Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	REACTOME_CYTOKINE_SIGNALING_IN_IMMUNE_SYSTEM
Enrichment Score (ES)	0.26554778
Normalized Enrichment Score (NES)	4.832001
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

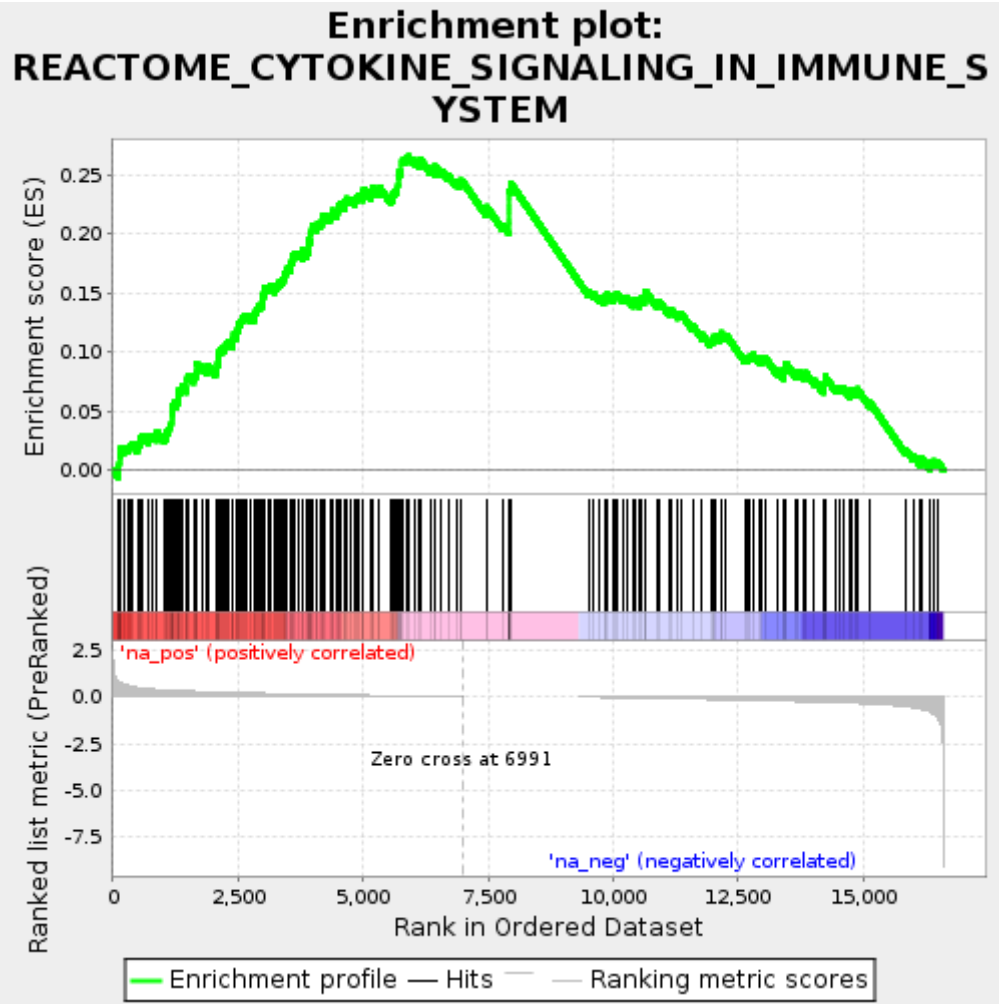

Fig 1: Enrichment plot: REACTOME_CYTOKINE_SIGNALING_IN_IMMUNE_SYSTEM Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE	GENE_TITLE	RANK	RANK	RUNNING	CORE

		SYMBOL		IN GENE LIST	METRIC SCORE	ES	ENRICHMENT
1	OASL	OASL Entrez, Source	2'-5'-oligoadenylate synthetase-like	102	0.895	-0.0022	Yes
2	IFITM3	IFITM3 Entrez, Source	interferon induced transmembrane protein 3 (1-8U)	109	0.877	0.0015	Yes
3	HLA-DQA2	HLA-DQA2 Entrez, Source	major histocompatibility complex, class II, DQ alpha 2	120	0.838	0.0049	Yes
4	MT2A	MT2A Entrez, Source	metallothionein 2A	124	0.825	0.0087	Yes
5	HLA-G	HLA-G Entrez, Source	HLA-G histocompatibility antigen, class I, G	125	0.822	0.0128	Yes
6	HLA-DRB5	HLA-DRB5 Entrez, Source	major histocompatibility complex, class II, DR beta 5	153	0.777	0.0151	Yes
7	FCGR1A	FCGR1A Entrez, Source	Fc fragment of IgG, high affinity Ia, receptor (CD64)	157	0.774	0.0190	Yes
8	EGR1	EGR1 Entrez, Source	early growth response 1	235	0.672	0.0183	Yes
9	FCGR1B	FCGR1B Entrez, Source	Fc fragment of IgG, high affinity Ib, receptor (CD64)	294	0.616	0.0188	Yes
10	IL5RA	IL5RA Entrez, Source	interleukin 5 receptor, alpha	323	0.592	0.0211	Yes
11	HLA-DPB1	HLA-DPB1 Entrez, Source	major histocompatibility complex, class II, DP beta 1	371	0.557	0.0223	Yes
12	HLA-DPA1	HLA-DPA1 Entrez, Source	major histocompatibility complex, class II, DP alpha 1	486	0.503	0.0193	Yes
13	PIK3R3	PIK3R3 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 3 (p55, gamma)	500	0.499	0.0226	Yes
14	IFITM2	IFITM2 Entrez, Source	interferon induced transmembrane protein 2 (1-8D)	535	0.486	0.0245	Yes
15	IFI27	IFI27 Entrez, Source	interferon, alpha-inducible protein 27	546	0.480	0.0280	Yes
16	HCK	HCK Entrez, Source	hemopoietic cell kinase	583	0.467	0.0298	Yes

17	HLA-DRB1	HLA-DRB1 Entrez, Source	major histocompatibility complex, class II, DR beta 1	702	0.437	0.0266	Yes
18	HLA-C	HLA-C Entrez, Source	major histocompatibility complex, class I, C	720	0.433	0.0296	Yes
19	IL1RN	IL1RN Entrez, Source	interleukin 1 receptor antagonist	797	0.413	0.0290	Yes
20	UBE2L6	UBE2L6 Entrez, Source	ubiquitin-conjugating enzyme E2L 6	868	0.398	0.0287	Yes
21	GBP1	GBP1 Entrez, Source	guanylate binding protein 1, interferon-inducible, 67kDa	877	0.396	0.0323	Yes
22	PIK3R2	PIK3R2 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 2 (p85 beta)	1023	0.375	0.0275	Yes
23	HLA-A	HLA-A Entrez, Source	major histocompatibility complex, class I, A	1061	0.368	0.0292	Yes
24	HLA-B	HLA-B Entrez, Source	major histocompatibility complex, class I, B	1070	0.367	0.0328	Yes
25	ICAM1	ICAM1 Entrez, Source	intercellular adhesion molecule 1 (CD54), human rhinovirus receptor	1111	0.359	0.0344	Yes
26	GBP5	GBP5 Entrez, Source	guanylate binding protein 5	1126	0.357	0.0375	Yes
27	IKBKG	IKBKG Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase gamma	1161	0.354	0.0395	Yes
28	IFIT3	IFIT3 Entrez, Source	interferon-induced protein with tetratricopeptide repeats 3	1166	0.353	0.0433	Yes
29	MYD88	MYD88 Entrez, Source	myeloid differentiation primary response gene (88)	1168	0.353	0.0472	Yes
30	PRKCD	PRKCD Entrez, Source	protein kinase C, delta	1180	0.352	0.0506	Yes
31	IFI35	IFI35 Entrez, Source	interferon-induced protein 35	1185	0.351	0.0544	Yes
32	IL2RB	IL2RB Entrez, Source	interleukin 2 receptor, beta	1205	0.348	0.0573	Yes
33	IRF1	IRF1 Entrez, Source	interferon regulatory factor 1	1279	0.336	0.0568	Yes

34	OAS1	OAS1 Entrez, Source	2',5'-oligoadenylate synthetase 1, 40/46kDa	1293	0.334	0.0601	Yes
35	MAPK3	MAPK3 Entrez, Source	mitogen-activated protein kinase 3	1303	0.334	0.0636	Yes
36	GAB2	GAB2 Entrez, Source	GRB2-associated binding protein 2	1308	0.333	0.0673	Yes
37	IRF5	IRF5 Entrez, Source	interferon regulatory factor 5	1356	0.328	0.0685	Yes
38	PSMB8	PSMB8 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 8 (large multifunctional peptidase 7)	1377	0.326	0.0713	Yes
39	PTAFR	PTAFR Entrez, Source	platelet-activating factor receptor	1475	0.316	0.0694	Yes
40	STAT3	STAT3 Entrez, Source	signal transducer and activator of transcription 3 (acute-phase response factor)	1479	0.316	0.0733	Yes
41	LYN	LYN Entrez, Source	v-yes-1 Yamaguchi sarcoma viral related oncogene homolog	1480	0.316	0.0773	Yes
42	PTPN6	PTPN6 Entrez, Source	protein tyrosine phosphatase, non-receptor type 6	1509	0.313	0.0796	Yes
43	IL1B	IL1B Entrez, Source	interleukin 1, beta	1606	0.303	0.0778	Yes
44	RAPGEF1	RAPGEF1 Entrez, Source	Rap guanine nucleotide exchange factor (GEF) 1	1629	0.300	0.0805	Yes
45	VAV1	VAV1 Entrez, Source	vav 1 oncogene	1662	0.296	0.0825	Yes
46	INPPL1	INPPL1 Entrez, Source	inositol polyphosphate phosphatase-like 1	1669	0.296	0.0862	Yes
47	HLA-F	HLA-F Entrez, Source	major histocompatibility complex, class I, F	1670	0.296	0.0902	Yes
48	IRF2	IRF2 Entrez, Source	interferon regulatory factor 2	1778	0.285	0.0877	Yes
49	GBP2	GBP2 Entrez, Source	guanylate binding protein 2, interferon-inducible	1878	0.276	0.0857	Yes
50	PML	PML Entrez,	promyelocytic leukemia	1895	0.275	0.0888	Yes

		Source					
51	SOCS3	SOCS3 Entrez, Source	suppressor of cytokine signaling 3	2049	0.261	0.0834	Yes
52	IFITM1	IFITM1 Entrez, Source	interferon induced transmembrane protein 1 (9-27)	2077	0.259	0.0858	Yes
53	GRB2	GRB2 Entrez, Source	growth factor receptor-bound protein 2	2084	0.258	0.0895	Yes
54	SQSTM1	SQSTM1 Entrez, Source	sequestosome 1	2103	0.256	0.0924	Yes
55	TOLLIP	TOLLIP Entrez, Source	toll interacting protein	2109	0.256	0.0961	Yes
56	MAP2K2	MAP2K2 Entrez, Source	mitogen-activated protein kinase kinase 2	2119	0.256	0.0996	Yes
57	IRAK1	IRAK1 Entrez, Source	interleukin-1 receptor-associated kinase 1	2148	0.253	0.1020	Yes
58	IFNGR2	IFNGR2 Entrez, Source	interferon gamma receptor 2 (interferon gamma transducer 1)	2195	0.249	0.1032	Yes
59	RELA	RELA Entrez, Source	v-rel reticuloendotheliosis viral oncogene homolog A, nuclear factor of kappa light polypeptide gene enhancer in B-cells 3, p65 (avian)	2240	0.246	0.1045	Yes
60	MAP3K3	MAP3K3 Entrez, Source	mitogen-activated protein kinase kinase kinase 3	2256	0.245	0.1076	Yes
61	IRF7	IRF7 Entrez, Source	interferon regulatory factor 7	2303	0.241	0.1088	Yes
62	ADAR	ADAR Entrez, Source	adenosine deaminase, RNA-specific	2388	0.234	0.1077	Yes
63	SOCS1	SOCS1 Entrez, Source	suppressor of cytokine signaling 1	2399	0.234	0.1112	Yes
64	OAS3	OAS3 Entrez, Source	2'-5'-oligoadenylate synthetase 3, 100kDa	2405	0.234	0.1149	Yes
65	SYK	SYK Entrez, Source	spleen tyrosine kinase	2472	0.229	0.1149	Yes
66	KPNA2	KPNA2 Entrez, Source	karyopherin alpha 2 (RAG cohort 1, importin alpha 1)	2484	0.228	0.1183	Yes

67	NCAM1	NCAM1 Entrez, Source	neural cell adhesion molecule 1	2499	0.227	0.1214	Yes
68	IL1R2	IL1R2 Entrez, Source	interleukin 1 receptor, type II	2513	0.226	0.1247	Yes
69	TRIM25	TRIM25 Entrez, Source	tripartite motif-containing 25	2559	0.223	0.1259	Yes
70	TYK2	TYK2 Entrez, Source	tyrosine kinase 2	2580	0.222	0.1288	Yes
71	IRF9			2622	0.219	0.1303	Yes
72	EIF4G1	EIF4G1 Entrez, Source	eukaryotic translation initiation factor 4 gamma, 1	2686	0.215	0.1305	Yes
73	PIK3CD	PIK3CD Entrez, Source	phosphoinositide-3-kinase, catalytic, delta polypeptide	2766	0.208	0.1297	Yes
74	SHC1	SHC1 Entrez, Source	SHC (Src homology 2 domain containing) transforming protein 1	2825	0.205	0.1302	Yes
75	EIF4A3			2841	0.204	0.1333	Yes
76	IFNG	IFNG Entrez, Source	interferon, gamma	2868	0.202	0.1357	Yes
77	NUP93	NUP93 Entrez, Source	nucleoporin 93kDa	2887	0.201	0.1386	Yes
78	MX2	MX2 Entrez, Source	myxovirus (influenza virus) resistance 2 (mouse)	2931	0.197	0.1400	Yes
79	UBA52	UBA52 Entrez, Source	ubiquitin A-52 residue ribosomal protein fusion product 1	2974	0.195	0.1415	Yes
80	PELI3	PELI3 Entrez, Source	pellino homolog 3 (Drosophila)	2983	0.195	0.1451	Yes
81	STAT2	STAT2 Entrez, Source	signal transducer and activator of transcription 2, 113kDa	2993	0.194	0.1485	Yes
82	YWHAB	YWHAB Entrez, Source	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, beta polypeptide	3027	0.192	0.1505	Yes
83	RIPK2	RIPK2 Entrez, Source	receptor-interacting serine-threonine kinase 2	3030	0.192	0.1545	Yes
84	PELI2	PELI2 Entrez, Source	pellino homolog 2 (Drosophila)	3096	0.187	0.1545	Yes

85	PTK2B	PTK2B Entrez, Source	PTK2B protein tyrosine kinase 2 beta	3138	0.185	0.1560	Yes
86	NFKB2	NFKB2 Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells 2 (p49/p100)	3240	0.180	0.1539	Yes
87	IFNAR1	IFNAR1 Entrez, Source	interferon (alpha, beta and omega) receptor 1	3272	0.177	0.1560	Yes
88	STAT5A	STAT5A Entrez, Source	signal transducer and activator of transcription 5A	3295	0.176	0.1587	Yes
89	CIITA	CIITA Entrez, Source	class II, major histocompatibility complex, transactivator	3345	0.174	0.1598	Yes
90	EIF4G3	EIF4G3 Entrez, Source	eukaryotic translation initiation factor 4 gamma, 3	3386	0.172	0.1614	Yes
91	IFI6	IFI6 Entrez, Source	interferon, alpha-inducible protein 6	3411	0.170	0.1639	Yes
92	HRAS	HRAS Entrez, Source	v-Ha-ras Harvey rat sarcoma viral oncogene homolog	3429	0.170	0.1669	Yes
93	GBP6	GBP6 Entrez, Source	guanylate binding protein family, member 6	3459	0.168	0.1692	Yes
94	IFIT2	IFIT2 Entrez, Source	interferon-induced protein with tetratricopeptide repeats 2	3488	0.166	0.1715	Yes
95	GBP4	GBP4 Entrez, Source	guanylate binding protein 4	3552	0.162	0.1717	Yes
96	IRAK2	IRAK2 Entrez, Source	interleukin-1 receptor-associated kinase 2	3554	0.162	0.1756	Yes
97	STAT1	STAT1 Entrez, Source	signal transducer and activator of transcription 1, 91kDa	3584	0.161	0.1779	Yes
98	IRS2	IRS2 Entrez, Source	insulin receptor substrate 2	3595	0.160	0.1813	Yes
99	STAT5B	STAT5B Entrez, Source	signal transducer and activator of transcription 5B	3638	0.158	0.1828	Yes
100	IL1RAP	IL1RAP Entrez, Source	interleukin 1 receptor accessory protein	3689	0.155	0.1838	Yes
101	HLA-DQA1	HLA-DQA1 Entrez, Source	major histocompatibility complex, class II, DQ alpha 1	3781	0.150	0.1822	Yes

102	PTPN1	PTPN1 Entrez, Source	protein tyrosine phosphatase, non-receptor type 1	3783	0.150	0.1862	Yes
103	CBL	CBL Entrez, Source	Cas-Br-M (murine) ecotropic retroviral transforming sequence	3887	0.145	0.1839	Yes
104	KPNB1	KPNB1 Entrez, Source	karyopherin (importin) beta 1	3903	0.144	0.1871	Yes
105	DDX58	DDX58 Entrez, Source	DEAD (Asp-Glu-Ala-Asp) box polypeptide 58	3906	0.144	0.1910	Yes
106	CASP1	CASP1 Entrez, Source	caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)	3914	0.143	0.1946	Yes
107	IL1R1	IL1R1 Entrez, Source	interleukin 1 receptor, type I	3956	0.141	0.1961	Yes
108	NOD2			3957	0.141	0.2001	Yes
109	FYN	FYN Entrez, Source	FYN oncogene related to SRC, FGR, YES	3968	0.140	0.2035	Yes
110	HERC5	HERC5 Entrez, Source	hect domain and RLD 5	3969	0.140	0.2076	Yes
111	ISG20	ISG20 Entrez, Source	interferon stimulated exonuclease gene 20kDa	4057	0.136	0.2063	Yes
112	MAPK1	MAPK1 Entrez, Source	mitogen-activated protein kinase 1	4088	0.135	0.2085	Yes
113	RAF1	RAF1 Entrez, Source	v-raf-1 murine leukemia viral oncogene homolog 1	4137	0.133	0.2096	Yes
114	NOD1			4174	0.130	0.2114	Yes
115	NUP214	NUP214 Entrez, Source	nucleoporin 214kDa	4184	0.130	0.2149	Yes
116	JAK1	JAK1 Entrez, Source	Janus kinase 1 (a protein tyrosine kinase)	4234	0.126	0.2159	Yes
117	PIAS1	PIAS1 Entrez, Source	protein inhibitor of activated STAT, 1	4333	0.121	0.2140	Yes
118	TRAF6	TRAF6 Entrez, Source	TNF receptor-associated factor 6	4370	0.119	0.2158	Yes
119	IL18	IL18 Entrez, Source	interleukin 18 (interferon-gamma-inducing factor)	4372	0.119	0.2198	Yes

120	AAAS	AAAS Entrez, Source	achalasia, adrenocortical insufficiency, alacrimia (Allgrove, triple-A)	4476	0.114	0.2175	Yes
121	IL2RG	IL2RG Entrez, Source	interleukin 2 receptor, gamma (severe combined immunodeficiency)	4493	0.113	0.2206	Yes
122	IL6R	IL6R Entrez, Source	interleukin 6 receptor	4506	0.112	0.2239	Yes
123	TNIP2	TNIP2 Entrez, Source	TNFAIP3 interacting protein 2	4539	0.111	0.2259	Yes
124	NUP85	NUP85 Entrez, Source	nucleoporin 85kDa	4641	0.106	0.2238	Yes
125	KPNA1	KPNA1 Entrez, Source	karyopherin alpha 1 (importin alpha 5)	4642	0.106	0.2278	Yes
126	MAP2K1	MAP2K1 Entrez, Source	mitogen-activated protein kinase kinase 1	4676	0.104	0.2299	Yes
127	CRKL	CRKL Entrez, Source	v-crk sarcoma virus CT10 oncogene homolog (avian)-like	4751	0.101	0.2294	Yes
128	IRAK3	IRAK3 Entrez, Source	interleukin-1 receptor-associated kinase 3	4839	0.096	0.2281	Yes
129	PIN1	PIN1 Entrez, Source	protein (peptidylprolyl cis/trans isomerase) NIMA-interacting 1	4862	0.095	0.2308	Yes
130	NUP62	NUP62 Entrez, Source	nucleoporin 62kDa	4899	0.093	0.2326	Yes
131	SP100	SP100 Entrez, Source	SP100 nuclear antigen	4978	0.090	0.2319	Yes
132	POM121	POM121 Entrez, Source	POM121 membrane glycoprotein (rat)	4986	0.089	0.2355	Yes
133	MAP3K8	MAP3K8 Entrez, Source	mitogen-activated protein kinase kinase kinase 8	5008	0.088	0.2382	Yes
134	OAS2	OAS2 Entrez, Source	2'-5'-oligoadenylate synthetase 2, 69/71kDa	5159	0.081	0.2331	Yes
135	HGF	HGF Entrez, Source	hepatocyte growth factor (hepapoietin A; scatter factor)	5184	0.080	0.2356	Yes
136	CSF2RB	CSF2RB Entrez, Source	colony stimulating factor 2 receptor, beta, low-affinity (granulocyte-macrophage)	5196	0.080	0.2390	Yes

137	PELI1	PELI1 Entrez, Source	pellino homolog 1 (Drosophila)	5314	0.074	0.2359	Yes
138	IKBKB	IKBKB Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta	5326	0.074	0.2392	Yes
139	EIF4E2	EIF4E2 Entrez, Source	eukaryotic translation initiation factor 4E member 2	5545	0.064	0.2299	Yes
140	PIK3CB	PIK3CB Entrez, Source	phosphoinositide-3-kinase, catalytic, beta polypeptide	5597	0.062	0.2309	Yes
141	EIF4A1	EIF4A1 Entrez, Source	eukaryotic translation initiation factor 4A, isoform 1	5605	0.061	0.2345	Yes
142	TAB1			5643	0.059	0.2362	Yes
143	RAE1	RAE1 Entrez, Source	RAE1 RNA export 1 homolog (S. pombe)	5685	0.057	0.2378	Yes
144	IFNAR2	IFNAR2 Entrez, Source	interferon (alpha, beta and omega) receptor 2	5692	0.056	0.2414	Yes
145	NUP188	NUP188 Entrez, Source	nucleoporin 188kDa	5698	0.056	0.2451	Yes
146	IRF3	IRF3 Entrez, Source	interferon regulatory factor 3	5701	0.056	0.2491	Yes
147	MAP2K6	MAP2K6 Entrez, Source	mitogen-activated protein kinase kinase 6	5718	0.055	0.2521	Yes
148	RNASEL	RNASEL Entrez, Source	ribonuclease L (2',5'-oligoisoadenylate synthetase-dependent)	5763	0.053	0.2535	Yes
149	NUP210	NUP210 Entrez, Source	nucleoporin 210kDa	5771	0.053	0.2571	Yes
150	MX1	MX1 Entrez, Source	myxovirus (influenza virus) resistance 1, interferon-inducible protein p78 (mouse)	5772	0.053	0.2611	Yes
151	TEC	TEC Entrez, Source	tec protein tyrosine kinase	5809	0.052	0.2629	Yes
152	UBA7			5857	0.050	0.2641	Yes
153	JAK3	JAK3 Entrez, Source	Janus kinase 3 (a protein tyrosine kinase, leukocyte)	5900	0.048	0.2655	Yes
154	USP18	USP18 Entrez, Source	ubiquitin specific peptidase 18	6022	0.042	0.2622	No

155	XAF1			6124	0.039	0.2600	No
156	CRK	CRK Entrez, Source	v-crk sarcoma virus CT10 oncogene homolog (avian)	6145	0.038	0.2629	No
157	CD44	CD44 Entrez, Source	CD44 molecule (Indian blood group)	6336	0.029	0.2553	No
158	IRF4	IRF4 Entrez, Source	interferon regulatory factor 4	6438	0.025	0.2531	No
159	IFIT1	IFIT1 Entrez, Source	interferon-induced protein with tetratricopeptide repeats 1	6439	0.025	0.2572	No
160	YWHAZ	YWHAZ Entrez, Source	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	6567	0.019	0.2534	No
161	KRAS	KRAS Entrez, Source	v-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog	6697	0.013	0.2496	No
162	MAP2K4	MAP2K4 Entrez, Source	mitogen-activated protein kinase kinase 4	6858	0.007	0.2438	No
163	IP6K2			6939	0.003	0.2430	No
164	TMEM189-UBE2V1			6970	0.001	0.2452	No
165	CSF2RA	CSF2RA Entrez, Source	colony stimulating factor 2 receptor, alpha, low-affinity (granulocyte-macrophage)	7465	0.000	0.2190	No
166	CSH1	CSH1 Entrez, Source	chorionic somatomammotropin hormone 1 (placental lactogen)	7466	0.000	0.2230	No
167	GH2	GH2 Entrez, Source	growth hormone 2	7786	0.000	0.2076	No
168	IFNA1	IFNA1 Entrez, Source	interferon, alpha 1	7906	0.000	0.2043	No
169	IFNA10	IFNA10 Entrez, Source	interferon, alpha 10	7907	0.000	0.2083	No
170	IFNA14	IFNA14 Entrez, Source	interferon, alpha 14	7909	0.000	0.2123	No
171	IFNA16	IFNA16 Entrez, Source	interferon, alpha 16	7910	0.000	0.2164	No
172	IFNA2	IFNA2 Entrez, Source	interferon, alpha 2	7911	0.000	0.2204	No

173	IFNA4	IFNA4 Entrez, Source	interferon, alpha 4	7912	0.000	0.2244	No
174	IFNA6	IFNA6 Entrez, Source	interferon, alpha 6	7913	0.000	0.2284	No
175	IFNA7	IFNA7 Entrez, Source	interferon, alpha 7	7914	0.000	0.2325	No
176	IFNA8	IFNA8 Entrez, Source	interferon, alpha 8	7915	0.000	0.2365	No
177	IL3	IL3 Entrez, Source	interleukin 3 (colony-stimulating factor, multiple)	7950	0.000	0.2385	No
178	IL3RA	IL3RA Entrez, Source	interleukin 3 receptor, alpha (low affinity)	7955	0.000	0.2423	No
179	KPNA4	KPNA4 Entrez, Source	karyopherin alpha 4 (importin alpha 3)	9505	-0.009	0.1516	No
180	LCK	LCK Entrez, Source	lymphocyte-specific protein tyrosine kinase	9601	-0.014	0.1498	No
181	CUL1	CUL1 Entrez, Source	cullin 1	9723	-0.021	0.1465	No
182	EIF4E3	EIF4E3 Entrez, Source	eukaryotic translation initiation factor 4E member 3	9823	-0.026	0.1444	No
183	ADAM17	ADAM17 Entrez, Source	ADAM metallopeptidase domain 17 (tumor necrosis factor, alpha, converting enzyme)	9847	-0.027	0.1471	No
184	SH2B1	SH2B1 Entrez, Source	SH2B adaptor protein 1	9883	-0.029	0.1490	No
185	EIF4G2	EIF4G2 Entrez, Source	eukaryotic translation initiation factor 4 gamma, 2	9998	-0.034	0.1460	No
186	NUP50	NUP50 Entrez, Source	nucleoporin 50kDa	10024	-0.035	0.1485	No
187	NUP153	NUP153 Entrez, Source	nucleoporin 153kDa	10067	-0.037	0.1500	No
188	JAK2	JAK2 Entrez, Source	Janus kinase 2 (a protein tyrosine kinase)	10198	-0.044	0.1461	No
189	NUPL1	NUPL1 Entrez, Source	nucleoporin like 1	10264	-0.047	0.1461	No

190	TPR	TPR Entrez, Source	translocated promoter region (to activated MET oncogene)	10395	-0.053	0.1422	No
191	ISG15	ISG15 Entrez, Source	ISG15 ubiquitin-like modifier	10422	-0.054	0.1447	No
192	ARIH1	ARIH1 Entrez, Source	ariadne homolog, ubiquitin-conjugating enzyme E2 binding protein, 1 (Drosophila)	10534	-0.059	0.1419	No
193	BTRC	BTRC Entrez, Source	beta-transducin repeat containing	10543	-0.059	0.1454	No
194	NUP205	NUP205 Entrez, Source	nucleoporin 205kDa	10624	-0.063	0.1446	No
195	NUP155	NUP155 Entrez, Source	nucleoporin 155kDa	10630	-0.063	0.1483	No
196	IRAK4	IRAK4 Entrez, Source	interleukin-1 receptor-associated kinase 4	10642	-0.064	0.1517	No
197	IFNGR1	IFNGR1 Entrez, Source	interferon gamma receptor 1	10870	-0.076	0.1418	No
198	SKP1			10921	-0.078	0.1428	No
199	NUP133	NUP133 Entrez, Source	nucleoporin 133kDa	11112	-0.087	0.1352	No
200	EIF2AK2	EIF2AK2 Entrez, Source	eukaryotic translation initiation factor 2-alpha kinase 2	11170	-0.091	0.1358	No
201	CHUK	CHUK Entrez, Source	conserved helix-loop-helix ubiquitous kinase	11297	-0.097	0.1321	No
202	IRF8	IRF8 Entrez, Source	interferon regulatory factor 8	11353	-0.100	0.1328	No
203	NUP107	NUP107 Entrez, Source	nucleoporin 107kDa	11588	-0.112	0.1225	No
204	SOS1	SOS1 Entrez, Source	son of sevenless homolog 1 (Drosophila)	11781	-0.123	0.1148	No
205	NUP88	NUP88 Entrez, Source	nucleoporin 88kDa	11945	-0.133	0.1089	No
206	TAB2			11989	-0.136	0.1103	No
207	CISH	CISH Entrez, Source	cytokine inducible SH2-containing protein	12013	-0.137	0.1129	No

208	TAB3			12064	-0.139	0.1139	No
209	B2M	B2M Entrez, Source	beta-2-microglobulin	12145	-0.144	0.1130	No
210	NUPL2	NUPL2 Entrez, Source	nucleoporin like 2	12158	-0.145	0.1163	No
211	SUMO1	SUMO1 Entrez, Source	SMT3 suppressor of mif two 3 homolog 1 (S. cerevisiae)	12263	-0.152	0.1140	No
212	NEDD4	NEDD4 Entrez, Source	neural precursor cell expressed, developmentally down-regulated 4	12641	-0.174	0.0950	No
213	NRAS	NRAS Entrez, Source	neuroblastoma RAS viral (v-ras) oncogene homolog	12700	-0.177	0.0955	No
214	PLCG1	PLCG1 Entrez, Source	phospholipase C, gamma 1	12745	-0.179	0.0968	No
215	KPNA3	KPNA3 Entrez, Source	karyopherin alpha 3 (importin alpha 4)	12792	-0.183	0.0980	No
216	NUP37	NUP37 Entrez, Source	nucleoporin 37kDa	12917	-0.191	0.0945	No
217	RBX1	RBX1 Entrez, Source	ring-box 1	12984	-0.195	0.0945	No
218	RANBP2	RANBP2 Entrez, Source	RAN binding protein 2	13045	-0.200	0.0948	No
219	CAMK2D	CAMK2D Entrez, Source	calcium/calmodulin-dependent protein kinase (CaM kinase) II delta	13283	-0.214	0.0844	No
220	PPM1B	PPM1B Entrez, Source	protein phosphatase 1B (formerly 2C), magnesium-dependent, beta isoform	13405	-0.222	0.0810	No
221	PTPN2	PTPN2 Entrez, Source	protein tyrosine phosphatase, non-receptor type 2	13407	-0.222	0.0850	No
222	PIK3CA	PIK3CA Entrez, Source	phosphoinositide-3-kinase, catalytic, alpha polypeptide	13438	-0.224	0.0872	No
223	UBE2N	UBE2N Entrez, Source	ubiquitin-conjugating enzyme E2N (UBC13 homolog, yeast)	13454	-0.225	0.0903	No
224	PIK3R1	PIK3R1 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 1 (p85 alpha)	13664	-0.240	0.0815	No

225	NUP54	NUP54 Entrez, Source	nucleoporin 54kDa	13694	-0.242	0.0838	No
226	MAP3K7	MAP3K7 Entrez, Source	mitogen-activated protein kinase kinase kinase 7	13808	-0.250	0.0809	No
227	SEH1L	SEH1L Entrez, Source	SEH1-like (S. cerevisiae)	13847	-0.252	0.0826	No
228	BLNK	BLNK Entrez, Source	B-cell linker	14022	-0.265	0.0760	No
229	UBE2E1	UBE2E1 Entrez, Source	ubiquitin-conjugating enzyme E2E 1 (UBC4/5 homolog, yeast)	14199	-0.278	0.0693	No
230	EIF4E	EIF4E Entrez, Source	eukaryotic translation initiation factor 4E	14213	-0.280	0.0725	No
231	GH1	GH1 Entrez, Source	growth hormone 1	14229	-0.281	0.0757	No
232	YES1	YES1 Entrez, Source	v-yes-1 Yamaguchi sarcoma viral oncogene homolog 1	14231	-0.281	0.0796	No
233	NUP43	NUP43 Entrez, Source	nucleoporin 43kDa	14462	-0.301	0.0696	No
234	EIF4A2	EIF4A2 Entrez, Source	eukaryotic translation initiation factor 4A, isoform 2	14523	-0.306	0.0700	No
235	IL2RA	IL2RA Entrez, Source	interleukin 2 receptor, alpha	14596	-0.313	0.0696	No
236	FLNB	FLNB Entrez, Source	filamin B, beta (actin binding protein 278)	14745	-0.328	0.0646	No
237	IL7R	IL7R Entrez, Source	interleukin 7 receptor	14750	-0.328	0.0684	No
238	SOCS2	SOCS2 Entrez, Source	suppressor of cytokine signaling 2	14851	-0.339	0.0663	No
239	NUP35	NUP35 Entrez, Source	nucleoporin 35kDa	14876	-0.341	0.0689	No
240	PRKACB	PRKACB Entrez, Source	protein kinase, cAMP-dependent, catalytic, beta	15132	-0.371	0.0573	No
241	IRS1	IRS1 Entrez, Source	insulin receptor substrate 1	15851	-0.513	0.0174	No

242	KPNA5	KPNA5 Entrez, Source	karyopherin alpha 5 (importin alpha 6)	15996	-0.566	0.0127	No
243	IRF6	IRF6 Entrez, Source	interferon regulatory factor 6	16143	-0.638	0.0078	No
244	CDK1			16162	-0.651	0.0107	No
245	IL7	IL7 Entrez, Source	interleukin 7	16334	-0.794	0.0043	No
246	IL6ST	IL6ST Entrez, Source	interleukin 6 signal transducer (gp130, oncostatin M receptor)	16352	-0.822	0.0073	No
247	RPS27A	RPS27A Entrez, Source	ribosomal protein S27a	16409	-0.913	0.0079	No
248	IL6	IL6 Entrez, Source	interleukin 6 (interferon, beta 2)	16483	-1.093	0.0075	No

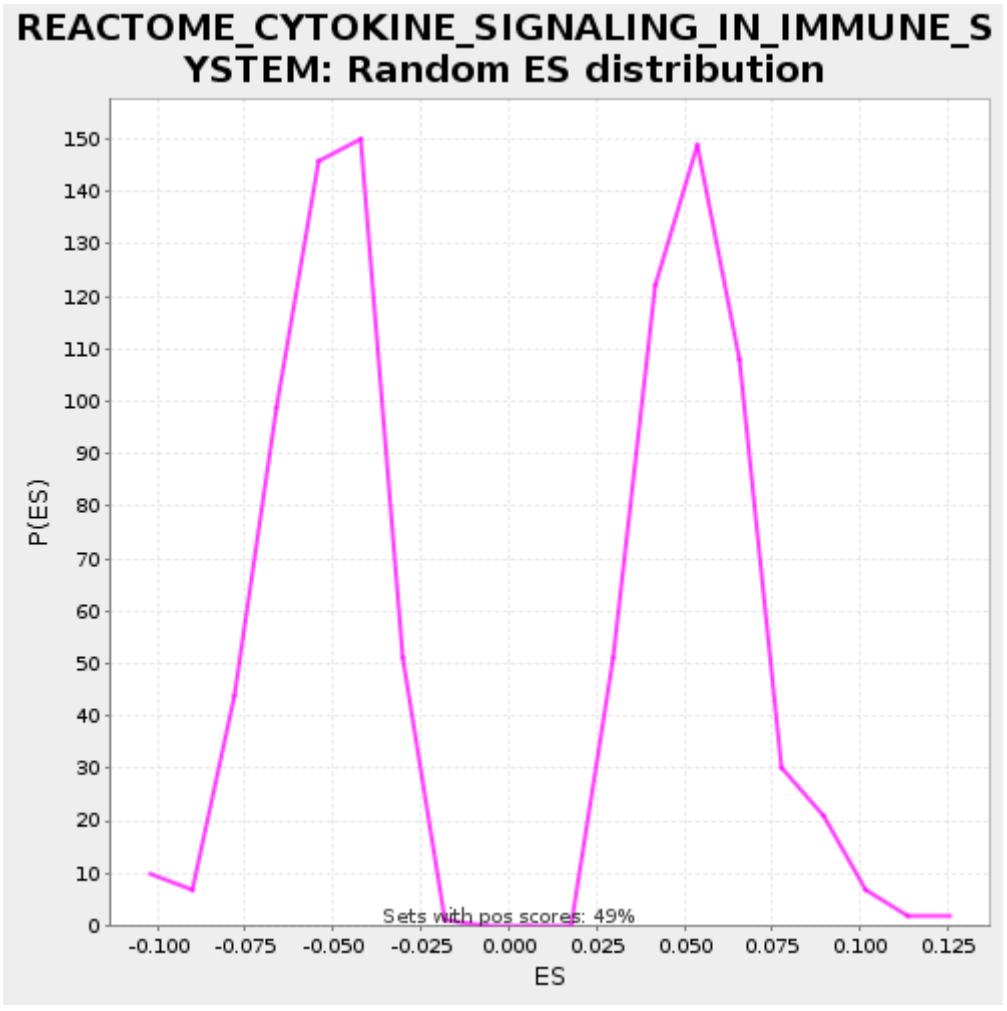

Fig 2: REACTOME_CYTOKINE_SIGNALING_IN_IMMUNE_SYSTEM: Random ES distribution

Gene set null distribution of ES for REACTOME_CYTOKINE_SIGNALING_IN_IMMUNE_SYSTEM

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	REACTOME_ADAPTIVE_IMMUNE_SYSTEM
Enrichment Score (ES)	0.18044785
Normalized Enrichment Score (NES)	4.5287533
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

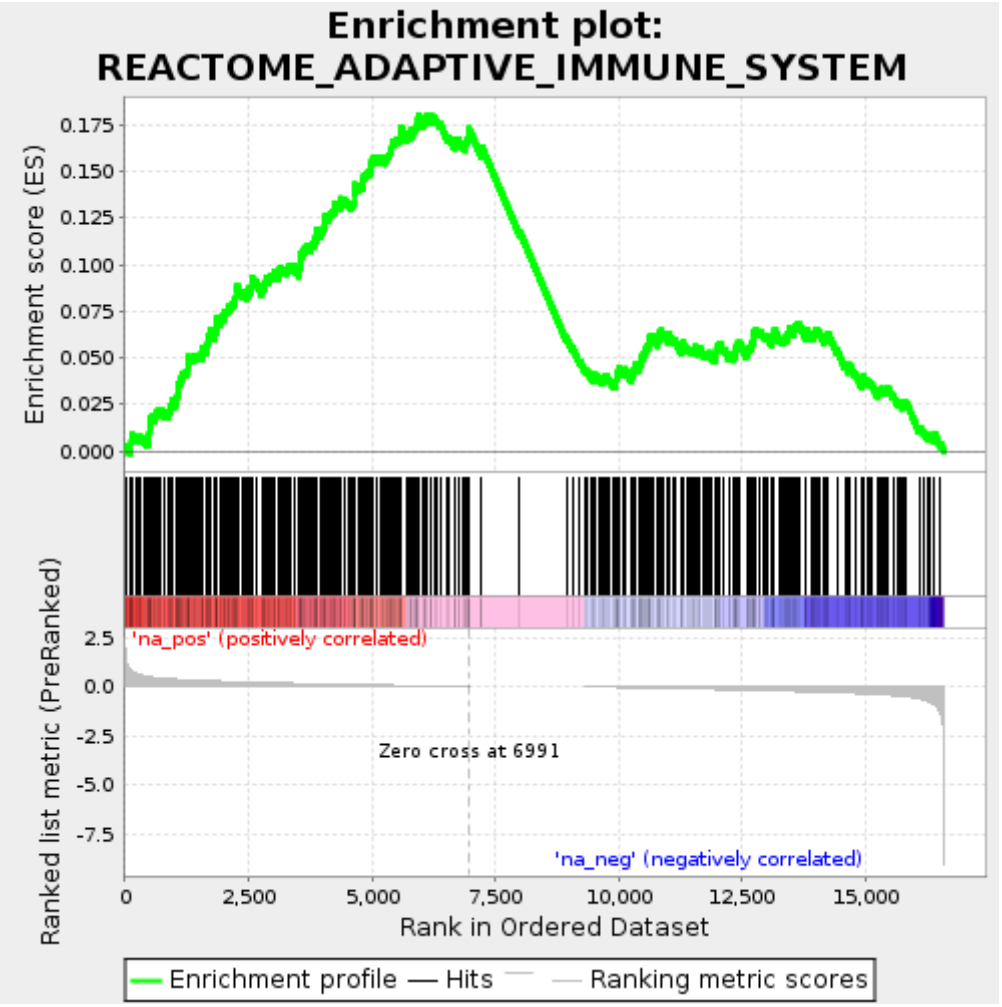

Fig 1: Enrichment plot: REACTOME_ADAPTIVE_IMMUNE_SYSTEM Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE	GENE_TITLE	RANK	RANK	RUNNING	CORE

		SYMBOL		IN GENE LIST	METRIC SCORE	ES	ENRICHMENT
1	KIR2DL3	KIR2DL3 Entrez, Source	killer cell immunoglobulin-like receptor, two domains, long cytoplasmic tail, 3	9	1.596	0.0015	Yes
2	KIR2DL1	KIR2DL1 Entrez, Source	killer cell immunoglobulin-like receptor, two domains, long cytoplasmic tail, 1	11	1.547	0.0035	Yes
3	CD8A	CD8A Entrez, Source	CD8a molecule	97	0.907	0.0003	Yes
4	HLA-DQA2	HLA-DQA2 Entrez, Source	major histocompatibility complex, class II, DQ alpha 2	120	0.838	0.0009	Yes
5	NR4A1	NR4A1 Entrez, Source	nuclear receptor subfamily 4, group A, member 1	122	0.828	0.0029	Yes
6	CD8B	CD8B Entrez, Source	CD8b molecule	123	0.825	0.0050	Yes
7	HLA-G	HLA-G Entrez, Source	HLA-G histocompatibility antigen, class I, G	125	0.822	0.0070	Yes
8	HLA-DRB5	HLA-DRB5 Entrez, Source	major histocompatibility complex, class II, DR beta 5	153	0.777	0.0073	Yes
9	FCGR1A	FCGR1A Entrez, Source	Fc fragment of IgG, high affinity Ia, receptor (CD64)	157	0.774	0.0092	Yes
10	KLRD1	KLRD1 Entrez, Source	killer cell lectin-like receptor subfamily D, member 1	214	0.698	0.0078	Yes
11	PDCD1	PDCD1 Entrez, Source	programmed cell death 1	257	0.650	0.0072	Yes
12	FCGR1B	FCGR1B Entrez, Source	Fc fragment of IgG, high affinity Ib, receptor (CD64)	294	0.616	0.0070	Yes
13	C3	C3 Entrez, Source	complement component 3	311	0.604	0.0081	Yes
14	HLA-DPB1	HLA-DPB1 Entrez, Source	major histocompatibility complex, class II, DP beta 1	371	0.557	0.0065	Yes
15	AP1M2	AP1M2 Entrez, Source	adaptor-related protein complex 1, mu 2 subunit	431	0.526	0.0049	Yes
16	ICAM4	ICAM4 Entrez, Source	intercellular adhesion molecule 4 (Landsteiner-Wiener blood group)	461	0.515	0.0051	Yes

17	RILP	RILP Entrez, Source	Rab interacting lysosomal protein	478	0.506	0.0062	Yes
18	PRKACG	PRKACG Entrez, Source	protein kinase, cAMP-dependent, catalytic, gamma	484	0.504	0.0079	Yes
19	HLA-DPA1	HLA-DPA1 Entrez, Source	major histocompatibility complex, class II, DP alpha 1	486	0.503	0.0099	Yes
20	FCGR3A	FCGR3A Entrez, Source	Fc fragment of IgG, low affinity IIIa, receptor (CD16a)	490	0.502	0.0118	Yes
21	KLC3	KLC3 Entrez, Source	kinesin light chain 3	494	0.500	0.0136	Yes
22	PIK3R3	PIK3R3 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 3 (p55, gamma)	500	0.499	0.0154	Yes
23	FBXO6	FBXO6 Entrez, Source	F-box protein 6	503	0.498	0.0173	Yes
24	PSMB9	PSMB9 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 9 (large multifunctional peptidase 2)	520	0.492	0.0183	Yes
25	CTSD	CTSD Entrez, Source	cathepsin D (lysosomal aspartyl peptidase)	536	0.486	0.0195	Yes
26	VASP	VASP Entrez, Source	vasodilator-stimulated phosphoprotein	601	0.462	0.0175	Yes
27	WAS	WAS Entrez, Source	Wiskott-Aldrich syndrome (eczema-thrombocytopenia)	602	0.461	0.0196	Yes
28	LILRB1	LILRB1 Entrez, Source	leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 1	611	0.458	0.0211	Yes
29	KLRK1	KLRK1 Entrez, Source	killer cell lectin-like receptor subfamily K, member 1	654	0.446	0.0206	Yes
30	KIR3DL2	KIR3DL2 Entrez, Source	killer cell immunoglobulin-like receptor, three domains, long cytoplasmic tail, 2	663	0.444	0.0221	Yes
31	HLA-DRB1	HLA-DRB1 Entrez, Source	major histocompatibility complex, class II, DR beta 1	702	0.437	0.0218	Yes
32	HLA-C	HLA-C Entrez, Source	major histocompatibility complex, class I, C	720	0.433	0.0228	Yes
33	CTSA			807	0.409	0.0195	Yes

34	PRKACA	PRKACA Entrez, Source	protein kinase, cAMP-dependent, catalytic, alpha	812	0.408	0.0213	Yes
35	UBE2L6	UBE2L6 Entrez, Source	ubiquitin-conjugating enzyme E2L 6	868	0.398	0.0200	Yes
36	CDKN1A	CDKN1A Entrez, Source	cyclin-dependent kinase inhibitor 1A (p21, Cip1)	888	0.394	0.0208	Yes
37	SRC	SRC Entrez, Source	v-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)	900	0.392	0.0222	Yes
38	CDC34	CDC34 Entrez, Source	cell division cycle 34	925	0.388	0.0228	Yes
39	SIPA1	SIPA1 Entrez, Source	signal-induced proliferation-associated gene 1	927	0.388	0.0248	Yes
40	LILRB3	LILRB3 Entrez, Source	leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 3	943	0.386	0.0259	Yes
41	KIF3C	KIF3C Entrez, Source	kinesin family member 3C	944	0.386	0.0279	Yes
42	TAP1	TAP1 Entrez, Source	transporter 1, ATP-binding cassette, sub-family B (MDR/TAP)	1019	0.376	0.0254	Yes
43	PIK3R2	PIK3R2 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 2 (p85 beta)	1023	0.375	0.0273	Yes
44	ITGB2	ITGB2 Entrez, Source	integrin, beta 2 (complement component 3 receptor 3 and 4 subunit)	1030	0.374	0.0289	Yes
45	CD74	CD74 Entrez, Source	CD74 molecule, major histocompatibility complex, class II invariant chain	1057	0.369	0.0294	Yes
46	HLA-A	HLA-A Entrez, Source	major histocompatibility complex, class I, A	1061	0.368	0.0312	Yes
47	HLA-B	HLA-B Entrez, Source	major histocompatibility complex, class I, B	1070	0.367	0.0328	Yes
48	HCST	HCST Entrez, Source	hematopoietic cell signal transducer	1074	0.366	0.0346	Yes
49	PSME1	PSME1 Entrez, Source	proteasome (prosome, macropain) activator subunit 1 (PA28 alpha)	1076	0.366	0.0366	Yes
50	PAK1	PAK1 Entrez, Source	p21/Cdc42/Rac1-activated kinase 1 (STE20 homolog, yeast)	1104	0.360	0.0370	Yes

51	ICAM1	ICAM1 Entrez, Source	intercellular adhesion molecule 1 (CD54), human rhinovirus receptor	1111	0.359	0.0387	Yes
52	CSK	CSK Entrez, Source	c-src tyrosine kinase	1136	0.356	0.0392	Yes
53	AP2S1	AP2S1 Entrez, Source	adaptor-related protein complex 2, sigma 1 subunit	1160	0.354	0.0399	Yes
54	IKBKG	IKBKG Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase gamma	1161	0.354	0.0419	Yes
55	GSK3A	GSK3A Entrez, Source	glycogen synthase kinase 3 alpha	1190	0.350	0.0422	Yes
56	PDCD1LG2	PDCD1LG2 Entrez, Source	programmed cell death 1 ligand 2	1225	0.344	0.0422	Yes
57	AP2A1	AP2A1 Entrez, Source	adaptor-related protein complex 2, alpha 1 subunit	1250	0.340	0.0427	Yes
58	PSMB10	PSMB10 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 10	1263	0.338	0.0440	Yes
59	FOXO4			1264	0.338	0.0461	Yes
60	PPP2R1A	PPP2R1A Entrez, Source	protein phosphatase 2 (formerly 2A), regulatory subunit A (PR 65), alpha isoform	1278	0.336	0.0473	Yes
61	TRIM21	TRIM21 Entrez, Source	tripartite motif-containing 21	1284	0.335	0.0491	Yes
62	NCF2	NCF2 Entrez, Source	neutrophil cytosolic factor 2 (65kDa, chronic granulomatous disease, autosomal 2)	1287	0.334	0.0510	Yes
63	UBA1			1332	0.331	0.0503	Yes
64	PSMB8	PSMB8 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 8 (large multifunctional peptidase 7)	1377	0.326	0.0496	Yes
65	CTSB	CTSB Entrez, Source	cathepsin B	1394	0.325	0.0507	Yes
66	LILRB4	LILRB4 Entrez, Source	leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 4	1411	0.323	0.0517	Yes
67	TYROBP	TYROBP Entrez, Source	TYRO protein tyrosine kinase binding protein	1453	0.318	0.0512	Yes
68	LYN	LYN Entrez, Source	v-yes-1 Yamaguchi sarcoma viral related oncogene homolog	1480	0.316	0.0517	Yes

69	PTPN6	PTPN6 Entrez, Source	protein tyrosine phosphatase, non-receptor type 6	1509	0.313	0.0520	Yes
70	CD81	CD81 Entrez, Source	CD81 molecule	1551	0.309	0.0515	Yes
71	NFKBIA	NFKBIA Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha	1569	0.308	0.0525	Yes
72	CTSH	CTSH Entrez, Source	cathepsin H	1573	0.307	0.0544	Yes
73	CD274	CD274 Entrez, Source	CD274 molecule	1578	0.307	0.0562	Yes
74	PSMB3	PSMB3 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 3	1644	0.298	0.0542	Yes
75	CDC20	CDC20 Entrez, Source	CDC20 cell division cycle 20 homolog (S. cerevisiae)	1651	0.298	0.0558	Yes
76	VAV1	VAV1 Entrez, Source	vav 1 oncogene	1662	0.296	0.0573	Yes
77	HLA-F	HLA-F Entrez, Source	major histocompatibility complex, class I, F	1670	0.296	0.0589	Yes
78	ITGB5	ITGB5 Entrez, Source	integrin, beta 5	1679	0.295	0.0604	Yes
79	ATG7	ATG7 Entrez, Source	ATG7 autophagy related 7 homolog (S. cerevisiae)	1683	0.295	0.0623	Yes
80	CASP9	CASP9 Entrez, Source	caspase 9, apoptosis-related cysteine peptidase	1719	0.291	0.0622	Yes
81	PVR	PVR Entrez, Source	poliovirus receptor	1722	0.291	0.0641	Yes
82	HLA-DMA	HLA-DMA Entrez, Source	major histocompatibility complex, class II, DM alpha	1737	0.290	0.0653	Yes
83	ITGAL	ITGAL Entrez, Source	integrin, alpha L (antigen CD11A (p180), lymphocyte function-associated antigen 1; alpha polypeptide)	1824	0.281	0.0620	Yes
84	UBE2R2	UBE2R2 Entrez, Source	ubiquitin-conjugating enzyme E2R 2	1830	0.281	0.0637	Yes
85	AP2M1	AP2M1 Entrez,	adaptor-related protein complex 2, mu 1 subunit	1836	0.280	0.0655	Yes

		Source					
86	CYBA	CYBA Entrez, Source	cytochrome b-245, alpha polypeptide	1842	0.280	0.0672	Yes
87	ARF1	ARF1 Entrez, Source	ADP-ribosylation factor 1	1857	0.278	0.0684	Yes
88	UBE2M	UBE2M Entrez, Source	ubiquitin-conjugating enzyme E2M (UBC12 homolog, yeast)	1862	0.278	0.0702	Yes
89	ASB2	ASB2 Entrez, Source	ankyrin repeat and SOCS box-containing 2	1865	0.278	0.0721	Yes
90	NFKBIB	NFKBIB Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, beta	1939	0.271	0.0696	Yes
91	RAB7A			1941	0.271	0.0716	Yes
92	SEC24D	SEC24D Entrez, Source	SEC24 related gene family, member D (S. cerevisiae)	1956	0.269	0.0728	Yes
93	RAP1GAP2			2002	0.265	0.0721	Yes
94	LILRA1	LILRA1 Entrez, Source	leukocyte immunoglobulin-like receptor, subfamily A (with TM domain), member 1	2010	0.264	0.0737	Yes
95	PSMF1	PSMF1 Entrez, Source	proteasome (prosome, macropain) inhibitor subunit 1 (PI31)	2021	0.263	0.0751	Yes
96	SOCS3	SOCS3 Entrez, Source	suppressor of cytokine signaling 3	2049	0.261	0.0755	Yes
97	IFITM1	IFITM1 Entrez, Source	interferon induced transmembrane protein 1 (9-27)	2077	0.259	0.0759	Yes
98	GRB2	GRB2 Entrez, Source	growth factor receptor-bound protein 2	2084	0.258	0.0775	Yes
99	DNM2	DNM2 Entrez, Source	dynamin 2	2112	0.256	0.0779	Yes
100	DCTN1	DCTN1 Entrez, Source	dynactin 1 (p150, glued homolog, Drosophila)	2153	0.253	0.0775	Yes
101	ACTR1A	ACTR1A Entrez, Source	ARP1 actin-related protein 1 homolog A, centractin alpha (yeast)	2159	0.252	0.0792	Yes
102	AP1B1	AP1B1 Entrez, Source	adaptor-related protein complex 1, beta 1 subunit	2191	0.250	0.0793	Yes

103	CUL7	CUL7 Entrez, Source	cullin 7	2210	0.249	0.0803	Yes
104	AKT1S1	AKT1S1 Entrez, Source	AKT1 substrate 1 (proline-rich)	2222	0.248	0.0816	Yes
105	PSMC4	PSMC4 Entrez, Source	proteasome (prosome, macropain) 26S subunit, ATPase, 4	2236	0.247	0.0829	Yes
106	AP1M1	AP1M1 Entrez, Source	adaptor-related protein complex 1, mu 1 subunit	2239	0.246	0.0848	Yes
107	RELA	RELA Entrez, Source	v-rel reticuloendotheliosis viral oncogene homolog A, nuclear factor of kappa light polypeptide gene enhancer in B-cells 3, p65 (avian)	2240	0.246	0.0869	Yes
108	TSC2	TSC2 Entrez, Source	tuberous sclerosis 2	2246	0.246	0.0886	Yes
109	CD86	CD86 Entrez, Source	CD86 molecule	2281	0.243	0.0885	Yes
110	CTSC	CTSC Entrez, Source	cathepsin C	2381	0.235	0.0844	Yes
111	SOCS1	SOCS1 Entrez, Source	suppressor of cytokine signaling 1	2399	0.234	0.0854	Yes
112	SYK	SYK Entrez, Source	spleen tyrosine kinase	2472	0.229	0.0830	Yes
113	FBXO2	FBXO2 Entrez, Source	F-box protein 2	2485	0.228	0.0843	Yes
114	NCF4	NCF4 Entrez, Source	neutrophil cytosolic factor 4, 40kDa	2496	0.227	0.0858	Yes
115	SH3KBP1	SH3KBP1 Entrez, Source	SH3-domain kinase binding protein 1	2502	0.227	0.0875	Yes
116	AKT1	AKT1 Entrez, Source	v-akt murine thymoma viral oncogene homolog 1	2555	0.223	0.0863	Yes
117	PLCG2	PLCG2 Entrez, Source	phospholipase C, gamma 2 (phosphatidylinositol-specific)	2558	0.223	0.0882	Yes
118	PPP2R5B	PPP2R5B Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), beta isoform	2565	0.223	0.0899	Yes

119	RBCK1	RBCK1 Entrez, Source	RanBP-type and C3HC4-type zinc finger containing 1	2566	0.223	0.0920	Yes
120	RNF123	RNF123 Entrez, Source	ring finger protein 123	2578	0.222	0.0933	Yes
121	DNM1	DNM1 Entrez, Source	dynamin 1	2645	0.218	0.0913	Yes
122	PIK3CD	PIK3CD Entrez, Source	phosphoinositide-3-kinase, catalytic, delta polypeptide	2766	0.208	0.0859	Yes
123	ORAI1			2774	0.208	0.0875	Yes
124	TAP2	TAP2 Entrez, Source	transporter 2, ATP-binding cassette, sub-family B (MDR/TAP)	2777	0.207	0.0894	Yes
125	SHC1	SHC1 Entrez, Source	SHC (Src homology 2 domain containing) transforming protein 1	2825	0.205	0.0886	Yes
126	ICAM3	ICAM3 Entrez, Source	intercellular adhesion molecule 3	2840	0.204	0.0898	Yes
127	LRSAM1	LRSAM1 Entrez, Source	leucine rich repeat and sterile alpha motif containing 1	2845	0.203	0.0916	Yes
128	CTSS	CTSS Entrez, Source	cathepsin S	2847	0.203	0.0935	Yes
129	MRC2	MRC2 Entrez, Source	mannose receptor, C type 2	2908	0.200	0.0919	Yes
130	KIF18A	KIF18A Entrez, Source	kinesin family member 18A	2927	0.198	0.0928	Yes
131	HECTD3	HECTD3 Entrez, Source	HECT domain containing 3	2941	0.197	0.0940	Yes
132	UBA52	UBA52 Entrez, Source	ubiquitin A-52 residue ribosomal protein fusion product 1	2974	0.195	0.0941	Yes
133	ANAPC11	ANAPC11 Entrez, Source	APC11 anaphase promoting complex subunit 11 homolog (yeast)	3010	0.193	0.0940	Yes
134	YWHAB	YWHAB Entrez, Source	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, beta polypeptide	3027	0.192	0.0950	Yes
135	RIPK2	RIPK2 Entrez, Source	receptor-interacting serine-threonine kinase 2	3030	0.192	0.0970	Yes

136	AMICA1	AMICA1 Entrez, Source	adhesion molecule, interacts with CXADR antigen 1	3107	0.186	0.0943	Yes
137	CALR	CALR Entrez, Source	calreticulin	3110	0.186	0.0962	Yes
138	RPS6KB2	RPS6KB2 Entrez, Source	ribosomal protein S6 kinase, 70kDa, polypeptide 2	3124	0.185	0.0975	Yes
139	RAC1	RAC1 Entrez, Source	ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)	3131	0.185	0.0991	Yes
140	PPP2R5D	PPP2R5D Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), delta isoform	3189	0.182	0.0977	Yes
141	KIF4A	KIF4A Entrez, Source	kinesin family member 4A	3227	0.180	0.0974	Yes
142	UBE2C	UBE2C Entrez, Source	ubiquitin-conjugating enzyme E2C	3271	0.177	0.0968	Yes
143	PSMC3	PSMC3 Entrez, Source	proteasome (prosome, macropain) 26S subunit, ATPase, 3	3291	0.177	0.0977	Yes
144	SPSB1	SPSB1 Entrez, Source	splA/ryanodine receptor domain and SOCS box containing 1	3297	0.176	0.0994	Yes
145	KEAP1	KEAP1 Entrez, Source	kelch-like ECH-associated protein 1	3351	0.174	0.0982	Yes
146	PSMD8	PSMD8 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 8	3364	0.173	0.0995	Yes
147	UBE2J2	UBE2J2 Entrez, Source	ubiquitin-conjugating enzyme E2, J2 (UBC6 homolog, yeast)	3423	0.170	0.0979	Yes
148	HRAS	HRAS Entrez, Source	v-Ha-ras Harvey rat sarcoma viral oncogene homolog	3429	0.170	0.0997	Yes
149	PPP2CB	PPP2CB Entrez, Source	protein phosphatase 2 (formerly 2A), catalytic subunit, beta isoform	3527	0.164	0.0957	Yes
150	CLTA	CLTA Entrez, Source	clathrin, light chain (Lca)	3531	0.164	0.0975	Yes
151	DCTN2	DCTN2 Entrez, Source	dynactin 2 (p50)	3540	0.163	0.0991	Yes
152	PSMB2	PSMB2 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 2	3545	0.163	0.1009	Yes

153	STIM1	STIM1 Entrez, Source	stromal interaction molecule 1	3546	0.163	0.1030	Yes
154	TRIM11	TRIM11 Entrez, Source	tripartite motif-containing 11	3559	0.162	0.1043	Yes
155	UBR4			3564	0.162	0.1061	Yes
156	PIK3AP1	PIK3AP1 Entrez, Source	phosphoinositide-3-kinase adaptor protein 1	3599	0.159	0.1060	Yes
157	DCTN5	DCTN5 Entrez, Source	dynactin 5 (p25)	3604	0.159	0.1078	Yes
158	UBE2D1	UBE2D1 Entrez, Source	ubiquitin-conjugating enzyme E2D 1 (UBC4/5 homolog, yeast)	3635	0.158	0.1080	Yes
159	AP1S1	AP1S1 Entrez, Source	adaptor-related protein complex 1, sigma 1 subunit	3652	0.157	0.1090	Yes
160	NFKBIE	NFKBIE Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, epsilon	3669	0.156	0.1101	Yes
161	MKRN1	MKRN1 Entrez, Source	makorin, ring finger protein, 1	3702	0.155	0.1102	Yes
162	OSBPL1A	OSBPL1A Entrez, Source	oxysterol binding protein-like 1A	3759	0.152	0.1087	Yes
163	PSMD2	PSMD2 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 2	3767	0.151	0.1104	Yes
164	HLA-DQA1	HLA-DQA1 Entrez, Source	major histocompatibility complex, class II, DQ alpha 1	3781	0.150	0.1116	Yes
165	PSMB6	PSMB6 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 6	3825	0.148	0.1110	Yes
166	SMURF1	SMURF1 Entrez, Source	SMAD specific E3 ubiquitin protein ligase 1	3828	0.148	0.1129	Yes
167	PSMC5	PSMC5 Entrez, Source	proteasome (prosome, macropain) 26S subunit, ATPase, 5	3838	0.147	0.1144	Yes
168	UBE2L3	UBE2L3 Entrez, Source	ubiquitin-conjugating enzyme E2L 3	3869	0.146	0.1146	Yes
169	AKT2	AKT2 Entrez, Source	v-akt murine thymoma viral oncogene homolog 2	3872	0.146	0.1165	Yes

170	CBL	CBL Entrez, Source	Cas-Br-M (murine) ecotropic retroviral transforming sequence	3887	0.145	0.1177	Yes
171	SEC24C	SEC24C Entrez, Source	SEC24 related gene family, member C (S. cerevisiae)	3893	0.144	0.1194	Yes
172	FYN	FYN Entrez, Source	FYN oncogene related to SRC, FGR, YES	3968	0.140	0.1169	Yes
173	HSPA5	HSPA5 Entrez, Source	heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)	3978	0.140	0.1184	Yes
174	UBOX5	UBOX5 Entrez, Source	U-box domain containing 5	4009	0.139	0.1186	Yes
175	UBE2S	UBE2S Entrez, Source	ubiquitin-conjugating enzyme E2S	4024	0.138	0.1197	Yes
176	LILRB2	LILRB2 Entrez, Source	leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 2	4031	0.138	0.1214	Yes
177	DTX3L	DTX3L Entrez, Source	deltex 3-like (Drosophila)	4033	0.138	0.1234	Yes
178	BAD	BAD Entrez, Source	BCL2-antagonist of cell death	4053	0.136	0.1243	Yes
179	STUB1	STUB1 Entrez, Source	STIP1 homology and U-box containing protein 1	4056	0.136	0.1262	Yes
180	BTK	BTK Entrez, Source	Bruton agammaglobulinemia tyrosine kinase	4079	0.135	0.1269	Yes
181	RAF1	RAF1 Entrez, Source	v-raf-1 murine leukemia viral oncogene homolog 1	4137	0.133	0.1254	Yes
182	HLA-DMB	HLA-DMB Entrez, Source	major histocompatibility complex, class II, DM beta	4147	0.133	0.1269	Yes
183	LCP2	LCP2 Entrez, Source	lymphocyte cytosolic protein 2 (SH2 domain containing leukocyte protein of 76kDa)	4164	0.131	0.1279	Yes
184	DYNC1H1	DYNC1H1 Entrez, Source	dynein, cytoplasmic 1, heavy chain 1	4189	0.129	0.1285	Yes
185	PHLPP1			4215	0.127	0.1290	Yes
186	SELL	SELL Entrez, Source	selectin L (lymphocyte adhesion molecule 1)	4238	0.126	0.1297	Yes

187	PSME2	PSME2 Entrez, Source	proteasome (prosome, macropain) activator subunit 2 (PA28 beta)	4244	0.126	0.1314	Yes
188	PSMD9	PSMD9 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 9	4249	0.125	0.1332	Yes
189	ZAP70	ZAP70 Entrez, Source	zeta-chain (TCR) associated protein kinase 70kDa	4292	0.123	0.1327	Yes
190	CD4	CD4 Entrez, Source	CD4 molecule	4341	0.121	0.1317	Yes
191	TRAF6	TRAF6 Entrez, Source	TNF receptor-associated factor 6	4370	0.119	0.1321	Yes
192	PDIA3	PDIA3 Entrez, Source	protein disulfide isomerase family A, member 3	4374	0.119	0.1339	Yes
193	CALM3	CALM3 Entrez, Source	calmodulin 3 (phosphorylase kinase, delta)	4379	0.119	0.1357	Yes
194	PAK2	PAK2 Entrez, Source	p21 (CDKN1A)-activated kinase 2	4441	0.116	0.1340	Yes
195	KIF3B	KIF3B Entrez, Source	kinesin family member 3B	4451	0.115	0.1355	Yes
196	PSMD13	PSMD13 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 13	4521	0.112	0.1332	Yes
197	PSMD11	PSMD11 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 11	4584	0.109	0.1314	Yes
198	PSMD3	PSMD3 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 3	4595	0.108	0.1329	Yes
199	HUWE1	HUWE1 Entrez, Source	HECT, UBA and WWE domain containing 1	4628	0.107	0.1329	Yes
200	DCTN3	DCTN3 Entrez, Source	dynactin 3 (p22)	4637	0.106	0.1345	Yes
201	FCGR2B	FCGR2B Entrez, Source	Fc fragment of IgG, low affinity IIb, receptor (CD32)	4638	0.106	0.1365	Yes
202	ANAPC2	ANAPC2 Entrez, Source	anaphase promoting complex subunit 2	4639	0.106	0.1386	Yes
203	SEC61A1	SEC61A1 Entrez, Source	Sec61 alpha 1 subunit (S. cerevisiae)	4650	0.106	0.1400	Yes

204	RNF25	RNF25 Entrez, Source	ring finger protein 25	4661	0.105	0.1414	Yes
205	TNFRSF14	TNFRSF14 Entrez, Source	tumor necrosis factor receptor superfamily, member 14 (herpesvirus entry mediator)	4664	0.105	0.1434	Yes
206	ASB8	ASB8 Entrez, Source	ankyrin repeat and SOCS box-containing 8	4724	0.102	0.1418	Yes
207	REL	REL Entrez, Source	v-rel reticuloendotheliosis viral oncogene homolog (avian)	4756	0.100	0.1419	Yes
208	TCEB2	TCEB2 Entrez, Source	transcription elongation factor B (SIII), polypeptide 2 (18kDa, elongin B)	4774	0.100	0.1429	Yes
209	RNF4	RNF4 Entrez, Source	ring finger protein 4	4812	0.098	0.1426	Yes
210	UBE2Q1	UBE2Q1 Entrez, Source	ubiquitin-conjugating enzyme E2Q (putative) 1	4815	0.097	0.1446	Yes
211	CYBB	CYBB Entrez, Source	cytochrome b-245, beta polypeptide (chronic granulomatous disease)	4833	0.097	0.1456	Yes
212	RNF144B			4835	0.096	0.1475	Yes
213	AP2B1	AP2B1 Entrez, Source	adaptor-related protein complex 2, beta 1 subunit	4858	0.095	0.1482	Yes
214	PSMD1	PSMD1 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 1	4880	0.094	0.1490	Yes
215	ITGB7	ITGB7 Entrez, Source	integrin, beta 7	4908	0.093	0.1493	Yes
216	PSMA7	PSMA7 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 7	4921	0.092	0.1507	Yes
217	SEC13			4963	0.091	0.1502	Yes
218	PRKCB			4969	0.090	0.1519	Yes
219	MLST8			4980	0.090	0.1533	Yes
220	SPSB2	SPSB2 Entrez, Source	splA/ryanodine receptor domain and SOCS box containing 2	4984	0.089	0.1552	Yes
221	MAP3K8	MAP3K8 Entrez, Source	mitogen-activated protein kinase kinase kinase 8	5008	0.088	0.1558	Yes
222	ASB16	ASB16 Entrez, Source	ankyrin repeat and SOCS box-containing 16	5030	0.088	0.1566	Yes
223	KLC1			5039	0.087	0.1581	Yes

224	UBR2	UBR2 Entrez, Source	ubiquitin protein ligase E3 component n-recognin 2	5094	0.085	0.1568	Yes
225	CLTC	CLTC Entrez, Source	clathrin, heavy chain (Hc)	5107	0.084	0.1581	Yes
226	RNF41	RNF41 Entrez, Source	ring finger protein 41	5163	0.081	0.1567	Yes
227	ICAM2	ICAM2 Entrez, Source	intercellular adhesion molecule 2	5208	0.079	0.1561	Yes
228	TRIM36	TRIM36 Entrez, Source	tripartite motif-containing 36	5211	0.079	0.1580	Yes
229	CBLB	CBLB Entrez, Source	Cas-Br-M (murine) ecotropic retroviral transforming sequence b	5277	0.076	0.1560	Yes
230	ITGB1	ITGB1 Entrez, Source	integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)	5290	0.075	0.1573	Yes
231	ITPR3	ITPR3 Entrez, Source	inositol 1,4,5-triphosphate receptor, type 3	5312	0.074	0.1581	Yes
232	IKBKB	IKBKB Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta	5326	0.074	0.1593	Yes
233	UBE2E2	UBE2E2 Entrez, Source	ubiquitin-conjugating enzyme E2E 2 (UBC4/5 homolog, yeast)	5360	0.072	0.1593	Yes
234	PDPK1	PDPK1 Entrez, Source	3-phosphoinositide dependent protein kinase-1	5366	0.072	0.1610	Yes
235	BCL10	BCL10 Entrez, Source	B-cell CLL/lymphoma 10	5390	0.071	0.1617	Yes
236	CARD11	CARD11 Entrez, Source	caspase recruitment domain family, member 11	5406	0.071	0.1628	Yes
237	FOXO3			5409	0.070	0.1647	Yes
238	DYNLL1	DYNLL1 Entrez, Source	dynein, light chain, LC8-type 1	5418	0.070	0.1663	Yes
239	KIR3DL1	KIR3DL1 Entrez, Source	killer cell immunoglobulin-like receptor, three domains, long cytoplasmic tail, 1	5447	0.069	0.1666	Yes
240	AP1G1	AP1G1 Entrez, Source	adaptor-related protein complex 1, gamma 1 subunit	5487	0.067	0.1662	Yes

241	UBE3C	UBE3C Entrez, Source	ubiquitin protein ligase E3C	5495	0.067	0.1678	Yes
242	UBE3B	UBE3B Entrez, Source	ubiquitin protein ligase E3B	5537	0.064	0.1673	Yes
243	PSMB7	PSMB7 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 7	5562	0.063	0.1679	Yes
244	UBE2E3	UBE2E3 Entrez, Source	ubiquitin-conjugating enzyme E2E 3 (UBC4/5 homolog, yeast)	5592	0.062	0.1681	Yes
245	UBE2F	UBE2F Entrez, Source	ubiquitin-conjugating enzyme E2F (putative)	5593	0.062	0.1702	Yes
246	PIK3CB	PIK3CB Entrez, Source	phosphoinositide-3-kinase, catalytic, beta polypeptide	5597	0.062	0.1720	Yes
247	RACGAP1	RACGAP1 Entrez, Source	Rac GTPase activating protein 1	5603	0.061	0.1738	Yes
248	RNF220			5722	0.055	0.1685	Yes
249	UBE2A	UBE2A Entrez, Source	ubiquitin-conjugating enzyme E2A (RAD6 homolog)	5741	0.055	0.1694	Yes
250	SEC31A	SEC31A Entrez, Source	SEC31 homolog A (S. cerevisiae)	5776	0.053	0.1694	Yes
251	KIF23	KIF23 Entrez, Source	kinesin family member 23	5784	0.052	0.1710	Yes
252	KLC4	KLC4 Entrez, Source	kinesin light chain 4	5794	0.052	0.1725	Yes
253	AP2A2	AP2A2 Entrez, Source	adaptor-related protein complex 2, alpha 2 subunit	5852	0.050	0.1710	Yes
254	UBA7			5857	0.050	0.1728	Yes
255	RNF34	RNF34 Entrez, Source	ring finger protein 34	5882	0.049	0.1734	Yes
256	NPEPPS	NPEPPS Entrez, Source	aminopeptidase puromycin sensitive	5898	0.048	0.1745	Yes
257	PPP2R5C	PPP2R5C Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), gamma isoform	5920	0.047	0.1752	Yes
258	HERC2	HERC2 Entrez, Source	hect domain and RLD 2	5932	0.046	0.1766	Yes

259	LRRC41	LRRC41 Entrez, Source	leucine rich repeat containing 41	5933	0.046	0.1786	Yes
260	PSMB4	PSMB4 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 4	5938	0.046	0.1804	Yes
261	PSMD6	PSMD6 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 6	6053	0.041	0.1754	No
262	MAPKAP1	MAPKAP1 Entrez, Source	mitogen-activated protein kinase associated protein 1	6067	0.041	0.1767	No
263	UBE2H	UBE2H Entrez, Source	ubiquitin-conjugating enzyme E2H (UBC8 homolog, yeast)	6090	0.040	0.1774	No
264	UBE2G1	UBE2G1 Entrez, Source	ubiquitin-conjugating enzyme E2G 1 (UBC7 homolog, yeast)	6094	0.040	0.1792	No
265	TRIB3	TRIB3 Entrez, Source	tribbles homolog 3 (Drosophila)	6112	0.039	0.1802	No
266	KIF22	KIF22 Entrez, Source	kinesin family member 22	6187	0.037	0.1777	No
267	CD79A	CD79A Entrez, Source	CD79a molecule, immunoglobulin-associated alpha	6210	0.035	0.1784	No
268	PSMB5	PSMB5 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 5	6214	0.035	0.1802	No
269	VHL	VHL Entrez, Source	von Hippel-Lindau tumor suppressor	6266	0.033	0.1791	No
270	UBE2B	UBE2B Entrez, Source	ubiquitin-conjugating enzyme E2B (RAD6 homolog)	6325	0.030	0.1775	No
271	CDC42	CDC42 Entrez, Source	cell division cycle 42 (GTP binding protein, 25kDa)	6388	0.027	0.1758	No
272	PPP2R5A	PPP2R5A Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), alpha isoform	6536	0.020	0.1687	No
273	YWHAZ	YWHAZ Entrez, Source	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	6567	0.019	0.1689	No
274	CALM1	CALM1 Entrez, Source	calmodulin 1 (phosphorylase kinase, delta)	6673	0.014	0.1644	No
275	PSME4	PSME4 Entrez,	proteasome (prosome, macropain) activator subunit 4	6674	0.014	0.1665	No

		Source					
276	KRAS	KRAS Entrez, Source	v-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog	6697	0.013	0.1671	No
277	KIF2C	KIF2C Entrez, Source	kinesin family member 2C	6749	0.011	0.1660	No
278	HLA-DOA	HLA-DOA Entrez, Source	major histocompatibility complex, class II, DO alpha	6760	0.011	0.1675	No
279	PPP2CA	PPP2CA Entrez, Source	protein phosphatase 2 (formerly 2A), catalytic subunit, alpha isoform	6847	0.007	0.1642	No
280	SEC61G	SEC61G Entrez, Source	Sec61 gamma subunit	6893	0.005	0.1634	No
281	PSMD7	PSMD7 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 7 (Mov34 homolog)	6899	0.004	0.1652	No
282	PSMA5	PSMA5 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 5	6911	0.004	0.1665	No
283	UBE2Z	UBE2Z Entrez, Source	ubiquitin-conjugating enzyme E2Z (putative)	6934	0.003	0.1672	No
284	PSMD4	PSMD4 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 4	6954	0.002	0.1681	No
285	CD160	CD160 Entrez, Source	CD160 molecule	6960	0.002	0.1698	No
286	UBE2O	UBE2O Entrez, Source	ubiquitin-conjugating enzyme E2O	6968	0.001	0.1714	No
287	TMEM189-UBE2V1			6970	0.001	0.1734	No
288	ASB15	ASB15 Entrez, Source	ankyrin repeat and SOCS box-containing 15	7228	0.000	0.1595	No
289	ASB17	ASB17 Entrez, Source	ankyrin repeat and SOCS box-containing 17	7229	0.000	0.1616	No
290	ASB4	ASB4 Entrez, Source	ankyrin repeat and SOCS box-containing 4	7231	0.000	0.1636	No
291	KIF2B	KIF2B Entrez, Source	kinesin family member 2B	8001	0.000	0.1179	No

292	SH3GL2	SH3GL2 Entrez, Source	SH3-domain GRB2-like 2	8952	0.000	0.0610	No
293	SPSB4	SPSB4 Entrez, Source	splA/ryanodine receptor domain and SOCS box containing 4	9065	0.000	0.0561	No
294	UBE2U	UBE2U Entrez, Source	ubiquitin-conjugating enzyme E2U (putative)	9221	0.000	0.0485	No
295	KLC2	KLC2 Entrez, Source	kinesin light chain 2	9325	-0.000	0.0442	No
296	FBXW7	FBXW7 Entrez, Source	F-box and WD-40 domain protein 7 (archipelago homolog, Drosophila)	9372	-0.003	0.0434	No
297	PRKCQ	PRKCQ Entrez, Source	protein kinase C, theta	9461	-0.007	0.0400	No
298	CD80	CD80 Entrez, Source	CD80 molecule	9507	-0.009	0.0392	No
299	BLMH	BLMH Entrez, Source	bleomycin hydrolase	9509	-0.010	0.0412	No
300	SEC61A2	SEC61A2 Entrez, Source	Sec61 alpha 2 subunit (S. cerevisiae)	9541	-0.011	0.0414	No
301	LCK	LCK Entrez, Source	lymphocyte-specific protein tyrosine kinase	9601	-0.014	0.0397	No
302	SEC61B	SEC61B Entrez, Source	Sec61 beta subunit	9661	-0.017	0.0381	No
303	CD247	CD247 Entrez, Source	CD247 molecule	9685	-0.019	0.0388	No
304	DYNLL2	DYNLL2 Entrez, Source	dynein, light chain, LC8-type 2	9709	-0.020	0.0394	No
305	CUL1	CUL1 Entrez, Source	cullin 1	9723	-0.021	0.0406	No
306	FBXW11	FBXW11 Entrez, Source	F-box and WD-40 domain protein 11	9755	-0.022	0.0407	No
307	ANAPC4	ANAPC4 Entrez, Source	anaphase promoting complex subunit 4	9820	-0.026	0.0388	No
308	LILRB5	LILRB5 Entrez, Source	leukocyte immunoglobulin-like receptor, subfamily B (with TM and ITIM domains), member 5	9903	-0.030	0.0358	No

309	GRAP2	GRAP2 Entrez, Source	GRB2-related adaptor protein 2	9932	-0.032	0.0361	No
310	CDC26	CDC26 Entrez, Source	cell division cycle 26	9955	-0.032	0.0368	No
311	MTOR			9958	-0.033	0.0387	No
312	LRR1			9968	-0.033	0.0402	No
313	PSMD5	PSMD5 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 5	9977	-0.033	0.0418	No
314	UBE2D3	UBE2D3 Entrez, Source	ubiquitin-conjugating enzyme E2D 3 (UBC4/5 homolog, yeast)	9995	-0.034	0.0427	No
315	PSMA1	PSMA1 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 1	10019	-0.035	0.0434	No
316	ASB13	ASB13 Entrez, Source	ankyrin repeat and SOCS box-containing 13	10026	-0.035	0.0450	No
317	UBE2J1	UBE2J1 Entrez, Source	ubiquitin-conjugating enzyme E2, J1 (UBC6 homolog, yeast)	10098	-0.039	0.0427	No
318	SEC24B	SEC24B Entrez, Source	SEC24 related gene family, member B (S. cerevisiae)	10128	-0.040	0.0429	No
319	WSB1	WSB1 Entrez, Source	WD repeat and SOCS box-containing 1	10139	-0.041	0.0444	No
320	PPP2R1B	PPP2R1B Entrez, Source	protein phosphatase 2 (formerly 2A), regulatory subunit A (PR 65), beta isoform	10247	-0.046	0.0398	No
321	ASB6	ASB6 Entrez, Source	ankyrin repeat and SOCS box-containing 6	10282	-0.048	0.0397	No
322	CTSO	CTSO Entrez, Source	cathepsin O	10286	-0.048	0.0416	No
323	TRIP12	TRIP12 Entrez, Source	thyroid hormone receptor interactor 12	10299	-0.049	0.0429	No
324	CUL3	CUL3 Entrez, Source	cullin 3	10317	-0.049	0.0439	No
325	PTPRC	PTPRC Entrez, Source	protein tyrosine phosphatase, receptor type, C	10339	-0.050	0.0446	No
326	UBE2D2	UBE2D2 Entrez, Source	ubiquitin-conjugating enzyme E2D 2 (UBC4/5 homolog, yeast)	10340	-0.051	0.0467	No

327	CD3E	CD3E Entrez, Source	CD3e molecule, epsilon (CD3-TCR complex)	10408	-0.053	0.0446	No
328	ARIH2	ARIH2 Entrez, Source	ariadne homolog 2 (Drosophila)	10414	-0.054	0.0463	No
329	GAN	GAN Entrez, Source	giant axonal neuropathy (gigaxonin)	10428	-0.054	0.0476	No
330	RASGRP2	RASGRP2 Entrez, Source	RAS guanyl releasing protein 2 (calcium and DAG-regulated)	10458	-0.056	0.0478	No
331	CRTAM	CRTAM Entrez, Source	cytotoxic and regulatory T cell molecule	10467	-0.056	0.0494	No
332	ANAPC7	ANAPC7 Entrez, Source	anaphase promoting complex subunit 7	10475	-0.056	0.0510	No
333	FBXW8	FBXW8 Entrez, Source	F-box and WD-40 domain protein 8	10510	-0.058	0.0509	No
334	UBE4A	UBE4A Entrez, Source	ubiquitination factor E4A (UFD2 homolog, yeast)	10518	-0.058	0.0525	No
335	CD79B	CD79B Entrez, Source	CD79b molecule, immunoglobulin-associated beta	10532	-0.059	0.0538	No
336	BTRC	BTRC Entrez, Source	beta-transducin repeat containing	10543	-0.059	0.0552	No
337	ASB1	ASB1 Entrez, Source	ankyrin repeat and SOCS box-containing 1	10570	-0.061	0.0556	No
338	DET1	DET1 Entrez, Source	de-etiolated homolog 1 (Arabidopsis)	10579	-0.061	0.0572	No
339	ANAPC5	ANAPC5 Entrez, Source	anaphase promoting complex subunit 5	10614	-0.063	0.0571	No
340	PVRL2	PVRL2 Entrez, Source	poliovirus receptor-related 2 (herpesvirus entry mediator B)	10616	-0.063	0.0591	No
341	KIF20A	KIF20A Entrez, Source	kinesin family member 20A	10617	-0.063	0.0612	No
342	CD19	CD19 Entrez, Source	CD19 molecule	10644	-0.064	0.0616	No
343	ICOSLG	ICOSLG Entrez, Source	inducible T-cell co-stimulator ligand	10668	-0.065	0.0622	No

344	SMURF2	SMURF2 Entrez, Source	SMAD specific E3 ubiquitin protein ligase 2	10706	-0.067	0.0620	No
345	ANAPC13	ANAPC13 Entrez, Source	anaphase promoting complex subunit 13	10801	-0.072	0.0582	No
346	LAT	LAT Entrez, Source	linker for activation of T cells	10811	-0.073	0.0597	No
347	PTEN	PTEN Entrez, Source	phosphatase and tensin homolog (mutated in multiple advanced cancers 1)	10821	-0.073	0.0612	No
348	ACTR1B	ACTR1B Entrez, Source	ARP1 actin-related protein 1 homolog B, centractin beta (yeast)	10831	-0.074	0.0627	No
349	DCTN4	DCTN4 Entrez, Source	dynactin 4 (p62)	10844	-0.074	0.0640	No
350	RCHY1	RCHY1 Entrez, Source	ring finger and CHY zinc finger domain containing 1	10858	-0.075	0.0652	No
351	SKP1			10921	-0.078	0.0634	No
352	RAPGEF3	RAPGEF3 Entrez, Source	Rap guanine nucleotide exchange factor (GEF) 3	11006	-0.083	0.0602	No
353	CDH1	CDH1 Entrez, Source	cadherin 1, type 1, E-cadherin (epithelial)	11010	-0.083	0.0621	No
354	PJA2	PJA2 Entrez, Source	praja 2, RING-H2 motif containing	11023	-0.083	0.0634	No
355	CREB1	CREB1 Entrez, Source	cAMP responsive element binding protein 1	11115	-0.088	0.0598	No
356	CALM2	CALM2 Entrez, Source	calmodulin 2 (phosphorylase kinase, delta)	11147	-0.089	0.0599	No
357	CTSK	CTSK Entrez, Source	cathepsin K (pycnodysostosis)	11276	-0.096	0.0541	No
358	PSMB1	PSMB1 Entrez, Source	proteasome (prosome, macropain) subunit, beta type, 1	11286	-0.097	0.0555	No
359	CHUK	CHUK Entrez, Source	conserved helix-loop-helix ubiquitous kinase	11297	-0.097	0.0570	No
360	KIF15	KIF15 Entrez, Source	kinesin family member 15	11299	-0.098	0.0590	No

361	FYB	FYB Entrez, Source	FYN binding protein (FYB-120/130)	11392	-0.102	0.0553	No
362	DYNC2H1	DYNC2H1 Entrez, Source	dynein, cytoplasmic 2, heavy chain 1	11432	-0.104	0.0549	No
363	CDC23	CDC23 Entrez, Source	CDC23 (cell division cycle 23, yeast, homolog)	11482	-0.107	0.0539	No
364	RAP1B	RAP1B Entrez, Source	RAP1B, member of RAS oncogene family	11505	-0.108	0.0546	No
365	RAP1A	RAP1A Entrez, Source	RAP1A, member of RAS oncogene family	11539	-0.110	0.0546	No
366	CANX	CANX Entrez, Source	calnexin	11545	-0.110	0.0564	No
367	UBE2K			11621	-0.114	0.0538	No
368	UBE2D4	UBE2D4 Entrez, Source	ubiquitin-conjugating enzyme E2D 4 (putative)	11652	-0.116	0.0539	No
369	CDKN1B	CDKN1B Entrez, Source	cyclin-dependent kinase inhibitor 1B (p27, Kip1)	11659	-0.116	0.0556	No
370	PSMC2	PSMC2 Entrez, Source	proteasome (prosome, macropain) 26S subunit, ATPase, 2	11742	-0.121	0.0526	No
371	SOS1	SOS1 Entrez, Source	son of sevenless homolog 1 (Drosophila)	11781	-0.123	0.0523	No
372	PSMD14	PSMD14 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 14	11810	-0.124	0.0526	No
373	HLA-DOB	HLA-DOB Entrez, Source	major histocompatibility complex, class II, DO beta	11837	-0.126	0.0530	No
374	ERAP1			11900	-0.130	0.0512	No
375	NCK1	NCK1 Entrez, Source	NCK adaptor protein 1	11954	-0.134	0.0500	No
376	CD40	CD40 Entrez, Source	CD40 molecule, TNF receptor superfamily member 5	11967	-0.134	0.0513	No
377	EVL	EVL Entrez, Source	Enah/Vasp-like	11982	-0.135	0.0525	No
378	TAB2			11989	-0.136	0.0542	No

379	ASB7	ASB7 Entrez, Source	ankyrin repeat and SOCS box-containing 7	11999	-0.136	0.0556	No
380	PSMC1	PSMC1 Entrez, Source	proteasome (prosome, macropain) 26S subunit, ATPase, 1	12011	-0.137	0.0570	No
381	KIFAP3	KIFAP3 Entrez, Source	kinesin-associated protein 3	12047	-0.139	0.0569	No
382	THEM4	THEM4 Entrez, Source	thioesterase superfamily member 4	12060	-0.139	0.0582	No
383	B2M	B2M Entrez, Source	beta-2-microglobulin	12145	-0.144	0.0550	No
384	SAE1	SAE1 Entrez, Source	-	12244	-0.150	0.0510	No
385	KIF2A	KIF2A Entrez, Source	kinesin heavy chain member 2A	12255	-0.151	0.0524	No
386	UBE2W	UBE2W Entrez, Source	ubiquitin-conjugating enzyme E2W (putative)	12318	-0.155	0.0506	No
387	FBXO44	FBXO44 Entrez, Source	F-box protein 44	12349	-0.157	0.0508	No
388	SAR1B	SAR1B Entrez, Source	SAR1 gene homolog B (S. cerevisiae)	12363	-0.157	0.0521	No
389	CD36	CD36 Entrez, Source	CD36 molecule (thrombospondin receptor)	12379	-0.158	0.0532	No
390	DYNC1LI2	DYNC1LI2 Entrez, Source	dynein, cytoplasmic 1, light intermediate chain 2	12381	-0.158	0.0552	No
391	LGMN	LGMN Entrez, Source	legumain	12396	-0.159	0.0563	No
392	UBE2G2	UBE2G2 Entrez, Source	ubiquitin-conjugating enzyme E2G 2 (UBC7 homolog, yeast)	12429	-0.161	0.0564	No
393	PJA1	PJA1 Entrez, Source	praja 1	12432	-0.161	0.0583	No
394	UBR1	UBR1 Entrez, Source	ubiquitin protein ligase E3 component n-recognin 1	12464	-0.162	0.0585	No
395	SEC23A	SEC23A Entrez, Source	Sec23 homolog A (S. cerevisiae)	12601	-0.170	0.0521	No

396	CTSF	CTSF Entrez, Source	cathepsin F	12612	-0.171	0.0535	No
397	PPP2R5E	PPP2R5E Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), epsilon isoform	12619	-0.171	0.0552	No
398	NEDD4	NEDD4 Entrez, Source	neural precursor cell expressed, developmentally down-regulated 4	12641	-0.174	0.0559	No
399	TCEB1	TCEB1 Entrez, Source	transcription elongation factor B (SIII), polypeptide 1 (15kDa, elongin C)	12678	-0.175	0.0557	No
400	NRAS	NRAS Entrez, Source	neuroblastoma RAS viral (v-ras) oncogene homolog	12700	-0.177	0.0565	No
401	TRIM32	TRIM32 Entrez, Source	tripartite motif-containing 32	12704	-0.177	0.0584	No
402	CD3G	CD3G Entrez, Source	CD3g molecule, gamma (CD3-TCR complex)	12724	-0.178	0.0592	No
403	PLCG1	PLCG1 Entrez, Source	phospholipase C, gamma 1	12745	-0.179	0.0600	No
404	ASB3	ASB3 Entrez, Source	ankyrin repeat and SOCS box-containing 3	12746	-0.179	0.0621	No
405	LNPEP	LNPEP Entrez, Source	leucyl/cystinyl aminopeptidase	12749	-0.179	0.0640	No
406	ITPR2	ITPR2 Entrez, Source	inositol 1,4,5-triphosphate receptor, type 2	12772	-0.181	0.0647	No
407	PSMD12	PSMD12 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 12	12794	-0.183	0.0654	No
408	ZBTB16	ZBTB16 Entrez, Source	zinc finger and BTB domain containing 16	12852	-0.186	0.0639	No
409	MDM2	MDM2 Entrez, Source	Mdm2, transformed 3T3 cell double minute 2, p53 binding protein (mouse)	12873	-0.188	0.0648	No
410	VPRBP	VPRBP Entrez, Source	Vpr (HIV-1) binding protein	12944	-0.192	0.0625	No
411	RBX1	RBX1 Entrez, Source	ring-box 1	12984	-0.195	0.0621	No
412	CUL2	CUL2 Entrez, Source	cullin 2	13022	-0.198	0.0618	No

413	CDC16	CDC16 Entrez, Source	CDC16 cell division cycle 16 homolog (S. cerevisiae)	13113	-0.204	0.0583	No
414	AKT3	AKT3 Entrez, Source	v-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)	13126	-0.205	0.0596	No
415	BLK	BLK Entrez, Source	B lymphoid tyrosine kinase	13137	-0.205	0.0610	No
416	CDC27	CDC27 Entrez, Source	cell division cycle 27	13150	-0.206	0.0623	No
417	DYNC1I2	DYNC1I2 Entrez, Source	dynein, cytoplasmic 1, intermediate chain 2	13165	-0.207	0.0635	No
418	PSMA2	PSMA2 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 2	13167	-0.207	0.0655	No
419	TRIM37	TRIM37 Entrez, Source	tripartite motif-containing 37	13282	-0.214	0.0605	No
420	RNF6	RNF6 Entrez, Source	ring finger protein (C3H2C3 type) 6	13327	-0.217	0.0598	No
421	KIF11	KIF11 Entrez, Source	kinesin family member 11	13361	-0.219	0.0598	No
422	AP1S2	AP1S2 Entrez, Source	adaptor-related protein complex 1, sigma 2 subunit	13384	-0.220	0.0605	No
423	CTLA4	CTLA4 Entrez, Source	cytotoxic T-lymphocyte-associated protein 4	13400	-0.221	0.0616	No
424	TPP2	TPP2 Entrez, Source	tripeptidyl peptidase II	13437	-0.224	0.0614	No
425	PIK3CA	PIK3CA Entrez, Source	phosphoinositide-3-kinase, catalytic, alpha polypeptide	13438	-0.224	0.0635	No
426	UBE2N	UBE2N Entrez, Source	ubiquitin-conjugating enzyme E2N (UBC13 homolog, yeast)	13454	-0.225	0.0646	No
427	CD3D	CD3D Entrez, Source	CD3d molecule, delta (CD3-TCR complex)	13462	-0.226	0.0662	No
428	RASGRP1	RASGRP1 Entrez, Source	RAS guanyl releasing protein 1 (calcium and DAG-regulated)	13525	-0.230	0.0644	No
429	PSMA3	PSMA3 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 3	13566	-0.233	0.0640	No

430	KLHL9	KLHL9 Entrez, Source	kelch-like 9 (Drosophila)	13573	-0.234	0.0657	No
431	CD226	CD226 Entrez, Source	CD226 molecule	13576	-0.234	0.0676	No
432	PSMA4	PSMA4 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 4	13615	-0.237	0.0673	No
433	FBXO3	FBXO3 Entrez, Source	F-box protein 3	13630	-0.237	0.0685	No
434	PIK3R1	PIK3R1 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 1 (p85 alpha)	13664	-0.240	0.0685	No
435	MAP3K7	MAP3K7 Entrez, Source	mitogen-activated protein kinase kinase kinase 7	13808	-0.250	0.0616	No
436	KLHL20	KLHL20 Entrez, Source	kelch-like 20 (Drosophila)	13812	-0.250	0.0635	No
437	UBA3			13816	-0.250	0.0654	No
438	ANAPC1	ANAPC1 Entrez, Source	anaphase promoting complex subunit 1	13902	-0.257	0.0621	No
439	UBA6			13924	-0.258	0.0629	No
440	CD96	CD96 Entrez, Source	CD96 molecule	13971	-0.261	0.0621	No
441	KIF5B	KIF5B Entrez, Source	kinesin family member 5B	13980	-0.262	0.0636	No
442	RICTOR	RICTOR Entrez, Source	-	13987	-0.263	0.0653	No
443	BLNK	BLNK Entrez, Source	B-cell linker	14022	-0.265	0.0653	No
444	PSMD10	PSMD10 Entrez, Source	proteasome (prosome, macropain) 26S subunit, non-ATPase, 10	14072	-0.269	0.0643	No
445	FBXO4	FBXO4 Entrez, Source	F-box protein 4	14176	-0.277	0.0599	No
446	UBE2E1	UBE2E1 Entrez, Source	ubiquitin-conjugating enzyme E2E 1 (UBC4/5 homolog, yeast)	14199	-0.278	0.0606	No
447	SKP2	SKP2 Entrez, Source	S-phase kinase-associated protein 2 (p45)	14202	-0.279	0.0625	No

448	YES1	YES1 Entrez, Source	v-yes-1 Yamaguchi sarcoma viral oncogene homolog 1	14231	-0.281	0.0628	No
449	ASB9	ASB9 Entrez, Source	ankyrin repeat and SOCS box-containing 9	14253	-0.282	0.0636	No
450	DZIP3	DZIP3 Entrez, Source	-	14431	-0.298	0.0547	No
451	ITGAV	ITGAV Entrez, Source	integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)	14594	-0.313	0.0467	No
452	ITK	ITK Entrez, Source	IL2-inducible T-cell kinase	14668	-0.320	0.0442	No
453	UBE2V2	UBE2V2 Entrez, Source	ubiquitin-conjugating enzyme E2 variant 2	14678	-0.321	0.0457	No
454	UBE2Q2	UBE2Q2 Entrez, Source	ubiquitin-conjugating enzyme E2Q (putative) 2	14697	-0.323	0.0466	No
455	MALT1	MALT1 Entrez, Source	mucosa associated lymphoid tissue lymphoma translocation gene 1	14806	-0.334	0.0419	No
456	DCTN6	DCTN6 Entrez, Source	dynactin 6	14937	-0.346	0.0359	No
457	UBE3A	UBE3A Entrez, Source	ubiquitin protein ligase E3A (human papilloma virus E6-associated protein, Angelman syndrome)	14950	-0.347	0.0372	No
458	UBA5			14953	-0.347	0.0392	No
459	PSMA6	PSMA6 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 6	14963	-0.349	0.0406	No
460	KLRC1	KLRC1 Entrez, Source	killer cell lectin-like receptor subfamily C, member 1	15038	-0.358	0.0381	No
461	PAG1	PAG1 Entrez, Source	phosphoprotein associated with glycosphingolipid microdomains 1	15082	-0.364	0.0375	No
462	PRKACB	PRKACB Entrez, Source	protein kinase, cAMP-dependent, catalytic, beta	15132	-0.371	0.0365	No
463	UBA2	UBA2 Entrez, Source	-	15253	-0.386	0.0311	No
464	CD200R1	CD200R1 Entrez, Source	CD200 receptor 1	15257	-0.387	0.0330	No

465	KLHL13	KLHL13 Entrez, Source	kelch-like 13 (Drosophila)	15301	-0.394	0.0323	No
466	CUL5	CUL5 Entrez, Source	cullin 5	15327	-0.399	0.0328	No
467	ANAPC10	ANAPC10 Entrez, Source	anaphase promoting complex subunit 10	15345	-0.401	0.0338	No
468	RNF182	RNF182 Entrez, Source	ring finger protein 182	15388	-0.408	0.0333	No
469	WWP1	WWP1 Entrez, Source	WW domain containing E3 ubiquitin protein ligase 1	15423	-0.414	0.0332	No
470	FOXO1			15445	-0.418	0.0340	No
471	PSMC6	PSMC6 Entrez, Source	proteasome (prosome, macropain) 26S subunit, ATPase, 6	15482	-0.424	0.0338	No
472	RNF138	RNF138 Entrez, Source	ring finger protein 138	15572	-0.442	0.0303	No
473	BTLA	BTLA Entrez, Source	B and T lymphocyte associated	15674	-0.464	0.0261	No
474	KIF5A	KIF5A Entrez, Source	kinesin family member 5A	15698	-0.471	0.0267	No
475	CD40LG	CD40LG Entrez, Source	CD40 ligand (TNF superfamily, member 5, hyper-IgM syndrome)	15763	-0.486	0.0248	No
476	RASGRP3	RASGRP3 Entrez, Source	RAS guanyl releasing protein 3 (calcium and DAG-regulated)	15788	-0.494	0.0254	No
477	CD28	CD28 Entrez, Source	CD28 molecule	15814	-0.502	0.0259	No
478	PSMA8	PSMA8 Entrez, Source	proteasome (prosome, macropain) subunit, alpha type, 8	15829	-0.506	0.0270	No
479	ASB12	ASB12 Entrez, Source	ankyrin repeat and SOCS box-containing 12	16103	-0.611	0.0121	No
480	ULBP3	ULBP3 Entrez, Source	UL16 binding protein 3	16122	-0.619	0.0131	No
481	ICOS	ICOS Entrez, Source	inducible T-cell co-stimulator	16193	-0.675	0.0108	No

482	CD34	CD34 Entrez, Source	CD34 molecule	16275	-0.733	0.0078	No
483	TRIM9	TRIM9 Entrez, Source	tripartite motif-containing 9	16309	-0.767	0.0078	No
484	TRAT1	TRAT1 Entrez, Source	T cell receptor associated transmembrane adaptor 1	16325	-0.783	0.0089	No
485	PARK2	PARK2 Entrez, Source	Parkinson disease (autosomal recessive, juvenile) 2, parkin	16383	-0.857	0.0074	No
486	RPS27A	RPS27A Entrez, Source	ribosomal protein S27a	16409	-0.913	0.0079	No
487	DYNC2LI1	DYNC2LI1 Entrez, Source	dynein, cytoplasmic 2, light intermediate chain 1	16417	-0.927	0.0096	No
488	RAP1GAP	RAP1GAP Entrez, Source	RAP1 GTPase activating protein	16535	-1.340	0.0043	No

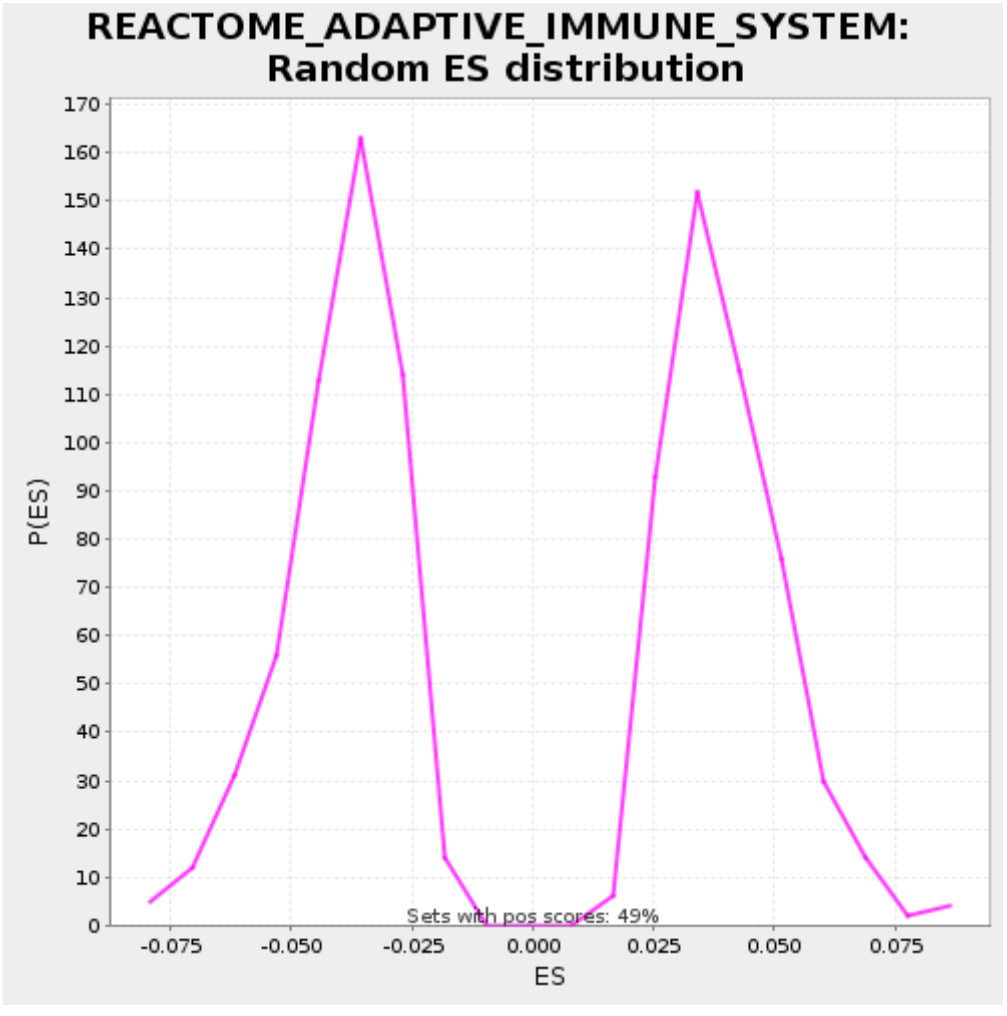

Fig 2: REACTOME_ADAPTIVE_IMMUNE_SYSTEM: Random ES distribution
Gene set null distribution of ES for REACTOME_ADAPTIVE_IMMUNE_SYSTEM

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	REACTOME_HEMOSTASIS
Enrichment Score (ES)	0.2041919
Normalized Enrichment Score (NES)	4.4180493
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

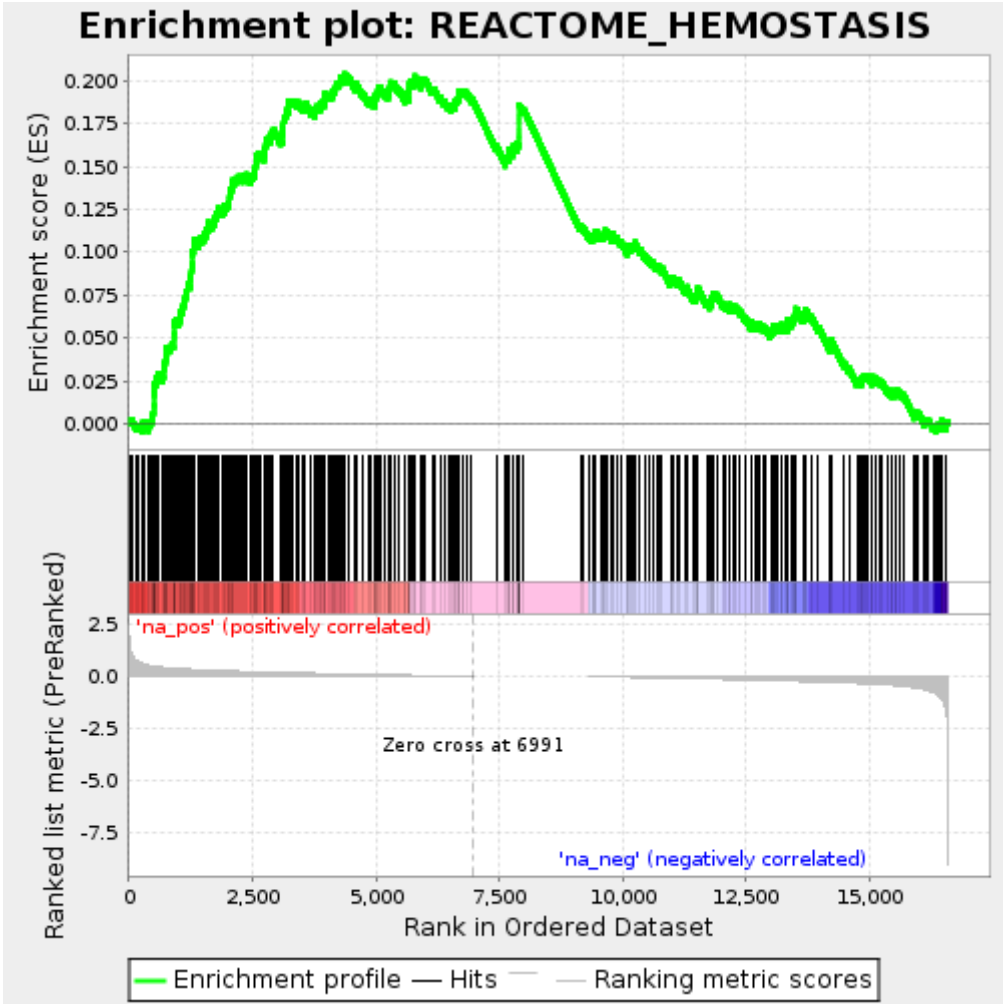

Fig 1: Enrichment plot: REACTOME_HEMOSTASIS
Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE	GENE_TITLE	RANK	RANK	RUNNING	CORE

		SYMBOL		IN GENE LIST	METRIC SCORE	ES	ENRICHMENT
1	PF4V1	PF4V1 Entrez, Source	platelet factor 4 variant 1	5	1.806	0.0024	Yes
2	SERPING1	SERPING1 Entrez, Source	serpin peptidase inhibitor, clade G (C1 inhibitor), member 1, (angioedema, hereditary)	46	1.106	0.0026	Yes
3	PDGFA	PDGFA Entrez, Source	platelet-derived growth factor alpha polypeptide	152	0.777	-0.0011	Yes
4	POTEM			192	0.726	-0.0008	Yes
5	DAGLA			258	0.650	-0.0021	Yes
6	HIST1H3G	HIST1H3G Entrez, Source	histone cluster 1, H3g	259	0.650	0.0006	Yes
7	HIST1H3J	HIST1H3J Entrez, Source	histone cluster 1, H3j	287	0.622	0.0017	Yes
8	GATA1	GATA1 Entrez, Source	GATA binding protein 1 (globin transcription factor 1)	387	0.544	-0.0017	Yes
9	GNG3	GNG3 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 3	395	0.541	0.0006	Yes
10	GNA15	GNA15 Entrez, Source	guanine nucleotide binding protein (G protein), alpha 15 (Gq class)	435	0.526	0.0009	Yes
11	F2R	F2R Entrez, Source	coagulation factor II (thrombin) receptor	453	0.518	0.0025	Yes
12	ATP1B1	ATP1B1 Entrez, Source	ATPase, Na+/K+ transporting, beta 1 polypeptide	467	0.511	0.0044	Yes
13	PRKACG	PRKACG Entrez, Source	protein kinase, cAMP-dependent, catalytic, gamma	484	0.504	0.0062	Yes
14	PLAUR	PLAUR Entrez, Source	plasminogen activator, urokinase receptor	492	0.501	0.0084	Yes
15	KLC3	KLC3 Entrez, Source	kinesin light chain 3	494	0.500	0.0111	Yes
16	PIK3R3	PIK3R3 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 3 (p55, gamma)	500	0.499	0.0135	Yes
17	PSAP	PSAP Entrez, Source	prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy)	501	0.498	0.0162	Yes

18	ZFPM1	ZFPM1 Entrez, Source	zinc finger protein, multitype 1	507	0.497	0.0186	Yes
19	PDE2A	PDE2A Entrez, Source	phosphodiesterase 2A, cGMP-stimulated	514	0.495	0.0209	Yes
20	CDK5	CDK5 Entrez, Source	cyclin-dependent kinase 5	518	0.493	0.0235	Yes
21	TGFB1	TGFB1 Entrez, Source	transforming growth factor, beta 1 (Camurati-Engelmann disease)	544	0.481	0.0246	Yes
22	TRPC6	TRPC6 Entrez, Source	transient receptor potential cation channel, subfamily C, member 6	550	0.478	0.0270	Yes
23	RHOG	RHOG Entrez, Source	ras homolog gene family, member G (rho G)	579	0.469	0.0280	Yes
24	ACTN4	ACTN4 Entrez, Source	actinin, alpha 4	596	0.463	0.0298	Yes
25	NFE2	NFE2 Entrez, Source	nuclear factor (erythroid-derived 2), 45kDa	682	0.441	0.0272	Yes
26	F2RL3	F2RL3 Entrez, Source	coagulation factor II (thrombin) receptor-like 3	697	0.438	0.0291	Yes
27	GP9	GP9 Entrez, Source	glycoprotein IX (platelet)	698	0.438	0.0318	Yes
28	FCER1G	FCER1G Entrez, Source	Fc fragment of IgE, high affinity I, receptor for; gamma polypeptide	705	0.436	0.0341	Yes
29	ALDOA	ALDOA Entrez, Source	aldolase A, fructose-bisphosphate	722	0.432	0.0358	Yes
30	GNB2	GNB2 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 2	735	0.427	0.0378	Yes
31	CD63	CD63 Entrez, Source	CD63 molecule	747	0.424	0.0399	Yes
32	SERPINF2	SERPINF2 Entrez, Source	serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 2	757	0.422	0.0420	Yes
33	TREM1	TREM1 Entrez, Source	triggering receptor expressed on myeloid cells 1	760	0.422	0.0446	Yes
34	PRKACA	PRKACA Entrez,	protein kinase, cAMP-dependent, catalytic,	812	0.408	0.0442	Yes

		Source	alpha				
35	GNAI2	GNAI2 Entrez, Source	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 2	842	0.402	0.0451	Yes
36	SERPINA1	SERPINA1 Entrez, Source	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1	861	0.399	0.0467	Yes
37	SRC	SRC Entrez, Source	v-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)	900	0.392	0.0471	Yes
38	SH2B2	SH2B2 Entrez, Source	SH2B adaptor protein 2	901	0.392	0.0498	Yes
39	TLN1	TLN1 Entrez, Source	talin 1	904	0.392	0.0524	Yes
40	PDE1B	PDE1B Entrez, Source	phosphodiesterase 1B, calmodulin-dependent	909	0.391	0.0548	Yes
41	SLC7A5	SLC7A5 Entrez, Source	solute carrier family 7 (cationic amino acid transporter, y+ system), member 5	910	0.391	0.0575	Yes
42	TIMP1	TIMP1 Entrez, Source	TIMP metallopeptidase inhibitor 1	921	0.389	0.0596	Yes
43	KIF3C	KIF3C Entrez, Source	kinesin family member 3C	944	0.386	0.0610	Yes
44	ITGAM	ITGAM Entrez, Source	integrin, alpha M (complement component 3 receptor 3 subunit)	1011	0.377	0.0596	Yes
45	PIK3R2	PIK3R2 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 2 (p85 beta)	1023	0.375	0.0617	Yes
46	ITGB2	ITGB2 Entrez, Source	integrin, beta 2 (complement component 3 receptor 3 and 4 subunit)	1030	0.374	0.0640	Yes
47	PIK3R6			1050	0.371	0.0655	Yes
48	ITPK1	ITPK1 Entrez, Source	inositol 1,3,4-triphosphate 5/6 kinase	1077	0.366	0.0666	Yes
49	THBS1	THBS1 Entrez, Source	thrombospondin 1	1091	0.363	0.0686	Yes
50	STX4	STX4 Entrez, Source	syntaxin 4	1103	0.360	0.0706	Yes
51	CLU	CLU Entrez, Source	clusterin	1132	0.356	0.0716	Yes

52	CSK	CSK Entrez, Source	c-src tyrosine kinase	1136	0.356	0.0741	Yes
53	ACTN1	ACTN1 Entrez, Source	actinin, alpha 1	1155	0.354	0.0757	Yes
54	SLC16A3	SLC16A3 Entrez, Source	solute carrier family 16, member 3 (monocarboxylic acid transporter 4)	1167	0.353	0.0777	Yes
55	PRKCD	PRKCD Entrez, Source	protein kinase C, delta	1180	0.352	0.0797	Yes
56	CFL1	CFL1 Entrez, Source	cofilin 1 (non-muscle)	1193	0.350	0.0817	Yes
57	GNG5	GNG5 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 5	1239	0.342	0.0816	Yes
58	PLEK	PLEK Entrez, Source	pleckstrin	1240	0.341	0.0843	Yes
59	APBB1IP	APBB1IP Entrez, Source	amyloid beta (A4) precursor protein-binding, family B, member 1 interacting protein	1256	0.339	0.0861	Yes
60	GP1BB	GP1BB Entrez, Source	glycoprotein Ib (platelet), beta polypeptide	1261	0.338	0.0886	Yes
61	ARRB2	ARRB2 Entrez, Source	arrestin, beta 2	1265	0.338	0.0911	Yes
62	CD9	CD9 Entrez, Source	CD9 molecule	1271	0.337	0.0935	Yes
63	PPP2R1A	PPP2R1A Entrez, Source	protein phosphatase 2 (formerly 2A), regulatory subunit A (PR 65), alpha isoform	1278	0.336	0.0958	Yes
64	IRF1	IRF1 Entrez, Source	interferon regulatory factor 1	1279	0.336	0.0986	Yes
65	BSG	BSG Entrez, Source	basigin (Ok blood group)	1285	0.335	0.1010	Yes
66	MAPK3	MAPK3 Entrez, Source	mitogen-activated protein kinase 3	1303	0.334	0.1026	Yes
67	PROC	PROC Entrez, Source	protein C (inactivator of coagulation factors Va and VIIIa)	1310	0.333	0.1050	Yes
68	MGLL	MGLL Entrez, Source	monoglyceride lipase	1315	0.333	0.1074	Yes

69	DOCK6	DOCK6 Entrez, Source	dedicator of cytokinesis 6	1397	0.324	0.1051	Yes
70	RHOA	RHOA Entrez, Source	ras homolog gene family, member A	1398	0.324	0.1079	Yes
71	KIF9	KIF9 Entrez, Source	kinesin family member 9	1433	0.320	0.1085	Yes
72	LYN	LYN Entrez, Source	v-yes-1 Yamaguchi sarcoma viral related oncogene homolog	1480	0.316	0.1083	Yes
73	PTPN6	PTPN6 Entrez, Source	protein tyrosine phosphatase, non-receptor type 6	1509	0.313	0.1093	Yes
74	PFN1	PFN1 Entrez, Source	profilin 1	1529	0.312	0.1109	Yes
75	SIRPA	SIRPA Entrez, Source	signal-regulatory protein alpha	1561	0.309	0.1117	Yes
76	GUCY1A3	GUCY1A3 Entrez, Source	guanylate cyclase 1, soluble, alpha 3	1572	0.307	0.1138	Yes
77	EHD1	EHD1 Entrez, Source	EH-domain containing 1	1594	0.305	0.1152	Yes
78	PTGIR	PTGIR Entrez, Source	prostaglandin I2 (prostacyclin) receptor (IP)	1597	0.304	0.1178	Yes
79	VAV1	VAV1 Entrez, Source	vav 1 oncogene	1662	0.296	0.1165	Yes
80	DGKG	DGKG Entrez, Source	diacylglycerol kinase, gamma 90kDa	1707	0.293	0.1165	Yes
81	DOK2	DOK2 Entrez, Source	docking protein 2, 56kDa	1720	0.291	0.1185	Yes
82	RAC2	RAC2 Entrez, Source	ras-related C3 botulinum toxin substrate 2 (rho family, small GTP binding protein Rac2)	1739	0.289	0.1201	Yes
83	FGR	FGR Entrez, Source	Gardner-Rasheed feline sarcoma viral (v-fgr) oncogene homolog	1760	0.286	0.1216	Yes
84	IRF2	IRF2 Entrez, Source	interferon regulatory factor 2	1778	0.285	0.1233	Yes
85	KCNMB1	KCNMB1 Entrez, Source	potassium large conductance calcium-activated channel, subfamily M, beta member 1	1807	0.282	0.1242	Yes

86	ITGAL	ITGAL Entrez, Source	integrin, alpha L (antigen CD11A (p180), lymphocyte function-associated antigen 1; alpha polypeptide)	1824	0.281	0.1260	Yes
87	GNGT2	GNGT2 Entrez, Source	guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 2	1894	0.275	0.1244	Yes
88	MRVI1	MRVI1 Entrez, Source	murine retrovirus integration site 1 homolog	1923	0.272	0.1254	Yes
89	ITGAX	ITGAX Entrez, Source	integrin, alpha X (complement component 3 receptor 4 subunit)	1928	0.272	0.1279	Yes
90	ATP1B3	ATP1B3 Entrez, Source	ATPase, Na+/K+ transporting, beta 3 polypeptide	1981	0.267	0.1274	Yes
91	DOCK2	DOCK2 Entrez, Source	dedicator of cytokinesis 2	2001	0.265	0.1289	Yes
92	DGKQ	DGKQ Entrez, Source	diacylglycerol kinase, theta 110kDa	2032	0.262	0.1298	Yes
93	SLC7A7	SLC7A7 Entrez, Source	solute carrier family 7 (cationic amino acid transporter, y+ system), member 7	2033	0.262	0.1325	Yes
94	GP1BA	GP1BA Entrez, Source	glycoprotein Ib (platelet), alpha polypeptide	2039	0.262	0.1349	Yes
95	ARRB1	ARRB1 Entrez, Source	arrestin, beta 1	2052	0.261	0.1369	Yes
96	PIK3CG	PIK3CG Entrez, Source	phosphoinositide-3-kinase, catalytic, gamma polypeptide	2078	0.258	0.1380	Yes
97	GRB2	GRB2 Entrez, Source	growth factor receptor-bound protein 2	2084	0.258	0.1404	Yes
98	ITGA5	ITGA5 Entrez, Source	integrin, alpha 5 (fibronectin receptor, alpha polypeptide)	2101	0.256	0.1422	Yes
99	GNAS	GNAS Entrez, Source	GNAS complex locus	2146	0.253	0.1422	Yes
100	HIST1H3D	HIST1H3D Entrez, Source	histone cluster 1, H3d	2172	0.252	0.1433	Yes
101	CREBBP	CREBBP Entrez, Source	CREB binding protein (Rubinstein-Taybi syndrome)	2199	0.249	0.1444	Yes

102	WDR1	WDR1 Entrez, Source	WD repeat domain 1	2244	0.246	0.1444	Yes
103	IRF7	IRF7 Entrez, Source	interferon regulatory factor 7	2303	0.241	0.1436	Yes
104	MAPK14	MAPK14 Entrez, Source	mitogen-activated protein kinase 14	2321	0.239	0.1452	Yes
105	GNB1	GNB1 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 1	2359	0.236	0.1457	Yes
106	PIK3R5	PIK3R5 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 5, p101	2452	0.230	0.1427	Yes
107	SYK	SYK Entrez, Source	spleen tyrosine kinase	2472	0.229	0.1443	Yes
108	ITGA2B	ITGA2B Entrez, Source	integrin, alpha 2b (platelet glycoprotein IIb of IIb/IIIa complex, antigen CD41)	2504	0.226	0.1451	Yes
109	GATA6	GATA6 Entrez, Source	GATA binding protein 6	2533	0.225	0.1460	Yes
110	AKT1	AKT1 Entrez, Source	v-akt murine thymoma viral oncogene homolog 1	2555	0.223	0.1475	Yes
111	PLCG2	PLCG2 Entrez, Source	phospholipase C, gamma 2 (phosphatidylinositol-specific)	2558	0.223	0.1500	Yes
112	PPP2R5B	PPP2R5B Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), beta isoform	2565	0.223	0.1524	Yes
113	TUBA4A			2571	0.222	0.1548	Yes
114	VCL	VCL Entrez, Source	vinculin	2586	0.222	0.1566	Yes
115	F8	F8 Entrez, Source	coagulation factor VIII, procoagulant component (hemophilia A)	2613	0.220	0.1577	Yes
116	ESAM	ESAM Entrez, Source	endothelial cell adhesion molecule	2668	0.217	0.1571	Yes
117	APOA1	APOA1 Entrez, Source	apolipoprotein A-I	2728	0.212	0.1562	Yes
118	H3F3A	H3F3A Entrez, Source	H3 histone, family 3A	2734	0.211	0.1586	Yes

119	F11R	F11R Entrez, Source	F11 receptor	2746	0.210	0.1606	Yes
120	SH2B3	SH2B3 Entrez, Source	SH2B adaptor protein 3	2764	0.208	0.1623	Yes
121	ORAI1			2774	0.208	0.1645	Yes
122	SPARC	SPARC Entrez, Source	secreted protein, acidic, cysteine-rich (osteonectin)	2787	0.207	0.1664	Yes
123	SHC1	SHC1 Entrez, Source	SHC (Src homology 2 domain containing) transforming protein 1	2825	0.205	0.1669	Yes
124	HMG20B	HMG20B Entrez, Source	high-mobility group 20B	2873	0.202	0.1667	Yes
125	CAP1	CAP1 Entrez, Source	CAP, adenylate cyclase-associated protein 1 (yeast)	2879	0.201	0.1691	Yes
126	PRCP	PRCP Entrez, Source	prolylcarboxypeptidase (angiotensinase C)	2892	0.200	0.1711	Yes
127	KIF18A	KIF18A Entrez, Source	kinesin family member 18A	2927	0.198	0.1717	Yes
128	PRKCZ	PRKCZ Entrez, Source	protein kinase C, zeta	3069	0.189	0.1657	Yes
129	AMICA1	AMICA1 Entrez, Source	adhesion molecule, interacts with CXADR antigen 1	3107	0.186	0.1661	Yes
130	RHOB	RHOB Entrez, Source	ras homolog gene family, member B	3108	0.186	0.1688	Yes
131	PLA2G4A	PLA2G4A Entrez, Source	phospholipase A2, group IVA (cytosolic, calcium-dependent)	3117	0.186	0.1711	Yes
132	BRPF3	BRPF3 Entrez, Source	bromodomain and PHD finger containing, 3	3122	0.186	0.1735	Yes
133	CABLES2	CABLES2 Entrez, Source	Cdk5 and Abl enzyme substrate 2	3129	0.185	0.1759	Yes
134	RAC1	RAC1 Entrez, Source	ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)	3131	0.185	0.1785	Yes
135	PDGFB	PDGFB Entrez, Source	platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)	3169	0.183	0.1789	Yes

136	SPN	SPN Entrez, Source	sialophorin (leukosialin, CD43)	3179	0.183	0.1811	Yes
137	PPP2R5D	PPP2R5D Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), delta isoform	3189	0.182	0.1832	Yes
138	CAV1	CAV1 Entrez, Source	caveolin 1, caveolae protein, 22kDa	3225	0.180	0.1838	Yes
139	KIF4A	KIF4A Entrez, Source	kinesin family member 4A	3227	0.180	0.1864	Yes
140	RCOR1	RCOR1 Entrez, Source	REST corepressor 1	3241	0.180	0.1884	Yes
141	THBD	THBD Entrez, Source	thrombomodulin	3283	0.177	0.1885	Yes
142	CD2	CD2 Entrez, Source	CD2 molecule	3326	0.175	0.1887	Yes
143	L1CAM	L1CAM Entrez, Source	L1 cell adhesion molecule	3397	0.171	0.1871	Yes
144	HRAS	HRAS Entrez, Source	v-Ha-ras Harvey rat sarcoma viral oncogene homolog	3429	0.170	0.1879	Yes
145	PPP2CB	PPP2CB Entrez, Source	protein phosphatase 2 (formerly 2A), catalytic subunit, beta isoform	3527	0.164	0.1846	Yes
146	STIM1	STIM1 Entrez, Source	stromal interaction molecule 1	3546	0.163	0.1862	Yes
147	PF4	PF4 Entrez, Source	platelet factor 4 (chemokine (C-X-C motif) ligand 4)	3573	0.161	0.1873	Yes
148	SLC3A2	SLC3A2 Entrez, Source	solute carrier family 3 (activators of dibasic and neutral amino acid transport), member 2	3696	0.155	0.1825	Yes
149	H3F3B	H3F3B Entrez, Source	H3 histone, family 3B (H3.3B)	3757	0.152	0.1815	Yes
150	KIFC1	KIFC1 Entrez, Source	kinesin family member C1	3761	0.151	0.1840	Yes
151	PTPN1	PTPN1 Entrez, Source	protein tyrosine phosphatase, non-receptor type 1	3783	0.150	0.1855	Yes
152	ATP2A1	ATP2A1 Entrez, Source	ATPase, Ca++ transporting, cardiac muscle, fast twitch 1	3839	0.147	0.1848	Yes

153	AKT2	AKT2 Entrez, Source	v-akt murine thymoma viral oncogene homolog 2	3872	0.146	0.1855	Yes
154	DGKD	DGKD Entrez, Source	diacylglycerol kinase, delta 130kDa	3885	0.145	0.1875	Yes
155	ABL1	ABL1 Entrez, Source	v-abl Abelson murine leukemia viral oncogene homolog 1	3921	0.143	0.1881	Yes
156	FYN	FYN Entrez, Source	FYN oncogene related to SRC, FGR, YES	3968	0.140	0.1879	Yes
157	ATP2A3	ATP2A3 Entrez, Source	ATPase, Ca++ transporting, ubiquitous	3972	0.140	0.1905	Yes
158	HSPA5	HSPA5 Entrez, Source	heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)	3978	0.140	0.1929	Yes
159	F5	F5 Entrez, Source	coagulation factor V (proaccelerin, labile factor)	4040	0.137	0.1918	Yes
160	MAPK1	MAPK1 Entrez, Source	mitogen-activated protein kinase 1	4088	0.135	0.1916	Yes
161	F12	F12 Entrez, Source	coagulation factor XII (Hageman factor)	4117	0.134	0.1926	Yes
162	RAF1	RAF1 Entrez, Source	v-raf-1 murine leukemia viral oncogene homolog 1	4137	0.133	0.1942	Yes
163	LCP2	LCP2 Entrez, Source	lymphocyte cytosolic protein 2 (SH2 domain containing leukocyte protein of 76kDa)	4164	0.131	0.1953	Yes
164	F13A1	F13A1 Entrez, Source	coagulation factor XIII, A1 polypeptide	4186	0.129	0.1967	Yes
165	SERPINB2	SERPINB2 Entrez, Source	serpin peptidase inhibitor, clade B (ovalbumin), member 2	4201	0.129	0.1985	Yes
166	SELL	SELL Entrez, Source	selectin L (lymphocyte adhesion molecule 1)	4238	0.126	0.1990	Yes
167	GNB4	GNB4 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 4	4270	0.124	0.1998	Yes
168	DOCK4	DOCK4 Entrez, Source	dedicator of cytokinesis 4	4271	0.124	0.2025	Yes
169	PRKAR2A	PRKAR2A Entrez, Source	protein kinase, cAMP-dependent, regulatory, type II, alpha	4327	0.122	0.2019	Yes

170	EP300	EP300 Entrez, Source	E1A binding protein p300	4377	0.119	0.2015	Yes
171	CALM3	CALM3 Entrez, Source	calmodulin 3 (phosphorylase kinase, delta)	4379	0.119	0.2042	Yes
172	KIF3B	KIF3B Entrez, Source	kinesin family member 3B	4451	0.115	0.2025	No
173	TP53	TP53 Entrez, Source	tumor protein p53 (Li-Fraumeni syndrome)	4583	0.109	0.1972	No
174	GNA12	GNA12 Entrez, Source	guanine nucleotide binding protein (G protein) alpha 12	4606	0.108	0.1985	No
175	PPIL2	PPIL2 Entrez, Source	peptidylprolyl isomerase (cyclophilin)-like 2	4744	0.101	0.1928	No
176	DAGLB			4854	0.096	0.1888	No
177	GUCY1B3	GUCY1B3 Entrez, Source	guanylate cyclase 1, soluble, beta 3	4891	0.093	0.1893	No
178	PRKCB			4969	0.090	0.1873	No
179	LAMP2	LAMP2 Entrez, Source	lysosomal-associated membrane protein 2	4988	0.089	0.1889	No
180	SLC8A1	SLC8A1 Entrez, Source	solute carrier family 8 (sodium/calcium exchanger), member 1	4991	0.089	0.1914	No
181	WEE1	WEE1 Entrez, Source	WEE1 homolog (S. pombe)	5020	0.088	0.1924	No
182	KLC1			5039	0.087	0.1940	No
183	PDE6G	PDE6G Entrez, Source	phosphodiesterase 6G, cGMP-specific, rod, gamma	5043	0.087	0.1966	No
184	PRKCE	PRKCE Entrez, Source	protein kinase C, epsilon	5091	0.085	0.1964	No
185	HGF	HGF Entrez, Source	hepatocyte growth factor (hepapoietin A; scatter factor)	5184	0.080	0.1934	No
186	EGF	EGF Entrez, Source	epidermal growth factor (beta-urogastrone)	5247	0.077	0.1923	No
187	PRKAR1A	PRKAR1A Entrez, Source	protein kinase, cAMP-dependent, regulatory, type I, alpha (tissue specific extinguisher 1)	5258	0.076	0.1944	No

188	VWF	VWF Entrez, Source	von Willebrand factor	5278	0.076	0.1959	No
189	ITGB1	ITGB1 Entrez, Source	integrin, beta 1 (fibronectin receptor, beta polypeptide, antigen CD29 includes MDF2, MSK12)	5290	0.075	0.1980	No
190	ITPR3	ITPR3 Entrez, Source	inositol 1,4,5-triphosphate receptor, type 3	5312	0.074	0.1994	No
191	PDPK1	PDPK1 Entrez, Source	3-phosphoinositide dependent protein kinase-1	5366	0.072	0.1988	No
192	MAFK	MAFK Entrez, Source	v-maf musculoaponeurotic fibrosarcoma oncogene homolog K (avian)	5463	0.068	0.1956	No
193	PIK3CB	PIK3CB Entrez, Source	phosphoinositide-3-kinase, catalytic, beta polypeptide	5597	0.062	0.1902	No
194	RACGAP1	RACGAP1 Entrez, Source	Rac GTPase activating protein 1	5603	0.061	0.1926	No
195	CDK2	CDK2 Entrez, Source	cyclin-dependent kinase 2	5674	0.057	0.1910	No
196	DOCK5	DOCK5 Entrez, Source	dedicator of cytokinesis 5	5675	0.057	0.1937	No
197	SLC7A9	SLC7A9 Entrez, Source	solute carrier family 7 (cationic amino acid transporter, y+ system), member 9	5683	0.057	0.1959	No
198	LRP8	LRP8 Entrez, Source	low density lipoprotein receptor-related protein 8, apolipoprotein e receptor	5687	0.057	0.1985	No
199	IRF3	IRF3 Entrez, Source	interferon regulatory factor 3	5701	0.056	0.2004	No
200	VEGFA			5768	0.053	0.1990	No
201	KIF23	KIF23 Entrez, Source	kinesin family member 23	5784	0.052	0.2008	No
202	KLC4	KLC4 Entrez, Source	kinesin light chain 4	5794	0.052	0.2030	No
203	HDAC1	HDAC1 Entrez, Source	histone deacetylase 1	5915	0.047	0.1983	No
204	PPP2R5C	PPP2R5C Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), gamma isoform	5920	0.047	0.2007	No

205	ATP2A2	ATP2A2 Entrez, Source	ATPase, Ca++ transporting, cardiac muscle, slow twitch 2	5956	0.045	0.2013	No
206	MFN2	MFN2 Entrez, Source	mitofusin 2	6006	0.043	0.2010	No
207	CRK	CRK Entrez, Source	v-crk sarcoma virus CT10 oncogene homolog (avian)	6145	0.038	0.1952	No
208	KIF22	KIF22 Entrez, Source	kinesin family member 22	6187	0.037	0.1954	No
209	SIN3A	SIN3A Entrez, Source	SIN3 homolog A, transcription regulator (yeast)	6308	0.031	0.1907	No
210	CDC42	CDC42 Entrez, Source	cell division cycle 42 (GTP binding protein, 25kDa)	6388	0.027	0.1886	No
211	KDM1A			6471	0.024	0.1862	No
212	PPP2R5A	PPP2R5A Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), alpha isoform	6536	0.020	0.1850	No
213	YWHAZ	YWHAZ Entrez, Source	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	6567	0.019	0.1858	No
214	HIST1H3H	HIST1H3H Entrez, Source	histone cluster 1, H3h	6611	0.017	0.1859	No
215	DOCK8	DOCK8 Entrez, Source	dedicator of cytokinesis 8	6613	0.016	0.1886	No
216	ITGA3	ITGA3 Entrez, Source	integrin, alpha 3 (antigen CD49C, alpha 3 subunit of VLA-3 receptor)	6646	0.015	0.1893	No
217	CALM1	CALM1 Entrez, Source	calmodulin 1 (phosphorylase kinase, delta)	6673	0.014	0.1904	No
218	APP	APP Entrez, Source	amyloid beta (A4) precursor protein (peptidase nexin-II, Alzheimer disease)	6680	0.014	0.1927	No
219	KRAS	KRAS Entrez, Source	v-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog	6697	0.013	0.1945	No
220	KIF2C	KIF2C Entrez, Source	kinesin family member 2C	6749	0.011	0.1940	No
221	MERTK	MERTK Entrez, Source	c-mer proto-oncogene tyrosine kinase	6786	0.010	0.1945	No

222	PPP2CA	PPP2CA Entrez, Source	protein phosphatase 2 (formerly 2A), catalytic subunit, alpha isoform	6847	0.007	0.1935	No
223	P2RX1	P2RX1 Entrez, Source	purinergic receptor P2X, ligand-gated ion channel, 1	6946	0.002	0.1902	No
224	COL1A2	COL1A2 Entrez, Source	collagen, type I, alpha 2	7445	0.000	0.1623	No
225	F13B	F13B Entrez, Source	coagulation factor XIII, B polypeptide	7641	0.000	0.1530	No
226	F9	F9 Entrez, Source	coagulation factor IX (plasma thromboplastic component, Christmas disease, hemophilia B)	7644	0.000	0.1555	No
227	FGA	FGA Entrez, Source	fibrinogen alpha chain	7690	0.000	0.1555	No
228	FGG	FGG Entrez, Source	fibrinogen gamma chain	7697	0.000	0.1578	No
229	FIGF	FIGF Entrez, Source	c-fos induced growth factor (vascular endothelial growth factor D)	7700	0.000	0.1604	No
230	GATA4	GATA4 Entrez, Source	GATA binding protein 4	7772	0.000	0.1588	No
231	GATA5	GATA5 Entrez, Source	GATA binding protein 5	7773	0.000	0.1615	No
232	GNGT1	GNGT1 Entrez, Source	guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 1	7800	0.000	0.1626	No
233	HIST2H3A	HIST2H3A Entrez, Source	histone cluster 2, H3a	7862	0.000	0.1615	No
234	HIST2H3C	HIST2H3C Entrez, Source	histone cluster 2, H3c	7863	0.000	0.1642	No
235	IFNA1	IFNA1 Entrez, Source	interferon, alpha 1	7906	0.000	0.1644	No
236	IFNA10	IFNA10 Entrez, Source	interferon, alpha 10	7907	0.000	0.1671	No
237	IFNA14	IFNA14 Entrez, Source	interferon, alpha 14	7909	0.000	0.1697	No

238	IFNA16	IFNA16 Entrez, Source	interferon, alpha 16	7910	0.000	0.1724	No
239	IFNA2	IFNA2 Entrez, Source	interferon, alpha 2	7911	0.000	0.1751	No
240	IFNA4	IFNA4 Entrez, Source	interferon, alpha 4	7912	0.000	0.1778	No
241	IFNA6	IFNA6 Entrez, Source	interferon, alpha 6	7913	0.000	0.1806	No
242	IFNA7	IFNA7 Entrez, Source	interferon, alpha 7	7914	0.000	0.1833	No
243	IFNA8	IFNA8 Entrez, Source	interferon, alpha 8	7915	0.000	0.1860	No
244	KIF2B	KIF2B Entrez, Source	kinesin family member 2B	8001	0.000	0.1834	No
245	THPO	THPO Entrez, Source	thrombopoietin (myeloproliferative leukemia virus oncogene ligand, megakaryocyte growth and development factor)	9148	0.000	0.1156	No
246	TRPC7	TRPC7 Entrez, Source	transient receptor potential cation channel, subfamily C, member 7	9203	0.000	0.1150	No
247	KLC2	KLC2 Entrez, Source	kinesin light chain 2	9325	-0.000	0.1102	No
248	GNAI3	GNAI3 Entrez, Source	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 3	9393	-0.003	0.1088	No
249	MAFG	MAFG Entrez, Source	v-maf musculoaponeurotic fibrosarcoma oncogene homolog G (avian)	9415	-0.004	0.1102	No
250	PRKCQ	PRKCQ Entrez, Source	protein kinase C, theta	9461	-0.007	0.1102	No
251	MAFF	MAFF Entrez, Source	v-maf musculoaponeurotic fibrosarcoma oncogene homolog F (avian)	9465	-0.007	0.1127	No
252	RAB5A	RAB5A Entrez, Source	RAB5A, member RAS oncogene family	9558	-0.012	0.1097	No
253	LCK	LCK Entrez, Source	lymphocyte-specific protein tyrosine kinase	9601	-0.014	0.1099	No

254	ITGB3	ITGB3 Entrez, Source	integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)	9629	-0.015	0.1109	No
255	VAV3	VAV3 Entrez, Source	vav 3 oncogene	9638	-0.016	0.1131	No
256	VPS45			9689	-0.019	0.1127	No
257	GNA11	GNA11 Entrez, Source	guanine nucleotide binding protein (G protein), alpha 11 (Gq class)	9794	-0.024	0.1091	No
258	PTK2	PTK2 Entrez, Source	PTK2 protein tyrosine kinase 2	9807	-0.025	0.1110	No
259	SH2B1	SH2B1 Entrez, Source	SH2B adaptor protein 1	9883	-0.029	0.1091	No
260	GNG2	GNG2 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 2	9972	-0.033	0.1064	No
261	PRKCH	PRKCH Entrez, Source	protein kinase C, eta	10101	-0.039	0.1012	No
262	TMSB4X	TMSB4X Entrez, Source	thymosin, beta 4, X-linked	10115	-0.039	0.1031	No
263	DOCK3	DOCK3 Entrez, Source	dedicator of cytokinesis 3	10142	-0.041	0.1043	No
264	JAK2	JAK2 Entrez, Source	Janus kinase 2 (a protein tyrosine kinase)	10198	-0.044	0.1036	No
265	TBXA2R	TBXA2R Entrez, Source	thromboxane A2 receptor	10236	-0.046	0.1040	No
266	PPP2R1B	PPP2R1B Entrez, Source	protein phosphatase 2 (formerly 2A), regulatory subunit A (PR 65), beta isoform	10247	-0.046	0.1061	No
267	CFD	CFD Entrez, Source	complement factor D (adipsin)	10354	-0.051	0.1023	No
268	RASGRP2	RASGRP2 Entrez, Source	RAS guanyl releasing protein 2 (calcium and DAG-regulated)	10458	-0.056	0.0986	No
269	SELP	SELP Entrez, Source	selectin P (granule membrane protein 140kDa, antigen CD62)	10542	-0.059	0.0962	No
270	KIF20A	KIF20A Entrez, Source	kinesin family member 20A	10617	-0.063	0.0944	No

271	CALU	CALU Entrez, Source	calumenin	10690	-0.066	0.0927	No
272	GATA3	GATA3 Entrez, Source	GATA binding protein 3	10745	-0.069	0.0921	No
273	LAT	LAT Entrez, Source	linker for activation of T cells	10811	-0.073	0.0908	No
274	HIST1H3A	HIST1H3A Entrez, Source	histone cluster 1, H3a	10975	-0.081	0.0834	No
275	RAPGEF3	RAPGEF3 Entrez, Source	Rap guanine nucleotide exchange factor (GEF) 3	11006	-0.083	0.0843	No
276	PDE5A	PDE5A Entrez, Source	phosphodiesterase 5A, cGMP-specific	11030	-0.084	0.0856	No
277	VEGFB	VEGFB Entrez, Source	vascular endothelial growth factor B	11117	-0.088	0.0830	No
278	CALM2	CALM2 Entrez, Source	calmodulin 2 (phosphorylase kinase, delta)	11147	-0.089	0.0839	No
279	SRGN			11274	-0.096	0.0789	No
280	KIF15	KIF15 Entrez, Source	kinesin family member 15	11299	-0.098	0.0801	No
281	PLAU	PLAU Entrez, Source	plasminogen activator, urokinase	11442	-0.104	0.0741	No
282	STXBP3	STXBP3 Entrez, Source	syntaxin binding protein 3	11494	-0.108	0.0736	No
283	RAP1B	RAP1B Entrez, Source	RAP1B, member of RAS oncogene family	11505	-0.108	0.0757	No
284	JMJD1C	JMJD1C Entrez, Source	jumonji domain containing 1C	11517	-0.109	0.0778	No
285	RAP1A	RAP1A Entrez, Source	RAP1A, member of RAS oncogene family	11539	-0.110	0.0792	No
286	GNG7	GNG7 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 7	11711	-0.119	0.0714	No
287	SOS1	SOS1 Entrez, Source	son of sevenless homolog 1 (Drosophila)	11781	-0.123	0.0698	No

288	CD58	CD58 Entrez, Source	CD58 molecule	11806	-0.124	0.0711	No
289	ZFYVE20	ZFYVE20 Entrez, Source	zinc finger, FYVE domain containing 20	11813	-0.125	0.0734	No
290	AKAP10	AKAP10 Entrez, Source	A kinase (PRKA) anchor protein 10	11836	-0.126	0.0748	No
291	GNAQ	GNAQ Entrez, Source	guanine nucleotide binding protein (G protein), q polypeptide	11856	-0.128	0.0763	No
292	P2RY12	P2RY12 Entrez, Source	purinergic receptor P2Y, G-protein coupled, 12	11915	-0.131	0.0754	No
293	KIFAP3	KIFAP3 Entrez, Source	kinesin-associated protein 3	12047	-0.139	0.0701	No
294	MMRN1	MMRN1 Entrez, Source	multimerin 1	12101	-0.141	0.0695	No
295	GNA13	GNA13 Entrez, Source	guanine nucleotide binding protein (G protein), alpha 13	12168	-0.146	0.0682	No
296	MFN1	MFN1 Entrez, Source	mitofusin 1	12186	-0.147	0.0698	No
297	KIF2A	KIF2A Entrez, Source	kinesin heavy chain member 2A	12255	-0.151	0.0684	No
298	DGKH	DGKH Entrez, Source	diacylglycerol kinase, eta	12296	-0.154	0.0686	No
299	CD36	CD36 Entrez, Source	CD36 molecule (thrombospondin receptor)	12379	-0.158	0.0663	No
300	HDAC2	HDAC2 Entrez, Source	histone deacetylase 2	12490	-0.163	0.0622	No
301	PRKAR2B	PRKAR2B Entrez, Source	protein kinase, cAMP-dependent, regulatory, type II, beta	12609	-0.171	0.0576	No
302	PPP2R5E	PPP2R5E Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), epsilon isoform	12619	-0.171	0.0598	No
303	NRAS	NRAS Entrez, Source	neuroblastoma RAS viral (v-ras) oncogene homolog	12700	-0.177	0.0576	No
304	PLCG1	PLCG1 Entrez, Source	phospholipase C, gamma 1	12745	-0.179	0.0576	No

305	ITPR2	ITPR2 Entrez, Source	inositol 1,4,5-triphosphate receptor, type 2	12772	-0.181	0.0587	No
306	SLC16A1	SLC16A1 Entrez, Source	solute carrier family 16, member 1 (monocarboxylic acid transporter 1)	12846	-0.186	0.0569	No
307	CD47	CD47 Entrez, Source	CD47 molecule	12905	-0.190	0.0560	No
308	CAPZA1	CAPZA1 Entrez, Source	capping protein (actin filament) muscle Z-line, alpha 1	13006	-0.197	0.0526	No
309	DGKA	DGKA Entrez, Source	diacylglycerol kinase, alpha 80kDa	13024	-0.198	0.0542	No
310	TGFB3	TGFB3 Entrez, Source	transforming growth factor, beta 3	13053	-0.200	0.0552	No
311	C1QBP	C1QBP Entrez, Source	complement component 1, q subcomponent binding protein	13060	-0.201	0.0576	No
312	AKT3	AKT3 Entrez, Source	v-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)	13126	-0.205	0.0563	No
313	ANGPT1	ANGPT1 Entrez, Source	angiopoietin 1	13154	-0.206	0.0573	No
314	ABCC4	ABCC4 Entrez, Source	ATP-binding cassette, sub-family C (CFTR/MRP), member 4	13218	-0.210	0.0562	No
315	GNG10	GNG10 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 10	13231	-0.211	0.0581	No
316	RAD51B			13298	-0.215	0.0568	No
317	AKAP1	AKAP1 Entrez, Source	A kinase (PRKA) anchor protein 1	13344	-0.218	0.0567	No
318	AK3	AK3 Entrez, Source	adenylate kinase 3	13345	-0.218	0.0594	No
319	KIF11	KIF11 Entrez, Source	kinesin family member 11	13361	-0.219	0.0612	No
320	PIK3CA	PIK3CA Entrez, Source	phosphoinositide-3-kinase, catalytic, alpha polypeptide	13438	-0.224	0.0592	No
321	KCNMB3	KCNMB3 Entrez, Source	potassium large conductance calcium-activated channel, subfamily M beta member 3	13458	-0.226	0.0608	No

322	DOCK10	DOCK10 Entrez, Source	dedicator of cytokinesis 10	13474	-0.227	0.0626	No
323	GNB5	GNB5 Entrez, Source	guanine nucleotide binding protein (G protein), beta 5	13499	-0.228	0.0638	No
324	RASGRP1	RASGRP1 Entrez, Source	RAS guanyl releasing protein 1 (calcium and DAG-regulated)	13525	-0.230	0.0650	No
325	HABP4	HABP4 Entrez, Source	hyaluronan binding protein 4	13532	-0.231	0.0673	No
326	PIK3R1	PIK3R1 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 1 (p85 alpha)	13664	-0.240	0.0620	No
327	RAD51C	RAD51C Entrez, Source	RAD51 homolog C (S. cerevisiae)	13681	-0.241	0.0637	No
328	SOD1	SOD1 Entrez, Source	superoxide dismutase 1, soluble (amyotrophic lateral sclerosis 1 (adult))	13720	-0.243	0.0640	No
329	CAPZA2	CAPZA2 Entrez, Source	capping protein (actin filament) muscle Z-line, alpha 2	13721	-0.243	0.0668	No
330	MYB	MYB Entrez, Source	v-myb myeloblastosis viral oncogene homolog (avian)	13832	-0.252	0.0627	No
331	KIF5B	KIF5B Entrez, Source	kinesin family member 5B	13980	-0.262	0.0563	No
332	CBX5	CBX5 Entrez, Source	chromobox homolog 5 (HP1 alpha homolog, Drosophila)	14212	-0.279	0.0448	No
333	KLKB1	KLKB1 Entrez, Source	kallikrein B, plasma (Fletcher factor) 1	14219	-0.280	0.0472	No
334	YES1	YES1 Entrez, Source	v-yes-1 Yamaguchi sarcoma viral oncogene homolog 1	14231	-0.281	0.0492	No
335	PROS1	PROS1 Entrez, Source	protein S (alpha)	14494	-0.304	0.0358	No
336	ITGAV	ITGAV Entrez, Source	integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)	14594	-0.313	0.0324	No
337	PPIA	PPIA Entrez, Source	peptidylprolyl isomerase A (cyclophilin A)	14754	-0.329	0.0253	No
338	CD48	CD48 Entrez, Source	CD48 molecule	14801	-0.334	0.0252	No

339	SLC7A6	SLC7A6 Entrez, Source	solute carrier family 7 (cationic amino acid transporter, y+ system), member 6	14845	-0.339	0.0252	No
340	SERPINE1	SERPINE1 Entrez, Source	serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	14865	-0.340	0.0268	No
341	DGKE	DGKE Entrez, Source	diacylglycerol kinase, epsilon 64kDa	14892	-0.342	0.0279	No
342	SLC7A11	SLC7A11 Entrez, Source	solute carrier family 7, (cationic amino acid transporter, y+ system) member 11	14929	-0.345	0.0284	No
343	GNG11	GNG11 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 11	14983	-0.351	0.0278	No
344	PPBP	PPBP Entrez, Source	pro-platelet basic protein (chemokine (C-X-C motif) ligand 7)	15070	-0.363	0.0252	No
345	PDE6B	PDE6B Entrez, Source	phosphodiesterase 6B, cGMP-specific, rod, beta (congenital stationary night blindness 3, autosomal dominant)	15076	-0.363	0.0276	No
346	PRKACB	PRKACB Entrez, Source	protein kinase, cAMP-dependent, catalytic, beta	15132	-0.371	0.0270	No
347	GATA2	GATA2 Entrez, Source	GATA binding protein 2	15205	-0.380	0.0252	No
348	SIRPG	SIRPG Entrez, Source	signal-regulatory protein gamma	15255	-0.386	0.0249	No
349	P2RY1	P2RY1 Entrez, Source	purinergic receptor P2Y, G-protein coupled, 1	15385	-0.408	0.0197	No
350	DOCK9	DOCK9 Entrez, Source	dedicator of cytokinesis 9	15455	-0.421	0.0182	No
351	NOS3	NOS3 Entrez, Source	nitric oxide synthase 3 (endothelial cell)	15480	-0.424	0.0194	No
352	KCNMB4	KCNMB4 Entrez, Source	potassium large conductance calcium-activated channel, subfamily M, beta member 4	15542	-0.435	0.0184	No
353	JAM3	JAM3 Entrez, Source	junctional adhesion molecule 3	15563	-0.440	0.0198	No
354	PDE3B	PDE3B Entrez, Source	phosphodiesterase 3B, cGMP-inhibited	15629	-0.454	0.0185	No

355	KIF5A	KIF5A Entrez, Source	kinesin family member 5A	15698	-0.471	0.0171	No
356	HIST1H3E	HIST1H3E Entrez, Source	histone cluster 1, H3e	15930	-0.540	0.0055	No
357	GNG8	GNG8 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 8	15954	-0.549	0.0068	No
358	HIST2H3D	HIST2H3D Entrez, Source	histone cluster 2, H3d	16002	-0.569	0.0066	No
359	PRKAR1B	PRKAR1B Entrez, Source	protein kinase, cAMP-dependent, regulatory, type I, beta	16134	-0.630	0.0013	No
360	PRKCA	PRKCA Entrez, Source	protein kinase C, alpha	16164	-0.652	0.0022	No
361	SLC7A8	SLC7A8 Entrez, Source	solute carrier family 7 (cationic amino acid transporter, y+ system), member 8	16205	-0.683	0.0025	No
362	PDE9A	PDE9A Entrez, Source	phosphodiesterase 9A	16307	-0.764	-0.0010	No
363	SERPINC1	SERPINC1 Entrez, Source	serpin peptidase inhibitor, clade C (antithrombin), member 1	16367	-0.838	-0.0020	No
364	GP5	GP5 Entrez, Source	glycoprotein V (platelet)	16387	-0.876	-0.0004	No
365	GNAI1	GNAI1 Entrez, Source	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 1	16443	-0.980	-0.0011	No
366	PRKG2	PRKG2 Entrez, Source	protein kinase, cGMP-dependent, type II	16472	-1.061	-0.0001	No
367	GNB3	GNB3 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 3	16478	-1.069	0.0023	No
368	HIST1H3C	HIST1H3C Entrez, Source	histone cluster 1, H3c	16575	-1.782	-0.0009	No
369	OLR1	OLR1 Entrez, Source	oxidised low density lipoprotein (lectin-like) receptor 1	16578	-1.811	0.0017	No

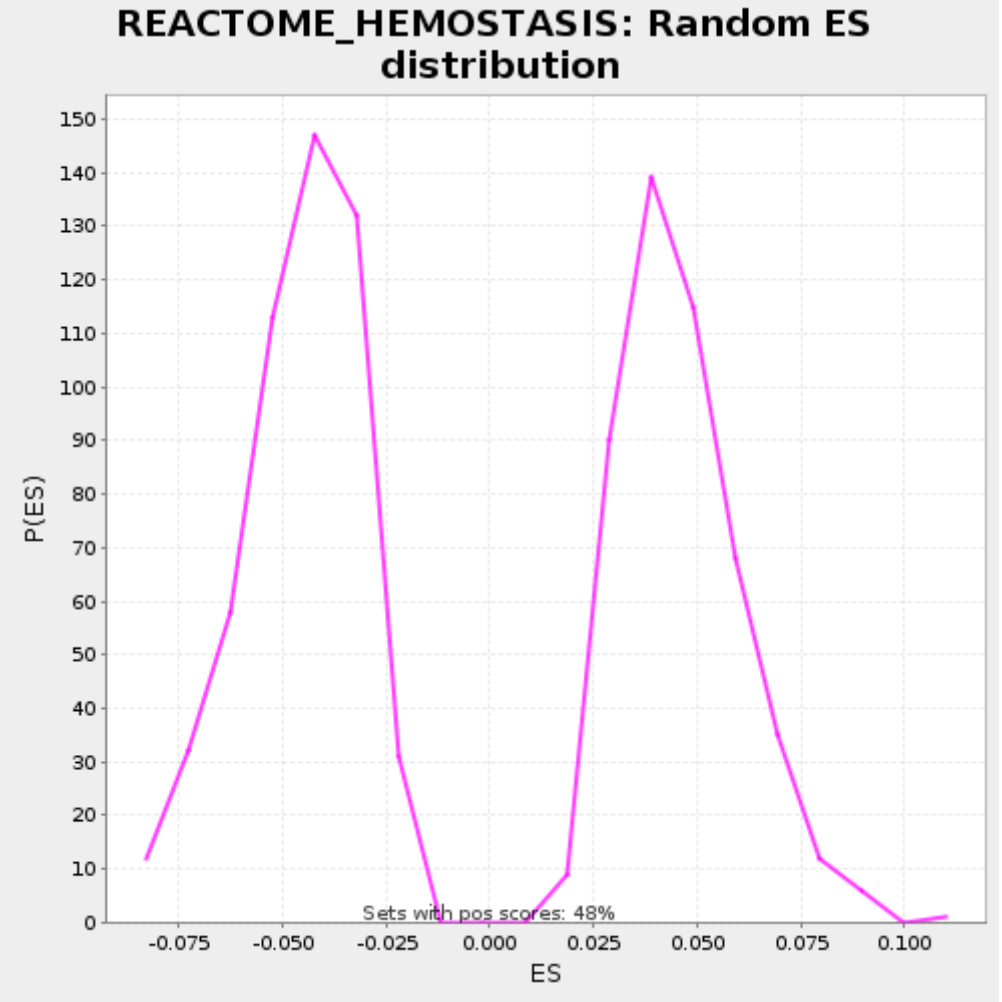

Fig 2: REACTOME_HEMOSTASIS: Random ES distribution
Gene set null distribution of ES for REACTOME_HEMOSTASIS

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	KEGG_LYSOSOME
Enrichment Score (ES)	0.3472282
Normalized Enrichment Score (NES)	4.340293
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

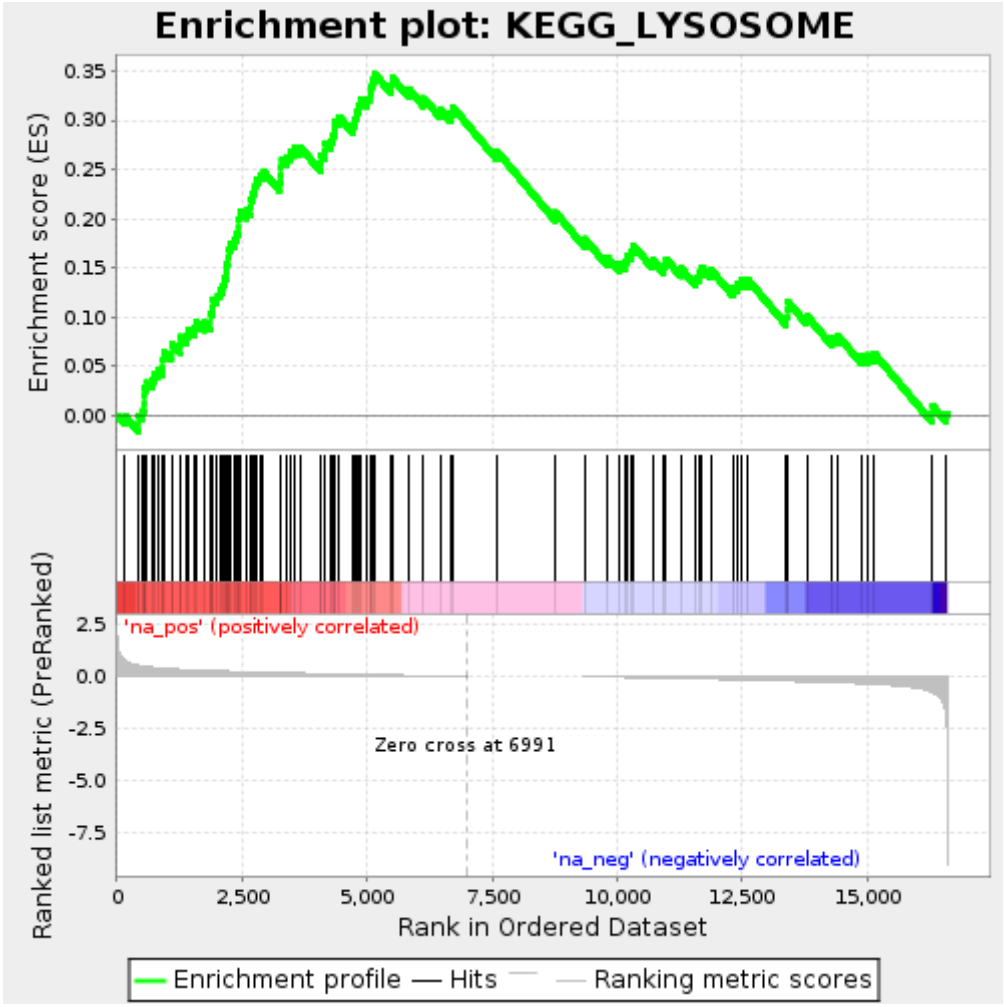

Fig 1: Enrichment plot: KEGG_LYSOSOME
Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE	GENE_TITLE	RANK	RANK	RUNNING	CORE

		SYMBOL		IN GENE LIST	METRIC SCORE	ES	ENRICHMENT
1	CTSE	CTSE Entrez, Source	cathepsin E	159	0.770	-0.0010	Yes
2	ATP6V0C	ATP6V0C Entrez, Source	ATPase, H+ transporting, lysosomal 16kDa, V0 subunit c	428	0.527	-0.0087	Yes
3	AP1M2	AP1M2 Entrez, Source	adaptor-related protein complex 1, mu 2 subunit	431	0.526	-0.0002	Yes
4	PSAP	PSAP Entrez, Source	prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy)	501	0.498	0.0043	Yes
5	CTSD	CTSD Entrez, Source	cathepsin D (lysosomal aspartyl peptidase)	536	0.486	0.0108	Yes
6	HYAL1	HYAL1 Entrez, Source	hyaluronoglucosaminidase 1	542	0.483	0.0192	Yes
7	CD68	CD68 Entrez, Source	CD68 molecule	548	0.479	0.0275	Yes
8	CTSW	CTSW Entrez, Source	cathepsin W (lymphopain)	599	0.463	0.0331	Yes
9	ATP6V0D1	ATP6V0D1 Entrez, Source	ATPase, H+ transporting, lysosomal 38kDa, V0 subunit d1	699	0.438	0.0357	Yes
10	CD63	CD63 Entrez, Source	CD63 molecule	747	0.424	0.0415	Yes
11	CTSA			807	0.409	0.0465	Yes
12	MCOLN1	MCOLN1 Entrez, Source	mucolipin 1	911	0.391	0.0489	Yes
13	NPC2	NPC2 Entrez, Source	Niemann-Pick disease, type C2	919	0.389	0.0571	Yes
14	TPP1	TPP1 Entrez, Source	tripeptidyl peptidase I	930	0.388	0.0651	Yes
15	NAGA	NAGA Entrez, Source	N-acetylgalactosaminidase, alpha-	1085	0.364	0.0644	Yes
16	GLA	GLA Entrez, Source	galactosidase, alpha	1087	0.364	0.0729	Yes

17	ACP5	ACP5 Entrez, Source	acid phosphatase 5, tartrate resistant	1249	0.340	0.0718	Yes
18	ABCA2	ABCA2 Entrez, Source	ATP-binding cassette, sub-family A (ABC1), member 2	1259	0.339	0.0799	Yes
19	CTSB	CTSB Entrez, Source	cathepsin B	1394	0.325	0.0803	Yes
20	SORT1	SORT1 Entrez, Source	sortilin 1	1423	0.320	0.0873	Yes
21	GBA	GBA Entrez, Source	glucosidase, beta; acid (includes glucosylceramidase)	1544	0.310	0.0886	Yes
22	CTSH	CTSH Entrez, Source	cathepsin H	1573	0.307	0.0955	Yes
23	GLB1	GLB1 Entrez, Source	galactosidase, beta 1	1735	0.290	0.0944	Yes
24	PPT1	PPT1 Entrez, Source	palmitoyl-protein thioesterase 1 (ceroid-lipofuscinosis, neuronal 1, infantile)	1863	0.278	0.0953	Yes
25	CTSZ	CTSZ Entrez, Source	cathepsin Z	1864	0.278	0.1039	Yes
26	NPC1	NPC1 Entrez, Source	Niemann-Pick disease, type C1	1908	0.274	0.1099	Yes
27	NEU1	NEU1 Entrez, Source	sialidase 1 (lysosomal sialidase)	1916	0.273	0.1181	Yes
28	LAMP1	LAMP1 Entrez, Source	lysosomal-associated membrane protein 1	2005	0.264	0.1214	Yes
29	IGF2R	IGF2R Entrez, Source	insulin-like growth factor 2 receptor	2050	0.261	0.1274	Yes
30	GNS	GNS Entrez, Source	glucosamine (N-acetyl)-6-sulfatase (Sanfilippo disease IIID)	2121	0.255	0.1318	Yes
31	CLN3	CLN3 Entrez, Source	ceroid-lipofuscinosis, neuronal 3, juvenile (Batten, Spielmeyer-Vogt disease)	2139	0.254	0.1393	Yes
32	ARSA	ARSA Entrez, Source	arylsulfatase A	2177	0.251	0.1457	Yes
33	AP1B1	AP1B1 Entrez, Source	adaptor-related protein complex 1, beta 1 subunit	2191	0.250	0.1536	Yes

34	MAN2B1	MAN2B1 Entrez, Source	mannosidase, alpha, class 2B, member 1	2209	0.249	0.1611	Yes
35	AP1M1	AP1M1 Entrez, Source	adaptor-related protein complex 1, mu 1 subunit	2239	0.246	0.1680	Yes
36	ATP6AP1	ATP6AP1 Entrez, Source	ATPase, H+ transporting, lysosomal accessory protein 1	2257	0.244	0.1756	Yes
37	SLC11A1	SLC11A1 Entrez, Source	solute carrier family 11 (proton-coupled divalent metal ion transporters), member 1	2347	0.237	0.1788	Yes
38	CTSC	CTSC Entrez, Source	cathepsin C	2381	0.235	0.1854	Yes
39	IDS	IDS Entrez, Source	iduronate 2-sulfatase (Hunter syndrome)	2431	0.232	0.1911	Yes
40	CTNS	CTNS Entrez, Source	cystinosis, nephropathic	2435	0.232	0.1995	Yes
41	LAPTM5	LAPTM5 Entrez, Source	lysosomal associated multispanning membrane protein 5	2448	0.231	0.2074	Yes
42	GAA	GAA Entrez, Source	glucosidase, alpha; acid (Pompe disease, glycogen storage disease type II)	2573	0.222	0.2085	Yes
43	CLTB	CLTB Entrez, Source	clathrin, light chain (Lcb)	2661	0.217	0.2119	Yes
44	ATP6V0A1	ATP6V0A1 Entrez, Source	ATPase, H+ transporting, lysosomal V0 subunit a1	2673	0.216	0.2198	Yes
45	TCIRG1	TCIRG1 Entrez, Source	T-cell, immune regulator 1, ATPase, H+ transporting, lysosomal V0 subunit A3	2718	0.212	0.2258	Yes
46	AP3D1	AP3D1 Entrez, Source	adaptor-related protein complex 3, delta 1 subunit	2744	0.210	0.2329	Yes
47	PLA2G15			2771	0.208	0.2399	Yes
48	CTSS	CTSS Entrez, Source	cathepsin S	2847	0.203	0.2440	Yes
49	ACP2	ACP2 Entrez, Source	acid phosphatase 2, lysosomal	2925	0.198	0.2479	Yes
50	GALNS	GALNS Entrez, Source	galactosamine (N-acetyl)-6-sulfate sulfatase (Morquio syndrome, mucopolysaccharidosis type IVA)	3249	0.179	0.2370	Yes

51	SGSH	SGSH Entrez, Source	N-sulfoglucosamine sulfohydrolase (sulfamidase)	3275	0.177	0.2441	Yes
52	AP4M1	AP4M1 Entrez, Source	adaptor-related protein complex 4, mu 1 subunit	3282	0.177	0.2523	Yes
53	ATP6V0B	ATP6V0B Entrez, Source	ATPase, H+ transporting, lysosomal 21kDa, V0 subunit b	3287	0.177	0.2607	Yes
54	AP3S2	AP3S2 Entrez, Source	adaptor-related protein complex 3, sigma 2 subunit	3391	0.171	0.2631	Yes
55	HGSNAT	HGSNAT Entrez, Source	heparan-alpha-glucosaminide N-acetyltransferase	3456	0.168	0.2678	Yes
56	CLTA	CLTA Entrez, Source	clathrin, light chain (Lca)	3531	0.164	0.2720	Yes
57	AP1S1	AP1S1 Entrez, Source	adaptor-related protein complex 1, sigma 1 subunit	3652	0.157	0.2733	Yes
58	GUSB	GUSB Entrez, Source	glucuronidase, beta	4068	0.136	0.2568	Yes
59	GM2A	GM2A Entrez, Source	GM2 ganglioside activator	4076	0.135	0.2650	Yes
60	GGA3	GGA3 Entrez, Source	golgi associated, gamma adaptin ear containing, ARF binding protein 3	4149	0.133	0.2692	Yes
61	FUCA1	FUCA1 Entrez, Source	fucosidase, alpha-L- 1, tissue	4162	0.131	0.2771	Yes
62	CLTCL1	CLTCL1 Entrez, Source	clathrin, heavy chain-like 1	4263	0.125	0.2797	Yes
63	NAGPA	NAGPA Entrez, Source	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase	4322	0.122	0.2848	Yes
64	MANBA	MANBA Entrez, Source	mannosidase, beta A, lysosomal	4343	0.120	0.2922	Yes
65	HEXA	HEXA Entrez, Source	hexosaminidase A (alpha polypeptide)	4356	0.120	0.3001	Yes
66	ATP6V1H	ATP6V1H Entrez, Source	ATPase, H+ transporting, lysosomal 50/57kDa, V1 subunit H	4435	0.116	0.3040	Yes
67	GNPTG	GNPTG Entrez, Source	N-acetylglucosamine-1-phosphate transferase, gamma subunit	4717	0.102	0.2955	Yes

68	LAPTM4A	LAPTM4A Entrez, Source	lysosomal-associated protein transmembrane 4 alpha	4759	0.100	0.3017	Yes
69	ARSB	ARSB Entrez, Source	arylsulfatase B	4786	0.099	0.3087	Yes
70	ASAH1	ASAH1 Entrez, Source	N-acylsphingosine amidohydrolase (acid ceramidase) 1	4821	0.097	0.3153	Yes
71	ABCB9	ABCB9 Entrez, Source	ATP-binding cassette, sub-family B (MDR/TAP), member 9	4856	0.096	0.3218	Yes
72	LAMP2	LAMP2 Entrez, Source	lysosomal-associated membrane protein 2	4988	0.089	0.3225	Yes
73	ARSG	ARSG Entrez, Source	arylsulfatase G	5054	0.086	0.3272	Yes
74	HEXB	HEXB Entrez, Source	hexosaminidase B (beta polypeptide)	5072	0.085	0.3348	Yes
75	CLTC	CLTC Entrez, Source	clathrin, heavy chain (Hc)	5107	0.084	0.3413	Yes
76	GGA1	GGA1 Entrez, Source	golgi associated, gamma adaptin ear containing, ARF binding protein 1	5153	0.082	0.3472	Yes
77	AP1G1	AP1G1 Entrez, Source	adaptor-related protein complex 1, gamma 1 subunit	5487	0.067	0.3357	No
78	NAGLU	NAGLU Entrez, Source	N-acetylglucosaminidase, alpha- (Sanfilippo disease IIIB)	5496	0.067	0.3438	No
79	AP3B1	AP3B1 Entrez, Source	adaptor-related protein complex 3, beta 1 subunit	5831	0.050	0.3322	No
80	SCARB2	SCARB2 Entrez, Source	scavenger receptor class B, member 2	6132	0.038	0.3226	No
81	SLC17A5	SLC17A5 Entrez, Source	solute carrier family 17 (anion/sugar transporter), member 5	6467	0.024	0.3110	No
82	PPT2	PPT2 Entrez, Source	palmitoyl-protein thioesterase 2	6672	0.014	0.3072	No
83	IDUA	IDUA Entrez, Source	iduronidase, alpha-L-	6711	0.013	0.3135	No
84	DNASE2B	DNASE2B Entrez, Source	deoxyribonuclease II beta	7602	0.000	0.2682	No

85	PSAPL1	PSAPL1 Entrez, Source	prosaposin-like 1	8764	0.000	0.2064	No
86	SUMF1	SUMF1 Entrez, Source	sulfatase modifying factor 1	9346	-0.002	0.1798	No
87	AP4B1	AP4B1 Entrez, Source	adaptor-related protein complex 4, beta 1 subunit	9801	-0.024	0.1609	No
88	GALC	GALC Entrez, Source	galactosylceramidase	10041	-0.036	0.1550	No
89	M6PR	M6PR Entrez, Source	mannose-6-phosphate receptor (cation dependent)	10160	-0.042	0.1564	No
90	SMPD1	SMPD1 Entrez, Source	sphingomyelin phosphodiesterase 1, acid lysosomal (acid sphingomyelinase)	10189	-0.043	0.1634	No
91	CTSO	CTSO Entrez, Source	cathepsin O	10286	-0.048	0.1662	No
92	DNASE2	DNASE2 Entrez, Source	deoxyribonuclease II, lysosomal	10318	-0.050	0.1729	No
93	AP3M1	AP3M1 Entrez, Source	adaptor-related protein complex 3, mu 1 subunit	10705	-0.067	0.1581	No
94	LIPA	LIPA Entrez, Source	lipase A, lysosomal acid, cholesterol esterase (Wolman disease)	10936	-0.079	0.1528	No
95	GGA2	GGA2 Entrez, Source	golgi associated, gamma adaptin ear containing, ARF binding protein 2	10978	-0.081	0.1589	No
96	CTSK	CTSK Entrez, Source	cathepsin K (pycnodysostosis)	11276	-0.096	0.1495	No
97	SLC11A2	SLC11A2 Entrez, Source	solute carrier family 11 (proton-coupled divalent metal ion transporters), member 2	11583	-0.112	0.1396	No
98	ATP6V0A2	ATP6V0A2 Entrez, Source	ATPase, H+ transporting, lysosomal V0 subunit a2	11633	-0.114	0.1453	No
99	AGA	AGA Entrez, Source	aspartylglucosaminidase	11696	-0.118	0.1501	No
100	GNPTAB	GNPTAB Entrez, Source	N-acetylglucosamine-1-phosphate transferase, alpha and beta subunits	11871	-0.129	0.1482	No
101	MFSD8			12315	-0.155	0.1299	No

102	LGMN	LGMN Entrez, Source	legumain	12396	-0.159	0.1337	No
103	AP4E1	AP4E1 Entrez, Source	adaptor-related protein complex 4, epsilon 1 subunit	12479	-0.163	0.1374	No
104	CTSF	CTSF Entrez, Source	cathepsin F	12612	-0.171	0.1380	No
105	AP1S2	AP1S2 Entrez, Source	adaptor-related protein complex 1, sigma 2 subunit	13384	-0.220	0.0998	No
106	AP3S1	AP3S1 Entrez, Source	adaptor-related protein complex 3, sigma 1 subunit	13397	-0.221	0.1077	No
107	CD164	CD164 Entrez, Source	CD164 molecule, sialomucin	13415	-0.223	0.1153	No
108	ENTPD4	ENTPD4 Entrez, Source	ectonucleoside triphosphate diphosphohydrolase 4	13791	-0.248	0.1012	No
109	LAMP3	LAMP3 Entrez, Source	lysosomal-associated membrane protein 3	14294	-0.287	0.0794	No
110	AP3M2	AP3M2 Entrez, Source	adaptor-related protein complex 3, mu 2 subunit	14398	-0.294	0.0818	No
111	AP1S3	AP1S3 Entrez, Source	adaptor-related protein complex 1, sigma 3 subunit	14885	-0.342	0.0609	No
112	CLN5	CLN5 Entrez, Source	ceroid-lipofuscinosis, neuronal 5	15019	-0.356	0.0615	No
113	AP4S1	AP4S1 Entrez, Source	adaptor-related protein complex 4, sigma 1 subunit	15141	-0.372	0.0627	No
114	LAPTM4B	LAPTM4B Entrez, Source	lysosomal associated protein transmembrane 4 beta	16297	-0.757	0.0013	No
115	NAPSA	NAPSA Entrez, Source	napsin A aspartic peptidase	16311	-0.770	0.0091	No
116	CTSG	CTSG Entrez, Source	cathepsin G	16571	-1.667	0.0021	No

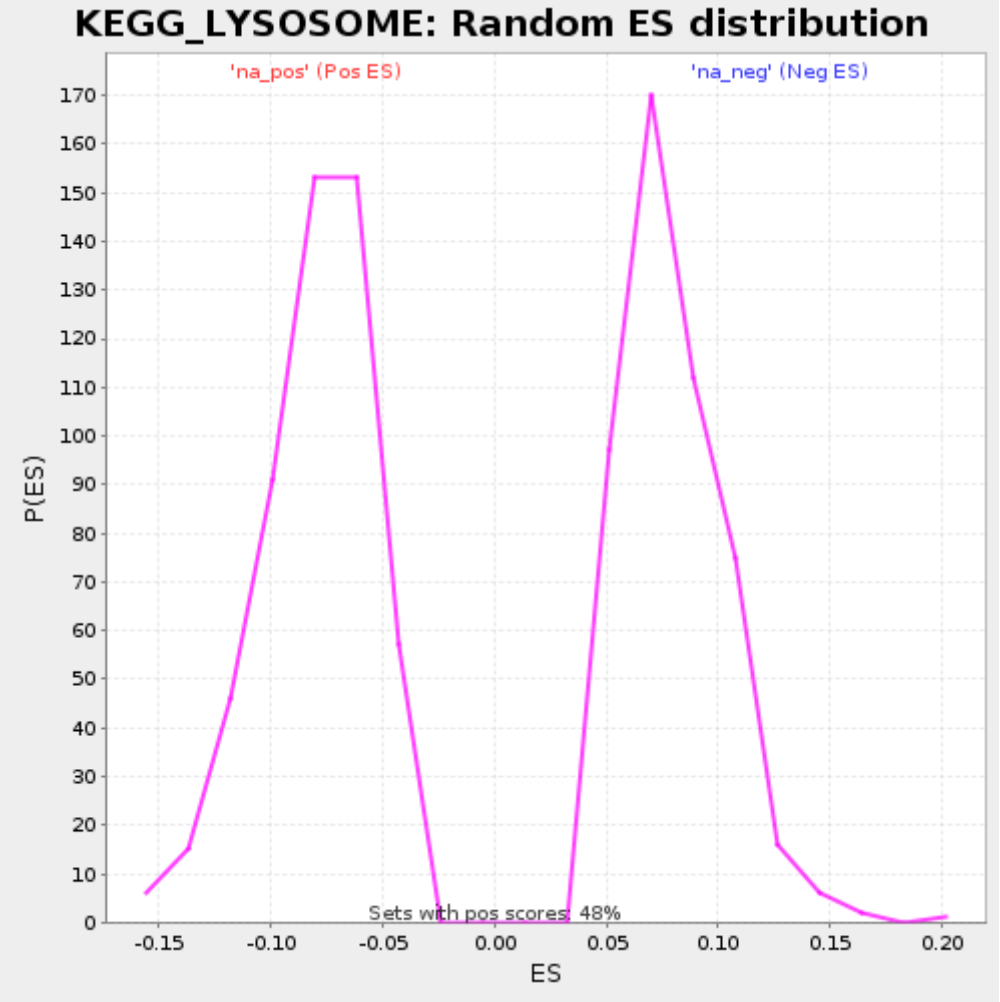

Fig 2: KEGG_LYSOSOME: Random ES distribution
Gene set null distribution of ES for KEGG_LYSOSOME

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	REACTOME_PLATELET_ACTIVATION_SIGNALING_AND_AGGREGATION
Enrichment Score (ES)	0.2664414
Normalized Enrichment Score (NES)	4.085812
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

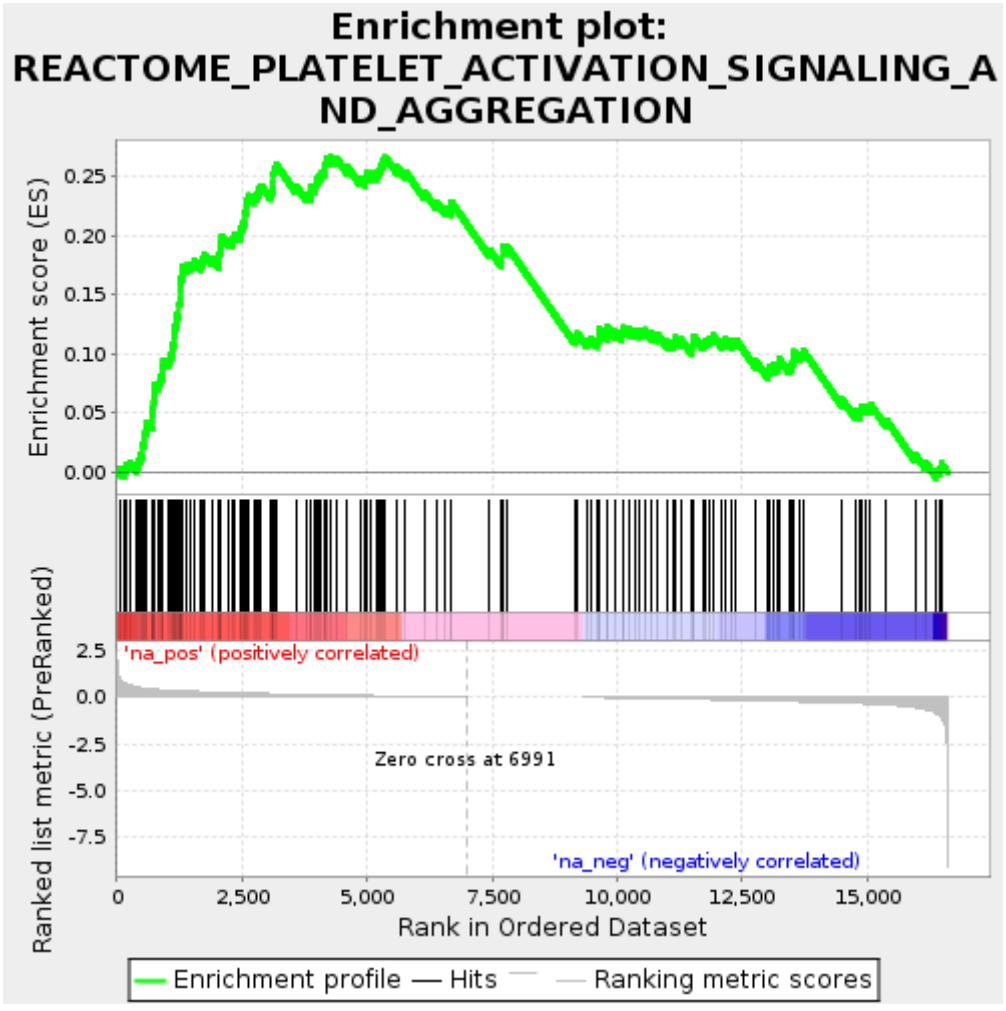

Fig 1: Enrichment plot: REACTOME_PLATELET_ACTIVATION_SIGNALING_AND_AGGREGATION Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE SYMBOL	GENE_TITLE	RANK IN GENE LIST	RANK METRIC SCORE	RUNNING ES	CORE ENRICHMENT
1	SERPING1	SERPING1 Entrez, Source	serpin peptidase inhibitor, clade G (C1 inhibitor), member 1, (angioedema, hereditary)	46	1.106	0.0032	Yes
2	PDGFA	PDGFA Entrez, Source	platelet-derived growth factor alpha polypeptide	152	0.777	0.0028	Yes
3	POTEM			192	0.726	0.0064	Yes
4	DAGLA			258	0.650	0.0084	Yes
5	GNG3	GNG3 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 3	395	0.541	0.0062	Yes
6	GNA15	GNA15 Entrez, Source	guanine nucleotide binding protein (G protein), alpha 15 (Gq class)	435	0.526	0.0098	Yes
7	F2R	F2R Entrez, Source	coagulation factor II (thrombin) receptor	453	0.518	0.0147	Yes
8	PIK3R3	PIK3R3 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 3 (p55, gamma)	500	0.499	0.0179	Yes
9	PSAP	PSAP Entrez, Source	prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy)	501	0.498	0.0239	Yes
10	TGFB1	TGFB1 Entrez, Source	transforming growth factor, beta 1 (Camurati-Engelmann disease)	544	0.481	0.0273	Yes
11	TRPC6	TRPC6 Entrez, Source	transient receptor potential cation channel, subfamily C, member 6	550	0.478	0.0330	Yes
12	RHOG	RHOG Entrez, Source	ras homolog gene family, member G (rho G)	579	0.469	0.0373	Yes
13	ACTN4	ACTN4 Entrez, Source	actinin, alpha 4	596	0.463	0.0423	Yes
14	F2RL3	F2RL3 Entrez, Source	coagulation factor II (thrombin) receptor-like 3	697	0.438	0.0422	Yes
15	GP9	GP9 Entrez, Source	glycoprotein IX (platelet)	698	0.438	0.0482	Yes
16	FCER1G	FCER1G Entrez, Source	Fc fragment of IgE, high affinity I, receptor for; gamma polypeptide	705	0.436	0.0538	Yes

17	ALDOA	ALDOA Entrez, Source	aldolase A, fructose-bisphosphate	722	0.432	0.0588	Yes
18	GNB2	GNB2 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 2	735	0.427	0.0641	Yes
19	CD63	CD63 Entrez, Source	CD63 molecule	747	0.424	0.0694	Yes
20	SERPINF2	SERPINF2 Entrez, Source	serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 2	757	0.422	0.0749	Yes
21	GNAI2	GNAI2 Entrez, Source	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 2	842	0.402	0.0757	Yes
22	SERPINA1	SERPINA1 Entrez, Source	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1	861	0.399	0.0806	Yes
23	SRC	SRC Entrez, Source	v-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)	900	0.392	0.0843	Yes
24	TLN1	TLN1 Entrez, Source	talin 1	904	0.392	0.0901	Yes
25	TIMP1	TIMP1 Entrez, Source	TIMP metallopeptidase inhibitor 1	921	0.389	0.0951	Yes
26	PIK3R2	PIK3R2 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 2 (p85 beta)	1023	0.375	0.0950	Yes
27	PIK3R6			1050	0.371	0.0994	Yes
28	THBS1	THBS1 Entrez, Source	thrombospondin 1	1091	0.363	0.1029	Yes
29	STX4	STX4 Entrez, Source	syntaxin 4	1103	0.360	0.1083	Yes
30	CLU	CLU Entrez, Source	clusterin	1132	0.356	0.1125	Yes
31	CSK	CSK Entrez, Source	c-src tyrosine kinase	1136	0.356	0.1183	Yes
32	ACTN1	ACTN1 Entrez, Source	actinin, alpha 1	1155	0.354	0.1232	Yes
33	PRKCD	PRKCD Entrez, Source	protein kinase C, delta	1180	0.352	0.1278	Yes

34	CFL1	CFL1 Entrez, Source	cofilin 1 (non-muscle)	1193	0.350	0.1330	Yes
35	GNG5	GNG5 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 5	1239	0.342	0.1363	Yes
36	PLEK	PLEK Entrez, Source	pleckstrin	1240	0.341	0.1423	Yes
37	APBB1IP	APBB1IP Entrez, Source	amyloid beta (A4) precursor protein-binding, family B, member 1 interacting protein	1256	0.339	0.1473	Yes
38	GP1BB	GP1BB Entrez, Source	glycoprotein Ib (platelet), beta polypeptide	1261	0.338	0.1531	Yes
39	ARRB2	ARRB2 Entrez, Source	arrestin, beta 2	1265	0.338	0.1589	Yes
40	CD9	CD9 Entrez, Source	CD9 molecule	1271	0.337	0.1646	Yes
41	MAPK3	MAPK3 Entrez, Source	mitogen-activated protein kinase 3	1303	0.334	0.1687	Yes
42	MGLL	MGLL Entrez, Source	monoglyceride lipase	1315	0.333	0.1740	Yes
43	RHOA	RHOA Entrez, Source	ras homolog gene family, member A	1398	0.324	0.1750	Yes
44	LYN	LYN Entrez, Source	v-yes-1 Yamaguchi sarcoma viral related oncogene homolog	1480	0.316	0.1761	Yes
45	PFN1	PFN1 Entrez, Source	profilin 1	1529	0.312	0.1791	Yes
46	VAV1	VAV1 Entrez, Source	vav 1 oncogene	1662	0.296	0.1771	Yes
47	DGKG	DGKG Entrez, Source	diacylglycerol kinase, gamma 90kDa	1707	0.293	0.1804	Yes
48	RAC2	RAC2 Entrez, Source	ras-related C3 botulinum toxin substrate 2 (rho family, small GTP binding protein Rac2)	1739	0.289	0.1845	Yes
49	GNGT2	GNGT2 Entrez, Source	guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 2	1894	0.275	0.1811	Yes
50	DGKQ	DGKQ Entrez,	diacylglycerol kinase, theta 110kDa	2032	0.262	0.1788	Yes

		Source					
51	GP1BA	GP1BA Entrez, Source	glycoprotein Ib (platelet), alpha polypeptide	2039	0.262	0.1844	Yes
52	ARRB1	ARRB1 Entrez, Source	arrestin, beta 1	2052	0.261	0.1897	Yes
53	PIK3CG	PIK3CG Entrez, Source	phosphoinositide-3-kinase, catalytic, gamma polypeptide	2078	0.258	0.1941	Yes
54	GRB2	GRB2 Entrez, Source	growth factor receptor-bound protein 2	2084	0.258	0.1998	Yes
55	WDR1	WDR1 Entrez, Source	WD repeat domain 1	2244	0.246	0.1961	Yes
56	MAPK14	MAPK14 Entrez, Source	mitogen-activated protein kinase 14	2321	0.239	0.1975	Yes
57	GNB1	GNB1 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 1	2359	0.236	0.2012	Yes
58	PIK3R5	PIK3R5 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 5, p101	2452	0.230	0.2016	Yes
59	SYK	SYK Entrez, Source	spleen tyrosine kinase	2472	0.229	0.2064	Yes
60	ITGA2B	ITGA2B Entrez, Source	integrin, alpha 2b (platelet glycoprotein IIb of IIb/IIIa complex, antigen CD41)	2504	0.226	0.2105	Yes
61	AKT1	AKT1 Entrez, Source	v-akt murine thymoma viral oncogene homolog 1	2555	0.223	0.2135	Yes
62	PLCG2	PLCG2 Entrez, Source	phospholipase C, gamma 2 (phosphatidylinositol-specific)	2558	0.223	0.2194	Yes
63	TUBA4A			2571	0.222	0.2246	Yes
64	VCL	VCL Entrez, Source	vinculin	2586	0.222	0.2298	Yes
65	F8	F8 Entrez, Source	coagulation factor VIII, procoagulant component (hemophilia A)	2613	0.220	0.2342	Yes
66	APOA1	APOA1 Entrez, Source	apolipoprotein A-I	2728	0.212	0.2332	Yes
67	SPARC	SPARC Entrez, Source	secreted protein, acidic, cysteine-rich (osteonectin)	2787	0.207	0.2357	Yes

68	SHC1	SHC1 Entrez, Source	SHC (Src homology 2 domain containing) transforming protein 1	2825	0.205	0.2394	Yes
69	CAP1	CAP1 Entrez, Source	CAP, adenylate cyclase-associated protein 1 (yeast)	2879	0.201	0.2422	Yes
70	PRKCZ	PRKCZ Entrez, Source	protein kinase C, zeta	3069	0.189	0.2367	Yes
71	RHOB	RHOB Entrez, Source	ras homolog gene family, member B	3108	0.186	0.2403	Yes
72	PLA2G4A	PLA2G4A Entrez, Source	phospholipase A2, group IVA (cytosolic, calcium-dependent)	3117	0.186	0.2458	Yes
73	BRPF3	BRPF3 Entrez, Source	bromodomain and PHD finger containing, 3	3122	0.186	0.2516	Yes
74	RAC1	RAC1 Entrez, Source	ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)	3131	0.185	0.2571	Yes
75	PDGFB	PDGFB Entrez, Source	platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)	3169	0.183	0.2608	Yes
76	PF4	PF4 Entrez, Source	platelet factor 4 (chemokine (C-X-C motif) ligand 4)	3573	0.161	0.2423	Yes
77	PTPN1	PTPN1 Entrez, Source	protein tyrosine phosphatase, non-receptor type 1	3783	0.150	0.2356	Yes
78	AKT2	AKT2 Entrez, Source	v-akt murine thymoma viral oncogene homolog 2	3872	0.146	0.2362	Yes
79	DGKD	DGKD Entrez, Source	diacylglycerol kinase, delta 130kDa	3885	0.145	0.2415	Yes
80	FYN	FYN Entrez, Source	FYN oncogene related to SRC, FGR, YES	3968	0.140	0.2425	Yes
81	HSPA5	HSPA5 Entrez, Source	heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)	3978	0.140	0.2479	Yes
82	F5	F5 Entrez, Source	coagulation factor V (proaccelerin, labile factor)	4040	0.137	0.2502	Yes
83	MAPK1	MAPK1 Entrez, Source	mitogen-activated protein kinase 1	4088	0.135	0.2533	Yes
84	RAF1	RAF1 Entrez,	v-raf-1 murine leukemia viral oncogene homolog 1	4137	0.133	0.2564	Yes

		Source					
85	LCP2	LCP2 Entrez, Source	lymphocyte cytosolic protein 2 (SH2 domain containing leukocyte protein of 76kDa)	4164	0.131	0.2608	Yes
86	F13A1	F13A1 Entrez, Source	coagulation factor XIII, A1 polypeptide	4186	0.129	0.2655	Yes
87	GNB4	GNB4 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 4	4270	0.124	0.2664	Yes
88	CALM3	CALM3 Entrez, Source	calmodulin 3 (phosphorylase kinase, delta)	4379	0.119	0.2659	No
89	GNA12	GNA12 Entrez, Source	guanine nucleotide binding protein (G protein) alpha 12	4606	0.108	0.2581	No
90	DAGLB			4854	0.096	0.2491	No
91	PRKCB			4969	0.090	0.2481	No
92	LAMP2	LAMP2 Entrez, Source	lysosomal-associated membrane protein 2	4988	0.089	0.2530	No
93	PRKCE	PRKCE Entrez, Source	protein kinase C, epsilon	5091	0.085	0.2528	No
94	HGF	HGF Entrez, Source	hepatocyte growth factor (hepapoietin A; scatter factor)	5184	0.080	0.2532	No
95	EGF	EGF Entrez, Source	epidermal growth factor (beta-urogastrone)	5247	0.077	0.2554	No
96	VWF	VWF Entrez, Source	von Willebrand factor	5278	0.076	0.2596	No
97	ITPR3	ITPR3 Entrez, Source	inositol 1,4,5-triphosphate receptor, type 3	5312	0.074	0.2635	No
98	PDPK1	PDPK1 Entrez, Source	3-phosphoinositide dependent protein kinase-1	5366	0.072	0.2663	No
99	PIK3CB	PIK3CB Entrez, Source	phosphoinositide-3-kinase, catalytic, beta polypeptide	5597	0.062	0.2583	No
100	VEGFA			5768	0.053	0.2540	No
101	CRK	CRK Entrez, Source	v-crk sarcoma virus CT10 oncogene homolog (avian)	6145	0.038	0.2371	No
102	CDC42	CDC42 Entrez, Source	cell division cycle 42 (GTP binding protein, 25kDa)	6388	0.027	0.2283	No

103	YWHAZ	YWHAZ Entrez, Source	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta polypeptide	6567	0.019	0.2235	No
104	CALM1	CALM1 Entrez, Source	calmodulin 1 (phosphorylase kinase, delta)	6673	0.014	0.2231	No
105	APP	APP Entrez, Source	amyloid beta (A4) precursor protein (peptidase nexin-II, Alzheimer disease)	6680	0.014	0.2287	No
106	COL1A2	COL1A2 Entrez, Source	collagen, type I, alpha 2	7445	0.000	0.1882	No
107	FGA	FGA Entrez, Source	fibrinogen alpha chain	7690	0.000	0.1794	No
108	FGG	FGG Entrez, Source	fibrinogen gamma chain	7697	0.000	0.1850	No
109	FIGF	FIGF Entrez, Source	c-fos induced growth factor (vascular endothelial growth factor D)	7700	0.000	0.1909	No
110	GNGT1	GNGT1 Entrez, Source	guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 1	7800	0.000	0.1908	No
111	THPO	THPO Entrez, Source	thrombopoietin (myeloproliferative leukemia virus oncogene ligand, megakaryocyte growth and development factor)	9148	0.000	0.1149	No
112	TRPC7	TRPC7 Entrez, Source	transient receptor potential cation channel, subfamily C, member 7	9203	0.000	0.1176	No
113	GNAI3	GNAI3 Entrez, Source	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 3	9393	-0.003	0.1121	No
114	PRKCQ	PRKCQ Entrez, Source	protein kinase C, theta	9461	-0.007	0.1140	No
115	LCK	LCK Entrez, Source	lymphocyte-specific protein tyrosine kinase	9601	-0.014	0.1115	No
116	ITGB3	ITGB3 Entrez, Source	integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)	9629	-0.015	0.1159	No
117	VAV3	VAV3 Entrez, Source	vav 3 oncogene	9638	-0.016	0.1214	No
118	GNA11	GNA11 Entrez, Source	guanine nucleotide binding protein (G protein), alpha 11 (Gq class)	9794	-0.024	0.1179	No

119	PTK2	PTK2 Entrez, Source	PTK2 protein tyrosine kinase 2	9807	-0.025	0.1232	No
120	GNG2	GNG2 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 2	9972	-0.033	0.1192	No
121	PRKCH	PRKCH Entrez, Source	protein kinase C, eta	10101	-0.039	0.1174	No
122	TMSB4X	TMSB4X Entrez, Source	thymosin, beta 4, X-linked	10115	-0.039	0.1226	No
123	TBXA2R	TBXA2R Entrez, Source	thromboxane A2 receptor	10236	-0.046	0.1213	No
124	CFD	CFD Entrez, Source	complement factor D (adipsin)	10354	-0.051	0.1202	No
125	RASGRP2	RASGRP2 Entrez, Source	RAS guanyl releasing protein 2 (calcium and DAG-regulated)	10458	-0.056	0.1199	No
126	SELP	SELP Entrez, Source	selectin P (granule membrane protein 140kDa, antigen CD62)	10542	-0.059	0.1208	No
127	CALU	CALU Entrez, Source	calumenin	10690	-0.066	0.1179	No
128	LAT	LAT Entrez, Source	linker for activation of T cells	10811	-0.073	0.1165	No
129	RAPGEF3	RAPGEF3 Entrez, Source	Rap guanine nucleotide exchange factor (GEF) 3	11006	-0.083	0.1107	No
130	VEGFB	VEGFB Entrez, Source	vascular endothelial growth factor B	11117	-0.088	0.1100	No
131	CALM2	CALM2 Entrez, Source	calmodulin 2 (phosphorylase kinase, delta)	11147	-0.089	0.1143	No
132	SRGN			11274	-0.096	0.1126	No
133	STXBP3	STXBP3 Entrez, Source	syntaxin binding protein 3	11494	-0.108	0.1052	No
134	RAP1B	RAP1B Entrez, Source	RAP1B, member of RAS oncogene family	11505	-0.108	0.1106	No
135	RAP1A	RAP1A Entrez, Source	RAP1A, member of RAS oncogene family	11539	-0.110	0.1146	No

136	GNG7	GNG7 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 7	11711	-0.119	0.1102	No
137	SOS1	SOS1 Entrez, Source	son of sevenless homolog 1 (Drosophila)	11781	-0.123	0.1120	No
138	GNAQ	GNAQ Entrez, Source	guanine nucleotide binding protein (G protein), q polypeptide	11856	-0.128	0.1135	No
139	P2RY12	P2RY12 Entrez, Source	purinergic receptor P2Y, G-protein coupled, 12	11915	-0.131	0.1159	No
140	MMRN1	MMRN1 Entrez, Source	multimerin 1	12101	-0.141	0.1107	No
141	GNA13	GNA13 Entrez, Source	guanine nucleotide binding protein (G protein), alpha 13	12168	-0.146	0.1126	No
142	DGKH	DGKH Entrez, Source	diacylglycerol kinase, eta	12296	-0.154	0.1109	No
143	CD36	CD36 Entrez, Source	CD36 molecule (thrombospondin receptor)	12379	-0.158	0.1119	No
144	ITPR2	ITPR2 Entrez, Source	inositol 1,4,5-triphosphate receptor, type 2	12772	-0.181	0.0940	No
145	DGKA	DGKA Entrez, Source	diacylglycerol kinase, alpha 80kDa	13024	-0.198	0.0848	No
146	TGFB3	TGFB3 Entrez, Source	transforming growth factor, beta 3	13053	-0.200	0.0890	No
147	AKT3	AKT3 Entrez, Source	v-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)	13126	-0.205	0.0907	No
148	ABCC4	ABCC4 Entrez, Source	ATP-binding cassette, sub-family C (CFTR/MRP), member 4	13218	-0.210	0.0911	No
149	GNG10	GNG10 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 10	13231	-0.211	0.0964	No
150	PIK3CA	PIK3CA Entrez, Source	phosphoinositide-3-kinase, catalytic, alpha polypeptide	13438	-0.224	0.0898	No
151	GNB5	GNB5 Entrez, Source	guanine nucleotide binding protein (G protein), beta 5	13499	-0.228	0.0922	No
152	RASGRP1	RASGRP1 Entrez, Source	RAS guanyl releasing protein 1 (calcium and DAG-regulated)	13525	-0.230	0.0966	No

153	HABP4	HABP4 Entrez, Source	hyaluronan binding protein 4	13532	-0.231	0.1022	No
154	PIK3R1	PIK3R1 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 1 (p85 alpha)	13664	-0.240	0.1003	No
155	SOD1	SOD1 Entrez, Source	superoxide dismutase 1, soluble (amyotrophic lateral sclerosis 1 (adult))	13720	-0.243	0.1029	No
156	PROS1	PROS1 Entrez, Source	protein S (alpha)	14494	-0.304	0.0619	No
157	PPIA	PPIA Entrez, Source	peptidylprolyl isomerase A (cyclophilin A)	14754	-0.329	0.0521	No
158	SERPINE1	SERPINE1 Entrez, Source	serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	14865	-0.340	0.0514	No
159	DGKE	DGKE Entrez, Source	diacylglycerol kinase, epsilon 64kDa	14892	-0.342	0.0558	No
160	GNG11	GNG11 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 11	14983	-0.351	0.0563	No
161	PPBP	PPBP Entrez, Source	pro-platelet basic protein (chemokine (C-X-C motif) ligand 7)	15070	-0.363	0.0571	No
162	P2RY1	P2RY1 Entrez, Source	purinergic receptor P2Y, G-protein coupled, 1	15385	-0.408	0.0440	No
163	GNG8	GNG8 Entrez, Source	guanine nucleotide binding protein (G protein), gamma 8	15954	-0.549	0.0154	No
164	PRKCA	PRKCA Entrez, Source	protein kinase C, alpha	16164	-0.652	0.0087	No
165	GP5	GP5 Entrez, Source	glycoprotein V (platelet)	16387	-0.876	0.0012	No
166	GNAI1	GNAI1 Entrez, Source	guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 1	16443	-0.980	0.0038	No
167	GNB3	GNB3 Entrez, Source	guanine nucleotide binding protein (G protein), beta polypeptide 3	16478	-1.069	0.0077	No

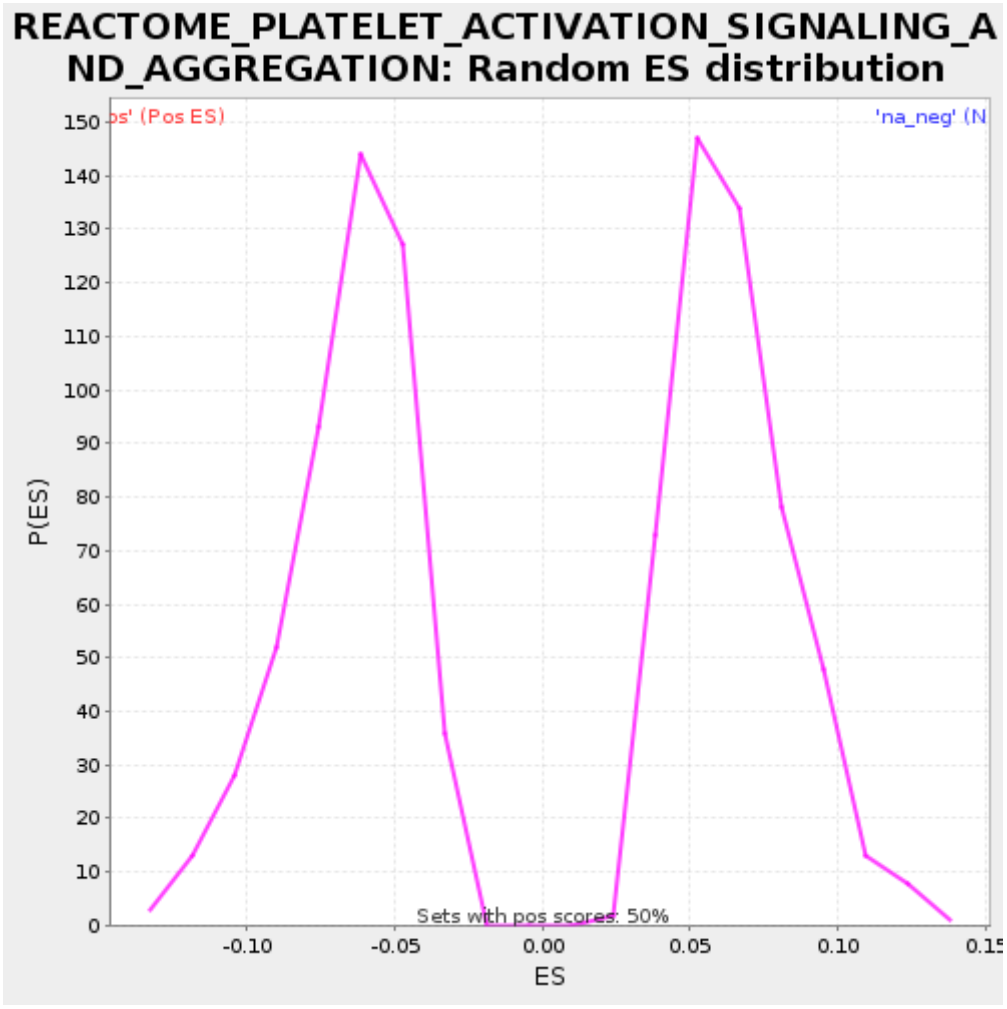

Fig 2: REACTOME_PLATELET_ACTIVATION_SIGNALING_AND_AGGREGATION: Random ES distribution
Gene set null distribution of ES for
REACTOME_PLATELET_ACTIVATION_SIGNALING_AND_AGGREGATION

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	REACTOME_INNATE_IMMUNE_SYSTEM
Enrichment Score (ES)	0.22265689
Normalized Enrichment Score (NES)	4.0507555
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

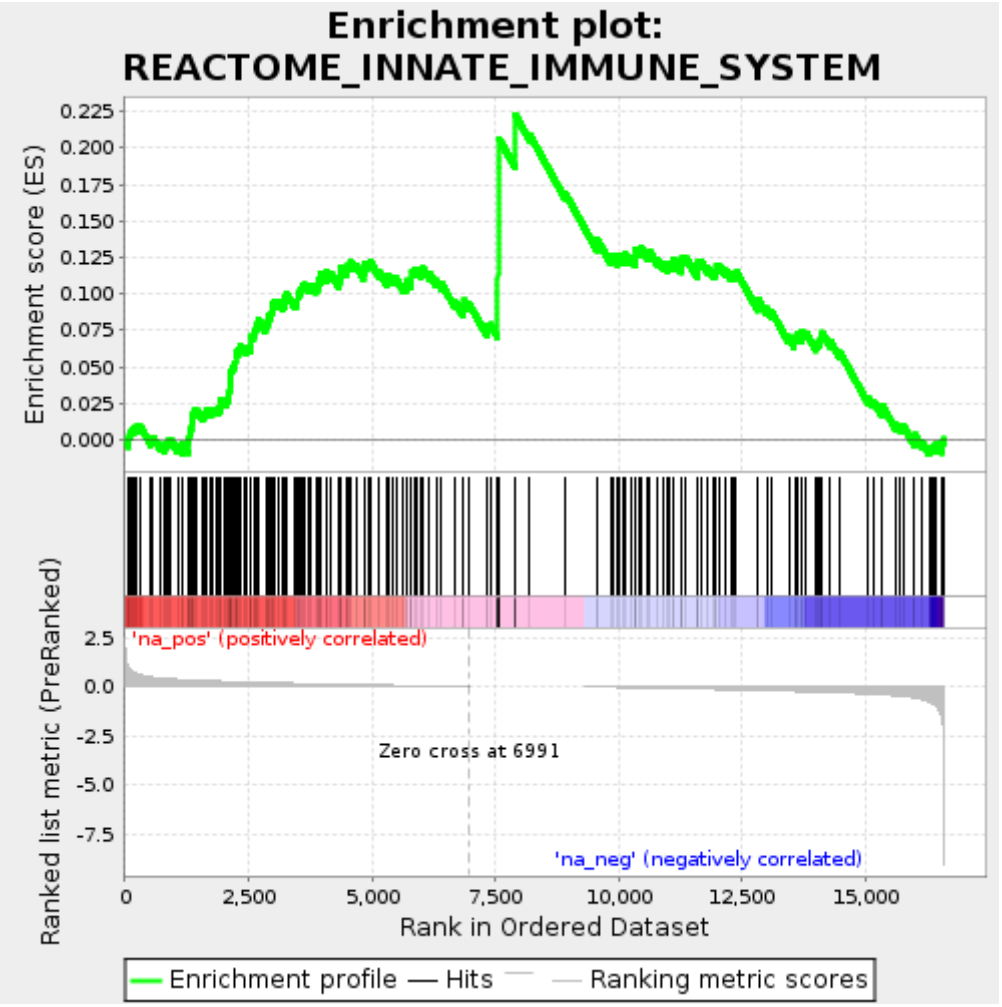

Fig 1: Enrichment plot: REACTOME_INNATE_IMMUNE_SYSTEM
Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE	GENE_TITLE	RANK	RANK	RUNNING	CORE

		SYMBOL		IN GENE LIST	METRIC SCORE	ES	ENRICHMENT
1	C1QC	C1QC Entrez, Source	complement component 1, q subcomponent, C chain	79	0.953	-0.0008	Yes
2	C2	C2 Entrez, Source	complement component 2	82	0.935	0.0030	Yes
3	CFB	CFB Entrez, Source	complement factor B	114	0.865	0.0052	Yes
4	C1QB	C1QB Entrez, Source	complement component 1, q subcomponent, B chain	141	0.790	0.0076	Yes
5	C1QA	C1QA Entrez, Source	complement component 1, q subcomponent, A chain	188	0.729	0.0088	Yes
6	C8G	C8G Entrez, Source	complement component 8, gamma polypeptide	243	0.663	0.0094	Yes
7	C3	C3 Entrez, Source	complement component 3	311	0.604	0.0094	Yes
8	C4BPA	C4BPA Entrez, Source	complement component 4 binding protein, alpha	525	0.490	0.0003	Yes
9	CD14	CD14 Entrez, Source	CD14 molecule	565	0.473	0.0019	Yes
10	MASP2	MASP2 Entrez, Source	mannan-binding lectin serine peptidase 2	715	0.434	-0.0032	Yes
11	FOS	FOS Entrez, Source	v-fos FBJ murine osteosarcoma viral oncogene homolog	800	0.411	-0.0043	Yes
12	PYCARD	PYCARD Entrez, Source	PYD and CARD domain containing	831	0.404	-0.0021	Yes
13	UBE2L6	UBE2L6 Entrez, Source	ubiquitin-conjugating enzyme E2L 6	868	0.398	-0.0003	Yes
14	NLRX1			923	0.389	0.0004	Yes
15	MAP2K3	MAP2K3 Entrez, Source	mitogen-activated protein kinase kinase 3	1060	0.369	-0.0040	Yes
16	IKBKG	IKBKG Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase gamma	1161	0.354	-0.0061	Yes

17	MYD88	MYD88 Entrez, Source	myeloid differentiation primary response gene (88)	1168	0.353	-0.0024	Yes
18	PPP2R1A	PPP2R1A Entrez, Source	protein phosphatase 2 (formerly 2A), regulatory subunit A (PR 65), alpha isoform	1278	0.336	-0.0051	Yes
19	IRF1	IRF1 Entrez, Source	interferon regulatory factor 1	1279	0.336	-0.0011	Yes
20	MAPKAPK2	MAPKAPK2 Entrez, Source	mitogen-activated protein kinase-activated protein kinase 2	1298	0.334	0.0018	Yes
21	MAPK3	MAPK3 Entrez, Source	mitogen-activated protein kinase 3	1303	0.334	0.0056	Yes
22	MAPK7	MAPK7 Entrez, Source	mitogen-activated protein kinase 7	1333	0.330	0.0078	Yes
23	MAPKAPK3	MAPKAPK3 Entrez, Source	mitogen-activated protein kinase-activated protein kinase 3	1346	0.329	0.0111	Yes
24	RPS6KA1	RPS6KA1 Entrez, Source	ribosomal protein S6 kinase, 90kDa, polypeptide 1	1352	0.328	0.0147	Yes
25	NLRP3			1374	0.326	0.0175	Yes
26	CTSB	CTSB Entrez, Source	cathepsin B	1394	0.325	0.0203	Yes
27	UNC93B1	UNC93B1 Entrez, Source	unc-93 homolog B1 (C. elegans)	1459	0.318	0.0204	Yes
28	NFKBIA	NFKBIA Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha	1569	0.308	0.0177	Yes
29	MEFV	MEFV Entrez, Source	Mediterranean fever	1623	0.301	0.0185	Yes
30	CD55	CD55 Entrez, Source	CD55 molecule, decay accelerating factor for complement (Cromer blood group)	1660	0.297	0.0203	Yes
31	CASP9	CASP9 Entrez, Source	caspase 9, apoptosis-related cysteine peptidase	1719	0.291	0.0207	Yes
32	IRF2	IRF2 Entrez, Source	interferon regulatory factor 2	1778	0.285	0.0212	Yes
33	CARD9	CARD9 Entrez, Source	caspase recruitment domain family, member 9	1843	0.279	0.0213	Yes

34	CASP4	CASP4 Entrez, Source	caspase 4, apoptosis-related cysteine peptidase	1901	0.275	0.0218	Yes
35	NFKBIB	NFKBIB Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, beta	1939	0.271	0.0235	Yes
36	TICAM1	TICAM1 Entrez, Source	toll-like receptor adaptor molecule 1	1942	0.271	0.0274	Yes
37	P2RX7	P2RX7 Entrez, Source	purinergic receptor P2X, ligand-gated ion channel, 7	2007	0.264	0.0275	Yes
38	CR1	CR1 Entrez, Source	complement component (3b/4b) receptor 1 (Knops blood group)	2072	0.259	0.0276	Yes
39	TLR5	TLR5 Entrez, Source	toll-like receptor 5	2105	0.256	0.0296	Yes
40	DNM2	DNM2 Entrez, Source	dynamin 2	2112	0.256	0.0333	Yes
41	MAP2K2	MAP2K2 Entrez, Source	mitogen-activated protein kinase kinase 2	2119	0.256	0.0369	Yes
42	NLRC4			2126	0.255	0.0405	Yes
43	CNPY3			2143	0.254	0.0435	Yes
44	IRAK1	IRAK1 Entrez, Source	interleukin-1 receptor-associated kinase 1	2148	0.253	0.0473	Yes
45	MAPK12	MAPK12 Entrez, Source	mitogen-activated protein kinase 12	2168	0.252	0.0501	Yes
46	CREBBP	CREBBP Entrez, Source	CREB binding protein (Rubinstein-Taybi syndrome)	2199	0.249	0.0523	Yes
47	TLR4	TLR4 Entrez, Source	toll-like receptor 4	2237	0.246	0.0540	Yes
48	RELA	RELA Entrez, Source	v-rel reticuloendotheliosis viral oncogene homolog A, nuclear factor of kappa light polypeptide gene enhancer in B-cells 3, p65 (avian)	2240	0.246	0.0579	Yes
49	JUN	JUN Entrez, Source	jun oncogene	2253	0.245	0.0612	Yes
50	IRF7	IRF7 Entrez, Source	interferon regulatory factor 7	2303	0.241	0.0622	Yes

51	MAPK14	MAPK14 Entrez, Source	mitogen-activated protein kinase 14	2321	0.239	0.0652	Yes
52	RNF135	RNF135 Entrez, Source	ring finger protein 135	2412	0.234	0.0636	Yes
53	ZBP1	ZBP1 Entrez, Source	Z-DNA binding protein 1	2480	0.228	0.0636	Yes
54	NLRC5			2538	0.224	0.0641	Yes
55	PLCG2	PLCG2 Entrez, Source	phospholipase C, gamma 2 (phosphatidylinositol-specific)	2558	0.223	0.0669	Yes
56	TRIM25	TRIM25 Entrez, Source	tripartite motif-containing 25	2559	0.223	0.0709	Yes
57	MAP2K7	MAP2K7 Entrez, Source	mitogen-activated protein kinase kinase 7	2604	0.220	0.0722	Yes
58	RIPK3	RIPK3 Entrez, Source	receptor-interacting serine-threonine kinase 3	2625	0.219	0.0750	Yes
59	DNM1	DNM1 Entrez, Source	dynamin 1	2645	0.218	0.0778	Yes
60	PRKCSH	PRKCSH Entrez, Source	protein kinase C substrate 80K-H	2681	0.216	0.0797	Yes
61	PANX1	PANX1 Entrez, Source	pannexin 1	2702	0.214	0.0825	Yes
62	CTSS	CTSS Entrez, Source	cathepsin S	2847	0.203	0.0777	Yes
63	PSTPIP1	PSTPIP1 Entrez, Source	proline-serine-threonine phosphatase interacting protein 1	2867	0.202	0.0805	Yes
64	RIPK1	RIPK1 Entrez, Source	receptor (TNFRSF)-interacting serine-threonine kinase 1	2897	0.200	0.0827	Yes
65	TLR1	TLR1 Entrez, Source	toll-like receptor 1	2913	0.199	0.0858	Yes
66	TLR9	TLR9 Entrez, Source	toll-like receptor 9	2963	0.196	0.0868	Yes
67	UBA52	UBA52 Entrez, Source	ubiquitin A-52 residue ribosomal protein fusion product 1	2974	0.195	0.0902	Yes

68	PELI3	PELI3 Entrez, Source	pellino homolog 3 (Drosophila)	2983	0.195	0.0937	Yes
69	RIPK2	RIPK2 Entrez, Source	receptor-interacting serine-threonine kinase 2	3030	0.192	0.0949	Yes
70	PELI2	PELI2 Entrez, Source	pellino homolog 2 (Drosophila)	3096	0.187	0.0949	Yes
71	PPP2R5D	PPP2R5D Entrez, Source	protein phosphatase 2, regulatory subunit B (B56), delta isoform	3189	0.182	0.0933	Yes
72	RPS6KA2	RPS6KA2 Entrez, Source	ribosomal protein S6 kinase, 90kDa, polypeptide 2	3237	0.180	0.0944	Yes
73	NFKB2	NFKB2 Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells 2 (p49/p100)	3240	0.180	0.0983	Yes
74	SIGIRR	SIGIRR Entrez, Source	single immunoglobulin and toll-interleukin 1 receptor (TIR) domain	3273	0.177	0.1004	Yes
75	OTUD5	OTUD5 Entrez, Source	OTU domain containing 5	3435	0.169	0.0945	Yes
76	TXNIP	TXNIP Entrez, Source	thioredoxin interacting protein	3491	0.166	0.0951	Yes
77	DUSP6	DUSP6 Entrez, Source	dual specificity phosphatase 6	3497	0.165	0.0988	Yes
78	PPP2CB	PPP2CB Entrez, Source	protein phosphatase 2 (formerly 2A), catalytic subunit, beta isoform	3527	0.164	0.1011	Yes
79	IRAK2	IRAK2 Entrez, Source	interleukin-1 receptor-associated kinase 2	3554	0.162	0.1035	Yes
80	DUSP3	DUSP3 Entrez, Source	dual specificity phosphatase 3 (vaccinia virus phosphatase VH1-related)	3579	0.161	0.1060	Yes
81	UBE2D1	UBE2D1 Entrez, Source	ubiquitin-conjugating enzyme E2D 1 (UBC4/5 homolog, yeast)	3635	0.158	0.1066	Yes
82	TLR8	TLR8 Entrez, Source	toll-like receptor 8	3722	0.153	0.1054	Yes
83	LGALS3	LGALS3 Entrez, Source	lectin, galactoside-binding, soluble, 3 (galectin 3)	3779	0.150	0.1060	Yes
84	DAK	DAK Entrez, Source	dihydroxyacetone kinase 2 homolog (S. cerevisiae)	3863	0.146	0.1049	Yes

85	DDX58	DDX58 Entrez, Source	DEAD (Asp-Glu-Ala-Asp) box polypeptide 58	3906	0.144	0.1063	Yes
86	CASP1	CASP1 Entrez, Source	caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)	3914	0.143	0.1099	Yes
87	NOD2			3957	0.141	0.1113	Yes
88	HERC5	HERC5 Entrez, Source	hect domain and RLD 5	3969	0.140	0.1147	Yes
89	BTK	BTK Entrez, Source	Bruton agammaglobulinemia tyrosine kinase	4079	0.135	0.1120	Yes
90	MAPK1	MAPK1 Entrez, Source	mitogen-activated protein kinase 1	4088	0.135	0.1155	Yes
91	NOD1			4174	0.130	0.1143	Yes
92	CD4	CD4 Entrez, Source	CD4 molecule	4341	0.121	0.1082	Yes
93	DDOST	DDOST Entrez, Source	dolichyl-diphosphooligosaccharide-protein glycosyltransferase	4352	0.120	0.1115	Yes
94	TRAF6	TRAF6 Entrez, Source	TNF receptor-associated factor 6	4370	0.119	0.1145	Yes
95	EP300	EP300 Entrez, Source	E1A binding protein p300	4377	0.119	0.1181	Yes
96	TIRAP	TIRAP Entrez, Source	toll-interleukin 1 receptor (TIR) domain containing adaptor protein	4478	0.114	0.1160	Yes
97	FADD	FADD Entrez, Source	Fas (TNFRSF6)-associated via death domain	4496	0.113	0.1190	Yes
98	CASP8	CASP8 Entrez, Source	caspase 8, apoptosis-related cysteine peptidase	4542	0.110	0.1202	Yes
99	TLR7	TLR7 Entrez, Source	toll-like receptor 7	4580	0.109	0.1220	Yes
100	MAP2K1	MAP2K1 Entrez, Source	mitogen-activated protein kinase kinase 1	4676	0.104	0.1202	Yes
101	IRAK3	IRAK3 Entrez, Source	interleukin-1 receptor-associated kinase 3	4839	0.096	0.1143	Yes
102	CCR2	CCR2 Entrez, Source	chemokine (C-C motif) receptor 2	4852	0.096	0.1175	Yes

103	PIN1	PIN1 Entrez, Source	protein (peptidylprolyl cis/trans isomerase) NIMA-interacting 1	4862	0.095	0.1210	Yes
104	PCBP2	PCBP2 Entrez, Source	poly(rC) binding protein 2	4922	0.092	0.1214	Yes
105	ECSIT	ECSIT Entrez, Source	ECSIT homolog (Drosophila)	4968	0.090	0.1226	Yes
106	BCL2L1	BCL2L1 Entrez, Source	BCL2-like 1	5148	0.082	0.1157	Yes
107	PELI1	PELI1 Entrez, Source	pellino homolog 1 (Drosophila)	5314	0.074	0.1096	Yes
108	IKBKB	IKBKB Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta	5326	0.074	0.1129	Yes
109	TNFAIP3	TNFAIP3 Entrez, Source	tumor necrosis factor, alpha-induced protein 3	5417	0.070	0.1114	Yes
110	TLR2	TLR2 Entrez, Source	toll-like receptor 2	5493	0.067	0.1108	Yes
111	TAB1			5643	0.059	0.1057	Yes
112	IRF3	IRF3 Entrez, Source	interferon regulatory factor 3	5701	0.056	0.1062	Yes
113	MAP2K6	MAP2K6 Entrez, Source	mitogen-activated protein kinase kinase 6	5718	0.055	0.1093	Yes
114	TLR3	TLR3 Entrez, Source	toll-like receptor 3	5800	0.052	0.1083	Yes
115	ELK1	ELK1 Entrez, Source	ELK1, member of ETS oncogene family	5811	0.052	0.1117	Yes
116	DUSP7	DUSP7 Entrez, Source	dual specificity phosphatase 7	5812	0.051	0.1157	Yes
117	UBA7			5857	0.050	0.1170	Yes
118	CASP2	CASP2 Entrez, Source	caspase 2, apoptosis-related cysteine peptidase (neural precursor cell expressed, developmentally down-regulated 2)	5926	0.046	0.1168	Yes
119	LY86	LY86 Entrez, Source	lymphocyte antigen 86	6014	0.043	0.1155	Yes

120	MAPK13	MAPK13 Entrez, Source	mitogen-activated protein kinase 13	6044	0.041	0.1177	Yes
121	TRAF2	TRAF2 Entrez, Source	TNF receptor-associated factor 2	6167	0.037	0.1143	Yes
122	NLRP1			6315	0.030	0.1093	Yes
123	TICAM2	TICAM2 Entrez, Source	toll-like receptor adaptor molecule 2	6415	0.026	0.1072	Yes
124	APP	APP Entrez, Source	amyloid beta (A4) precursor protein (peptidase nexin-II, Alzheimer disease)	6680	0.014	0.0951	Yes
125	PPP2CA	PPP2CA Entrez, Source	protein phosphatase 2 (formerly 2A), catalytic subunit, alpha isoform	6847	0.007	0.0890	Yes
126	MAP2K4	MAP2K4 Entrez, Source	mitogen-activated protein kinase kinase 4	6858	0.007	0.0923	Yes
127	CD180	CD180 Entrez, Source	CD180 molecule	6869	0.006	0.0957	Yes
128	TMEM189-UBE2V1			6970	0.001	0.0936	Yes
129	C8A	C8A Entrez, Source	complement component 8, alpha polypeptide	7344	0.000	0.0748	Yes
130	C8B	C8B Entrez, Source	complement component 8, beta polypeptide	7345	0.000	0.0788	Yes
131	CFI	CFI Entrez, Source	complement factor I	7405	0.000	0.0792	Yes
132	DEFB103A	DEFB103A Entrez, Source	defensin, beta 103A	7551	0.000	0.0743	Yes
133	DEFB103B	DEFB103B Entrez, Source	defensin, beta 103B	7552	0.000	0.0783	Yes
134	DEFB104A	DEFB104A Entrez, Source	defensin, beta 104A	7553	0.000	0.0823	Yes
135	DEFB104B	DEFB104B Entrez, Source	defensin, beta 104B	7554	0.000	0.0863	Yes
136	DEFB105A	DEFB105A Entrez, Source	defensin, beta 105A	7555	0.000	0.0903	Yes
137	DEFB105B	DEFB105B Entrez, Source	defensin, beta 105B	7556	0.000	0.0943	Yes

138	DEFB106A	DEFB106A Entrez, Source	defensin, beta 106A	7557	0.000	0.0983	Yes
139	DEFB106B	DEFB106B Entrez, Source	defensin, beta 106B	7558	0.000	0.1023	Yes
140	DEFB107A	DEFB107A Entrez, Source	defensin, beta 107A	7559	0.000	0.1063	Yes
141	DEFB107B	DEFB107B Entrez, Source	defensin, beta 107B	7560	0.000	0.1103	Yes
142	DEFB108B	DEFB108B Entrez, Source	defensin, beta 108B	7561	0.000	0.1143	Yes
143	DEFB110	DEFB110 Entrez, Source	defensin, beta 110	7562	0.000	0.1183	Yes
144	DEFB112	DEFB112 Entrez, Source	defensin, beta 112	7563	0.000	0.1223	Yes
145	DEFB113	DEFB113 Entrez, Source	defensin, beta 113	7564	0.000	0.1263	Yes
146	DEFB114	DEFB114 Entrez, Source	defensin, beta 114	7565	0.000	0.1303	Yes
147	DEFB115	DEFB115 Entrez, Source	defensin, beta 115	7566	0.000	0.1343	Yes
148	DEFB116	DEFB116 Entrez, Source	defensin, beta 116	7567	0.000	0.1383	Yes
149	DEFB118	DEFB118 Entrez, Source	defensin, beta 118	7568	0.000	0.1423	Yes
150	DEFB119	DEFB119 Entrez, Source	defensin, beta 119	7569	0.000	0.1463	Yes
151	DEFB121	DEFB121 Entrez, Source	defensin, beta 121	7570	0.000	0.1503	Yes
152	DEFB123	DEFB123 Entrez, Source	defensin, beta 123	7571	0.000	0.1543	Yes
153	DEFB125	DEFB125 Entrez, Source	defensin, beta 125	7572	0.000	0.1583	Yes
154	DEFB126	DEFB126 Entrez, Source	defensin, beta 126	7573	0.000	0.1623	Yes

155	DEFB127	DEFB127 Entrez, Source	defensin, beta 127	7574	0.000	0.1663	Yes
156	DEFB128	DEFB128 Entrez, Source	defensin, beta 128	7575	0.000	0.1703	Yes
157	DEFB129	DEFB129 Entrez, Source	defensin, beta 129	7576	0.000	0.1743	Yes
158	DEFB130	DEFB130 Entrez, Source	defensin, beta 130	7577	0.000	0.1783	Yes
159	DEFB131	DEFB131 Entrez, Source	defensin, beta 131	7578	0.000	0.1823	Yes
160	DEFB132			7579	0.000	0.1863	Yes
161	DEFB134	DEFB134 Entrez, Source	-	7581	0.000	0.1903	Yes
162	DEFB135			7582	0.000	0.1943	Yes
163	DEFB136	DEFB136 Entrez, Source	-	7583	0.000	0.1983	Yes
164	DEFB4A			7584	0.000	0.2023	Yes
165	DEFB4B			7585	0.000	0.2063	Yes
166	IFNA1	IFNA1 Entrez, Source	interferon, alpha 1	7906	0.000	0.1907	Yes
167	IFNA10	IFNA10 Entrez, Source	interferon, alpha 10	7907	0.000	0.1947	Yes
168	IFNA14	IFNA14 Entrez, Source	interferon, alpha 14	7909	0.000	0.1987	Yes
169	IFNA16	IFNA16 Entrez, Source	interferon, alpha 16	7910	0.000	0.2027	Yes
170	IFNA2	IFNA2 Entrez, Source	interferon, alpha 2	7911	0.000	0.2067	Yes
171	IFNA4	IFNA4 Entrez, Source	interferon, alpha 4	7912	0.000	0.2107	Yes
172	IFNA6	IFNA6 Entrez, Source	interferon, alpha 6	7913	0.000	0.2147	Yes
173	IFNA7	IFNA7 Entrez, Source	interferon, alpha 7	7914	0.000	0.2187	Yes

174	IFNA8	IFNA8 Entrez, Source	interferon, alpha 8	7915	0.000	0.2227	Yes
175	MBL2	MBL2 Entrez, Source	mannose-binding lectin (protein C) 2, soluble (opsonic defect)	8202	0.000	0.2092	No
176	SAA1	SAA1 Entrez, Source	serum amyloid A1	8920	0.000	0.1693	No
177	PIK3C3	PIK3C3 Entrez, Source	phosphoinositide-3-kinase, class 3	9570	-0.012	0.1337	No
178	IKBKE	IKBKE Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase epsilon	9575	-0.012	0.1374	No
179	AGER	AGER Entrez, Source	advanced glycosylation end product-specific receptor	9841	-0.026	0.1252	No
180	TLR6	TLR6 Entrez, Source	toll-like receptor 6	9891	-0.029	0.1262	No
181	UBE2D3	UBE2D3 Entrez, Source	ubiquitin-conjugating enzyme E2D 3 (UBC4/5 homolog, yeast)	9995	-0.034	0.1239	No
182	HSP90B1	HSP90B1 Entrez, Source	heat shock protein 90kDa beta (Grp94), member 1	10012	-0.035	0.1269	No
183	MEF2C	MEF2C Entrez, Source	MADS box transcription enhancer factor 2, polypeptide C (myocyte enhancer factor 2C)	10114	-0.039	0.1248	No
184	MAVS			10136	-0.040	0.1275	No
185	PPP2R1B	PPP2R1B Entrez, Source	protein phosphatase 2 (formerly 2A), regulatory subunit A (PR 65), beta isoform	10247	-0.046	0.1248	No
186	UBE2D2	UBE2D2 Entrez, Source	ubiquitin-conjugating enzyme E2D 2 (UBC4/5 homolog, yeast)	10340	-0.051	0.1231	No
187	CFH	CFH Entrez, Source	complement factor H	10352	-0.051	0.1265	No
188	CFD	CFD Entrez, Source	complement factor D (adipsin)	10354	-0.051	0.1304	No
189	ISG15	ISG15 Entrez, Source	ISG15 ubiquitin-like modifier	10422	-0.054	0.1303	No
190	IFIH1	IFIH1 Entrez, Source	interferon induced with helicase C domain 1	10465	-0.056	0.1317	No

191	MAPK9	MAPK9 Entrez, Source	mitogen-activated protein kinase 9	10604	-0.062	0.1273	No
192	IRAK4	IRAK4 Entrez, Source	interleukin-1 receptor-associated kinase 4	10642	-0.064	0.1290	No
193	TXN	TXN Entrez, Source	thioredoxin	10795	-0.072	0.1237	No
194	RPS6KA5	RPS6KA5 Entrez, Source	ribosomal protein S6 kinase, 90kDa, polypeptide 5	10905	-0.077	0.1211	No
195	TRAF3	TRAF3 Entrez, Source	TNF receptor-associated factor 3	11004	-0.083	0.1191	No
196	MEF2A	MEF2A Entrez, Source	MADS box transcription enhancer factor 2, polypeptide A (myocyte enhancer factor 2A)	11045	-0.085	0.1206	No
197	CREB1	CREB1 Entrez, Source	cAMP responsive element binding protein 1	11115	-0.088	0.1204	No
198	PIK3R4	PIK3R4 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 4, p150	11120	-0.088	0.1242	No
199	CTSK	CTSK Entrez, Source	cathepsin K (pycnodysostosis)	11276	-0.096	0.1187	No
200	CD46	CD46 Entrez, Source	CD46 molecule, complement regulatory protein	11287	-0.097	0.1221	No
201	CHUK	CHUK Entrez, Source	conserved helix-loop-helix ubiquitous kinase	11297	-0.097	0.1255	No
202	RPS6KA3	RPS6KA3 Entrez, Source	ribosomal protein S6 kinase, 90kDa, polypeptide 3	11380	-0.101	0.1245	No
203	CASP10	CASP10 Entrez, Source	caspase 10, apoptosis-related cysteine peptidase	11594	-0.112	0.1155	No
204	MAPK11	MAPK11 Entrez, Source	mitogen-activated protein kinase 11	11601	-0.112	0.1191	No
205	UBE2K			11621	-0.114	0.1220	No
206	MAPK8	MAPK8 Entrez, Source	mitogen-activated protein kinase 8	11676	-0.117	0.1227	No
207	ZFYVE20	ZFYVE20 Entrez, Source	zinc finger, FYVE domain containing 20	11813	-0.125	0.1184	No

208	TANK	TANK Entrez, Source	TRAF family member-associated NFKB activator	11932	-0.132	0.1151	No
209	RNF125	RNF125 Entrez, Source	ring finger protein 125	11988	-0.135	0.1158	No
210	TAB2			11989	-0.136	0.1198	No
211	TAB3			12064	-0.139	0.1193	No
212	HSP90AB1	HSP90AB1 Entrez, Source	heat shock protein 90kDa alpha (cytosolic), class B member 1	12178	-0.146	0.1163	No
213	TBK1	TBK1 Entrez, Source	TANK-binding kinase 1	12282	-0.153	0.1140	No
214	DHX58			12348	-0.157	0.1141	No
215	LGMN	LGMN Entrez, Source	legumain	12396	-0.159	0.1152	No
216	DUSP4	DUSP4 Entrez, Source	dual specificity phosphatase 4	12832	-0.185	0.0926	No
217	ATF1	ATF1 Entrez, Source	activating transcription factor 1	12836	-0.185	0.0964	No
218	CAPZA1	CAPZA1 Entrez, Source	capping protein (actin filament) muscle Z-line, alpha 1	13006	-0.197	0.0901	No
219	AIM2	AIM2 Entrez, Source	absent in melanoma 2	13109	-0.204	0.0878	No
220	UBE2N	UBE2N Entrez, Source	ubiquitin-conjugating enzyme E2N (UBC13 homolog, yeast)	13454	-0.225	0.0708	No
221	ATG12	ATG12 Entrez, Source	ATG12 autophagy related 12 homolog (S. cerevisiae)	13575	-0.234	0.0675	No
222	CCR6	CCR6 Entrez, Source	chemokine (C-C motif) receptor 6	13587	-0.235	0.0708	No
223	TAX1BP1	TAX1BP1 Entrez, Source	Tax1 (human T-cell leukemia virus type I) binding protein 1	13626	-0.237	0.0725	No
224	SIKE1			13719	-0.243	0.0709	No
225	CAPZA2	CAPZA2 Entrez, Source	capping protein (actin filament) muscle Z-line, alpha 2	13721	-0.243	0.0748	No
226	MAP3K7	MAP3K7 Entrez, Source	mitogen-activated protein kinase kinase kinase 7	13808	-0.250	0.0735	No

227	CYLD	CYLD Entrez, Source	cylindromatosis (turban tumor syndrome)	14012	-0.265	0.0651	No
228	C5	C5 Entrez, Source	complement component 5	14053	-0.268	0.0667	No
229	ATF2	ATF2 Entrez, Source	activating transcription factor 2	14094	-0.270	0.0682	No
230	ATG5	ATG5 Entrez, Source	ATG5 autophagy related 5 homolog (S. cerevisiae)	14104	-0.271	0.0717	No
231	MAP3K1	MAP3K1 Entrez, Source	mitogen-activated protein kinase kinase kinase 1	14140	-0.274	0.0735	No
232	BIRC2	BIRC2 Entrez, Source	baculoviral IAP repeat-containing 2	14301	-0.287	0.0678	No
233	PROS1	PROS1 Entrez, Source	protein S (alpha)	14494	-0.304	0.0600	No
234	S100A12	S100A12 Entrez, Source	S100 calcium binding protein A12	15068	-0.362	0.0290	No
235	EEA1	EEA1 Entrez, Source	early endosome antigen 1, 162kD	15171	-0.375	0.0268	No
236	C4A	C4A Entrez, Source	complement component 4A (Rodgers blood group)	15335	-0.399	0.0208	No
237	LY96	LY96 Entrez, Source	lymphocyte antigen 96	15348	-0.402	0.0241	No
238	TLR10	TLR10 Entrez, Source	toll-like receptor 10	15632	-0.455	0.0108	No
239	HMGB1	HMGB1 Entrez, Source	high-mobility group box 1	15709	-0.473	0.0101	No
240	C1S	C1S Entrez, Source	complement component 1, s subcomponent	15778	-0.491	0.0100	No
241	BIRC3	BIRC3 Entrez, Source	baculoviral IAP repeat-containing 3	16003	-0.570	0.0003	No
242	S100B	S100B Entrez, Source	S100 calcium binding protein B	16012	-0.574	0.0038	No
243	CDK1			16162	-0.651	-0.0013	No

244	BCL2	BCL2 Entrez, Source	B-cell CLL/lymphoma 2	16306	-0.763	-0.0061	No
245	DEFA5	DEFA5 Entrez, Source	defensin, alpha 5, Paneth cell-specific	16350	-0.817	-0.0047	No
246	RPS27A	RPS27A Entrez, Source	ribosomal protein S27a	16409	-0.913	-0.0043	No
247	C4BPB	C4BPB Entrez, Source	complement component 4 binding protein, beta	16453	-1.009	-0.0029	No
248	DEFA3	DEFA3 Entrez, Source	defensin, alpha 3, neutrophil-specific	16553	-1.494	-0.0049	No
249	DEFA4	DEFA4 Entrez, Source	defensin, alpha 4, corticostatin	16563	-1.588	-0.0015	No
250	DEFA1B			16592	-2.342	0.0008	No

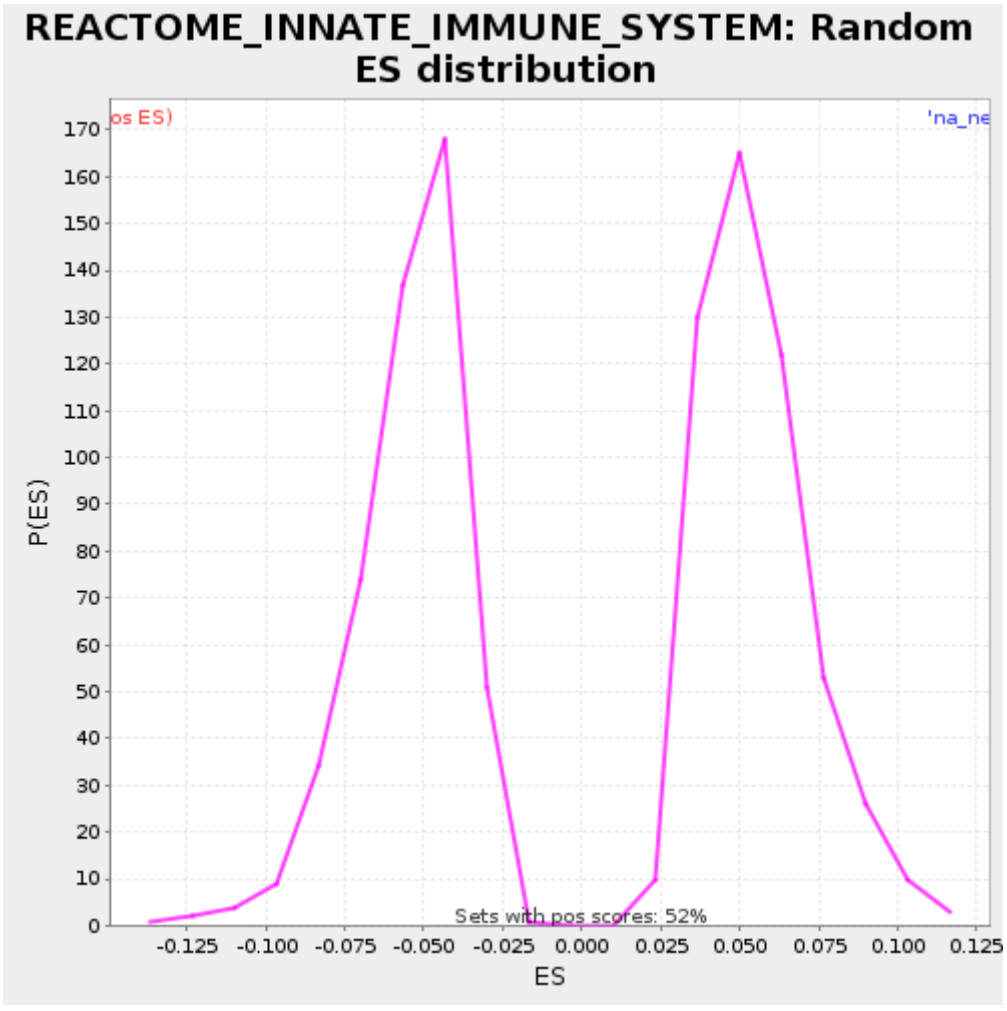

Fig 2: REACTOME_INNATE_IMMUNE_SYSTEM: Random ES distribution
Gene set null distribution of ES for REACTOME_INNATE_IMMUNE_SYSTEM

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	KEGG_ENDOCYTOSIS
Enrichment Score (ES)	0.27330062
Normalized Enrichment Score (NES)	3.9454603
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

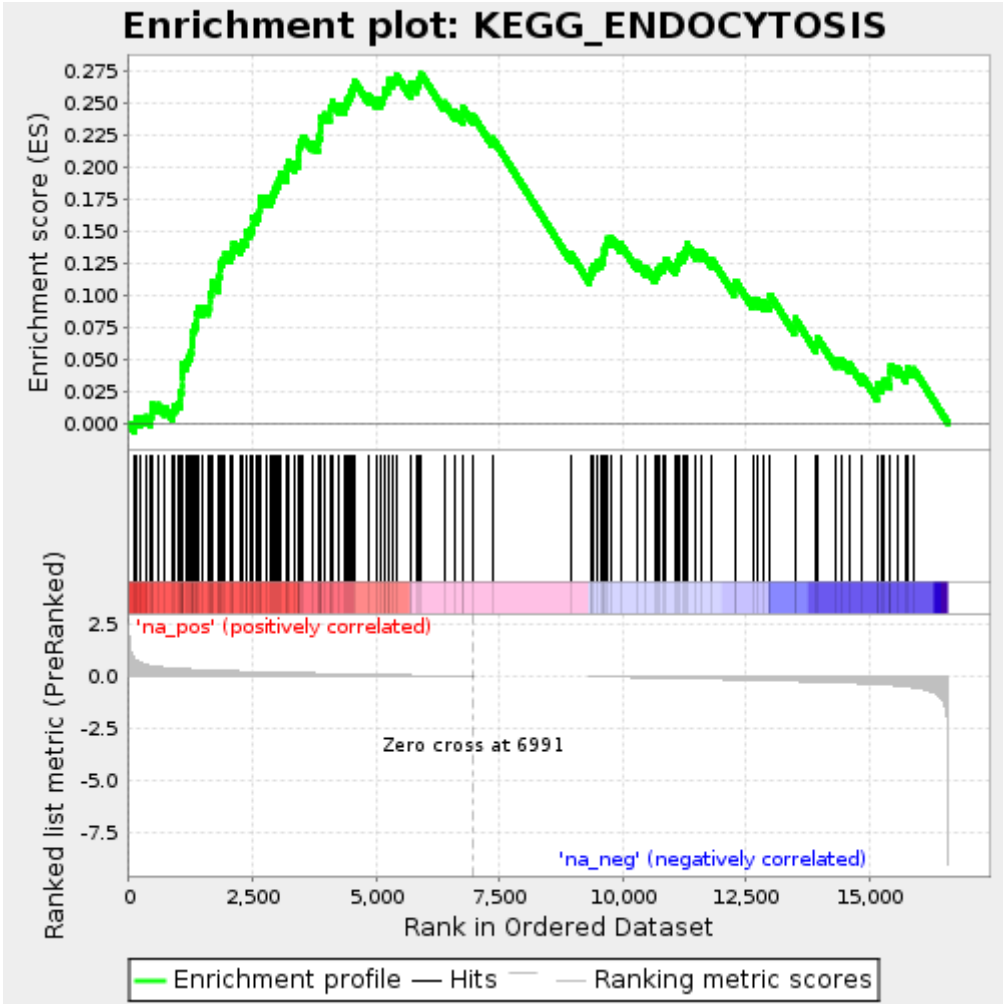

Fig 1: Enrichment plot: KEGG_ENDOCYTOSIS
Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE	GENE_TITLE	RANK	RANK	RUNNING	CORE

		SYMBOL		IN GENE LIST	METRIC SCORE	ES	ENRICHMENT
1	FGFR2	FGFR2 Entrez, Source	ffer syndrome, Jackson-Weiss syndrome)	112	0.871	-0.0006	Yes
2	HLA-G	HLA-G Entrez, Source	HLA-G histocompatibility antigen, class I, G	125	0.822	0.0049	Yes
3	AGAP1			244	0.663	0.0039	Yes
4	CSF1R	CSF1R Entrez, Source	colony stimulating factor 1 receptor, formerly McDonough feline sarcoma viral (v-fms) oncogene homolog	327	0.589	0.0051	Yes
5	IQSEC2	IQSEC2 Entrez, Source	IQ motif and Sec7 domain 2	445	0.521	0.0042	Yes
6	F2R	F2R Entrez, Source	coagulation factor II (thrombin) receptor	453	0.518	0.0100	Yes
7	HSPA1A	HSPA1A Entrez, Source	heat shock 70kDa protein 1A	473	0.509	0.0151	Yes
8	CXCR1			584	0.467	0.0146	Yes
9	HLA-C	HLA-C Entrez, Source	major histocompatibility complex, class I, C	720	0.433	0.0126	Yes
10	CHMP2A	CHMP2A Entrez, Source	chromatin modifying protein 2A	893	0.393	0.0084	Yes
11	SRC	SRC Entrez, Source	v-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)	900	0.392	0.0142	Yes
12	ASAP3			977	0.382	0.0158	Yes
13	CXCR2			1035	0.372	0.0185	Yes
14	RAB11FIP5	RAB11FIP5 Entrez, Source	RAB11 family interacting protein 5 (class I)	1040	0.372	0.0245	Yes
15	HLA-A	HLA-A Entrez, Source	major histocompatibility complex, class I, A	1061	0.368	0.0295	Yes
16	EPN1	EPN1 Entrez, Source	epsin 1	1064	0.368	0.0356	Yes
17	HLA-B	HLA-B Entrez, Source	major histocompatibility complex, class I, B	1070	0.367	0.0415	Yes

18	PARD6G	PARD6G Entrez, Source	par-6 partitioning defective 6 homolog gamma (C. elegans)	1088	0.364	0.0467	Yes
19	AP2S1	AP2S1 Entrez, Source	adaptor-related protein complex 2, sigma 1 subunit	1160	0.354	0.0486	Yes
20	IL2RB	IL2RB Entrez, Source	interleukin 2 receptor, beta	1205	0.348	0.0521	Yes
21	AP2A1	AP2A1 Entrez, Source	adaptor-related protein complex 2, alpha 1 subunit	1250	0.340	0.0556	Yes
22	ARRB2	ARRB2 Entrez, Source	arrestin, beta 2	1265	0.338	0.0610	Yes
23	RAB5C	RAB5C Entrez, Source	RAB5C, member RAS oncogene family	1280	0.336	0.0664	Yes
24	ADRB2	ADRB2 Entrez, Source	adrenergic, beta-2-, receptor, surface	1295	0.334	0.0717	Yes
25	LDLR	LDLR Entrez, Source	low density lipoprotein receptor (familial hypercholesterolemia)	1311	0.333	0.0770	Yes
26	GRK4	GRK4 Entrez, Source	G protein-coupled receptor kinase 4	1363	0.327	0.0801	Yes
27	CHMP6	CHMP6 Entrez, Source	chromatin modifying protein 6	1368	0.327	0.0861	Yes
28	ARAP1			1389	0.325	0.0911	Yes
29	PIP5K1C	PIP5K1C Entrez, Source	phosphatidylinositol-4-phosphate 5-kinase, type I, gamma	1498	0.314	0.0907	Yes
30	EHD1	EHD1 Entrez, Source	EH-domain containing 1	1594	0.305	0.0912	Yes
31	IQSEC1	IQSEC1 Entrez, Source	IQ motif and Sec7 domain 1	1628	0.300	0.0954	Yes
32	VPS37B	VPS37B Entrez, Source	vacuolar protein sorting 37 homolog B (S. cerevisiae)	1631	0.300	0.1015	Yes
33	HLA-F	HLA-F Entrez, Source	major histocompatibility complex, class I, F	1670	0.296	0.1054	Yes
34	PARD3	PARD3 Entrez, Source	par-3 partitioning defective 3 homolog (C. elegans)	1688	0.294	0.1105	Yes

35	RAB11B	RAB11B Entrez, Source	RAB11B, member RAS oncogene family	1808	0.282	0.1095	Yes
36	HLA-E	HLA-E Entrez, Source	major histocompatibility complex, class I, E	1823	0.281	0.1149	Yes
37	AP2M1	AP2M1 Entrez, Source	adaptor-related protein complex 2, mu 1 subunit	1836	0.280	0.1204	Yes
38	VPS37C	VPS37C Entrez, Source	vacuolar protein sorting 37 homolog C (S. cerevisiae)	1850	0.279	0.1258	Yes
39	SH3GL1	SH3GL1 Entrez, Source	SH3-domain GRB2-like 1	1902	0.275	0.1289	Yes
40	ARAP3			1949	0.270	0.1323	Yes
41	ARRB1	ARRB1 Entrez, Source	arrestin, beta 1	2052	0.261	0.1323	Yes
42	DAB2	DAB2 Entrez, Source	disabled homolog 2, mitogen-responsive phosphoprotein (Drosophila)	2089	0.257	0.1363	Yes
43	DNM2	DNM2 Entrez, Source	dynamin 2	2112	0.256	0.1412	Yes
44	ADRBK1	ADRBK1 Entrez, Source	adrenergic, beta, receptor kinase 1	2259	0.244	0.1385	Yes
45	PLD2	PLD2 Entrez, Source	phospholipase D2	2299	0.241	0.1424	Yes
46	GRK6	GRK6 Entrez, Source	G protein-coupled receptor kinase 6	2366	0.236	0.1446	Yes
47	CCR5	CCR5 Entrez, Source	chemokine (C-C motif) receptor 5	2369	0.236	0.1507	Yes
48	VPS28	VPS28 Entrez, Source	vacuolar protein sorting 28 homolog (S. cerevisiae)	2447	0.231	0.1522	Yes
49	GIT1	GIT1 Entrez, Source	G protein-coupled receptor kinase interactor 1	2498	0.227	0.1554	Yes
50	SH3KBP1	SH3KBP1 Entrez, Source	SH3-domain kinase binding protein 1	2502	0.227	0.1614	Yes
51	CHMP4B	CHMP4B Entrez, Source	chromatin modifying protein 4B	2592	0.221	0.1622	Yes

52	RAB5B	RAB5B Entrez, Source	RAB5B, member RAS oncogene family	2641	0.218	0.1655	Yes
53	DNM1	DNM1 Entrez, Source	dynamin 1	2645	0.218	0.1715	Yes
54	CLTB	CLTB Entrez, Source	clathrin, light chain (Lcb)	2661	0.217	0.1768	Yes
55	RAB11FIP1	RAB11FIP1 Entrez, Source	RAB11 family interacting protein 1 (class I)	2765	0.208	0.1768	Yes
56	AGAP2			2875	0.202	0.1763	Yes
57	ACAP1			2924	0.198	0.1796	Yes
58	ARF6	ARF6 Entrez, Source	ADP-ribosylation factor 6	2958	0.196	0.1838	Yes
59	HGS	HGS Entrez, Source	hepatocyte growth factor-regulated tyrosine kinase substrate	3006	0.193	0.1872	Yes
60	ASAP1			3046	0.191	0.1910	Yes
61	PRKCZ	PRKCZ Entrez, Source	protein kinase C, zeta	3069	0.189	0.1959	Yes
62	RAB31	RAB31 Entrez, Source	RAB31, member RAS oncogene family	3187	0.182	0.1950	Yes
63	HSPA2	HSPA2 Entrez, Source	heat shock 70kDa protein 2	3205	0.181	0.2002	Yes
64	GRK5	GRK5 Entrez, Source	G protein-coupled receptor kinase 5	3233	0.180	0.2048	Yes
65	TSG101	TSG101 Entrez, Source	tumor susceptibility gene 101	3360	0.173	0.2033	Yes
66	EPN2	EPN2 Entrez, Source	epsin 2	3422	0.170	0.2058	Yes
67	HRAS	HRAS Entrez, Source	v-Ha-ras Harvey rat sarcoma viral oncogene homolog	3429	0.170	0.2116	Yes
68	SMAP2			3452	0.168	0.2165	Yes
69	PIP5K1B	PIP5K1B Entrez, Source	phosphatidylinositol-4-phosphate 5-kinase, type I, beta	3477	0.167	0.2213	Yes
70	CLTA	CLTA Entrez, Source	clathrin, light chain (Lca)	3531	0.164	0.2243	Yes

71	SNF8	SNF8 Entrez, Source	SNF8, ESCRT-II complex subunit, homolog (S. cerevisiae)	3709	0.154	0.2197	Yes
72	SMURF1	SMURF1 Entrez, Source	SMAD specific E3 ubiquitin protein ligase 1	3828	0.148	0.2187	Yes
73	SH3GLB1	SH3GLB1 Entrez, Source	SH3-domain GRB2-like endophilin B1	3835	0.147	0.2246	Yes
74	PARD6A	PARD6A Entrez, Source	par-6 partitioning defective 6 homolog alpha (C.elegans)	3880	0.145	0.2281	Yes
75	CBL	CBL Entrez, Source	Cas-Br-M (murine) ecotropic retroviral transforming sequence	3887	0.145	0.2340	Yes
76	GIT2	GIT2 Entrez, Source	G protein-coupled receptor kinase interactor 2	3894	0.144	0.2398	Yes
77	EHD4	EHD4 Entrez, Source	EH-domain containing 4	3964	0.141	0.2418	Yes
78	ARFGAP2			4069	0.136	0.2417	Yes
79	ARFGAP3	ARFGAP3 Entrez, Source	ADP-ribosylation factor GTPase activating protein 3	4070	0.136	0.2479	Yes
80	NEDD4L	NEDD4L Entrez, Source	neural precursor cell expressed, developmentally down-regulated 4-like	4110	0.134	0.2518	Yes
81	CLTCL1	CLTCL1 Entrez, Source	clathrin, heavy chain-like 1	4263	0.125	0.2487	Yes
82	TRAF6	TRAF6 Entrez, Source	TNF receptor-associated factor 6	4370	0.119	0.2485	Yes
83	HSPA6	HSPA6 Entrez, Source	heat shock 70kDa protein 6 (HSP70B')	4400	0.118	0.2530	Yes
84	RAB11FIP3	RAB11FIP3 Entrez, Source	RAB11 family interacting protein 3 (class II)	4456	0.115	0.2558	Yes
85	IL2RG	IL2RG Entrez, Source	interleukin 2 receptor, gamma (severe combined immunodeficiency)	4493	0.113	0.2598	Yes
86	RAB11FIP4	RAB11FIP4 Entrez, Source	RAB11 family interacting protein 4 (class II)	4538	0.111	0.2634	Yes
87	ARFGAP1	ARFGAP1 Entrez, Source	ADP-ribosylation factor GTPase activating protein 1	4574	0.109	0.2675	Yes

88	AP2B1	AP2B1 Entrez, Source	adaptor-related protein complex 2, beta 1 subunit	4858	0.095	0.2565	Yes
89	RUFY1	RUFY1 Entrez, Source	RUN and FYVE domain containing 1	5017	0.088	0.2531	Yes
90	CLTC	CLTC Entrez, Source	clathrin, heavy chain (Hc)	5107	0.084	0.2539	Yes
91	RNF41	RNF41 Entrez, Source	ring finger protein 41	5163	0.081	0.2567	Yes
92	SH3GLB2	SH3GLB2 Entrez, Source	SH3-domain GRB2-like endophilin B2	5183	0.080	0.2618	Yes
93	EGF	EGF Entrez, Source	epidermal growth factor (beta-urogastrone)	5247	0.077	0.2642	Yes
94	CBLB	CBLB Entrez, Source	Cas-Br-M (murine) ecotropic retroviral transforming sequence b	5277	0.076	0.2686	Yes
95	HSPA1L	HSPA1L Entrez, Source	heat shock 70kDa protein 1-like	5363	0.072	0.2697	Yes
96	PSD4	PSD4 Entrez, Source	pleckstrin and Sec7 domain containing 4	5424	0.070	0.2722	Yes
97	ARAP2			5713	0.055	0.2609	Yes
98	PLD1	PLD1 Entrez, Source	phospholipase D1, phosphatidylcholine-specific	5720	0.055	0.2668	Yes
99	AP2A2	AP2A2 Entrez, Source	adaptor-related protein complex 2, alpha 2 subunit	5852	0.050	0.2650	Yes
100	VPS4A	VPS4A Entrez, Source	vacuolar protein sorting 4 homolog A (S. cerevisiae)	5878	0.049	0.2697	Yes
101	ACAP3			5922	0.047	0.2733	Yes
102	CDC42	CDC42 Entrez, Source	cell division cycle 42 (GTP binding protein, 25kDa)	6388	0.027	0.2512	No
103	RAB11A	RAB11A Entrez, Source	RAB11A, member RAS oncogene family	6608	0.017	0.2441	No
104	CHMP4A	CHMP4A Entrez, Source	chromatin modifying protein 4A	6766	0.011	0.2408	No
105	SMAP1	SMAP1 Entrez, Source	stromal membrane-associated protein 1	6768	0.010	0.2469	No

106	ITCH	ITCH Entrez, Source	itchy homolog E3 ubiquitin protein ligase (mouse)	6977	0.001	0.2405	No
107	CBLC	CBLC Entrez, Source	Cas-Br-M (murine) ecotropic retroviral transforming sequence c	7367	0.000	0.2231	No
108	SH3GL2	SH3GL2 Entrez, Source	SH3-domain GRB2-like 2	8952	0.000	0.1330	No
109	ADRBK2	ADRBK2 Entrez, Source	adrenergic, beta, receptor kinase 2	9349	-0.002	0.1151	No
110	CXCR4	CXCR4 Entrez, Source	chemokine (C-X-C motif) receptor 4	9373	-0.003	0.1199	No
111	STAMBP	STAMBP Entrez, Source	STAM binding protein	9413	-0.004	0.1237	No
112	CHMP2B	CHMP2B Entrez, Source	chromatin modifying protein 2B	9476	-0.007	0.1262	No
113	RAB5A	RAB5A Entrez, Source	RAB5A, member RAS oncogene family	9558	-0.012	0.1275	No
114	PIP5K1A	PIP5K1A Entrez, Source	phosphatidylinositol-4-phosphate 5-kinase, type I, alpha	9610	-0.015	0.1306	No
115	EPS15	EPS15 Entrez, Source	epidermal growth factor receptor pathway substrate 15	9630	-0.015	0.1356	No
116	VPS25	VPS25 Entrez, Source	vacuolar protein sorting 25 homolog (S. cerevisiae)	9669	-0.018	0.1395	No
117	VPS45			9689	-0.019	0.1446	No
118	VPS37D	VPS37D Entrez, Source	vacuolar protein sorting 37 homolog D (S. cerevisiae)	9786	-0.024	0.1450	No
119	VPS4B	VPS4B Entrez, Source	vacuolar protein sorting 4 homolog B (S. cerevisiae)	9960	-0.033	0.1407	No
120	CHMP1B	CHMP1B Entrez, Source	chromatin modifying protein 1B	10306	-0.049	0.1259	No
121	STAM2	STAM2 Entrez, Source	signal transducing adaptor molecule (SH3 domain and ITAM motif) 2	10472	-0.056	0.1221	No
122	EHD3	EHD3 Entrez, Source	EH-domain containing 3	10661	-0.065	0.1168	No

123	SMURF2	SMURF2 Entrez, Source	SMAD specific E3 ubiquitin protein ligase 2	10706	-0.067	0.1204	No
124	PIP4K2B			10770	-0.071	0.1228	No
125	HSPA8	HSPA8 Entrez, Source	heat shock 70kDa protein 8	10850	-0.075	0.1242	No
126	USP8	USP8 Entrez, Source	ubiquitin specific peptidase 8	10883	-0.076	0.1284	No
127	CHMP3			11075	-0.086	0.1230	No
128	VTA1			11119	-0.088	0.1266	No
129	RAB22A	RAB22A Entrez, Source	RAB22A, member RAS oncogene family	11149	-0.089	0.1311	No
130	STAM	STAM Entrez, Source	signal transducing adaptor molecule (SH3 domain and ITAM motif) 1	11228	-0.094	0.1325	No
131	ASAP2			11271	-0.096	0.1362	No
132	TFRC	TFRC Entrez, Source	transferrin receptor (p90, CD71)	11301	-0.098	0.1406	No
133	ACAP2			11500	-0.108	0.1348	No
134	PDCD6IP	PDCD6IP Entrez, Source	programmed cell death 6 interacting protein	11605	-0.113	0.1347	No
135	ZFYVE20	ZFYVE20 Entrez, Source	zinc finger, FYVE domain containing 20	11813	-0.125	0.1283	No
136	IGF1R	IGF1R Entrez, Source	insulin-like growth factor 1 receptor	12276	-0.153	0.1064	No
137	VPS37A	VPS37A Entrez, Source	vacuolar protein sorting 37 homolog A (S. cerevisiae)	12298	-0.154	0.1114	No
138	NEDD4	NEDD4 Entrez, Source	neural precursor cell expressed, developmentally down-regulated 4	12641	-0.174	0.0968	No
139	DNM1L	DNM1L Entrez, Source	dynamin 1-like	12738	-0.179	0.0972	No
140	MDM2	MDM2 Entrez, Source	Mdm2, transformed 3T3 cell double minute 2, p53 binding protein (mouse)	12873	-0.188	0.0952	No
141	HSPA1B	HSPA1B Entrez, Source	heat shock 70kDa protein 1B	12990	-0.196	0.0944	No
142	RABEP1	RABEP1 Entrez, Source	rabaptin, RAB GTPase binding effector protein 1	12996	-0.196	0.1003	No

143	PIKFYVE			13496	-0.228	0.0762	No
144	RAB4A	RAB4A Entrez, Source	RAB4A, member RAS oncogene family	13500	-0.228	0.0822	No
145	FLT1	FLT1 Entrez, Source	fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)	13931	-0.259	0.0623	No
146	PRKCI	PRKCI Entrez, Source	protein kinase C, iota	13949	-0.260	0.0674	No
147	DNM3	DNM3 Entrez, Source	dynamin 3	14335	-0.290	0.0502	No
148	VPS36	VPS36 Entrez, Source	vacuolar protein sorting 36 (yeast)	14437	-0.298	0.0503	No
149	IL2RA	IL2RA Entrez, Source	interleukin 2 receptor, alpha	14596	-0.313	0.0469	No
150	CHMP5	CHMP5 Entrez, Source	chromatin modifying protein 5	14860	-0.340	0.0371	No
151	DNAJC6	DNAJC6 Entrez, Source	DnaJ (Hsp40) homolog, subfamily C, member 6	15164	-0.374	0.0249	No
152	EEA1	EEA1 Entrez, Source	early endosome antigen 1, 162kD	15171	-0.375	0.0308	No
153	KIT	KIT Entrez, Source	v-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog	15276	-0.389	0.0306	No
154	PARD6B	PARD6B Entrez, Source	par-6 partitioning defective 6 homolog beta (C. elegans)	15318	-0.398	0.0344	No
155	NTRK1	NTRK1 Entrez, Source	neurotrophic tyrosine kinase, receptor, type 1	15422	-0.414	0.0343	No
156	WWP1	WWP1 Entrez, Source	WW domain containing E3 ubiquitin protein ligase 1	15423	-0.414	0.0405	No
157	RAB11FIP2	RAB11FIP2 Entrez, Source	RAB11 family interacting protein 2 (class I)	15441	-0.417	0.0457	No
158	LDLRAP1	LDLRAP1 Entrez, Source	low density lipoprotein receptor adaptor protein 1	15583	-0.444	0.0433	No
159	PSD	PSD Entrez, Source	pleckstrin and Sec7 domain containing	15762	-0.486	0.0387	No

160	ADRB1	ADRB1 Entrez, Source	adrenergic, beta-1-, receptor	15782	-0.493	0.0438	No
161	FGFR4	FGFR4 Entrez, Source	fibroblast growth factor receptor 4	15903	-0.529	0.0427	No

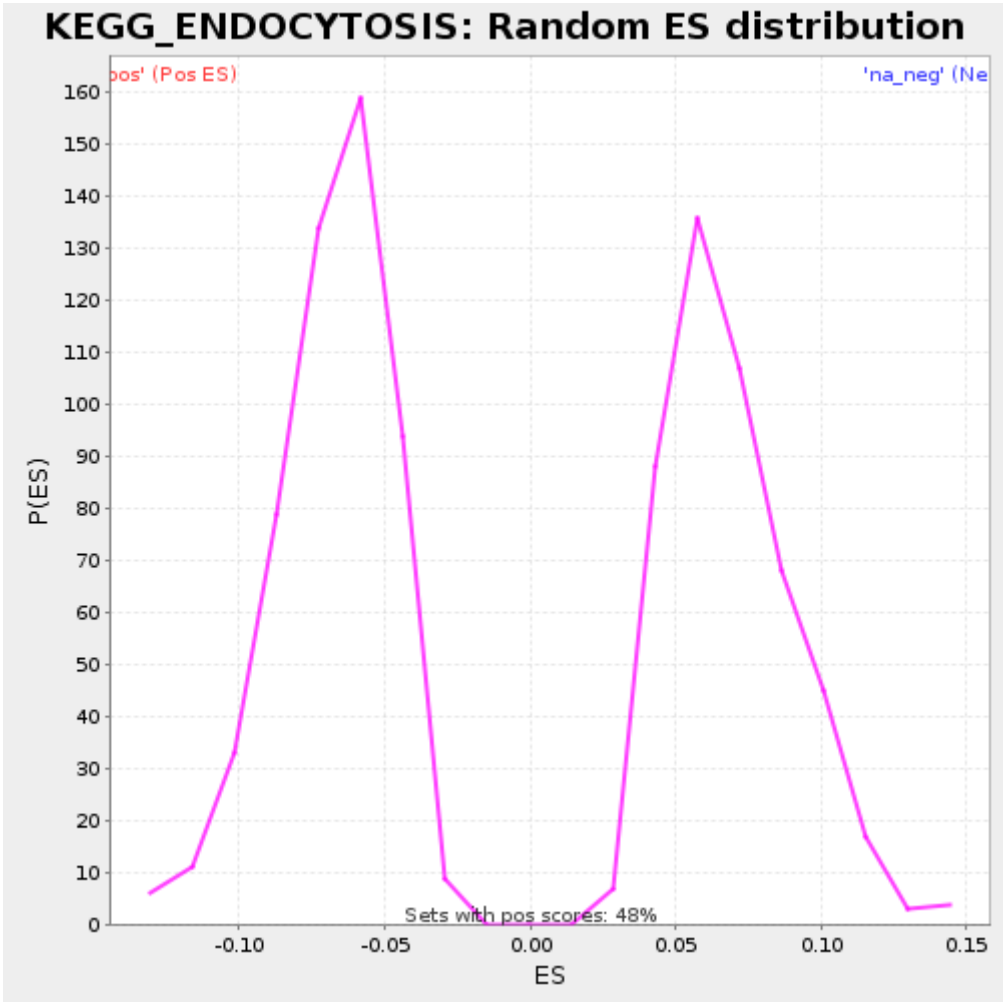

Fig 2: KEGG_ENDOCYTOSIS: Random ES distribution
Gene set null distribution of ES for KEGG_ENDOCYTOSIS

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY
Enrichment Score (ES)	0.29090896
Normalized Enrichment Score (NES)	3.3466032
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

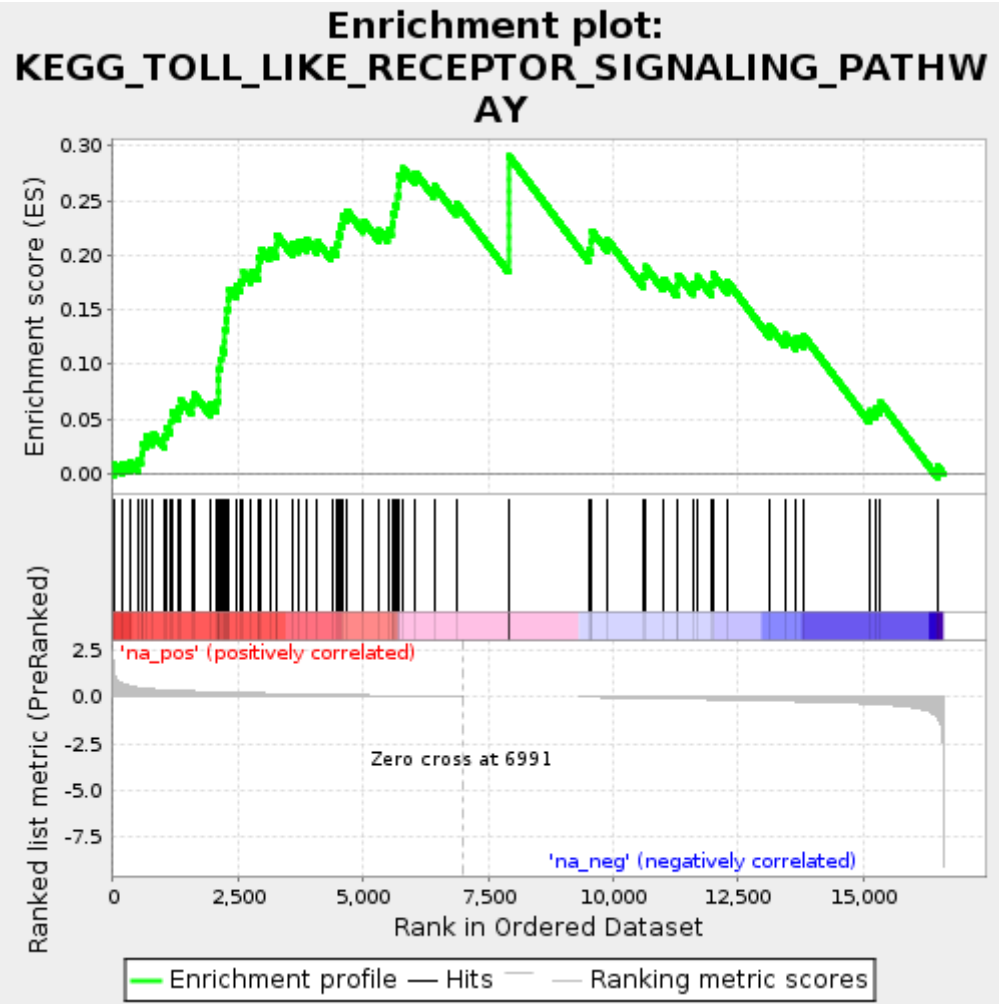

Fig 1: Enrichment plot: KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE	GENE_TITLE	RANK	RANK	RUNNING	CORE

		SYMBOL		IN GENE LIST	METRIC SCORE	ES	ENRICHMENT
1	SPP1	SPP1 Entrez, Source	secreted phosphoprotein 1 (osteopontin, bone sialoprotein I, early T-lymphocyte activation 1)	23	1.289	0.0092	Yes
2	CCL5	CCL5 Entrez, Source	chemokine (C-C motif) ligand 5	186	0.730	0.0101	Yes
3	CCL4	CCL4 Entrez, Source	chemokine (C-C motif) ligand 4	334	0.581	0.0118	Yes
4	PIK3R3	PIK3R3 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 3 (p55, gamma)	500	0.499	0.0125	Yes
5	CD14	CD14 Entrez, Source	CD14 molecule	565	0.473	0.0192	Yes
6	CXCL9	CXCL9 Entrez, Source	chemokine (C-X-C motif) ligand 9	594	0.464	0.0282	Yes
7	CCL3	CCL3 Entrez, Source	chemokine (C-C motif) ligand 3	664	0.444	0.0346	Yes
8	FOS	FOS Entrez, Source	v-fos FBJ murine osteosarcoma viral oncogene homolog	800	0.411	0.0371	Yes
9	PIK3R2	PIK3R2 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 2 (p85 beta)	1023	0.375	0.0343	Yes
10	MAP2K3	MAP2K3 Entrez, Source	mitogen-activated protein kinase kinase 3	1060	0.369	0.0427	Yes
11	IKBKG	IKBKG Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase gamma	1161	0.354	0.0473	Yes
12	MYD88	MYD88 Entrez, Source	myeloid differentiation primary response gene (88)	1168	0.353	0.0576	Yes
13	MAPK3	MAPK3 Entrez, Source	mitogen-activated protein kinase 3	1303	0.334	0.0601	Yes
14	IRF5	IRF5 Entrez, Source	interferon regulatory factor 5	1356	0.328	0.0676	Yes
15	NFKBIA	NFKBIA Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, alpha	1569	0.308	0.0654	Yes
16	IL1B	IL1B Entrez, Source	interleukin 1, beta	1606	0.303	0.0739	Yes

17	TICAM1	TICAM1 Entrez, Source	toll-like receptor adaptor molecule 1	1942	0.271	0.0642	Yes
18	PIK3CG	PIK3CG Entrez, Source	phosphoinositide-3-kinase, catalytic, gamma polypeptide	2078	0.258	0.0667	Yes
19	TLR5	TLR5 Entrez, Source	toll-like receptor 5	2105	0.256	0.0757	Yes
20	TOLLIP	TOLLIP Entrez, Source	toll interacting protein	2109	0.256	0.0862	Yes
21	MAP2K2	MAP2K2 Entrez, Source	mitogen-activated protein kinase kinase 2	2119	0.256	0.0963	Yes
22	IRAK1	IRAK1 Entrez, Source	interleukin-1 receptor-associated kinase 1	2148	0.253	0.1052	Yes
23	MAPK12	MAPK12 Entrez, Source	mitogen-activated protein kinase 12	2168	0.252	0.1147	Yes
24	TLR4	TLR4 Entrez, Source	toll-like receptor 4	2237	0.246	0.1212	Yes
25	RELA	RELA Entrez, Source	v-rel reticuloendotheliosis viral oncogene homolog A, nuclear factor of kappa light polypeptide gene enhancer in B-cells 3, p65 (avian)	2240	0.246	0.1318	Yes
26	JUN	JUN Entrez, Source	jun oncogene	2253	0.245	0.1417	Yes
27	CD86	CD86 Entrez, Source	CD86 molecule	2281	0.243	0.1507	Yes
28	IRF7	IRF7 Entrez, Source	interferon regulatory factor 7	2303	0.241	0.1600	Yes
29	MAPK14	MAPK14 Entrez, Source	mitogen-activated protein kinase 14	2321	0.239	0.1696	Yes
30	PIK3R5	PIK3R5 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 5, p101	2452	0.230	0.1724	Yes
31	AKT1	AKT1 Entrez, Source	v-akt murine thymoma viral oncogene homolog 1	2555	0.223	0.1769	Yes
32	MAP2K7	MAP2K7 Entrez, Source	mitogen-activated protein kinase kinase 7	2604	0.220	0.1846	Yes

33	PIK3CD	PIK3CD Entrez, Source	phosphoinositide-3-kinase, catalytic, delta polypeptide	2766	0.208	0.1855	Yes
34	RIPK1	RIPK1 Entrez, Source	receptor (TNFRSF)-interacting serine-threonine kinase 1	2897	0.200	0.1883	Yes
35	TLR1	TLR1 Entrez, Source	toll-like receptor 1	2913	0.199	0.1980	Yes
36	TLR9	TLR9 Entrez, Source	toll-like receptor 9	2963	0.196	0.2057	Yes
37	RAC1	RAC1 Entrez, Source	ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1)	3131	0.185	0.2062	Yes
38	TNF	TNF Entrez, Source	tumor necrosis factor (TNF superfamily, member 2)	3266	0.178	0.2087	Yes
39	IFNAR1	IFNAR1 Entrez, Source	interferon (alpha, beta and omega) receptor 1	3272	0.177	0.2190	Yes
40	STAT1	STAT1 Entrez, Source	signal transducer and activator of transcription 1, 91kDa	3584	0.161	0.2108	Yes
41	TLR8	TLR8 Entrez, Source	toll-like receptor 8	3722	0.153	0.2132	Yes
42	AKT2	AKT2 Entrez, Source	v-akt murine thymoma viral oncogene homolog 2	3872	0.146	0.2148	Yes
43	MAPK1	MAPK1 Entrez, Source	mitogen-activated protein kinase 1	4088	0.135	0.2124	Yes
44	TRAF6	TRAF6 Entrez, Source	TNF receptor-associated factor 6	4370	0.119	0.2060	Yes
45	TIRAP	TIRAP Entrez, Source	toll-interleukin 1 receptor (TIR) domain containing adaptor protein	4478	0.114	0.2102	Yes
46	FADD	FADD Entrez, Source	Fas (TNFRSF6)-associated via death domain	4496	0.113	0.2198	Yes
47	CASP8	CASP8 Entrez, Source	caspase 8, apoptosis-related cysteine peptidase	4542	0.110	0.2277	Yes
48	TLR7	TLR7 Entrez, Source	toll-like receptor 7	4580	0.109	0.2361	Yes
49	MAP2K1	MAP2K1 Entrez, Source	mitogen-activated protein kinase kinase 1	4676	0.104	0.2410	Yes

50	MAP3K8	MAP3K8 Entrez, Source	mitogen-activated protein kinase kinase kinase 8	5008	0.088	0.2316	Yes
51	IKBKB	IKBKB Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta	5326	0.074	0.2230	Yes
52	TLR2	TLR2 Entrez, Source	toll-like receptor 2	5493	0.067	0.2236	Yes
53	NFKB1	NFKB1 Entrez, Source	nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (p105)	5575	0.062	0.2293	Yes
54	PIK3CB	PIK3CB Entrez, Source	phosphoinositide-3-kinase, catalytic, beta polypeptide	5597	0.062	0.2387	Yes
55	TAB1			5643	0.059	0.2466	Yes
56	IFNAR2	IFNAR2 Entrez, Source	interferon (alpha, beta and omega) receptor 2	5692	0.056	0.2544	Yes
57	IRF3	IRF3 Entrez, Source	interferon regulatory factor 3	5701	0.056	0.2645	Yes
58	MAP2K6	MAP2K6 Entrez, Source	mitogen-activated protein kinase kinase 6	5718	0.055	0.2742	Yes
59	TLR3	TLR3 Entrez, Source	toll-like receptor 3	5800	0.052	0.2799	Yes
60	MAPK13	MAPK13 Entrez, Source	mitogen-activated protein kinase 13	6044	0.041	0.2758	Yes
61	TICAM2	TICAM2 Entrez, Source	toll-like receptor adaptor molecule 2	6415	0.026	0.2641	Yes
62	MAP2K4	MAP2K4 Entrez, Source	mitogen-activated protein kinase kinase 4	6858	0.007	0.2479	Yes
63	IFNA1	IFNA1 Entrez, Source	interferon, alpha 1	7906	0.000	0.1952	Yes
64	IFNA10	IFNA10 Entrez, Source	interferon, alpha 10	7907	0.000	0.2058	Yes
65	IFNA13	IFNA13 Entrez, Source	interferon, alpha 13	7908	0.000	0.2164	Yes
66	IFNA14	IFNA14 Entrez, Source	interferon, alpha 14	7909	0.000	0.2271	Yes

67	IFNA16	IFNA16 Entrez, Source	interferon, alpha 16	7910	0.000	0.2377	Yes
68	IFNA2	IFNA2 Entrez, Source	interferon, alpha 2	7911	0.000	0.2484	Yes
69	IFNA4	IFNA4 Entrez, Source	interferon, alpha 4	7912	0.000	0.2590	Yes
70	IFNA6	IFNA6 Entrez, Source	interferon, alpha 6	7913	0.000	0.2696	Yes
71	IFNA7	IFNA7 Entrez, Source	interferon, alpha 7	7914	0.000	0.2803	Yes
72	IFNA8	IFNA8 Entrez, Source	interferon, alpha 8	7915	0.000	0.2909	Yes
73	CD80	CD80 Entrez, Source	CD80 molecule	9507	-0.009	0.2052	No
74	IL12A	IL12A Entrez, Source	interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35)	9567	-0.012	0.2123	No
75	IKBKE	IKBKE Entrez, Source	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase epsilon	9575	-0.012	0.2225	No
76	TLR6	TLR6 Entrez, Source	toll-like receptor 6	9891	-0.029	0.2140	No
77	MAPK9	MAPK9 Entrez, Source	mitogen-activated protein kinase 9	10604	-0.062	0.1816	No
78	IRAK4	IRAK4 Entrez, Source	interleukin-1 receptor-associated kinase 4	10642	-0.064	0.1899	No
79	TRAF3	TRAF3 Entrez, Source	TNF receptor-associated factor 3	11004	-0.083	0.1787	No
80	CTSK	CTSK Entrez, Source	cathepsin K (pycnodysostosis)	11276	-0.096	0.1730	No
81	CHUK	CHUK Entrez, Source	conserved helix-loop-helix ubiquitous kinase	11297	-0.097	0.1824	No
82	MAPK11	MAPK11 Entrez, Source	mitogen-activated protein kinase 11	11601	-0.112	0.1747	No
83	MAPK8	MAPK8 Entrez,	mitogen-activated protein kinase 8	11676	-0.117	0.1808	No

		Source					
84	CD40	CD40 Entrez, Source	CD40 molecule, TNF receptor superfamily member 5	11967	-0.134	0.1739	No
85	TAB2			11989	-0.136	0.1833	No
86	TBK1	TBK1 Entrez, Source	TANK-binding kinase 1	12282	-0.153	0.1762	No
87	AKT3	AKT3 Entrez, Source	v-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)	13126	-0.205	0.1358	No
88	PIK3CA	PIK3CA Entrez, Source	phosphoinositide-3-kinase, catalytic, alpha polypeptide	13438	-0.224	0.1276	No
89	PIK3R1	PIK3R1 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 1 (p85 alpha)	13664	-0.240	0.1246	No
90	MAP3K7	MAP3K7 Entrez, Source	mitogen-activated protein kinase kinase kinase 7	13808	-0.250	0.1266	No
91	CXCL10	CXCL10 Entrez, Source	chemokine (C-X-C motif) ligand 10	15120	-0.370	0.0578	No
92	IL8	IL8 Entrez, Source	interleukin 8	15242	-0.385	0.0611	No
93	LY96	LY96 Entrez, Source	lymphocyte antigen 96	15348	-0.402	0.0654	No
94	IL6	IL6 Entrez, Source	interleukin 6 (interferon, beta 2)	16483	-1.093	0.0074	No

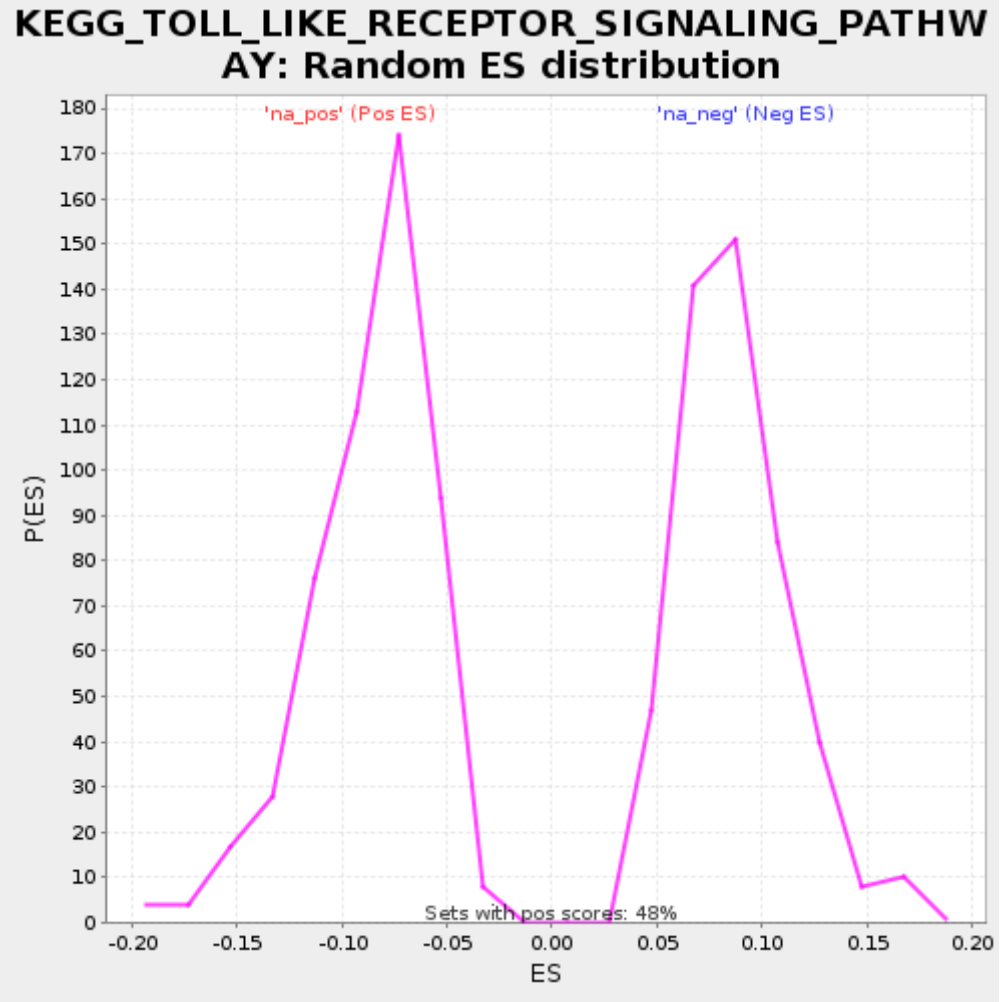

Fig 2: KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY: Random ES distribution
Gene set null distribution of ES for KEGG_TOLL_LIKE_RECEPTOR_SIGNALING_PATHWAY

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	REACTOME_METABOLISM_OF_LIPIDS_AND_LIPOPROTEINS
Enrichment Score (ES)	0.14163479
Normalized Enrichment Score (NES)	3.3185751
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

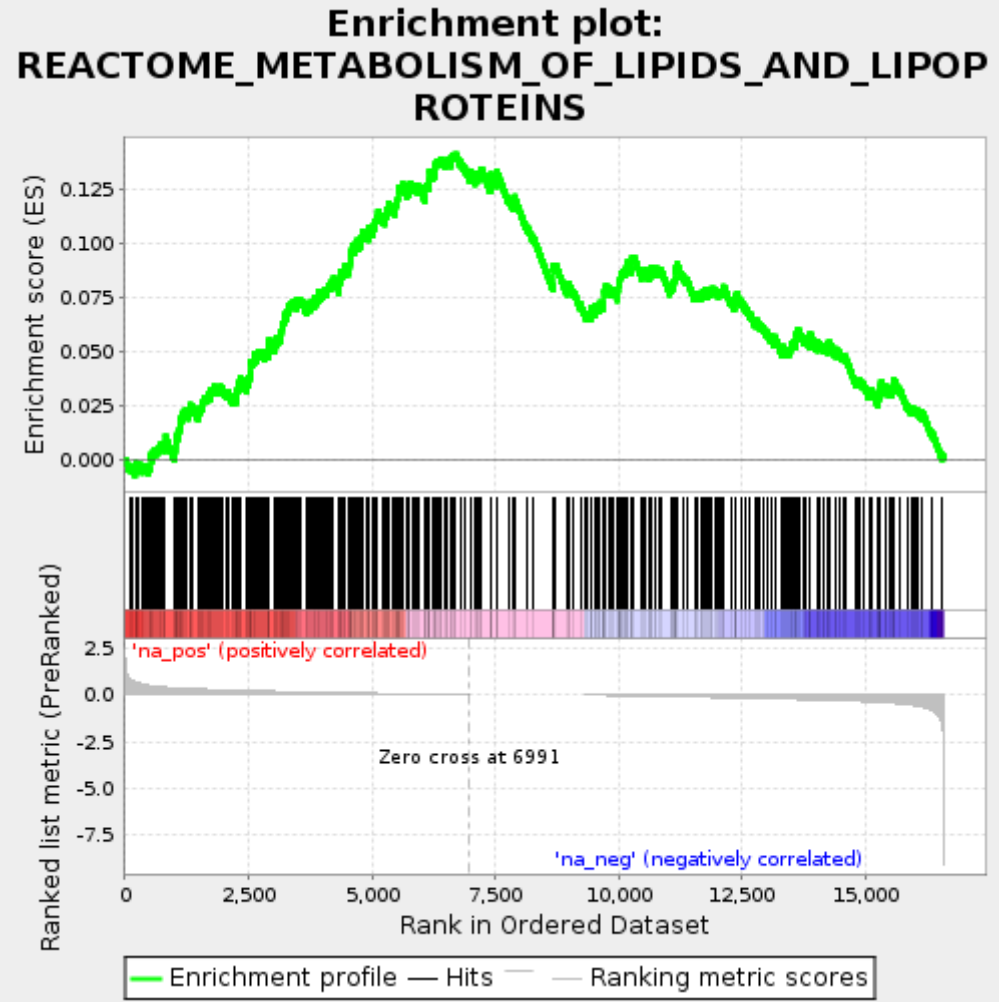

Fig 1: Enrichment plot: REACTOME_METABOLISM_OF_LIPIDS_AND_LIPOPROTEINS

Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE SYMBOL	GENE_TITLE	RANK IN GENE LIST	RANK METRIC SCORE	RUNNING ES	CORE ENRICHMENT
1	PLTP	PLTP Entrez, Source	phospholipid transfer protein	92	0.915	-0.0032	Yes
2	CTGF	CTGF Entrez, Source	connective tissue growth factor	145	0.782	-0.0039	Yes
3	SRD5A3			206	0.712	-0.0052	Yes
4	CETP	CETP Entrez, Source	cholesteryl ester transfer protein, plasma	227	0.680	-0.0039	Yes
5	HSD17B3	HSD17B3 Entrez, Source	hydroxysteroid (17-beta) dehydrogenase 3	233	0.673	-0.0018	Yes
6	PLA2G2D	PLA2G2D Entrez, Source	phospholipase A2, group IID	283	0.626	-0.0023	Yes
7	FADS2	FADS2 Entrez, Source	fatty acid desaturase 2	352	0.567	-0.0040	Yes
8	ABCC3	ABCC3 Entrez, Source	ATP-binding cassette, sub-family C (CFTR/MRP), member 3	386	0.545	-0.0036	Yes
9	BMP1	BMP1 Entrez, Source	bone morphogenetic protein 1	419	0.534	-0.0031	Yes
10	PRKACG	PRKACG Entrez, Source	protein kinase, cAMP-dependent, catalytic, gamma	484	0.504	-0.0046	Yes
11	GPAT2			498	0.499	-0.0029	Yes
12	PIK3R3	PIK3R3 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 3 (p55, gamma)	500	0.499	-0.0005	Yes
13	PSAP	PSAP Entrez, Source	prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy)	501	0.498	0.0020	Yes
14	FADS1	FADS1 Entrez, Source	fatty acid desaturase 1	554	0.477	0.0013	Yes
15	RXRA	RXRA Entrez, Source	retinoid X receptor, alpha	567	0.473	0.0030	Yes
16	MBOAT7			588	0.466	0.0042	Yes
17	AGPAT2	AGPAT2 Entrez, Source	1-acylglycerol-3-phosphate O-acyltransferase 2 (lysophosphatidic acid	630	0.452	0.0042	Yes

			acyltransferase, beta)				
18	HSD3B7	HSD3B7 Entrez, Source	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 7	656	0.445	0.0051	Yes
19	PLD4	PLD4 Entrez, Source	phospholipase D family, member 4	693	0.439	0.0054	Yes
20	LPCAT1			710	0.434	0.0069	Yes
21	SCARB1	SCARB1 Entrez, Source	scavenger receptor class B, member 1	753	0.423	0.0067	Yes
22	CTSA			807	0.409	0.0059	Yes
23	PRKACA	PRKACA Entrez, Source	protein kinase, cAMP-dependent, catalytic, alpha	812	0.408	0.0082	Yes
24	DGAT2	DGAT2 Entrez, Source	diacylglycerol O-acyltransferase homolog 2 (mouse)	814	0.407	0.0106	Yes
25	ABCG1	ABCG1 Entrez, Source	ATP-binding cassette, sub-family G (WHITE), member 1	998	0.380	0.0018	Yes
26	PLA2G16			1003	0.379	0.0040	Yes
27	SMPD3	SMPD3 Entrez, Source	sphingomyelin phosphodiesterase 3, neutral membrane (neutral sphingomyelinase II)	1020	0.376	0.0055	Yes
28	PIK3R2	PIK3R2 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 2 (p85 beta)	1023	0.375	0.0078	Yes
29	ARF3	ARF3 Entrez, Source	ADP-ribosylation factor 3	1032	0.373	0.0098	Yes
30	PIK3R6			1050	0.371	0.0112	Yes
31	GLA	GLA Entrez, Source	galactosidase, alpha	1087	0.364	0.0115	Yes
32	AGPAT4	AGPAT4 Entrez, Source	1-acylglycerol-3-phosphate O-acyltransferase 4 (lysophosphatidic acid acyltransferase, delta)	1095	0.362	0.0135	Yes
33	MED25	MED25 Entrez, Source	mediator of RNA polymerase II transcription, subunit 25 homolog (S. cerevisiae)	1107	0.359	0.0153	Yes
34	ACSL1	ACSL1 Entrez, Source	acyl-CoA synthetase long-chain family member 1	1125	0.357	0.0168	Yes
35	TEAD2	TEAD2 Entrez, Source	TEA domain family member 2	1131	0.356	0.0189	Yes

36	NCOR2	NCOR2 Entrez, Source	nuclear receptor co-repressor 2	1156	0.354	0.0199	Yes
37	CRAT	CRAT Entrez, Source	carnitine acetyltransferase	1172	0.352	0.0215	Yes
38	PPP1CA	PPP1CA Entrez, Source	protein phosphatase 1, catalytic subunit, alpha isoform	1197	0.349	0.0225	Yes
39	PHOSPHO1	PHOSPHO1 Entrez, Source	phosphatase, orphan 1	1226	0.344	0.0232	Yes
40	PLD3	PLD3 Entrez, Source	phospholipase D family, member 3	1302	0.334	0.0211	Yes
41	LDLR	LDLR Entrez, Source	low density lipoprotein receptor (familial hypercholesterolemia)	1311	0.333	0.0230	Yes
42	MGLL	MGLL Entrez, Source	monoglyceride lipase	1315	0.333	0.0253	Yes
43	ABCD1	ABCD1 Entrez, Source	ATP-binding cassette, sub-family D (ALD), member 1	1364	0.327	0.0248	Yes
44	DEGS2	DEGS2 Entrez, Source	degenerative spermatocyte homolog 2, lipid desaturase (Drosophila)	1471	0.316	0.0208	Yes
45	PIP5K1C	PIP5K1C Entrez, Source	phosphatidylinositol-4-phosphate 5-kinase, type I, gamma	1498	0.314	0.0216	Yes
46	ABHD5	ABHD5 Entrez, Source	abhydrolase domain containing 5	1508	0.313	0.0236	Yes
47	GBA	GBA Entrez, Source	glucosidase, beta; acid (includes glucosylceramidase)	1544	0.310	0.0239	Yes
48	TBL1X	TBL1X Entrez, Source	transducin (beta)-like 1X-linked	1567	0.308	0.0250	Yes
49	MED16			1580	0.307	0.0267	Yes
50	LIPC	LIPC Entrez, Source	lipase, hepatic	1591	0.306	0.0286	Yes
51	LPCAT3			1630	0.300	0.0287	Yes
52	INPPL1	INPPL1 Entrez, Source	inositol polyphosphate phosphatase-like 1	1669	0.296	0.0288	Yes
53	SLC25A1	SLC25A1 Entrez, Source	solute carrier family 25 (mitochondrial carrier; citrate transporter), member 1	1687	0.294	0.0303	Yes

54	GLB1	GLB1 Entrez, Source	galactosidase, beta 1	1735	0.290	0.0298	Yes
55	INPP5K			1740	0.289	0.0321	Yes
56	SPHK1	SPHK1 Entrez, Source	sphingosine kinase 1	1776	0.285	0.0324	Yes
57	MVD	MVD Entrez, Source	mevalonate (diphospho) decarboxylase	1792	0.283	0.0339	Yes
58	ARF1	ARF1 Entrez, Source	ADP-ribosylation factor 1	1857	0.278	0.0325	Yes
59	SLC44A2	SLC44A2 Entrez, Source	solute carrier family 44, member 2	1896	0.275	0.0326	Yes
60	NEU1	NEU1 Entrez, Source	sialidase 1 (lysosomal sialidase)	1916	0.273	0.0339	Yes
61	MED15			1964	0.269	0.0335	Yes
62	MED12	MED12 Entrez, Source	mediator of RNA polymerase II transcription, subunit 12 homolog (S. cerevisiae)	2046	0.262	0.0309	Yes
63	PIK3CG	PIK3CG Entrez, Source	phosphoinositide-3-kinase, catalytic, gamma polypeptide	2078	0.258	0.0315	Yes
64	ARSA	ARSA Entrez, Source	arylsulfatase A	2177	0.251	0.0279	Yes
65	CREBBP	CREBBP Entrez, Source	CREB binding protein (Rubinstein-Taybi syndrome)	2199	0.249	0.0291	Yes
66	MTMR14			2251	0.245	0.0284	Yes
67	CDIPT	CDIPT Entrez, Source	CDP-diacylglycerol--inositol 3-phosphatidyltransferase (phosphatidylinositol synthase)	2267	0.244	0.0300	Yes
68	SLC27A1	SLC27A1 Entrez, Source	solute carrier family 27 (fatty acid transporter), member 1	2272	0.243	0.0322	Yes
69	P4HB	P4HB Entrez, Source	procollagen-proline, 2-oxoglutarate 4-dioxygenase (proline 4-hydroxylase), beta polypeptide	2287	0.242	0.0338	Yes
70	PLD2	PLD2 Entrez, Source	phospholipase D2	2299	0.241	0.0356	Yes
71	GBA2	GBA2 Entrez, Source	glucosidase, beta (bile acid) 2	2327	0.238	0.0364	Yes

72	AGPAT3	AGPAT3 Entrez, Source	1-acylglycerol-3-phosphate O-acyltransferase 3	2346	0.237	0.0378	Yes
73	PIK3R5	PIK3R5 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 5, p101	2452	0.230	0.0338	Yes
74	PCCA	PCCA Entrez, Source	propionyl Coenzyme A carboxylase, alpha polypeptide	2464	0.230	0.0356	Yes
75	CHPT1	CHPT1 Entrez, Source	choline phosphotransferase 1	2497	0.227	0.0361	Yes
76	ACOX1	ACOX1 Entrez, Source	acyl-Coenzyme A oxidase 1, palmitoyl	2507	0.226	0.0380	Yes
77	AGPAT1	AGPAT1 Entrez, Source	1-acylglycerol-3-phosphate O-acyltransferase 1 (lysophosphatidic acid acyltransferase, alpha)	2525	0.225	0.0394	Yes
78	PI4K2A			2546	0.224	0.0407	Yes
79	CPT2	CPT2 Entrez, Source	carnitine palmitoyltransferase II	2550	0.224	0.0430	Yes
80	PCYT1B	PCYT1B Entrez, Source	phosphate cytidylyltransferase 1, choline, beta	2553	0.223	0.0453	Yes
81	TECR			2590	0.221	0.0456	Yes
82	MED24			2611	0.220	0.0468	Yes
83	PNPLA2	PNPLA2 Entrez, Source	patatin-like phospholipase domain containing 2	2616	0.220	0.0490	Yes
84	ELOVL1	ELOVL1 Entrez, Source	elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 1	2683	0.216	0.0474	Yes
85	MTMR3	MTMR3 Entrez, Source	myotubularin related protein 3	2684	0.215	0.0499	Yes
86	APOA1	APOA1 Entrez, Source	apolipoprotein A-I	2728	0.212	0.0497	Yes
87	PIK3CD	PIK3CD Entrez, Source	phosphoinositide-3-kinase, catalytic, delta polypeptide	2766	0.208	0.0499	Yes
88	CSNK1G2	CSNK1G2 Entrez, Source	casein kinase 1, gamma 2	2832	0.204	0.0484	Yes
89	CERS2			2850	0.203	0.0498	Yes
90	PTDSS2	PTDSS2 Entrez, Source	phosphatidylserine synthase 2	2898	0.200	0.0494	Yes

91	PGS1	PGS1 Entrez, Source	phosphatidylglycerophosphate synthase 1	2909	0.199	0.0513	Yes
92	ELOVL6	ELOVL6 Entrez, Source	ELOVL family member 6, elongation of long chain fatty acids (FEN1/Elo2, SUR4/Elo3-like, yeast)	2915	0.198	0.0534	Yes
93	SGPL1	SGPL1 Entrez, Source	sphingosine-1-phosphate lyase 1	2923	0.198	0.0555	Yes
94	NSDHL	NSDHL Entrez, Source	NAD(P) dependent steroid dehydrogenase-like	3020	0.192	0.0520	Yes
95	LCAT	LCAT Entrez, Source	lecithin-cholesterol acyltransferase	3039	0.191	0.0534	Yes
96	HSD11B1	HSD11B1 Entrez, Source	hydroxysteroid (11-beta) dehydrogenase 1	3060	0.189	0.0546	Yes
97	STS	STS Entrez, Source	steroid sulfatase (microsomal), arylsulfatase C, isozyme S	3066	0.189	0.0568	Yes
98	PLA2G4A	PLA2G4A Entrez, Source	phospholipase A2, group IVA (cytosolic, calcium-dependent)	3117	0.186	0.0562	Yes
99	NCOA1	NCOA1 Entrez, Source	nuclear receptor coactivator 1	3149	0.184	0.0567	Yes
100	SMARCD3	SMARCD3 Entrez, Source	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 3	3151	0.184	0.0592	Yes
101	LPCAT4			3173	0.183	0.0603	Yes
102	DGAT1	DGAT1 Entrez, Source	diacylglycerol O-acyltransferase homolog 1 (mouse)	3177	0.183	0.0626	Yes
103	ACAA1	ACAA1 Entrez, Source	acetyl-Coenzyme A acyltransferase 1 (peroxisomal 3-oxoacyl-Coenzyme A thiolase)	3207	0.181	0.0633	Yes
104	PLBD1			3218	0.181	0.0652	Yes
105	CAV1	CAV1 Entrez, Source	caveolin 1, caveolae protein, 22kDa	3225	0.180	0.0673	Yes
106	PPAP2B	PPAP2B Entrez, Source	phosphatidic acid phosphatase type 2B	3269	0.177	0.0671	Yes
107	PNPLA3	PNPLA3 Entrez, Source	patatin-like phospholipase domain containing 3	3286	0.177	0.0686	Yes

108	NCOA6	NCOA6 Entrez, Source	nuclear receptor coactivator 6	3311	0.176	0.0696	Yes
109	GRHL1	GRHL1 Entrez, Source	grainyhead-like 1 (Drosophila)	3324	0.175	0.0713	Yes
110	DECR1	DECR1 Entrez, Source	2,4-dienoyl CoA reductase 1, mitochondrial	3352	0.174	0.0721	Yes
111	ACLY	ACLY Entrez, Source	ATP citrate lyase	3380	0.172	0.0729	Yes
112	PI4KA			3428	0.170	0.0725	Yes
113	PIP5K1B	PIP5K1B Entrez, Source	phosphatidylinositol-4-phosphate 5-kinase, type I, beta	3477	0.167	0.0720	Yes
114	VAC14	VAC14 Entrez, Source	Vac14 homolog (S. cerevisiae)	3487	0.166	0.0739	Yes
115	FDPS	FDPS Entrez, Source	farnesyl diphosphate synthase (farnesyl pyrophosphate synthetase, dimethylallyltranstransferase, geranyltranstransferase)	3525	0.164	0.0741	Yes
116	AGPAT9			3568	0.162	0.0740	Yes
117	ACSL5	ACSL5 Entrez, Source	acyl-CoA synthetase long-chain family member 5	3679	0.156	0.0697	Yes
118	DHCR24	DHCR24 Entrez, Source	24-dehydrocholesterol reductase	3686	0.155	0.0718	Yes
119	MVK	MVK Entrez, Source	mevalonate kinase (mevalonic aciduria)	3713	0.154	0.0727	Yes
120	SPHK2	SPHK2 Entrez, Source	sphingosine kinase 2	3776	0.150	0.0713	Yes
121	G0S2	G0S2 Entrez, Source	G0/G1switch 2	3787	0.150	0.0732	Yes
122	PCYT1A	PCYT1A Entrez, Source	phosphate cytidylyltransferase 1, choline, alpha	3832	0.147	0.0729	Yes
123	IDH1	IDH1 Entrez, Source	isocitrate dehydrogenase 1 (NADP+), soluble	3837	0.147	0.0752	Yes
124	MED20			3896	0.144	0.0741	Yes
125	HADHB	HADHB Entrez, Source	hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase	3911	0.143	0.0757	Yes

			(trifunctional protein), beta subunit				
126	SMPD4	SMPD4 Entrez, Source	sphingomyelin phosphodiesterase 4, neutral membrane (neutral sphingomyelinase-3)	3912	0.143	0.0781	Yes
127	MED18	MED18 Entrez, Source	mediator of RNA polymerase II transcription, subunit 18 homolog (S. cerevisiae)	3982	0.140	0.0764	Yes
128	ESRRA	ESRRA Entrez, Source	estrogen-related receptor alpha	4008	0.139	0.0773	Yes
129	PCCB	PCCB Entrez, Source	propionyl Coenzyme A carboxylase, beta polypeptide	4025	0.138	0.0788	Yes
130	GM2A	GM2A Entrez, Source	GM2 ganglioside activator	4076	0.135	0.0782	Yes
131	FAR2			4105	0.134	0.0789	Yes
132	ETNK2	ETNK2 Entrez, Source	ethanolamine kinase 2	4116	0.134	0.0808	Yes
133	CPT1B	CPT1B Entrez, Source	carnitine palmitoyltransferase 1B (muscle)	4156	0.132	0.0808	Yes
134	POMC	POMC Entrez, Source	proopiomelanocortin (adrenocorticotropin/ beta-lipotropin/ alpha-melanocyte stimulating hormone/ beta-melanocyte stimulating hormone/ beta-endorphin)	4177	0.130	0.0821	Yes
135	ACOX3	ACOX3 Entrez, Source	acyl-Coenzyme A oxidase 3, pristanoyl	4219	0.127	0.0820	Yes
136	MBOAT1	MBOAT1 Entrez, Source	membrane bound O-acyltransferase domain containing 1	4226	0.127	0.0841	Yes
137	PCYT2	PCYT2 Entrez, Source	phosphate cytidylyltransferase 2, ethanolamine	4344	0.120	0.0794	Yes
138	LSS	LSS Entrez, Source	lanosterol synthase (2,3-oxidosqualene-lanosterol cyclase)	4345	0.120	0.0819	Yes
139	HEXA	HEXA Entrez, Source	hexosaminidase A (alpha polypeptide)	4356	0.120	0.0837	Yes
140	SPTLC2	SPTLC2 Entrez, Source	serine palmitoyltransferase, long chain base subunit 2	4365	0.119	0.0857	Yes

141	EP300	EP300 Entrez, Source	E1A binding protein p300	4377	0.119	0.0875	Yes
142	MED8	MED8 Entrez, Source	mediator of RNA polymerase II transcription, subunit 8 homolog (S. cerevisiae)	4430	0.117	0.0868	Yes
143	ECHS1	ECHS1 Entrez, Source	enoyl Coenzyme A hydratase, short chain, 1, mitochondrial	4462	0.115	0.0873	Yes
144	GK	GK Entrez, Source	glycerol kinase	4464	0.115	0.0897	Yes
145	CYP27B1	CYP27B1 Entrez, Source	cytochrome P450, family 27, subfamily B, polypeptide 1	4532	0.111	0.0881	Yes
146	LPCAT2			4544	0.110	0.0899	Yes
147	SREBF1	SREBF1 Entrez, Source	sterol regulatory element binding transcription factor 1	4554	0.110	0.0918	Yes
148	MBOAT2	MBOAT2 Entrez, Source	membrane bound O-acyltransferase domain containing 2	4568	0.110	0.0935	Yes
149	PI4KB			4569	0.109	0.0959	Yes
150	EBP	EBP Entrez, Source	emopamil binding protein (sterol isomerase)	4592	0.108	0.0971	Yes
151	FASN	FASN Entrez, Source	fatty acid synthase	4594	0.108	0.0995	Yes
152	CERS5			4660	0.105	0.0979	Yes
153	MED13L			4671	0.105	0.0998	Yes
154	PIP4K2A			4683	0.104	0.1016	Yes
155	HADHA	HADHA Entrez, Source	hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Coenzyme A thiolase/enoyl-Coenzyme A hydratase (trifunctional protein), alpha subunit	4754	0.101	0.0997	Yes
156	PMVK	PMVK Entrez, Source	phosphomevalonate kinase	4780	0.099	0.1007	Yes
157	ARSB	ARSB Entrez, Source	arylsulfatase B	4786	0.099	0.1028	Yes
158	CHKA	CHKA Entrez, Source	choline kinase alpha	4806	0.098	0.1041	Yes
159	ASAH1	ASAH1 Entrez, Source	N-acylsphingosine amidohydrolase (acid ceramidase) 1	4821	0.097	0.1058	Yes

160	ALAS1	ALAS1 Entrez, Source	aminolevulinate, delta-, synthase 1	4882	0.094	0.1045	Yes
161	SMPD2	SMPD2 Entrez, Source	sphingomyelin phosphodiesterase 2, neutral membrane (neutral sphingomyelinase)	4933	0.092	0.1039	Yes
162	ACADVL	ACADVL Entrez, Source	acyl-Coenzyme A dehydrogenase, very long chain	4939	0.092	0.1061	Yes
163	SREBF2	SREBF2 Entrez, Source	sterol regulatory element binding transcription factor 2	4951	0.091	0.1079	Yes
164	MED29			5023	0.088	0.1060	Yes
165	HDAC3	HDAC3 Entrez, Source	histone deacetylase 3	5028	0.088	0.1082	Yes
166	ARSG	ARSG Entrez, Source	arylsulfatase G	5054	0.086	0.1091	Yes
167	HEXB	HEXB Entrez, Source	hexosaminidase B (beta polypeptide)	5072	0.085	0.1106	Yes
168	CDS1	CDS1 Entrez, Source	CDP-diacylglycerol synthase (phosphatidate cytidylyltransferase) 1	5084	0.085	0.1124	Yes
169	CERS4			5119	0.083	0.1127	Yes
170	ECI1			5121	0.083	0.1152	Yes
171	ACADS	ACADS Entrez, Source	acyl-Coenzyme A dehydrogenase, C-2 to C-3 short chain	5217	0.078	0.1118	Yes
172	HSD17B1	HSD17B1 Entrez, Source	hydroxysteroid (17-beta) dehydrogenase 1	5265	0.076	0.1113	Yes
173	INPP5E	INPP5E Entrez, Source	inositol polyphosphate-5-phosphatase, 72 kDa	5273	0.076	0.1134	Yes
174	NFYA	NFYA Entrez, Source	nuclear transcription factor Y, alpha	5295	0.075	0.1146	Yes
175	PEMT	PEMT Entrez, Source	phosphatidylethanolamine N-methyltransferase	5309	0.074	0.1162	Yes
176	HSD17B4	HSD17B4 Entrez, Source	hydroxysteroid (17-beta) dehydrogenase 4	5329	0.074	0.1175	Yes
177	PIK3C2B	PIK3C2B Entrez, Source	phosphoinositide-3-kinase, class 2, beta polypeptide	5344	0.073	0.1191	Yes

178	SIN3B	SIN3B Entrez, Source	SIN3 homolog B, transcription regulator (yeast)	5426	0.070	0.1166	Yes
179	HMGCL	HMGCL Entrez, Source	3-hydroxymethyl-3-methylglutaryl-Coenzyme A lyase (hydroxymethylglutaricaciduria)	5482	0.067	0.1157	Yes
180	CDK19			5488	0.067	0.1179	Yes
181	ACOT8	ACOT8 Entrez, Source	acyl-CoA thioesterase 8	5499	0.066	0.1197	Yes
182	MED22			5525	0.065	0.1207	Yes
183	PLIN2			5532	0.065	0.1228	Yes
184	ELOVL5	ELOVL5 Entrez, Source	ELOVL family member 5, elongation of long chain fatty acids (FEN1/Elo2, SUR4/Elo3-like, yeast)	5533	0.065	0.1252	Yes
185	DEGS1	DEGS1 Entrez, Source	degenerative spermatocyte homolog 1, lipid desaturase (Drosophila)	5558	0.063	0.1262	Yes
186	PIK3CB	PIK3CB Entrez, Source	phosphoinositide-3-kinase, catalytic, beta polypeptide	5597	0.062	0.1264	Yes
187	ACER3			5612	0.061	0.1280	Yes
188	PLD1	PLD1 Entrez, Source	phospholipase D1, phosphatidylcholine-specific	5720	0.055	0.1238	Yes
189	TXNRD1	TXNRD1 Entrez, Source	thioredoxin reductase 1	5745	0.054	0.1248	Yes
190	PHYH	PHYH Entrez, Source	phytanoyl-CoA 2-hydroxylase	5750	0.054	0.1271	Yes
191	ACSL4	ACSL4 Entrez, Source	acyl-CoA synthetase long-chain family member 4	5770	0.053	0.1284	Yes
192	VAPA	VAPA Entrez, Source	VAMP (vesicle-associated membrane protein)-associated protein A, 33kDa	5833	0.050	0.1270	Yes
193	FIG4			5873	0.049	0.1271	Yes
194	FDFT1	FDFT1 Entrez, Source	farnesyl-diphosphate farnesyltransferase 1	5931	0.046	0.1260	Yes
195	HSD17B12	HSD17B12 Entrez, Source	hydroxysteroid (17-beta) dehydrogenase 12	5958	0.045	0.1269	Yes
196	MED26			6078	0.040	0.1220	Yes
197	FHL2	FHL2 Entrez, Source	four and a half LIM domains 2	6084	0.040	0.1242	Yes

198	GLIPR1	GLIPR1 Entrez, Source	GLI pathogenesis-related 1 (glioma)	6087	0.040	0.1266	Yes
199	TRIB3	TRIB3 Entrez, Source	tribbles homolog 3 (Drosophila)	6112	0.039	0.1276	Yes
200	AGPAT6	AGPAT6 Entrez, Source	1-acylglycerol-3-phosphate O-acyltransferase 6 (lysophosphatidic acid acyltransferase, zeta)	6155	0.038	0.1274	Yes
201	PPARA	PPARA Entrez, Source	peroxisome proliferative activated receptor, alpha	6160	0.038	0.1297	Yes
202	SGPP2	SGPP2 Entrez, Source	sphingosine-1-phosphate phosphotase 2	6172	0.037	0.1315	Yes
203	NCOR1	NCOR1 Entrez, Source	nuclear receptor co-repressor 1	6174	0.037	0.1339	Yes
204	GPD2	GPD2 Entrez, Source	glycerol-3-phosphate dehydrogenase 2 (mitochondrial)	6241	0.034	0.1323	Yes
205	NRF1	NRF1 Entrez, Source	nuclear respiratory factor 1	6269	0.032	0.1331	Yes
206	ACACB	ACACB Entrez, Source	acetyl-Coenzyme A carboxylase beta	6278	0.032	0.1351	Yes
207	MED27			6286	0.032	0.1371	Yes
208	SIN3A	SIN3A Entrez, Source	SIN3 homolog A, transcription regulator (yeast)	6308	0.031	0.1383	Yes
209	CHKB	CHKB Entrez, Source	choline kinase beta	6345	0.029	0.1385	Yes
210	SLC25A20	SLC25A20 Entrez, Source	solute carrier family 25 (carnitine/acylcarnitine translocase), member 20	6384	0.027	0.1387	Yes
211	TAZ	TAZ Entrez, Source	tafazzin (cardiomyopathy, dilated 3A (X-linked); endocardial fibroelastosis 2; Barth syndrome)	6413	0.026	0.1394	Yes
212	PPM1L	PPM1L Entrez, Source	protein phosphatase 1 (formerly 2C)-like	6479	0.023	0.1379	Yes
213	STARD5	STARD5 Entrez, Source	START domain containing 5	6512	0.022	0.1384	Yes
214	CPT1A	CPT1A Entrez, Source	carnitine palmitoyltransferase 1A (liver)	6542	0.020	0.1391	Yes

215	PLIN1			6597	0.017	0.1382	Yes
216	PLA2G4C	PLA2G4C Entrez, Source	phospholipase A2, group IVC (cytosolic, calcium-independent)	6609	0.017	0.1400	Yes
217	MED9	MED9 Entrez, Source	mediator of RNA polymerase II transcription, subunit 9 homolog (S. cerevisiae)	6626	0.016	0.1415	Yes
218	SYNJ1	SYNJ1 Entrez, Source	synaptojanin 1	6667	0.014	0.1415	Yes
219	LPGAT1	LPGAT1 Entrez, Source	lysophosphatidylglycerol acyltransferase 1	6706	0.013	0.1416	Yes
220	SPTLC1	SPTLC1 Entrez, Source	serine palmitoyltransferase, long chain base subunit 1	6803	0.009	0.1382	No
221	PLA2G6	PLA2G6 Entrez, Source	phospholipase A2, group VI (cytosolic, calcium-independent)	6889	0.005	0.1354	No
222	ABCG5	ABCG5 Entrez, Source	ATP-binding cassette, sub-family G (WHITE), member 5 (sterolin 1)	6997	0.000	0.1313	No
223	ABCG8	ABCG8 Entrez, Source	ATP-binding cassette, sub-family G (WHITE), member 8 (sterolin 2)	6998	0.000	0.1338	No
224	ACADL	ACADL Entrez, Source	acyl-Coenzyme A dehydrogenase, long chain	7101	0.000	0.1299	No
225	AGT	AGT Entrez, Source	angiotensinogen (serpin peptidase inhibitor, clade A, member 8)	7126	0.000	0.1309	No
226	AKR1D1	AKR1D1 Entrez, Source	aldo-keto reductase family 1, member D1 (delta 4-3-ketosteroid-5-beta-reductase)	7136	0.000	0.1329	No
227	ANKRD1	ANKRD1 Entrez, Source	ankyrin repeat domain 1 (cardiac muscle)	7194	0.000	0.1318	No
228	APOC3	APOC3 Entrez, Source	apolipoprotein C-III	7219	0.000	0.1328	No
229	ARSE	ARSE Entrez, Source	arylsulfatase E (chondrodysplasia punctata 1)	7226	0.000	0.1349	No
230	CGA	CGA Entrez, Source	glycoprotein hormones, alpha polypeptide	7406	0.000	0.1263	No
231	CH25H	CH25H Entrez, Source	cholesterol 25-hydroxylase	7412	0.000	0.1285	No

232	CHAT	CHAT Entrez, Source	choline acetyltransferase	7413	0.000	0.1310	No
233	CLPS	CLPS Entrez, Source	colipase, pancreatic	7431	0.000	0.1324	No
234	CYP11B2	CYP11B2 Entrez, Source	cytochrome P450, family 11, subfamily B, polypeptide 2	7528	0.000	0.1290	No
235	CYP39A1	CYP39A1 Entrez, Source	cytochrome P450, family 39, subfamily A, polypeptide 1	7533	0.000	0.1312	No
236	CYP4A11	CYP4A11 Entrez, Source	cytochrome P450, family 4, subfamily A, polypeptide 11	7534	0.000	0.1337	No
237	GC	GC Entrez, Source	group-specific component (vitamin D binding protein)	7776	0.000	0.1213	No
238	HMGCS2	HMGCS2 Entrez, Source	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 2 (mitochondrial)	7867	0.000	0.1182	No
239	HSD3B1	HSD3B1 Entrez, Source	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 1	7886	0.000	0.1195	No
240	HSD3B2	HSD3B2 Entrez, Source	hydroxy-delta-5-steroid dehydrogenase, 3 beta- and steroid delta-isomerase 2	7887	0.000	0.1220	No
241	LRP2	LRP2 Entrez, Source	low density lipoprotein-related protein 2	8154	0.000	0.1081	No
242	NEU2	NEU2 Entrez, Source	sialidase 2 (cytosolic sialidase)	8271	0.000	0.1034	No
243	PIK3C2G	PIK3C2G Entrez, Source	phosphoinositide-3-kinase, class 2, gamma polypeptide	8674	0.000	0.0811	No
244	PLA2G2E	PLA2G2E Entrez, Source	phospholipase A2, group IIE	8680	0.000	0.0832	No
245	PLA2G3	PLA2G3 Entrez, Source	phospholipase A2, group III	8681	0.000	0.0857	No
246	PLA2G4D	PLA2G4D Entrez, Source	phospholipase A2, group IVD (cytosolic)	8682	0.000	0.0882	No
247	PNLIP	PNLIP Entrez, Source	pancreatic lipase	8690	0.000	0.0902	No
248	PRKAA2	PRKAA2 Entrez, Source	protein kinase, AMP-activated, alpha 2 catalytic subunit	8738	0.000	0.0898	No

249	SLC10A2	SLC10A2 Entrez, Source	solute carrier family 10 (sodium/bile acid cotransporter family), member 2	8959	0.000	0.0787	No
250	SLCO1B1	SLCO1B1 Entrez, Source	solute carrier organic anion transporter family, member 1B1	8993	0.000	0.0791	No
251	SLCO1B3	SLCO1B3 Entrez, Source	solute carrier organic anion transporter family, member 1B3	8994	0.000	0.0816	No
252	SULT2A1	SULT2A1 Entrez, Source	sulfotransferase family, cytosolic, 2A, dehydroepiandrosterone (DHEA)-preferring, member 1	9090	0.000	0.0782	No
253	UGT1A9	UGT1A9 Entrez, Source	UDP glucuronosyltransferase 1 family, polypeptide A9	9231	0.000	0.0720	No
254	SUMF1	SUMF1 Entrez, Source	sulfatase modifying factor 1	9346	-0.002	0.0675	No
255	CDS2	CDS2 Entrez, Source	CDP-diacylglycerol synthase (phosphatidate cytidylyltransferase) 2	9387	-0.003	0.0675	No
256	MED14			9438	-0.005	0.0669	No
257	AKR1B1	AKR1B1 Entrez, Source	aldo-keto reductase family 1, member B1 (aldose reductase)	9448	-0.006	0.0688	No
258	CERK	CERK Entrez, Source	ceramide kinase	9463	-0.007	0.0704	No
259	ACACA	ACACA Entrez, Source	acetyl-Coenzyme A carboxylase alpha	9530	-0.011	0.0688	No
260	MED17			9531	-0.011	0.0713	No
261	PIK3C3	PIK3C3 Entrez, Source	phosphoinositide-3-kinase, class 3	9570	-0.012	0.0714	No
262	NCOA2	NCOA2 Entrez, Source	nuclear receptor coactivator 2	9623	-0.015	0.0707	No
263	CYP51A1	CYP51A1 Entrez, Source	cytochrome P450, family 51, subfamily A, polypeptide 1	9632	-0.015	0.0727	No
264	SRD5A1	SRD5A1 Entrez, Source	steroid-5-alpha-reductase, alpha polypeptide 1 (3-oxo-5 alpha-steroid delta 4-dehydrogenase alpha 1)	9686	-0.019	0.0719	No
265	DHCR7	DHCR7 Entrez, Source	7-dehydrocholesterol reductase	9705	-0.020	0.0732	No

266	ELOVL4	ELOVL4 Entrez, Source	elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 4	9710	-0.020	0.0755	No
267	PITPNB	PITPNB Entrez, Source	phosphatidylinositol transfer protein, beta	9711	-0.020	0.0779	No
268	ELOVL7	ELOVL7 Entrez, Source	ELOVL family member 7, elongation of long chain fatty acids (yeast)	9743	-0.022	0.0785	No
269	PEX11A	PEX11A Entrez, Source	peroxisomal biogenesis factor 11A	9751	-0.022	0.0805	No
270	ACSL3	ACSL3 Entrez, Source	acyl-CoA synthetase long-chain family member 3	9806	-0.025	0.0797	No
271	HMGCR	HMGCR Entrez, Source	3-hydroxy-3-methylglutaryl-Coenzyme A reductase	9875	-0.028	0.0780	No
272	MED30			9898	-0.030	0.0791	No
273	OSBP	OSBP Entrez, Source	oxysterol binding protein	9990	-0.034	0.0759	No
274	STARD4	STARD4 Entrez, Source	START domain containing 4, sterol regulated	9999	-0.034	0.0779	No
275	PPARGC1B	PPARGC1B Entrez, Source	peroxisome proliferative activated receptor, gamma, coactivator 1, beta	10000	-0.034	0.0804	No
276	LPIN2	LPIN2 Entrez, Source	lipin 2	10006	-0.035	0.0826	No
277	SGMS2			10034	-0.036	0.0834	No
278	GALC	GALC Entrez, Source	galactosylceramidase	10041	-0.036	0.0855	No
279	MTMR4	MTMR4 Entrez, Source	myotubularin related protein 4	10065	-0.037	0.0865	No
280	PTDSS1	PTDSS1 Entrez, Source	phosphatidylserine synthase 1	10091	-0.038	0.0875	No
281	VAPB	VAPB Entrez, Source	VAMP (vesicle-associated membrane protein)-associated protein B and C	10131	-0.040	0.0875	No
282	MED1			10155	-0.041	0.0886	No
283	ARNTL	ARNTL Entrez, Source	aryl hydrocarbon receptor nuclear translocator-like	10176	-0.043	0.0898	No

284	SMPD1	SMPD1 Entrez, Source	sphingomyelin phosphodiesterase 1, acid lysosomal (acid sphingomyelinase)	10189	-0.043	0.0916	No
285	TEAD3	TEAD3 Entrez, Source	TEA domain family member 3	10277	-0.048	0.0887	No
286	MTMR1	MTMR1 Entrez, Source	myotubularin related protein 1	10278	-0.048	0.0911	No
287	HSD17B7	HSD17B7 Entrez, Source	hydroxysteroid (17-beta) dehydrogenase 7	10280	-0.048	0.0936	No
288	TIAM2	TIAM2 Entrez, Source	T-cell lymphoma invasion and metastasis 2	10315	-0.049	0.0939	No
289	TM7SF2	TM7SF2 Entrez, Source	transmembrane 7 superfamily member 2	10485	-0.057	0.0860	No
290	PRKAG2	PRKAG2 Entrez, Source	protein kinase, AMP-activated, gamma 2 non-catalytic subunit	10509	-0.058	0.0870	No
291	NEU3	NEU3 Entrez, Source	sialidase 3 (membrane sialidase)	10533	-0.059	0.0881	No
292	MED6	MED6 Entrez, Source	mediator of RNA polymerase II transcription, subunit 6 homolog (S. cerevisiae)	10618	-0.063	0.0854	No
293	SUMF2	SUMF2 Entrez, Source	sulfatase modifying factor 2	10633	-0.064	0.0870	No
294	HACL1	HACL1 Entrez, Source	2-hydroxyacyl-CoA lyase 1	10674	-0.066	0.0870	No
295	NCOA3	NCOA3 Entrez, Source	nuclear receptor coactivator 3	10681	-0.066	0.0891	No
296	AMACR	AMACR Entrez, Source	alpha-methylacyl-CoA racemase	10750	-0.069	0.0874	No
297	PIP4K2B			10770	-0.071	0.0887	No
298	PTEN	PTEN Entrez, Source	phosphatase and tensin homolog (mutated in multiple advanced cancers 1)	10821	-0.073	0.0881	No
299	SGMS1			10864	-0.075	0.0880	No
300	MED19	MED19 Entrez, Source	mediator of RNA polymerase II transcription, subunit 19 homolog (S. cerevisiae)	11055	-0.085	0.0787	No
301	CYP2R1	CYP2R1 Entrez, Source	cytochrome P450, family 2, subfamily R, polypeptide 1	11078	-0.086	0.0798	No

302	LBR	LBR Entrez, Source	lamin B receptor	11103	-0.087	0.0808	No
303	PIK3R4	PIK3R4 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 4, p150	11120	-0.088	0.0823	No
304	ABCA1	ABCA1 Entrez, Source	ATP-binding cassette, sub-family A (ABC1), member 1	11138	-0.089	0.0837	No
305	IDI1	IDI1 Entrez, Source	isopentenyl-diphosphate delta isomerase 1	11155	-0.090	0.0852	No
306	TNFRSF21	TNFRSF21 Entrez, Source	tumor necrosis factor receptor superfamily, member 21	11157	-0.090	0.0876	No
307	SQLE	SQLE Entrez, Source	squalene epoxidase	11171	-0.091	0.0893	No
308	COL4A3BP	COL4A3BP Entrez, Source	collagen, type IV, alpha 3 (Goodpasture antigen) binding protein	11189	-0.092	0.0907	No
309	RORA	RORA Entrez, Source	RAR-related orphan receptor A	11319	-0.098	0.0852	No
310	MED11	MED11 Entrez, Source	mediator of RNA polymerase II transcription, subunit 11 homolog (S. cerevisiae)	11385	-0.101	0.0837	No
311	MTMR6	MTMR6 Entrez, Source	myotubularin related protein 6	11547	-0.110	0.0762	No
312	RDH11	RDH11 Entrez, Source	retinol dehydrogenase 11 (all-trans/9-cis/11-cis)	11578	-0.112	0.0769	No
313	SLC25A17	SLC25A17 Entrez, Source	solute carrier family 25 (mitochondrial carrier; peroxisomal membrane protein, 34kDa), member 17	11619	-0.114	0.0769	No
314	GPCPD1			11672	-0.117	0.0761	No
315	ABCB4	ABCB4 Entrez, Source	ATP-binding cassette, sub-family B (MDR/TAP), member 4	11694	-0.118	0.0773	No
316	LIPE	LIPE Entrez, Source	lipase, hormone-sensitive	11722	-0.120	0.0781	No
317	MED31	MED31 Entrez, Source	mediator of RNA polymerase II transcription, subunit 31 homolog (S. cerevisiae)	11749	-0.121	0.0790	No
318	GNPAT	GNPAT Entrez, Source	glyceronephosphate O-acyltransferase	11822	-0.125	0.0770	No
319	KDSR			11847	-0.127	0.0780	No

320	CROT	CROT Entrez, Source	carnitine O-octanoyltransferase	11875	-0.129	0.0788	No
321	FAR1			11908	-0.131	0.0793	No
322	ACER2			11959	-0.134	0.0787	No
323	ELOVL3	ELOVL3 Entrez, Source	elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 3	12016	-0.137	0.0777	No
324	GGPS1	GGPS1 Entrez, Source	geranylgeranyl diphosphate synthase 1	12056	-0.139	0.0778	No
325	AGPS	AGPS Entrez, Source	alkylglycerone phosphate synthase	12095	-0.141	0.0779	No
326	MED4	MED4 Entrez, Source	mediator of RNA polymerase II transcription, subunit 4 homolog (S. cerevisiae)	12134	-0.144	0.0781	No
327	SCP2	SCP2 Entrez, Source	sterol carrier protein 2	12142	-0.144	0.0801	No
328	MED10	MED10 Entrez, Source	mediator of RNA polymerase II transcription, subunit 10 homolog (NUT2, S. cerevisiae)	12283	-0.153	0.0739	No
329	MTMR2	MTMR2 Entrez, Source	myotubularin related protein 2	12359	-0.157	0.0718	No
330	SAR1B	SAR1B Entrez, Source	SAR1 gene homolog B (S. cerevisiae)	12363	-0.157	0.0741	No
331	CD36	CD36 Entrez, Source	CD36 molecule (thrombospondin receptor)	12379	-0.158	0.0756	No
332	LGMN	LGMN Entrez, Source	legumain	12396	-0.159	0.0771	No
333	MUT	MUT Entrez, Source	methylmalonyl Coenzyme A mutase	12494	-0.164	0.0736	No
334	ACAT1	ACAT1 Entrez, Source	acetyl-Coenzyme A acetyltransferase 1 (acetoacetyl Coenzyme A thiolase)	12579	-0.169	0.0709	No
335	HADH	HADH Entrez, Source	hydroxyacyl-Coenzyme A dehydrogenase	12672	-0.175	0.0677	No
336	MSMO1			12775	-0.181	0.0639	No
337	CEPT1	CEPT1 Entrez, Source	choline/ethanolamine phosphotransferase 1	12806	-0.183	0.0645	No

338	CDK8	CDK8 Entrez, Source	cyclin-dependent kinase 8	12874	-0.188	0.0628	No
339	MTM1	MTM1 Entrez, Source	myotubularin 1	12939	-0.192	0.0614	No
340	PPP1CC	PPP1CC Entrez, Source	protein phosphatase 1, catalytic subunit, gamma isoform	13018	-0.198	0.0590	No
341	SLC44A1	SLC44A1 Entrez, Source	solute carrier family 44, member 1	13088	-0.203	0.0572	No
342	LPIN1	LPIN1 Entrez, Source	lipin 1	13169	-0.207	0.0548	No
343	MED23			13176	-0.207	0.0569	No
344	CLOCK	CLOCK Entrez, Source	clock homolog (mouse)	13323	-0.217	0.0503	No
345	LCLAT1			13332	-0.217	0.0523	No
346	GPD1L	GPD1L Entrez, Source	glycerol-3-phosphate dehydrogenase 1-like	13408	-0.222	0.0502	No
347	PIK3CA	PIK3CA Entrez, Source	phosphoinositide-3-kinase, catalytic, alpha polypeptide	13438	-0.224	0.0509	No
348	GPD1	GPD1 Entrez, Source	glycerol-3-phosphate dehydrogenase 1 (soluble)	13482	-0.227	0.0507	No
349	PIKFYVE			13496	-0.228	0.0524	No
350	SACM1L	SACM1L Entrez, Source	SAC1 suppressor of actin mutations 1-like (yeast)	13513	-0.229	0.0538	No
351	OCRL	OCRL Entrez, Source	oculocerebrorenal syndrome of Lowe	13543	-0.231	0.0545	No
352	PNPLA8	PNPLA8 Entrez, Source	patatin-like phospholipase domain containing 8	13593	-0.236	0.0540	No
353	SLC27A5	SLC27A5 Entrez, Source	solute carrier family 27 (fatty acid transporter), member 5	13604	-0.236	0.0558	No
354	TGS1			13608	-0.236	0.0581	No
355	EPT1			13617	-0.237	0.0601	No
356	PIK3R1	PIK3R1 Entrez, Source	phosphoinositide-3-kinase, regulatory subunit 1 (p85 alpha)	13664	-0.240	0.0597	No
357	PRKAB2	PRKAB2 Entrez, Source	protein kinase, AMP-activated, beta 2 non-catalytic subunit	13772	-0.247	0.0556	No

358	BDH1	BDH1 Entrez, Source	3-hydroxybutyrate dehydrogenase, type 1	13799	-0.249	0.0565	No
359	HMGCS1	HMGCS1 Entrez, Source	3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (soluble)	13881	-0.255	0.0540	No
360	PI4K2B	PI4K2B Entrez, Source	phosphatidylinositol 4-kinase type 2 beta	13890	-0.256	0.0559	No
361	ACER1			13894	-0.256	0.0582	No
362	SYNJ2	SYNJ2 Entrez, Source	synaptojanin 2	14025	-0.266	0.0527	No
363	MED7			14031	-0.266	0.0549	No
364	CYP27A1	CYP27A1 Entrez, Source	cytochrome P450, family 27, subfamily A, polypeptide 1	14088	-0.270	0.0539	No
365	ME1	ME1 Entrez, Source	malic enzyme 1, NADP(+)-dependent, cytosolic	14157	-0.276	0.0522	No
366	TBL1XR1	TBL1XR1 Entrez, Source	transducin (beta)-like 1X-linked receptor 1	14183	-0.277	0.0531	No
367	PPP1CB	PPP1CB Entrez, Source	protein phosphatase 1, catalytic subunit, beta isoform	14248	-0.282	0.0516	No
368	SGPP1	SGPP1 Entrez, Source	sphingosine-1-phosphate phosphatase 1	14249	-0.282	0.0541	No
369	CRLS1	CRLS1 Entrez, Source	cardiolipin synthase 1	14285	-0.286	0.0544	No
370	MED21			14400	-0.294	0.0498	No
371	GPAM	GPAM Entrez, Source	glycerol-3-phosphate acyltransferase, mitochondrial	14418	-0.296	0.0513	No
372	LHB	LHB Entrez, Source	luteinizing hormone beta polypeptide	14484	-0.303	0.0497	No
373	PIK3C2A	PIK3C2A Entrez, Source	phosphoinositide-3-kinase, class 2, alpha polypeptide	14551	-0.309	0.0481	No
374	SLC27A2	SLC27A2 Entrez, Source	solute carrier family 27 (fatty acid transporter), member 2	14598	-0.313	0.0478	No
375	HSPG2	HSPG2 Entrez, Source	heparan sulfate proteoglycan 2 (perlecan)	14828	-0.337	0.0361	No

376	AGPAT5	AGPAT5 Entrez, Source	1-acylglycerol-3-phosphate O-acyltransferase 5 (lysophosphatidic acid acyltransferase, epsilon)	14867	-0.340	0.0362	No
377	ARSK	ARSK Entrez, Source	arylsulfatase family, member K	14897	-0.343	0.0369	No
378	SLC44A3	SLC44A3 Entrez, Source	solute carrier family 44, member 3	14968	-0.349	0.0351	No
379	ETNK1	ETNK1 Entrez, Source	ethanolamine kinase 1	15083	-0.364	0.0305	No
380	MCEE	MCEE Entrez, Source	methylmalonyl CoA epimerase	15097	-0.367	0.0322	No
381	PRKACB	PRKACB Entrez, Source	protein kinase, cAMP-dependent, catalytic, beta	15132	-0.371	0.0326	No
382	ACADM	ACADM Entrez, Source	acyl-Coenzyme A dehydrogenase, C-4 to C-12 straight chain	15263	-0.387	0.0270	No
383	FABP6	FABP6 Entrez, Source	fatty acid binding protein 6, ileal (gastrotropin)	15280	-0.390	0.0285	No
384	CUBN	CUBN Entrez, Source	cubilin (intrinsic factor-cobalamin receptor)	15293	-0.392	0.0302	No
385	UGCG	UGCG Entrez, Source	UDP-glucose ceramide glucosyltransferase	15307	-0.396	0.0319	No
386	PLD6			15316	-0.397	0.0339	No
387	NR1D1	NR1D1 Entrez, Source	nuclear receptor subfamily 1, group D, member 1	15321	-0.398	0.0361	No
388	PPAP2A	PPAP2A Entrez, Source	phosphatidic acid phosphatase type 2A	15424	-0.414	0.0323	No
389	OXCT1	OXCT1 Entrez, Source	3-oxoacid CoA transferase 1	15439	-0.417	0.0339	No
390	AMN	AMN Entrez, Source	amnionless homolog (mouse)	15518	-0.428	0.0316	No
391	ACHE	ACHE Entrez, Source	acetylcholinesterase (Yt blood group)	15561	-0.439	0.0315	No
392	PLA2G12A	PLA2G12A Entrez, Source	phospholipase A2, group XIIA	15571	-0.442	0.0334	No

393	LDLRAP1	LDLRAP1 Entrez, Source	low density lipoprotein receptor adaptor protein 1	15583	-0.444	0.0352	No
394	CERS6			15590	-0.446	0.0373	No
395	APOE	APOE Entrez, Source	apolipoprotein E	15705	-0.473	0.0327	No
396	NFYB	NFYB Entrez, Source	nuclear transcription factor Y, beta	15872	-0.521	0.0249	No
397	ACSL6	ACSL6 Entrez, Source	acyl-CoA synthetase long-chain family member 6	15932	-0.541	0.0238	No
398	CCNC	CCNC Entrez, Source	cyclin C	15976	-0.557	0.0236	No
399	LPL	LPL Entrez, Source	lipoprotein lipase	16025	-0.580	0.0231	No
400	CERS3			16072	-0.598	0.0227	No
401	INPP4B	INPP4B Entrez, Source	inositol polyphosphate-4-phosphatase, type II, 105kDa	16146	-0.640	0.0207	No
402	IDI2	IDI2 Entrez, Source	isopentenyl-diphosphate delta isomerase 2	16163	-0.652	0.0222	No
403	LPIN3	LPIN3 Entrez, Source	lipin 3	16359	-0.827	0.0126	No
404	NPAS2	NPAS2 Entrez, Source	neuronal PAS domain protein 2	16567	-1.644	0.0023	No

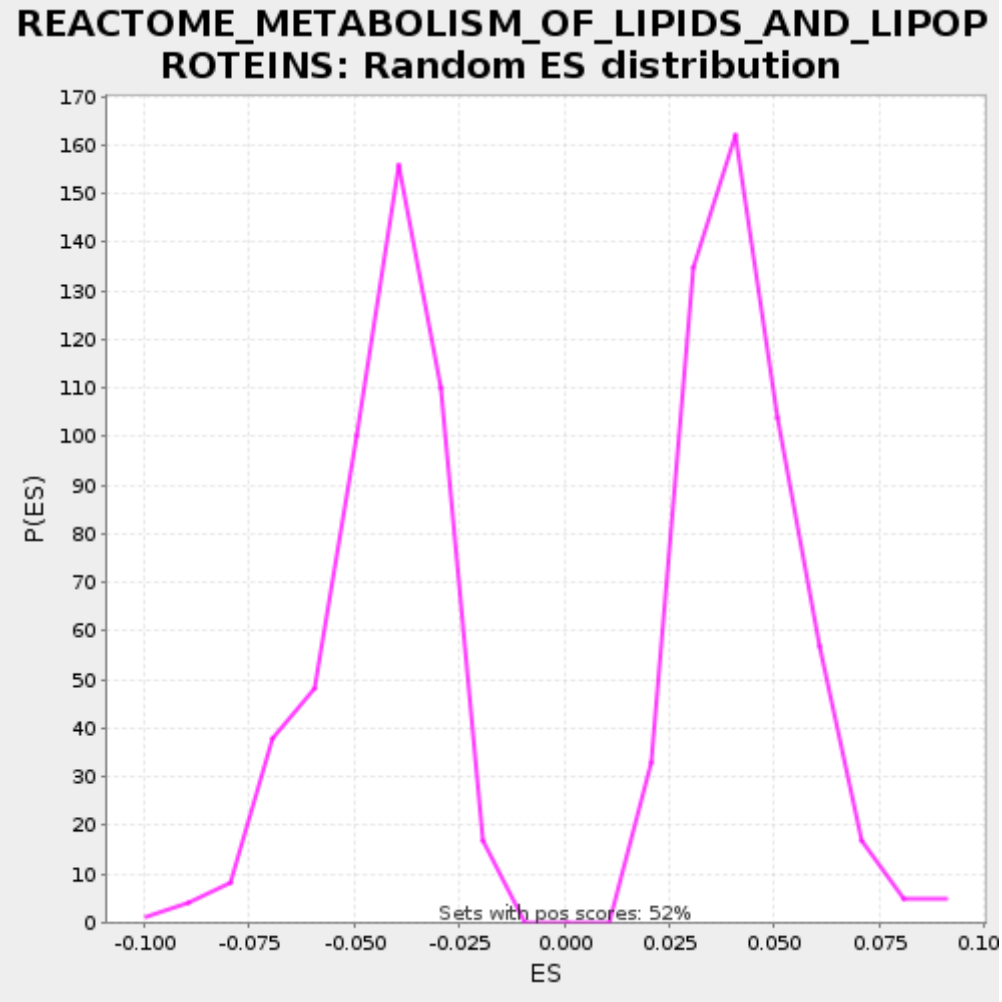

Fig 2: REACTOME_METABOLISM_OF_LIPIDS_AND_LIPOPROTEINS: Random ES distribution
Gene set null distribution of ES for
REACTOME_METABOLISM_OF_LIPIDS_AND_LIPOPROTEINS

Table: GSEA Results Summary

Dataset	PARK4_differential_expression_5vs5_20140911
Phenotype	NoPhenotypeAvailable
Upregulated in class	disease
GeneSet	EXTRACELLULAR_REGION
Enrichment Score (ES)	0.14901806
Normalized Enrichment Score (NES)	2.909486
Nominal p-value	0.0
FDR q-value	0.0
FWER p-Value	0.0

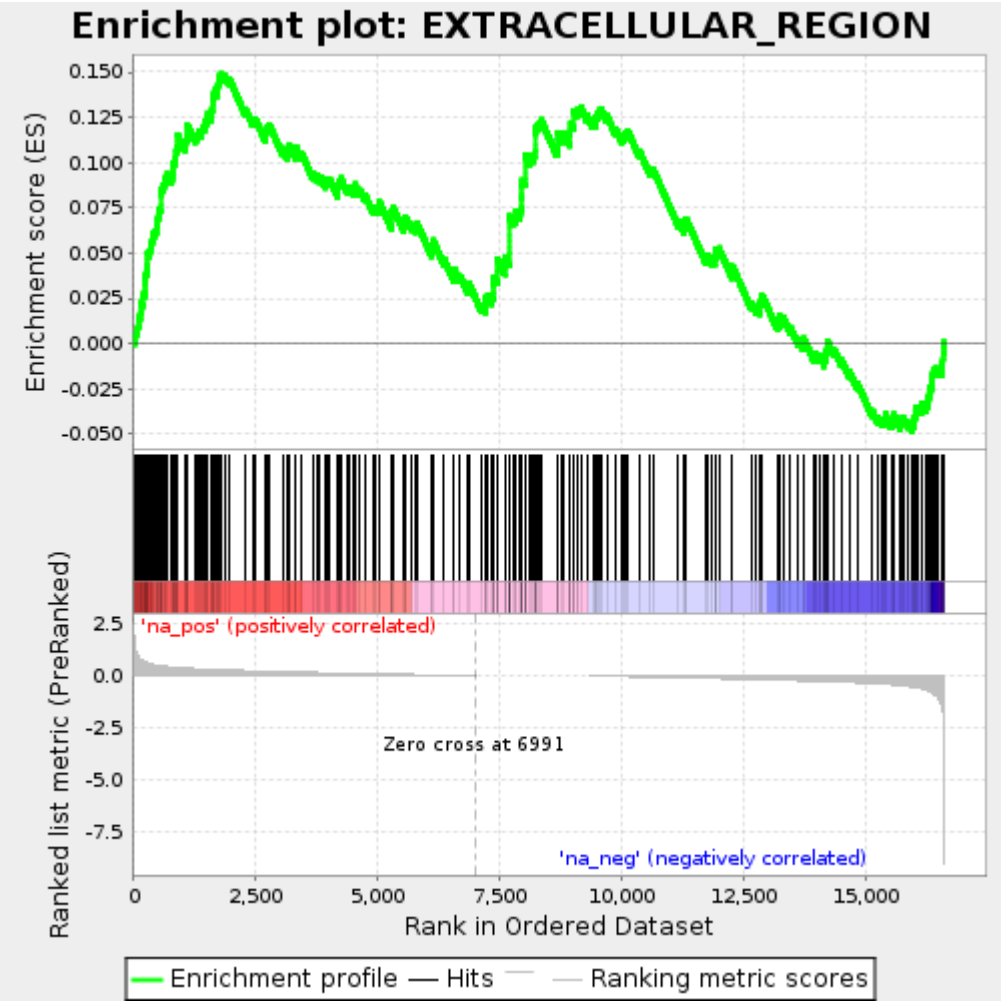

Fig 1: Enrichment plot: EXTRACELLULAR_REGION
Profile of the Running ES Score & Positions of GeneSet Members on the Rank Ordered List

Table: GSEA details [plain text format]

	PROBE	GENE SYMBOL	GENE_TITLE	RANK IN GENE LIST	RANK METRIC SCORE	RUNNING ES	CORE ENRICHMENT
1	PCSK1N	PCSK1N Entrez, Source	proprotein convertase subtilisin/kexin type 1 inhibitor	8	1.628	0.0030	Yes
2	GPX3	GPX3 Entrez, Source	glutathione peroxidase 3 (plasma)	39	1.145	0.0046	Yes
3	EFNA5	EFNA5 Entrez, Source	ephrin-A5	49	1.093	0.0076	Yes
4	C2	C2 Entrez, Source	complement component 2	82	0.935	0.0091	Yes
5	PLTP	PLTP Entrez, Source	phospholipid transfer protein	92	0.915	0.0120	Yes
6	SFTPD	SFTPD Entrez, Source	surfactant, pulmonary-associated protein D	98	0.901	0.0152	Yes
7	CXCL2	CXCL2 Entrez, Source	chemokine (C-X-C motif) ligand 2	128	0.812	0.0169	Yes
8	C1QB	C1QB Entrez, Source	complement component 1, q subcomponent, B chain	141	0.790	0.0197	Yes
9	CTGF	CTGF Entrez, Source	connective tissue growth factor	145	0.782	0.0230	Yes
10	COL13A1	COL13A1 Entrez, Source	collagen, type XIII, alpha 1	187	0.730	0.0239	Yes
11	C1QA	C1QA Entrez, Source	complement component 1, q subcomponent, A chain	188	0.729	0.0274	Yes
12	EREG	EREG Entrez, Source	epiregulin	216	0.696	0.0292	Yes
13	IL27	IL27 Entrez, Source	interleukin 27	222	0.685	0.0324	Yes
14	CETP	CETP Entrez, Source	cholesteryl ester transfer protein, plasma	227	0.680	0.0357	Yes

15	ORM2	ORM2 Entrez, Source	orosomucoid 2	242	0.663	0.0383	Yes
16	PTGDS	PTGDS Entrez, Source	prostaglandin D2 synthase 21kDa (brain)	261	0.649	0.0407	Yes
17	DKK3	DKK3 Entrez, Source	dickkopf homolog 3 (Xenopus laevis)	271	0.638	0.0436	Yes
18	MMP9	MMP9 Entrez, Source	matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)	280	0.633	0.0466	Yes
19	PLA2G2D	PLA2G2D Entrez, Source	phospholipase A2, group IID	283	0.626	0.0500	Yes
20	IL5RA	IL5RA Entrez, Source	interleukin 5 receptor, alpha	323	0.592	0.0511	Yes
21	CCL4	CCL4 Entrez, Source	chemokine (C-C motif) ligand 4	334	0.581	0.0539	Yes
22	GSN	GSN Entrez, Source	gelsolin (amyloidosis, Finnish type)	355	0.567	0.0562	Yes
23	GNLY	GNLY Entrez, Source	granulysin	375	0.553	0.0585	Yes
24	PROK2	PROK2 Entrez, Source	prokineticin 2	394	0.541	0.0609	Yes
25	SECTM1	SECTM1 Entrez, Source	secreted and transmembrane 1	425	0.530	0.0625	Yes
26	IFI30	IFI30 Entrez, Source	interferon, gamma-inducible protein 30	458	0.516	0.0641	Yes
27	CABP4	CABP4 Entrez, Source	calcium binding protein 4	465	0.513	0.0672	Yes
28	ECM1	ECM1 Entrez, Source	extracellular matrix protein 1	488	0.502	0.0693	Yes
29	PSAP	PSAP Entrez, Source	prosaposin (variant Gaucher disease and variant metachromatic leukodystrophy)	501	0.498	0.0721	Yes
30	LYZ	LYZ Entrez, Source	lysozyme (renal amyloidosis)	519	0.492	0.0745	Yes

31	HYAL1	HYAL1 Entrez, Source	hyaluronoglucosaminidase 1	542	0.483	0.0766	Yes
32	TGFB1	TGFB1 Entrez, Source	transforming growth factor, beta 1 (Camurati-Engelmann disease)	544	0.481	0.0801	Yes
33	CDA	CDA Entrez, Source	cytidine deaminase	545	0.480	0.0835	Yes
34	LAMB2	LAMB2 Entrez, Source	laminin, beta 2 (laminin S)	568	0.472	0.0857	Yes
35	CXCL9	CXCL9 Entrez, Source	chemokine (C-X-C motif) ligand 9	594	0.464	0.0876	Yes
36	EMILIN2	EMILIN2 Entrez, Source	elastin microfibril interfacer 2	621	0.455	0.0895	Yes
37	SLIT1	SLIT1 Entrez, Source	slit homolog 1 (Drosophila)	645	0.449	0.0916	Yes
38	ADM	ADM Entrez, Source	adrenomedullin	666	0.444	0.0939	Yes
39	ERBB2	ERBB2 Entrez, Source	v-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	755	0.422	0.0920	Yes
40	CHI3L1	CHI3L1 Entrez, Source	chitinase 3-like 1 (cartilage glycoprotein-39)	784	0.415	0.0937	Yes
41	AMH	AMH Entrez, Source	anti-Mullerian hormone	793	0.414	0.0967	Yes
42	IL1RN	IL1RN Entrez, Source	interleukin 1 receptor antagonist	797	0.413	0.1000	Yes
43	TGFBI	TGFBI Entrez, Source	transforming growth factor, beta-induced, 68kDa	830	0.404	0.1015	Yes
44	RNH1	RNH1 Entrez, Source	ribonuclease/angiogenin inhibitor 1	858	0.400	0.1034	Yes
45	SERPINA1	SERPINA1 Entrez, Source	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 1	861	0.399	0.1067	Yes
46	SGCA	SGCA Entrez, Source	sarcoglycan, alpha (50kDa dystrophin-associated glycoprotein)	883	0.395	0.1089	Yes

47	APOL1	APOL1 Entrez, Source	apolipoprotein L, 1	897	0.392	0.1116	Yes
48	HBEGF	HBEGF Entrez, Source	heparin-binding EGF-like growth factor	899	0.392	0.1150	Yes
49	ORM1	ORM1 Entrez, Source	orosomucoid 1	1039	0.372	0.1100	Yes
50	PLA2G7	PLA2G7 Entrez, Source	phospholipase A2, group VII (platelet-activating factor acetylhydrolase, plasma)	1065	0.368	0.1120	Yes
51	CTF1	CTF1 Entrez, Source	cardiotrophin 1	1078	0.365	0.1147	Yes
52	GLA	GLA Entrez, Source	galactosidase, alpha	1087	0.364	0.1177	Yes
53	CHAD	CHAD Entrez, Source	chondroadherin	1090	0.363	0.1211	Yes
54	TCN2	TCN2 Entrez, Source	transcobalamin II; macrocytic anemia	1254	0.339	0.1146	Yes
55	RNPEP	RNPEP Entrez, Source	arginyl aminopeptidase (aminopeptidase B)	1294	0.334	0.1157	Yes
56	CFP	CFP Entrez, Source	complement factor properdin	1319	0.332	0.1177	Yes
57	RTN3	RTN3 Entrez, Source	reticulon 3	1386	0.325	0.1171	Yes
58	COL7A1	COL7A1 Entrez, Source	collagen, type VII, alpha 1 (epidermolysis bullosa, dystrophic, dominant and recessive)	1396	0.324	0.1200	Yes
59	NUCB1	NUCB1 Entrez, Source	nucleobindin 1	1441	0.319	0.1208	Yes
60	EGFL7	EGFL7 Entrez, Source	EGF-like-domain, multiple 7	1460	0.317	0.1232	Yes
61	LTBP4	LTBP4 Entrez, Source	latent transforming growth factor beta binding protein 4	1497	0.314	0.1245	Yes
62	QSOX1			1515	0.313	0.1269	Yes
63	LOXL3	LOXL3 Entrez, Source	lysyl oxidase-like 3	1579	0.307	0.1266	Yes

64	VTN	VTN Entrez, Source	vitronectin	1596	0.305	0.1291	Yes
65	IL1B	IL1B Entrez, Source	interleukin 1, beta	1606	0.303	0.1320	Yes
66	RNASE6	RNASE6 Entrez, Source	ribonuclease, RNase A family, k6	1610	0.303	0.1353	Yes
67	CXCL1	CXCL1 Entrez, Source	chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)	1624	0.301	0.1380	Yes
68	RAB35	RAB35 Entrez, Source	RAB35, member RAS oncogene family	1643	0.298	0.1404	Yes
69	INSL3	INSL3 Entrez, Source	insulin-like 3 (Leydig cell)	1709	0.293	0.1399	Yes
70	PVR	PVR Entrez, Source	poliovirus receptor	1722	0.291	0.1426	Yes
71	LTBP2	LTBP2 Entrez, Source	latent transforming growth factor beta binding protein 2	1730	0.290	0.1457	Yes
72	MGP	MGP Entrez, Source	matrix Gla protein	1751	0.287	0.1479	Yes
73	SPINT1	SPINT1 Entrez, Source	serine peptidase inhibitor, Kunitz type 1	1791	0.284	0.1490	Yes
74	PPT1	PPT1 Entrez, Source	palmitoyl-protein thioesterase 1 (ceroid-lipofuscinosis, neuronal 1, infantile)	1863	0.278	0.1482	No
75	HPX	HPX Entrez, Source	hemopexin	1948	0.270	0.1465	No
76	OSM	OSM Entrez, Source	oncostatin M	2285	0.242	0.1294	No
77	COPA	COPA Entrez, Source	coatomer protein complex, subunit alpha	2426	0.232	0.1243	No
78	RNASET2	RNASET2 Entrez, Source	ribonuclease T2	2490	0.228	0.1239	No
79	FXYD6	FXYD6 Entrez, Source	FXYD domain containing ion transport regulator 6	2691	0.215	0.1151	No

80	ANG	ANG Entrez, Source	angiogenin, ribonuclease, RNase A family, 5	2703	0.214	0.1180	No
81	APOA1	APOA1 Entrez, Source	apolipoprotein A-I	2728	0.212	0.1200	No
82	IL32	IL32 Entrez, Source	interleukin 32	2768	0.208	0.1211	No
83	LCAT	LCAT Entrez, Source	lecithin-cholesterol acyltransferase	3039	0.191	0.1080	No
84	CTRL	CTRL Entrez, Source	chymotrypsin-like	3142	0.184	0.1052	No
85	THBS4	THBS4 Entrez, Source	thrombospondin 4	3163	0.183	0.1075	No
86	SPN	SPN Entrez, Source	sialophorin (leukosialin, CD43)	3179	0.183	0.1101	No
87	APOA1BP	APOA1BP Entrez, Source	apolipoprotein A-I binding protein	3313	0.176	0.1054	No
88	FSTL3	FSTL3 Entrez, Source	follistatin-like 3 (secreted glycoprotein)	3315	0.176	0.1088	No
89	CRLF1	CRLF1 Entrez, Source	cytokine receptor-like factor 1	3433	0.169	0.1051	No
90	IL15	IL15 Entrez, Source	interleukin 15	3665	0.157	0.0945	No
91	COL9A2	COL9A2 Entrez, Source	collagen, type IX, alpha 2	3742	0.152	0.0933	No
92	MIA	MIA Entrez, Source	melanoma inhibitory activity	3813	0.149	0.0925	No
93	PRG2	PRG2 Entrez, Source	proteoglycan 2, bone marrow (natural killer cell activator, eosinophil granule major basic protein)	3923	0.143	0.0893	No
94	INHBB	INHBB Entrez, Source	inhibin, beta B (activin AB beta polypeptide)	3947	0.142	0.0914	No
95	ATRN	ATRN Entrez, Source	attractin	4018	0.138	0.0906	No

96	IL18BP	IL18BP Entrez, Source	interleukin 18 binding protein	4182	0.130	0.0841	No
97	F13A1	F13A1 Entrez, Source	coagulation factor XIII, A1 polypeptide	4186	0.129	0.0874	No
98	HDGF	HDGF Entrez, Source	hepatoma-derived growth factor (high-mobility group protein 1-like)	4202	0.128	0.0899	No
99	CHI3L2	CHI3L2 Entrez, Source	chitinase 3-like 2	4233	0.126	0.0916	No
100	IL18	IL18 Entrez, Source	interleukin 18 (interferon-gamma-inducing factor)	4372	0.119	0.0866	No
101	YARS	YARS Entrez, Source	tyrosyl-tRNA synthetase	4427	0.117	0.0868	No
102	IL6R	IL6R Entrez, Source	interleukin 6 receptor	4506	0.112	0.0855	No
103	EFEMP2	EFEMP2 Entrez, Source	EGF-containing fibulin-like extracellular matrix protein 2	4519	0.112	0.0882	No
104	ADAMTS13	ADAMTS13 Entrez, Source	ADAM metallopeptidase with thrombospondin type 1 motif, 13	4630	0.106	0.0850	No
105	GPC1	GPC1 Entrez, Source	glypican 1	4728	0.102	0.0825	No
106	C19orf24	C19ORF24 Entrez, Source	chromosome 19 open reading frame 24	4902	0.093	0.0754	No
107	PRADC1			4956	0.091	0.0756	No
108	SPINT2	SPINT2 Entrez, Source	serine peptidase inhibitor, Kunitz type, 2	5016	0.088	0.0755	No
109	VCAN			5027	0.088	0.0784	No
110	PLA2G4B	PLA2G4B Entrez, Source	phospholipase A2, group IVB (cytosolic)	5275	0.076	0.0667	No
111	VWF	VWF Entrez, Source	von Willebrand factor	5278	0.076	0.0701	No
112	SDF2	SDF2 Entrez, Source	stromal cell-derived factor 2	5287	0.075	0.0731	No

113	MFNG	MFNG Entrez, Source	manic fringe homolog (Drosophila)	5311	0.074	0.0751	No
114	PLIN2			5532	0.065	0.0651	No
115	COLQ	COLQ Entrez, Source	collagen-like tail subunit (single strand of homotrimer) of asymmetric acetylcholinesterase	5544	0.064	0.0680	No
116	IMPG2	IMPG2 Entrez, Source	interphotoreceptor matrix proteoglycan 2	5571	0.063	0.0698	No
117	IFNAR2	IFNAR2 Entrez, Source	interferon (alpha, beta and omega) receptor 2	5692	0.056	0.0660	No
118	VEGFA			5768	0.053	0.0649	No
119	IK	IK Entrez, Source	IK cytokine, down-regulator of HLA II	5793	0.052	0.0669	No
120	SNTB2	SNTB2 Entrez, Source	syntrophin, beta 2 (dystrophin-associated protein A1, 59kDa, basic component 2)	6102	0.039	0.0515	No
121	FGL2	FGL2 Entrez, Source	fibrinogen-like 2	6105	0.039	0.0549	No
122	SPG7	SPG7 Entrez, Source	spastic paraplegia 7, paraplegin (pure and complicated autosomal recessive)	6125	0.039	0.0572	No
123	TNFAIP2	TNFAIP2 Entrez, Source	tumor necrosis factor, alpha-induced protein 2	6350	0.029	0.0469	No
124	PRR4	PRR4 Entrez, Source	proline rich 4 (lacrimal)	6557	0.019	0.0378	No
125	SGCE	SGCE Entrez, Source	sarcoglycan, epsilon	6559	0.019	0.0412	No
126	APP	APP Entrez, Source	amyloid beta (A4) precursor protein (peptidase nexin-II, Alzheimer disease)	6680	0.014	0.0373	No
127	IL16	IL16 Entrez, Source	interleukin 16 (lymphocyte chemoattractant factor)	6844	0.007	0.0308	No
128	IL17C	IL17C Entrez, Source	interleukin 17C	6862	0.007	0.0333	No
129	AFM	AFM Entrez, Source	afamin	7121	0.000	0.0210	No
130	AMTN			7187	0.000	0.0205	No

131	ANGPTL3	ANGPTL3 Entrez, Source	angiopoietin-like 3	7191	0.000	0.0238	No
132	APCS	APCS Entrez, Source	amyloid P component, serum	7215	0.000	0.0258	No
133	BPIFA1			7258	0.000	0.0267	No
134	C8A	C8A Entrez, Source	complement component 8, alpha polypeptide	7344	0.000	0.0250	No
135	CALCA	CALCA Entrez, Source	calcitonin/calcitonin-related polypeptide, alpha	7359	0.000	0.0276	No
136	CARTPT	CARTPT Entrez, Source	CART prepropeptide	7363	0.000	0.0309	No
137	CAV3	CAV3 Entrez, Source	caveolin 3	7366	0.000	0.0343	No
138	CCL13	CCL13 Entrez, Source	chemokine (C-C motif) ligand 13	7381	0.000	0.0369	No
139	COL1A2	COL1A2 Entrez, Source	collagen, type I, alpha 2	7445	0.000	0.0366	No
140	COL3A1	COL3A1 Entrez, Source	collagen, type III, alpha 1 (Ehlers-Danlos syndrome type IV, autosomal dominant)	7446	0.000	0.0400	No
141	CPA1	CPA1 Entrez, Source	carboxypeptidase A1 (pancreatic)	7450	0.000	0.0433	No
142	CPN1	CPN1 Entrez, Source	carboxypeptidase N, polypeptide 1, 50kD	7452	0.000	0.0468	No
143	DMBT1	DMBT1 Entrez, Source	deleted in malignant brain tumors 1	7594	0.000	0.0416	No
144	DMP1	DMP1 Entrez, Source	dentin matrix acidic phosphoprotein	7596	0.000	0.0450	No
145	DSPP	DSPP Entrez, Source	dentin sialophosphoprotein	7611	0.000	0.0477	No
146	FGA	FGA Entrez, Source	fibrinogen alpha chain	7690	0.000	0.0464	No
147	FGF10	FGF10 Entrez, Source	fibroblast growth factor 10	7691	0.000	0.0499	No

148	FGF3	FGF3 Entrez, Source	fibroblast growth factor 3 (murine mammary tumor virus integration site (v-int-2) oncogene homolog)	7693	0.000	0.0533	No
149	FGF4	FGF4 Entrez, Source	fibroblast growth factor 4 (heparin secretory transforming protein 1, Kaposi sarcoma oncogene)	7694	0.000	0.0568	No
150	FGF5	FGF5 Entrez, Source	fibroblast growth factor 5	7695	0.000	0.0602	No
151	FGF6	FGF6 Entrez, Source	fibroblast growth factor 6	7696	0.000	0.0637	No
152	FGG	FGG Entrez, Source	fibrinogen gamma chain	7697	0.000	0.0672	No
153	FIGF	FIGF Entrez, Source	c-fos induced growth factor (vascular endothelial growth factor D)	7700	0.000	0.0706	No
154	GDNF	GDNF Entrez, Source	glial cell derived neurotrophic factor	7781	0.000	0.0692	No
155	GREM1	GREM1 Entrez, Source	gremlin 1, cysteine knot superfamily, homolog (Xenopus laevis)	7830	0.000	0.0697	No
156	GRP	GRP Entrez, Source	gastrin-releasing peptide	7832	0.000	0.0731	No
157	IFNA7	IFNA7 Entrez, Source	interferon, alpha 7	7914	0.000	0.0716	No
158	IGFBP1	IGFBP1 Entrez, Source	insulin-like growth factor binding protein 1	7920	0.000	0.0748	No
159	IL13RA2	IL13RA2 Entrez, Source	interleukin 13 receptor, alpha 2	7943	0.000	0.0770	No
160	IL17A	IL17A Entrez, Source	interleukin 17A	7944	0.000	0.0804	No
161	IL3	IL3 Entrez, Source	interleukin 3 (colony-stimulating factor, multiple)	7950	0.000	0.0836	No
162	IL36B			7952	0.000	0.0870	No
163	IL9R	IL9R Entrez, Source	interleukin 9 receptor	7957	0.000	0.0903	No
164	KLK13	KLK13 Entrez, Source	kallikrein 13	8009	0.000	0.0906	No

165	KLK4	KLK4 Entrez, Source	kallikrein 4 (prostase, enamel matrix, prostate)	8011	0.000	0.0941	No
166	KLK5	KLK5 Entrez, Source	kallikrein 5	8012	0.000	0.0975	No
167	KLK6	KLK6 Entrez, Source	kallikrein 6 (neurosin, zyme)	8013	0.000	0.1010	No
168	KLK8	KLK8 Entrez, Source	kallikrein 8 (neuropsin/ovasin)	8015	0.000	0.1045	No
169	LALBA	LALBA Entrez, Source	lactalbumin, alpha-	8115	0.000	0.1019	No
170	LGALS7	LGALS7 Entrez, Source	lectin, galactoside-binding, soluble, 7 (galectin 7)	8137	0.000	0.1041	No
171	MBL2	MBL2 Entrez, Source	mannose-binding lectin (protein C) 2, soluble (opsonic defect)	8202	0.000	0.1036	No
172	MEPE	MEPE Entrez, Source	matrix, extracellular phosphoglycoprotein with ASARM motif (bone)	8209	0.000	0.1067	No
173	MMP10	MMP10 Entrez, Source	matrix metallopeptidase 10 (stromelysin 2)	8213	0.000	0.1100	No
174	MMP13	MMP13 Entrez, Source	matrix metallopeptidase 13 (collagenase 3)	8214	0.000	0.1135	No
175	MMP20	MMP20 Entrez, Source	matrix metallopeptidase 20 (enamelysin)	8215	0.000	0.1170	No
176	MSMB	MSMB Entrez, Source	microseminoprotein, beta-	8234	0.000	0.1194	No
177	MYOC	MYOC Entrez, Source	myocilin, trabecular meshwork inducible glucocorticoid response	8262	0.000	0.1212	No
178	NPPB	NPPB Entrez, Source	natriuretic peptide precursor B	8304	0.000	0.1222	No
179	OPTC	OPTC Entrez, Source	opticin	8338	0.000	0.1237	No
180	PCSK2	PCSK2 Entrez, Source	proprotein convertase subtilisin/kexin type 2	8664	0.000	0.1072	No

181	PLA2G2E	PLA2G2E Entrez, Source	phospholipase A2, group IIE	8680	0.000	0.1098	No
182	PLA2G3	PLA2G3 Entrez, Source	phospholipase A2, group III	8681	0.000	0.1133	No
183	PLA2R1	PLA2R1 Entrez, Source	phospholipase A2 receptor 1, 180kDa	8684	0.000	0.1166	No
184	PTN	PTN Entrez, Source	pleiotrophin (heparin binding growth factor 8, neurite growth-promoting factor 1)	8778	0.000	0.1144	No
185	REG3A	REG3A Entrez, Source	regenerating islet-derived 3 alpha	8803	0.000	0.1164	No
186	SCGB1D1	SCGB1D1 Entrez, Source	secretoglobin, family 1D, member 1	8925	0.000	0.1125	No
187	SCGB1D2	SCGB1D2 Entrez, Source	secretoglobin, family 1D, member 2	8926	0.000	0.1160	No
188	SERPINA5	SERPINA5 Entrez, Source	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 5	8942	0.000	0.1186	No
189	SERPINA7	SERPINA7 Entrez, Source	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 7	8943	0.000	0.1220	No
190	SMR3A	SMR3A Entrez, Source	submaxillary gland androgen regulated protein 3 homolog A (mouse)	9005	0.000	0.1218	No
191	SMR3B	SMR3B Entrez, Source	submaxillary gland androgen regulated protein 3 homolog B (mouse)	9006	0.000	0.1253	No
192	SNTG1	SNTG1 Entrez, Source	syntrophin, gamma 1	9007	0.000	0.1288	No
193	SST	SST Entrez, Source	somatostatin	9070	0.000	0.1284	No
194	TAC1	TAC1 Entrez, Source	tachykinin, precursor 1 (substance K, substance P, neurokinin 1, neurokinin 2, neuromedin L, neurokinin alpha, neuropeptide K, neuropeptide gamma)	9103	0.000	0.1300	No
195	TINAG	TINAG Entrez, Source	tubulointerstitial nephritis antigen	9150	0.000	0.1306	No
196	VWC2	VWC2 Entrez, Source	von Willebrand factor C domain containing 2	9274	0.000	0.1266	No

197	UTS2	UTS2 Entrez, Source	urotensin 2	9397	-0.004	0.1226	No
198	AKR1B1	AKR1B1 Entrez, Source	aldo-keto reductase family 1, member B1 (aldose reductase)	9448	-0.006	0.1230	No
199	LGALS8	LGALS8 Entrez, Source	lectin, galactoside-binding, soluble, 8 (galectin 8)	9466	-0.007	0.1255	No
200	PNOC	PNOC Entrez, Source	prepronociceptin	9496	-0.009	0.1272	No
201	DST	DST Entrez, Source	dystonin	9522	-0.010	0.1291	No
202	IL12A	IL12A Entrez, Source	interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35)	9567	-0.012	0.1299	No
203	MIF	MIF Entrez, Source	macrophage migration inhibitory factor (glycosylation-inhibiting factor)	9690	-0.019	0.1259	No
204	GHRL	GHRL Entrez, Source	ghrelin/obestatin preprohormone	9863	-0.028	0.1189	No
205	CCL2	CCL2 Entrez, Source	chemokine (C-C motif) ligand 2	9994	-0.034	0.1144	No
206	UTP11L	UTP11L Entrez, Source	UTP11-like, U3 small nucleolar ribonucleoprotein, (yeast)	10043	-0.036	0.1149	No
207	CKLF	CKLF Entrez, Source	chemokine-like factor	10072	-0.037	0.1167	No
208	SGCB	SGCB Entrez, Source	sarcoglycan, beta (43kDa dystrophin-associated glycoprotein)	10112	-0.039	0.1178	No
209	CFH	CFH Entrez, Source	complement factor H	10352	-0.051	0.1066	No
210	AGRN			10573	-0.061	0.0966	No
211	TNXB	TNXB Entrez, Source	tenascin XB	10639	-0.064	0.0961	No
212	COL18A1	COL18A1 Entrez, Source	collagen, type XVIII, alpha 1	11156	-0.090	0.0680	No
213	SRGN			11274	-0.096	0.0643	No

214	TFRC	TFRC Entrez, Source	transferrin receptor (p90, CD71)	11301	-0.098	0.0662	No
215	DNASE1	DNASE1 Entrez, Source	deoxyribonuclease I	11312	-0.098	0.0691	No
216	LIPE	LIPE Entrez, Source	lipase, hormone-sensitive	11722	-0.120	0.0475	No
217	SNTB1	SNTB1 Entrez, Source	syntrophin, beta 1 (dystrophin-associated protein A1, 59kDa, basic component 1)	11757	-0.122	0.0489	No
218	KDSR			11847	-0.127	0.0469	No
219	ERAP1			11900	-0.130	0.0472	No
220	LAMA2	LAMA2 Entrez, Source	laminin, alpha 2 (merosin, congenital muscular dystrophy)	11916	-0.131	0.0498	No
221	A1BG	A1BG Entrez, Source	alpha-1-B glycoprotein	11927	-0.132	0.0527	No
222	LOXL1	LOXL1 Entrez, Source	lysyl oxidase-like 1	11983	-0.135	0.0528	No
223	SFN	SFN Entrez, Source	stratifin	12259	-0.152	0.0394	No
224	LGALS3BP	LGALS3BP Entrez, Source	lectin, galactoside-binding, soluble, 3 binding protein	12260	-0.152	0.0429	No
225	MATN1	MATN1 Entrez, Source	matrilin 1, cartilage matrix protein	12647	-0.174	0.0227	No
226	AGGF1	AGGF1 Entrez, Source	angiogenic factor with G patch and FHA domains 1	12754	-0.180	0.0197	No
227	PTX3	PTX3 Entrez, Source	pentraxin-related gene, rapidly induced by IL-1 beta	12815	-0.184	0.0195	No
228	ASIP	ASIP Entrez, Source	agouti signaling protein, nonagouti homolog (mouse)	12817	-0.184	0.0229	No
229	ADAMTS5	ADAMTS5 Entrez, Source	ADAM metallopeptidase with thrombospondin type 1 motif, 5 (aggrecanase-2)	12850	-0.186	0.0245	No
230	MMP11	MMP11 Entrez, Source	matrix metallopeptidase 11 (stromelysin 3)	12872	-0.188	0.0267	No

231	PI3	PI3 Entrez, Source	peptidase inhibitor 3, skin-derived (SKALP)	13180	-0.208	0.0113	No
232	ERBB2IP	ERBB2IP Entrez, Source	erbb2 interacting protein	13222	-0.210	0.0123	No
233	DGCR6	DGCR6 Entrez, Source	DiGeorge syndrome critical region gene 6	13227	-0.210	0.0155	No
234	SMC3	SMC3 Entrez, Source	structural maintenance of chromosomes 3	13299	-0.215	0.0147	No
235	IDE	IDE Entrez, Source	insulin-degrading enzyme	13455	-0.225	0.0087	No
236	LOXL2	LOXL2 Entrez, Source	lysyl oxidase-like 2	13619	-0.237	0.0022	No
237	LAMC1	LAMC1 Entrez, Source	laminin, gamma 1 (formerly LAMB2)	13710	-0.243	0.0001	No
238	SOD1	SOD1 Entrez, Source	superoxide dismutase 1, soluble (amyotrophic lateral sclerosis 1 (adult))	13720	-0.243	0.0031	No
239	FLT1	FLT1 Entrez, Source	fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)	13931	-0.259	-0.0063	No
240	RNASE2	RNASE2 Entrez, Source	ribonuclease, RNase A family, 2 (liver, eosinophil-derived neurotoxin)	13975	-0.262	-0.0055	No
241	C5	C5 Entrez, Source	complement component 5	14053	-0.268	-0.0067	No
242	CCL20	CCL20 Entrez, Source	chemokine (C-C motif) ligand 20	14153	-0.275	-0.0093	No
243	KL	KL Entrez, Source	klotho	14165	-0.276	-0.0065	No
244	FGF9	FGF9 Entrez, Source	fibroblast growth factor 9 (glia-activating factor)	14178	-0.277	-0.0037	No
245	FKTN			14198	-0.278	-0.0014	No
246	ATG4C	ATG4C Entrez, Source	ATG4 autophagy related 4 homolog C (S. cerevisiae)	14204	-0.279	0.0018	No
247	SERPINF1	SERPINF1 Entrez,	serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment	14345	-0.290	-0.0033	No

		Source	epithelium derived factor), member 1				
248	TFF3	TFF3 Entrez, Source	trefoil factor 3 (intestinal)	14495	-0.304	-0.0090	No
249	MAGEE1	MAGEE1 Entrez, Source	melanoma antigen family E, 1	14658	-0.319	-0.0154	No
250	CCL28	CCL28 Entrez, Source	chemokine (C-C motif) ligand 28	14817	-0.336	-0.0216	No
251	PCSK5	PCSK5 Entrez, Source	proprotein convertase subtilisin/kexin type 5	15124	-0.371	-0.0369	No
252	IL8	IL8 Entrez, Source	interleukin 8	15242	-0.385	-0.0406	No
253	COL9A3	COL9A3 Entrez, Source	collagen, type IX, alpha 3	15323	-0.398	-0.0420	No
254	SEMG1	SEMG1 Entrez, Source	semenogelin I	15373	-0.406	-0.0415	No
255	FBLN2	FBLN2 Entrez, Source	fibulin 2	15386	-0.408	-0.0388	No
256	AIMP1			15519	-0.429	-0.0434	No
257	GDF15	GDF15 Entrez, Source	growth differentiation factor 15	15556	-0.438	-0.0421	No
258	ACHE	ACHE Entrez, Source	acetylcholinesterase (Yt blood group)	15561	-0.439	-0.0388	No
259	APOE	APOE Entrez, Source	apolipoprotein E	15705	-0.473	-0.0441	No
260	HTRA1	HTRA1 Entrez, Source	HtrA serine peptidase 1	15713	-0.475	-0.0411	No
261	COL4A4	COL4A4 Entrez, Source	collagen, type IV, alpha 4	15771	-0.488	-0.0411	No
262	NUCB2	NUCB2 Entrez, Source	nucleobindin 2	15867	-0.519	-0.0434	No
263	IGFALS	IGFALS Entrez, Source	insulin-like growth factor binding protein, acid labile subunit	15953	-0.549	-0.0451	No

264	FBN2	FBN2 Entrez, Source	fibrillin 2 (congenital contractural arachnodactyly)	15974	-0.557	-0.0429	No
265	RNASE3	RNASE3 Entrez, Source	ribonuclease, RNase A family, 3 (eosinophil cationic protein)	15993	-0.565	-0.0405	No
266	SSPN	SSPN Entrez, Source	sarcospan (Kras oncogene-associated gene)	16010	-0.572	-0.0380	No
267	LPL	LPL Entrez, Source	lipoprotein lipase	16025	-0.580	-0.0354	No
268	FSTL1	FSTL1 Entrez, Source	follistatin-like 1	16074	-0.600	-0.0348	No
269	SFRP5	SFRP5 Entrez, Source	secreted frizzled-related protein 5	16132	-0.627	-0.0348	No
270	CLEC11A	CLEC11A Entrez, Source	C-type lectin domain family 11, member A	16156	-0.647	-0.0328	No
271	CYTL1	CYTL1 Entrez, Source	cytokine-like 1	16240	-0.705	-0.0344	No
272	COL6A3	COL6A3 Entrez, Source	collagen, type VI, alpha 3	16257	-0.717	-0.0319	No
273	EDN1	EDN1 Entrez, Source	endothelin 1	16271	-0.728	-0.0292	No
274	COL4A3	COL4A3 Entrez, Source	collagen, type IV, alpha 3 (Goodpasture antigen)	16292	-0.750	-0.0269	No
275	TPT1	TPT1 Entrez, Source	tumor protein, translationally-controlled 1	16304	-0.763	-0.0241	No
276	IL7	IL7 Entrez, Source	interleukin 7	16334	-0.794	-0.0224	No
277	COL5A3	COL5A3 Entrez, Source	collagen, type V, alpha 3	16356	-0.826	-0.0202	No
278	EBI3	EBI3 Entrez, Source	Epstein-Barr virus induced gene 3	16361	-0.830	-0.0170	No
279	CD248	CD248 Entrez, Source	CD248 molecule, endosialin	16377	-0.850	-0.0144	No

280	IL4	IL4 Entrez, Source	interleukin 4	16420	-0.937	-0.0135	No
281	IL6	IL6 Entrez, Source	interleukin 6 (interferon, beta 2)	16483	-1.093	-0.0138	No
282	NOG	NOG Entrez, Source	noggin	16545	-1.443	-0.0141	No
283	FBLN5	FBLN5 Entrez, Source	fibulin 5	16549	-1.471	-0.0108	No
284	CRISP2	CRISP2 Entrez, Source	cysteine-rich secretory protein 2	16573	-1.752	-0.0087	No
285	CEACAM8	CEACAM8 Entrez, Source	carcinoembryonic antigen-related cell adhesion molecule 8	16576	-1.783	-0.0053	No
286	MMP8	MMP8 Entrez, Source	matrix metallopeptidase 8 (neutrophil collagenase)	16585	-2.174	-0.0023	No
287	CRISP3	CRISP3 Entrez, Source	cysteine-rich secretory protein 3	16591	-2.322	0.0009	No

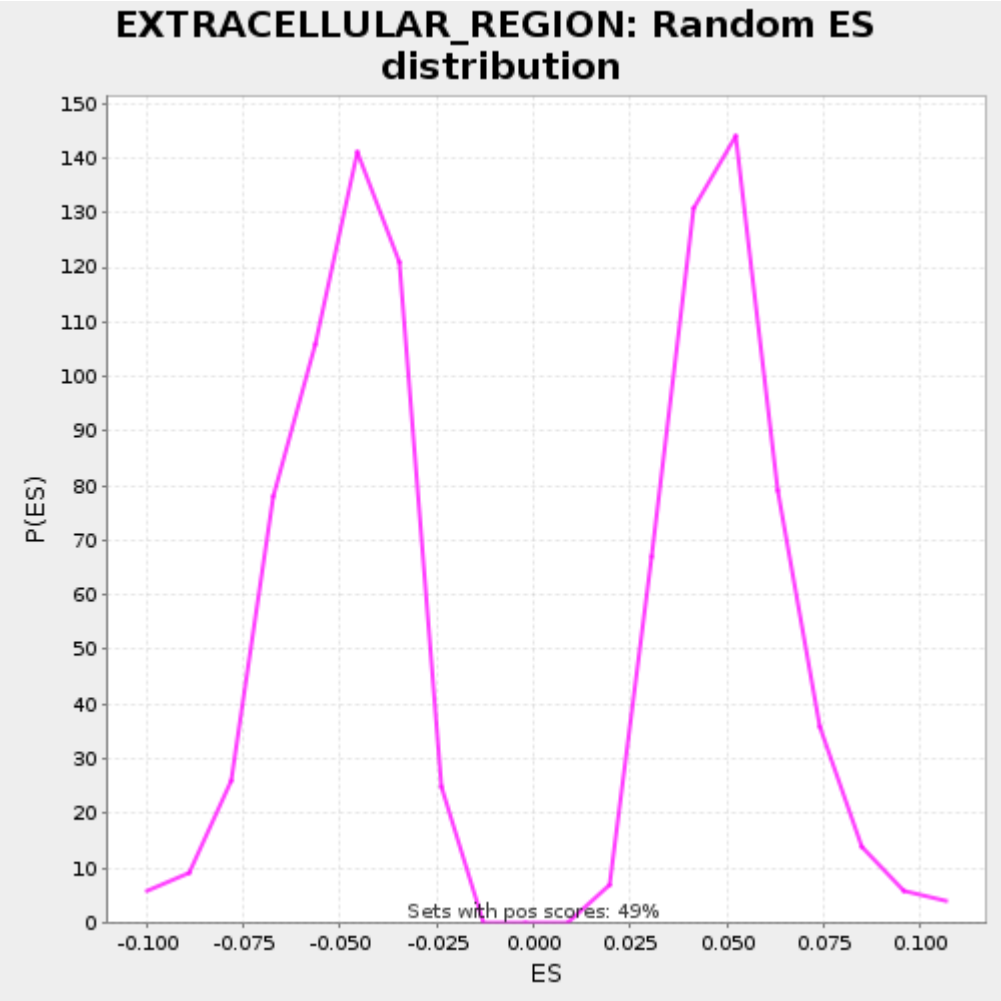

Fig 2: EXTRACELLULAR_REGION: Random ES distribution
Gene set null distribution of ES for EXTRACELLULAR_REGION