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Data Article

Transcriptome data analyses of prostatic hyperplasia in *Esr2* knockout rats

Vincentaben Khristi^a, Subhra Ghosh^a,
 V. Praveen Chakravarthi^a, Michael W. Wolfe^{b, c},
 M.A. Karim Rumi^{a, c, *}

^a Department of Pathology and Laboratory Medicine, USA^b Department of Molecular and Integrative Physiology, USA^c Institute for Reproduction and Perinatal Research, University of Kansas Medical Center, Kansas City, KS 66160, USA

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ABSTRACT

Estrogen signaling plays an important role in the pathophysiology of prostatic hyperplasia. While signaling through estrogen receptor alpha (ESR1) increases proliferation of stromal cells, estrogen receptor beta (ESR2) plays an anti-proliferative and differentiating role in glandular epithelium. Disruption of ESR2 signaling resulted in prostatic glandular hyperplasia in the rat. To identify the ESR2-target genes, and the molecular mechanisms involved, we performed RNA-seq analyses in prostate glands of *Esr2* knockout (*Esr2*^{-/-}) and age matched wildtype rats. The raw data were analyzed using CLC genomics workbench. High quality RNA-seq reads were aligned to the *Rattus norvegicus* genome. Differentially expressed genes were identified based on an absolute fold change of 2 with *p*Value ≤ 0.05 . Of the total 32,623 genes detected, 824 were differentially expressed in *Esr2*^{-/-} prostate glands, 550 downregulated and 274 upregulated. Pathway analyses identified altered expression of genes involved in epithelial proliferation and benign tumor formation.

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* Corresponding author. Department of Pathology and Laboratory Medicine, USA.
 E-mail address: mrumi@kumc.edu (M.A.K. Rumi).

Specifications table

Subject area	Biology, Endocrinology
More specific subject area	Reproductive biology, Estrogen signaling
Type of data	RNA-seq data table in Excel format and figures
How data was acquired	Illumina HiSeq 4000 platform, Ingenuity pathway analysis
Data format	Normalized, filtered and analyzed data; Bioinformatics prediction
Experimental factors	ESR2-target genes in prostate that maintain normal growth and differentiation of glandular epithelium
Experimental features	Prostate tissue collected from 18-20-week-old wildtype, <i>Esr2</i> knockout rats. Total RNA was isolated and cDNA libraries were prepared for RNA-sequencing. The raw reads of RNA-seq was analyzed by CLC Genomics Workbench. Differentially expressed genes (absolute fold changes of 2, $p \leq 0.05$) were subjected to Ingenuity Pathway Analysis. Pathway analysis showed that the differentially expressed genes are involved in proliferation of epithelial cells, and development of the benign tumors.
Data source location	A basic science laboratory at the University of Kansas Medical Center, Kansas City, KS, USA
Data accessibility	Raw data of RNA Seq analysis are available on Sequence Read Archive (SRA) database and connected to BioProject PRJNA513841.

Value of the data

- The data show transcriptome profile of *Esr2*^{-/-} rat ventral prostate.
- Differentially expressed genes in *Esr2*^{-/-} prostate glands are involved in epithelial cell proliferation, and development of benign tumors.
- Our data indicate that ESR2 is essential for maintaining normal growth of prostatic glandular epithelium.

1. Data

This article provides RNA-Seq data of wildtype and *Esr2*^{-/-} rat ventral prostate. The list of differentially expressed genes (Absolute fold change ≥ 2 , $pValue \leq 0.05$) in *Esr2*^{-/-} vs wildtype rats were shown in Table 1. Ingenuity pathway analysis of differentially expressed genes revealed that these genes were involved in proliferation of epithelial cell lines (Fig. 1). However, these genes also involved in formation of 'Glandular intraepithelial neoplasm', Prostatic intraepithelial tumor' and Benign tumor (Fig. 2) in *Esr2*^{-/-} rats.

2. Experimental design, materials, and methods**2.1. *Esr2*-mutant rats**

Holtzman Sprague-Dawley (HSD) *Esr2*-knockout rat model was generated by targeting exon 3 ($\Delta 3$) of the *Esr2*-gene as described previously [1]. Deletion of exon 3 caused a frameshift and null mutation in the ESR2 coding sequence [1]. Animals were screened for presence of the mutation by PCR using tail-tip DNA samples (RED extract-N-Amp Tissue PCR Kit, Sigma-Aldrich) and primers targeting the flanking intron sequences [1]. All procedures were performed in accordance with the protocols approved by the University of Kansas Medical Center Animal Care and Use Committee.

2.2. Sample collection and processing

18-20-week-old wildtype and *Esr2*^{-/-} male rats were included in this study. Animals were sacrificed, and the ventral prostate lobes were collected. Tissue samples were cut into small species, snap frozen in to liquid nitrogen, and stored at -80°C until they were processed for RNA analyses. Total RNA from prostate glands was extracted using TRI Reagent (Millipore-Sigma) following the manufactures

Table 1Differentially expressed genes in prostate glands of *Esr2* knockout rats.

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
1	<i>A2m</i>	4	154309426..154359137	0.70	-1.11	-2.15	0.00	0.009	1.000
2	<i>A2ml1</i>	4	complement(161866078..161907767)	0.04	-3.46	-11.03	0.01	0.210	1.000
3	<i>AABR07000658.1</i>	1	complement(21145360..21146846)	0.95	1.09	2.12	0.00	0.080	1.000
4	<i>AABR07001064.1</i>	1	complement(36954496..36957300)	0.69	1.15	2.22	0.00	0.002	1.000
5	<i>AABR07001068.1</i>	1	37059412..37162589	2.41	1.20	2.30	0.00	0.020	1.000
6	<i>AABR07001634.1</i>	1	complement(54439977..54441579)	0.36	-1.46	-2.75	0.01	0.190	1.000
7	<i>AABR07001807.1</i>	1	complement(58339947..58345450)	0.14	-2.27	-4.84	0.00	0.020	1.000
8	<i>AABR07001905.1</i>	1	61786900..61818159	0.23	-1.52	-2.87	0.04	0.460	1.000
9	<i>AABR07001926.2</i>	1	complement(62207548..62223307)	0.65	-1.28	-2.44	0.02	0.300	1.000
10	<i>AABR07002010.1</i>	1	complement(64816762..64830953)	0.09	-2.75	-6.71	0.01	0.190	1.000
11	<i>AABR07002247.1</i>	1	69681569..69692765	0.33	1.55	2.93	0.00	0.100	1.000
12	<i>AABR07002677.2</i>	1	80372505..80382703	0.34	-1.48	-2.79	0.03	0.330	1.000
13	<i>AABR07002784.2</i>	1	complement(84953311..84959283)	1.12	1.14	2.20	0.03	0.390	1.000
14	<i>AABR07003241.1</i>	1	99864084..99865244	0.90	-1.10	-2.14	0.05	0.470	1.000
15	<i>AABR07003241.2</i>	1	complement(99866052..99870024)	0.39	-6.59	-96.29	0.04	0.410	1.000
16	<i>AABR07005752.1</i>	1	complement(195864391..195867147)	0.26	-1.00	-2.01	0.04	0.450	1.000
17	<i>AABR07005779.4</i>	1	complement(198162429..198168448)	0.16	1.52	2.88	0.01	0.170	1.000
18	<i>AABR07006774.1</i>	1	257724842..257729237	1.33	3.29	9.78	0.00	0.004	1.000
19	<i>AABR07007121.1</i>	1	282063929..282064741	0.48	-2.65	-6.26	0.00	0.030	1.000
20	<i>AABR07007744.1</i>	2	complement(26812444..26818679)	0.10	-1.85	-3.61	0.00	0.070	1.000
21	<i>AABR07007874.1</i>	2	complement(32297366..32297914)	2.68	-4.84	-28.71	0.00	0.000	0.001
22	<i>AABR07007875.1</i>	2	32310059..32310555	1.27	-3.09	-8.51	0.00	0.030	1.000
23	<i>AABR07008462.1</i>	2	59849941..59901109	0.59	-4.16	-17.93	0.00	0.000	0.000
24	<i>AABR07009221.1</i>	2	89254154..89259657	3.03	-1.38	-2.60	0.00	0.000	0.000
25	<i>AABR07009787.1</i>	2	complement(112358918..112368557)	1.68	-1.14	-2.21	0.00	0.001	0.650
26	<i>AABR07010332.1</i>	2	complement(132490612..132496152)	0.12	-3.70	-12.98	0.01	0.170	1.000
27	<i>AABR07010468.1</i>	2	complement(136903813..136992193)	0.69	-4.12	-17.34	0.00	0.007	1.000
28	<i>AABR07010747.1</i>	2	150013327..150023914	2.10	5.44	43.55	0.00	0.000	0.000
29	<i>AABR07010985.1</i>	2	complement(156302569..156353036)	0.04	-2.32	-4.99	0.03	0.340	1.000
30	<i>AABR07010986.1</i>	2	complement(156399129..156406032)	0.57	1.54	2.90	0.00	0.080	1.000
31	<i>AABR07012065.1</i>	2	complement(184692634..184694181)	0.73	-1.22	-2.32	0.00	0.070	1.000
32	<i>AABR07012775.1</i>	2	complement(208225406..208225888)	0.54	-1.94	-3.83	0.01	0.210	1.000
33	<i>AABR07013425.1</i>	2	complement(236822072..236823145)	0.44	-1.66	-3.16	0.01	0.110	1.000
34	<i>AABR07015040.1</i>	14	46286197..46287505	0.34	-3.74	-13.35	0.00	0.020	1.000
35	<i>AABR07017874.1</i>	15	32136645..32137490	1.19	1.52	2.87	0.00	0.020	1.000
36	<i>AABR07020537.1</i>	13	29839867..29845228	0.11	-1.15	-2.22	0.03	0.360	1.000
37	<i>AABR07020999.1</i>	13	52413241..52413723	0.45	1.69	3.22	0.02	0.300	1.000
38	<i>AABR07024542.1</i>	16	4439102..4446046	0.04	-2.89	-7.42	0.05	0.480	1.000
39	<i>AABR07026143.1</i>	16	complement(65369091..65369876)	4.63	1.16	2.24	0.00	0.020	1.000

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
40	AABR07026144.1	16	65430000..65522071	3.80	1.17	2.25	0.01	0.170	1.000
41	AABR07027128.1	17	complement(14942001..14949085)	0.08	-6.59	-96.21	0.04	0.410	1.000
42	AABR07027394.1	17	complement(27991458..27995913)	0.78	-1.09	-2.13	0.01	0.150	1.000
43	AABR07027450.1	17	complement(31779334..31780120)	0.83	1.94	3.85	0.00	0.090	1.000
44	AABR07027451.1	17	complement(31813411..31813716)	4.01	3.82	14.12	0.00	0.000	0.000
45	AABR07028349.1	17	66238947..66241440	0.28	1.42	2.67	0.02	0.240	1.000
46	AABR07028998.1	10	1771460..1783495	0.15	-2.53	-5.76	0.01	0.140	1.000
47	AABR07029803.1	10	complement(52023215..52028736)	0.03	-2.08	-4.24	0.05	0.480	1.000
48	AABR07029809.1	10	complement(52478050..52483325)	0.09	1.47	2.77	0.02	0.260	1.000
49	AABR07030563.1	10	93137598..93138165	0.53	-2.08	-4.23	0.02	0.240	1.000
50	AABR07030568.6	10	93266214..93282734	0.18	1.77	3.41	0.03	0.380	1.000
51	AABR07033318.1	11	complement(17281322..17286846)	0.11	-1.51	-2.85	0.01	0.130	1.000
52	AABR07034729.1	11	85263536..85430845	1.39	4.69	25.81	0.00	0.001	0.290
53	AABR07034833.1	12	complement(53872..54885)	7.52	1.20	2.30	0.00	0.001	0.280
54	AABR07036640.1	12	complement(51361186..51366445)	0.16	-3.68	-12.83	0.01	0.150	1.000
55	AABR07037356.1	X	complement(19384166..19386541)	0.46	-1.13	-2.19	0.00	0.090	1.000
56	AABR07037412.2	X	20216587..20225955	0.57	8.00	255.13	0.00	0.080	1.000
57	AABR07040288.1	X	96991658..96992125	1.29	-4.73	-26.61	0.00	0.020	1.000
58	AABR07040944.1	X	complement(115375018..115375492)	0.83	-1.49	-2.81	0.02	0.300	1.000
59	AABR07041096.1	X	complement(119194437..119200775)	1.92	-1.04	-2.06	0.00	0.000	0.000
60	AABR07042859.1	19	complement(12402521..12403635)	0.22	-3.27	-9.68	0.00	0.070	1.000
61	AABR07043772.1	19	39502153..39537050	0.30	-1.53	-2.89	0.01	0.230	1.000
62	AABR07044473.1	20	6945260..6946542	2.08	2.39	5.23	0.00	0.000	0.000
63	AABR07044570.1	20	10727513..10729072	1.02	1.91	3.75	0.00	0.000	0.004
64	AABR07045322.1	20	43142648..43143257	1.21	-2.03	-4.08	0.00	0.040	1.000
65	AABR07047750.2	5	45733655..45734034	0.62	-2.24	-4.74	0.01	0.160	1.000
66	AABR07047771.1	5	complement(46751661..46757181)	0.37	1.41	2.65	0.00	0.000	0.040
67	AABR07047844.1	5	complement(50371732..50373014)	2.16	2.51	5.70	0.00	0.000	0.000
68	AABR07049682.1	5	132773970..132800830	0.38	3.89	14.82	0.00	0.000	0.000
69	AABR07050393.1	5	complement(163713652..163715420)	1.24	1.11	2.15	0.00	0.080	1.000
70	AABR07050530.1	5	168474633..168475915	2.59	2.72	6.59	0.00	0.000	0.000
71	AABR07051532.1	3	complement(16440424..16441030)	0.50	-2.14	-4.40	0.02	0.310	1.000
72	AABR07051535.1	3	16590244..16590851	0.72	-2.69	-6.45	0.00	0.090	1.000
73	AABR07051548.1	3	complement(16749942..16753987)	0.44	5.86	57.94	0.04	0.460	1.000
74	AABR07051565.1	3	17180411..17181239	0.22	2.09	4.24	0.04	0.440	1.000
75	AABR07051583.1	3	17546566..17547291	9.04	4.23	18.78	0.00	0.000	0.000
76	AABR07051592.1	3	17648356..17649526	0.77	-3.48	-11.17	0.00	0.000	0.100
77	AABR07051626.1	3	complement(18244243..18244535)	3.15	8.33	322.19	0.00	0.060	1.000
78	AABR07051642.1	3	18601757..18602324	1.76	3.41	10.62	0.00	0.003	1.000
79	AABR07051658.1	3	18787606..18787893	4.36	8.88	470.90	0.00	0.030	1.000
80	AABR07051670.1	3	19045214..19045737	9.53	3.14	8.80	0.00	0.000	0.000

81	AABR07051673.1	3	19128400..19128929	0.50	1.62	3.08	0.04	0.430	1.000
82	AABR07051675.1	3	19141133..19141662	0.42	2.34	5.07	0.02	0.320	1.000
83	AABR07051678.1	3	19174027..19174559	0.48	2.07	4.21	0.02	0.290	1.000
84	AABR07051684.1	3	19274273..19274824	0.37	3.44	10.85	0.01	0.230	1.000
85	AABR07051689.1	3	19366370..19366657	21.10	7.62	196.50	0.00	0.000	0.000
86	AABR07051692.1	3	19441604..19441888	1.19	3.06	8.35	0.00	0.009	1.000
87	AABR07051716.2	3	20015136..20016146	0.39	-2.35	-5.09	0.02	0.260	1.000
88	AABR07051733.2	3	complement(20479688..20479999)	0.59	1.88	3.67	0.03	0.330	1.000
89	AABR07051741.1	3	20641664..20641978	0.64	1.92	3.78	0.03	0.380	1.000
90	AABR07052519.1	3	complement(59165353..59166356)	0.39	-1.67	-3.19	0.02	0.260	1.000
91	AABR07052664.1	3	complement(68304756..68310230)	0.09	-1.45	-2.73	0.02	0.300	1.000
92	AABR07053179.1	3	95614562..95620081	0.63	-1.52	-2.87	0.00	0.000	0.002
93	AABR07053707.1	3	121490812..121493714	0.05	-2.24	-4.73	0.04	0.450	1.000
94	AABR07053866.1	3	complement(131530330..131531612)	0.19	6.48	89.23	0.03	0.320	1.000
95	AABR07054716.1	3	167513759..167514438	1.31	-1.94	-3.83	0.01	0.200	1.000
96	AABR07055191.1	7	415625..454111	7.88	1.00	2.00	0.00	0.000	0.001
97	AABR07055492.1	7	complement(4126885..4127764)	0.30	-1.74	-3.34	0.02	0.230	1.000
98	AABR07058102.1	7	complement(100330324..100335512)	0.04	-2.99	-7.93	0.01	0.180	1.000
99	AABR07058410.1	7	complement(114944282..114945344)	0.11	-2.89	-7.41	0.04	0.460	1.000
100	AABR07058788.1	7	complement(137515388..137518589)	0.30	-1.72	-3.31	0.02	0.260	1.000
101	AABR07059159.1	4	complement(5721261..5773301)	0.22	-1.97	-3.93	0.01	0.130	1.000
102	AABR07060364.1	4	complement(69970575..69971689)	0.83	1.78	3.43	0.00	0.003	1.000
103	AABR07060886.1	4	98481520..98542683	4.32	2.63	6.20	0.00	0.000	0.000
104	AABR07060963.1	4	101882994..101883460	6.72	3.57	11.85	0.00	0.000	0.000
105	AABR07060979.1	4	complement(102123869..102124609)	0.37	-3.11	-8.61	0.03	0.350	1.000
106	AABR07060994.1	4	102351036..102351819	0.73	-6.54	-93.07	0.04	0.410	1.000
107	AABR07061001.1	4	102489916..102490375	16.67	3.97	15.62	0.00	0.000	0.000
108	AABR07061044.1	4	complement(103115238..103115522)	1.30	3.22	9.29	0.00	0.005	1.000
109	AABR07061048.1	4	complement(103144774..103145058)	1.48	2.62	6.16	0.00	0.010	1.000
110	AABR07061052.1	4	complement(103257811..103258134)	4.84	1.43	2.70	0.00	0.001	0.500
111	AABR07061134.1	4	106323089..106323738	3.09	2.77	6.81	0.00	0.000	0.000
112	AABR07064000.1	6	59757397..59757964	0.46	-4.04	-16.40	0.01	0.130	1.000
113	AABR07064349.1	6	76661416..76661824	0.66	1.24	2.35	0.04	0.430	1.000
114	AABR07064716.1	6	complement(91580777..91581262)	0.28	2.71	6.52	0.03	0.330	1.000
115	AABR07064755.1	6	93875374..93878199	0.15	-1.89	-3.70	0.03	0.360	1.000
116	AABR07065531.5	6	133667975..133676907	0.94	1.66	3.15	0.00	0.060	1.000
117	AABR07065645.1	6	complement(138549564..138550576)	0.80	-4.19	-18.29	0.00	0.060	1.000
118	AABR07065673.1	6	139158334..139158765	0.40	5.75	53.78	0.04	0.430	1.000
119	AABR07065693.3	6	139405966..139406844	10.78	-1.85	-3.61	0.00	0.000	0.001
120	AABR07065714.1	6	complement(139783839..139911839)	1.56	-8.54	-372.10	0.01	0.120	1.000
121	AABR07065750.3	6	complement(140150433..140150729)	7.67	7.55	187.68	0.00	0.000	0.000
122	AABR07065766.1	6	complement(140399800..140400347)	0.48	2.84	7.14	0.02	0.300	1.000
123	AABR07065768.1	6	complement(140485452..140485913)	3.18	2.94	7.69	0.00	0.000	0.000

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
124	AABR07065768.2	6	complement(140416650..140418831)	0.37	5.47	44.20	0.05	0.490	1.000
125	AABR07065778.2	6	complement(141008140..141008427)	4.37	4.40	21.11	0.00	0.000	0.000
126	AABR07065789.2	6	complement(141364359..141365198)	0.24	-3.34	-10.14	0.02	0.280	1.000
127	AABR07065792.1	6	complement(141487555..141488290)	4.35	3.77	13.63	0.00	0.000	0.000
128	AABR07065814.2	6	complement(142352806..142353308)	0.40	2.27	4.81	0.04	0.400	1.000
129	AABR07065815.1	6	complement(142584754..142585188)	3.59	5.90	59.68	0.00	0.000	0.000
130	AABR07065815.2	6	complement(142635329..142676432)	3.85	2.83	7.11	0.00	0.000	0.000
131	AABR07065823.1	6	complement(142932678..142933110)	1.15	1.79	3.46	0.00	0.100	1.000
132	AABR07065823.2	6	complement(142903147..142903440)	20.31	4.46	22.02	0.00	0.000	0.000
133	AABR07065827.1	6	complement(143065206..143065639)	2.18	2.80	6.98	0.00	0.001	0.610
134	AABR07065837.1	6	complement(143194515..143195445)	37.77	7.25	152.57	0.00	0.000	0.000
135	AABR07065883.2	6	complement(143599063..143605685)	0.44	-2.34	-5.06	0.04	0.410	1.000
136	AABR07065886.1	6	complement(143701600..143702033)	5.28	9.44	693.46	0.00	0.020	1.000
137	AABR07065889.2	6	complement(143749414..143757128)	0.57	1.96	3.89	0.03	0.350	1.000
138	AABR07066792.1	9	complement(16347795..16351503)	0.21	-6.25	-76.11	0.05	0.480	1.000
139	AABR07067082.1	9	complement(29584375..29585448)	0.47	-1.74	-3.34	0.03	0.320	1.000
140	AABR07070161.4	8	complement(55542447..55544874)	0.85	1.19	2.28	0.00	0.040	1.000
141	AABR07070238.3	8	60701256..60702538	2.42	2.72	6.61	0.00	0.000	0.000
142	AABR07072262.1	11	85561460..85562032	0.90	3.11	8.63	0.00	0.090	1.000
143	AABR07072671.1	2	2694480..2695683	1.56	2.88	7.36	0.00	0.000	0.000
144	Aass	4	complement(50152452..50200328)	0.22	-5.25	-38.15	0.00	0.010	1.000
145	Aatk	10	complement(109188112..109224370)	0.19	-1.27	-2.42	0.00	0.030	1.000
146	Abat	10	complement(7093405..7200499)	11.33	1.59	3.02	0.00	0.000	0.000
147	Abca17	10	complement(13630097..13716931)	0.06	-2.49	-5.61	0.00	0.060	1.000
148	Abcd2	7	complement(132294562..132343169)	0.09	-1.66	-3.16	0.01	0.120	1.000
149	Abcg5	6	complement(7935771..7961207)	0.41	-1.22	-2.33	0.00	0.050	1.000
150	Abo	3	complement(4374602..4394428)	1.30	-3.31	-9.90	0.00	0.000	0.000
151	AC094053.1	2	complement(104996717..105001497)	0.15	-8.02	-259.10	0.01	0.190	1.000
152	AC098008.2	1	167672812..167673926	2.80	-1.16	-2.23	0.00	0.000	0.060
153	AC099449.1	1	complement(215908373..215986959)	0.31	-1.61	-3.06	0.02	0.250	1.000
154	AC107331.1	1	170075617..170081138	0.19	-1.15	-2.21	0.00	0.060	1.000
155	AC109096.1	1	complement(220836092..220836504)	6.14	-1.29	-2.45	0.00	0.009	1.000
156	AC109901.1	11	85618714..85619188	1.29	2.92	7.58	0.00	0.070	1.000
157	AC111231.1	2	150061636..150081281	0.69	3.29	9.81	0.00	0.000	0.100
158	AC114343.1	15	28028521..28035389	0.14	-6.47	-88.45	0.04	0.440	1.000
159	AC114446.1	7	140608434..140609067	0.34	-2.34	-5.08	0.01	0.230	1.000
160	AC126292.2	5	135687538..135687897	0.66	-3.87	-14.65	0.01	0.110	1.000
161	AC127640.1	1	complement(75455599..75462453)	0.18	-1.05	-2.06	0.02	0.240	1.000
162	AC128394.1	1	12906899..12908181	2.05	2.65	6.29	0.00	0.000	0.000
163	AC141028.2	X	complement(5789401..5824651)	0.72	6.93	122.26	0.01	0.200	1.000
164	Acsbg2	9	10172832..10203460	0.06	-2.54	-5.80	0.05	0.470	1.000

165	<i>Adam18</i>	16	72139063..72210900	0.40	1.28	2.43	0.00	0.020	1.000
166	<i>Adam28</i>	15	complement(50358192..50425900)	0.22	-2.03	-4.09	0.01	0.120	1.000
167	<i>Adam32</i>	16	71889235..71999148	0.07	-3.53	-11.52	0.02	0.270	1.000
168	<i>Adams13</i>	3	5519990..5558166	0.22	-1.65	-3.14	0.00	0.005	1.000
169	<i>Adams15</i>	8	complement(31977001..32000378)	0.76	-1.70	-3.24	0.00	0.000	0.000
170	<i>Adams5</i>	11	complement(25410975..25456836)	0.46	-1.09	-2.12	0.00	0.030	1.000
171	<i>Adcy1</i>	14	87312203..87421659	0.42	-1.81	-3.51	0.00	0.000	0.200
172	<i>Adcy2</i>	1	37507276..37698390	5.73	1.42	2.67	0.00	0.000	0.000
173	<i>Adh7</i>	2	243502073..243516532	0.07	-2.24	-4.73	0.05	0.470	1.000
174	<i>Adipoq</i>	11	complement(81330293..81344488)	2.33	-5.43	-43.20	0.00	0.000	0.000
175	<i>Adm2</i>	7	130296897..130298644	1.57	-1.13	-2.20	0.00	0.010	1.000
176	<i>Adrb2</i>	18	complement(57513793..57515834)	32.79	1.00	2.00	0.00	0.000	0.000
177	<i>Agbl2</i>	3	79613171..79646698	0.47	-1.72	-3.28	0.00	0.002	0.970
178	<i>Agmo</i>	6	56846789..57193961	0.09	-2.28	-4.85	0.02	0.270	1.000
179	<i>Agt</i>	19	complement(57321640..57333433)	0.37	-1.56	-2.95	0.00	0.030	1.000
180	<i>Ak5</i>	2	complement(257671772..257864385)	0.08	-1.58	-2.98	0.03	0.400	1.000
181	<i>Akap3</i>	4	159403501..159425629	0.08	-2.55	-5.86	0.01	0.210	1.000
182	<i>Akap4</i>	X	complement(16296735..16306078)	0.10	-6.32	-80.04	0.05	0.480	1.000
183	<i>Akap6</i>	6	73553210..73990534	0.03	-1.63	-3.10	0.03	0.350	1.000
184	<i>Akap7</i>	1	21141970..21263850	2.45	-1.24	-2.36	0.00	0.000	0.060
185	<i>Akr1c12</i>	17	complement(69695550..69711689)	0.48	2.78	6.85	0.00	0.002	1.000
186	<i>Aldh1a3</i>	1	complement(127301128..127337882)	4.56	-1.04	-2.05	0.00	0.000	0.001
187	<i>Aldh1l2</i>	7	26375866..26425108	1.12	-1.39	-2.62	0.00	0.000	0.010
188	<i>Angpt1</i>	7	complement(81342280..81592206)	0.24	-2.08	-4.22	0.00	0.050	1.000
189	<i>Angptl1</i>	13	74410010..74474681	0.66	-2.43	-5.38	0.00	0.003	1.000
190	<i>Ankrd29</i>	18	complement(3673915..3676188)	0.20	-1.60	-3.03	0.01	0.150	1.000
191	<i>Ankrd31</i>	2	27630285..27742903	0.14	1.43	2.69	0.02	0.310	1.000
192	<i>Anlnl1</i>	17	66548818..66551947	0.32	1.70	3.24	0.00	0.007	1.000
193	<i>Ano1</i>	1	complement(217754336..217902473)	4.65	-1.43	-2.70	0.00	0.000	0.000
194	<i>Anxa3</i>	14	complement(14364008..14426437)	2.66	-1.09	-2.13	0.00	0.000	0.002
195	<i>Anxa5</i>	2	complement(123162461..123193130)	18.90	-1.39	-2.62	0.00	0.000	0.000
196	<i>Aox3</i>	9	65013862..65099433	2.05	-3.12	-8.69	0.00	0.000	0.000
197	<i>Apln</i>	X	complement(134856726..134866210)	0.28	-1.02	-2.03	0.01	0.190	1.000
198	<i>Apobec2</i>	9	14529218..14542731	0.30	1.38	2.60	0.02	0.320	1.000
199	<i>Apod</i>	11	72705129..72726301	0.33	-1.69	-3.23	0.01	0.230	1.000
200	<i>App</i>	11	complement(24425005..24641858)	41.13	-1.14	-2.21	0.00	0.000	0.000
201	<i>Aqp7</i>	5	complement(57358327..57372239)	0.35	-3.94	-15.32	0.00	0.008	1.000
202	<i>Arhgef33</i>	6	3012804..3095500	0.48	-1.38	-2.61	0.00	0.010	1.000
203	<i>Armcx6</i>	X	complement(105565747..105568343)	0.32	-1.06	-2.09	0.02	0.310	1.000
204	<i>Arrdc2</i>	16	20352480..20356612	14.04	-1.40	-2.64	0.00	0.000	0.000
205	<i>Asf1b</i>	19	25077918..25092491	0.34	1.31	2.48	0.01	0.200	1.000
206	<i>Aspa</i>	10	complement(59839852..59892960)	0.81	1.30	2.46	0.00	0.001	0.270

(continued on next page)

Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
207	<i>Aspn</i>	17	complement(14656009..14679409)	0.27	-7.27	-154.48	0.02	0.290	1.000
208	<i>Atp12a</i>	15	36565495..36590171	0.92	-10.47	-1419.79	0.00	0.030	1.000
209	<i>Atp2c2</i>	19	52347580..52404607	0.95	1.62	3.08	0.00	0.000	0.000
210	<i>Atp6vOd2</i>	5	complement(33843519..33892462)	0.88	-1.07	-2.09	0.00	0.070	1.000
211	<i>Atp6v1c2</i>	6	complement(42585934..42630983)	28.58	-1.67	-3.18	0.00	0.000	0.000
212	<i>Atp7b</i>	16	74865516..74945286	0.11	-1.98	-3.94	0.00	0.009	1.000
213	<i>Azin2</i>	5	complement(147120129..147148291)	0.24	-1.69	-3.24	0.01	0.140	1.000
214	<i>Bbs7</i>	2	complement(123283388..123323170)	0.45	-1.12	-2.18	0.00	0.040	1.000
215	<i>Bche</i>	2	complement(171100140..171196395)	0.14	-1.97	-3.92	0.00	0.001	0.680
216	<i>Bcl3</i>	1	complement(80730499..80744831)	0.96	-1.03	-2.04	0.00	0.020	1.000
217	<i>Bmp15</i>	X	17016778..17023418	0.08	-1.52	-2.86	0.04	0.420	1.000
218	<i>Bmp3</i>	14	complement(12359363..12387102)	0.09	-1.80	-3.48	0.00	0.070	1.000
219	<i>Bmp6</i>	17	complement(26955142..27112820)	17.45	-6.26	-76.59	0.00	0.000	0.000
220	<i>Bmp8a</i>	5	complement(141007462..141033511)	0.21	2.41	5.30	0.00	0.010	1.000
221	<i>Bmp8b</i>	5	140803638..140820628	0.13	2.07	4.21	0.03	0.350	1.000
222	<i>Brms1</i>	1	220423426..220426975	1.74	8.90	477.87	0.00	0.040	1.000
223	<i>Btm2</i>	20	4141878..4154978	0.16	-1.47	-2.78	0.03	0.380	1.000
224	<i>Btm3</i>	20	4156858..4171887	0.20	-1.51	-2.85	0.01	0.160	1.000
225	<i>C1galt1</i>	4	33890349..33943211	4.51	1.24	2.36	0.00	0.000	0.000
226	<i>C4a_1</i>	20	complement(2651599..2678141)	2.11	-1.15	-2.22	0.00	0.000	0.000
227	<i>C4bpb</i>	13	complement(47387173..47397890)	0.36	1.17	2.26	0.05	0.480	1.000
228	<i>Capn8</i>	13	100980574..101043110	0.03	-2.89	-7.41	0.04	0.460	1.000
229	<i>Car2</i>	2	complement(88097720..88113029)	37.22	-4.51	-22.83	0.00	0.000	0.000
230	<i>Car3</i>	2	complement(88126667..88135410)	11.07	-3.40	-10.59	0.00	0.000	0.000
231	<i>Cbr1_2</i>	11	33845463..33847793	2.56	-4.06	-16.71	0.00	0.000	0.000
232	<i>Cbs</i>	20	complement(10361988..10386751)	30.34	1.02	2.02	0.00	0.000	0.000
233	<i>Ccdc136</i>	4	56674832..56704549	0.62	-1.22	-2.33	0.00	0.002	1.000
234	<i>Ccl19</i>	5	complement(58181026..58183017)	1.66	-1.21	-2.31	0.01	0.130	1.000
235	<i>Ccl20</i>	9	88918433..88921001	0.57	1.04	2.06	0.05	0.470	1.000
236	<i>Ccl21</i>	5	complement(58197680..58198782)	5.58	-1.35	-2.55	0.00	0.000	0.000
237	<i>Ccl9</i>	10	complement(70783424..70788309)	0.10	-3.00	-8.01	0.04	0.410	1.000
238	<i>Ccnj</i>	1	260093641..260111254	0.07	1.98	3.95	0.01	0.140	1.000
239	<i>Ccser1</i>	4	91373942..91972325	0.08	-1.38	-2.61	0.05	0.490	1.000
240	<i>Cct8l1_1</i>	4	complement(6044792..6046477)	0.32	2.40	5.27	0.00	0.050	1.000
241	<i>Cd248</i>	1	220353356..220355650	0.27	7.88	235.95	0.00	0.090	1.000
242	<i>Cd52</i>	5	complement(152322916..152324469)	4.34	-4.79	-27.74	0.00	0.000	0.002
243	<i>Cd69</i>	4	complement(163041141..163049084)	0.47	1.62	3.07	0.00	0.020	1.000
244	<i>Cdh12</i>	2	72006099..72540263	0.36	1.82	3.53	0.00	0.000	0.000
245	<i>Cdkl4</i>	6	complement(3234090..3254779)	0.98	1.62	3.08	0.00	0.001	0.610
246	<i>Cdo1</i>	18	complement(40701984..40716686)	1.36	-1.98	-3.95	0.00	0.000	0.000

247	<i>Ceacam1</i>	1	complement(82327955..82344345)	6.91	-1.90	-3.73	0.00	0.000	0.000
248	<i>Cers3</i>	1	127648234..127781017	0.09	-2.88	-7.35	0.00	0.050	1.000
249	<i>Ces1f</i>	19	15081158..15335002	0.29	2.07	4.19	0.00	0.000	0.000
250	<i>Cfap126</i>	13	89480058..89495949	0.09	-2.89	-7.40	0.05	0.470	1.000
251	<i>Cfap45</i>	13	90909486..90932961	0.14	-1.69	-3.22	0.02	0.280	1.000
252	<i>Cfap77</i>	3	complement(7508496..7632345)	0.16	-4.19	-18.26	0.00	0.060	1.000
253	<i>Cfd</i>	7	complement(12634216..12635943)	7.34	-1.07	-2.10	0.00	0.000	0.000
254	<i>Cga</i>	5	50381244..50393367	0.40	-1.89	-3.70	0.02	0.240	1.000
255	<i>Chchd2</i>	9	complement(101388151..101388833)	2.02	2.36	5.12	0.00	0.050	1.000
256	<i>Chl1</i>	4	70252366..70330803	0.28	1.16	2.24	0.00	0.040	1.000
257	<i>Chrdl2</i>	1	165008912..165036435	0.29	-1.32	-2.49	0.02	0.300	1.000
258	<i>Chst7</i>	X	complement(2623024..2657155)	0.28	-1.18	-2.26	0.02	0.240	1.000
259	<i>Cidec</i>	4	complement(145377431..145390497)	0.63	-5.08	-33.92	0.00	0.000	0.000
260	<i>Cilp</i>	8	70760922..70775891	1.60	-1.45	-2.74	0.00	0.000	0.000
261	<i>Ckap2</i>	16	74752655..74779184	0.60	1.29	2.45	0.01	0.120	1.000
262	<i>Cks2</i>	17	complement(13587665..13593423)	1.23	1.13	2.19	0.01	0.150	1.000
263	<i>Clca4</i>	2	complement(250843165..250862419)	0.20	-2.06	-4.16	0.00	0.030	1.000
264	<i>Clec4a2</i>	4	complement(155792761..155867708)	0.25	1.37	2.59	0.02	0.310	1.000
265	<i>Clu</i>	15	42640146..42665857	302.28	-2.02	-4.04	0.00	0.000	0.000
266	<i>Cntd1</i>	10	89199880..89209393	0.14	2.45	5.48	0.01	0.100	1.000
267	<i>Col5a3</i>	8	complement(21786324..21831668)	0.63	-1.24	-2.36	0.00	0.000	0.000
268	<i>Col8a1</i>	11	44877859..45007891	0.64	-1.20	-2.30	0.00	0.001	0.530
269	<i>Colec12</i>	18	867048..1052606	22.35	-1.20	-2.30	0.00	0.000	0.000
270	<i>Cpn1</i>	1	complement(263733519..263762785)	0.47	-1.80	-3.48	0.00	0.005	1.000
271	<i>Cpne5</i>	20	complement(6419033..6500523)	0.06	-2.58	-6.00	0.01	0.190	1.000
272	<i>Cpz</i>	14	80403001..80426245	0.42	-1.57	-2.97	0.00	0.010	1.000
273	<i>Crabp1</i>	8	59344083..59352132	0.13	-2.89	-7.40	0.05	0.470	1.000
274	<i>Crim1</i>	6	788548..960703	3.18	-1.43	-2.69	0.00	0.000	0.000
275	<i>Crisp2</i>	9	23503236..23527496	0.32	-7.30	-157.78	0.02	0.310	1.000
276	<i>Crnk11_2</i>	6	complement(18349167..18351536)	0.84	1.34	2.52	0.00	0.000	0.130
277	<i>Crym</i>	1	complement(189944895..189960073)	0.48	-1.15	-2.22	0.02	0.300	1.000
278	<i>Cryz</i>	2	260884337..260911792	0.23	-1.19	-2.28	0.04	0.400	1.000
279	<i>Csap1</i>	10	13230158..13230575	20.90	-1.65	-3.13	0.00	0.000	0.000
280	<i>Cst5</i>	3	144569502..144574112	3.38	-3.13	-8.78	0.00	0.000	0.000
281	<i>Cxcl6</i>	14	complement(18860264..18862407)	0.11	-3.54	-11.63	0.01	0.190	1.000
282	<i>Cyp11a1</i>	8	62779875..62809893	0.40	-2.63	-6.18	0.00	0.000	0.090
283	<i>Cyp2b2</i>	1	83103925..83119193	0.30	7.40	168.93	0.01	0.130	1.000
284	<i>Cyp2c24</i>	1	258074860..258139176	0.50	1.88	3.68	0.00	0.000	0.100
285	<i>Cyp2d5</i>	7	complement(123616596..123621102)	0.13	1.60	3.04	0.04	0.400	1.000
286	<i>Cyp4a8</i>	5	complement(133978954..134008255)	0.54	1.92	3.78	0.00	0.000	0.050
287	<i>Cyp7b1</i>	2	complement(102701903..102871257)	28.09	1.26	2.40	0.00	0.000	0.000
288	<i>Cyss</i>	3	complement(144427207..144431806)	4.72	-1.37	-2.58	0.01	0.200	1.000
289	<i>Dbil5</i>	10	64375924..64376938	0.36	-1.77	-3.41	0.03	0.370	1.000

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
290	<i>Dcdc2</i>	17	complement(41838201..42031265)	0.25	-2.76	-6.76	0.00	0.000	0.000
291	<i>Dclk3</i>	8	119691388..119744506	0.08	-1.47	-2.78	0.03	0.380	1.000
292	<i>Defb1</i>	16	complement(75294376..75309176)	1.27	-3.78	-13.69	0.00	0.008	1.000
293	<i>Defb50</i>	16	complement(75249704..75262002)	116.91	-7.77	-217.65	0.00	0.000	0.000
294	<i>Dgki</i>	4	complement(64374342..64831473)	0.25	-1.09	-2.13	0.00	0.100	1.000
295	<i>Dhrs9</i>	3	55623634..55648325	0.12	1.04	2.06	0.05	0.480	1.000
296	<i>Dkk2</i>	2	237148941..237241350	0.72	-1.65	-3.14	0.00	0.000	0.000
297	<i>Dlg2</i>	1	156552328..157269747	0.07	-1.75	-3.35	0.04	0.460	1.000
298	<i>Dnah17</i>	10	complement(107029466..107158997)	0.18	1.55	2.94	0.00	0.000	0.000
299	<i>Dner</i>	9	complement(91965866..92291220)	0.04	-1.89	-3.71	0.05	0.490	1.000
300	<i>Dok6</i>	18	complement(86420361..86878142)	1.97	2.05	4.13	0.00	0.000	0.000
301	<i>Dpep3</i>	19	complement(37946722..37952501)	0.13	-2.23	-4.70	0.01	0.220	1.000
302	<i>Dpysl5</i>	6	complement(26939697..27024129)	0.02	-3.00	-8.01	0.04	0.420	1.000
303	<i>Dscaml1</i>	8	49737798..50055560	0.06	-2.50	-5.67	0.00	0.030	1.000
304	<i>Dsel</i>	13	complement(1942499..1946508)	3.36	1.47	2.77	0.00	0.000	0.000
305	<i>Dusp15</i>	3	complement(148417993..148428494)	0.05	-2.08	-4.24	0.04	0.430	1.000
306	<i>Dusp26</i>	16	complement(64798778..64806050)	0.30	-1.03	-2.05	0.03	0.380	1.000
307	<i>E2f8</i>	1	complement(104187100..104202591)	0.10	1.74	3.33	0.01	0.200	1.000
308	<i>Edn1</i>	17	complement(22137324..22143324)	0.71	-1.70	-3.24	0.00	0.010	1.000
309	<i>Efcab12</i>	4	complement(147721045..147742114)	0.36	-1.64	-3.13	0.00	0.030	1.000
310	<i>Efcab3</i>	10	93305969..93332702	0.92	-1.02	-2.03	0.00	0.100	1.000
311	<i>Efhc2</i>	X	5825711..6026398	2.06	4.62	24.67	0.00	0.000	0.000
312	<i>Efnb2</i>	16	86631064..86675049	1.45	-1.06	-2.09	0.00	0.000	0.040
313	<i>Elmod1</i>	8	complement(58486078..58542844)	0.15	-7.00	-128.09	0.03	0.350	1.000
314	<i>Enam</i>	14	complement(21194664..21219454)	7.66	1.33	2.51	0.00	0.000	0.000
315	<i>Eno2</i>	4	complement(157285179..157294047)	0.87	-1.16	-2.23	0.01	0.160	1.000
316	<i>Entpd7_1</i>	1	262987957..263000254	0.47	-1.66	-3.17	0.03	0.330	1.000
317	<i>Epb4114a</i>	18	complement(26570647..26658892)	0.31	-1.13	-2.18	0.02	0.240	1.000
318	<i>Epha4</i>	9	complement(83111222..83253458)	0.10	-1.08	-2.12	0.02	0.280	1.000
319	<i>Ephx2</i>	15	complement(42757235..42794279)	0.74	-1.31	-2.49	0.00	0.007	1.000
320	<i>Erich5</i>	7	73222730..73242899	0.22	-1.36	-2.57	0.05	0.480	1.000
321	<i>Espl1</i>	7	143897014..143923868	0.17	1.28	2.43	0.00	0.030	1.000
322	<i>Esr2</i>	6	complement(99164357..99214251)	12.22	-1.42	-2.68	0.00	0.000	0.000
323	<i>Esrrg</i>	13	106463368..106683436	0.14	-1.03	-2.04	0.01	0.140	1.000
324	<i>Etnk2</i>	13	complement(50481163..50499140)	1.06	-1.06	-2.08	0.00	0.003	1.000
325	<i>Exoc7</i>	10	complement(105163754..105182834)	0.35	2.19	4.55	0.01	0.170	1.000
326	<i>Eya4</i>	1	23409408..23610164	0.11	-1.58	-2.99	0.05	0.470	1.000
327	<i>Fabp4</i>	2	93792601..93797305	10.87	-1.43	-2.69	0.00	0.000	0.000
328	<i>Fam111a</i>	1	229003961..229019527	54.01	-7.51	-182.83	0.00	0.000	0.000
329	<i>Fam189a2</i>	1	complement(241822626..241875864)	0.38	-1.34	-2.53	0.01	0.170	1.000

330	<i>Fam227b</i>	3	complement(118268739..118427851)	0.25	-1.16	-2.23	0.03	0.400	1.000
331	<i>Fam229b</i>	20	complement(44207478..44220702)	0.33	-3.88	-14.73	0.01	0.210	1.000
332	<i>Fam25a</i>	16	complement(10702263..10706073)	5.04	-2.14	-4.40	0.00	0.000	0.000
333	<i>Fam3d</i>	15	18322327..18355818	0.64	-1.93	-3.82	0.00	0.002	1.000
334	<i>Fam71f1</i>	4	56591715..56615158	0.06	-3.20	-9.21	0.03	0.340	1.000
335	<i>Fancd2</i>	4	145489869..145551479	0.19	1.18	2.26	0.00	0.070	1.000
336	<i>Fbxl7</i>	2	complement(79067915..79078258)	0.16	-1.05	-2.07	0.02	0.300	1.000
337	<i>Fcamr</i>	13	47539231..47552848	0.07	1.50	2.84	0.04	0.430	1.000
338	<i>Fcgbp1</i>	1	85058548..85096346	0.16	-1.94	-3.84	0.01	0.130	1.000
339	<i>Fhl4</i>	7	complement(26139664..26144466)	0.22	-1.27	-2.41	0.04	0.430	1.000
340	<i>Fosl1</i>	1	220826560..220835066	0.36	-1.18	-2.27	0.02	0.270	1.000
341	<i>Foxi2</i>	1	207654487..207656138	0.15	-2.60	-6.04	0.02	0.280	1.000
342	<i>Frzb</i>	3	complement(67635607..67668772)	0.23	-1.26	-2.39	0.01	0.150	1.000
343	<i>G0s2</i>	13	complement(112004140..112005052)	0.64	-1.32	-2.49	0.02	0.270	1.000
344	<i>Gapdhs</i>	1	complement(89180063..89194602)	0.31	-4.06	-16.69	0.00	0.020	1.000
345	<i>Garem2</i>	6	complement(27631364..27643076)	0.13	1.24	2.36	0.05	0.470	1.000
346	<i>Gata6</i>	18	2416552..2446338	0.15	-1.41	-2.65	0.03	0.370	1.000
347	<i>Gnal</i>	18	62805410..62944630	11.03	-1.58	-2.99	0.00	0.000	0.150
348	<i>Gng4</i>	17	complement(90266794..90315492)	0.65	2.50	5.66	0.00	0.000	0.000
349	<i>Gp2</i>	1	complement(189166399..189182306)	0.04	2.61	6.10	0.02	0.290	1.000
350	<i>Gpr137c</i>	15	19547871..19614805	0.12	-1.89	-3.71	0.05	0.480	1.000
351	<i>Gpr150</i>	2	complement(2812554..2814690)	1.80	1.79	3.45	0.00	0.000	0.000
352	<i>Gpr179</i>	10	complement(85274057..85289777)	0.36	-2.25	-4.76	0.00	0.000	0.000
353	<i>Gpr27</i>	4	132137793..132138926	0.09	-2.89	-7.40	0.05	0.470	1.000
354	<i>Gpr37</i>	4	complement(51822153..51844331)	0.05	-2.06	-4.17	0.03	0.360	1.000
355	<i>Gpx3</i>	10	40247436..40255422	32.31	-1.14	-2.21	0.00	0.000	0.000
356	<i>Grhl3</i>	5	complement(153893039..153924896)	0.50	-2.76	-6.79	0.00	0.001	0.260
357	<i>Grid2</i>	4	94696965..95442778	0.03	-2.24	-4.73	0.04	0.450	1.000
358	<i>Gsg1</i>	4	complement(169020683..169036950)	0.54	-4.12	-17.36	0.00	0.006	1.000
359	<i>Gspt2</i>	X	complement(63954727..63961613)	0.52	-1.96	-3.89	0.00	0.000	0.000
360	<i>Gstm6</i>	2	complement(210733594..210738378)	13.48	1.17	2.25	0.00	0.000	0.000
361	<i>Gucy2c</i>	4	complement(170659998..170740274)	0.05	-3.58	-11.92	0.02	0.250	1.000
362	<i>Gucy2g</i>	1	complement(276187242..276228574)	1.66	-2.27	-4.83	0.00	0.000	0.000
363	<i>Gys2</i>	4	complement(176638629..176679815)	0.24	3.94	15.34	0.00	0.000	0.070
364	<i>Gzmb</i>	15	complement(35413793..35417316)	0.11	-1.83	-3.55	0.02	0.320	1.000
365	<i>Habp2</i>	1	277068761..277104566	0.45	1.24	2.36	0.00	0.060	1.000
366	<i>Haus1</i>	18	complement(74141481..74151950)	0.70	2.71	6.54	0.00	0.060	1.000
367	<i>Havcr1</i>	10	31813814..31848379	0.06	-2.22	-4.65	0.01	0.220	1.000
368	<i>Hemgn</i>	5	complement(62005071..62025152)	0.06	-2.34	-5.05	0.04	0.430	1.000
369	<i>Hhat</i>	13	complement(111236466..111474411)	0.62	-1.12	-2.17	0.01	0.120	1.000
370	<i>Hhip1</i>	6	132219088..132240356	0.14	-1.21	-2.31	0.04	0.460	1.000
371	<i>Hist1h2bk_2</i>	17	complement(44527421..44527801)	1.08	-4.64	-24.92	0.00	0.020	1.000
372	<i>Hjurp</i>	9	complement(95349086..95362014)	0.23	1.11	2.16	0.01	0.190	1.000

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
373	<i>Hmgb1</i>	12	7081895..7094002	1.56	1.43	2.69	0.00	0.009	1.000
374	<i>Hmgn5</i>	X	complement(80134557..80142902)	0.41	-8.06	-267.65	0.01	0.170	1.000
375	<i>Hnrnpa3_2</i>	10	80953006..80954332	1.57	-1.84	-3.59	0.00	0.060	1.000
376	<i>Hoga1</i>	1	261291870..261318984	10.28	-1.15	-2.22	0.00	0.000	0.000
377	<i>Hoxb9</i>	10	84119884..84123390	0.54	-4.06	-16.66	0.00	0.007	1.000
378	<i>Hpgd</i>	16	complement(37457135..37495758)	0.77	-1.14	-2.21	0.01	0.120	1.000
379	<i>Hprt1</i>	X	complement(158197149..158228749)	0.32	6.30	78.80	0.03	0.360	1.000
380	<i>Hrasls</i>	11	complement(75125952..75144903)	0.12	-2.37	-5.16	0.01	0.180	1.000
381	<i>Hrasls5</i>	1	222907159..222937633	0.15	-6.33	-80.29	0.05	0.490	1.000
382	<i>Hsd11b2</i>	19	37476095..37481307	0.10	-1.52	-2.86	0.04	0.430	1.000
383	<i>Hsd3b2</i>	2	complement(200585748..200762492)	0.18	-4.95	-30.90	0.00	0.010	1.000
384	<i>Hsf2bp</i>	20	complement(10757854..10844178)	4.20	1.76	3.39	0.00	0.000	0.000
385	<i>Hsp90aa1</i>	6	complement(135045363..135049728)	0.89	-9.46	-703.35	0.00	0.070	1.000
386	<i>Hspa12a</i>	1	complement(279946811..280015358)	0.17	-1.06	-2.08	0.01	0.120	1.000
387	<i>Hspa1b</i>	20	complement(4877324..4879779)	84.26	1.19	2.28	0.00	0.000	0.000
388	<i>Hspb9</i>	10	88620655..88621300	0.47	-1.56	-2.96	0.04	0.450	1.000
389	<i>Htr5b</i>	13	complement(37479758..37492680)	2.90	1.42	2.67	0.00	0.000	0.000
390	<i>Hyal1</i>	8	116332796..116335435	2.12	1.12	2.17	0.00	0.000	0.000
391	<i>Icam5</i>	8	22050222..22057209	0.09	-2.25	-4.75	0.01	0.160	1.000
392	<i>Ifitm2</i>	1	complement(213750192..213751405)	93.40	-1.21	-2.31	0.00	0.000	0.000
393	<i>Igh-6</i>	6	complement(138092131..138093643)	53.32	1.09	2.13	0.00	0.000	0.000
394	<i>Ighg</i>	6	complement(139140679..139142218)	118.66	1.41	2.66	0.00	0.000	0.000
395	<i>Ighv12-3</i>	6	complement(142177345..142178771)	0.48	1.77	3.41	0.03	0.390	1.000
396	<i>Ighv8-4</i>	6	complement(143590014..143590448)	2.29	3.50	11.33	0.00	0.000	0.050
397	<i>Il12rb2</i>	4	complement(98052842..98141482)	0.46	-1.84	-3.57	0.00	0.000	0.230
398	<i>Il15ra</i>	17	complement(70451411..70481750)	1.69	-1.57	-2.97	0.00	0.000	0.000
399	<i>Il1rapl2</i>	X	108287068..109851047	0.04	2.61	6.10	0.02	0.290	1.000
400	<i>Il23r</i>	4	complement(98203958..98305173)	0.13	1.59	3.00	0.03	0.380	1.000
401	<i>Il36rn</i>	3	1385654..1392275	0.08	-2.30	-4.91	0.01	0.130	1.000
402	<i>Inhba</i>	17	complement(51898217..51912496)	0.20	-1.80	-3.48	0.00	0.060	1.000
403	<i>Insrr</i>	2	187162017..187181395	0.14	-1.32	-2.49	0.00	0.050	1.000
404	<i>Ipcef1</i>	1	complement(43567842..43638161)	0.12	1.63	3.09	0.04	0.410	1.000
405	<i>Irak1bp1</i>	8	90343154..90360086	0.89	-1.59	-3.01	0.00	0.030	1.000
406	<i>Irgc</i>	1	complement(81291765..81295442)	0.37	-1.71	-3.27	0.00	0.080	1.000
407	<i>Jph2</i>	3	complement(159712325..159775643)	1.08	-1.08	-2.11	0.00	0.003	1.000
408	<i>Ka11</i>	10	complement(88141667..88144625)	0.30	1.13	2.19	0.04	0.450	1.000
409	<i>Kcna7</i>	1	101397828..101403320	0.24	1.48	2.80	0.00	0.005	1.000
410	<i>Kcnc3</i>	1	100593680..100607874	0.31	1.00	2.00	0.00	0.010	1.000
411	<i>Kcng1</i>	3	complement(165020230..165039707)	0.10	-2.83	-7.13	0.00	0.050	1.000
412	<i>Kcng3</i>	6	complement(6794808..6842758)	0.70	1.78	3.43	0.00	0.001	0.250
413	<i>Kcnh1</i>	13	110920737..111232269	0.08	-1.25	-2.39	0.04	0.410	1.000

414	<i>Kcnk3</i>	6	complement(27151612..27190132)	0.33	-1.04	-2.05	0.00	0.030	1.000
415	<i>Kcnq1</i>	1	216293087..216630339	0.27	-1.24	-2.36	0.00	0.050	1.000
416	<i>Kcns3</i>	6	complement(36764044..36819821)	0.30	-1.19	-2.28	0.01	0.140	1.000
417	<i>Kcnt1</i>	3	3310954..3365340	0.06	-1.26	-2.39	0.05	0.480	1.000
418	<i>Kif17</i>	5	156628432..156666284	0.11	-1.21	-2.31	0.05	0.490	1.000
419	<i>Kif27</i>	17	6701315..6772349	0.15	-1.11	-2.16	0.01	0.130	1.000
420	<i>Kif8</i>	X	complement(18835827..18890090)	0.31	-2.30	-4.92	0.00	0.000	0.000
421	<i>Klik1c2</i>	1	complement(99981045..99985422)	21.24	-3.42	-10.70	0.00	0.000	0.000
422	<i>Knstrn</i>	3	110618298..110638046	0.51	1.15	2.22	0.01	0.190	1.000
423	<i>Krt23</i>	10	complement(87391623..87407634)	0.71	-1.83	-3.55	0.00	0.005	1.000
424	<i>Krt4</i>	7	complement(143518010..143523503)	0.15	-6.53	-92.71	0.04	0.410	1.000
425	<i>Krt7</i>	7	143059764..143075907	3.43	-1.54	-2.90	0.00	0.000	0.000
426	<i>Lamc2</i>	13	complement(70566643..70626252)	13.12	1.08	2.11	0.00	0.000	0.000
427	<i>Ldhc</i>	1	102915191..102931839	0.16	-2.85	-7.20	0.02	0.250	1.000
428	<i>Lep</i>	4	56337695..56351818	0.29	-8.31	-318.23	0.01	0.140	1.000
429	<i>Lgals4</i>	1	87019975..87027691	0.37	1.34	2.53	0.03	0.340	1.000
430	<i>Lingo3</i>	7	11737293..11746703	0.34	1.01	2.02	0.02	0.300	1.000
431	<i>Lipo1</i>	1	complement(252102219..252116971)	0.05	2.07	4.21	0.02	0.300	1.000
432	<i>Lmtk3</i>	1	101783621..101792496	0.18	1.12	2.18	0.05	0.480	1.000
433	<i>LOC100271845</i>	1	196737627..196740027	0.17	-4.69	-25.82	0.00	0.040	1.000
434	<i>LOC100359539</i>	19	25391700..25394229	2.10	1.26	2.39	0.00	0.000	0.060
435	<i>LOC100359951</i>	9	complement(1012091..1012450)	1.20	2.00	4.01	0.00	0.060	1.000
436	<i>LOC100360117</i>	7	117967818..117969850	8.02	-3.78	-13.70	0.00	0.000	0.000
437	<i>LOC100360218</i>	X	122724129..122781479	0.29	-2.25	-4.75	0.00	0.060	1.000
438	<i>LOC100360581</i>	6	139560028..139560489	2.47	-2.78	-6.89	0.00	0.003	1.000
439	<i>LOC100360690</i>	1	complement(252154616..252167752)	18.32	1.89	3.71	0.00	0.000	0.000
440	<i>LOC100361105</i>	6	complement(141146719..141147264)	1.56	1.92	3.78	0.00	0.005	1.000
441	<i>LOC100361706_1</i>	11	86092468..86092779	23.64	1.91	3.77	0.00	0.000	0.000
442	<i>LOC100361706_2</i>	11	86094567..86096397	3.05	3.41	10.65	0.00	0.000	0.000
443	<i>LOC100362684</i>	5	161889342..161889701	1.29	2.54	5.82	0.00	0.020	1.000
444	<i>LOC100362814</i>	3	complement(94064234..94182714)	0.32	-1.01	-2.01	0.00	0.070	1.000
445	<i>LOC100363452</i>	3	103192683..103193333	1.24	-4.85	-28.75	0.00	0.006	1.000
446	<i>LOC100366231</i>	1	146976975..146989858	0.19	3.00	7.98	0.00	0.040	1.000
447	<i>LOC100909485</i>	X	complement(17962909..17964888)	0.17	-1.96	-3.88	0.02	0.300	1.000
448	<i>LOC100909505</i>	7	63467216..63499353	0.32	7.81	224.65	0.01	0.130	1.000
449	<i>LOC100909657</i>	4	149908375..149908980	2.00	-1.00	-2.00	0.01	0.110	1.000
450	<i>LOC100909840</i>	2	complement(147955196..148050438)	0.57	-1.30	-2.47	0.01	0.170	1.000
451	<i>LOC100909856</i>	5	142332607..142376370	0.30	2.50	5.67	0.00	0.020	1.000
452	<i>LOC100909913</i>	X	6791136..6815583	0.13	-1.57	-2.97	0.02	0.310	1.000
453	<i>LOC100910237</i>	1	complement(22757012..22758012)	1.85	-4.80	-27.85	0.00	0.000	0.000
454	<i>LOC100910438</i>	2	28370373..28381311	0.62	1.15	2.22	0.04	0.420	1.000
455	<i>LOC100910528</i>	1	complement(32570296..32570589)	0.71	6.30	78.80	0.03	0.360	1.000
456	<i>LOC100910650</i>	11	71211768..71216983	1.61	-1.48	-2.79	0.00	0.070	1.000

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
457	LOC100910732	11	72829238..72865902	0.15	-6.71	-104.47	0.04	0.410	1.000
458	LOC100910792	17	47721977..47817248	0.22	-1.11	-2.16	0.01	0.180	1.000
459	LOC100910979_1	18	55463308..55464632	0.25	-2.08	-4.22	0.02	0.230	1.000
460	LOC100911186	1	complement(212570195..212579057)	12.19	-1.49	-2.80	0.00	0.000	0.000
461	LOC100911225	1	complement(212563714..212568224)	0.12	-1.38	-2.61	0.04	0.410	1.000
462	LOC100911337_3	4	complement(120413653..120414118)	21.11	-2.98	-7.88	0.00	0.050	1.000
463	LOC100911374	11	complement(72786730..72814850)	0.26	6.84	114.17	0.02	0.230	1.000
464	LOC100911453	2	208420206..208586356	0.09	2.51	5.71	0.04	0.430	1.000
465	LOC100911515	9	20213588..20217176	0.36	-1.29	-2.44	0.01	0.220	1.000
466	LOC100911615	1	213997709..214002815	1.43	-4.85	-28.75	0.00	0.000	0.030
467	LOC100911625	9	20251521..20260505	0.23	7.67	203.82	0.01	0.140	1.000
468	LOC100911727	1	75233703..75264293	0.06	5.77	54.61	0.05	0.470	1.000
469	LOC100911769	3	complement(153843206..153893847)	0.59	-1.09	-2.13	0.00	0.003	1.000
470	LOC100911837	11	complement(85802605..85895613)	0.11	-7.53	-184.45	0.02	0.240	1.000
471	LOC100911881	1	complement(214039481..214074663)	0.09	6.13	70.14	0.03	0.360	1.000
472	LOC100912034	4	31387420..31392856	0.15	-2.19	-4.57	0.01	0.150	1.000
473	LOC100912498	11	complement(82875627..82884660)	0.54	5.92	60.74	0.00	0.000	0.130
474	LOC100912611	5	146318568..146321925	0.13	1.98	3.96	0.01	0.190	1.000
475	LOC100912707	3	16413080..16413632	2.25	1.40	2.64	0.05	0.490	1.000
476	LOC102549061	17	43627930..43628310	1.20	2.02	4.07	0.00	0.060	1.000
477	LOC102549115	1	88451958..88453578	0.65	8.61	389.63	0.00	0.050	1.000
478	LOC102550734	8	complement(104155401..104155775)	0.42	2.34	5.07	0.02	0.250	1.000
479	LOC102553099	11	complement(61466962..61470348)	0.67	-6.94	-122.54	0.03	0.380	1.000
480	LOC102553715_1	10	47765432..47768483	13.32	-1.12	-2.18	0.00	0.000	0.000
481	LOC102554500	3	4988097..4989205	0.19	5.93	61.08	0.04	0.410	1.000
482	LOC102555392	18	55466373..55467629	6.37	-1.34	-2.52	0.00	0.000	0.000
483	LOC103689941	5	142303636..142330854	0.08	6.18	72.27	0.03	0.380	1.000
484	LOC103689993	X	complement(45244038..45259492)	1201.74	-2.95	-7.71	0.00	0.000	0.000
485	LOC103690005	1	91042635..91048483	0.97	-2.32	-4.99	0.00	0.003	1.000
486	LOC103690016	1	197659187..197681006	0.22	8.36	328.71	0.00	0.080	1.000
487	LOC103690020	4	14212925..14241272	0.14	2.10	4.30	0.00	0.070	1.000
488	LOC103690114	1	87790104..87801872	0.10	6.80	111.31	0.01	0.210	1.000
489	LOC103690137	3	50656125..50658546	0.10	-2.17	-4.51	0.03	0.400	1.000
490	LOC103690354	15	28074953..28075411	0.50	-2.95	-7.71	0.01	0.130	1.000
491	LOC103691013	12	21767606..21773959	0.14	-1.89	-3.69	0.01	0.230	1.000
492	LOC103692167_1	4	113910685..113913687	0.59	1.07	2.10	0.01	0.190	1.000
493	LOC103694381	20	5184515..5186503	0.28	7.11	137.98	0.01	0.170	1.000
494	LOC108348067	1	220362064..220364358	0.20	7.45	174.93	0.01	0.130	1.000
495	LOC108348083	1	complement(259641676..259674425)	6.86	-1.44	-2.71	0.00	0.000	0.000
496	LOC108348085	1	220322940..220324430	0.64	3.97	15.70	0.00	0.000	0.030
497	LOC108348114	5	129043675..129082442	1.69	2.09	4.25	0.01	0.220	1.000

498	LOC108348137	X	105911925..105915821	0.84	-1.07	-2.10	0.00	0.010	1.000
499	LOC108348142	7	118507224..118509256	8.27	-3.82	-14.13	0.00	0.000	0.000
500	LOC108348189	7	117963740..117964414	1.93	-1.97	-3.91	0.00	0.040	1.000
501	LOC108352650	13	91334004..91334306	1.08	-3.47	-11.06	0.00	0.080	1.000
502	LOC292543	1	64618506..64632131	0.74	-1.08	-2.12	0.00	0.020	1.000
503	LOC298795	6	23757225..23758496	0.36	-2.26	-4.80	0.00	0.030	1.000
504	LOC300308_1	7	20262680..20480453	0.03	-3.03	-8.18	0.04	0.450	1.000
505	LOC360919	14	complement(19028810..19072677)	0.22	-1.00	-2.00	0.05	0.490	1.000
506	LOC365778	2	complement(127770767..127778350)	0.14	-2.79	-6.93	0.00	0.030	1.000
507	LOC500712	6	127941526..128080889	1.00	-1.89	-3.71	0.00	0.000	0.000
508	LOC679794	10	complement(36501996..36502313)	0.29	2.94	7.66	0.05	0.470	1.000
509	LOC682793	14	104452917..104453129	1.74	-7.03	-131.11	0.03	0.350	1.000
510	LOC685963	8	63119395..63119607	1.64	-6.95	-123.84	0.03	0.370	1.000
511	LOC687679	4	118167294..118174842	10.03	-1.43	-2.69	0.00	0.000	0.000
512	LOC687707	10	57239993..57240947	0.51	-2.10	-4.28	0.00	0.090	1.000
513	LOC687880	1	complement(99299011..99303048)	3.56	4.00	16.05	0.00	0.000	0.000
514	LOC688754	18	complement(51613210..51614057)	0.33	-1.84	-3.57	0.01	0.190	1.000
515	LOC689899	14	24129592..24130122	0.24	2.61	6.10	0.02	0.290	1.000
516	LOC689986	14	complement(3248080..3288017)	0.09	1.91	3.76	0.04	0.430	1.000
517	LOC690468_1	3	164002482..164002694	1.38	-6.71	-104.47	0.04	0.410	1.000
518	LOC690507	3	149802621..149812183	0.11	-3.38	-10.44	0.02	0.270	1.000
519	LOC690700	14	94590765..94602088	0.34	-1.98	-3.94	0.04	0.410	1.000
520	LOC691352	10	complement(44238354..44243402)	0.35	-7.22	-148.81	0.02	0.300	1.000
521	LOC691931	2	complement(232214331..232245319)	2.77	-1.07	-2.09	0.00	0.004	1.000
522	Lpar5	4	157594436..157595972	0.24	-1.24	-2.36	0.04	0.430	1.000
523	Lpl	16	complement(22537056..22561496)	2.21	-2.35	-5.11	0.00	0.000	0.000
524	Lrrc15	11	74050166..74051902	0.39	-1.35	-2.55	0.00	0.090	1.000
525	Lrrc34	2	116372519..116391959	0.40	-1.21	-2.32	0.00	0.100	1.000
526	Lrrc74b	11	complement(87418205..87434482)	0.22	-1.57	-2.97	0.03	0.320	1.000
527	Lta	20	4852496..4854677	0.08	2.61	6.10	0.02	0.290	1.000
528	Ltbp2	6	complement(108500112..108596569)	1.53	-1.45	-2.73	0.00	0.000	0.000
529	Ltc4s	10	complement(35737664..35739625)	0.69	-1.28	-2.44	0.04	0.410	1.000
530	Ly6g6e	20	5067330..5068624	0.99	-1.08	-2.11	0.04	0.410	1.000
531	M6pr	4	155088317..155092827	0.35	-7.01	-128.69	0.03	0.360	1.000
532	Mageb16	X	complement(46977655..47078128)	0.14	-1.84	-3.57	0.02	0.240	1.000
533	March10	10	complement(93591188..93679974)	0.07	-6.37	-82.70	0.05	0.480	1.000
534	Mas1	1	48077033..48108216	0.27	1.13	2.19	0.02	0.310	1.000
535	Masp1	11	80736576..80803382	0.71	-1.09	-2.12	0.00	0.003	1.000
536	Mb21d1	8	complement(85789763..85803433)	0.14	-1.89	-3.70	0.03	0.340	1.000
537	Mboat1	17	complement(36061775..36177457)	0.84	-1.05	-2.07	0.00	0.090	1.000
538	Mc5r	18	64114933..64116524	1.29	1.62	3.07	0.00	0.000	0.001
539	Mcoln2	2	252018597..252068271	2.43	-3.51	-11.38	0.00	0.000	0.010

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
540	<i>Mcoln3</i>	2	251983339..252007560	0.49	-1.48	-2.79	0.01	0.140	1.000
541	<i>Mcpt2</i>	15	34862266..35034622	0.42	2.05	4.14	0.00	0.000	0.050
542	<i>Mdh1b</i>	9	complement(70404093..70450170)	0.07	-2.06	-4.17	0.03	0.360	1.000
543	<i>Meiob</i>	10	14174732..14206025	0.14	-1.65	-3.14	0.04	0.410	1.000
544	<i>Melff</i>	11	complement(72135668..72157522)	0.05	-2.53	-5.76	0.01	0.130	1.000
545	<i>Mest</i>	4	58053041..58063138	0.27	-1.89	-3.70	0.02	0.260	1.000
546	<i>MGC105567</i>	18	55685613..55704904	1.68	1.15	2.23	0.00	0.000	0.020
547	<i>MGC94199_2</i>	5	24146171..24165463	1.34	-1.50	-2.84	0.05	0.470	1.000
548	<i>Mgmt</i>	1	209237233..209464190	9.97	-1.18	-2.26	0.00	0.000	0.000
549	<i>Mgst1</i>	4	172119331..172134607	22.14	-1.23	-2.34	0.00	0.000	0.000
550	<i>Miga1</i>	2	complement(257493875..257546799)	0.42	-1.25	-2.37	0.00	0.050	1.000
551	<i>Mip</i>	7	2635743..2642848	0.08	-1.65	-3.13	0.05	0.470	1.000
552	<i>Mmd</i>	10	77755216..77783779	13.93	-1.37	-2.59	0.00	0.000	0.000
553	<i>Mmp7</i>	8	5893249..5901049	7.09	-2.87	-7.30	0.00	0.000	0.000
554	<i>Morn4</i>	1	complement(261323083..261333383)	2.86	-1.93	-3.81	0.00	0.000	0.000
555	<i>Mpo</i>	10	75087892..75098260	0.13	-6.99	-126.89	0.03	0.330	1.000
556	<i>Mpz</i>	13	89524329..89530068	1.36	-1.08	-2.11	0.00	0.003	1.000
557	<i>Mrl1</i>	13	complement(72771984..72789841)	0.41	-1.02	-2.03	0.03	0.390	1.000
558	<i>Mrap</i>	11	30904733..30915225	0.19	-3.21	-9.22	0.02	0.320	1.000
559	<i>Mroh2a</i>	9	95309759..95347384	0.04	-1.63	-3.10	0.03	0.370	1.000
560	<i>Ms4a14</i>	1	complement(227471436..227486976)	0.08	-1.38	-2.60	0.03	0.350	1.000
561	<i>Msi1</i>	12	complement(46895447..46920952)	0.12	-1.45	-2.73	0.03	0.360	1.000
562	<i>Msln</i>	10	complement(15119663..15125408)	0.67	-2.67	-6.36	0.00	0.000	0.000
563	<i>Msmb</i>	16	8280275..8300852	115.92	-8.43	-344.01	0.00	0.000	0.000
564	<i>Mt1</i>	17	78793336..78793724	25.04	-3.17	-8.99	0.00	0.000	0.000
565	<i>Mt2A</i>	19	complement(11307967..11308740)	20.87	-2.53	-5.76	0.00	0.000	0.002
566	<i>Mt3</i>	19	complement(11324698..11326139)	3.06	-6.33	-80.32	0.00	0.001	0.670
567	<i>Mtcl1</i>	9	complement(114491419..114619711)	0.53	-1.63	-3.09	0.00	0.000	0.000
568	<i>Muc1</i>	2	188543137..188547874	0.39	-1.13	-2.19	0.00	0.080	1.000
569	<i>Muc20</i>	11	71222600..71236223	0.18	-2.69	-6.45	0.00	0.080	1.000
570	<i>Mug1</i>	4	154391647..154729310	0.06	1.96	3.88	0.02	0.240	1.000
571	<i>Myh6</i>	15	complement(33605654..33629699)	0.06	-3.13	-8.73	0.00	0.020	1.000
572	<i>Mzb1</i>	18	complement(28436548..28438654)	1.09	1.30	2.46	0.00	0.030	1.000
573	<i>Ncam1</i>	8	complement(53839098..53901358)	0.55	-1.40	-2.64	0.00	0.000	0.050
574	<i>Nckap5</i>	13	complement(42265806..42885440)	0.04	-2.14	-4.39	0.01	0.200	1.000
575	<i>Nek5</i>	16	74810938..74848113	0.10	-3.54	-11.63	0.01	0.190	1.000
576	<i>NEWGENE_1565644</i>	X	144807392..144807829	19.07	3.00	8.00	0.00	0.000	0.000
577	<i>Nfe2l3_2</i>	4	81205404..81232813	0.39	-2.08	-4.22	0.00	0.006	1.000
578	<i>Nkx3-1</i>	15	51065316..51068421	5.25	-3.44	-10.84	0.00	0.000	0.001
579	<i>Nlrc3</i>	10	11810926..11842482	0.16	1.01	2.01	0.04	0.430	1.000
580	<i>Nlrc4</i>	6	22167919..22194250	0.28	-1.43	-2.70	0.00	0.020	1.000

581	<i>Nme5</i>	18	complement(27357413..27374603)	0.28	-1.60	-3.02	0.01	0.150	1.000
582	<i>Nnat</i>	3	154043873..154046330	3.60	-1.33	-2.51	0.00	0.000	0.000
583	<i>Nnmt</i>	8	complement(52925175..52937972)	0.46	-1.44	-2.71	0.01	0.220	1.000
584	<i>Nov</i>	7	94375020..94383024	4.94	2.05	4.15	0.00	0.000	0.000
585	<i>Nptx1</i>	10	complement(108682638..108691367)	0.18	-1.34	-2.52	0.00	0.040	1.000
586	<i>Nqo2</i>	17	complement(32132347..32158538)	1.45	-3.78	-13.73	0.00	0.000	0.000
587	<i>Nr1i2</i>	11	65022100..65058545	0.68	1.07	2.10	0.00	0.020	1.000
588	<i>Nrg1</i>	16	63837216..64057434	0.10	-1.62	-3.06	0.01	0.100	1.000
589	<i>Nrgn</i>	8	complement(40015049..40023193)	0.36	1.51	2.85	0.01	0.120	1.000
590	<i>Nt5c1b</i>	6	36089433..36106849	0.08	-3.41	-10.65	0.02	0.310	1.000
591	<i>Ntf3</i>	4	complement(158636884..158705886)	0.28	-1.16	-2.23	0.04	0.410	1.000
592	<i>Ntsr1</i>	3	175885894..176046345	0.07	-1.97	-3.92	0.01	0.140	1.000
593	<i>Nubpl</i>	6	72891725..73148536	111.41	1.01	2.01	0.00	0.000	0.000
594	<i>Nuggc</i>	15	49010492..49055237	0.08	1.82	3.52	0.02	0.290	1.000
595	<i>Nupr111</i>	1	complement(198043073..198045154)	0.99	-7.86	-233.01	0.01	0.230	1.000
596	<i>Oas1g</i>	12	41155497..41167505	2.11	1.04	2.06	0.00	0.000	0.010
597	<i>Oas1i</i>	12	42343123..42355131	0.42	-7.91	-240.29	0.01	0.220	1.000
598	<i>Oaz3</i>	2	complement(195676048..195678848)	0.88	-4.46	-21.94	0.00	0.020	1.000
599	<i>Ocm2</i>	12	12624723..12634472	49.33	-1.56	-2.95	0.00	0.000	0.000
600	<i>Odf1</i>	7	77066955..77074711	0.78	-5.55	-46.82	0.00	0.010	1.000
601	<i>Ogn</i>	17	complement(15447716..15467359)	3.38	-2.07	-4.20	0.00	0.000	0.000
602	<i>Olr1029</i>	7	complement(7753040..7753978)	0.14	5.62	49.17	0.05	0.460	1.000
603	<i>Olr657</i>	3	complement(77388589..77389521)	0.26	1.66	3.16	0.02	0.250	1.000
604	<i>Olr956</i>	7	complement(6753411..6754349)	0.20	3.09	8.49	0.01	0.110	1.000
605	<i>Osbp2</i>	14	complement(83943977..84106997)	4.12	2.15	4.45	0.00	0.000	0.000
606	<i>Oscar</i>	1	64182422..64188658	0.08	2.45	5.47	0.02	0.250	1.000
607	<i>Otx1</i>	14	complement(106861676..106864892)	3.38	1.04	2.05	0.00	0.000	0.160
608	<i>P2rx5</i>	10	59725398..59737126	0.10	-1.74	-3.33	0.02	0.250	1.000
609	<i>Parpbp</i>	7	complement(28654707..28715224)	0.06	1.36	2.56	0.04	0.410	1.000
610	<i>Pbld1</i>	20	complement(27103317..27117663)	1.08	1.37	2.59	0.00	0.000	0.008
611	<i>Pbsn</i>	X	complement(45178446..45187149)	76.89	-2.82	-7.06	0.00	0.000	0.000
612	<i>Pcdh10</i>	2	136993208..137014492	19.34	-4.17	-17.99	0.00	0.000	0.000
613	<i>Pcdhga5</i>	18	30840868..30843291	0.06	-1.89	-3.71	0.05	0.480	1.000
614	<i>Pcdhgb6</i>	18	30890869..30893286	0.29	-1.04	-2.05	0.01	0.140	1.000
615	<i>Pck1</i>	3	171213936..171219871	0.48	-8.76	-432.81	0.01	0.100	1.000
616	<i>Pcsk2</i>	3	137618898..137925605	0.03	5.83	56.87	0.04	0.440	1.000
617	<i>Pcsk9</i>	5	complement(126031368..126053726)	2.48	2.37	5.16	0.00	0.000	0.000
618	<i>Pde1b</i>	7	145117951..145145376	0.17	-1.67	-3.18	0.02	0.250	1.000
619	<i>Pde1c</i>	4	complement(86359820..86630543)	0.12	-1.42	-2.68	0.01	0.210	1.000
620	<i>Pde5a</i>	2	226900619..227041576	2.10	-1.07	-2.10	0.00	0.000	0.000
621	<i>Pde8b</i>	2	complement(24719976..24923128)	0.07	-3.21	-9.23	0.03	0.330	1.000
622	<i>Pdia5</i>	11	68493035..68578995	18.95	-1.67	-3.19	0.00	0.000	0.000
623	<i>Peli2</i>	15	24942218..25083931	0.28	-1.34	-2.53	0.00	0.020	1.000

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
624	<i>Pidd1</i>	1	complement(214419240..214423881)	0.14	7.20	147.41	0.01	0.190	1.000
625	<i>Pla2g2a</i>	5	157282669..157285328	11.27	-1.12	-2.18	0.00	0.000	0.002
626	<i>Pla2g2d</i>	5	157222636..157228791	1.81	1.13	2.18	0.00	0.008	1.000
627	<i>Plcl1</i>	9	62291405..62349309	0.19	-1.04	-2.06	0.01	0.130	1.000
628	<i>Plekhs1</i>	1	277261681..277291370	1.39	-1.77	-3.42	0.00	0.000	0.000
629	<i>Plet1</i>	8	54925607..54937177	1.84	-1.10	-2.14	0.00	0.010	1.000
630	<i>Plin1</i>	1	complement(141458181..141471010)	0.77	-6.28	-77.93	0.00	0.000	0.000
631	<i>Plin4</i>	9	10963723..10971277	0.68	-1.60	-3.03	0.00	0.000	0.000
632	<i>Plip</i>	19	10731855..10752641	1.09	-1.20	-2.30	0.00	0.050	1.000
633	<i>Plppr4</i>	2	220298245..220341866	0.04	-6.37	-82.70	0.05	0.480	1.000
634	<i>Plxna3</i>	X	complement(156363405..156379189)	0.32	-1.04	-2.06	0.00	0.006	1.000
635	<i>Plxnc1</i>	7	complement(35850398..36000906)	1.13	1.54	2.90	0.00	0.000	0.000
636	<i>Pmfbp1</i>	19	complement(42132527..42180981)	0.17	-1.32	-2.50	0.01	0.180	1.000
637	<i>Pon3</i>	4	complement(30311982..30338679)	0.76	-2.35	-5.08	0.00	0.000	0.050
638	<i>Popdc3</i>	20	50394650..50422560	8.24	1.23	2.34	0.00	0.000	0.000
639	<i>Pparg</i>	4	147274107..147399380	0.16	-1.61	-3.05	0.01	0.200	1.000
640	<i>Prelid2</i>	18	complement(36194778..36285444)	0.09	-1.23	-2.35	0.04	0.410	1.000
641	<i>Prr1</i>	10	4945911..4946397	1.29	-7.49	-179.61	0.02	0.280	1.000
642	<i>Prox1</i>	13	108382399..108443294	0.04	-1.40	-2.65	0.03	0.380	1.000
643	<i>Prr19</i>	1	82169620..82172636	0.14	-2.67	-6.38	0.01	0.220	1.000
644	<i>Prr30</i>	6	26780352..26782864	0.10	-3.60	-12.15	0.02	0.260	1.000
645	<i>Prss39</i>	9	41006800..41013965	0.14	-1.53	-2.88	0.02	0.300	1.000
646	<i>Psapl1</i>	14	complement(79711694..79714254)	0.26	1.35	2.56	0.00	0.080	1.000
647	<i>Ptma</i>	13	complement(89873243..89874008)	4.23	-1.47	-2.77	0.00	0.001	0.600
648	<i>Qpct</i>	6	1657331..1689559	10.26	-1.16	-2.24	0.00	0.000	0.000
649	<i>Rab15</i>	6	complement(99845954..99870024)	29.80	-1.00	-2.00	0.00	0.000	0.000
650	<i>Rab17</i>	9	complement(98118908..98131883)	0.50	-1.11	-2.17	0.01	0.130	1.000
651	<i>Rab37</i>	10	103703404..103710527	0.17	2.15	4.44	0.01	0.160	1.000
652	<i>Rab3c</i>	2	complement(41570597..41785792)	6.27	1.67	3.17	0.00	0.000	0.000
653	<i>Rab6b</i>	8	111600532..111668808	3.20	-1.27	-2.42	0.00	0.000	0.000
654	<i>Rasd1</i>	10	complement(46330368..46332172)	11.29	-1.28	-2.43	0.00	0.000	0.000
655	<i>Rasl11a</i>	12	complement(9985928..9990284)	0.42	-1.05	-2.08	0.03	0.380	1.000
656	<i>Rassf6</i>	14	18983853..19025971	0.30	-1.08	-2.11	0.00	0.050	1.000
657	<i>Rbm12_2</i>	3	complement(152176095..152179193)	0.10	6.86	116.47	0.02	0.240	1.000
658	<i>Rbp4</i>	1	complement(256806472..256813711)	1.01	-5.84	-57.47	0.00	0.001	0.590
659	<i>Rbp7</i>	5	complement(166278187..166282831)	0.39	-2.08	-4.23	0.01	0.220	1.000
660	<i>Rbpms2</i>	8	71167305..71200536	0.38	-1.56	-2.94	0.00	0.006	1.000
661	<i>Rec114</i>	8	complement(63445644..63533546)	0.31	-3.32	-10.02	0.00	0.050	1.000
662	<i>Retn</i>	12	2201891..2204249	0.34	-7.20	-147.21	0.02	0.300	1.000
663	<i>Rfesd</i>	2	complement(2769400..2779109)	28.33	1.54	2.91	0.00	0.000	0.000
664	<i>Rfx4</i>	7	25808419..25907849	0.96	1.41	2.65	0.00	0.000	0.150

665	Rgcc	15	complement(61551861..61564695)	2.67	-1.43	-2.70	0.00	0.000	0.020
666	RGD1305184	18	55666027..55667668	1.83	1.44	2.71	0.00	0.000	0.002
667	RGD1306227	2	52333396..52355042	0.40	-1.09	-2.12	0.00	0.100	1.000
668	RGD1308065	11	88131960..88145481	0.06	-2.89	-7.40	0.05	0.470	1.000
669	RGD1309170	2	complement(243447168..243475639)	0.06	-3.11	-8.61	0.03	0.360	1.000
670	RGD1309362	18	55505993..55508704	3.00	-1.35	-2.55	0.00	0.000	0.000
671	RGD1311084	3	complement(9629842..9636058)	0.29	-1.45	-2.73	0.01	0.210	1.000
672	RGD1559441	5	24860153..24908397	0.10	-1.07	-2.10	0.04	0.450	1.000
673	RGD1559972	11	complement(82366074..82366505)	1.21	-4.23	-18.71	0.00	0.020	1.000
674	RGD1560281	12	20667601..20677689	0.04	-2.75	-6.72	0.01	0.200	1.000
675	RGD1560821	X	77885586..77886170	0.56	-6.60	-96.80	0.04	0.420	1.000
676	RGD1561143	12	complement(21866077..21923281)	0.29	1.41	2.66	0.03	0.340	1.000
677	RGD1561777	20	complement(45042770..45053640)	0.18	2.66	6.32	0.01	0.140	1.000
678	RGD1563231	3	complement(16999132..16999720)	11.30	1.55	2.92	0.00	0.000	0.000
679	RGD1563570	14	43694183..43694611	0.47	-3.76	-13.52	0.01	0.180	1.000
680	RGD1563705	8	complement(118378029..118378460)	0.41	-2.72	-6.60	0.03	0.340	1.000
681	RGD1565170	15	37418885..37419358	0.38	3.92	15.10	0.00	0.100	1.000
682	RGD1565355	4	14071507..14113255	0.18	-2.37	-5.17	0.00	0.050	1.000
683	RGD1565617_1	3	complement(19320304..19320915)	34.85	8.03	261.64	0.00	0.000	0.000
684	Rgs1	13	complement(61066153..61070599)	0.74	1.30	2.47	0.00	0.030	1.000
685	Rln1	1	complement(247483302..247486202)	0.45	1.24	2.36	0.04	0.410	1.000
686	Rmt1	1	complement(218369204..218374619)	0.27	-8.70	-416.30	0.01	0.110	1.000
687	Rn50_10_0891.3	10	89173843..89208961	0.06	-1.52	-2.88	0.03	0.340	1.000
688	Rn50_11_0160.1	11	12275964..12277727	2.03	-1.78	-3.42	0.00	0.000	0.000
689	Rn50_2_2279.2	2	complement(208555595..208557785)	0.61	-6.48	-89.40	0.04	0.420	1.000
690	Rn50_2_2279.4	2	complement(208397955..208400158)	1.26	1.22	2.32	0.02	0.300	1.000
691	Rn50_4_1360.2	4	complement(71275061..71286669)	0.07	-6.18	-72.32	0.05	0.490	1.000
692	Rn60_3_0143.1	3	14192061..14202271	0.56	6.08	67.86	0.03	0.400	1.000
693	Rn60_5_1207.2	5	120498890..120682283	0.07	-3.16	-8.94	0.00	0.090	1.000
694	Rnf144a	6	complement(45509787..45629168)	0.24	-1.15	-2.21	0.00	0.060	1.000
695	Rnf150	19	24044103..24265444	0.46	-1.75	-3.35	0.00	0.001	0.310
696	Rnf157	10	complement(105293490..105368242)	0.91	1.43	2.70	0.00	0.000	0.030
697	Romo1	3	151688454..151689711	17.14	1.55	2.93	0.00	0.000	0.000
698	Rpl10l	6	complement(88231611..88232252)	0.69	-4.00	-15.96	0.00	0.008	1.000
699	Rpl3l	10	14094754..14105308	0.13	-3.30	-9.83	0.02	0.290	1.000
700	Rps4x_1	4	complement(35729628..35730599)	4.24	1.32	2.49	0.00	0.050	1.000
701	RT1-CE9-ps1	20	5351611..5354095	7.06	-1.12	-2.18	0.00	0.000	0.000
702	RT1-DMa	20	complement(5240975..5244386)	0.26	-1.56	-2.95	0.05	0.490	1.000
703	RT1-M2	20	complement(1337149..1339488)	0.27	-2.62	-6.13	0.00	0.050	1.000
704	Runx1t1	5	27312928..27442841	0.09	-1.17	-2.25	0.02	0.250	1.000
705	Runx2	9	18564927..18773092	3.72	1.09	2.13	0.00	0.000	0.000
706	S100a11	2	193866951..193868502	24.65	-1.36	-2.56	0.00	0.000	0.001
707	S100b	20	complement(13130636..13142856)	2.08	-1.95	-3.86	0.00	0.000	0.000

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Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
708	<i>Sarm1</i>	10	complement(65742343..65766050)	0.17	1.03	2.04	0.02	0.240	1.000
709	<i>Sat2</i>	10	56227692..56229850	0.91	-1.16	-2.24	0.00	0.060	1.000
710	<i>Scara3</i>	15	complement(42605473..42638392)	1.10	-1.45	-2.74	0.00	0.000	0.001
711	<i>Sccpdh</i>	13	97941757..97963824	1.52	5.75	53.73	0.00	0.000	0.010
712	<i>Scube3</i>	20	7718282..7746331	0.08	-1.58	-2.98	0.03	0.390	1.000
713	<i>Sel1l3</i>	14	60123169..60229734	0.21	-1.23	-2.35	0.00	0.080	1.000
714	<i>Selenow</i>	1	complement(77533148..77535681)	3.58	-1.72	-3.30	0.03	0.380	1.000
715	<i>Sema5b</i>	11	complement(68306659..68349238)	0.05	-2.43	-5.39	0.03	0.350	1.000
716	<i>Semg1</i>	3	complement(160627610..160630457)	610.95	-8.95	-495.61	0.00	0.000	0.000
717	<i>Serpina1</i>	6	complement(127610243..127632265)	0.23	-2.00	-3.99	0.01	0.140	1.000
718	<i>Serpinh7</i>	13	27312498..27354052	0.92	-1.35	-2.55	0.00	0.020	1.000
719	<i>Sh2d4b</i>	16	17611115..17708387	0.24	1.21	2.31	0.04	0.440	1.000
720	<i>Sh3gl3</i>	1	144069638..144200397	0.11	-2.34	-5.08	0.01	0.210	1.000
721	<i>Siglec5</i>	1	complement(98562346..98570949)	0.21	-1.61	-3.04	0.00	0.080	1.000
722	<i>Six2</i>	6	complement(8952572..8956276)	1.50	1.05	2.07	0.00	0.004	1.000
723	<i>Slc13a3</i>	3	complement(162084315..162147393)	0.30	1.07	2.10	0.00	0.100	1.000
724	<i>Slc13a4</i>	4	complement(62797677..62840357)	0.20	1.73	3.31	0.01	0.110	1.000
725	<i>Slc18b1</i>	1	complement(22705916..22748422)	3.81	-3.61	-12.18	0.00	0.000	0.000
726	<i>Slc22a25</i>	1	complement(224596887..224698514)	0.17	1.81	3.51	0.00	0.070	1.000
727	<i>Slc25a21</i>	6	complement(77624385..77848434)	0.10	-1.46	-2.75	0.05	0.490	1.000
728	<i>Slc25a45</i>	1	221236773..221244563	0.47	-1.37	-2.58	0.00	0.010	1.000
729	<i>Slc28a3</i>	17	6459056..6509799	0.22	-1.26	-2.40	0.02	0.240	1.000
730	<i>Slc29a2</i>	1	220400855..220407189	0.86	-8.72	-422.32	0.01	0.110	1.000
731	<i>Slc2a12</i>	1	complement(24003625..24056373)	1.59	-1.61	-3.05	0.00	0.000	0.000
732	<i>Slc2a5</i>	5	167141875..167174310	0.64	2.10	4.27	0.00	0.000	0.140
733	<i>Slc30a2</i>	5	152559577..152571799	8.21	-4.21	-18.55	0.00	0.000	0.000
734	<i>Slc38a11</i>	3	complement(51371923..51416646)	1.49	-5.63	-49.45	0.00	0.000	0.009
735	<i>Slc44a4</i>	20	4593389..4609631	30.06	1.74	3.34	0.00	0.000	0.000
736	<i>Slc4a4</i>	14	complement(20479323..20920286)	0.06	-1.97	-3.92	0.01	0.160	1.000
737	<i>Slc5a11</i>	1	193187972..193226649	4.20	-6.58	-95.60	0.00	0.000	0.000
738	<i>Slc6a4</i>	10	complement(63153651..63176463)	0.36	-1.06	-2.09	0.00	0.090	1.000
739	<i>Slc7a10</i>	1	91433030..91448564	0.11	-2.75	-6.72	0.01	0.210	1.000
740	<i>Slc7a13</i>	5	33784715..33805616	0.40	-1.57	-2.98	0.00	0.010	1.000
741	<i>Slc9a2</i>	9	47386626..47491907	0.94	1.22	2.33	0.00	0.002	1.000
742	<i>Slfm1</i>	5	139468546..139473017	0.15	-1.43	-2.70	0.04	0.410	1.000
743	<i>Slit2</i>	14	complement(66831848..67170361)	0.25	-1.30	-2.47	0.00	0.002	1.000
744	<i>Smad9</i>	2	144191846..144212138	0.03	-3.38	-10.42	0.02	0.240	1.000
745	<i>Smcp</i>	2	complement(192775437..192780631)	0.64	-7.56	-189.32	0.02	0.270	1.000
746	<i>Sncg</i>	16	complement(10722106..10726707)	4.36	-3.57	-11.84	0.00	0.000	0.000
747	<i>Snrpn</i>	1	complement(195074330..195096460)	0.35	-1.05	-2.07	0.05	0.470	1.000
748	<i>Snx31</i>	7	complement(75309255..75364166)	0.17	-1.83	-3.55	0.02	0.300	1.000

749	<i>Sostdc1</i>	6	55812747..55817066	0.15	-1.42	-2.67	0.04	0.440	1.000
750	<i>Spag6</i>	17	85382116..85437975	0.08	-2.24	-4.73	0.04	0.460	1.000
751	<i>Spata18</i>	14	complement(37081427..37108341)	0.17	-7.01	-128.69	0.03	0.360	1.000
752	<i>Spata6</i>	5	131719922..131803853	1.93	-1.06	-2.09	0.00	0.000	0.010
753	<i>Spata9</i>	2	2729829..2766853	5.10	1.31	2.47	0.00	0.000	0.000
754	<i>Spc25</i>	3	complement(55438536..55451798)	0.35	1.25	2.38	0.03	0.360	1.000
755	<i>Spp1</i>	14	complement(6673686..6679901)	0.58	-1.31	-2.47	0.00	0.030	1.000
756	<i>Sptb</i>	6	complement(99659651..99783047)	0.81	-1.06	-2.08	0.00	0.000	0.003
757	<i>Srm</i>	5	165405168..165408320	8.26	-1.55	-2.93	0.00	0.000	0.000
758	<i>Srsf12</i>	5	48456757..48485912	12.93	3.62	12.29	0.00	0.000	0.000
759	<i>St18</i>	5	complement(12437525..12563429)	0.07	-1.74	-3.33	0.01	0.200	1.000
760	<i>St3gal1</i>	7	complement(107895045..107963142)	3.29	1.96	3.89	0.00	0.000	0.000
761	<i>Stag3</i>	12	19599834..19630780	0.05	-3.10	-8.55	0.01	0.150	1.000
762	<i>Sult5a1</i>	19	complement(55952853..55967836)	0.80	-1.26	-2.40	0.00	0.040	1.000
763	<i>Susd4</i>	13	101181994..101307908	0.26	-1.46	-2.74	0.00	0.020	1.000
764	<i>Syne4l1</i>	1	88772904..88776999	0.71	-1.48	-2.78	0.01	0.160	1.000
765	<i>Syng1</i>	7	121311024..121334437	6.79	-1.20	-2.29	0.00	0.000	0.000
766	<i>Syt1</i>	7	complement(50084060..50638798)	4.85	3.66	12.67	0.00	0.000	0.000
767	<i>Tbxa2r</i>	7	complement(11253180..11257977)	6.35	1.05	2.08	0.00	0.000	0.000
768	<i>Tcaf2</i>	4	complement(71206876..71229575)	1.76	-1.62	-3.06	0.00	0.000	0.120
769	<i>Tcerg1l</i>	1	complement(210550668..210739600)	10.38	1.73	3.31	0.00	0.000	0.000
770	<i>Tcf23</i>	6	complement(26762761..26771164)	0.08	-1.25	-2.37	0.04	0.450	1.000
771	<i>Tcp10b</i>	1	53531076..53554113	0.11	-6.44	-86.70	0.04	0.450	1.000
772	<i>Tcp11</i>	20	complement(7645626..7654428)	0.19	-7.00	-128.09	0.03	0.350	1.000
773	<i>Tdrd1</i>	1	277641512..277685257	0.03	-1.98	-3.94	0.04	0.440	1.000
774	<i>Tdrd6</i>	9	19917603..19932920	0.03	-6.37	-82.43	0.05	0.470	1.000
775	<i>Tjfc</i>	11	complement(71397383..71419223)	8.25	1.03	2.04	0.00	0.000	0.000
776	<i>tGap1</i>	2	92549479..92625948	0.08	-1.52	-2.87	0.04	0.400	1.000
777	<i>Thrsp</i>	1	complement(162381253..162385575)	1.77	-3.70	-12.97	0.00	0.000	0.000
778	<i>Tle2</i>	7	complement(10988532..11003785)	0.54	-1.55	-2.93	0.00	0.003	1.000
779	<i>Tmc5</i>	1	188278469..188337308	0.07	-2.18	-4.53	0.01	0.100	1.000
780	<i>Tmeff2</i>	9	complement(55384100..55673829)	0.09	-1.28	-2.43	0.04	0.440	1.000
781	<i>Tmem179</i>	6	complement(137073685..137084739)	0.10	-3.87	-14.65	0.01	0.110	1.000
782	<i>Tmem182</i>	9	47536824..47588677	0.06	-3.30	-9.83	0.02	0.290	1.000
783	<i>Tmem35b</i>	5	145188323..145191953	0.69	-1.82	-3.53	0.00	0.010	1.000
784	<i>Tmem59l</i>	16	20691978..20695701	43.07	8.18	289.34	0.00	0.000	0.000
785	<i>Tmprss13</i>	8	49621568..49650860	0.46	-2.16	-4.48	0.00	0.000	0.010
786	<i>Tmtc2</i>	7	complement(47181981..47586137)	0.19	-2.08	-4.22	0.00	0.040	1.000
787	<i>Tnik</i>	2	113984646..114384894	0.44	1.98	3.95	0.00	0.000	0.000
788	<i>Tnp2</i>	10	4953879..4954624	0.99	-3.25	-9.50	0.00	0.070	1.000
789	<i>Trbv1</i>	4	69138525..69139130	0.39	1.84	3.57	0.04	0.460	1.000
790	<i>Trhde</i>	7	complement(57253023..57679795)	0.64	1.01	2.01	0.00	0.000	0.030
791	<i>Trim63</i>	5	152533349..152547179	0.78	-3.37	-10.32	0.00	0.000	0.002

(continued on next page)

Table 1 (continued)

Sl. No	Gene Symbol	Chrom No	Region	Max group mean	Log ₂ fold change	Fold change	p-value	FDR p-value	Bonferroni
792	<i>Triml1</i>	16	52169450..52177586	0.72	-1.32	-2.50	0.00	0.009	1.000
793	<i>Trmp1</i>	5	complement(151709200..151709877)	0.40	-1.62	-3.07	0.02	0.260	1.000
794	<i>Tsen34l1</i>	1	complement(64024240..64030175)	0.91	3.41	10.60	0.00	0.040	1.000
795	<i>Tsga10ip</i>	1	complement(220772411..220787238)	0.09	-1.88	-3.69	0.02	0.290	1.000
796	<i>Tsnaxip1</i>	19	37795658..37813424	0.20	-1.13	-2.18	0.03	0.360	1.000
797	<i>Ttc23</i>	1	128606770..128687893	2.65	-1.11	-2.16	0.00	0.000	0.001
798	<i>Tubg2</i>	10	89069256..89075585	0.23	-1.71	-3.28	0.01	0.170	1.000
799	<i>Tulp2</i>	1	101474334..101511412	0.12	-2.50	-5.67	0.02	0.280	1.000
800	<i>Ubbp4</i>	1	complement(255572847..255573377)	0.99	-4.86	-29.00	0.00	0.050	1.000
801	<i>Ubd</i>	20	complement(1876173..1897814)	12.16	-1.02	-2.03	0.00	0.020	1.000
802	<i>Ube2d4</i>	14	complement(2933100..2934571)	0.17	-1.52	-2.87	0.04	0.410	1.000
803	<i>Ube3d</i>	8	complement(93948767..94120458)	0.61	-1.12	-2.18	0.01	0.110	1.000
804	<i>Unc5c</i>	2	247248407..247397483	0.06	-1.01	-2.01	0.04	0.450	1.000
805	<i>Unc5cl</i>	9	complement(14491584..14508235)	0.02	-3.11	-8.61	0.03	0.350	1.000
806	<i>Upk1a</i>	1	complement(89060581..89068348)	1.81	-1.33	-2.51	0.00	0.003	1.000
807	<i>Upk1b</i>	11	64522130..64553228	0.16	1.77	3.41	0.01	0.140	1.000
808	<i>Vom1r25</i>	8	3540361..3541275	3.87	1.81	3.52	0.00	0.000	0.000
809	<i>Vom2r-ps125</i>	14	complement(759050..773281)	0.09	-2.09	-4.26	0.05	0.470	1.000
810	<i>Vtcn1</i>	2	203200427..203276142	0.52	-2.47	-5.53	0.00	0.000	0.000
811	<i>Wdr54</i>	4	complement(114850815..114853868)	0.30	-1.57	-2.97	0.03	0.340	1.000
812	<i>Wdr97</i>	7	117420788..117429504	0.09	1.09	2.12	0.04	0.450	1.000
813	<i>Wfdc18_1</i>	10	70964396..71014423	0.27	-2.14	-4.40	0.02	0.320	1.000
814	<i>Wnt5b</i>	4	complement(151500957..151516894)	0.28	-1.04	-2.06	0.01	0.190	1.000
815	<i>Wt1</i>	3	95133713..95180564	0.11	-1.62	-3.08	0.02	0.290	1.000
816	<i>Xrra1</i>	1	164849974..164914499	0.18	-1.75	-3.37	0.00	0.080	1.000
817	<i>Ybx2</i>	10	56546710..56551863	0.38	-1.43	-2.70	0.02	0.310	1.000
818	<i>Zfat</i>	7	complement(109037845..109205354)	2.04	1.00	2.00	0.00	0.000	0.000
819	<i>Zfp113</i>	12	complement(19288403..19294888)	0.38	-1.33	-2.52	0.02	0.240	1.000
820	<i>Zfp300</i>	X	908044..911067	0.08	-2.14	-4.40	0.02	0.310	1.000
821	<i>Zfp618</i>	5	78806607..78966813	0.15	-1.07	-2.10	0.05	0.490	1.000
822	<i>Zfp9</i>	4	complement(150517027..150522351)	0.67	-1.19	-2.28	0.00	0.030	1.000
823	<i>Zglp1</i>	8	complement(22081700..22086095)	0.14	3.23	9.40	0.04	0.420	1.000
824	<i>Zswim7</i>	10	complement(48587119..48599208)	0.95	-1.13	-2.19	0.02	0.230	1.000

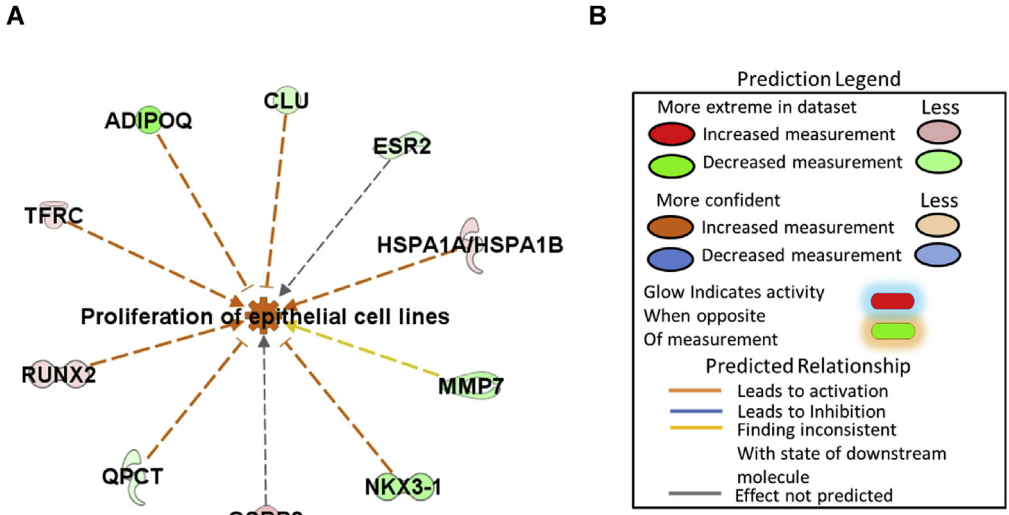


Fig. 1. Genes involved in proliferation of epithelial cell lines. A) A mechanistic diagram of the differentially expressed genes in *Esr2*^{-/-} prostate glands that are involved in proliferation of epithelial cell lines. B) Prediction legend for the representation of pathway analyses.

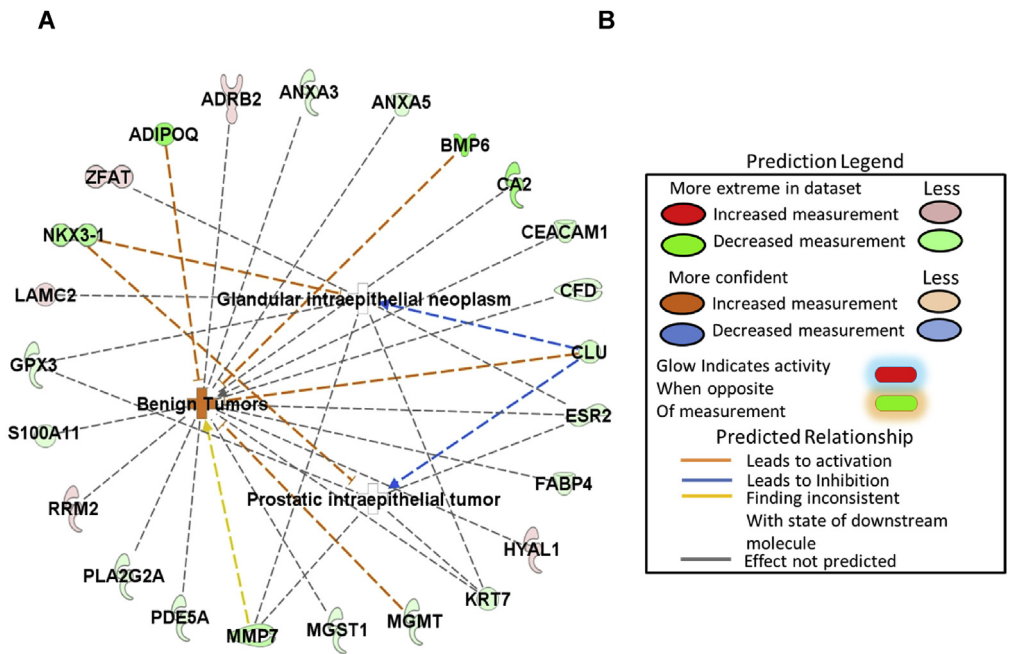


Fig. 2. Genes involved in benign tumor formation. A) A mechanistic diagram of the differentially expressed genes in *Esr2*^{-/-} prostate glands that are involved in benign tumor formation. B) Prediction legend for the representation of pathway analyses.

instructions and tested by Agilent Bioanalyzer before making the RNA-seq libraries as described earlier [2,3].

2.3. Library preparation and RNA-sequencing

Approximately 500ng of prostatic total RNA was used for the RNA-seq library preparation. Libraries were prepared using a TruSeq Stranded mRNA kit (Illumina) following the manufacturer's instructions. Briefly, mRNA was enriched from total RNA by oligo-dT magnetic beads, purified and chemically fragmented. The first strand of cDNA was synthesized by using random hexamer primers and reverse transcriptase. Then double stranded cDNA (ds cDNA) was generated by removing the RNA template and synthesizing a replacement strand, incorporating dUTP in place of dTTP. ds cDNAs were purified from the second strand reaction mix by AMPure XP beads (Beckman Coulter). The cDNA ends were blunted and a poly (A) tail was added to the 3' ends. Finally, after ligation of indexing adaptors (Illumina), the suitable DNA fragments were selected for PCR amplification for 15 cycles. Each cDNA library was prepared from three pooled RNA samples. Two replicates of cDNA libraries were prepared for each of the wildtype and *Esr2*^{-/-} groups. The cDNA libraries were sequenced at the Molecular Biology Core Laboratory of Mayo Clinic (Rochester, MN).

2.4. RNA-seq data analyses

RNA-Seq data were analyzed using CLC Genomics Workbench (Qiagen Bioinformatics) as described previously [2,3]. Briefly, clean reads were obtained by removing low quality reads through trimming. High quality reads of prostate cDNA libraries were aligned to the *Rattus norvegicus* genome downloaded from NCBI database (Rn6). RNA-seq data were mapped with the following parameters: (a) maximum number of allowed mismatches was 2; (b) minimum length and similarity fraction was set at 0.8; and (c) minimum number of hits per read was 10. Gene expression values were reported as RPKM (Reads Per Kilobase of transcript per Million mapped reads) [4]. Genes that were identified as being differentially expressed met the following criteria: p-Value ≤ 0.05 and an absolute fold change of 2.

2.5. Accession code

The Illumina HiSeq 4000 sequencing data for wildtype and *Esr2*^{-/-} rat prostate transcriptome have been deposited in National Center for Biotechnology Information (NCBI) Sequence Read Archive (SRA). The SRA numbers for wildtype and *Esr2*^{-/-} rat prostate are: SRR8428800, SRR8428799, SRR8428798, SRR8428797.

2.6. Pathway analysis of differentially expressed genes in *Esr2*^{-/-} prostate

Differentially expressed genes (absolute fold change ≥ 2 , pValue ≤ 0.05) in the *Esr2*^{-/-} prostate gland were subjected to Ingenuity Pathway Analysis (IPA; Qiagen Bioinformatics). The pathways and genes involved in 'Proliferation of epithelial cell lines' are showed in Fig. 1. The genes involved in 'Glandular intraepithelial neoplasm', 'Prostatic intraepithelial tumor', and 'Benign tumors' pathways are shown in Fig. 2.

3. Statistical analysis

RNA-sequencing included two cDNA libraries from each group. Each library template was prepared by pooling total RNAs from three individual rats of same genotype. Differentially expressed genes were identified by CLC Genomics Workbench as described previously [2,3].

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Transparency document

Transparency document associated with this article can be found in the online version at <https://doi.org/10.1016/j.dib.2019.103826>.

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