

**Supplementary Table S1: Differentially expressed genes in serial biopsies of VCaP xenografts, AER vs. Pre-Cx.** Expression data from RNA sequencing of serial biopsies of VCaP tumors prior to castration (Pre-Cx) and following development of abiraterone and enzalutamide resistance (AER). log2FC – log2 fold change

<b>Ensemble ID</b>	<b>log2FC</b>	<b>P Value</b>	<b>Symbol</b>
ENSG00000135063	-7.696	1.49E-08	FAM189A2
ENSG00000197635	-6.831	5.40E-13	DPP4
ENSG00000156463	-5.174	1.47E-06	SH3RF2
ENSG00000075461	-5.140	5.27E-08	CACNG4
ENSG00000235410	-5.050	6.30E-07	NA
ENSG00000170419	-5.013	5.87E-10	VSTM2A
ENSG00000070526	-4.995	7.85E-09	ST6GALNAC1
ENSG00000224223	-4.928	2.19E-06	VSTM2A-OT1
ENSG00000088992	-4.872	8.82E-11	TESC
ENSG00000148702	-4.840	9.82E-06	HABP2
ENSG00000165092	-4.737	3.71E-10	ALDH1A1
ENSG00000187398	-4.618	1.80E-09	LUZP2
ENSG00000233001	-4.317	3.02E-05	NA
ENSG00000183929	-4.246	2.07E-05	NA
ENSG00000144481	-4.234	1.32E-12	TRPM8
ENSG00000229751	-4.190	8.06E-07	NA
ENSG00000158164	-4.044	4.27E-06	TMSB15A
ENSG00000237654	-3.983	1.85E-10	LOC101929653
ENSG00000229763	-3.847	1.34E-04	NA
ENSG00000013588	-3.684	1.47E-04	GPRC5A
ENSG00000147234	-3.623	5.52E-07	FRMPD3
ENSG00000168404	-3.576	2.83E-04	MLKL
ENSG00000107742	-3.575	3.09E-11	SPOCK2
ENSG00000127954	-3.565	1.78E-13	STEAP4
ENSG00000225415	-3.533	3.23E-04	NA
ENSG00000237697	-3.520	2.44E-04	NA
ENSG00000223298	-3.516	2.73E-05	NA
ENSG00000188153	-3.492	5.26E-12	COL4A5
ENSG00000237581	-3.490	3.95E-05	NA
ENSG00000164326	-3.442	2.09E-04	CARTPT
ENSG00000165023	-3.430	1.19E-10	DIRAS2
ENSG00000101323	-3.402	6.84E-04	HAO1

ENSG00000207040	-3.339	5.26E-04	NA
ENSG00000124490	-3.338	4.23E-06	CRISP2
ENSG00000154065	-3.330	8.85E-10	ANKRD29
ENSG00000224700	-3.287	1.50E-04	NA
ENSG00000201570	-3.279	3.01E-04	NA
ENSG00000115263	-3.277	5.65E-04	GCG
ENSG00000185915	-3.253	1.19E-03	KLHL34
ENSG00000143318	-3.251	5.96E-04	CASQ1
ENSG00000238379	-3.251	9.96E-04	NA
ENSG00000236082	-3.248	3.27E-04	NA
ENSG00000115361	-3.248	1.78E-04	ACADL
ENSG00000212122	-3.242	6.41E-04	TSSK1B
ENSG00000168743	-3.212	7.37E-04	NPNT
ENSG00000236581	-3.208	3.15E-04	STARD13-AS
ENSG00000223283	-3.198	2.52E-04	NA
ENSG00000204257	-3.187	1.60E-10	HLA-DMA
ENSG00000212354	-3.145	3.62E-03	NA
ENSG00000228113	-3.136	5.40E-04	NA
ENSG00000185087	-3.111	3.17E-05	FAM169B
ENSG00000186847	-3.109	5.13E-06	KRT14
ENSG00000167957	-3.103	1.37E-03	NA
ENSG00000206647	-3.097	9.00E-04	NA
ENSG00000050165	-3.088	1.81E-03	DKK3
ENSG00000171885	-3.076	1.22E-03	AQP4
ENSG00000198088	-3.075	8.28E-04	NUP62CL
ENSG00000199962	-3.064	3.97E-05	NA
ENSG00000174473	-3.050	2.16E-03	GALNTL6
ENSG00000091129	-3.048	1.25E-12	NRCAM
ENSG00000207146	-3.048	6.32E-04	NA
ENSG00000236604	-3.040	3.76E-04	NA
ENSG00000197459	-3.026	3.38E-05	NA
ENSG00000227742	-3.021	9.18E-04	NA
ENSG00000213759	-3.016	6.60E-04	UGT2B11
ENSG00000200220	-3.000	1.81E-03	NA
ENSG00000134531	-2.985	8.44E-04	EMP1
ENSG00000207561	-2.985	9.81E-04	MIR635
ENSG00000224795	-2.969	1.37E-05	NTM-AS1
ENSG00000053747	-2.968	6.92E-15	LAMA3
ENSG00000205518	-2.961	1.64E-03	NA

ENSG00000156096	-2.955	9.56E-08	UGT2B4
ENSG00000238732	-2.955	8.25E-04	NA
ENSG00000233530	-2.954	4.20E-03	NA
ENSG00000166741	-2.945	7.80E-08	NNMT
ENSG00000224359	-2.943	1.18E-03	NA
ENSG00000113396	-2.930	1.54E-06	SLC27A6
ENSG00000162398	-2.919	1.51E-03	LEXM
ENSG00000237796	-2.908	9.75E-08	NA
ENSG00000100170	-2.904	1.50E-04	SLC5A1
ENSG00000196550	-2.893	2.92E-03	FAM72C
ENSG00000182667	-2.881	4.30E-08	NTM
ENSG00000238045	-2.866	9.23E-05	NA
ENSG00000196482	-2.864	1.00E-09	ESRRG
ENSG00000113924	-2.847	1.30E-10	HGD
ENSG00000131844	-2.837	4.74E-09	MCCC2
ENSG00000074219	-2.814	1.13E-03	TEAD2
ENSG00000171444	-2.802	4.26E-11	MCC
ENSG00000183023	-2.782	3.68E-03	SLC8A1
ENSG00000110799	-2.774	7.72E-07	VWF
ENSG00000180891	-2.774	3.29E-07	CUEDC1
ENSG00000213777	-2.772	3.00E-13	NA
ENSG00000212066	-2.761	5.08E-04	NA
ENSG00000171234	-2.739	6.40E-05	UGT2B7
ENSG00000183486	-2.709	8.38E-03	MX2
ENSG00000227112	-2.701	2.15E-03	NA
ENSG00000234469	-2.699	4.45E-03	CLDN34
ENSG00000203971	-2.680	8.01E-04	NA
ENSG00000236115	-2.665	6.72E-03	NA
ENSG00000163492	-2.653	4.57E-05	CCDC141
ENSG00000215443	-2.646	9.28E-03	NA
ENSG00000232111	-2.641	2.97E-03	NA
ENSG00000104415	-2.639	9.63E-06	WISP1
ENSG00000172771	-2.639	1.01E-04	EFCAB12
ENSG00000233589	-2.633	6.69E-03	NA
ENSG00000228625	-2.627	8.34E-03	NA
ENSG00000103460	-2.619	8.55E-10	TOX3
ENSG00000154274	-2.619	2.52E-09	C4orf19
ENSG00000198643	-2.619	6.22E-04	FAM3D
ENSG00000042832	-2.616	2.03E-09	TG

ENSG00000230918	-2.614	2.71E-03	NA
ENSG00000197977	-2.613	6.56E-11	ELOVL2
ENSG00000149970	-2.565	1.47E-09	CNKSR2
ENSG00000187928	-2.562	4.06E-03	NA
ENSG00000174429	-2.552	3.24E-04	ABRA
ENSG00000207046	-2.533	2.55E-03	NA
ENSG00000215397	-2.511	1.24E-04	SCRT2
ENSG00000164106	-2.505	5.75E-05	SCRG1
ENSG00000133808	-2.501	8.26E-07	MICALCL
ENSG00000166546	-2.489	3.56E-08	BEAN1
ENSG00000146955	-2.477	5.82E-03	RAB19
ENSG00000125999	-2.473	3.95E-03	BPIFB1
ENSG00000232807	-2.457	4.25E-03	NA
ENSG00000186204	-2.440	7.70E-09	CYP4F12
ENSG00000168126	-2.438	1.50E-04	NA
ENSG00000233431	-2.427	1.08E-03	NA
ENSG00000149150	-2.418	5.68E-12	SLC43A1
ENSG00000149256	-2.415	1.25E-06	TENM4
ENSG00000168314	-2.413	5.84E-03	MOBP
ENSG00000227945	-2.412	1.23E-03	NA
ENSG00000124107	-2.402	1.35E-03	SLPI
ENSG00000238060	-2.400	5.94E-03	NA
ENSG00000230074	-2.399	7.36E-03	NA
ENSG00000224720	-2.392	6.43E-05	NA
ENSG00000078898	-2.384	1.43E-04	BPIFB2
ENSG00000149218	-2.384	5.00E-10	ENDOD1
ENSG00000224733	-2.378	2.60E-04	NA
ENSG00000133816	-2.374	1.63E-10	MICAL2
ENSG00000147251	-2.358	5.10E-03	DOCK11
ENSG00000163472	-2.349	8.52E-10	TMEM79
ENSG00000197565	-2.348	4.73E-04	COL4A6
ENSG00000162174	-2.337	1.58E-10	ASRGL1
ENSG00000186523	-2.333	5.94E-03	FAM86B1
ENSG00000124657	-2.330	1.30E-03	OR2B6
ENSG00000079616	-2.327	1.38E-12	KIF22
ENSG00000196187	-2.326	4.56E-11	TMEM63A
ENSG00000081277	-2.319	1.18E-11	PKP1
ENSG00000104205	-2.315	2.05E-07	SGK3
ENSG00000238463	-2.309	4.61E-04	NA

ENSG00000112183	-2.309	3.32E-06	RBM24
ENSG00000112303	-2.305	1.38E-03	VNN2
ENSG00000232583	-2.303	1.55E-03	NA
ENSG00000116133	-2.303	1.74E-08	DHCR24
ENSG00000143797	-2.297	2.84E-13	MBOAT2
ENSG00000133083	-2.282	9.66E-09	DCLK1
ENSG00000128284	-2.281	1.22E-06	APOL3
ENSG00000224403	-2.269	9.64E-03	NA
ENSG00000128596	-2.252	8.48E-08	CCDC136
ENSG00000187942	-2.243	5.81E-05	LDLRAD2
ENSG00000215784	-2.238	1.78E-03	FAM72D
ENSG00000234600	-2.238	9.27E-03	NA
ENSG00000079337	-2.236	1.71E-09	RAPGEF3
ENSG00000133121	-2.235	1.14E-07	STARD13
ENSG00000227521	-2.225	1.83E-03	NA
ENSG00000140009	-2.211	3.94E-04	ESR2
ENSG00000018408	-2.204	1.00E-06	WWTR1
ENSG00000213892	-2.203	3.22E-03	CEACAM16
ENSG00000200040	-2.202	6.62E-03	NA
ENSG00000128591	-2.197	1.58E-05	FLNC
ENSG00000225966	-2.196	2.30E-05	NA
ENSG00000225808	-2.189	3.48E-04	NA
ENSG00000232558	-2.188	2.41E-04	KCND3-IT1
ENSG00000101670	-2.186	2.81E-11	LIPG
ENSG00000126785	-2.185	3.79E-05	RHOJ
ENSG00000112414	-2.183	1.15E-07	ADGRG6
ENSG00000180720	-2.173	3.52E-03	CHRM4
ENSG00000237996	-2.168	2.79E-05	NA
ENSG00000227410	-2.166	5.29E-03	NA
ENSG00000206190	-2.164	1.25E-06	ATP10A
ENSG00000138356	-2.162	1.44E-05	AOX1
ENSG00000157343	-2.155	4.61E-06	ARMC12
ENSG00000234199	-2.152	7.26E-03	LINC01191
ENSG00000119139	-2.150	4.34E-06	TJP2
ENSG00000229677	-2.150	1.23E-03	NA
ENSG00000158747	-2.138	5.82E-08	NBL1
ENSG00000207704	-2.136	2.47E-03	MIR548D1
ENSG00000213005	-2.131	5.25E-03	PTTG3P
ENSG00000010319	-2.126	5.71E-04	SEMA3G

ENSG00000232386	-2.124	2.70E-03	NA
ENSG00000237556	-2.124	6.86E-05	KCND3-AS1
ENSG00000128274	-2.117	1.56E-03	A4GALT
ENSG00000227973	-2.114	2.89E-03	NA
ENSG00000235301	-2.100	3.44E-04	NA
ENSG00000197149	-2.095	4.37E-03	NA
ENSG00000109610	-2.087	5.79E-03	SOD3
ENSG00000076716	-2.078	1.10E-05	GPC4
ENSG00000173926	-2.076	3.59E-05	MARC3
ENSG00000006788	-2.071	6.21E-03	MYH13
ENSG00000164211	-2.057	1.10E-05	STARD4
ENSG00000231373	-2.053	3.83E-03	GNA14-AS1
ENSG00000131435	-2.052	7.85E-04	PDLIM4
ENSG00000164220	-2.047	2.90E-06	F2RL2
ENSG00000230749	-2.046	3.60E-03	MEIS1-AS2
ENSG00000163009	-2.043	1.27E-03	NA
ENSG00000112769	-2.042	9.27E-06	LAMA4
ENSG00000137259	-2.038	3.02E-05	NA
ENSG00000105717	-2.026	4.95E-03	PBX4
ENSG00000186047	-2.021	4.84E-03	DLEU7
ENSG00000225708	-2.017	3.79E-05	NA
ENSG00000170579	-2.005	1.53E-05	DLGAP1
ENSG00000059377	-2.002	7.73E-09	TBXAS1
ENSG00000179487	-2.000	4.56E-03	NA
ENSG00000228056	-1.999	1.10E-03	NA
ENSG00000188488	-1.996	7.71E-03	SERPINA5
ENSG00000201467	-1.996	2.73E-03	NA
ENSG00000232872	-1.993	6.45E-04	NA
ENSG00000142798	-1.991	4.78E-12	HSPG2
ENSG00000070882	-1.988	9.51E-09	OSBPL3
ENSG00000068078	-1.984	1.63E-08	FGFR3
ENSG00000136378	-1.982	4.80E-04	ADAMTS7
ENSG00000228613	-1.976	3.05E-06	NA
ENSG00000154640	-1.973	1.82E-08	BTG3
ENSG00000231440	-1.964	5.99E-03	NA
ENSG00000187123	-1.961	6.76E-06	LYPD6
ENSG00000109452	-1.952	6.22E-04	INPP4B
ENSG00000197588	-1.949	4.18E-06	KLKP1
ENSG00000152284	-1.949	4.99E-03	TCF7L1

ENSG00000152894	-1.947	1.28E-09	PTPRK
ENSG00000168077	-1.946	3.13E-04	SCARA3
ENSG00000095303	-1.944	1.30E-06	PTGS1
ENSG00000115738	-1.944	1.62E-07	ID2
ENSG00000114790	-1.940	1.88E-09	ARHGEF26
ENSG00000145703	-1.924	2.84E-09	IQGAP2
ENSG00000196091	-1.924	3.65E-07	MYBPC1
ENSG00000197083	-1.921	2.35E-05	NA
ENSG00000176366	-1.914	2.52E-03	NA
ENSG00000074966	-1.913	8.51E-03	TXK
ENSG00000175745	-1.909	3.10E-03	NR2F1
ENSG00000182611	-1.908	3.71E-05	NA
ENSG00000207082	-1.907	2.14E-03	NA
ENSG00000220771	-1.895	2.44E-03	NA
ENSG00000224973	-1.894	5.04E-04	LARGE-AS1
ENSG00000170011	-1.893	3.17E-09	MYRIP
ENSG00000143995	-1.891	4.33E-08	MEIS1
ENSG00000162733	-1.888	3.20E-06	DDR2
ENSG00000225479	-1.885	1.21E-04	PLCB1-IT1
ENSG00000233496	-1.884	7.09E-03	SYNJ2-IT1
ENSG00000059804	-1.880	4.97E-06	SLC2A3
ENSG00000233924	-1.878	8.46E-03	NA
ENSG00000140945	-1.877	2.01E-03	CDH13
ENSG00000225805	-1.877	6.17E-03	LOC100129216
ENSG00000111664	-1.876	4.38E-05	GNB3
ENSG00000197301	-1.876	3.27E-03	LOC100129940
ENSG00000141098	-1.872	5.10E-09	GFOD2
ENSG00000177076	-1.871	2.80E-06	ACER2
ENSG00000182621	-1.868	1.44E-09	PLCB1
ENSG00000188921	-1.861	1.39E-04	HACD4
ENSG00000236467	-1.860	2.43E-06	KCNMA1-AS1
ENSG00000121318	-1.859	1.54E-03	TAS2R10
ENSG00000229323	-1.858	8.14E-03	DLEU1-AS1
ENSG00000196747	-1.855	2.89E-07	HIST1H2AI
ENSG00000226911	-1.855	1.90E-04	NA
ENSG00000229857	-1.853	5.79E-03	NA
ENSG00000135362	-1.852	1.51E-04	PRR5L
ENSG00000131981	-1.851	7.52E-04	LGALS3
ENSG00000165197	-1.850	8.81E-03	VEGFD

ENSG00000132429	-1.847	2.34E-03	POPDC3
ENSG00000026652	-1.847	8.31E-07	AGPAT4
ENSG00000172867	-1.843	6.86E-03	KRT2
ENSG00000163629	-1.836	6.47E-10	PTPN13
ENSG00000238290	-1.833	1.74E-03	NA
ENSG00000067715	-1.833	8.87E-04	SYT1
ENSG00000023839	-1.823	4.28E-03	ABCC2
ENSG00000196374	-1.820	2.31E-05	NA
ENSG00000235482	-1.817	4.20E-03	NA
ENSG00000172014	-1.814	5.30E-03	ANKRD20A4
ENSG00000164946	-1.806	3.02E-07	FREM1
ENSG00000174804	-1.803	4.58E-09	FZD4
ENSG00000148400	-1.800	1.65E-07	NOTCH1
ENSG00000228485	-1.793	1.64E-03	NA
ENSG00000182179	-1.792	6.57E-04	UBA7
ENSG00000228916	-1.790	1.12E-03	NA
ENSG00000203813	-1.787	3.70E-07	NA
ENSG00000136383	-1.785	7.05E-09	ALPK3
ENSG00000232037	-1.774	2.68E-03	NA
ENSG00000117791	-1.773	3.04E-06	MARC2
ENSG00000148737	-1.772	2.04E-06	TCF7L2
ENSG00000230314	-1.772	9.02E-03	NA
ENSG00000221510	-1.766	7.34E-03	MIR5480
ENSG00000128294	-1.765	4.22E-05	TPST2
ENSG00000134762	-1.764	1.21E-09	DSC3
ENSG00000011422	-1.760	2.57E-03	PLAUR
ENSG00000128253	-1.747	4.63E-06	RFPL2
ENSG00000106541	-1.739	9.44E-08	AGR2
ENSG00000119514	-1.737	8.45E-06	GALNT12
ENSG00000199933	-1.732	1.32E-04	NA
ENSG00000136237	-1.732	1.24E-07	RAPGEF5
ENSG00000232906	-1.730	4.09E-03	NA
ENSG00000090269	-1.724	1.82E-03	NA
ENSG00000188848	-1.722	6.27E-09	BEND4
ENSG00000230326	-1.717	5.68E-03	NA
ENSG00000112706	-1.716	7.79E-06	IMPG1
ENSG00000203289	-1.714	8.58E-05	NA
ENSG00000173467	-1.710	8.82E-03	AGR3
ENSG00000206762	-1.709	5.51E-04	NA



ENSG00000060138	-1.702	1.05E-10	YBX3
ENSG00000238922	-1.700	7.34E-03	NA
ENSG00000138646	-1.699	4.35E-05	HERC5
ENSG00000207197	-1.697	5.67E-03	SNORD116-12
ENSG00000156535	-1.680	2.19E-04	CD109
ENSG00000234718	-1.679	3.44E-03	NA
ENSG00000228729	-1.674	8.31E-03	NA
ENSG00000149571	-1.673	3.69E-03	KIRREL3
ENSG00000172296	-1.672	2.64E-05	SPTLC3
ENSG00000185905	-1.666	2.57E-04	C16orf54
ENSG00000133962	-1.662	7.04E-04	CATSPERB
ENSG00000232270	-1.661	2.10E-04	NA
ENSG00000099958	-1.661	1.96E-05	DERL3
ENSG00000232909	-1.659	2.99E-05	NA
ENSG00000171877	-1.658	2.38E-06	FRMD5
ENSG00000148123	-1.657	1.62E-05	PLPPR1
ENSG00000172123	-1.656	1.67E-03	SLFN12
ENSG00000125257	-1.655	3.21E-11	ABCC4
ENSG00000155926	-1.651	3.64E-03	SLA
ENSG00000185669	-1.649	8.75E-03	SNAI3
ENSG00000138641	-1.647	1.76E-09	HERC3
ENSG00000135127	-1.646	5.89E-09	BICDL1
ENSG00000136872	-1.641	8.41E-03	ALDOB
ENSG00000133424	-1.636	3.03E-05	LARGE1
ENSG00000151503	-1.628	3.66E-11	NCAPD3
ENSG00000133138	-1.626	5.38E-03	TBC1D8B
ENSG00000181877	-1.616	2.72E-05	NA
ENSG00000166147	-1.616	1.38E-05	FBN1
ENSG00000238888	-1.610	4.69E-04	NA
ENSG00000232847	-1.608	6.36E-03	NA
ENSG00000179087	-1.607	7.59E-04	NA
ENSG00000197846	-1.606	1.03E-05	NA
ENSG00000219073	-1.600	4.28E-03	CELA3B
ENSG00000229160	-1.596	6.87E-03	NA
ENSG00000215549	-1.577	7.65E-04	NA
ENSG00000113083	-1.573	4.35E-05	LOX
ENSG00000107821	-1.568	1.16E-05	KAZALD1
ENSG00000165424	-1.566	1.98E-04	ZCCHC24
ENSG00000213809	-1.563	5.06E-03	KLRK1

ENSG00000183960	-1.562	2.93E-07	KCNH8
ENSG00000111110	-1.560	1.80E-10	PPM1H
ENSG00000016402	-1.554	9.58E-07	IL20RA
ENSG00000155629	-1.553	1.94E-08	PIK3AP1
ENSG00000155368	-1.553	3.00E-07	DBI
ENSG00000227237	-1.545	6.06E-03	NA
ENSG00000151718	-1.542	2.99E-08	WWC2
ENSG00000238105	-1.541	5.64E-04	GOLGA2P5
ENSG00000117143	-1.541	1.19E-09	UAP1
ENSG00000128617	-1.541	1.36E-03	OPN1SW
ENSG00000187951	-1.536	1.49E-06	ARHGAP11B
ENSG00000129675	-1.534	2.83E-05	ARHGEF6
ENSG00000175175	-1.529	2.46E-08	PPM1E
ENSG00000212332	-1.527	7.42E-03	NA
ENSG00000117519	-1.525	1.65E-06	CNN3
ENSG00000182319	-1.524	6.25E-05	NA
ENSG00000156381	-1.523	1.39E-05	ANKRD9
ENSG00000173482	-1.520	2.72E-06	PTPRM
ENSG00000225258	-1.517	1.11E-03	NA
ENSG00000226015	-1.516	9.34E-03	NA
ENSG00000225112	-1.514	2.00E-03	NA
ENSG00000223865	-1.511	3.59E-04	HLA-DPB1
ENSG00000138061	-1.509	3.18E-09	CYP1B1
ENSG00000229764	-1.507	5.13E-03	NA
ENSG00000185686	-1.506	5.05E-05	PRAME
ENSG00000184270	-1.505	1.71E-04	HIST2H2AB
ENSG00000052126	-1.503	4.80E-08	PLEKHA5
ENSG00000143416	-1.498	3.86E-07	SELENBP1
ENSG00000167371	-1.498	1.46E-08	PRRT2
ENSG00000131153	-1.495	6.45E-05	GINS2
ENSG00000154134	-1.495	8.60E-05	ROBO3
ENSG00000089356	-1.486	1.75E-05	FXVD3
ENSG00000197461	-1.484	7.69E-07	PDGFA
ENSG00000171943	-1.483	1.20E-03	SRGAP2C
ENSG00000235322	-1.482	8.68E-03	NA
ENSG00000231259	-1.477	3.69E-04	NA
ENSG00000226272	-1.476	6.96E-04	ARHGAP26-AS1
ENSG00000100162	-1.476	4.19E-05	CENPM
ENSG00000136720	-1.472	7.58E-08	HS6ST1

ENSG00000134470	-1.465	1.24E-04	IL15RA
ENSG00000232978	-1.463	2.35E-03	NA
ENSG00000228828	-1.462	1.32E-04	NA
ENSG00000125398	-1.461	5.05E-07	SOX9
ENSG00000232103	-1.460	2.15E-03	NA
ENSG00000137404	-1.460	2.94E-03	NRM
ENSG00000198947	-1.455	5.10E-04	DMD
ENSG00000105219	-1.454	1.80E-04	CNTD2
ENSG00000126016	-1.450	1.50E-03	AMOT
ENSG00000213830	-1.448	4.95E-03	NA
ENSG00000112343	-1.442	1.44E-06	TRIM38
ENSG00000150893	-1.441	5.71E-07	FREM2
ENSG00000235748	-1.441	8.37E-03	NA
ENSG00000149798	-1.437	2.03E-08	CDC42EP2
ENSG00000103056	-1.437	3.06E-09	SMPD3
ENSG00000237805	-1.436	7.96E-03	NA
ENSG00000185811	-1.435	4.97E-08	IKZF1
ENSG00000105048	-1.434	1.57E-03	TNNT1
ENSG00000010278	-1.434	1.72E-08	CD9
ENSG00000231174	-1.431	1.40E-05	NA
ENSG00000225497	-1.430	4.90E-04	KCNMA1-AS2
ENSG00000123374	-1.424	1.45E-06	CDK2
ENSG00000142677	-1.424	6.49E-03	IL22RA1
ENSG00000125538	-1.422	1.81E-03	IL1B
ENSG00000136842	-1.420	9.58E-03	TMOD1
ENSG00000196176	-1.420	2.41E-05	NA
ENSG00000144395	-1.419	1.12E-04	CCDC150
ENSG00000185928	-1.416	9.13E-09	NA
ENSG00000121621	-1.416	5.82E-05	KIF18A
ENSG00000153246	-1.414	1.09E-05	PLA2R1
ENSG00000231437	-1.411	5.79E-04	NA
ENSG00000157613	-1.408	2.58E-06	CREB3L1
ENSG00000069399	-1.401	7.84E-06	BCL3
ENSG00000153208	-1.397	1.77E-07	MERTK
ENSG00000089505	-1.397	1.61E-03	CMTM1
ENSG00000121858	-1.397	9.78E-06	TNFSF10
ENSG00000102878	-1.397	2.84E-07	HSF4
ENSG00000080709	-1.395	1.99E-06	KCNN2
ENSG00000186921	-1.395	2.46E-03	NA

ENSG00000180353	-1.393	5.02E-04	HCLS1
ENSG00000200882	-1.388	2.39E-03	NA
ENSG00000155850	-1.383	8.52E-10	SLC26A2
ENSG00000037280	-1.377	4.31E-03	FLT4
ENSG00000064666	-1.373	3.85E-04	CNN2
ENSG00000197496	-1.372	3.00E-05	SLC2A10
ENSG00000227013	-1.371	7.90E-03	NA
ENSG00000182572	-1.369	8.07E-06	NA
ENSG00000234229	-1.369	7.34E-03	NA
ENSG00000222641	-1.368	7.09E-03	NA
ENSG00000134940	-1.368	5.60E-05	ACRV1
ENSG00000167751	-1.367	5.68E-09	KLK2
ENSG00000230789	-1.366	3.68E-03	ARHGAP26-IT1
ENSG00000229874	-1.365	7.73E-04	NA
ENSG00000139734	-1.363	1.08E-05	DIAPH3
ENSG00000222575	-1.360	2.17E-03	NA
ENSG00000077782	-1.358	2.87E-09	FGFR1
ENSG00000214826	-1.357	3.84E-08	NA
ENSG00000065357	-1.357	1.77E-04	DGKA
ENSG00000166845	-1.353	1.04E-04	C18orf54
ENSG00000072571	-1.352	3.08E-05	HMMR
ENSG00000123219	-1.351	5.50E-06	CENPK
ENSG00000207727	-1.349	4.23E-09	NA
ENSG00000196226	-1.349	7.49E-04	NA
ENSG00000074370	-1.349	4.23E-08	ATP2A3
ENSG00000186611	-1.349	3.71E-03	NA
ENSG00000213352	-1.349	2.89E-03	NA
ENSG00000198558	-1.345	8.86E-05	NA
ENSG00000222128	-1.342	8.96E-03	NA
ENSG00000187243	-1.341	9.99E-03	MAGED4B
ENSG00000152076	-1.336	3.36E-04	CCDC74B
ENSG00000167900	-1.333	1.15E-07	TK1
ENSG00000234873	-1.332	3.78E-03	NA
ENSG00000157911	-1.332	3.36E-07	PEX10
ENSG00000156284	-1.332	6.39E-06	CLDN8
ENSG00000217555	-1.331	5.72E-06	CKLF
ENSG00000158201	-1.331	2.29E-03	ABHD3
ENSG00000163072	-1.329	3.22E-05	NOSTRIN
ENSG00000229721	-1.328	7.88E-03	NA

ENSG00000154856	-1.325	3.29E-03	APCDD1
ENSG00000180875	-1.325	1.60E-03	GREM2
ENSG00000183049	-1.324	4.14E-08	CAMK1D
ENSG00000169306	-1.320	1.52E-03	IL1RAPL1
ENSG00000106462	-1.318	1.34E-07	EZH2
ENSG00000111846	-1.317	9.83E-05	GCNT2
ENSG00000162591	-1.317	1.35E-07	MEGF6
ENSG00000154479	-1.314	5.76E-03	CCDC173
ENSG00000119640	-1.311	2.50E-04	ACYP1
ENSG00000187676	-1.308	1.28E-04	B3GLCT
ENSG00000146410	-1.306	6.13E-03	MTFR2
ENSG00000236283	-1.303	9.15E-03	NA
ENSG00000151632	-1.302	8.47E-03	AKR1C2
ENSG00000064651	-1.301	1.03E-07	SLC12A2
ENSG00000182718	-1.301	1.87E-04	ANXA2
ENSG00000204128	-1.300	5.05E-03	C2orf72
ENSG00000168394	-1.294	1.82E-03	TAP1
ENSG00000188290	-1.294	1.01E-04	HES4
ENSG00000232934	-1.292	2.62E-03	NA
ENSG00000233483	-1.292	5.40E-04	NA
ENSG00000110080	-1.291	4.37E-05	ST3GAL4
ENSG00000005189	-1.291	4.83E-05	LOC81691
ENSG00000101447	-1.288	8.10E-06	FAM83D
ENSG00000042781	-1.285	2.24E-04	USH2A
ENSG00000112727	-1.285	7.44E-05	NA
ENSG00000168016	-1.285	1.35E-05	TRANK1
ENSG00000217195	-1.284	8.00E-04	NA
ENSG00000131781	-1.283	4.08E-04	FMO5
ENSG00000174469	-1.281	9.94E-04	CNTNAP2
ENSG00000225192	-1.280	7.43E-03	NA
ENSG00000034063	-1.279	2.84E-06	NA
ENSG00000177283	-1.278	1.40E-08	FZD8
ENSG00000095203	-1.278	4.32E-08	EPB41L4B
ENSG00000171747	-1.274	5.12E-03	LGALS4
ENSG00000165304	-1.272	5.27E-06	MELK
ENSG00000141664	-1.272	6.52E-08	ZCCHC2
ENSG00000110171	-1.271	5.89E-07	TRIM3
ENSG00000141401	-1.271	2.51E-04	IMPA2
ENSG00000105784	-1.270	2.28E-05	RUNDC3B

ENSG00000197409	-1.266	1.81E-05	HIST1H3D
ENSG00000234193	-1.265	8.00E-05	NA
ENSG00000067601	-1.263	1.72E-03	NA
ENSG00000187741	-1.262	1.18E-06	FANCA
ENSG00000233346	-1.260	5.92E-03	NA
ENSG00000115267	-1.259	9.87E-05	IFIH1
ENSG00000085999	-1.259	5.70E-07	RAD54L
ENSG00000140931	-1.258	3.97E-07	CMTM3
ENSG00000080644	-1.257	7.09E-03	CHRNA3
ENSG00000104332	-1.257	2.92E-05	SFRP1
ENSG00000198374	-1.257	8.68E-03	NA
ENSG00000100297	-1.256	1.04E-06	MCM5
ENSG00000164308	-1.256	1.57E-05	ERAP2
ENSG00000136883	-1.253	4.64E-08	KIF12
ENSG00000122863	-1.251	5.26E-05	CHST3
ENSG00000093009	-1.249	2.55E-06	CDC45
ENSG00000171241	-1.247	2.57E-04	SHCBP1
ENSG00000184384	-1.247	1.16E-03	MAML2
ENSG00000106571	-1.246	3.09E-03	GLI3
ENSG00000132204	-1.246	1.07E-03	NA
ENSG00000166833	-1.245	1.58E-07	NAV2
ENSG00000065534	-1.243	7.40E-06	MYLK
ENSG00000125844	-1.242	2.22E-07	RRBP1
ENSG00000185483	-1.241	2.07E-05	ROR1
ENSG00000130508	-1.241	6.94E-09	PXDN
ENSG00000071205	-1.241	3.14E-04	ARHGAP10
ENSG00000184925	-1.239	4.28E-04	LCN12
ENSG00000163040	-1.238	1.87E-05	CCDC74A
ENSG00000160336	-1.238	6.32E-10	ZNF761
ENSG00000185130	-1.238	5.53E-03	HIST1H2BL
ENSG00000162390	-1.237	1.47E-03	ACOT11
ENSG00000010327	-1.236	1.29E-03	STAB1
ENSG00000035499	-1.235	2.38E-05	DEPDC1B
ENSG00000236213	-1.235	4.62E-03	NA
ENSG00000177460	-1.232	1.00E-02	NA
ENSG00000103222	-1.232	2.88E-07	ABCC1
ENSG00000225700	-1.232	8.27E-05	NA
ENSG00000125434	-1.231	6.44E-03	SLC25A35
ENSG00000007372	-1.231	7.03E-04	PAX6

ENSG00000204525	-1.230	3.10E-03	HLA-C
ENSG00000051341	-1.230	6.84E-06	POLQ
ENSG00000185480	-1.230	3.32E-05	PARPBP
ENSG00000184445	-1.229	1.07E-06	KNTC1
ENSG00000153179	-1.228	9.24E-08	RASSF3
ENSG00000227331	-1.228	6.00E-03	NA
ENSG00000171385	-1.225	8.64E-07	KCND3
ENSG00000173269	-1.223	5.29E-04	MMRN2
ENSG00000213376	-1.223	4.46E-05	NA
ENSG00000119403	-1.222	1.47E-07	PHF19
ENSG00000100526	-1.221	2.31E-04	CDKN3
ENSG00000161905	-1.217	1.77E-03	ALOX15
ENSG00000123384	-1.217	1.77E-09	LRP1
ENSG00000163251	-1.217	2.00E-07	FZD5
ENSG00000065618	-1.214	1.12E-03	COL17A1
ENSG00000164330	-1.214	2.02E-04	EBF1
ENSG00000134824	-1.214	1.95E-04	FADS2
ENSG00000101057	-1.214	3.42E-05	MYBL2
ENSG00000163239	-1.214	4.26E-03	TDRD10
ENSG00000213347	-1.212	1.53E-05	MXD3
ENSG00000160447	-1.211	3.52E-03	PKN3
ENSG00000129173	-1.211	1.66E-05	E2F8
ENSG00000196369	-1.207	3.81E-05	SRGAP2B
ENSG00000138180	-1.205	9.12E-05	CEP55
ENSG00000167508	-1.205	1.01E-03	MVD
ENSG00000225652	-1.205	4.40E-05	NA
ENSG00000232973	-1.204	3.38E-04	CYP1B1-AS1
ENSG00000116690	-1.202	6.15E-03	PRG4
ENSG00000165046	-1.201	4.38E-04	LETM2
ENSG00000147536	-1.199	1.51E-03	GINS4
ENSG00000178026	-1.199	5.85E-06	LRRC75B
ENSG00000140545	-1.199	8.31E-03	MFGE8
ENSG00000156113	-1.198	2.60E-09	KCNMA1
ENSG00000125319	-1.193	3.68E-05	C17orf53
ENSG00000147507	-1.192	5.90E-05	NA
ENSG00000110169	-1.189	5.89E-04	HPX
ENSG00000110719	-1.189	4.11E-06	TCIRG1
ENSG00000180803	-1.189	9.38E-03	NA
ENSG00000122966	-1.187	6.03E-07	CIT

ENSG00000111490	-1.185	5.55E-07	TBC1D30
ENSG00000182185	-1.184	1.28E-03	RAD51B
ENSG00000101412	-1.183	2.79E-06	E2F1
ENSG00000082781	-1.181	4.67E-07	ITGB5
ENSG00000111186	-1.180	3.29E-03	WNT5B
ENSG00000137628	-1.179	3.57E-03	DDX60
ENSG00000117650	-1.179	1.16E-04	NEK2
ENSG00000226887	-1.179	2.33E-03	ERVMER34-1
ENSG00000233224	-1.178	3.53E-04	NA
ENSG00000128487	-1.176	4.67E-07	SPECC1
ENSG00000105538	-1.168	4.92E-03	RASIP1
ENSG00000233754	-1.165	5.34E-04	NA
ENSG00000163833	-1.164	1.68E-03	FBXO40
ENSG00000066279	-1.163	6.32E-05	ASPM
ENSG00000124575	-1.163	3.38E-06	HIST1H1D
ENSG00000198189	-1.162	2.08E-06	HSD17B11
ENSG00000127564	-1.162	6.63E-04	PKMYT1
ENSG00000135476	-1.161	1.04E-06	ESPL1
ENSG00000211445	-1.159	8.56E-06	GPX3
ENSG00000198056	-1.156	2.56E-04	PRIM1
ENSG00000115758	-1.155	1.55E-07	ODC1
ENSG00000177173	-1.154	6.09E-03	NA
ENSG00000135540	-1.154	5.78E-04	NHSL1
ENSG00000090975	-1.154	8.70E-05	PITPNM2
ENSG00000117399	-1.153	1.12E-04	CDC20
ENSG00000183856	-1.153	6.03E-06	IQGAP3
ENSG00000231607	-1.151	3.18E-05	DLEU2
ENSG00000213700	-1.150	7.61E-03	NA
ENSG00000119771	-1.150	3.26E-03	KLHL29
ENSG00000104903	-1.149	8.19E-03	LYL1
ENSG00000176024	-1.149	1.39E-08	ZNF613
ENSG00000154639	-1.148	8.80E-08	CXADR
ENSG00000115705	-1.147	1.99E-04	TPO
ENSG00000111666	-1.146	4.88E-08	CHPT1
ENSG00000123983	-1.146	2.74E-08	ACSL3
ENSG00000196532	-1.143	1.47E-04	NA
ENSG00000144857	-1.143	3.53E-05	BOC
ENSG00000186185	-1.142	5.46E-06	KIF18B
ENSG00000076641	-1.142	1.81E-05	PAG1



ENSG00000154760	-1.142	8.86E-07	SLFN13
ENSG00000105011	-1.142	9.00E-05	ASF1B
ENSG00000149554	-1.142	9.52E-06	CHEK1
ENSG00000124256	-1.141	8.66E-03	ZBP1
ENSG00000171388	-1.140	4.62E-05	APLN
ENSG00000160753	-1.140	1.78E-06	RUSC1
ENSG00000138346	-1.139	1.21E-05	DNA2
ENSG00000183558	-1.138	6.35E-03	NA
ENSG00000096006	-1.137	4.48E-05	CRISP3
ENSG00000164620	-1.136	1.57E-05	RELL2
ENSG00000145014	-1.135	1.38E-05	TMEM44
ENSG00000197619	-1.135	4.88E-09	ZNF615
ENSG00000119943	-1.132	3.99E-05	PYROXD2
ENSG00000158457	-1.126	2.85E-04	TSPAN33
ENSG00000223855	-1.125	7.98E-05	HRAT92
ENSG00000067955	-1.122	5.57E-07	CBFB
ENSG00000185697	-1.117	4.83E-03	MYBL1
ENSG00000065609	-1.116	1.01E-05	SNAP91
ENSG00000234664	-1.114	6.94E-03	NA
ENSG00000142731	-1.114	1.23E-04	PLK4
ENSG00000168528	-1.114	3.48E-05	SERINC2
ENSG00000106537	-1.114	2.13E-07	TSPAN13
ENSG00000123473	-1.113	1.75E-06	STIL
ENSG00000076864	-1.113	1.04E-08	RAP1GAP
ENSG00000225515	-1.112	4.22E-03	NA
ENSG00000163352	-1.110	1.66E-04	LENEP
ENSG00000198553	-1.109	1.53E-04	KCNRG
ENSG00000094804	-1.108	3.27E-04	CDC6
ENSG00000070540	-1.106	6.19E-04	WIPI1
ENSG00000160957	-1.104	8.93E-06	RECQL4
ENSG00000113231	-1.103	2.15E-07	PDE8B
ENSG00000047188	-1.100	3.36E-08	YTHDC2
ENSG00000109805	-1.099	9.15E-05	NCAPG
ENSG00000182601	-1.099	2.07E-04	HS3ST4
ENSG00000111788	-1.098	1.48E-05	NA
ENSG00000108960	-1.098	3.26E-05	MMD
ENSG00000215382	-1.098	7.54E-03	NA
ENSG00000099282	-1.096	9.93E-04	TSPAN15
ENSG00000173210	-1.095	8.03E-06	ABLIM3

ENSG00000188126	-1.095	1.89E-05	NA
ENSG00000101255	-1.095	1.05E-06	TRIB3
ENSG00000156140	-1.093	1.21E-06	ADAMTS3
ENSG00000140525	-1.092	1.33E-06	FANCI
ENSG00000104147	-1.088	7.21E-04	OIP5
ENSG00000154040	-1.087	1.65E-03	CABYR
ENSG00000103995	-1.084	7.21E-05	CEP152
ENSG00000163535	-1.084	3.96E-05	SGO2
ENSG00000234326	-1.084	1.80E-04	NA
ENSG00000075218	-1.083	1.14E-04	GTSE1
ENSG00000059378	-1.082	5.75E-06	PARP12
ENSG00000132256	-1.082	2.08E-04	TRIM5
ENSG00000111665	-1.081	7.61E-04	CDCA3
ENSG00000197142	-1.080	2.62E-06	ACSL5
ENSG00000165244	-1.080	1.44E-04	ZNF367
ENSG00000235023	-1.077	4.64E-05	NA
ENSG00000164171	-1.077	9.85E-05	ITGA2
ENSG00000135451	-1.075	5.12E-06	TROAP
ENSG00000092377	-1.075	3.49E-05	TBL1Y
ENSG00000232324	-1.072	2.83E-03	NA
ENSG00000008513	-1.071	1.50E-03	ST3GAL1
ENSG00000156049	-1.071	4.76E-04	GNA14
ENSG00000223507	-1.071	4.82E-03	NA
ENSG00000043591	-1.071	7.61E-06	ADRB1
ENSG00000178573	-1.070	1.90E-03	MAF
ENSG00000111249	-1.069	3.46E-06	CUX2
ENSG00000111845	-1.068	3.40E-03	PAK1IP1
ENSG00000164105	-1.068	1.01E-03	SAP30
ENSG00000186193	-1.068	9.46E-07	SAPCD2
ENSG00000173442	-1.067	3.23E-07	EHBP1L1
ENSG00000142513	-1.066	8.25E-07	ACPT
ENSG00000207643	-1.062	9.84E-03	NA
ENSG00000148671	-1.061	4.92E-06	ADIRF
ENSG00000082196	-1.060	8.56E-06	C1QTNF3
ENSG00000149485	-1.060	4.75E-05	FADS1
ENSG00000105617	-1.059	4.81E-03	LENG1
ENSG00000150540	-1.059	1.46E-05	HNMT
ENSG00000111247	-1.056	5.18E-05	RAD51AP1
ENSG00000221955	-1.054	3.15E-06	SLC12A8

ENSG00000156802	-1.053	1.19E-06	ATAD2
ENSG00000038210	-1.053	1.88E-04	PI4K2B
ENSG00000065328	-1.051	8.42E-05	MCM10
ENSG00000163354	-1.050	6.67E-03	DCST2
ENSG00000224208	-1.050	1.51E-03	NA
ENSG00000228972	-1.046	8.26E-03	NA
ENSG00000130164	-1.046	7.91E-07	LDLR
ENSG00000119969	-1.046	1.08E-05	HELLS
ENSG00000137807	-1.044	8.88E-05	KIF23
ENSG00000176485	-1.044	5.96E-06	PLA2G16
ENSG00000119326	-1.044	1.61E-05	CTNNAL1
ENSG00000236274	-1.039	3.44E-03	NA
ENSG00000224500	-1.039	3.55E-03	NA
ENSG00000115008	-1.039	1.96E-03	IL1A
ENSG00000198554	-1.038	5.26E-06	WDHD1
ENSG00000179241	-1.037	2.62E-07	LDLRAD3
ENSG00000163491	-1.037	2.30E-03	NEK10
ENSG00000139351	-1.036	1.08E-05	SYCP3
ENSG00000013810	-1.035	1.09E-05	TACC3
ENSG00000126453	-1.035	5.36E-03	BCL2L12
ENSG00000236942	-1.034	3.43E-04	NA
ENSG00000131351	-1.032	2.90E-04	HAUS8
ENSG00000054654	-1.032	4.11E-07	SYNE2
ENSG00000103966	-1.032	1.85E-03	EHD4
ENSG00000198945	-1.032	9.37E-05	L3MBTL3
ENSG00000225855	-1.030	3.73E-05	NA
ENSG00000135048	-1.029	7.58E-07	TMEM2
ENSG00000166263	-1.029	7.69E-06	STXBP4
ENSG00000167799	-1.029	1.48E-03	NUDT8
ENSG00000102024	-1.029	7.48E-03	PLS3
ENSG00000169860	-1.027	1.38E-03	P2RY1
ENSG00000224121	-1.027	4.38E-04	NA
ENSG00000109586	-1.027	1.29E-07	GALNT7
ENSG00000156026	-1.026	5.35E-04	MCU
ENSG00000184731	-1.026	2.15E-05	FAM110C
ENSG00000072864	-1.026	4.38E-04	NDE1
ENSG00000160867	-1.026	4.58E-03	FGFR4
ENSG00000141179	-1.025	5.83E-05	PCTP
ENSG00000137834	-1.025	2.90E-03	SMAD6

ENSG00000090889	-1.024	3.27E-05	KIF4A
ENSG00000166002	-1.023	2.90E-06	SMCO4
ENSG00000198873	-1.022	2.25E-03	GRK5
ENSG00000124693	-1.021	8.17E-05	NA
ENSG00000062822	-1.020	1.59E-05	POLD1
ENSG00000184825	-1.018	1.55E-04	NA
ENSG00000228768	-1.017	4.39E-03	MIR365B
ENSG00000118513	-1.017	2.12E-04	MYB
ENSG00000185420	-1.015	4.63E-06	SMYD3
ENSG00000136169	-1.015	7.75E-05	SETDB2
ENSG00000024526	-1.014	9.76E-05	DEPDC1
ENSG00000215068	-1.013	1.69E-04	LOC153684
ENSG00000146648	-1.012	6.72E-06	EGFR
ENSG00000132016	-1.011	9.82E-04	C19orf57
ENSG00000229715	-1.009	3.56E-03	NA
ENSG00000160781	-1.008	2.04E-04	PAQR6
ENSG00000196331	-1.008	5.22E-04	NA
ENSG00000167670	-1.007	4.59E-06	CHAF1A
ENSG00000112984	-1.007	1.30E-05	KIF20A
ENSG00000196787	-1.007	1.83E-05	HIST1H2AG
ENSG00000184207	-1.005	1.91E-04	PGP
ENSG00000149927	-1.005	4.16E-03	DOC2A
ENSG00000104738	-1.005	9.07E-06	MCM4
ENSG00000197299	-1.004	5.58E-05	BLM
ENSG00000158402	-1.004	8.67E-04	CDC25C
ENSG00000164104	-1.002	2.67E-05	HMGB2
ENSG00000163249	-1.002	3.28E-05	CCNYL1
ENSG00000169891	-1.002	1.55E-05	REPS2
ENSG00000222201	-1.001	2.79E-03	NA
ENSG00000187229	-1.000	4.07E-03	NA
ENSG00000132669	-1.000	4.30E-06	RIN2
ENSG00000231980	-1.000	4.91E-05	NA
ENSG00000233822	-0.999	1.18E-04	HIST1H2BN
ENSG00000124191	0.999	9.37E-04	TOX2
ENSG00000104320	1.000	2.14E-06	NBN
ENSG00000124743	1.000	4.44E-03	KLHL31
ENSG00000087510	1.000	3.39E-03	TFAP2C
ENSG00000173258	1.002	8.68E-07	ZNF483
ENSG00000144597	1.004	3.97E-07	EAF1

ENSG00000204634	1.006	6.35E-06	TBC1D8
ENSG00000152518	1.011	1.56E-04	ZFP36L2
ENSG00000157064	1.012	5.04E-06	NMNAT2
ENSG00000206634	1.013	5.67E-03	SNORA22
ENSG00000106852	1.014	4.91E-03	LHX6
ENSG00000100605	1.015	5.99E-06	ITPK1
ENSG00000176927	1.017	6.95E-03	EFCAB5
ENSG00000133519	1.018	2.42E-04	NA
ENSG00000150750	1.020	8.42E-03	C11orf53
ENSG00000182957	1.021	4.53E-07	SPATA13
ENSG00000107819	1.021	2.52E-04	SFXN3
ENSG00000200156	1.022	2.67E-06	RNU5B-1
ENSG00000078487	1.023	1.22E-03	ZCWPW1
ENSG00000225572	1.024	7.06E-03	DOCK4-AS1
ENSG00000165655	1.024	2.11E-06	ZNF503
ENSG00000170616	1.025	2.04E-03	NA
ENSG00000234526	1.025	2.34E-03	NA
ENSG00000186577	1.025	9.93E-04	C6orf1
ENSG00000159403	1.025	9.77E-03	C1R
ENSG00000130294	1.026	2.02E-05	KIF1A
ENSG00000123240	1.027	6.65E-04	OPTN
ENSG00000206612	1.029	6.02E-03	SNORA2A
ENSG00000149483	1.029	3.53E-05	TMEM138
ENSG00000111912	1.030	1.35E-03	NCOA7
ENSG00000144655	1.030	2.11E-03	CSRNP1
ENSG00000092068	1.033	1.72E-03	SLC7A8
ENSG00000165659	1.033	2.23E-05	NA
ENSG00000213826	1.034	2.38E-03	NA
ENSG00000171533	1.034	8.11E-04	MAP6
ENSG00000177606	1.035	2.81E-06	JUN
ENSG00000151715	1.035	5.91E-07	TMEM45B
ENSG00000189337	1.036	3.33E-04	KAZN
ENSG00000224722	1.038	2.39E-04	NA
ENSG00000017260	1.039	6.45E-08	ATP2C1
ENSG00000146776	1.041	3.32E-05	ATXN7L1
ENSG00000055118	1.043	3.99E-05	KCNH2
ENSG00000199568	1.043	1.76E-05	RNU5A-1
ENSG00000132563	1.043	5.37E-03	REEP2
ENSG00000222413	1.046	8.74E-03	NA

ENSG00000189212	1.049	2.69E-06	NA
ENSG00000140506	1.050	1.93E-04	LMAN1L
ENSG00000102048	1.053	3.35E-03	ASB9
ENSG00000120549	1.056	6.79E-08	KIAA1217
ENSG00000124496	1.061	3.56E-06	TRERF1
ENSG00000207445	1.063	1.92E-04	SNORD15B
ENSG00000168824	1.064	4.75E-04	NSG1
ENSG00000137309	1.064	3.96E-06	HMGA1
ENSG00000139597	1.067	1.89E-06	N4BP2L1
ENSG00000196963	1.072	5.11E-06	NA
ENSG00000158161	1.072	6.18E-08	EYA3
ENSG00000005249	1.078	7.08E-05	PRKAR2B
ENSG00000101489	1.080	2.98E-03	CELF4
ENSG00000164488	1.080	7.54E-04	DACT2
ENSG00000137261	1.082	4.93E-05	KIAA0319
ENSG00000072954	1.086	3.01E-05	TMEM38A
ENSG00000213154	1.086	3.64E-03	NA
ENSG00000155816	1.089	7.69E-03	FMN2
ENSG00000171435	1.089	2.27E-06	KSR2
ENSG00000166006	1.091	1.00E-03	KCNC2
ENSG00000207233	1.093	5.32E-03	SNORA37
ENSG00000124215	1.094	1.55E-04	CDH26
ENSG00000150995	1.098	1.07E-07	ITPR1
ENSG00000233237	1.100	1.98E-04	NA
ENSG00000118690	1.100	1.51E-03	ARMC2
ENSG00000132405	1.101	3.22E-07	TBC1D14
ENSG00000170577	1.101	1.33E-03	SIX2
ENSG00000109572	1.104	3.20E-08	CLCN3
ENSG00000167749	1.107	3.38E-05	KLK4
ENSG00000020577	1.111	6.76E-05	SAMD4A
ENSG00000143473	1.111	9.04E-05	KCNH1
ENSG00000169884	1.112	3.71E-03	WNT10B
ENSG00000196139	1.112	9.80E-05	AKR1C3
ENSG00000111674	1.112	1.09E-03	ENO2
ENSG00000114541	1.114	2.68E-04	FRMD4B
ENSG00000049759	1.115	9.86E-08	NEDD4L
ENSG00000226763	1.118	1.21E-03	SRRM5
ENSG00000169756	1.118	4.63E-07	LIMS1
ENSG00000221716	1.120	5.85E-03	SNORA11

ENSG00000091039	1.122	7.67E-08	OSBPL8
ENSG00000054356	1.126	2.04E-03	PTPRN
ENSG00000166979	1.126	5.39E-05	EVA1C
ENSG00000184489	1.127	3.64E-04	PTP4A3
ENSG00000201818	1.131	1.99E-03	NA
ENSG00000186377	1.134	9.86E-03	CYP4X1
ENSG00000187601	1.137	8.36E-04	MAGEH1
ENSG00000119866	1.137	1.99E-05	BCL11A
ENSG00000204805	1.140	1.68E-03	NA
ENSG00000158445	1.141	8.36E-05	KCNB1
ENSG00000207181	1.141	1.39E-03	SNORA14B
ENSG00000173559	1.142	7.36E-03	NABP1
ENSG00000160712	1.142	1.01E-03	IL6R
ENSG00000103599	1.143	4.99E-05	IQCH
ENSG00000014257	1.146	3.25E-07	ACPP
ENSG00000198846	1.147	3.63E-04	TOX
ENSG00000228832	1.148	4.72E-03	NA
ENSG00000200959	1.151	5.87E-07	SNORA74A
ENSG00000100321	1.157	1.94E-04	SYNGR1
ENSG00000183837	1.158	2.54E-05	PNMA3
ENSG00000221491	1.161	1.18E-04	SNORA2C
ENSG00000066735	1.165	3.40E-04	KIF26A
ENSG00000138079	1.167	6.62E-04	SLC3A1
ENSG00000126562	1.168	3.56E-04	WNK4
ENSG00000100647	1.169	5.18E-06	SUSD6
ENSG00000164076	1.170	5.46E-05	CAMKV
ENSG00000139209	1.170	1.63E-03	SLC38A4
ENSG00000164125	1.170	4.05E-07	FAM198B
ENSG00000070087	1.171	7.63E-07	PFN2
ENSG00000132141	1.174	5.30E-04	CCT6B
ENSG00000172819	1.178	2.67E-03	RARG
ENSG00000212351	1.178	9.74E-04	NA
ENSG00000130813	1.180	5.84E-03	C19orf66
ENSG00000212719	1.180	5.44E-03	C17orf51
ENSG00000120322	1.182	4.46E-05	PCDHB8
ENSG00000152669	1.186	2.93E-03	CCNO
ENSG00000111275	1.187	7.01E-06	ALDH2
ENSG00000149809	1.188	2.64E-07	TM7SF2
ENSG00000008256	1.189	2.34E-07	CYTH3

ENSG00000165125	1.189	3.55E-05	TRPV6
ENSG00000075426	1.190	5.52E-07	FOSL2
ENSG00000207315	1.191	8.59E-04	NA
ENSG00000116396	1.192	6.86E-07	KCNC4
ENSG00000233305	1.192	6.60E-03	NA
ENSG00000176401	1.194	1.56E-03	EID2B
ENSG00000176771	1.194	2.80E-05	NCKAP5
ENSG00000076706	1.197	1.04E-03	MCAM
ENSG00000157734	1.198	1.55E-05	SNX22
ENSG00000050438	1.199	6.17E-03	SLC4A8
ENSG00000110042	1.199	2.94E-03	DTX4
ENSG00000163631	1.199	4.20E-03	ALB
ENSG00000181264	1.201	7.89E-07	TMEM136
ENSG00000091656	1.201	6.77E-09	ZFHX4
ENSG00000203778	1.204	4.79E-03	FAM229B
ENSG00000163531	1.205	2.17E-07	NFASC
ENSG00000154229	1.208	3.35E-08	PRKCA
ENSG00000166670	1.208	2.33E-03	MMP10
ENSG00000109790	1.209	9.61E-05	KLHL5
ENSG00000020181	1.209	1.26E-03	ADGRA2
ENSG00000050030	1.210	3.42E-03	KIAA2022
ENSG00000103187	1.213	6.41E-07	COTL1
ENSG00000212402	1.214	4.08E-05	SNORA74B
ENSG00000184986	1.215	7.27E-03	TMEM121
ENSG00000166710	1.217	9.41E-06	B2M
ENSG00000104290	1.217	3.69E-05	FZD3
ENSG00000208892	1.218	1.47E-04	SNORA49
ENSG00000140470	1.219	5.19E-03	ADAMTS17
ENSG00000144891	1.219	6.57E-03	AGTR1
ENSG00000118985	1.220	2.78E-06	ELL2
ENSG00000176595	1.223	8.72E-08	KBTBD11
ENSG00000164038	1.223	2.38E-03	SLC9B2
ENSG00000047648	1.225	2.83E-05	ARHGAP6
ENSG00000128641	1.227	4.53E-08	MYO1B
ENSG00000116977	1.227	5.29E-09	LGALS8
ENSG00000072422	1.231	6.87E-04	RHOBTB1
ENSG00000151320	1.242	4.59E-04	AKAP6
ENSG00000197757	1.243	4.59E-04	HOXC6
ENSG00000187098	1.247	9.09E-04	MITF



ENSG00000213578	1.247	5.56E-05	CPLX3
ENSG00000108309	1.248	1.82E-04	RUNDC3A
ENSG00000102575	1.248	6.42E-03	ACP5
ENSG00000235846	1.253	1.11E-05	NA
ENSG00000224189	1.256	9.47E-04	HAGLR
ENSG00000177990	1.257	7.09E-08	DPY19L2
ENSG00000108947	1.257	7.14E-05	EFNB3
ENSG00000212648	1.258	7.68E-03	NA
ENSG00000215559	1.258	4.35E-03	ANKRD20A11P
ENSG00000131951	1.259	1.41E-03	LRRC9
ENSG00000109814	1.259	4.77E-09	UGDH
ENSG00000082556	1.262	8.68E-06	OPRK1
ENSG00000200394	1.262	3.67E-04	SNORA38B
ENSG00000023445	1.262	2.79E-04	BIRC3
ENSG00000206942	1.272	2.08E-06	NA
ENSG00000229078	1.273	3.41E-03	NA
ENSG00000152377	1.275	1.56E-08	SPOCK1
ENSG00000164983	1.278	9.12E-08	TMEM65
ENSG00000198478	1.280	3.83E-05	SH3BGRL2
ENSG00000080854	1.282	1.24E-07	IGSF9B
ENSG00000181652	1.284	1.65E-03	ATG9B
ENSG00000233756	1.286	3.63E-05	DSCAM-IT1
ENSG00000137571	1.288	3.30E-06	SLCO5A1
ENSG00000185303	1.290	3.47E-05	SFTPA2
ENSG00000175879	1.291	3.69E-03	HOXD8
ENSG00000132821	1.291	5.76E-05	VSTM2L
ENSG00000157423	1.293	4.71E-04	HYDIN
ENSG00000028839	1.295	3.07E-05	TBPL1
ENSG00000230862	1.297	3.41E-05	NA
ENSG00000231997	1.298	3.83E-04	NA
ENSG00000197442	1.300	8.54E-07	MAP3K5
ENSG00000165246	1.300	6.27E-04	NLGN4Y
ENSG00000023171	1.300	2.46E-03	GRAMD1B
ENSG00000196553	1.302	5.11E-03	LINC00238
ENSG00000182366	1.303	2.61E-03	FAM87A
ENSG00000179915	1.303	1.11E-06	NRXN1
ENSG00000204174	1.304	2.58E-03	NPY4R
ENSG00000166681	1.305	1.95E-05	BEX3
ENSG00000235945	1.307	2.13E-03	NA

ENSG00000106070	1.312	4.45E-07	GRB10
ENSG00000104312	1.319	1.07E-05	RIPK2
ENSG00000072042	1.319	2.83E-07	RDH11
ENSG00000212283	1.320	3.93E-04	SNORD89
ENSG00000185338	1.322	8.78E-03	SOCS1
ENSG00000198133	1.325	3.84E-03	TMEM229B
ENSG00000205804	1.326	7.65E-04	NA
ENSG00000138769	1.328	1.16E-03	CDKL2
ENSG00000103316	1.337	1.77E-04	CRYM
ENSG00000165084	1.338	2.71E-06	C8orf34
ENSG00000154277	1.346	1.44E-03	UCHL1
ENSG00000012504	1.348	1.57E-03	NR1H4
ENSG00000180113	1.352	5.45E-06	TDRD6
ENSG00000218328	1.352	1.31E-03	NA
ENSG00000120324	1.354	6.61E-06	PCDHB10
ENSG00000075391	1.355	1.02E-04	RASAL2
ENSG00000230778	1.356	1.37E-03	ANKRD63
ENSG00000185112	1.368	4.12E-08	FAM43A
ENSG00000108176	1.370	8.18E-04	DNAJC12
ENSG00000207487	1.372	1.02E-03	NA
ENSG00000137393	1.375	1.22E-04	RNF144B
ENSG00000230810	1.376	3.83E-03	NA
ENSG00000013293	1.378	1.01E-03	SLC7A14
ENSG00000237858	1.380	5.22E-03	NA
ENSG00000235217	1.384	6.96E-03	TSPY26P
ENSG00000213579	1.388	3.59E-04	NA
ENSG00000222332	1.388	3.97E-03	NA
ENSG00000106829	1.390	1.42E-03	TLE4
ENSG00000233363	1.392	7.72E-04	NA
ENSG00000214689	1.393	5.49E-03	NA
ENSG00000131771	1.394	2.39E-03	PPP1R1B
ENSG00000187193	1.395	1.57E-04	MT1X
ENSG00000171488	1.397	9.46E-03	LRRC8C
ENSG00000112796	1.397	1.62E-05	ENPP5
ENSG00000145920	1.401	4.06E-06	CPLX2
ENSG00000113212	1.402	3.85E-04	PCDHB7
ENSG00000227646	1.408	5.14E-04	STEAP2-AS1
ENSG00000223477	1.409	2.14E-04	NA
ENSG00000234855	1.411	6.77E-03	SLIT1-AS1

ENSG00000146233	1.416	2.97E-03	CYP39A1
ENSG00000167588	1.417	4.42E-03	GPD1
ENSG00000171680	1.417	9.86E-04	PLEKHG5
ENSG00000060656	1.420	5.89E-05	PTPRU
ENSG00000200182	1.423	8.31E-06	NA
ENSG00000143079	1.424	2.65E-09	CTTNBP2NL
ENSG00000207405	1.430	1.30E-06	SNORA64
ENSG00000134780	1.440	3.04E-04	DAGLA
ENSG00000137968	1.443	1.66E-08	SLC44A5
ENSG00000205822	1.445	2.13E-03	NA
ENSG00000224493	1.449	2.69E-05	NA
ENSG00000186063	1.456	8.03E-05	AIDA
ENSG00000104967	1.457	5.91E-03	NOVA2
ENSG00000101144	1.460	7.43E-07	BMP7
ENSG00000198353	1.460	4.21E-03	HOXC4
ENSG00000232833	1.462	8.22E-03	NA
ENSG00000219159	1.466	2.62E-05	NA
ENSG00000233930	1.480	8.34E-03	KRTAP5-AS1
ENSG00000225813	1.487	1.99E-03	NA
ENSG00000090402	1.487	1.72E-06	SI
ENSG00000236622	1.489	6.04E-04	NA
ENSG00000090339	1.493	3.69E-03	ICAM1
ENSG00000142515	1.497	1.40E-06	KLK3
ENSG00000131831	1.501	9.04E-06	RAI2
ENSG00000178222	1.502	7.20E-03	RNF212
ENSG00000128652	1.503	3.45E-03	HOXD3
ENSG00000113389	1.505	3.66E-04	NPR3
ENSG00000128536	1.509	5.76E-06	CDHR3
ENSG00000146411	1.511	1.14E-05	SLC2A12
ENSG00000196227	1.515	6.43E-08	FAM217B
ENSG00000158560	1.519	1.40E-03	DYNC1I1
ENSG00000041982	1.521	1.31E-03	TNC
ENSG00000175899	1.526	5.50E-03	A2M
ENSG00000048052	1.526	1.88E-03	HDAC9
ENSG00000143502	1.531	1.10E-06	SUSD4
ENSG00000145349	1.533	9.15E-08	CAMK2D
ENSG00000150510	1.541	8.10E-05	FAM124A
ENSG00000235978	1.543	1.04E-03	NA
ENSG00000077585	1.544	1.80E-06	GPR137B

ENSG00000135916	1.545	1.38E-05	ITM2C
ENSG00000069188	1.547	6.55E-04	SDK2
ENSG00000216306	1.547	4.28E-06	KRT19P2
ENSG00000186481	1.549	2.64E-06	NA
ENSG00000165030	1.550	7.00E-07	NFIL3
ENSG00000151491	1.553	9.73E-05	EPS8
ENSG00000148468	1.554	2.96E-07	FAM171A1
ENSG00000104154	1.555	9.71E-07	SLC30A4
ENSG00000157214	1.560	4.08E-08	STEAP2
ENSG00000080493	1.570	2.51E-03	SLC4A4
ENSG00000110318	1.576	3.07E-05	CEP126
ENSG00000101210	1.576	2.29E-07	EEF1A2
ENSG00000185002	1.578	3.30E-06	RFX6
ENSG00000180914	1.578	2.85E-04	OXTR
ENSG00000163083	1.579	7.73E-06	INHBB
ENSG00000104722	1.582	7.14E-05	NEFM
ENSG00000185950	1.583	1.12E-07	IRS2
ENSG00000196557	1.585	1.40E-07	CACNA1H
ENSG00000185176	1.587	5.50E-04	AQP12B
ENSG00000010438	1.587	2.46E-03	PRSS3
ENSG00000075223	1.589	4.29E-05	SEMA3C
ENSG00000239039	1.592	3.66E-03	SNORD13
ENSG00000099250	1.593	1.05E-09	NRP1
ENSG00000157654	1.603	6.42E-08	PALM2
ENSG00000121743	1.604	7.34E-03	GJA3
ENSG00000131016	1.607	9.41E-08	AKAP12
ENSG00000054690	1.614	3.35E-08	PLEKHH1
ENSG00000237969	1.615	4.06E-04	NA
ENSG00000117525	1.618	4.65E-05	F3
ENSG00000070886	1.620	1.84E-05	EPHA8
ENSG00000162437	1.620	7.01E-06	RAVER2
ENSG00000127863	1.636	6.25E-03	TNFRSF19
ENSG00000182389	1.642	9.49E-03	CACNB4
ENSG00000189058	1.644	1.84E-08	APOD
ENSG00000129654	1.646	6.31E-05	FOXJ1
ENSG00000090971	1.653	1.51E-05	NAT14
ENSG00000177459	1.656	8.22E-04	ERICH5
ENSG00000165985	1.656	6.96E-03	C1QL3
ENSG00000137878	1.662	1.83E-08	GCOM1

ENSG00000172789	1.665	9.33E-05	HOXC5
ENSG00000067113	1.670	1.80E-06	PLPP1
ENSG00000081181	1.671	1.02E-07	ARG2
ENSG00000165186	1.673	2.64E-03	PTCHD1
ENSG00000187391	1.677	1.10E-07	MAGI2
ENSG00000101493	1.679	1.07E-05	ZNF516
ENSG00000167992	1.681	1.44E-03	VWCE
ENSG00000237410	1.689	9.90E-03	NA
ENSG00000183798	1.691	2.35E-05	EMILIN3
ENSG00000145439	1.691	7.46E-09	CBR4
ENSG00000230022	1.697	4.48E-03	NA
ENSG00000101096	1.702	1.27E-04	NFATC2
ENSG00000159388	1.703	1.70E-08	BTG2
ENSG00000128482	1.710	5.03E-03	RNF112
ENSG00000229904	1.712	4.04E-08	NA
ENSG00000223882	1.714	5.19E-03	ABCC5-AS1
ENSG00000106714	1.714	8.89E-04	CNTNAP3
ENSG00000105792	1.717	2.82E-06	CFAP69
ENSG00000237159	1.720	4.00E-03	NA
ENSG00000140479	1.722	1.22E-06	PCSK6
ENSG00000231006	1.728	2.59E-04	NA
ENSG00000196353	1.729	4.96E-08	CPNE4
ENSG00000184185	1.732	3.62E-06	KCNJ12
ENSG00000091844	1.734	6.99E-05	RGS17
ENSG00000171587	1.742	7.29E-09	DSCAM
ENSG00000169435	1.742	1.69E-04	RASSF6
ENSG00000125266	1.743	6.21E-06	EFNB2
ENSG00000146070	1.746	3.17E-07	PLA2G7
ENSG00000152766	1.755	2.12E-03	ANKRD22
ENSG00000170365	1.763	5.03E-04	SMAD1
ENSG00000143479	1.766	1.08E-03	DYRK3
ENSG00000132872	1.766	3.10E-07	SYT4
ENSG00000147889	1.770	4.25E-03	CDKN2A
ENSG00000100604	1.773	4.07E-08	CHGA
ENSG00000101871	1.780	1.88E-08	MID1
ENSG00000163686	1.781	2.92E-03	ABHD6
ENSG00000214575	1.782	8.51E-04	CPEB1
ENSG00000169604	1.783	2.80E-10	ANTXR1
ENSG00000145687	1.784	1.60E-03	SSBP2

ENSG00000196368	1.787	1.56E-03	NUDT11
ENSG00000186197	1.793	2.34E-04	EDARADD
ENSG00000130962	1.795	5.15E-03	PRRG1
ENSG00000162545	1.800	2.14E-07	CAMK2N1
ENSG00000107719	1.805	1.63E-03	PALD1
ENSG00000001561	1.811	8.10E-06	ENPP4
ENSG00000081138	1.814	1.07E-06	CDH7
ENSG00000100422	1.814	2.34E-04	CERK
ENSG00000153234	1.819	4.65E-03	NR4A2
ENSG00000152154	1.820	6.35E-04	TMEM178A
ENSG00000227770	1.823	2.22E-03	NA
ENSG00000109794	1.825	5.53E-07	FAM149A
ENSG00000166840	1.837	2.57E-05	GLYATL1
ENSG00000164749	1.840	1.59E-04	HNF4G
ENSG00000234593	1.849	6.17E-04	NA
ENSG00000151458	1.852	1.77E-09	ANKRD50
ENSG00000139910	1.854	2.04E-03	NOVA1
ENSG00000113763	1.862	8.32E-07	UNC5A
ENSG00000231439	1.879	3.20E-03	WASIR2
ENSG00000053108	1.882	9.52E-05	FSTL4
ENSG00000107104	1.899	1.52E-07	KANK1
ENSG00000153012	1.903	1.63E-03	LGI2
ENSG00000141540	1.907	1.11E-05	TTYH2
ENSG00000157150	1.910	4.50E-03	TIMP4
ENSG00000180881	1.910	1.14E-03	CAPS2
ENSG00000122756	1.911	1.61E-04	CNTFR
ENSG00000104725	1.920	3.17E-07	NA
ENSG00000003436	1.920	1.06E-04	TFPI
ENSG00000137843	1.926	1.73E-05	PAK6
ENSG00000173334	1.929	5.82E-12	TRIB1
ENSG00000072858	1.932	4.18E-03	SIDT1
ENSG00000185015	1.950	1.78E-04	CA13
ENSG00000229891	1.955	6.46E-03	LINC01315
ENSG00000168229	1.956	9.92E-03	PTGDR
ENSG00000104833	1.971	3.19E-04	TUBB4A
ENSG00000137501	1.972	6.44E-06	SYTL2
ENSG00000163449	1.974	1.76E-03	TMEM169
ENSG00000106686	1.980	2.84E-06	SPATA6L
ENSG00000184588	1.984	1.59E-03	PDE4B

ENSG00000221396	1.986	1.84E-03	NA
ENSG00000235229	1.989	7.03E-03	NA
ENSG00000116176	1.993	3.49E-03	TPSG1
ENSG00000186310	1.996	4.23E-03	NAP1L3
ENSG00000186462	1.998	9.68E-05	NAP1L2
ENSG00000172817	2.000	4.24E-06	CYP7B1
ENSG00000125813	2.003	6.97E-04	PAX1
ENSG00000170153	2.007	2.71E-04	RNF150
ENSG00000064655	2.009	1.47E-03	EYA2
ENSG00000074211	2.014	1.75E-06	PPP2R2C
ENSG00000234341	2.015	3.16E-03	NA
ENSG00000136167	2.016	4.09E-11	LCP1
ENSG00000123094	2.017	4.26E-08	RASSF8
ENSG00000173320	2.017	9.12E-03	STOX2
ENSG00000165990	2.026	6.30E-03	NA
ENSG00000112149	2.031	1.33E-03	CD83
ENSG00000116741	2.032	3.09E-03	RGS2
ENSG00000171282	2.034	3.81E-04	NA
ENSG00000137727	2.038	5.66E-08	ARHGAP20
ENSG00000232588	2.040	4.41E-03	NA
ENSG00000233154	2.051	7.76E-03	LINC01762
ENSG00000162144	2.053	2.91E-09	CYB561A3
ENSG00000173947	2.057	3.61E-03	PIFO
ENSG00000150625	2.058	4.75E-03	GPM6A
ENSG00000197410	2.060	5.95E-04	DCHS2
ENSG00000207147	2.062	1.55E-03	NA
ENSG00000214290	2.064	4.00E-09	COLCA2
ENSG00000137198	2.068	3.42E-08	GMPR
ENSG00000107954	2.069	4.40E-07	NEURL1
ENSG00000105889	2.069	1.35E-04	STEAP1B
ENSG00000206503	2.072	3.11E-04	HLA-A
ENSG00000112320	2.077	2.18E-06	SOBP
ENSG00000219016	2.078	1.29E-05	NA
ENSG00000135374	2.079	9.21E-03	ELF5
ENSG00000168952	2.088	6.86E-06	STXBP6
ENSG00000164647	2.091	2.01E-10	STEAP1
ENSG00000135905	2.093	4.84E-08	DOCK10
ENSG00000005108	2.100	9.43E-07	THSD7A
ENSG00000128268	2.103	1.05E-07	MGAT3

ENSG00000131044	2.103	3.29E-03	TTL9
ENSG00000113742	2.105	2.64E-08	CPEB4
ENSG00000204589	2.107	8.52E-05	NA
ENSG00000162407	2.113	1.76E-06	PLPP3
ENSG00000234459	2.124	3.05E-04	NA
ENSG00000182013	2.139	8.59E-06	PNMAL1
ENSG00000181495	2.152	8.58E-06	NA
ENSG00000224457	2.167	2.67E-04	NA
ENSG00000145536	2.174	4.38E-03	ADAMTS16
ENSG00000171451	2.192	1.29E-10	DSEL
ENSG00000107518	2.196	1.64E-05	ATRNL1
ENSG00000103742	2.197	6.98E-03	IGDCC4
ENSG00000140968	2.199	5.50E-06	IRF8
ENSG00000131711	2.200	4.52E-09	MAP1B
ENSG00000115884	2.202	2.76E-11	SDC1
ENSG00000238597	2.203	2.10E-03	SNORD4B
ENSG00000153292	2.204	3.35E-05	ADGRF1
ENSG00000196167	2.204	9.59E-13	NA
ENSG00000219438	2.209	3.21E-06	FAM19A5
ENSG00000165443	2.210	1.28E-06	PHYHIPL
ENSG00000186710	2.212	9.50E-03	CFAP73
ENSG00000233215	2.213	2.73E-09	LINC01687
ENSG00000166897	2.225	1.05E-04	ELFN2
ENSG00000198780	2.235	5.81E-07	FAM169A
ENSG00000233581	2.243	7.81E-03	NA
ENSG00000110436	2.244	2.78E-08	SLC1A2
ENSG00000154330	2.256	9.44E-03	PGM5
ENSG00000026508	2.260	2.24E-05	CD44
ENSG00000166923	2.267	8.91E-06	GREM1
ENSG00000162981	2.275	6.25E-07	FAM84A
ENSG00000103310	2.276	5.78E-03	ZP2
ENSG00000160188	2.277	3.11E-04	RSPH1
ENSG00000226230	2.278	4.22E-04	NA
ENSG00000112182	2.279	2.73E-05	BACH2
ENSG00000067798	2.281	1.58E-04	NAV3
ENSG00000144476	2.282	9.44E-04	ACKR3
ENSG00000092969	2.288	7.66E-04	TGFB2
ENSG00000166432	2.290	6.72E-06	ZMAT1
ENSG00000082497	2.295	1.22E-04	SERTAD4



ENSG00000064652	2.301	2.44E-03	SNX24
ENSG00000234206	2.308	4.32E-04	NA
ENSG00000169252	2.315	1.09E-04	ADRB2
ENSG00000227914	2.315	4.67E-03	NA
ENSG00000235920	2.318	1.75E-03	NA
ENSG00000182985	2.320	1.08E-11	CADM1
ENSG00000236609	2.322	3.51E-04	ZNF853
ENSG00000132329	2.327	3.11E-05	RAMP1
ENSG00000139173	2.339	3.12E-04	TMEM117
ENSG00000133639	2.366	2.82E-10	BTG1
ENSG00000169418	2.366	3.04E-06	NPR1
ENSG00000226403	2.380	8.68E-04	NA
ENSG00000114200	2.387	2.28E-03	BCHE
ENSG00000200879	2.395	4.31E-04	SNORD14E
ENSG00000213626	2.413	6.81E-05	LBH
ENSG00000184856	2.422	2.38E-06	LINC00308
ENSG00000112773	2.423	9.96E-04	FAM46A
ENSG00000166974	2.425	1.64E-06	MAPRE2
ENSG00000142512	2.449	6.28E-06	SIGLEC10
ENSG00000122585	2.454	2.53E-06	NPY
ENSG00000238016	2.457	8.98E-03	NA
ENSG00000197872	2.460	4.61E-08	FAM49A
ENSG00000181467	2.462	9.84E-09	RAP2B
ENSG00000106123	2.462	1.05E-09	EPHB6
ENSG00000158258	2.465	4.22E-08	CLSTN2
ENSG00000058335	2.490	7.41E-03	RASGRF1
ENSG00000116729	2.492	2.45E-06	WLS
ENSG00000165272	2.496	4.68E-08	AQP3
ENSG00000182836	2.502	8.45E-03	PLCXD3
ENSG00000222889	2.505	6.24E-04	NA
ENSG00000232739	2.505	8.30E-03	NA
ENSG00000165895	2.510	9.90E-03	ARHGAP42
ENSG00000235123	2.519	5.19E-04	DSCAM-AS1
ENSG00000179362	2.527	4.10E-03	NA
ENSG00000113302	2.550	5.00E-03	IL12B
ENSG00000115963	2.559	3.69E-03	RND3
ENSG00000169760	2.576	1.76E-03	NLGN1
ENSG00000176895	2.600	2.00E-03	OR51A7
ENSG00000106236	2.604	2.03E-05	NPTX2

ENSG00000112139	2.604	5.37E-04	MDGA1
ENSG00000117154	2.605	2.60E-05	IGSF21
ENSG00000184564	2.610	2.55E-03	SLITRK6
ENSG00000182568	2.614	1.37E-08	SATB1
ENSG00000146373	2.619	8.53E-03	RNF217
ENSG00000151883	2.620	1.34E-05	PARP8
ENSG00000151067	2.632	2.54E-10	CACNA1C
ENSG00000087250	2.642	1.23E-03	MT3
ENSG00000215386	2.654	2.50E-08	NA
ENSG00000117600	2.656	1.32E-03	PLPPR4
ENSG00000125384	2.666	4.50E-08	PTGER2
ENSG00000187634	2.680	8.62E-07	SAMD11
ENSG00000175267	2.688	2.19E-03	VWA3A
ENSG00000110076	2.692	1.51E-10	NRXN2
ENSG00000144583	2.706	1.31E-05	MARC4
ENSG00000226454	2.713	1.81E-03	NA
ENSG00000228732	2.715	3.96E-04	NA
ENSG00000223411	2.724	9.92E-03	NA
ENSG00000119138	2.726	2.75E-09	KLF9
ENSG00000128714	2.728	1.11E-03	HOXD13
ENSG00000166780	2.737	1.14E-04	C16orf45
ENSG00000137699	2.748	1.58E-03	TRIM29
ENSG00000226664	2.764	9.93E-04	NA
ENSG00000215322	2.768	1.05E-03	NA
ENSG00000144290	2.769	3.43E-04	SLC4A10
ENSG00000196358	2.770	2.45E-03	NTNG2
ENSG00000158816	2.776	2.97E-09	VWA5B1
ENSG00000239133	2.798	6.82E-03	NA
ENSG00000234884	2.803	7.34E-03	NA
ENSG00000040731	2.806	7.11E-04	CDH10
ENSG00000223561	2.827	8.56E-05	LOC646588
ENSG00000183833	2.843	9.34E-03	MAATS1
ENSG00000149212	2.845	5.43E-09	SESN3
ENSG00000167680	2.850	3.40E-03	SEMA6B
ENSG00000157087	2.860	3.16E-04	ATP2B2
ENSG00000069206	2.876	2.08E-07	ADAM7
ENSG00000171016	2.891	3.67E-03	PYGO1
ENSG00000171724	2.892	8.28E-03	VAT1L
ENSG00000188643	2.913	3.72E-05	S100A16

ENSG00000136960	2.914	4.85E-03	ENPP2
ENSG00000178199	2.932	4.01E-03	ZC3H12D
ENSG00000036565	2.944	6.10E-04	SLC18A1
ENSG00000158270	2.971	2.17E-09	COLEC12
ENSG00000105609	2.971	7.17E-03	LILRB5
ENSG00000232293	2.976	4.91E-03	NA
ENSG00000184735	2.980	5.27E-03	DDX53
ENSG00000164746	2.980	6.66E-03	C7orf57
ENSG00000182870	2.996	8.29E-05	GALNT9
ENSG00000234263	2.998	3.31E-03	NA
ENSG00000198739	2.999	4.51E-03	LRRTM3
ENSG00000102010	3.024	5.70E-05	BMX
ENSG00000109846	3.044	2.69E-03	CRYAB
ENSG00000214039	3.055	3.12E-06	LINC02418
ENSG00000222068	3.060	4.02E-03	NA
ENSG00000165495	3.082	4.65E-03	PKNOX2
ENSG00000176893	3.091	2.19E-03	OR51G2
ENSG00000131196	3.094	5.21E-04	NFATC1
ENSG00000139970	3.101	9.74E-07	RTN1
ENSG00000235784	3.106	3.11E-03	NA
ENSG00000058866	3.107	6.21E-04	DGKG
ENSG00000176904	3.111	1.97E-03	OR51H1
ENSG00000198217	3.130	2.91E-04	NA
ENSG00000169064	3.149	3.30E-03	ZBBX
ENSG00000121297	3.149	3.83E-03	TSHZ3
ENSG00000234253	3.150	4.22E-03	NA
ENSG00000121005	3.152	3.12E-03	CRISPLD1
ENSG00000227128	3.184	8.15E-03	NA
ENSG00000137801	3.196	4.41E-10	THBS1
ENSG00000217455	3.214	2.91E-03	NA
ENSG00000110693	3.220	5.89E-03	SOX6
ENSG00000207319	3.239	4.84E-03	NA
ENSG00000233516	3.248	4.94E-03	NA
ENSG00000177098	3.252	7.56E-04	SCN4B
ENSG00000145362	3.268	1.35E-06	ANK2
ENSG00000118997	3.279	5.44E-07	DNAH7
ENSG00000227352	3.283	7.17E-03	NA
ENSG00000231001	3.288	2.04E-03	NA
ENSG00000145309	3.288	6.06E-03	CABS1

ENSG00000197426	3.292	3.47E-03	NA
ENSG00000148600	3.313	3.13E-03	CDHR1
ENSG00000157399	3.314	1.02E-03	ARSE
ENSG00000163735	3.316	2.56E-03	CXCL5
ENSG00000205763	3.327	3.61E-03	RP9P
ENSG00000230699	3.345	1.46E-08	NA
ENSG00000115604	3.361	2.92E-04	IL18R1
ENSG00000176937	3.401	1.13E-04	NA
ENSG00000162373	3.403	7.14E-04	BEND5
ENSG00000156564	3.440	6.18E-06	LRFN2
ENSG00000235949	3.471	6.39E-03	NA
ENSG00000155886	3.486	7.55E-04	SLC24A2
ENSG00000233705	3.487	1.81E-03	SLC26A4-AS1
ENSG00000232452	3.496	8.94E-04	NA
ENSG00000130600	3.510	8.91E-03	H19
ENSG00000116106	3.526	5.79E-08	EPHA4
ENSG00000231070	3.526	9.15E-04	NA
ENSG00000172348	3.535	1.74E-05	RCAN2
ENSG00000145242	3.557	2.79E-04	EPHA5
ENSG00000223928	3.589	2.28E-03	NA
ENSG00000233644	3.607	3.20E-04	NA
ENSG00000228314	3.635	6.76E-04	CYP4F29P
ENSG00000164484	3.645	3.27E-03	TMEM200A
ENSG00000213083	3.668	4.57E-03	NA
ENSG00000198889	3.676	1.74E-03	DCAF12L1
ENSG00000154127	3.715	1.27E-05	UBASH3B
ENSG00000151623	3.728	7.08E-10	NR3C2
ENSG00000197428	3.733	2.33E-05	OR51D1
ENSG00000134198	3.736	9.37E-04	TSPAN2
ENSG00000176900	3.749	3.13E-04	OR51T1
ENSG00000198010	3.761	5.50E-04	DLGAP2
ENSG00000131477	3.767	3.86E-04	RAMP2
ENSG00000188257	3.780	1.01E-05	PLA2G2A
ENSG00000235875	3.802	2.10E-03	ARHGEF7-AS2
ENSG00000169439	3.804	1.29E-07	SDC2
ENSG00000231958	3.806	2.09E-04	NA
ENSG00000237949	3.823	9.68E-04	NA
ENSG00000223764	3.838	4.98E-06	LOC100130417
ENSG00000197984	3.838	1.28E-03	NA

ENSG00000176922	3.840	1.38E-03	OR51S1
ENSG00000174948	3.853	4.68E-04	GPR149
ENSG00000111432	3.883	4.98E-04	FZD10
ENSG00000105696	3.964	4.34E-04	TMEM59L
ENSG00000138759	3.981	3.30E-06	FRAS1
ENSG00000169248	3.983	4.52E-03	CXCL11
ENSG00000188069	4.026	2.51E-04	NA
ENSG00000086205	4.049	3.08E-06	FOLH1
ENSG00000225003	4.064	1.11E-03	NA
ENSG00000179813	4.071	7.35E-04	FAM216B
ENSG00000198597	4.111	2.18E-03	ZNF536
ENSG00000227418	4.145	9.07E-04	PCGEM1
ENSG00000171951	4.160	1.62E-06	SCG2
ENSG00000166509	4.265	5.98E-03	CLEC3A
ENSG00000147724	4.319	1.57E-03	FAM135B
ENSG00000196090	4.330	2.81E-04	PTPRT
ENSG00000231648	4.352	8.23E-05	NA
ENSG00000033122	4.356	4.42E-04	LRRC7
ENSG00000162989	4.357	8.02E-05	KCNJ3
ENSG00000237429	4.364	1.87E-04	NA
ENSG00000146674	4.394	6.11E-05	IGFBP3
ENSG00000156298	4.415	2.08E-04	TSPAN7
ENSG00000136999	4.423	1.74E-06	NOV
ENSG00000123095	4.462	1.99E-06	BHLHE41
ENSG00000078295	4.467	1.43E-05	ADCY2
ENSG00000169083	4.480	3.42E-15	AR
ENSG00000232125	4.505	1.16E-04	DYTN
ENSG00000168772	4.549	4.23E-05	CXXC4
ENSG00000183098	4.586	1.37E-04	GPC6
ENSG00000167332	4.604	7.82E-08	OR51E2
ENSG00000176879	4.617	4.02E-05	NA
ENSG00000089250	4.726	1.71E-03	NOS1
ENSG00000176951	4.787	2.64E-04	NA
ENSG00000176925	4.805	1.45E-03	OR51F2
ENSG00000170369	4.885	1.20E-03	CST2
ENSG00000184838	4.911	6.21E-05	PRR16
ENSG00000167434	5.032	3.29E-04	CA4
ENSG00000180785	5.387	1.39E-08	OR51E1
ENSG00000144339	5.441	9.94E-08	TMEFF2

ENSG00000111319	5.668	3.06E-05	SCNN1A
ENSG00000233766	5.697	1.55E-04	NA
ENSG00000135074	5.874	2.42E-04	ADAM19
ENSG00000197674	6.150	9.02E-04	NA
ENSG00000120251	7.558	3.27E-04	GRIA2

**Supplementary Table S2: Differentially expressed genes in serial biopsies of VCaP xenografts, CRPC vs. Pre-Cx.** Expression data from RNA sequencing of serial biopsies of VCaP tumors prior to castration (Pre-Cx) and following development of castration resistant prostate cancer (CRPC). log2FC – log2 fold change.

<b>Ensemble ID</b>	<b>log2FC</b>	<b>P Value</b>	<b>Symbol</b>
ENSG00000170419	-6.282	1.17E-07	VSTM2A
ENSG00000197635	-5.775	2.86E-12	DPP4
ENSG00000156463	-5.174	1.46E-05	SH3RF2
ENSG00000075461	-4.807	1.22E-06	CACNG4
ENSG00000187398	-4.608	7.92E-08	LUZP2
ENSG00000135063	-4.449	2.47E-08	FAM189A2
ENSG00000088992	-4.371	2.45E-09	TESC
ENSG00000163492	-4.017	2.24E-04	CCDC141
ENSG00000162398	-3.993	5.65E-04	LEXM
ENSG00000155926	-3.993	4.08E-04	SLA
ENSG00000213892	-3.961	3.38E-04	CEACAM16
ENSG00000171885	-3.780	8.29E-04	AQP4
ENSG00000115263	-3.729	7.43E-04	GCG
ENSG00000107742	-3.679	4.70E-10	SPOCK2
ENSG00000128422	-3.528	4.28E-03	KRT17
ENSG00000164326	-3.365	1.42E-03	CARTPT
ENSG00000127954	-3.360	4.38E-12	STEAP4
ENSG00000148702	-3.333	2.40E-04	HABP2
ENSG00000158164	-3.306	9.76E-05	TMSB15A
ENSG00000224223	-3.293	4.78E-04	VSTM2A-OT1
ENSG00000187186	-3.236	6.20E-03	LOC730098
ENSG00000166546	-3.128	3.09E-07	BEAN1
ENSG00000212122	-3.109	4.26E-03	TSSK1B
ENSG00000147234	-3.075	1.23E-05	FRMPD3
ENSG00000171234	-3.047	3.80E-04	UGT2B7
ENSG00000112183	-3.038	1.59E-05	RBM24
ENSG00000165092	-3.018	2.45E-08	ALDH1A1
ENSG00000204257	-2.988	4.54E-09	HLA-DMA
ENSG00000186847	-2.946	1.12E-04	KRT14
ENSG00000237654	-2.944	1.31E-08	LOC101929653
ENSG00000196482	-2.943	2.37E-08	ESRRG
ENSG00000138646	-2.922	2.26E-05	HERC5

ENSG00000184221	-2.884	6.80E-03	OLIG1
ENSG00000070526	-2.835	4.39E-07	ST6GALNAC1
ENSG00000149256	-2.771	1.19E-05	TENM4
ENSG00000172771	-2.764	5.88E-04	EFCAB12
ENSG00000225805	-2.734	7.44E-03	LOC100129216
ENSG00000010319	-2.685	1.18E-03	SEMA3G
ENSG00000183850	-2.661	1.66E-03	ZNF730
ENSG00000197977	-2.649	1.18E-09	ELOVL2
ENSG00000124490	-2.640	1.48E-04	CRISP2
ENSG00000133808	-2.608	1.09E-05	MICALCL
ENSG00000188153	-2.602	9.02E-10	COL4A5
ENSG00000059804	-2.592	7.88E-06	SLC2A3
ENSG00000116133	-2.581	4.19E-08	DHCR24
ENSG00000074219	-2.575	8.06E-03	TEAD2
ENSG00000154065	-2.566	8.26E-08	ANKRD29
ENSG00000198643	-2.562	4.43E-03	FAM3D
ENSG00000156096	-2.533	4.34E-06	UGT2B4
ENSG00000180875	-2.522	4.05E-04	GREM2
ENSG00000107249	-2.462	1.07E-04	GLIS3
ENSG00000042832	-2.461	6.36E-08	TG
ENSG00000134531	-2.424	9.02E-03	EMP1
ENSG00000197301	-2.407	5.82E-03	LOC100129940
ENSG00000018408	-2.405	8.19E-06	WWTR1
ENSG00000119139	-2.379	2.52E-05	TJP2
ENSG00000053747	-2.354	1.32E-12	LAMA3
ENSG00000113396	-2.351	5.65E-05	SLC27A6
ENSG00000165023	-2.344	2.42E-08	DIRAS2
ENSG00000173482	-2.325	6.46E-07	PTPRM
ENSG00000095303	-2.290	5.43E-06	PTGS1
ENSG00000138356	-2.273	1.08E-04	AOX1
ENSG00000133816	-2.259	4.18E-09	MICAL2
ENSG00000143797	-2.247	3.11E-12	MBOAT2
ENSG00000139117	-2.246	2.35E-03	CPNE8
ENSG00000157613	-2.229	4.74E-07	CREB3L1
ENSG00000076716	-2.219	7.83E-05	GPC4
ENSG00000110799	-2.201	3.59E-05	VWF
ENSG00000215397	-2.200	1.35E-03	SCRT2
ENSG00000187123	-2.195	3.20E-05	LYPD6
ENSG00000224795	-2.193	4.84E-04	NTM-AS1



ENSG00000149218	-2.190	1.63E-08	ENDOD1
ENSG00000133083	-2.170	1.91E-07	DCLK1
ENSG00000207704	-2.167	9.83E-03	MIR548D1
ENSG00000068078	-2.152	1.13E-07	FGFR3
ENSG00000170579	-2.148	9.51E-05	DLGAP1
ENSG00000185686	-2.148	3.47E-05	PRAME
ENSG00000155368	-2.140	1.72E-07	DBI
ENSG00000162174	-2.133	5.36E-09	ASRGL1
ENSG00000113924	-2.130	2.37E-08	HGD
ENSG00000144481	-2.122	4.98E-08	TRPM8
ENSG00000196091	-2.120	1.32E-06	MYBPC1
ENSG00000109452	-2.112	2.56E-03	INPP4B
ENSG00000115361	-2.107	5.83E-03	ACADL
ENSG00000164211	-2.101	9.06E-05	STARD4
ENSG00000224973	-2.096	1.65E-03	LARGE-AS1
ENSG00000104205	-2.095	5.72E-06	SGK3
ENSG00000204128	-2.083	2.32E-03	C2orf72
ENSG00000104415	-2.061	3.29E-04	WISP1
ENSG00000117519	-2.055	1.27E-06	CNN3
ENSG00000206190	-2.055	2.15E-05	ATP10A
ENSG00000174370	-2.046	9.59E-03	C11orf45
ENSG00000166741	-2.016	1.02E-05	NNMT
ENSG00000059377	-1.991	9.05E-08	TBXAS1
ENSG00000128591	-1.976	2.44E-04	FLNC
ENSG00000131844	-1.974	2.38E-06	MCCC2
ENSG00000164946	-1.965	1.69E-06	FREM1
ENSG00000133121	-1.965	4.05E-06	STARD13
ENSG00000136720	-1.939	2.09E-08	HS6ST1
ENSG00000081277	-1.938	1.01E-09	PKP1
ENSG00000149970	-1.937	2.30E-07	CNKSR2
ENSG00000182667	-1.903	1.00E-05	NTM
ENSG00000111846	-1.902	3.98E-05	GCNT2
ENSG00000113083	-1.900	5.33E-05	LOX
ENSG00000158747	-1.895	1.92E-06	NBL1
ENSG00000079616	-1.889	1.92E-10	KIF22
ENSG00000180891	-1.875	4.88E-05	CUEDC1
ENSG00000172296	-1.870	9.88E-05	SPTLC3
ENSG00000236467	-1.870	2.32E-05	KCNMA1-AS1
ENSG00000101670	-1.849	2.12E-09	LIPG

ENSG00000091129	-1.806	3.48E-09	NRCAM
ENSG00000163472	-1.805	1.41E-07	TMEM79
ENSG00000171388	-1.803	5.01E-06	APLN
ENSG00000149150	-1.785	2.27E-09	SLC43A1
ENSG00000111341	-1.783	1.08E-03	MGP
ENSG00000142798	-1.781	1.61E-10	HSPG2
ENSG00000016402	-1.780	2.70E-06	IL20RA
ENSG00000102024	-1.771	1.61E-03	PLS3
ENSG00000177076	-1.767	4.01E-05	ACER2
ENSG00000155629	-1.765	5.06E-08	PIK3AP1
ENSG00000168077	-1.762	2.81E-03	SCARA3
ENSG00000196747	-1.742	4.82E-06	HIST1H2AI
ENSG00000145703	-1.740	7.25E-08	IQGAP2
ENSG00000134824	-1.739	4.67E-05	FADS2
ENSG00000129521	-1.728	1.66E-03	EGLN3
ENSG00000187942	-1.701	1.59E-03	LDLRAD2
ENSG00000141401	-1.701	1.62E-04	IMPA2
ENSG00000162733	-1.698	6.69E-05	DDR2
ENSG00000106541	-1.698	6.71E-07	AGR2
ENSG00000136378	-1.679	4.49E-03	ADAMTS7
ENSG00000170011	-1.679	1.22E-07	MYRIP
ENSG00000154274	-1.678	2.30E-06	C4orf19
ENSG00000089356	-1.672	4.63E-05	FXYD3
ENSG00000128596	-1.659	1.14E-05	CCDC136
ENSG00000156535	-1.647	1.40E-03	CD109
ENSG00000079337	-1.637	4.72E-07	RAPGEF3
ENSG00000225497	-1.625	1.20E-03	KCNMA1-AS2
ENSG00000196187	-1.620	2.87E-08	TMEM63A
ENSG00000100170	-1.616	7.32E-03	SLC5A1
ENSG00000103460	-1.615	1.08E-06	TOX3
ENSG00000169860	-1.608	3.11E-04	P2RY1
ENSG00000154640	-1.608	1.47E-06	BTG3
ENSG00000164220	-1.598	1.63E-04	F2RL2
ENSG00000168078	-1.592	3.72E-05	PBK
ENSG00000060138	-1.582	1.87E-09	YBX3
ENSG00000133424	-1.580	2.45E-04	LARGE1
ENSG00000182621	-1.580	9.38E-08	PLCB1
ENSG00000124256	-1.572	6.74E-03	ZBP1
ENSG00000128294	-1.571	5.86E-04	TPST2

ENSG00000238105	-1.569	2.66E-03	GOLGA2P5
ENSG00000112414	-1.567	2.23E-05	ADGRG6
ENSG00000141441	-1.565	7.50E-04	GAREM1
ENSG00000122863	-1.560	5.32E-05	CHST3
ENSG00000174804	-1.559	1.99E-07	FZD4
ENSG00000126016	-1.556	4.38E-03	AMOT
ENSG00000119514	-1.549	1.53E-04	GALNT12
ENSG00000124575	-1.533	1.10E-06	HIST1H1D
ENSG00000008513	-1.526	6.12E-04	ST3GAL1
ENSG00000111110	-1.521	1.88E-09	PPM1H
ENSG00000141098	-1.506	5.43E-07	GFOD2
ENSG00000100031	-1.497	1.02E-04	GGT1
ENSG00000182718	-1.485	3.81E-04	ANXA2
ENSG00000185130	-1.483	6.69E-03	HIST1H2BL
ENSG00000115758	-1.481	3.18E-08	ODC1
ENSG00000184270	-1.471	9.68E-04	HIST2H2AB
ENSG00000185811	-1.471	3.16E-07	IKZF1
ENSG00000151503	-1.467	1.07E-09	NCAPD3
ENSG00000078898	-1.465	7.94E-03	BPIFB2
ENSG00000138641	-1.461	5.63E-08	HERC3
ENSG00000176485	-1.459	6.57E-07	PLA2G16
ENSG00000164120	-1.453	1.65E-05	HPGD
ENSG00000185905	-1.449	2.97E-03	C16orf54
ENSG00000131981	-1.447	9.81E-03	LGALS3
ENSG00000105048	-1.445	6.06E-03	TNNT1
ENSG00000186204	-1.445	8.93E-06	CYP4F12
ENSG00000072864	-1.430	1.55E-04	NDE1
ENSG00000176383	-1.406	7.46E-03	B3GNT4
ENSG00000155850	-1.393	4.52E-09	SLC26A2
ENSG00000175175	-1.392	4.84E-07	PPM1E
ENSG00000153208	-1.377	1.62E-06	MERTK
ENSG00000026652	-1.374	8.92E-05	AGPAT4
ENSG00000217555	-1.373	2.89E-05	CKLF
ENSG00000072571	-1.372	1.65E-04	HMMR
ENSG00000188290	-1.368	3.15E-04	HES4
ENSG00000163535	-1.367	2.51E-05	SGO2
ENSG00000163251	-1.358	2.80E-07	FZD5
ENSG00000197588	-1.358	4.53E-04	KLKP1
ENSG00000138061	-1.352	9.94E-08	CYP1B1

ENSG00000128253	-1.351	2.63E-04	RFPL2
ENSG00000117143	-1.349	4.48E-08	UAP1
ENSG00000183598	-1.344	8.27E-04	HIST2H3D
ENSG00000225479	-1.342	4.23E-03	PLCB1-IT1
ENSG00000119899	-1.340	1.88E-04	SLC17A5
ENSG00000089505	-1.328	7.65E-03	CMTM1
ENSG00000123219	-1.326	4.40E-05	CENPK
ENSG00000115267	-1.317	3.69E-04	IFIH1
ENSG00000125257	-1.313	5.58E-09	ABCC4
ENSG00000164330	-1.311	5.65E-04	EBF1
ENSG00000161905	-1.311	4.55E-03	ALOX15
ENSG00000129173	-1.304	5.28E-05	E2F8
ENSG00000211445	-1.304	1.74E-05	GPX3
ENSG00000071205	-1.303	1.06E-03	ARHGAP10
ENSG00000099194	-1.303	1.04E-05	SCD
ENSG00000137880	-1.299	9.55E-04	GCHFR
ENSG00000151929	-1.298	1.21E-03	BAG3
ENSG00000112769	-1.298	1.46E-03	LAMA4
ENSG00000157343	-1.293	1.03E-03	ARMC12
ENSG00000136383	-1.291	2.25E-06	ALPK3
ENSG00000173210	-1.287	9.61E-06	ABLIM3
ENSG00000148123	-1.284	7.32E-04	PLPPR1
ENSG00000197409	-1.278	7.80E-05	HIST1H3D
ENSG00000165244	-1.278	1.72E-04	ZNF367
ENSG00000125844	-1.277	9.07E-07	RRBP1
ENSG00000143995	-1.272	1.97E-05	MEIS1
ENSG00000184731	-1.269	1.63E-05	FAM110C
ENSG00000188848	-1.268	1.80E-06	BEND4
ENSG00000129195	-1.268	1.30E-03	PIMREG
ENSG00000165424	-1.264	3.55E-03	ZCCHC24
ENSG00000184454	-1.261	8.24E-03	NCMAP
ENSG00000116791	-1.260	5.25E-03	CRYZ
ENSG00000078725	-1.259	9.24E-03	BRINP1
ENSG00000170270	-1.258	3.23E-03	GON7
ENSG00000156284	-1.256	6.17E-05	CLDN8
ENSG00000123983	-1.255	3.89E-08	ACSL3
ENSG00000136237	-1.249	2.73E-05	RAPGEF5
ENSG00000166833	-1.249	9.82E-07	NAV2
ENSG00000142513	-1.248	6.72E-07	ACPT

ENSG00000171877	-1.247	1.97E-04	FRMD5
ENSG00000165304	-1.237	3.94E-05	MELK
ENSG00000165490	-1.235	1.41E-03	DDIAS
ENSG00000112343	-1.234	4.51E-05	TRIM38
ENSG00000065357	-1.234	1.70E-03	DGKA
ENSG00000123374	-1.234	3.76E-05	CDK2
ENSG00000107821	-1.233	4.58E-04	KAZALD1
ENSG00000134240	-1.232	4.09E-03	HMGCS2
ENSG00000100162	-1.222	9.08E-04	CENPM
ENSG00000010278	-1.222	7.73E-07	CD9
ENSG00000152583	-1.220	3.20E-03	SPARCL1
ENSG00000214357	-1.213	2.61E-05	NEURL1B
ENSG00000165891	-1.212	4.42E-04	E2F7
ENSG00000128487	-1.212	2.12E-06	SPECC1
ENSG00000154639	-1.211	2.40E-07	CXADR
ENSG00000168528	-1.209	8.27E-05	SERINC2
ENSG00000167900	-1.205	2.26E-06	TK1
ENSG00000233822	-1.200	1.02E-04	HIST1H2BN
ENSG00000156113	-1.197	1.48E-08	KCNMA1
ENSG00000223865	-1.193	5.79E-03	HLA-DPB1
ENSG00000096060	-1.190	2.98E-05	FKBP5
ENSG00000108960	-1.190	8.72E-05	MMD
ENSG00000158406	-1.189	2.01E-05	HIST1H4H
ENSG00000082196	-1.189	1.51E-05	C1QTNF3
ENSG00000101057	-1.188	1.88E-04	MYBL2
ENSG00000124762	-1.186	2.63E-03	CDKN1A
ENSG00000149798	-1.184	1.38E-06	CDC42EP2
ENSG00000136122	-1.184	5.66E-03	BORA
ENSG00000106537	-1.184	5.46E-07	TSPAN13
ENSG00000111845	-1.184	6.12E-03	PAK1IP1
ENSG00000110092	-1.183	5.20E-09	CCND1
ENSG00000177432	-1.180	1.08E-03	NAP1L5
ENSG00000115008	-1.179	3.14E-03	IL1A
ENSG00000135362	-1.178	9.15E-03	PRR5L
ENSG00000185480	-1.176	2.47E-04	PARPBP
ENSG00000226887	-1.173	7.94E-03	ERVMER34-1
ENSG00000177283	-1.171	2.74E-07	FZD8
ENSG00000187676	-1.168	1.37E-03	B3GLCT
ENSG00000124635	-1.167	1.09E-04	HIST1H2BJ

ENSG00000134762	-1.167	1.46E-06	DSC3
ENSG00000038210	-1.166	3.88E-04	PI4K2B
ENSG00000096006	-1.165	1.16E-04	CRISP3
ENSG00000167371	-1.155	2.17E-06	PRRT2
ENSG00000172349	-1.155	9.84E-03	IL16
ENSG00000171241	-1.151	1.99E-03	SHCBP1
ENSG00000198805	-1.150	7.25E-03	PNP
ENSG00000197903	-1.150	1.09E-05	HIST1H2BK
ENSG00000126787	-1.148	1.79E-04	DLGAP5
ENSG00000101447	-1.145	1.34E-04	FAM83D
ENSG00000149485	-1.144	8.67E-05	FADS1
ENSG00000184661	-1.142	5.35E-04	CDCA2
ENSG00000224057	-1.140	9.07E-03	EGFR-AS1
ENSG00000186193	-1.138	2.31E-06	SAPCD2
ENSG00000058668	-1.133	1.47E-06	ATP2B4
ENSG00000103222	-1.132	4.04E-06	ABCC1
ENSG00000077782	-1.131	1.92E-07	FGFR1
ENSG00000135842	-1.128	2.32E-04	FAM129A
ENSG00000159784	-1.126	1.87E-03	FAM131B
ENSG00000138180	-1.123	7.28E-04	CEP55
ENSG00000167553	-1.119	9.18E-06	TUBA1C
ENSG00000139194	-1.114	4.63E-03	RBP5
ENSG00000075218	-1.113	3.63E-04	GTSE1
ENSG00000088325	-1.112	1.59E-05	TPX2
ENSG00000122952	-1.112	7.96E-05	ZWINT
ENSG00000086570	-1.110	1.06E-04	FAT2
ENSG00000111664	-1.109	5.87E-03	GNB3
ENSG00000198947	-1.108	9.39E-03	DMD
ENSG00000141664	-1.106	2.23E-06	ZCCHC2
ENSG00000197256	-1.106	5.50E-04	KANK2
ENSG00000105219	-1.103	4.71E-03	CNTD2
ENSG00000090889	-1.103	6.73E-05	KIF4A
ENSG00000204899	-1.099	1.16E-03	MZT1
ENSG00000065534	-1.098	1.28E-04	MYLK
ENSG00000198121	-1.098	2.64E-03	LPAR1
ENSG00000110080	-1.094	7.89E-04	ST3GAL4
ENSG00000148671	-1.094	1.94E-05	ADIRF
ENSG00000070882	-1.094	3.85E-05	OSBPL3
ENSG00000169684	-1.090	3.08E-03	CHRNA5

ENSG00000146648	-1.089	1.38E-05	EGFR
ENSG00000183960	-1.088	8.02E-05	KCNH8
ENSG00000148737	-1.082	8.22E-04	TCF7L2
ENSG00000113368	-1.079	5.49E-05	LMNB1
ENSG00000139734	-1.078	4.35E-04	DIAPH3
ENSG00000166263	-1.076	2.65E-05	STXBP4
ENSG00000134057	-1.076	1.02E-04	CCNB1
ENSG00000076641	-1.075	1.51E-04	PAG1
ENSG00000115163	-1.074	2.10E-03	CENPA
ENSG00000140931	-1.074	1.40E-05	CMTM3
ENSG00000160752	-1.071	9.06E-04	FDPS
ENSG00000150893	-1.068	7.72E-05	FREM2
ENSG00000104332	-1.065	6.04E-04	SFRP1
ENSG00000197496	-1.065	1.09E-03	SLC2A10
ENSG00000135127	-1.061	7.10E-06	BICDL1
ENSG00000163629	-1.059	4.10E-06	PTPN13
ENSG00000171444	-1.050	3.82E-05	MCC
ENSG00000051128	-1.049	6.86E-03	HOMER3
ENSG00000024526	-1.048	3.04E-04	DEPDC1
ENSG00000132669	-1.047	1.17E-05	RIN2
ENSG00000149554	-1.046	1.07E-04	CHEK1
ENSG00000175643	-1.046	9.58E-04	RMI2
ENSG00000064666	-1.045	8.02E-03	CNN2
ENSG00000141179	-1.043	2.47E-04	PCTP
ENSG00000117791	-1.039	1.40E-03	MARC2
ENSG00000131781	-1.036	6.35E-03	FMO5
ENSG00000170312	-1.035	3.17E-04	CDK1
ENSG00000186185	-1.032	7.69E-05	KIF18B
ENSG00000187951	-1.032	3.49E-04	ARHGAP11B
ENSG00000061656	-1.032	8.59E-04	SPAG4
ENSG00000197472	-1.029	1.25E-03	ZNF695
ENSG00000115738	-1.026	3.98E-04	ID2
ENSG00000117399	-1.025	1.15E-03	CDC20
ENSG00000117650	-1.024	1.50E-03	NEK2
ENSG00000132294	-1.024	5.44E-06	EFR3A
ENSG00000152894	-1.023	1.54E-05	PTPRK
ENSG00000178878	-1.023	4.37E-03	APOLD1
ENSG00000186480	-1.023	4.63E-04	INSIG1
ENSG00000156802	-1.022	7.27E-06	ATAD2

ENSG00000029993	-1.021	4.15E-03	HMGB3
ENSG00000164181	-1.015	3.35E-05	ELOVL7
ENSG00000197238	-1.013	2.58E-04	HIST1H4J
ENSG00000160336	-1.013	5.84E-08	ZNF761
ENSG00000078900	-1.012	1.41E-03	TP73
ENSG00000167799	-1.009	5.25E-03	NUDT8
ENSG00000005189	-1.009	1.61E-03	LOC81691
ENSG00000123643	-1.009	8.08E-06	SLC36A1
ENSG00000138346	-1.008	1.86E-04	DNA2
ENSG00000111249	-1.005	2.74E-05	CUX2
ENSG00000136826	-1.003	1.89E-03	KLF4
ENSG00000156970	-1.003	7.83E-05	BUB1B
ENSG00000105011	-1.001	1.13E-03	ASF1B
ENSG00000186153	1.002	2.11E-03	WWOX
ENSG00000144802	1.002	1.39E-03	NFKBIZ
ENSG00000183798	1.009	7.93E-03	EMILIN3
ENSG00000124788	1.011	2.45E-05	ATXN1
ENSG00000145911	1.012	1.62E-03	N4BP3
ENSG00000215417	1.014	2.90E-03	MIR17
ENSG00000128641	1.018	2.22E-06	MYO1B
ENSG00000104312	1.019	5.10E-04	RIPK2
ENSG00000157423	1.021	6.96E-03	HYDIN
ENSG00000170382	1.023	9.91E-03	LRRN2
ENSG00000184368	1.023	8.32E-03	MAP7D2
ENSG00000114770	1.023	1.02E-05	ABCC5
ENSG00000183778	1.025	4.29E-04	B3GALT5
ENSG00000124406	1.026	5.22E-07	ATP8A1
ENSG00000200394	1.026	4.79E-03	SNORA38B
ENSG00000185112	1.029	7.47E-06	FAM43A
ENSG00000099260	1.030	8.59E-03	PALMD
ENSG00000100321	1.033	1.30E-03	SYNGR1
ENSG00000117472	1.035	7.51E-06	TSPAN1
ENSG00000148468	1.037	1.58E-04	FAM171A1
ENSG00000182376	1.046	2.86E-03	LOC339059
ENSG00000153093	1.049	1.41E-03	ACOXL
ENSG00000146411	1.052	1.43E-03	SLC2A12
ENSG00000170271	1.052	2.33E-04	FAXDC2
ENSG00000176595	1.058	2.24E-06	KBTBD11
ENSG00000136167	1.060	2.93E-06	LCPI



ENSG00000006283	1.060	3.47E-04	CACNA1G
ENSG00000176771	1.061	2.67E-04	NCKAP5
ENSG00000186063	1.063	3.46E-03	AIDA
ENSG00000140479	1.066	9.45E-04	PCSK6
ENSG00000206811	1.069	2.57E-04	SNORA10
ENSG00000028839	1.073	5.81E-04	TBPL1
ENSG00000112796	1.075	7.37E-04	ENPP5
ENSG00000110013	1.076	4.33E-03	SIAE
ENSG00000179915	1.080	3.70E-05	NRXN1
ENSG00000132821	1.083	8.36E-04	VSTM2L
ENSG00000188385	1.083	2.73E-05	JAKMIP3
ENSG00000158445	1.087	3.29E-04	KCNB1
ENSG00000177839	1.092	3.07E-03	PCDHB9
ENSG00000131951	1.092	7.93E-03	LRRC9
ENSG00000206597	1.093	2.82E-04	SNORA57
ENSG00000023445	1.094	2.24E-03	BIRC3
ENSG00000204624	1.097	2.67E-05	DISP3
ENSG00000150510	1.099	4.44E-03	FAM124A
ENSG00000164488	1.102	1.26E-03	DACT2
ENSG00000138079	1.106	2.17E-03	SLC3A1
ENSG00000145920	1.113	1.71E-04	CPLX2
ENSG00000150995	1.113	3.13E-07	ITPR1
ENSG00000124496	1.115	5.28E-06	TRERF1
ENSG00000116396	1.117	5.15E-06	KCNC4
ENSG00000172819	1.121	6.85E-03	RARG
ENSG00000196284	1.122	7.23E-04	SUPT3H
ENSG00000187672	1.123	3.98E-04	ERC2
ENSG00000111912	1.125	1.21E-03	NCOA7
ENSG00000180914	1.128	9.56E-03	OXTR
ENSG00000124743	1.129	3.12E-03	KLHL31
ENSG00000101493	1.132	1.87E-03	ZNF516
ENSG00000060709	1.138	9.56E-08	RIMBP2
ENSG00000196132	1.139	1.42E-07	MYT1
ENSG00000169862	1.142	3.45E-05	CTNND2
ENSG00000137968	1.147	1.62E-06	SLC44A5
ENSG00000163531	1.161	1.17E-06	NFASC
ENSG00000068831	1.164	7.45E-03	RASGRP2
ENSG00000157214	1.166	7.82E-06	STEAP2
ENSG00000142178	1.168	4.21E-04	SIK1

ENSG00000152582	1.171	3.10E-04	SPEF2
ENSG00000075426	1.174	2.02E-06	FOSL2
ENSG00000076706	1.181	2.21E-03	MCAM
ENSG00000020181	1.182	2.86E-03	ADGRA2
ENSG00000157734	1.189	4.42E-05	SNX22
ENSG00000113212	1.192	3.36E-03	PCDHB7
ENSG00000183837	1.193	4.44E-05	PNMA3
ENSG00000198478	1.194	2.01E-04	SH3BGRL2
ENSG00000106829	1.195	8.57E-03	TLE4
ENSG00000114248	1.197	7.49E-03	LRRC31
ENSG00000198719	1.200	1.81E-04	DLL1
ENSG00000143079	1.203	1.25E-07	CTTNBP2NL
ENSG00000165029	1.204	3.18E-03	ABCA1
ENSG00000090971	1.206	1.13E-03	NAT14
ENSG00000163884	1.207	3.71E-05	KLF15
ENSG00000081181	1.215	2.44E-05	ARG2
ENSG00000137571	1.220	1.82E-05	SLCO5A1
ENSG00000134780	1.220	2.77E-03	DAGLA
ENSG00000185303	1.223	1.54E-04	SFTPA2
ENSG00000122585	1.223	7.39E-03	NPY
ENSG00000131711	1.225	5.39E-05	MAP1B
ENSG00000181264	1.226	1.77E-06	TMEM136
ENSG00000012504	1.226	6.11E-03	NR1H4
ENSG00000139597	1.228	8.26E-07	N4BP2L1
ENSG00000140470	1.230	8.09E-03	ADAMTS17
ENSG00000111275	1.233	1.13E-05	ALDH2
ENSG00000075391	1.238	5.71E-04	RASAL2
ENSG00000116039	1.241	5.43E-03	ATP6V1B1
ENSG00000144366	1.241	1.88E-04	GULP1
ENSG00000186891	1.242	5.60E-03	TNFRSF18
ENSG00000164076	1.247	6.40E-05	CAMKV
ENSG00000164125	1.248	5.30E-07	FAM198B
ENSG00000165246	1.261	1.61E-03	NLGN4Y
ENSG00000184986	1.264	8.99E-03	TMEM121
ENSG00000124145	1.267	3.68E-04	SDC4
ENSG00000119866	1.268	1.34E-05	BCL11A
ENSG00000109794	1.286	1.32E-04	FAM149A
ENSG00000153291	1.296	7.63E-07	SLC25A27
ENSG00000123094	1.298	5.38E-05	RASSF8

ENSG00000159388	1.300	2.78E-06	BTG2
ENSG00000162545	1.302	4.57E-05	CAMK2N1
ENSG00000106070	1.305	1.41E-06	GRB10
ENSG00000077585	1.315	3.82E-05	GPR137B
ENSG00000080854	1.333	2.29E-07	IGSF9B
ENSG00000198133	1.338	5.84E-03	TMEM229B
ENSG00000165084	1.340	6.95E-06	C8orf34
ENSG00000101096	1.348	2.50E-03	NFATC2
ENSG00000141540	1.353	1.16E-03	TTYH2
ENSG00000144331	1.353	8.22E-08	ZNF385B
ENSG00000155980	1.357	9.15E-05	KIF5A
ENSG00000100100	1.361	5.52E-04	PIK3IP1
ENSG00000003436	1.361	5.35E-03	TFPI
ENSG00000143473	1.375	1.58E-05	KCNH1
ENSG00000216306	1.377	4.66E-05	KRT19P2
ENSG00000079335	1.378	6.96E-03	CDC14A
ENSG00000137843	1.391	1.32E-03	PAK6
ENSG00000177990	1.393	5.09E-08	DPY19L2
ENSG00000113742	1.394	2.49E-05	CPEB4
ENSG00000106714	1.395	8.39E-03	CNTNAP3
ENSG00000185002	1.396	3.96E-05	RFX6
ENSG00000163083	1.405	7.69E-05	INHBB
ENSG00000162437	1.405	9.71E-05	RAVER2
ENSG00000006210	1.421	7.26E-04	CX3CL1
ENSG00000170153	1.428	9.18E-03	RNF150
ENSG00000054690	1.430	6.39E-07	PLEKHH1
ENSG00000142512	1.450	3.59E-03	SIGLEC10
ENSG00000233756	1.454	1.81E-05	DSCAM-IT1
ENSG00000165125	1.456	6.28E-06	TRPV6
ENSG00000001561	1.467	2.32E-04	ENPP4
ENSG00000184185	1.477	6.57E-05	KCNJ12
ENSG00000107104	1.478	1.34E-05	KANK1
ENSG00000146776	1.480	7.92E-07	ATXN7L1
ENSG00000041982	1.485	2.96E-03	TNC
ENSG00000146233	1.490	3.31E-03	CYP39A1
ENSG00000146070	1.505	6.80E-06	PLA2G7
ENSG00000101210	1.515	1.25E-06	EEF1A2
ENSG00000115884	1.515	4.30E-08	SDC1
ENSG00000148288	1.516	5.76E-04	GBGT1

ENSG00000149212	1.520	9.36E-05	SESN3
ENSG00000132872	1.533	5.96E-06	SYT4
ENSG00000171680	1.550	7.76E-04	PLEKHG5
ENSG00000186197	1.551	1.75E-03	EDARADD
ENSG00000100604	1.552	8.40E-07	CHGA
ENSG00000164647	1.560	7.23E-08	STEAP1
ENSG00000180113	1.563	1.86E-06	TDRD6
ENSG00000185950	1.568	4.24E-07	IRS2
ENSG00000196557	1.574	4.48E-07	CACNA1H
ENSG00000180881	1.575	8.94E-03	CAPS2
ENSG00000112320	1.577	1.58E-04	SOBP
ENSG00000214456	1.579	8.12E-03	PLIN5
ENSG00000168952	1.589	3.69E-04	STXBP6
ENSG00000162144	1.591	4.50E-07	CYB561A3
ENSG00000169418	1.595	7.14E-04	NPR1
ENSG00000167992	1.596	3.69E-03	VWCE
ENSG00000139211	1.599	8.29E-03	AMIGO2
ENSG00000020577	1.599	1.42E-06	SAMD4A
ENSG00000169435	1.606	7.46E-04	RASSF6
ENSG00000074211	1.610	7.21E-05	PPP2R2C
ENSG00000143502	1.619	1.24E-06	SUSD4
ENSG00000214290	1.624	4.68E-07	COLCA2
ENSG00000157654	1.624	1.55E-07	PALM2
ENSG00000166959	1.632	5.94E-04	MS4A8
ENSG00000104722	1.633	9.85E-05	NEFM
ENSG00000162981	1.635	1.09E-04	FAM84A
ENSG00000137878	1.638	7.35E-08	GCOM1
ENSG00000172817	1.643	1.10E-04	CYP7B1
ENSG00000128268	1.648	8.57E-06	MGAT3
ENSG00000125813	1.653	5.87E-03	PAX1
ENSG00000186462	1.658	1.26E-03	NAP1L2
ENSG00000173559	1.662	4.88E-04	NABP1
ENSG00000173334	1.669	2.55E-10	TRIB1
ENSG00000170561	1.671	4.00E-03	IRX2
ENSG00000117154	1.672	4.22E-03	IGSF21
ENSG00000099250	1.677	1.63E-09	NRP1
ENSG00000123201	1.682	3.62E-03	GUCY1B2
ENSG00000204314	1.682	5.72E-03	PRRT1
ENSG00000184856	1.687	4.25E-04	LINC00308

ENSG00000064655	1.689	9.06E-03	EYA2
ENSG00000137098	1.692	3.48E-03	SPAG8
ENSG00000206503	1.700	3.40E-03	HLA-A
ENSG00000119138	1.703	8.19E-06	KLF9
ENSG00000112149	1.703	8.61E-03	CD83
ENSG00000166840	1.708	1.23E-04	GLYATL1
ENSG00000198780	1.712	4.79E-05	FAM169A
ENSG00000164749	1.714	6.05E-04	HNF4G
ENSG00000143479	1.717	2.31E-03	DYRK3
ENSG00000151458	1.720	1.78E-08	ANKRD50
ENSG00000166006	1.725	1.21E-05	KCNC2
ENSG00000169604	1.726	1.53E-09	ANTXR1
ENSG00000165443	1.727	7.09E-05	PHYHIPL
ENSG00000162407	1.752	4.47E-05	PLPP3
ENSG00000166974	1.752	2.09E-04	MAPRE2
ENSG00000171451	1.761	1.47E-08	DSEL
ENSG00000219438	1.770	1.12E-04	FAM19A5
ENSG00000107954	1.775	8.69E-06	NEURL1
ENSG00000160188	1.776	5.13E-03	RSPH1
ENSG00000110436	1.781	2.18E-06	SLC1A2
ENSG00000196353	1.781	9.35E-08	CPNE4
ENSG00000108691	1.790	1.87E-03	CCL2
ENSG00000213626	1.791	2.43E-03	LBH
ENSG00000197410	1.810	3.09E-03	DCHS2
ENSG00000200879	1.829	7.06E-03	SNORD14E
ENSG00000187634	1.832	2.29E-04	SAMD11
ENSG00000082497	1.850	1.84E-03	SERTAD4
ENSG00000145439	1.854	6.15E-09	CBR4
ENSG00000116729	1.854	2.01E-04	WLS
ENSG00000164626	1.870	2.60E-03	KCNK5
ENSG00000137198	1.874	3.77E-07	GMPR
ENSG00000182870	1.879	9.66E-03	GALNT9
ENSG00000188643	1.885	4.84E-03	S100A16
ENSG00000070886	1.894	4.81E-06	EPHA8
ENSG00000182985	1.894	1.05E-09	CADM1
ENSG00000125845	1.901	5.31E-03	BMP2
ENSG00000165272	1.902	5.76E-06	AQP3
ENSG00000105889	1.902	5.69E-04	STEAP1B
ENSG00000186310	1.912	8.45E-03	NAP1L3

ENSG00000182013	1.919	6.73E-05	PNMAL1
ENSG00000122756	1.937	2.40E-04	CNTFR
ENSG00000126562	1.940	1.52E-06	WNK4
ENSG00000238597	1.961	7.86E-03	SNORD4B
ENSG00000235123	1.971	6.64E-03	DSCAM-AS1
ENSG00000116176	1.983	5.25E-03	TPSG1
ENSG00000233215	1.984	4.20E-08	LINC01687
ENSG00000158258	2.001	2.33E-06	CLSTN2
ENSG00000101871	2.005	7.76E-09	MID1
ENSG00000166923	2.025	7.10E-05	GREM1
ENSG00000118997	2.032	4.35E-04	DNAH7
ENSG00000140968	2.034	2.98E-05	IRF8
ENSG00000199094	2.037	9.20E-03	MIR30C2
ENSG00000231439	2.037	2.43E-03	WASIR2
ENSG00000133639	2.038	9.49E-09	BTG1
ENSG00000139970	2.052	3.29E-04	RTN1
ENSG00000112139	2.080	5.84E-03	MDGA1
ENSG00000125266	2.105	1.19E-06	EFNB2
ENSG00000112182	2.108	1.26E-04	BACH2
ENSG00000166897	2.132	2.77E-04	ELFN2
ENSG00000106686	2.132	2.11E-06	SPATA6L
ENSG00000171587	2.133	8.03E-10	DSCAM
ENSG00000075223	2.133	1.67E-06	SEMA3C
ENSG00000197872	2.151	7.64E-07	FAM49A
ENSG00000153234	2.177	1.49E-03	NR4A2
ENSG00000166432	2.180	2.43E-05	ZMAT1
ENSG00000135374	2.188	8.73E-03	ELF5
ENSG00000137727	2.188	4.12E-08	ARHGAP20
ENSG00000128714	2.224	8.64E-03	HOXD13
ENSG00000223561	2.255	1.41E-03	LOC646588
ENSG00000123095	2.268	5.03E-03	BHLHE41
ENSG00000157087	2.288	3.57E-03	ATP2B2
ENSG00000026508	2.291	3.24E-05	CD44
ENSG00000145362	2.306	2.02E-04	ANK2
ENSG00000182132	2.332	1.62E-03	KCNIP1
ENSG00000132329	2.339	5.06E-05	RAMP1
ENSG00000188257	2.358	2.54E-03	PLA2G2A
ENSG00000135905	2.376	1.75E-08	DOCK10
ENSG00000158270	2.419	1.20E-07	COLEC12

ENSG00000196358	2.453	8.24E-03	NTNG2
ENSG00000214039	2.461	8.22E-05	LINC02418
ENSG00000236609	2.468	2.72E-04	ZNF853
ENSG00000137501	2.480	5.59E-07	SYTL2
ENSG00000137801	2.481	6.84E-08	THBS1
ENSG00000106123	2.501	1.99E-09	EPHB6
ENSG00000134853	2.501	6.68E-03	PDGFRA
ENSG00000181467	2.523	1.56E-08	RAP2B
ENSG00000110076	2.563	8.94E-10	NRXN2
ENSG00000186469	2.571	6.66E-03	GNG2
ENSG00000151883	2.583	2.60E-05	PARP8
ENSG00000115604	2.598	4.40E-03	IL18R1
ENSG00000171951	2.602	7.05E-04	SCG2
ENSG00000167680	2.635	8.41E-03	SEMA6B
ENSG00000157399	2.651	8.54E-03	ARSE
ENSG00000176904	2.670	9.08E-03	OR51H1
ENSG00000167332	2.675	1.77E-04	OR51E2
ENSG00000116106	2.711	4.84E-06	EPHA4
ENSG00000136999	2.712	8.56E-04	NOV
ENSG00000168229	2.733	8.38E-04	PTGDR
ENSG00000178031	2.755	4.30E-03	ADAMTSL1
ENSG00000144583	2.766	1.50E-05	MARC4
ENSG00000125384	2.817	3.40E-08	PTGER2
ENSG00000151623	2.818	1.27E-07	NR3C2
ENSG00000151067	2.873	1.56E-10	CACNA1C
ENSG00000002726	2.889	4.78E-03	AOC1
ENSG00000069206	2.910	2.93E-07	ADAM7
ENSG00000182568	2.911	4.88E-09	SATB1
ENSG00000158816	2.931	3.32E-09	VWA5B1
ENSG00000228314	2.950	6.69E-03	CYP4F29P
ENSG00000131196	2.979	9.86E-04	NFATC1
ENSG00000176900	3.000	3.29E-03	OR51T1
ENSG00000223764	3.019	1.37E-04	LOC100130417
ENSG00000105696	3.023	6.48E-03	TMEM59L
ENSG00000086205	3.026	1.67E-04	FOLH1
ENSG00000058866	3.054	9.74E-04	DGKG
ENSG00000146373	3.056	3.36E-03	RNF217
ENSG00000153292	3.091	5.31E-07	ADGRF1
ENSG00000197428	3.101	2.77E-04	OR51D1

ENSG00000146674	3.114	2.74E-03	IGFBP3
ENSG00000138759	3.143	9.17E-05	FRAS1
ENSG00000232125	3.194	4.07E-03	DYTN
ENSG00000174948	3.198	3.12E-03	GPR149
ENSG00000172348	3.235	7.16E-05	RCAN2
ENSG00000111432	3.266	3.76E-03	FZD10
ENSG00000176922	3.282	6.33E-03	OR51S1
ENSG00000154127	3.290	7.84E-05	UBASH3B
ENSG00000163735	3.302	3.74E-03	CXCL5
ENSG00000206448	3.302	2.82E-03	PPIAP30
ENSG00000167434	3.467	9.23E-03	CA4
ENSG00000196090	3.530	2.38E-03	PTPRT
ENSG00000162989	3.569	8.04E-04	KCNJ3
ENSG00000233705	3.598	1.87E-03	SLC26A4-AS1
ENSG00000131477	3.607	8.84E-04	RAMP2
ENSG00000232810	3.620	1.00E-03	TNF
ENSG00000155886	3.651	5.89E-04	SLC24A2
ENSG00000169439	3.674	3.19E-07	SDC2
ENSG00000156564	3.683	3.28E-06	LRFN2
ENSG00000102837	3.693	2.18E-03	OLFM4
ENSG00000183098	3.793	1.39E-03	GPC6
ENSG00000198010	3.802	6.07E-04	DLGAP2
ENSG00000111319	3.816	2.11E-03	SCNN1A
ENSG00000198889	3.863	1.50E-03	DCAF12L1
ENSG00000078295	3.886	9.55E-05	ADCY2
ENSG00000168772	3.991	2.29E-04	CXXC4
ENSG00000135074	4.052	8.35E-03	ADAM19
ENSG00000144339	4.133	6.68E-06	TMEFF2
ENSG00000180785	4.268	6.19E-07	OR51E1
ENSG00000134198	4.373	2.31E-04	TSPAN2
ENSG00000169083	4.443	1.27E-14	AR
ENSG00000184838	4.516	2.07E-04	PRR16
ENSG00000120251	6.954	7.53E-04	GRIA2



**Supplementary Table S3: Differentially expressed genes in serial biopsies of VCaP xenografts, AER vs. CRPC.** Expression data from RNA sequencing of serial biopsies of VCaP tumors following development of castration resistant prostate cancer (CRPC) and following development of abiraterone plus enzalutamide resistance (AER). log2FC – log2 fold change.

<b>Ensemble ID</b>	<b>log2FC</b>	<b>P Value</b>	<b>Symbol</b>
ENSG00000155026	-3.632	5.39E-04	RSPH10B
ENSG00000135063	-3.248	1.92E-03	FAM189A2
ENSG00000134853	-3.048	1.16E-03	PDGFRA
ENSG00000224512	-2.990	2.27E-03	NA
ENSG00000207040	-2.859	3.00E-03	NA
ENSG00000174473	-2.846	4.57E-03	GALNTL6
ENSG00000183023	-2.785	4.05E-03	SLC8A1
ENSG00000238732	-2.758	1.88E-03	NA
ENSG00000166501	-2.744	4.29E-03	PRKCB
ENSG00000196628	-2.440	4.68E-03	TCF4
ENSG00000145147	-2.374	1.70E-03	SLIT2
ENSG00000147065	-2.365	9.11E-03	MSN
ENSG00000236581	-2.287	9.63E-03	STARD13-AS
ENSG00000229751	-2.277	2.17E-03	NA
ENSG00000187653	-2.211	1.27E-03	NA
ENSG00000070526	-2.160	1.18E-03	ST6GALNAC1
ENSG00000048740	-2.122	5.43E-03	CELF2
ENSG00000144481	-2.112	2.12E-07	TRPM8
ENSG00000123338	-2.066	9.21E-03	NCKAP1L
ENSG00000225840	-2.028	8.49E-03	NA
ENSG00000236150	-2.027	4.18E-03	NA
ENSG00000225792	-1.981	6.71E-03	LOC105375304
ENSG00000236646	-1.895	1.98E-03	NA
ENSG00000175745	-1.880	4.17E-03	NR2F1
ENSG00000198795	-1.808	5.51E-03	ZNF521
ENSG00000229132	-1.792	7.78E-03	NA
ENSG00000171444	-1.752	1.28E-07	MCC
ENSG00000128284	-1.728	7.77E-05	APOL3
ENSG00000207082	-1.719	6.04E-03	NA
ENSG00000165092	-1.718	1.18E-03	ALDH1A1
ENSG00000214456	-1.706	1.99E-03	PLIN5

ENSG00000212774	-1.687	8.82E-03	NA
ENSG00000237115	-1.638	4.96E-03	NA
ENSG00000182179	-1.564	2.89E-03	UBA7
ENSG00000238179	-1.533	9.70E-03	NA
ENSG00000198467	-1.498	5.10E-06	TPM2
ENSG00000144045	-1.461	7.19E-03	DQX1
ENSG00000163239	-1.426	1.16E-03	TDRD10
ENSG00000169436	-1.419	7.69E-03	COL22A1
ENSG00000231916	-1.414	1.97E-04	NA
ENSG00000188981	-1.379	8.80E-03	MSANTD1
ENSG00000134954	-1.373	4.34E-03	ETS1
ENSG00000184371	-1.348	8.84E-03	CSF1
ENSG00000173926	-1.328	5.10E-03	MARC3
ENSG00000091129	-1.242	6.04E-06	NRCAM
ENSG00000225992	-1.234	4.01E-03	NA
ENSG00000162069	-1.210	9.06E-03	BICDL2
ENSG00000225264	-1.177	7.11E-03	NA
ENSG00000232961	-1.138	5.07E-03	NA
ENSG00000229715	-1.134	1.54E-03	NA
ENSG00000114790	-1.120	9.34E-06	ARHGEF26
ENSG00000226450	-1.109	1.60E-03	NA
ENSG00000114626	-1.092	3.90E-05	ABTB1
ENSG00000165023	-1.086	2.63E-03	DIRAS2
ENSG00000237387	-1.081	4.76E-03	NA
ENSG00000231965	-1.069	6.11E-03	NA
ENSG00000005961	-1.056	3.20E-03	ITGA2B
ENSG00000010327	-1.008	8.49E-03	STAB1
ENSG00000115705	-1.005	9.89E-04	TPO
ENSG00000103460	-1.004	1.04E-03	TOX3
ENSG00000153246	-1.002	8.42E-04	PLA2R1
ENSG00000154553	-1.001	8.16E-06	PDLIM3
ENSG00000198417	1.002	5.56E-03	MT1F
ENSG00000237598	1.011	3.75E-03	NA
ENSG00000086205	1.022	3.85E-03	FOLH1
ENSG00000119138	1.023	2.56E-05	KLF9
ENSG00000188643	1.028	7.66E-03	S100A16
ENSG00000128536	1.029	2.17E-04	CDHR3
ENSG00000081138	1.040	1.76E-04	CDH7
ENSG00000139970	1.049	1.58E-03	RTN1

ENSG00000235796	1.084	7.64E-03	NA
ENSG00000109107	1.087	3.86E-03	ALDOC
ENSG00000131016	1.095	9.04E-06	AKAP12
ENSG00000152952	1.102	9.51E-03	PLOD2
ENSG00000182870	1.118	8.19E-03	GALNT9
ENSG00000180785	1.119	1.98E-04	OR51E1
ENSG00000067798	1.146	8.79E-03	NAV3
ENSG00000166780	1.189	5.77E-03	C16orf45
ENSG00000134107	1.204	1.59E-03	BHLHE40
ENSG00000201098	1.206	1.22E-03	RNY1
ENSG00000234459	1.213	6.21E-03	NA
ENSG00000229904	1.215	2.11E-06	NA
ENSG00000091844	1.217	1.05E-03	RGS17
ENSG00000171522	1.217	5.01E-03	PTGER4
ENSG00000122585	1.231	1.78E-03	NPY
ENSG00000142515	1.237	1.45E-05	KLK3
ENSG00000103005	1.240	8.26E-03	USB1
ENSG00000131771	1.243	6.25E-03	PPP1R1B
ENSG00000118997	1.247	2.14E-04	DNAH7
ENSG00000048052	1.251	7.56E-03	HDAC9
ENSG00000167183	1.275	3.13E-04	PRR15L
ENSG00000146674	1.280	5.78E-03	IGFBP3
ENSG00000144339	1.308	4.62E-04	TMEFF2
ENSG00000182791	1.311	8.44E-03	CCDC87
ENSG00000232125	1.312	6.26E-03	DYTN
ENSG00000149212	1.325	2.03E-05	SESN3
ENSG00000187193	1.330	3.20E-04	MT1X
ENSG00000159860	1.331	6.58E-03	NA
ENSG00000005108	1.342	5.94E-05	THSD7A
ENSG00000112964	1.351	9.44E-03	GHR
ENSG00000152766	1.358	8.27E-03	ANKRD22
ENSG00000176951	1.371	8.24E-03	NA
ENSG00000107518	1.377	4.36E-04	ATRNL1
ENSG00000174749	1.389	7.32E-03	C4orf32
ENSG00000233766	1.418	1.99E-03	NA
ENSG00000143153	1.421	1.70E-06	ATP1B1
ENSG00000188257	1.422	6.30E-04	PLA2G2A
ENSG00000177103	1.430	9.46E-03	DSCAML1
ENSG00000102048	1.434	7.81E-04	ASB9

ENSG00000171282	1.450	2.99E-03	NA
ENSG00000171951	1.558	1.33E-04	SCG2
ENSG00000167434	1.565	3.35E-03	CA4
ENSG00000069188	1.575	9.61E-04	SDK2
ENSG00000107249	1.578	5.31E-03	GLIS3
ENSG00000127863	1.578	9.96E-03	TNFRSF19
ENSG00000124466	1.660	7.48E-03	LYPD3
ENSG00000204589	1.666	4.68E-04	NA
ENSG00000136999	1.710	4.04E-05	NOV
ENSG00000102010	1.736	7.37E-04	BMX
ENSG00000174132	1.738	3.06E-03	FAM174A
ENSG00000129654	1.747	6.19E-05	FOXJ1
ENSG00000196368	1.758	2.50E-03	NUDT11
ENSG00000147889	1.779	6.39E-03	CDKN2A
ENSG00000135074	1.822	5.59E-03	ADAM19
ENSG00000175267	1.829	9.52E-03	VWA3A
ENSG00000111319	1.852	1.72E-04	SCNN1A
ENSG00000117600	1.917	6.13E-03	PLPPR4
ENSG00000135378	1.927	6.56E-03	PRRG4
ENSG00000167332	1.929	3.92E-06	OR51E2
ENSG00000144290	1.943	1.77E-03	SLC4A10
ENSG00000228862	2.034	8.40E-03	NA
ENSG00000106236	2.125	9.74E-05	NPTX2
ENSG00000157404	2.178	5.67E-03	KIT
ENSG00000123095	2.194	1.38E-05	BHLHE41
ENSG00000173947	2.231	3.56E-03	PIFO
ENSG00000156298	2.268	1.12E-03	TSPAN7
ENSG00000226230	2.305	6.15E-04	NA
ENSG00000227418	2.736	9.24E-03	PCGEM1
ENSG00000033122	2.740	6.21E-03	LRRC7
ENSG00000089250	2.819	3.86E-03	NOS1
ENSG00000197674	2.823	6.94E-04	NA
ENSG00000227972	2.860	5.60E-03	NA
ENSG00000005059	2.979	4.44E-03	MCUB
ENSG00000226677	3.006	5.94E-03	NA
ENSG00000228558	3.197	2.98E-03	NA
ENSG00000215973	3.199	2.87E-03	MIR933
ENSG00000153823	3.368	6.45E-03	PID1
ENSG00000183833	3.411	8.80E-03	MAATS1

ENSG00000128322	3.467	5.54E-03	IGLL1
ENSG00000187957	3.835	8.03E-04	DNER
ENSG00000166509	4.491	4.17E-03	CLEC3A
ENSG00000170369	5.112	8.12E-04	CST2

**Supplementary Table S4: Differentially expressed genes (DEGs) in AER vs. Pre-Cx using stringent statistical cutoff and the levels of the same differentially expressed genes in CRPC vs Pre-Cx.** Expression data from RNA sequencing of serial biopsies of VCaP tumors prior to castration (Pre-Cx), at castration-resistance (CRPC) and following development of abiraterone and enzalutamide resistance (AER). A more stringent statistical cutoff ( $\text{Log}_2(\text{FC}) \geq 2.5$  and  $P \leq 1.00\text{E-}05$ ) was used to reduce the number of DEGs in the AER vs Pre-Cx comparison to 72 (as depicted in Fig. 2C), then the levels of those genes were determined in the CRPC vs Pre-Cx comparison. Differentially expression of all genes was in the same direction for both comparisons.  $\text{Log}_2\text{FC}$  –  $\log_2$  fold change.

AER vs Pre-Cx			CRPC vs Pre-Cx		
Upregulated Genes					
Gene	Log <sub>2</sub> (FC)	P Value	Gene	Log <sub>2</sub> (FC)	P Value
TMEFF2	5.44	9.94E-08	TMEFF2	4.13	6.68E-06
OR51E1	5.39	1.39E-08	OR51E1	4.27	6.19E-07
OR51E2	4.60	7.82E-08	OR51E2	2.67	1.77E-04
AR	4.48	3.42E-15	AR	4.44	1.27E-14
BHLHE41	4.46	1.99E-06	BHLHE41	2.27	5.03E-03
NOV	4.42	1.74E-06	NOV	2.71	8.56E-04
SCG2	4.16	1.62E-06	SCG2	2.60	7.05E-04
FOLH1	4.05	3.08E-06	FOLH1	3.03	1.67E-04
FRAS1	3.98	3.30E-06	FRAS1	3.14	9.17E-05
LOC100130417	3.84	4.98E-06	LOC100130417	3.02	1.37E-04
SDC2	3.80	1.29E-07	SDC2	3.67	3.19E-07
NR3C2	3.73	7.08E-10	NR3C2	2.82	1.27E-07
EPHA4	3.53	5.79E-08	EPHA4	2.71	4.84E-06
LRFN2	3.44	6.18E-06	LRFN2	3.68	3.28E-06
DNAH7	3.28	5.44E-07	DNAH7	2.03	4.35E-04
ANK2	3.27	1.35E-06	ANK2	2.31	2.02E-04
THBS1	3.20	4.41E-10	THBS1	2.48	6.84E-08
RTN1	3.10	9.74E-07	RTN1	2.05	3.29E-04
LINC02418	3.06	3.12E-06	LINC02418	2.46	8.22E-05
COLEC12	2.97	2.17E-09	COLEC12	2.42	1.20E-07
ADAM7	2.88	2.08E-07	ADAM7	2.91	2.93E-07
SESN3	2.85	5.43E-09	SESN3	2.93	3.32E-09
VWA5B1	2.78	2.97E-09	VWA5B1	2.93	3.32E-09
KLF9	2.73	2.75E-09	KLF9	1.70	8.19E-06
NRXN2	2.69	1.51E-10	NRXN2	2.56	8.94E-10
SAMD11	2.68	8.62E-07	SAMD11	1.83	2.29E-04
PTGER2	2.67	4.50E-08	PTGER2	2.82	3.40E-08
CACNA1C	2.63	2.54E-10	CACNA1C	2.87	1.56E-10
SATB1	2.61	1.37E-08	SATB1	2.91	4.88E-09

AER vs Pre-Cx			CRPC vs Pre-Cx		
Downregulated Genes					
Gene	Log2(FC)	P Value	Gene	Log2(FC)	P Value
FAM189A2	-7.70	1.49E-08	FAM189A2	-4.45	2.47E-08
DPP4	-6.83	5.40E-13	DPP4	-5.77	2.86E-12
SH3RF2	-5.17	1.47E-06	SH3RF2	-5.17	1.46E-05
CACNG4	-5.14	5.27E-08	CACNG4	-4.81	1.22E-06
VSTM2A	-5.01	5.87E-10	VSTM2A	-6.28	1.17E-07
ST6GALNAC1	-5.00	7.85E-09	ST6GALNAC1	-2.84	4.39E-07
VSTM2A-OT1	-4.93	2.19E-06	VSTM2A-OT1	-3.29	4.78E-04
TESC	-4.87	8.82E-11	TESC	-4.37	2.45E-09
HABP2	-4.84	9.82E-06	HABP2	-3.33	2.40E-04
ALDH1A1	-4.74	3.71E-10	ALDH1A1	-3.02	2.45E-08
LUZP2	-4.62	1.80E-09	LUZP2	-4.61	7.92E-08
TRPM8	-4.23	1.32E-12	TRPM8	-2.12	4.98E-08
TMSB15A	-4.04	4.27E-06	TMSB15A	-3.31	9.76E-05
LOC101929653	-3.98	1.85E-10	LOC101929653	-2.94	1.31E-08
FRMPD3	-3.62	5.52E-07	FRMPD3	-3.07	1.23E-05
SPOCK2	-3.57	3.09E-11	SPOCK2	-3.68	4.70E-10
STEAP4	-3.56	1.78E-13	STEAP4	-3.36	4.38E-12
COL4A5	-3.49	5.26E-12	COL4A5	-2.60	9.02E-10
DIRAS2	-3.43	1.19E-10	DIRAS2	-2.34	2.42E-08
CRISP2	-3.34	4.23E-06	CRISP2	-2.64	1.48E-04
ANKRD29	-3.33	8.85E-10	ANKRD29	-2.57	8.26E-08
HLA-DMA	-3.19	1.60E-10	HLA-DMA	-2.99	4.54E-09
KRT14	-3.11	5.13E-06	KRT14	-2.95	1.12E-04
NRCAM	-3.05	1.25E-12	NRCAM	-1.81	3.48E-09
LAMA3	-2.97	6.92E-15	LAMA3	-2.35	1.32E-12
UGT2B4	-2.96	9.56E-08	UGT2B4	-2.53	4.34E-06
NNMT	-2.95	7.80E-08	NNMT	-2.02	1.02E-05
SLC27A6	-2.93	1.54E-06	SLC27A6	-2.35	5.65E-05
NTM	-2.88	4.30E-08	NTM	-1.90	1.00E-05
ESRRG	-2.86	1.00E-09	ESRRG	-2.94	2.37E-08
HGD	-2.85	1.30E-10	HGD	-2.13	2.37E-08
MCCC2	-2.84	4.74E-09	MCCC2	-1.97	2.38E-06
MCC	-2.80	4.26E-11	MCC	-1.05	3.82E-05
VWF	-2.77	7.72E-07	VWF	-2.20	3.59E-05
CUEDC1	-2.77	3.29E-07	CUEDC1	-1.87	4.88E-05
ENSG00000213777	-2.77	3.00E-13	ENSG00000213777	-2.55	1.03E-11
WISP1	-2.64	9.63E-06	WISP1	-2.06	3.29E-04
TOX3	-2.62	8.55E-10	TOX3	-1.62	1.08E-06
C4orf19	-2.62	2.52E-09	C4orf19	-1.68	2.30E-06

<b>TG</b>	-2.62	2.03E-09	<b>TG</b>	-2.46	6.36E-08
<b>ELOVL2</b>	-2.61	6.56E-11	<b>ELOVL2</b>	-2.65	1.18E-09
<b>CNKSR2</b>	-2.56	1.47E-09	<b>CNKSR2</b>	-1.94	2.30E-07
<b>MICALCL</b>	-2.50	8.26E-07	<b>MICALCL</b>	-2.61	1.09E-05



**Supplementary Table S5: Differentially expressed AR target genes in serial biopsies of VCaP xenografts, AER vs. Pre-Cx.** Expression data of a curated list of AR target genes from RNA sequencing of serial biopsies of VCaP tumors prior to castration (Pre-Cx) and following development of abiraterone plus enzalutamide resistance (AER). log<sub>2</sub>FC – log<sub>2</sub> fold change, Avg. Exp. – Average Expression.

Ensemble ID	log <sub>2</sub> FC	P Value	Symbol
ENSG00000197635	-6.831	5.40E-13	DPP4
ENSG00000204257	-3.187	1.60E-10	HLA-DMA
ENSG00000131844	-2.837	4.74E-09	MCCC2
ENSG00000149218	-2.384	5.00E-10	ENDOD1
ENSG00000116133	-2.303	1.74E-08	DHCR24
ENSG00000145703	-1.924	2.84E-09	IQGAP2
ENSG00000125257	-1.655	3.21E-11	ABCC4
ENSG00000151503	-1.628	3.66E-11	NCAPD3
ENSG00000014914	-1.566	1.27E-02	MTMR11
ENSG00000117143	-1.541	1.19E-09	UAP1
ENSG00000173482	-1.520	2.72E-06	PTPRM
ENSG00000145088	-1.462	4.93E-02	EAF2
ENSG00000112343	-1.442	1.44E-06	TRIM38
ENSG00000080709	-1.395	1.99E-06	KCNN2
ENSG00000167751	-1.367	5.68E-09	KLK2
ENSG00000157911	-1.332	3.36E-07	PEX10
ENSG00000141401	-1.271	2.51E-04	IMPA2
ENSG00000100297	-1.256	1.04E-06	MCM5
ENSG00000103222	-1.232	2.88E-07	ABCC1
ENSG00000163251	-1.217	2.00E-07	FZD5
ENSG00000115758	-1.155	1.55E-07	ODC1
ENSG00000123983	-1.146	2.74E-08	ACSL3
ENSG00000124713	-1.141	3.12E-02	GNMT
ENSG00000094804	-1.108	3.27E-04	CDC6
ENSG00000008513	-1.071	1.50E-03	ST3GAL1
ENSG00000156802	-1.053	1.19E-06	ATAD2
ENSG00000130164	-1.046	7.91E-07	LDLR
ENSG00000104738	-1.005	9.07E-06	MCM4
ENSG00000177425	-0.990	3.83E-07	PAWR
ENSG00000143476	-0.981	1.58E-04	DTL

ENSG00000130513	-0.966	2.67E-03	GDF15
ENSG00000124664	-0.957	3.57E-07	SPDEF
ENSG00000164045	-0.904	2.15E-04	CDC25A
ENSG00000133119	-0.857	1.94E-04	RFC3
ENSG00000169213	-0.832	1.91E-04	RAB3B
ENSG00000112118	-0.768	1.55E-04	MCM3
ENSG00000135090	-0.767	5.93E-03	TAOK3
ENSG00000027075	-0.763	4.10E-04	PRKCH
ENSG00000186480	-0.760	1.63E-03	INSIG1
ENSG00000168496	-0.753	1.19E-03	FEN1
ENSG00000105939	-0.734	5.45E-06	ZC3HAV1
ENSG00000137710	-0.718	7.99E-05	RDX
ENSG00000117308	-0.716	3.46E-02	GALE
ENSG00000081377	-0.677	6.71E-02	CDC14B
ENSG00000067064	-0.645	6.71E-04	IDI1
ENSG00000110723	-0.606	5.25E-04	EXPH5
ENSG00000147526	-0.585	5.45E-05	TACC1
ENSG00000146950	-0.575	1.29E-04	SHROOM2
ENSG00000008083	-0.574	2.36E-03	JARID2
ENSG00000141424	-0.561	3.97E-05	SLC39A6
ENSG00000113645	-0.553	3.05E-04	WWC1
ENSG00000196620	-0.538	6.63E-02	UGT2B15
ENSG00000051825	-0.530	4.73E-04	MPHOSPH9
ENSG00000213639	-0.524	1.80E-04	PPP1CB
ENSG00000096060	-0.522	1.22E-02	FKBP5
ENSG00000132780	-0.520	9.32E-04	NASP
ENSG00000153132	-0.498	1.43E-03	CLGN
ENSG00000103942	-0.496	1.83E-04	HOMER2
ENSG00000109320	-0.470	4.61E-03	NFKB1
ENSG00000109089	-0.466	2.67E-02	CDR2L
ENSG00000196781	-0.463	1.17E-01	TLE1
ENSG00000172175	-0.462	7.45E-03	MALT1
ENSG00000121057	-0.450	1.83E-03	AKAP1
ENSG00000083642	-0.441	2.80E-03	PDS5B
ENSG00000084676	-0.440	3.28E-03	NCOA1
ENSG00000113161	-0.438	1.20E-02	HMGCR
ENSG00000197822	-0.431	1.11E-02	OCLN
ENSG00000135596	-0.426	2.51E-02	MICAL1
ENSG00000160191	-0.422	2.38E-03	PDE9A

ENSG00000197965	-0.416	2.97E-03	MPZL1
ENSG00000110931	-0.411	2.36E-03	CAMKK2
ENSG00000143753	-0.405	1.17E-02	DEGS1
ENSG00000096080	-0.387	3.71E-02	MRPS18A
ENSG00000182795	-0.386	1.78E-03	C1orf116
ENSG00000228278	-0.383	4.73E-01	ORM2
ENSG00000120053	-0.358	3.55E-02	GOT1
ENSG00000171608	-0.352	1.19E-01	PIK3CD
ENSG00000159322	-0.350	1.44E-02	ADPGK
ENSG00000213029	-0.348	1.96E-01	SPHAR
ENSG00000135862	-0.342	6.45E-03	LAMC1
ENSG00000166444	-0.333	1.14E-01	ST5
ENSG00000171617	-0.333	3.20E-02	ENC1
ENSG00000115091	-0.331	3.41E-02	ACTR3
ENSG00000174669	-0.325	1.42E-02	SLC29A2
ENSG00000160285	-0.313	2.43E-02	LSS
ENSG00000079459	-0.313	1.00E-01	FDFT1
ENSG00000005810	-0.303	1.15E-02	MYCBP2
ENSG00000164941	-0.299	2.44E-02	INTS8
ENSG00000109906	-0.293	6.90E-02	ZBTB16
ENSG00000072134	-0.288	3.79E-02	EPN2
ENSG00000076554	-0.280	3.13E-02	TPD52
ENSG00000140263	-0.253	9.52E-02	SORD
ENSG00000166224	-0.244	8.08E-02	SGPL1
ENSG00000137700	-0.240	1.05E-01	SLC37A4
ENSG00000147162	-0.240	5.44E-02	OGT
ENSG00000065485	-0.237	8.70E-02	PDIA5
ENSG00000184678	-0.232	1.74E-01	HIST2H2BE
ENSG00000127314	-0.231	2.26E-01	RAP1B
ENSG00000066926	-0.217	1.16E-01	FECH
ENSG00000069275	-0.205	6.88E-02	NUCKS1
ENSG00000198648	-0.204	2.07E-01	STK39
ENSG00000111885	-0.203	7.02E-01	MAN1A1
ENSG00000110660	-0.197	9.95E-02	SLC35F2
ENSG00000205189	-0.192	1.32E-01	ZBTB10
ENSG00000117479	-0.191	2.23E-01	SLC19A2
ENSG00000163625	-0.189	8.17E-02	WDFY3
ENSG00000162889	-0.177	3.86E-01	MAPKAPK2
ENSG00000146143	-0.175	3.54E-01	PRIM2

ENSG00000136935	-0.165	2.61E-01	GOLGA1
ENSG00000100726	-0.151	3.09E-01	TELO2
ENSG00000136478	-0.150	2.56E-01	TEX2
ENSG00000012660	-0.149	2.70E-01	ELOVL5
ENSG00000180370	-0.141	2.51E-01	PAK2
ENSG00000100354	-0.136	1.66E-01	TNRC6B
ENSG00000117713	-0.129	2.75E-01	ARID1A
ENSG00000100485	-0.122	3.88E-01	SOS2
ENSG00000136699	-0.122	3.53E-01	SMPD4
ENSG00000184254	-0.121	4.68E-01	ALDH1A3
ENSG00000198900	-0.120	3.16E-01	TOP1
ENSG00000085274	-0.115	4.80E-01	MYNN
ENSG00000120889	-0.112	4.19E-01	TNFRSF10B
ENSG00000162959	-0.109	6.93E-01	MEMO1
ENSG00000187953	-0.108	4.95E-01	PMS2CL
ENSG00000168610	-0.108	4.26E-01	STAT3
ENSG00000160179	-0.107	4.33E-01	ABCG1
ENSG00000100902	-0.104	4.78E-01	PSMA6
ENSG00000160113	-0.102	4.79E-01	NR2F6
ENSG00000159082	-0.101	5.49E-01	SYNJ1
ENSG00000179409	-0.098	4.38E-01	GEMIN4
ENSG00000058600	-0.089	5.80E-01	POLR3E
ENSG00000100201	-0.088	4.02E-01	DDX17
ENSG00000110108	-0.083	6.40E-01	TMEM109
ENSG00000147454	-0.076	5.78E-01	SLC25A37
ENSG00000159692	-0.071	5.70E-01	CTBP1
ENSG00000135365	-0.065	6.00E-01	PHF21A
ENSG00000066654	-0.063	6.39E-01	THUMPD1
ENSG00000172432	-0.053	6.91E-01	GTPBP2
ENSG00000104419	-0.053	5.77E-01	NDRG1
ENSG00000102908	-0.046	7.33E-01	NFAT5
ENSG00000173848	-0.034	7.82E-01	NET1
ENSG00000099204	-0.034	7.74E-01	ABLIM1
ENSG00000166451	-0.025	8.81E-01	CENPN
ENSG00000185129	-0.023	8.87E-01	PURA
ENSG00000124766	-0.014	9.09E-01	SOX4
ENSG00000100105	-0.010	9.36E-01	PATZ1
ENSG00000168118	-0.003	9.83E-01	RAB4A
ENSG00000147383	0.005	9.87E-01	NSDHL

ENSG00000221869	0.011	9.62E-01	CEBPD
ENSG00000008283	0.023	8.56E-01	CYB561
ENSG00000163430	0.027	8.11E-01	FSTL1
ENSG00000122512	0.033	8.41E-01	PMS2
ENSG00000166387	0.057	6.54E-01	PPFIBP2
ENSG00000107372	0.061	6.41E-01	ZFAND5
ENSG00000184012	0.063	7.03E-01	TMPRSS2
ENSG00000171492	0.072	6.50E-01	LRRC8D
ENSG00000140650	0.072	7.05E-01	PMM2
ENSG00000110721	0.075	6.00E-01	CHKA
ENSG00000092199	0.082	4.15E-01	HNRNPC
ENSG00000143970	0.084	5.87E-01	ASXL2
ENSG00000198833	0.086	4.52E-01	UBE2J1
ENSG00000157600	0.087	6.12E-01	TMEM164
ENSG00000095564	0.090	4.19E-01	BTAF1
ENSG00000141543	0.091	5.24E-01	EIF4A3
ENSG00000184216	0.103	4.85E-01	IRAK1
ENSG00000175283	0.105	6.61E-01	DOLK
ENSG00000221914	0.116	6.82E-01	PPP2R2A
ENSG00000162923	0.119	2.83E-01	WDR26
ENSG00000103091	0.121	3.73E-01	WDR59
ENSG00000144560	0.127	3.48E-01	VGLL4
ENSG00000181751	0.141	4.49E-01	C5orf30
ENSG00000156931	0.166	2.76E-01	VPS8
ENSG00000138413	0.173	1.68E-01	IDH1
ENSG00000157514	0.174	5.19E-01	TSC22D3
ENSG00000144034	0.185	3.54E-01	TPRKB
ENSG00000140526	0.185	7.21E-02	ABHD2
ENSG00000130338	0.188	1.07E-01	TULP4
ENSG00000110435	0.201	1.84E-01	PDHX
ENSG00000204103	0.204	5.45E-01	MAFB
ENSG00000064042	0.207	8.24E-02	LIMCH1
ENSG00000087470	0.211	7.83E-02	DNM1L
ENSG00000188554	0.216	5.37E-02	NBR1
ENSG00000092421	0.235	5.77E-02	SEMA6A
ENSG00000185963	0.240	1.70E-01	BICD2
ENSG00000115762	0.247	5.68E-02	PLEKHB2
ENSG00000166900	0.250	1.27E-01	STX3
ENSG00000065882	0.270	2.38E-01	TBC1D1

ENSG00000130684	0.277	1.83E-01	ZNF337
ENSG00000100906	0.294	1.10E-01	NFKBIA
ENSG00000185432	0.305	3.96E-02	METTL7A
ENSG00000169155	0.315	2.64E-02	ZBTB43
ENSG00000167034	0.331	7.38E-03	NKX3-1
ENSG00000163788	0.332	2.20E-02	SNRK
ENSG00000144827	0.353	3.93E-02	ABHD10
ENSG00000080546	0.383	5.98E-02	SESN1
ENSG00000148926	0.420	4.31E-01	ADM
ENSG00000102226	0.424	1.82E-02	USP11
ENSG00000073803	0.429	1.63E-02	MAP3K13
ENSG00000023734	0.445	1.45E-03	STRAP
ENSG00000090863	0.452	5.78E-04	GLG1
ENSG00000082438	0.604	8.54E-04	COBLL1
ENSG00000114446	0.638	2.25E-03	IFT57
ENSG00000145569	0.715	1.66E-03	FAM105A
ENSG00000108175	0.831	2.20E-05	ZMIZ1
ENSG00000143153	0.845	1.65E-04	ATP1B1
ENSG00000124145	0.895	4.23E-03	SDC4
ENSG00000196208	0.903	2.93E-06	GREB1
ENSG00000176903	0.995	2.13E-05	PNMA1
ENSG00000124788	0.999	1.03E-05	ATXN1
ENSG00000145779	1.070	4.47E-02	TNFAIP8
ENSG00000049759	1.115	9.86E-08	NEDD4L
ENSG00000091039	1.122	7.67E-08	OSBPL8
ENSG00000104290	1.217	3.69E-05	FZD3
ENSG00000118985	1.220	2.78E-06	ELL2
ENSG00000106070	1.312	4.45E-07	GRB10
ENSG00000142515	1.497	1.40E-06	KLK3
ENSG00000185950	1.583	1.12E-07	IRS2
ENSG00000075223	1.589	4.29E-05	SEMA3C
ENSG00000081181	1.671	1.02E-07	ARG2
ENSG00000170365	1.763	5.03E-04	SMAD1
ENSG00000133639	2.366	2.82E-10	BTG1
ENSG00000069206	2.876	2.08E-07	ADAM7
ENSG00000137801	3.196	4.41E-10	THBS1

**Supplementary Table S6: Differentially expressed AR target genes in serial biopsies of VCaP xenografts, CRPC vs. Pre-Cx.** Expression data of a curated list of AR target genes from RNA sequencing of serial biopsies of VCaP tumors prior to castration (Pre-Cx) and following development of castration resistant prostate cancer (CRPC). log<sub>2</sub>FC – log<sub>2</sub> fold change.

Ensemble ID	log <sub>2</sub> FC	P Value	Symbol
ENSG00000197635	-5.775	2.86E-12	DPP4
ENSG00000204257	-2.988	4.54E-09	HLA-DMA
ENSG00000116133	-2.581	4.19E-08	DHCR24
ENSG00000173482	-2.325	6.46E-07	PTPRM
ENSG00000149218	-2.190	1.63E-08	ENDOD1
ENSG00000131844	-1.974	2.38E-06	MCCC2
ENSG00000145703	-1.740	7.25E-08	IQGAP2
ENSG00000141401	-1.701	1.62E-04	IMPA2
ENSG00000008513	-1.526	6.12E-04	ST3GAL1
ENSG00000115758	-1.481	3.18E-08	ODC1
ENSG00000151503	-1.467	1.07E-09	NCAPD3
ENSG00000163251	-1.358	2.80E-07	FZD5
ENSG00000117143	-1.349	4.48E-08	UAP1
ENSG00000125257	-1.313	5.58E-09	ABCC4
ENSG00000081377	-1.263	1.39E-02	CDC14B
ENSG00000123983	-1.255	3.89E-08	ACSL3
ENSG00000112343	-1.234	4.51E-05	TRIM38
ENSG00000096060	-1.190	2.98E-05	FKBP5
ENSG00000103222	-1.132	4.04E-06	ABCC1
ENSG00000186480	-1.023	4.63E-04	INSIG1
ENSG00000156802	-1.022	7.27E-06	ATAD2
ENSG00000143476	-0.991	5.77E-04	DTL
ENSG00000157911	-0.963	6.26E-05	PEX10
ENSG00000104738	-0.932	7.63E-05	MCM4
ENSG00000130164	-0.925	1.59E-05	LDLR
ENSG00000094804	-0.885	5.32E-03	CDC6
ENSG00000014914	-0.879	1.45E-01	MTMR11
ENSG00000100297	-0.849	2.84E-04	MCM5
ENSG00000137710	-0.846	4.99E-05	RDX
ENSG00000164045	-0.838	1.39E-03	CDC25A
ENSG00000112118	-0.832	2.52E-04	MCM3

ENSG00000027075	-0.825	6.72E-04	PRKCH
ENSG00000167751	-0.811	2.29E-05	KLK2
ENSG00000168496	-0.809	2.18E-03	FEN1
ENSG00000146950	-0.796	1.42E-05	SHROOM2
ENSG00000067064	-0.769	5.00E-04	IDI1
ENSG00000228278	-0.733	2.64E-01	ORM2
ENSG00000213029	-0.697	4.04E-02	SPHAR
ENSG00000153132	-0.694	2.40E-04	CLGN
ENSG00000133119	-0.680	3.79E-03	RFC3
ENSG00000080709	-0.678	4.99E-03	KCNN2
ENSG00000198648	-0.675	1.41E-03	STK39
ENSG00000135090	-0.663	2.80E-02	TAOK3
ENSG00000066926	-0.650	5.11E-04	FECH
ENSG00000197822	-0.634	1.97E-03	OCLN
ENSG00000213639	-0.629	7.97E-05	PPP1CB
ENSG00000196781	-0.620	7.61E-02	TLE1
ENSG00000172175	-0.619	2.32E-03	MALT1
ENSG00000110108	-0.611	9.36E-03	TMEM109
ENSG00000124664	-0.607	2.49E-04	SPDEF
ENSG00000148926	-0.604	3.87E-01	ADM
ENSG00000145779	-0.590	4.07E-01	TNFAIP8
ENSG00000143753	-0.589	2.19E-03	DEGS1
ENSG00000143153	-0.576	2.14E-02	ATP1B1
ENSG00000110723	-0.574	2.21E-03	EXPH5
ENSG00000079459	-0.568	1.43E-02	FDFT1
ENSG00000184678	-0.554	8.96E-03	HIST2H2BE
ENSG00000130513	-0.552	8.23E-02	GDF15
ENSG00000113161	-0.547	6.47E-03	HMGCR
ENSG00000076554	-0.544	7.74E-04	TPD52
ENSG00000120053	-0.539	8.23E-03	GOT1
ENSG00000141424	-0.519	2.66E-04	SLC39A6
ENSG00000051825	-0.517	1.59E-03	MPHOSPH9
ENSG00000177425	-0.511	1.54E-03	PAWR
ENSG00000197965	-0.510	1.46E-03	MPZL1
ENSG00000105939	-0.510	7.75E-04	ZC3HAV1
ENSG00000196620	-0.503	1.27E-01	UGT2B15
ENSG00000113645	-0.483	2.46E-03	WWC1
ENSG00000145088	-0.482	4.97E-01	EAF2
ENSG00000084676	-0.464	5.01E-03	NCOA1



ENSG00000069275	-0.457	1.22E-03	NUCKS1
ENSG00000135596	-0.445	3.78E-02	MICAL1
ENSG00000146143	-0.423	6.45E-02	PRIM2
ENSG00000124713	-0.419	4.03E-01	GNMT
ENSG00000175283	-0.415	1.65E-01	DOLK
ENSG00000083642	-0.410	9.86E-03	PDS5B
ENSG00000169213	-0.403	5.11E-02	RAB3B
ENSG00000135862	-0.386	5.78E-03	LAMC1
ENSG00000065485	-0.362	2.50E-02	PDIA5
ENSG00000109089	-0.359	1.14E-01	CDR2L
ENSG00000117308	-0.358	3.04E-01	GALE
ENSG00000066654	-0.357	2.97E-02	THUMPD1
ENSG00000110931	-0.355	1.27E-02	CAMKK2
ENSG00000012660	-0.334	3.79E-02	ELOVL5
ENSG00000182795	-0.322	1.25E-02	C1orf116
ENSG00000171617	-0.309	6.78E-02	ENC1
ENSG00000109320	-0.305	7.39E-02	NFKB1
ENSG00000140263	-0.303	7.67E-02	SORD
ENSG00000166451	-0.300	1.32E-01	CENPN
ENSG00000104419	-0.283	1.33E-02	NDRG1
ENSG00000141543	-0.275	1.05E-01	EIF4A3
ENSG00000147526	-0.268	4.00E-02	TACC1
ENSG00000160113	-0.262	1.20E-01	NR2F6
ENSG00000096080	-0.262	1.89E-01	MRPS18A
ENSG00000005810	-0.251	4.92E-02	MYCBP2
ENSG00000159322	-0.248	9.93E-02	ADPGK
ENSG00000103942	-0.230	6.13E-02	HOMER2
ENSG00000137700	-0.229	1.63E-01	SLC37A4
ENSG00000100902	-0.215	2.03E-01	PSMA6
ENSG00000132780	-0.211	1.57E-01	NASP
ENSG00000121057	-0.211	1.35E-01	AKAP1
ENSG00000173848	-0.200	1.61E-01	NET1
ENSG00000144034	-0.192	4.12E-01	TPRKB
ENSG00000184012	-0.189	3.12E-01	TMPRSS2
ENSG00000072134	-0.188	2.03E-01	EPN2
ENSG00000138413	-0.187	1.84E-01	IDH1
ENSG00000198900	-0.186	1.68E-01	TOP1
ENSG00000168118	-0.175	2.60E-01	RAB4A
ENSG00000115091	-0.175	2.86E-01	ACTR3

ENSG00000166224	-0.158	2.94E-01	SGPL1
ENSG00000140526	-0.151	1.79E-01	ABHD2
ENSG00000124766	-0.147	2.72E-01	SOX4
ENSG00000008083	-0.135	4.49E-01	JARID2
ENSG00000168610	-0.133	3.78E-01	STAT3
ENSG00000160285	-0.130	3.66E-01	LSS
ENSG00000160191	-0.128	3.40E-01	PDE9A
ENSG00000100485	-0.121	4.41E-01	SOS2
ENSG00000205189	-0.113	4.10E-01	ZBTB10
ENSG00000198833	-0.102	4.25E-01	UBE2J1
ENSG00000163430	-0.089	4.73E-01	FSTL1
ENSG00000180370	-0.089	5.08E-01	PAK2
ENSG00000117713	-0.081	5.31E-01	ARID1A
ENSG00000162889	-0.075	7.37E-01	MAPKAPK2
ENSG00000110660	-0.070	5.83E-01	SLC35F2
ENSG00000065882	-0.063	8.10E-01	TBC1D1
ENSG00000110435	-0.061	7.14E-01	PDHX
ENSG00000171492	-0.061	7.35E-01	LRRC8D
ENSG00000143970	-0.060	7.30E-01	ASXL2
ENSG00000008283	-0.050	7.21E-01	CYB561
ENSG00000157600	-0.047	8.08E-01	TMEM164
ENSG00000166444	-0.045	8.40E-01	ST5
ENSG00000099204	-0.040	7.59E-01	ABLIM1
ENSG00000100105	-0.030	8.20E-01	PATZ1
ENSG00000184254	-0.029	8.73E-01	ALDH1A3
ENSG00000136935	-0.026	8.68E-01	GOLGA1
ENSG00000162959	-0.026	9.33E-01	MEMO1
ENSG00000147383	-0.025	9.38E-01	NSDHL
ENSG00000136699	-0.008	9.53E-01	SMPD4
ENSG00000058600	-0.007	9.68E-01	POLR3E
ENSG00000111885	-0.006	9.91E-01	MAN1A1
ENSG00000115762	0.000	9.97E-01	PLEKHB2
ENSG00000100354	0.003	9.74E-01	TNRC6B
ENSG00000164941	0.008	9.55E-01	INTS8
ENSG00000163788	0.015	9.23E-01	SNRK
ENSG00000136478	0.026	8.56E-01	TEX2
ENSG00000023734	0.030	8.27E-01	STRAP
ENSG00000166900	0.031	8.63E-01	STX3
ENSG00000163625	0.034	7.64E-01	WDFY3

ENSG00000130338	0.036	7.74E-01	TULP4
ENSG00000159692	0.044	7.50E-01	CTBP1
ENSG00000120889	0.044	7.70E-01	TNFRSF10B
ENSG00000092199	0.052	6.40E-01	HNRNPC
ENSG00000085274	0.054	7.63E-01	MYNN
ENSG00000187953	0.059	7.34E-01	PMS2CL
ENSG00000188554	0.063	5.93E-01	NBR1
ENSG00000179409	0.065	6.38E-01	GEMIN4
ENSG00000100726	0.071	6.59E-01	TELO2
ENSG00000147454	0.079	6.00E-01	SLC25A37
ENSG00000092421	0.079	5.50E-01	SEMA6A
ENSG00000107372	0.083	5.67E-01	ZFAND5
ENSG00000122512	0.086	6.35E-01	PMS2
ENSG00000109906	0.089	5.95E-01	ZBTB16
ENSG00000135365	0.096	4.85E-01	PHF21A
ENSG00000127314	0.096	6.36E-01	RAP1B
ENSG00000157514	0.114	7.07E-01	TSC22D3
ENSG00000100201	0.118	3.07E-01	DDX17
ENSG00000102908	0.126	4.01E-01	NFAT5
ENSG00000102226	0.133	4.82E-01	USP11
ENSG00000172432	0.136	3.53E-01	GTPBP2
ENSG00000159082	0.142	4.45E-01	SYNJ1
ENSG00000174669	0.144	2.81E-01	SLC29A2
ENSG00000144827	0.150	4.15E-01	ABHD10
ENSG00000166387	0.160	2.63E-01	PPFIBP2
ENSG00000117479	0.166	3.29E-01	SLC19A2
ENSG00000221869	0.167	5.23E-01	CEBPD
ENSG00000185129	0.172	3.35E-01	PURA
ENSG00000144560	0.176	2.43E-01	VGLL4
ENSG00000162923	0.178	1.49E-01	WDR26
ENSG00000181751	0.186	3.68E-01	C5orf30
ENSG00000087470	0.186	1.53E-01	DNM1L
ENSG00000110721	0.190	2.35E-01	CHKA
ENSG00000184216	0.215	1.92E-01	IRAK1
ENSG00000167034	0.217	8.86E-02	NKX3-1
ENSG00000169155	0.238	1.18E-01	ZBTB43
ENSG00000095564	0.258	4.53E-02	BTAF1
ENSG00000142515	0.260	2.92E-01	KLK3
ENSG00000171608	0.262	2.61E-01	PIK3CD

ENSG00000140650	0.273	2.00E-01	PMM2
ENSG00000064042	0.280	3.67E-02	LIMCH1
ENSG00000185432	0.287	7.48E-02	METTL7A
ENSG00000147162	0.301	2.88E-02	OGT
ENSG00000185963	0.315	1.06E-01	BICD2
ENSG00000090863	0.319	1.56E-02	GLG1
ENSG00000082438	0.322	7.03E-02	COBLL1
ENSG00000114446	0.343	1.08E-01	IFT57
ENSG00000204103	0.358	3.36E-01	MAFB
ENSG00000103091	0.372	1.94E-02	WDR59
ENSG00000073803	0.383	4.69E-02	MAP3K13
ENSG00000160179	0.389	1.49E-02	ABCG1
ENSG00000080546	0.417	6.36E-02	SESN1
ENSG00000221914	0.439	1.61E-01	PPP2R2A
ENSG00000156931	0.457	1.09E-02	VPS8
ENSG00000145569	0.501	3.21E-02	FAM105A
ENSG00000100906	0.557	8.82E-03	NFKBIA
ENSG00000130684	0.577	1.56E-02	ZNF337
ENSG00000104290	0.630	2.34E-02	FZD3
ENSG00000108175	0.639	9.00E-04	ZMIZ1
ENSG00000176903	0.664	3.01E-03	PNMA1
ENSG00000196208	0.776	5.69E-05	GREB1
ENSG00000091039	0.778	3.41E-05	OSBPL8
ENSG00000118985	0.805	8.19E-04	ELL2
ENSG00000049759	0.814	2.24E-05	NEDD4L
ENSG00000124788	1.011	2.45E-05	ATXN1
ENSG00000081181	1.215	2.44E-05	ARG2
ENSG00000124145	1.267	3.68E-04	SDC4
ENSG00000170365	1.303	1.09E-02	SMAD1
ENSG00000106070	1.305	1.41E-06	GRB10
ENSG00000185950	1.568	4.24E-07	IRS2
ENSG00000133639	2.038	9.49E-09	BTG1
ENSG00000075223	2.133	1.67E-06	SEMA3C
ENSG00000137801	2.481	6.84E-08	THBS1
ENSG00000069206	2.910	2.93E-07	ADAM7