0007	4.6880	4.4331	0.0000	28.1942	10.3737	35.8605
21	SP5	0.1235	0.0059	2.3440	2.2166	0.0000	19.9018	6.0513	10.9777
22	HS6ST3	0.1258	0.0130	0.7813	5.9109	0.0000	22.3896	5.1868	25.6147
23	CLIC6	0.1306	0.0230	2.3440	0.7389	0.0000	12.4386	6.0513	5.1229
24	RP11-171A24.3	0.1366	0.0280	4.6880	2.9554	0.0000	38.1452	1.7289	16.1006
25	CABP7	0.1374	0.0039	26.5653	68.7137	0.0000	368.1837	78.6669	246.6325
26	SEMA3D	0.1397	0.0005	55.4746	69.4525	9.5389	332.5263	78.6669	551.0810
27	PRSS35	0.1405	0.0009	27.3466	10.3440	15.8982	165.8485	17.2894	198.3306
28	RP11-673E1.1	0.1410	0.0483	1.5627	0.7389	0.0000	4.1462	7.7802	4.3911
29	HOXA11	0.1420	0.0135	3.1253	2.9554	12.7186	65.5102	1.7289	65.1344
30	LMAN1L	0.1445	0.0483	11.7200	1.4777	0.0000	58.8762	1.7289	30.7376
31	RP11-134K13.2	0.1475	0.0121	1.5627	2.9554	0.0000	14.9264	6.9158	8.7822
32	AP000688.29	0.1557	0.0007	6.2507	5.1720	0.0000	34.8282	17.2894	21.2236
33	SPACA6P-AS	0.1559	0.0328	1.5627	1.4777	0.0000	7.4632	6.9158	5.1229
34	NDNF	0.1562	0.0003	11.7200	8.1274	3.1796	66.3394	18.1539	62.9389
35	RP11-276H19.1	0.1625	0.0128	4.6880	1.4777	0.0000	14.9264	6.9158	16.1006
36	CDKL5	0.1636	0.0357	2.3440	2.9554	0.0000	10.7802	2.5934	19.0280
37	ENPP6	0.1769	0.0253	11.7200	5.1720	0.0000	47.2668	4.3224	43.9108
38	HIST2H2BA	0.1847	0.0106	7.0320	8.1274	0.0000	40.6329	7.7802	33.6650
39	PCDHB12	0.1908	0.0157	3.1253	3.6943	0.0000	14.9264	6.9158	13.9051
40	MAL2	0.1925	0.0058	3.9067	5.9109	0.0000	20.7311	11.2381	19.0280
41	RP1-78O14.1	0.1933	0.0163	0.0000	0.7389	3.1796	6.6339	7.7802	5.8548
42	SLC9A2	0.1933	0.0020	0.7813	3.6943	15.8982	30.6820	24.2052	50.4975
43	RP11-384P7.7	0.1998	0.0327	1.5627	4.4331	0.0000	7.4632	8.6447	13.9051
44	RP3-468K18.6	0.2013	0.0351	3.1253	2.2166	0.0000	12.4386	6.0513	8.0503
45	AP001468.1	0.2048	0.0449	3.1253	2.9554	0.0000	16.5849	4.3224	8.7822
46	RP11-61A14.2	0.2052	0.0279	2.3440	5.9109	0.0000	6.6339	13.8315	19.7599
47	KCNA4	0.2056	0.0001	52.3493	39.8983	38.1557	288.5764	73.4800	272.2472
48	RELN	0.2066	0.0165	48.4426	106.3954	143.0838	620.2735	25.9341	795.5179
49	ATP2B2	0.2134	0.0028	7.8133	17.7326	54.0539	175.7994	44.9525	152.2242
50	DDIT4L	0.2269	0.0059	7.0320	5.1720	3.1796	29.0235	9.5092	29.2739

51	CDKL2	0.2303	0.0071	3.1253	7.3886	3.1796	15.7556	12.9671	30.7376
52	RORB	0.2317	0.0004	53.9119	59.1085	22.2575	213.1154	79.5313	291.2752
53	ZNF442	0.2352	0.0298	3.1253	5.1720	0.0000	14.9264	8.6447	11.7096
54	SIGLEC8	0.2374	0.0035	14.0640	19.9491	3.1796	30.6820	86.4471	39.5198
55	TMEM252	0.2425	0.0481	8.5947	8.1274	0.0000	25.7065	5.1868	38.0561
56	RP11-414J4.2	0.2466	0.0164	39.0666	15.5160	12.7186	174.9702	18.1539	79.7713
57	C9orf84	0.2469	0.0000	83.6026	87.9239	117.6467	443.6448	172.8942	554.7402
58	SCAND3	0.2470	0.0378	4.6880	13.2994	0.0000	28.1942	9.5092	35.1287
59	LGR5	0.2476	0.0028	10.1573	28.8154	9.5389	88.7290	31.1210	76.1121
60	AC011290.5	0.2556	0.0473	4.6880	2.9554	0.0000	11.6094	9.5092	8.7822
61	C11orf45	0.2585	0.0036	22.6586	22.9046	12.7186	106.9723	23.3407	95.1401
62	GRM3	0.2603	0.0141	33.5973	19.9491	0.0000	94.5337	42.3591	68.7936
63	SSTR1	0.2613	0.0342	4.6880	1.4777	41.3353	71.3149	47.5459	62.9389
64	DPY19L2P2	0.2620	0.0006	14.0640	12.5606	15.8982	65.5102	25.0697	71.7210
65	PCDHGA12	0.2667	0.0196	30.4720	22.1657	0.0000	73.8026	32.8499	90.7491
66	ADRA2A	0.2713	0.0060	15.6267	18.4714	0.0000	41.4621	33.7144	50.4975
67	ATP2B3	0.2719	0.0007	119.5439	64.2805	190.7784	655.1017	215.2533	507.1701
68	KCND3	0.2772	0.0029	22.6586	22.9046	95.3892	142.6297	119.2970	246.6325
69	INE1	0.2805	0.0268	7.8133	6.6497	0.0000	18.2433	12.1026	21.2236
70	PACSIN1	0.2836	0.0436	4.6880	8.8663	0.0000	22.3896	12.9671	12.4414
71	DNAH7	0.2836	0.0342	4.6880	8.8663	0.0000	14.9264	13.8315	19.0280
72	RANBP3L	0.2854	0.0158	4.6880	11.8217	6.3593	38.1452	11.2381	30.7376
73	RP11-1109F11.3	0.2887	0.0222	3.9067	3.6943	3.1796	14.9264	7.7802	14.6369
74	RPL39L	0.2895	0.0348	2.3440	5.9109	3.1796	15.7556	6.9158	16.8325
75	GML	0.2966	0.0410	287.5304	16.9937	222.5748	900.5575	267.1216	609.6287
76	MEGF10	0.2970	0.0064	35.9413	121.1725	28.6168	220.5785	120.1615	284.6886
77	CRLF1	0.3016	0.0094	7.8133	16.9937	9.5389	27.3650	63.1064	23.4191
78	ESM1	0.3028	0.0203	7.0320	12.5606	3.1796	31.5112	12.9671	30.7376
79	KCNK1	0.3050	0.0001	14.0640	19.9491	28.6168	86.2412	46.6814	72.4529
80	FSIP2	0.3051	0.0055	10.9387	19.9491	6.3593	37.3159	27.6631	57.0841
81	AC007392.3	0.3069	0.0231	14.0640	9.6051	9.5389	48.9253	9.5092	49.7656
82	PDE2A	0.3071	0.0240	1272.0093	361.3009	1275.0357	5180.2788	636.2507	3654.8451
83	GPR63	0.3087	0.0061	12.5013	9.6051	6.3593	32.3405	18.1539	41.7153
84	SYTL2	0.3097	0.0010	150.7972	143.3382	225.7544	660.0771	223.8980	794.7861
85	ANO4	0.3153	0.0092	107.8239	125.6056	22.2575	318.4292	143.5022	349.0911
86	RP11-169D4.1	0.3159	0.0162	13.2827	13.2994	3.1796	30.6820	18.1539	45.3745
87	HTR2B	0.3188	0.0000	32.0346	28.8154	54.0539	130.1911	89.0405	141.2465
88	KIAA1210	0.3198	0.0121	32.8160	11.8217	6.3593	55.5593	38.0367	65.8663
89	AC0T11	0.3223	0.0017	41.4106	26.5988	34.9760	145.1175	49.2748	125.1459
90	GRIN2C	0.3250	0.0234	46.0986	34.7263	108.1078	336.6725	49.2748	195.4032
91	ARRDC4	0.3258	0.0000	107.0426	91.6182	82.6706	281.9425	232.5427	349.0911
92	EDA2R	0.3263	0.0000	53.9119	68.7137	60.4132	199.0182	159.9271	201.9898
93	CPEB1	0.3288	0.0310	10.1573	15.5160	3.1796	37.3159	13.8315	36.5924
94	COL27A1	0.3292	0.0009	386.7596	136.6885	333.8622	1151.8180	591.2982	861.3842
95	MED12L	0.3323	0.0003	30.4720	26.5988	25.4371	101.9968	51.8683	94.4083
96	CLRN1	0.3340	0.0222	26.5653	11.8217	104.9281	122.7279	146.0956	160.2745
97	DHFR	0.3361	0.0019	34.3786	28.8154	15.8982	73.8026	51.0038	110.5089
98	AC011242.6	0.3388	0.0032	5.4693	12.5606	12.7186	34.8282	25.9341	30.0057
99	RELL2	0.3440	0.0272	37.5040	11.0829	28.6168	132.6788	30.2565	61.4752
100	INPP4B	0.3456	0.0002	49.2239	73.1468	79.4910	185.7504	130.5351	267.8561
101	ZNF92	0.3463	0.0000	37.5040	46.5480	44.5150	97.0214	113.2457	161.0064
102	NHSL2	0.3465	0.0320	7.8133	8.1274	3.1796	24.0480	12.1026	19.0280
103	AF131215.2	0.3502	0.0074	15.6267	22.1657	6.3593	36.4867	35.4433	54.1567

104	CBX3P9	0.3554	0.0197	15.6267	17.7326	3.1796	31.5112	25.9341	45.3745
105	SLC5A8	0.3569	0.0126	35.1600	35.4651	12.7186	87.8997	38.0367	107.5815
106	BHLHE41	0.3592	0.0003	71.1013	142.5993	114.4670	311.7952	216.1178	385.6835
107	DSP	0.3616	0.0051	364.8823	175.1090	286.1676	883.1434	325.0411	1076.5473
108	PGM5-AS1	0.3619	0.0004	71.1013	62.0640	79.4910	260.3822	110.6523	216.6268
109	ADAMTSL1	0.3622	0.0001	103.1359	130.7776	193.9580	503.3503	274.0373	403.9797
110	RP11-284F21.10	0.3624	0.0116	27.3466	25.8600	28.6168	110.2893	27.6631	87.8217
111	VSNL1	0.3645	0.0005	215.6478	162.5485	305.2455	723.0996	370.8581	780.8810
112	HSD3BP1	0.3661	0.0446	6.2507	6.6497	3.1796	14.9264	17.2894	11.7096
113	GYLTL1B	0.3718	0.0459	32.0346	8.8663	15.8982	72.1441	19.8828	60.7433
114	ZNF469	0.3727	0.0130	15.6267	17.7326	28.6168	82.9243	23.3407	60.0115
115	RP1-20N2.6	0.3733	0.0169	21.8773	22.1657	3.1796	43.9499	37.1723	45.3745
116	SLC37A2	0.3747	0.0389	735.2339	278.5490	184.4191	1618.6816	354.4331	1224.3804
117	SYN2	0.3759	0.0242	14.8453	32.5097	44.5150	97.0214	30.2565	117.0956
118	PRRX1	0.3770	0.0000	85.1652	87.9239	101.7485	208.9691	236.0006	283.9567
119	LINC00941	0.3773	0.0462	7.0320	10.3440	3.1796	21.5603	19.0184	13.9051
120	ZSCAN20	0.3788	0.0133	11.7200	8.1274	9.5389	27.3650	17.2894	32.9331
121	SLC12A1	0.3804	0.0279	7.0320	13.2994	44.5150	58.0470	36.3078	76.1121
122	SMC4	0.3810	0.0160	65.6319	110.0896	22.2575	158.3853	127.0772	234.1911
123	ANKS1B	0.3819	0.0081	28.1280	29.5543	31.7964	77.1196	37.1723	120.0229
124	BMP4	0.3833	0.0000	71.8826	48.0257	60.4132	173.3117	138.3154	158.8108
125	ZNF214	0.3839	0.0190	9.3760	9.6051	6.3593	27.3650	18.1539	20.4917
126	NOV	0.3878	0.0080	7765.6639	9418.9451	2413.3468	18095.7329	13570.4665	18875.0719
127	NRK	0.3896	0.0000	417.2316	421.1483	292.5269	791.0975	939.6800	1171.6874
128	VCAN	0.3911	0.0344	503.1781	1285.6106	225.7544	1777.8962	1022.6693	2350.6933
129	AC007392.4	0.3915	0.0376	9.3760	3.6943	12.7186	21.5603	12.1026	32.2013
130	RP11-215H22.1	0.3930	0.0007	23.4400	15.5160	25.4371	47.2668	58.7840	57.8159
131	IQGAP2	0.3935	0.0013	171.8932	410.0655	340.2215	746.3184	609.4521	987.9938
132	TMEM132A	0.3935	0.0024	114.0745	60.5862	73.1317	299.3566	145.2311	185.1573
133	FZD7	0.3941	0.0054	14.0640	14.7771	9.5389	32.3405	32.8499	32.2013
134	ZNF629	0.3951	0.0089	46.8800	48.0257	19.0778	123.5572	58.7840	106.1178
135	ZFHX4-AS1	0.3951	0.0495	5.4693	13.2994	6.3593	24.8773	13.8315	24.8828
136	CYB5RL	0.3960	0.0471	39.0666	33.9874	3.1796	75.4611	47.5459	69.5255
137	NR1D2	0.3968	0.0026	134.3892	177.3256	98.5688	322.5754	210.0665	501.3154
138	ESR2	0.3978	0.0062	48.4426	43.5925	50.8742	150.9222	55.3261	152.9561
139	IGSF10	0.4004	0.0339	57.8186	149.2491	28.6168	215.6031	127.0772	245.9007
140	CHML	0.4007	0.0088	37.5040	57.6308	15.8982	80.4365	84.7182	111.9726
141	SNRPN	0.4015	0.0349	13.2827	12.5606	9.5389	14.0971	38.9012	35.1287
142	ETV1	0.4039	0.0004	178.9251	287.4153	228.9341	584.6161	389.0120	747.9479
143	SLC39A10	0.4053	0.0093	178.1438	254.1667	155.8024	582.1283	207.4731	661.5899
144	C15orf27	0.4069	0.0173	41.4106	14.7771	60.4132	128.5326	66.5643	91.4809
145	ZNF792	0.4075	0.0212	10.1573	5.1720	15.8982	26.5358	16.4249	33.6650
146	SERINC5	0.4113	0.0111	44.5360	64.2805	104.9281	212.2861	85.5826	221.7497
147	P2RX7	0.4132	0.0430	27.3466	28.8154	9.5389	73.8026	25.9341	59.2796
148	ADAMTS3	0.4158	0.0235	15.6267	12.5606	6.3593	26.5358	25.0697	31.4694
149	TMEM30B	0.4159	0.0262	32.0346	14.0383	34.9760	64.6809	32.8499	97.3357
150	ARHGAP20	0.4189	0.0040	32.8160	37.6817	15.8982	70.4856	59.6485	76.1121
151	AL390877.1	0.4198	0.0220	19.5333	36.2040	12.7186	43.9499	46.6814	72.4529
152	DDR1	0.4218	0.0095	512.5541	346.5238	381.5568	1452.8331	441.7447	1046.5415
153	DACH1	0.4236	0.0209	75.7893	134.4719	50.8742	230.5295	106.3299	279.5656
154	VAT1L	0.4245	0.0304	188.3011	752.8950	267.0898	1051.4797	644.0309	1151.1957
155	ENC1	0.4250	0.0184	16.4080	48.0257	41.3353	107.8015	56.1906	84.8943
156	AGTR1	0.4255	0.0017	411.7622	369.4283	228.9341	903.8745	510.0379	960.1836

157	CPVL	0.4286	0.0110	73.4453	65.0194	22.2575	99.5091	135.7220	139.7828
158	DUSP4	0.4292	0.0045	54.6933	73.8857	152.6227	224.7248	182.4034	248.0962
159	ZNF711	0.4303	0.0001	277.3730	417.4540	375.1975	682.4667	803.0936	1001.1670
160	TMEM200A	0.4336	0.0083	126.5759	232.0010	327.5029	542.3247	343.1950	696.7186
161	ZKSCAN4	0.4349	0.0327	30.4720	14.0383	9.5389	43.1206	42.3591	38.7879
162	KLHL5	0.4350	0.0312	126.5759	220.9182	66.7724	325.0631	172.0297	455.2090
163	PEG10	0.4372	0.0006	3674.6069	6143.5934	6887.1005	12262.0109	10376.2460	15572.9772
164	KCNJ5	0.4382	0.0129	958.6950	743.2898	1748.8021	3307.0197	1441.0732	3126.4514
165	AXIN2	0.4390	0.0012	72.6639	47.2868	57.2335	171.6532	119.2970	112.7045
166	SYTL5	0.4394	0.0004	119.5439	166.9816	181.2395	271.9916	447.7960	344.7000
167	LRRN3	0.4411	0.0072	141.4212	305.8867	139.9042	411.3044	348.3818	571.5727
168	C14orf37	0.4428	0.0092	63.2879	76.1022	92.2096	174.9702	93.3629	254.6828
169	MYEF2	0.4433	0.0012	201.5838	233.4787	120.8263	435.3524	327.6345	491.0695
170	PTPN13	0.4491	0.0153	150.7972	225.3513	85.8503	419.5968	210.9309	398.1249
171	COL4A3	0.4500	0.0021	383.6343	352.4346	225.7544	808.5116	477.1880	851.8702
172	RP11-134E15.2	0.4505	0.0352	6.2507	8.8663	9.5389	17.4141	19.0184	18.2962
173	BAMBI	0.4508	0.0005	369.5703	354.6512	232.1137	851.6322	548.9391	720.8695
174	C3orf52	0.4521	0.0361	11.7200	4.4331	15.8982	28.1942	20.7473	21.9554
175	PIGM	0.4543	0.0089	46.8800	66.4971	31.7964	106.9723	78.6669	133.9280
176	QPCT	0.4546	0.0144	843.0578	2136.0347	1602.5386	3425.6014	2098.0712	4555.0171
177	ANKRD50	0.4546	0.0488	42.9733	90.1405	25.4371	94.5337	82.9892	171.2523
178	NBEA	0.4557	0.0413	132.8265	248.2558	85.8503	373.9884	167.7074	483.0192
179	PGR	0.4557	0.0018	82.0399	85.7074	79.4910	174.9702	125.3483	242.2414
180	KCTD14	0.4573	0.0414	31.2533	25.1211	9.5389	60.5347	34.5788	49.0338
181	C1orf85	0.4576	0.0317	192.2078	144.8159	168.5209	609.4933	151.2824	343.9682
182	SALL2	0.4584	0.0151	20.3146	26.5988	15.8982	49.7546	34.5788	52.6930
183	HHIP	0.4612	0.0067	39.0666	61.3251	101.7485	115.2647	168.5719	154.4198
184	RIMS2	0.4635	0.0076	739.9219	582.2191	868.0417	1663.4607	865.3355	2197.0054
185	FAM135B	0.4636	0.0121	53.1306	90.1405	38.1557	134.3373	101.1431	155.8835
186	ATP2B1	0.4639	0.0064	90.6346	166.9816	111.2874	239.6511	196.2349	359.3370
187	YEATS4	0.4656	0.0364	57.0373	84.9685	19.0778	102.8261	115.8391	127.3414
188	HOXD3	0.4656	0.0162	62.5066	33.2486	38.1557	131.8496	70.8866	84.8943
189	TXNIP	0.4675	0.0185	4141.8437	2189.2324	2120.8200	7420.0632	3209.7810	7447.2774
190	HSD3B2	0.4677	0.0000	23139.9440	27254.9457	25853.6537	58147.3233	44676.7283	60192.9708
191	OXCT1	0.4679	0.0168	156.2665	190.6250	391.0957	594.5670	342.3305	640.3663
192	PPP1R3C	0.4694	0.0203	39.8480	43.5925	108.1078	140.1420	95.9563	171.9841
193	HFE	0.4705	0.0422	80.4772	91.6182	22.2575	146.7759	104.6010	161.7382
194	ZNF397	0.4715	0.0497	134.3892	144.0771	31.7964	194.0428	195.3705	268.5879
195	CHDH	0.4728	0.0033	39.0666	39.1594	54.0539	122.7279	74.3445	82.6987
196	CDK20	0.4732	0.0141	290.6557	171.4148	136.7245	587.1038	294.7846	383.4879
197	FAT1	0.4746	0.0480	27.3466	19.2103	12.7186	43.9499	26.7986	54.1567
198	ZNF844	0.4748	0.0326	35.9413	43.5925	12.7186	55.5593	64.8353	73.9166
199	DOCK3	0.4751	0.0272	82.0399	70.9302	190.7784	287.7472	150.4180	285.4204
200	ZNF772	0.4764	0.0209	35.9413	48.7645	19.0778	58.8762	72.6156	86.3580
201	TLR6	0.4806	0.0295	17.1893	36.2040	22.2575	39.8036	60.5130	57.0841
202	SYDE2	0.4809	0.0425	11.7200	28.8154	25.4371	32.3405	44.0880	60.7433
203	CUBN	0.4820	0.0025	57.0373	48.7645	38.1557	87.0705	95.9563	115.6319
204	KLHL7	0.4839	0.0322	260.1837	312.5364	101.7485	500.8626	316.3964	576.6956
205	NFASC	0.4845	0.0433	497.7088	282.2433	181.2395	864.9001	349.2463	769.9033
206	ITGA1	0.4877	0.0151	951.6630	1287.8272	620.0298	1837.6017	1288.0619	2737.8405
207	CPB1	0.4882	0.0232	664.9140	390.8552	658.1855	1514.1971	586.9758	1409.5378
208	EML6	0.4903	0.0135	85.9466	101.9622	174.8802	279.4548	158.1982	302.2529
209	KCNK2	0.4906	0.0008	471.9248	749.2007	499.2035	1099.5757	1037.3653	1369.2862
210	ZNF43	0.4911	0.0300	53.1306	75.3634	25.4371	89.5582	95.0918	128.8051

211	ABHD2	0.4912	0.0148	625.0660	903.6217	480.1257	1488.4905	814.3317	1786.4391
212	ANK2	0.4923	0.0208	246.1197	248.2558	298.8862	631.0537	255.8834	724.5288
213	SYNGAP1	0.4933	0.0269	182.8318	99.0068	133.5449	413.7921	162.5206	265.6605
214	SV2B	0.4936	0.0233	28.1280	34.7263	19.0778	63.0224	41.4946	61.4752
215	UGCG	0.4939	0.0009	823.5245	1332.8975	1297.2932	2308.6115	1989.1479	2694.6615
216	RORA	0.4944	0.0185	979.0097	1227.9798	848.9639	2054.8633	1097.8782	3028.3838
217	RP11-617D20.1	0.4953	0.0157	50.0053	52.4588	41.3353	119.4109	59.6485	111.2408
218	JAM2	0.4962	0.0135	179.7065	387.8998	174.8802	456.0835	541.1589	499.1198
219	SAMD3	0.4974	0.0298	20.3146	16.2548	54.0539	55.5593	71.7511	54.8885
220	RBM43	0.4978	0.0432	103.1359	158.8542	63.5928	173.3117	152.1469	328.5994
221	TMEM87B	0.4987	0.0066	192.9891	219.4404	127.1856	354.9159	264.5281	462.5274
222	MCTP2	0.4990	0.0281	48.4426	39.1594	95.3892	144.2882	76.0735	146.3694
223	OXR1	0.4994	0.0246	445.3595	795.7487	413.3532	1116.1606	663.0493	1533.9518
224	PHF7	0.5005	0.0086	28.9093	22.1657	28.6168	58.0470	44.0880	57.0841
225	ATRNL1	0.5006	0.0095	257.8397	292.5873	187.5988	505.8380	315.5319	652.8077
226	NFATC3	0.5010	0.0480	30.4720	38.4205	15.8982	63.0224	38.9012	67.3299
227	SLIT2	0.5021	0.0014	438.3275	503.1614	365.6586	893.0943	644.0309	1066.3014
228	SLC4A2	0.5022	0.0097	260.9651	184.7142	136.7245	505.0088	298.2425	356.4096
229	RP11-2E17.1	0.5032	0.0422	92.9786	144.0771	305.2455	429.5477	260.2058	387.8790
230	ZFP62	0.5047	0.0224	114.0745	125.6056	44.5150	184.9211	179.8100	198.3306
231	ACSS3	0.5054	0.0046	344.5676	469.9129	238.4730	661.7356	604.2653	817.4734
232	FRK	0.5059	0.0443	28.9093	59.8474	47.6946	87.0705	55.3261	127.3414
233	WEE1	0.5060	0.0285	56.2559	34.7263	63.5928	101.9968	62.2419	141.2465
234	ARHGAP42	0.5060	0.0194	20.3146	39.8983	34.9760	62.1932	52.7327	73.1847
235	MICAL3	0.5063	0.0450	157.0478	93.0959	101.7485	291.0642	109.7878	294.2026
236	MKL2	0.5064	0.0382	117.1999	149.2491	76.3114	243.7973	122.7549	310.3032
237	ZFHX4	0.5069	0.0055	132.8265	220.9182	149.4431	344.1357	253.2900	395.1975
238	FAM175A	0.5072	0.0328	25.7840	33.9874	19.0778	58.8762	38.0367	58.5478
239	CCND1	0.5078	0.0037	281.2797	328.7912	537.3592	755.4400	656.1335	848.2109
240	PEX12	0.5081	0.0015	46.8800	52.4588	44.5150	94.5337	89.0405	99.5312
241	CKAP2	0.5088	0.0099	58.5999	86.4462	54.0539	121.0694	106.3299	163.9338
242	ASTN1	0.5096	0.0157	200.8025	390.8552	505.5628	784.4635	592.1627	776.4899
243	HHAT	0.5107	0.0338	72.6639	59.8474	25.4371	111.1185	84.7182	113.4363
244	USP34	0.5112	0.0459	225.0238	410.0655	143.0838	446.9618	373.4515	701.8415
245	LRRC16A	0.5119	0.0025	67.9759	89.4017	57.2335	129.3619	143.5022	146.3694
246	ZNF480	0.5140	0.0478	43.7546	60.5862	28.6168	53.0715	104.6010	100.9949
247	TSPAN13	0.5141	0.0104	293.7810	470.6517	594.5927	841.6813	683.7966	1118.2626
248	WLS	0.5164	0.0035	464.8929	541.5820	343.4011	990.1157	644.0309	979.9434
249	GPNMB	0.5170	0.0242	114.8559	186.1919	111.2874	269.5039	169.4363	358.6051
250	TSR1	0.5183	0.0404	100.0106	115.2616	38.1557	167.5070	134.8575	186.6210
251	C6orf211	0.5194	0.0195	92.1972	175.8479	114.4670	228.8710	184.1323	323.4765
252	COL4A5	0.5195	0.0360	57.8186	77.5800	85.8503	165.0193	73.4800	187.3529
253	SRPX	0.5198	0.0051	287.5304	223.8736	235.2934	594.5670	325.9056	515.9523
254	LMO3	0.5210	0.0269	41.4106	84.2297	76.3114	89.5582	153.8758	144.1739
255	ANKRD26	0.5213	0.0191	41.4106	58.3697	54.0539	67.1687	97.6852	130.2688
256	ZNF320	0.5217	0.0324	86.7279	128.5611	47.6946	149.2637	152.1469	202.7217
257	EGLN1	0.5225	0.0044	368.7890	547.4928	346.5808	774.5126	650.9467	991.6530
258	FLRT2	0.5236	0.0295	155.4852	350.9569	149.4431	371.5007	434.8289	446.4268
259	RAB30	0.5242	0.0211	200.8025	226.8290	193.9580	346.6234	246.3742	592.7963
260	ETV4	0.5260	0.0285	26.5653	24.3823	19.0778	52.2423	40.6301	40.2516
261	ZNF551	0.5287	0.0446	19.5333	22.9046	15.8982	29.8527	38.0367	42.4471
262	REST	0.5287	0.0351	99.2292	152.2045	54.0539	170.8240	191.0481	215.8949
263	KIF2A	0.5292	0.0318	46.8800	65.7582	34.9760	75.4611	81.2603	122.2185
264	RP11-597D13.9	0.5296	0.0424	50.7866	61.3251	28.6168	63.8517	89.9050	111.9726

265	FAM13C	0.5308	0.0345	85.9466	88.6628	47.6946	163.3608	90.7695	164.6656
266	CCT6P1	0.5313	0.0232	38.2853	31.0320	22.2575	52.2423	57.9196	62.2070
267	ACPL2	0.5313	0.0270	60.9439	81.2742	47.6946	134.3373	80.3958	142.7102
268	ZNF175	0.5329	0.0403	41.4106	42.1148	22.2575	55.5593	58.7840	84.1624
269	ZNF510	0.5330	0.0258	61.7253	100.4845	50.8742	120.2402	114.1102	165.3975
270	DAB2	0.5343	0.0100	1505.6278	1200.6421	2267.0834	3022.5894	2531.1712	3755.1081
271	TMEM2	0.5380	0.0415	78.1333	81.2742	31.7964	137.6543	102.8721	114.9000
272	MGA	0.5386	0.0065	158.6105	223.1347	127.1856	276.1378	313.8030	354.9459
273	SCRN1	0.5404	0.0161	238.3064	423.3649	435.6107	732.2213	495.3419	802.8364
274	SERBP1P1	0.5406	0.0262	42.1920	55.4143	28.6168	80.4365	67.4287	85.6261
275	SLC30A1	0.5444	0.0301	201.5838	399.7215	308.4251	471.0098	428.7776	771.3670
276	WDFY3	0.5448	0.0391	330.5037	472.1294	222.5748	592.9085	430.5066	858.4568
277	LRRC8D	0.5459	0.0013	269.5597	301.4535	317.9640	524.9106	442.6092	660.8580
278	TRUB1	0.5476	0.0443	251.5891	329.5301	219.3952	526.5691	261.9347	673.2995
279	CEP85L	0.5482	0.0294	145.3278	216.4850	111.2874	275.3086	214.3888	373.2421
280	TMEM246	0.5501	0.0347	81.2586	130.0388	168.5209	272.8208	151.2824	266.3924
281	CCDC113	0.5510	0.0105	41.4106	39.8983	34.9760	76.2903	67.4287	67.3299
282	PLXNC1	0.5522	0.0429	72.6639	124.1279	50.8742	150.0929	132.2641	166.1293
283	TNIK	0.5540	0.0113	75.0079	113.7839	120.8263	190.7258	147.8245	220.2860
284	NTN4	0.5551	0.0021	204.7091	231.2621	187.5988	405.4997	299.9715	417.8848
285	ZNF12	0.5589	0.0335	129.7012	183.9753	92.2096	175.7994	267.9860	282.4930
286	WDR3	0.5592	0.0088	204.7091	222.3959	165.3413	365.6960	261.9347	431.7899
287	ELF4	0.5593	0.0398	47.6613	25.1211	57.2335	93.7044	64.8353	73.9166
288	SOX13	0.5624	0.0259	192.2078	135.2108	104.9281	325.0631	206.6086	237.1185
289	PDCD4	0.5632	0.0016	203.1465	246.0393	197.1377	361.5498	344.0595	442.0357
290	HMGN5	0.5641	0.0271	96.1039	130.7776	89.0299	147.6052	159.9271	252.4873
291	SNCAIP	0.5648	0.0224	24.2213	20.6880	44.5150	50.5838	53.5972	54.1567
292	TMEM38B	0.5659	0.0470	136.7332	235.6953	139.9042	291.8934	205.7441	407.6389
293	ZNF449	0.5665	0.0280	132.8265	144.8159	79.4910	180.7749	183.2679	266.3924
294	ZNF75D	0.5689	0.0107	394.5729	295.5427	295.7065	635.1999	419.2685	678.4224
295	FAS	0.5713	0.0171	167.9865	179.5422	111.2874	207.3107	306.0228	289.8115
296	GPRC5B	0.5731	0.0473	222.6798	181.0199	349.7604	553.1048	280.0886	481.5555
297	H1F0	0.5735	0.0200	396.1356	469.9129	292.5269	835.8766	487.5617	696.7186
298	TPR	0.5736	0.0335	427.3889	502.4226	228.9341	608.6641	612.9100	798.4453
299	FUT8	0.5774	0.0333	58.5999	84.2297	57.2335	126.8741	86.4471	133.1962
300	PHLPP1	0.5783	0.0103	396.1356	336.1798	454.6885	781.1466	492.7485	778.6855
301	PFKFB2	0.5800	0.0188	144.5465	133.7331	197.1377	284.4302	197.0994	338.1134
302	ERV3-1	0.5800	0.0429	232.8371	289.6318	343.4011	583.7868	291.3267	617.6791
303	MIEF1	0.5808	0.0014	136.7332	130.0388	139.9042	246.2851	206.6086	247.3644
304	LDLRAD4	0.5823	0.0145	92.9786	135.9496	89.0299	166.6778	178.0810	201.2580
305	LRRFIP1	0.5839	0.0126	217.9918	284.4598	193.9580	381.4516	326.7701	484.4829
306	NOTCH2	0.5841	0.0141	401.6049	452.1803	381.5568	735.5382	494.4774	884.8033
307	SNHG14	0.5848	0.0070	553.1834	540.1042	553.2574	965.2384	692.4413	1157.7823
308	FAM178A	0.5853	0.0228	346.1303	540.8431	467.4071	738.8552	579.1956	996.0441
309	PEAK1	0.5866	0.0100	134.3892	150.7268	171.7006	229.7002	220.4401	328.5994
310	CCDC170	0.5879	0.0459	76.5706	79.7965	152.6227	185.7504	130.5351	209.3083
311	MCOLN3	0.5883	0.0163	941.5057	1585.5865	972.9699	1714.8738	2087.6976	2147.2398
312	ZNF197	0.5887	0.0053	89.0719	109.3508	98.5688	148.4344	178.9455	177.1070
313	NAV3	0.5890	0.0477	94.5412	149.2491	76.3114	165.0193	158.1982	220.2860
314	EXTL2	0.5890	0.0383	378.1649	441.8363	248.0119	596.2255	442.6092	774.2944
315	ST6GALNAC5	0.5895	0.0222	78.1333	133.7331	104.9281	158.3853	199.6928	179.3026
316	COL5A1	0.5911	0.0413	221.1171	128.5611	165.3413	372.3299	213.5243	285.4204
317	TMEM99	0.5925	0.0370	35.9413	41.3760	31.7964	54.7300	61.3774	68.0618

318	RFWD3	0.5931	0.0265	54.6933	78.3188	60.4132	96.1921	101.1431	128.8051
319	IFT81	0.5937	0.0133	86.7279	119.6948	92.2096	174.9702	144.3667	183.6937
320	STAG3L4	0.5958	0.0475	103.1359	72.4080	101.7485	179.1164	101.1431	185.1573
321	RALBP1	0.5959	0.0206	276.5917	316.2307	254.3712	541.4954	327.6345	552.5447
322	UNC119B	0.5975	0.0265	305.5010	288.1541	317.9640	562.2265	331.0924	632.3160
323	SGCD	0.5994	0.0370	66.4133	114.5228	111.2874	137.6543	153.0114	196.8669
324	SGCE	0.5999	0.0296	652.4127	705.6081	362.4790	1029.0901	867.0645	971.8931
325	MYLIP	0.6001	0.0076	121.8879	175.8479	178.0598	253.7482	280.0886	259.0739
326	ZNF671	0.6025	0.0439	43.7546	44.3314	41.3353	56.3885	88.1760	70.2573
327	SRCAP	0.6044	0.0413	432.8582	311.7975	270.2694	712.3194	401.9790	564.9861
328	C3orf58	0.6047	0.0498	50.0053	82.7519	114.4670	124.3864	127.0772	157.3472
329	ZNF117	0.6048	0.0106	848.5271	970.1188	788.5507	1240.5470	1232.7357	1837.6684
330	PGM5	0.6051	0.0150	1043.0789	1304.8209	1367.2452	2385.7311	1494.6704	2259.2124
331	SPRY3	0.6060	0.0427	34.3786	25.8600	44.5150	63.8517	47.5459	61.4752
332	AASS	0.6095	0.0397	106.2612	169.9370	117.6467	193.2135	185.8613	267.1242
333	CCDC66	0.6136	0.0249	84.3839	91.6182	63.5928	116.9232	127.9417	145.6376
334	MED1	0.6152	0.0372	107.0426	166.2428	111.2874	180.7749	196.2349	248.0962
335	SMC3	0.6170	0.0472	130.4825	224.6124	146.2634	233.8464	251.5611	327.1357
336	STK33	0.6182	0.0186	135.9519	105.6565	101.7485	198.1890	158.1982	199.0624
337	SLC12A2	0.6186	0.0486	228.1491	390.1163	295.7065	453.5957	391.6054	632.3160
338	RFX5	0.6200	0.0256	302.3757	230.5233	225.7544	469.3513	308.6162	445.6950
339	NFE2L1	0.6227	0.0496	1584.5424	1785.8166	1287.7542	3094.7335	1606.1872	2779.5558
340	HSP90AB3P	0.6238	0.0488	171.8932	215.7462	114.4670	289.4057	226.4914	289.0797
341	MAGEH1	0.6239	0.0128	139.8585	183.9753	219.3952	312.6245	279.2241	278.8338
342	MMACHC	0.6244	0.0327	33.5973	33.9874	54.0539	65.5102	60.5130	68.7936
343	ZNF521	0.6254	0.0377	184.3945	261.5553	282.9880	432.0354	287.8689	445.6950
344	GIPC2	0.6257	0.0426	318.7837	512.0277	575.5149	669.1988	670.8295	907.4906
345	HAUS3	0.6270	0.0386	81.2586	91.6182	98.5688	111.9478	136.5864	184.4255
346	TGIF1	0.6286	0.0047	144.5465	137.4273	158.9820	216.4323	232.5427	252.4873
347	UTP20	0.6290	0.0122	124.2319	137.4273	143.0838	209.7984	184.1323	249.5599
348	UBE4B	0.6292	0.0203	385.9783	430.0146	324.3233	663.3941	466.8144	682.0816
349	RP5-874C20.3	0.6333	0.0350	84.3839	96.0514	89.0299	109.4600	165.9784	150.0287
350	ANKRA2	0.6333	0.0492	239.0878	226.0901	235.2934	415.4506	241.1874	449.3542
351	ME1	0.6334	0.0471	535.9941	670.1430	686.8023	1019.9684	681.2032	1287.3193
352	DPP10	0.6347	0.0070	203.9278	223.8736	174.8802	306.8198	306.0228	336.6497
353	ACSL1	0.6364	0.0189	418.7942	462.5243	298.8862	594.5670	580.9245	679.1542
354	PHLPP2	0.6372	0.0420	78.9146	84.2297	66.7724	106.1431	109.7878	144.9058
355	DYRK2	0.6389	0.0284	75.0079	93.8348	76.3114	115.2647	127.9417	140.5147
356	MPHOSPH9	0.6391	0.0451	92.9786	110.8285	76.3114	137.6543	127.9417	172.7159
357	RPP40	0.6395	0.0408	75.0079	90.1405	73.1317	130.1911	101.1431	141.2465
358	CCDC14	0.6451	0.0415	273.4664	257.1221	193.9580	351.5989	306.8872	464.7230
359	ZNF641	0.6482	0.0287	413.3249	364.9952	254.3712	513.3012	513.4958	566.4498
360	GID4	0.6521	0.0301	63.2879	80.5354	76.3114	108.6308	118.4325	110.5089
361	FBN2	0.6531	0.0316	242.2131	273.3770	187.5988	352.4281	312.9385	411.2981
362	SYNE2	0.6537	0.0434	445.3595	393.0718	311.6047	655.1017	447.7960	656.4670
363	AIF1L	0.6555	0.0335	68.7573	62.0640	92.2096	123.5572	114.9746	101.7268
364	CCDC93	0.6567	0.0275	510.9915	407.8489	511.9221	845.8275	573.1443	759.6574
365	ANXA5	0.6581	0.0198	1912.7020	2831.2989	2693.1552	3477.0144	3858.1343	3965.8801
366	PFKM	0.6588	0.0466	952.4443	862.2458	1020.6645	1787.0179	1020.0758	1496.6276
367	RUFY3	0.6618	0.0388	613.3460	633.9390	499.2035	871.5340	688.1190	1079.4747
368	DHRS7	0.6622	0.0113	714.1379	809.0481	677.2633	1001.7251	1280.2816	1040.6868
369	APPL2	0.6666	0.0296	350.8183	322.8804	267.0898	488.4239	391.6054	531.3211

D1, D2 and D3: Disease affected-adrenals; C1, C2 and C3: Disease non-affected control tissues.