

Supporting Information Table 1: sequences and properties of RT/PCR primers**Target gene-specific primers**

Gene ID	Refseq ID	Forward Primer	Reverse Primer	Tm (°C)	Amplicon size (bp)	Design Tool
ADAM-12	NM_003474.4	AACTAAGTATGTGGAGCTGGTG	GGTCTGTAAAACCTTGTCACGTCG	62.7	220	Real-Time PCR sciTool-IDT
BRCA-1	NM_007298.3	TATCAGGGTGAAGCAGCATCTGG	TAGAAGGCTGGCTCCCATGC	63.4	190	NCBI Primer Blast
CDKN2A	NM_058197	GGCACCAGAGGCAGTAACCA	TCTTTCAATCGGGGATGTCTGAGG	63.8	70	Real-Time PCR sciTool-IDT
IGFBP3	NM_000598.4	TAGTGAGTCGGAGGAAGACCG	ACGGCAGGGACCATATTCTGT	64.4	232	NCBI Primer Blast
IL-1B	NM_000576.2	AACAGATGAAGTGCTCCTTCCA	GGTGGTCGGAGATTCGTAGC	55.5	78	NCBI Primer Blast
KRT-15	NM_002275	AATGTGGAGATGGACGCAG	TGGATCATTCTGTGTTGGAGG	64.4	170	Real-Time PCR sciTool-IDT
MAL	NM_002371	TCTGTGTTCTGCTTCGTGG	TTTTCATGGTAGTGCCTGTAGG	64.4	200	Real-Time PCR sciTool-IDT
MCM-2	NM_004526.3	ATCTACGCCAAGGAGAGGGT	GCTGCCTGTCGCCATAGATT	56.1	105	Real-Time PCR sciTool-IDT
MET	NM_000245.2	GACTCCTACAACCCGAATACTG	ATAGTGCTCCCAATGAAAGTAG	55.5	146	Real-Time PCR sciTool-IDT
MMP-10	NM_002425	ACAAGAAGGTAAGGGCAGTGA	GTACTIONTTCTAGGTATTGCTGGGC	58.7	147	Real-Time PCR sciTool-IDT
MMP-13	NM_002427.3	AAGATGCGGGGTTCTGATG	TCGCCATGCTCCTTAATTCCA	64.4	240	Real-Time PCR sciTool-IDT
MMP-14	NM_004995.3	AGCAACTTTATGGGGTGAGT	GTTCCCGTCACAGATGTTGG	64.4	128	Real-Time PCR sciTool-IDT
MMP-7	NM_002423.3	GGAACAGGCTCAGGACTATCTC	GCATCTCCTTGAGTTGGCTTC	58.7	92	Real-Time PCR sciTool-IDT
NOTCH1	NM_017617.3	TCATCAACTCACACGCCGAC	GTCTCCTCCCTGTTGTTCTGC	63.8	148	NCBI Primer Blast

Gene ID	Refseq ID	Forward Primer	Reverse Primer	Tm (°C)	Amplicon size (bp)	Design Tool
SIX-1	NM_005982.3	CAAAGGTATGCCAACGAATC	CCAATGACAGCAATACACCA	58.0	165	NCBI Primer Blast
TGFB-2	NM_003238.3	AGAGTGCCTGAACAACGGATT	CCATTCGCCTTCTGCTCTT	62.3	117	RTPrimerDB ID : 2676
TLR-10	NM_030956	GCTTTTGCCACCAACCTGAA	TCACATCTCCTTTTGATAGCCTTAC	63.8	107	Real-Time PCR sciTool-IDT
TP-53	NM_000546.4	TCAACAAGATGTTTTGCCAACTG	ATGTGCTGTGACTGCTGTAGATG	64.6	118	RTPrimerDB ID : 1186

Reference gene-specific primers

ATP-5B	NM_001686.3	TGGTATCAAGGTTGTCGATCTG	GGTATAAATCATTGCCTTCACGG	63.9	188	Real-Time PCR sciTool-IDT
SDHA	NM_004168.2	CCCTCCAATTAAACCAAACGC	GCTGATTTTCCCACAACCTTC	57.5	178	Real-Time PCR sciTool-IDT
TOP-1	NM_003286.2	AGTCCAAAGAGATGAAAGTCCG	TGGGTGTAGATTGATGTGCTC	61.4	152	Real-Time PCR sciTool-IDT

HPV-specific primers

Target	Forward Primer	Reverse Primer	Tm (°C)	Amplicon size (bp)	Reference or design tool
HPV16-E7	CCGGACAGAGCCCATTACAAT	ACGTGTGTGCTTTGTACGCAC	64.5	83	49
HPV35-E6/7	GGTGGACAGGTCGGTGTATGTC	GTTGCCTCGGGTTCCAAATC	61.5	120	50
HPV52-E6/7	GTTGGACAGGGCGCTGTTC	CCTCCTCATCTGAGCTGTCACC	61.5	166	50
HPV58-E6/7	AGGGCGCTGTGCAGTGTGT	CATCCTCGTCTGAGCTGTCACA	61.5	172	50
HPV66-E7	GCACCGCAAACGGAAATTGACCT	TGGCCGCTCCAGCAAATGGT	55.7	96	NCBI Primer Blast

Supporting Information Table 2: Demographic characteristics of study patients and HPV status of tumor samples

STUDY POPULATION		No. of Samples	HPV Negative		HPV Active		HPV Inactive		Total HPV Positive	Overall Age of Patients	
			n (%)	Mean Age	n (%)	Mean Age	n (%)	Mean Age	N (%)	Mean	Range
AA	ALL	20	<u>12 (60)</u>	57	<u>2 (10)</u>	39	<u>6 (30)</u>	65	<u>8 (40)</u>	58	33-83
	M	11	6 (54)	53[#]	1 (10)	34	4 (36)	64	5 (45)	56	34-79
	F	9	6 (66)	61	1 (11)	44	2 (22)	66	3 (33)	60	33-83
EA	ALL	36	<u>11 (30.5)</u>	65	<u>14 (39)</u>	52	<u>11 (30.5)</u>	61	<u>25 (69.5)</u>	59	33-83
	M	29	8 (28)	71^{*#}	14 (48)	52[*]	7 (24)	58	21 (72)	58	33-83
	F	7	3 (43)	65	0	n/a	4 (57)	64	4 (57)	64	54-72
TOTAL	ALL	56	<u>23 (41)</u>	62	<u>16 (29)</u>	43	<u>17 (30)</u>	63	<u>33 (59)</u>	59	33-83
	M	40	14 (35)	62	15 (38)	43	11 (27)	61	26 (65)	57	33-83
	F	16	9 (56)	63	1 (6.3)	n/a	6 (37)	65	7 (44)	62	33-83

The total number of samples distributed by patients' race and gender is given in the first two columns. This is followed by number of samples with HPV-negative, HPV-active and HPV-inactive status and the overall fraction of samples HPV-positive by DNA. The last column reports the mean age of each group. The r by c chi-square test was conducted to test the degree of independence among the underlined values in the table ($p=0.03934$).

The mean ages of HPV-active, HPV-inactive and HPV-negative patients by race and gender are also shown.

* The age difference between EA HPV-active males and EA HPV-negative males was statistically significant with $p = 0.0003$.

Among HPV-negative patients, AA men were considerably younger than EA men ($p = 0.0023$)

Supporting Information Table 3 – Demographic characteristics and HPV status of normal tissue samples.

Age	Race	Gender	Histologic Classification	HPV DNA (INNO-LiPA)	HPV Type	Used for Microarray
49	EA	M	benign uvula	NEG		Y
45	EA	M	benign uvula, tonsil	NEG		
31	EA	M	benign uvula, tonsil	NEG		
49	EA	M	benign uvula, tonsil	NEG		Y
42	EA	M	tonsillitis, tonsil hypertrophy, benign uvula	POS*	16	
32	EA	F	normal tonsil	NEG		Y
61	EA	M	normal tonsil	NEG		Y
34	EA	M	normal tonsil	NEG		
30	AA	F	benign uvula, normal tonsil	NEG		

(*) Positive for HPV16 DNA. Could not be tested for HPV activity due to low RIN of RNA.

Supporting Information Table 4: HPV type distribution and activity in tumor tissue samples

Race	AA		EA		Total
Gender	M	F	M	F	
HPV16	4	2	19	4	29
HPV66	1	1			2
HPV35			1		1
HPV52, 58			1		1
HPV X	1				1
HPV Active	1	1	14	0	16
HPV Inactive	4	2	7	4	17

Race	Age	Gender	HPV Status	Location	AJCC stage	TNM grouping	Smoking	Alcohol	Gross Appearance	Lymph node features	Basaloid squamous path
AA	34	M	Active				<20 Pack yrs	<7 beers/wk			Schneiderian papilloma
AA	62	M	Inactive	Larynx, hypopharynx	4a	T4aN1M0	2-Jan	No		necrotic	mod diff invasive SCC
AA	57	F	Inactive	FOM, buccal	4a	T4N0M0	chewing tobacco	No			invasive keratinizing SCC well-mod diff
AA	75	F	Inactive	Tonsil	2	T2N0M0	>20 Pack yrs	>7 beers/wk			invasive, mod diff SCC
AA	62	M	Inactive	soft palate	4a	T4N2cM0	>20 Pack yrs	>7 beers/wk	exophytic	cystic	invasive squamous carcinoma
AA	76	F	Negative	buccal/RMT	4a	T4N2bM0	No	No	ulcerative	noncystic	invasive SCC poor-mod diff
AA	83	F	Negative	oral tongue	4a	T3N2cM0	No	No	exophytic, ulcerated fungating	cystic	well diff keratinizing SCC
AA	64	M	Negative	maxillary alveolus/hard palate	4a	T4N0M0	>20 Pack yrs	No			invasive SCC poorly diff
AA	61	F	Negative	supraglottis	4a	T4N2cM0	>20 Pack yrs	No	friable	noncystic	invasive keratinizing SCC well diff
AA	40	M	Negative	FOM	3	T3N0M0	<20 Pack yrs	>7 beers/wk	ulcerative		mod diff SCC
AA	55	M	Negative	BOT	4a	T2N2cM0	>20 Pack yrs	>7 beers/wk		noncystic	keratinizing SCC, invasive, mod diff
AA	47	M	Negative	oral tongue	4a	T4N1M0	>20 Pack yrs	>7 beers/wk	erosion		invasive keratinizing SCC mod diff
AA	51	M	Negative	Tonsil, soft palate	4a	T4N2cM0	<20 Pack yrs to >20 Pack yrs	>7 beers/wk	invasive, exophytic	noncystic	invasive mod diff SCC
EA	60	M	Active	BOT	4a	T2N2cM0	No	No	"tumor"	bilateral cystic	invasive squamous carcinoma w/ basaloid features
EA	49	M	Active	Tonsil	1	T2N0M0	No	No	nonpapilloma	noncystic	SCC
EA	60	M	Active	Tonsil	4a	T1N2aM0	>20 Pack yrs	No	nonpapilloma	cystic, neck mass	not basaloid squam, P16+, HPV+ in situ
EA	46	M	Active	BOT	4a	T3N2bM0	>20 Pack yrs	No	mod exophytic		invasive SCC w/ basaloid features

Race	Age	Gender	HPV Status	Location	AJCC stage	TNM grouping	Smoking	Alcohol	Gross Appearance	Lymph node features	Basalosquamous path
EA	49	M	Active	Tonsil	4a	T2N2cM0	No	<7 beers/wk	papillomatus, firm	necrotic	keratinizing SCC
EA	50	M	Active	Tonsil	4b	T1N1M1	No	<7 beers/wk	nonpapillomatus	noncystic	1 P16+HPV+
EA	54	M	Active	BOT	4a	T2N2bM0	No, marijuana	<7 beers/wk	papillomatus	noncystic	SCC-rt tonsil, P16+basalosqu
EA	49	M	Active	Tonsil	4a	T3N2bM0	>20 Pack yrs	>7 beers/wk	ulcerative	cystic	SCC
EA	56	M	Active	Tonsil	4a	T1N2aM0	>20 Pack yrs	>7 beers/wk	nonpapillomatus	cystic, neck mass	P16+ basolosquam
EA	61	M	Active	BOT	4a	T3N3M0	>20 Pack yrs, former	past hx >7/wk			HPV neg in situ basoloid squamous aggressive pattern P16+ basolosquam
EA	33	M	Active	Tonsil	4a	T1N3M0	No, marijuana & cocaine	>7 beers/wk, heavy drug use	nonpapillomatus	noncystic	P16+ basolosquam
EA	69	F	Inactive	oral tongue	4a	T3N2cM0	>20 Pack yrs	No	ulcerative	extracapsular invasion	mod diff SCC, perineural invasion
EA	54	F	Inactive	BOT	4a	T4aN2cM0	No	<7 beers/wk	ulcerative		invasive w/ basaloid features
EA	63	F	Inactive	Tonsil	2	T2N0M0	>20 Pack yrs	<7 beers/wk	ulcerative	noncystic	invasive, well-mod diff SCC
EA	68	F	Inactive	oc	4a	rT4N1M0	>20 Pack yrs	>7 beers/wk			Invasive keratinizing SCC
EA	59	F	Negative	left pharynx	3	T3N0M0	<20 Pack yrs	No	nonpapillomatus	noncystic	2not basolosq, P16neg
EA	72	F	Negative	supraglottis	4a	T4N2cM0	>20 Pack yrs	<7 beers/wk		necrotic	mod diff SCC
EA	66	M	Negative	oral tongue	4a	T2N2cM0	>20 Pack yrs	<7 beers/wk	ulcerative	extracapsular extension	squamous CA w/ focal adenosquamous CA, mod diff
EA	57	M	Negative	oral tongue	4a	T4aN0M0	<20 Pack yrs, chewing tobacco	<7 beers/wk	lg exophytic, ulcerative		invasive mod diff SCC
EA	62	M	Negative	oral cavity	2	T2N0M0	>20 Pack yrs	>7 beers/wk	ulcerative		basaloid SCC

Race	Age	Gender	HPV Status	Location	AJCC stage	TNM grouping	Smoking	Alcohol	Gross Appearance	Lymph node features	Basal squamous path
EA	64	M	Negative	oral tongue	4b	T2N3M0	chewing tobacco	>7 beers/wk	leukoplakia w/ erosion	N/A	Invasive keratinizing SCC, well-diff
EA	72	M	Negative	oral Lip	3	T4N0M0	>20 Pack yrs	past hx >7/wk	nonpapilloma, ulcerative	N/A	invasive SCC
EA	68	M	Negative	FOM	4a	T4aN1M0	>20 Pack yrs	past hx >7/wk	erosive, ulcerative	noncystic	invasive keratinizing SCC mod diff

Table S6: List of DEGs, HPV-active vs HPV-inactive, FC 2.

GeneSymbol	GeneName	Genbank Accession	HPV Active vs HPV Inactive	
			FC (abs)	Regulation
ACBD7	acyl-CoA binding domain containing 7	NM_001039844	4.3	up
ACPL2	acid phosphatase-like 2	NM_152282	2.4	up
ACSS1	acyl-CoA synthetase short-chain family member 1	NM_032501	2.7	up
ACTR3C	ARP3 actin-related protein 3 homolog C (yeast)	BX640643	2.3	up
ADAM1	ADAM metalloproteinase domain 1, pseudogene	NR_036636	2.6	up
ADARB2	adenosine deaminase, RNA-specific, B2	NM_018702	4.2	up
ADCY6	adenylate cyclase 6	NM_015270	2.2	up
AHDC1	AT hook, DNA binding motif, containing 1	NM_001029882	2.0	up
AIG1	androgen-induced 1	NM_016108	2.5	down
AMY1C	amylase, alpha 1C (salivary)	NM_001008219	6.4	up
ANKRD43	ankyrin repeat domain 43	NM_175873	4.6	up
APOBEC3C	apolipoprotein B mRNA editing enzyme, catalytic polypeptide-like 3C	NM_014508	2.7	up
APOBEC3F	apolipoprotein B mRNA editing enzyme, catalytic polypeptide-like 3F	NM_145298	2.6	up
ARF3	ADP-ribosylation factor 3		4.2	up
ARHGAP26	Rho GTPase activating protein 26	NM_015071	3.3	up
ARHGAP33	Rho GTPase activating protein 33	NM_052948	2.6	up
ARHGEF19	Rho guanine nucleotide exchange factor (GEF) 19	NM_153213	3.4	up
ARL4D	ADP-ribosylation factor-like 4D	NM_001661	3.7	down
ARNT2	aryl-hydrocarbon receptor nuclear translocator 2	NM_014862	5.7	up
ATP8B3	ATPase, aminophospholipid transporter, class I, type 8B, member 3	NM_138813	13.8	down
BARD1	BRCA1 associated RING domain 1	NM_000465	2.2	up
BCL11A	B-cell CLL/lymphoma 11A (zinc finger protein)	NM_018014	2.7	up
BCL11A	B-cell CLL/lymphoma 11A (zinc finger protein)	NM_022893	2.5	up
BK250D10.8	uncharacterized LOC339674	NR_024355	3.6	up
BRCA2	breast cancer 2, early onset	NM_000059	2.4	up
BRI3	brain protein I3	NM_001159491	2.0	down
BTNL9	butyrophilin-like 9	NM_152547	6.3	up
BZRAP1	benzodiazapine receptor (peripheral) associated protein 1	NM_004758	2.4	up
C11orf71	chromosome 11 open reading frame 71	NM_019021	2.2	down
C11orf85	chromosome 11 open reading frame 85	NM_001037225	3.8	up
C11orf92	chromosome 11 open reading frame 92	NR_034154	29.0	up
C11orf93	chromosome 11 open reading frame 93	NM_001136105	5.0	up
C14orf149	chromosome 14 open reading frame 149	NM_144581	2.0	down
C14orf33	chromosome 14 open reading frame 33	NR_027123	3.3	down

C16orf57	chromosome 16 open reading frame 57	NM_001204911	2.0	down
C19orf25	chromosome 19 open reading frame 25	NM_152482	2.1	up
C19orf57	chromosome 19 open reading frame 57	NM_024323	8.0	up
C1D	C1D nuclear receptor corepressor	NM_006333	2.3	down
C1orf213	chromosome 1 open reading frame 213	NR_033690	3.7	up
C1orf63	chromosome 1 open reading frame 63	NM_020317	2.0	up
C21orf71	chromosome 21 open reading frame 71	NR_024092	3.2	up
C2CD4D	C2 calcium-dependent domain containing 4D	NM_001136003	2.6	up
C2orf15	chromosome 2 open reading frame 15	NM_144706	4.5	up
C2orf55	chromosome 2 open reading frame 55	NM_207362	6.7	up
C3orf67	chromosome 3 open reading frame 67	NM_198463	6.6	down
C4orf46	chromosome 4 open reading frame 46	NM_001008393	2.1	up
C4orf7	chromosome 4 open reading frame 7	NM_152997	57.4	up
C5	complement component 5	NM_001735	3.5	up
C5orf30	chromosome 5 open reading frame 30	NM_033211	2.3	up
C7orf13	chromosome 7 open reading frame 13	NR_026865	8.6	up
C8G	complement component 8, gamma polypeptide	NM_000606	8.4	up
CA12	carbonic anhydrase XII	NM_001218	2.3	down
CARD6	caspase recruitment domain family, member 6	NM_032587	3.0	down
CASP2	caspase 2, apoptosis-related cysteine peptidase	NM_032982	2.0	up
CATSPER2	cation channel, sperm associated 2	NM_172097	3.7	up
CBS	cystathionine-beta-synthase	NM_000071	6.8	up
CBX5	chromobox homolog 5	NM_001127322	2.4	up
CBX7	chromobox homolog 7	NM_175709	2.3	up
CCDC14	coiled-coil domain containing 14	NM_022757	2.3	up
CCDC146	coiled-coil domain containing 146	NM_020879	3.1	up
CCDC93	coiled-coil domain containing 93	NM_019044	2.1	up
CD36	CD36 molecule (thrombospondin receptor)	NM_001001547	12.3	down
CDC42EP4	CDC42 effector protein (Rho GTPase binding) 4	NM_012121	3.7	up
CDC7	cell division cycle 7 homolog (S. cerevisiae)	NM_003503	2.3	up
CDCA7	cell division cycle associated 7	NM_031942	2.6	up
CDK6	cyclin-dependent kinase 6	NM_001259	2.0	down
CDKN2A	cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)	NM_000077	31.1	up
CDKN2A	cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)	NM_058197	12.9	up
CDKN2B-AS	CDKN2B antisense RNA (non-protein coding)	NR_003529	4.5	up
CDKN2C	cyclin-dependent kinase inhibitor 2C (p18, inhibits CDK4)	NM_078626	3.4	up
CELF4	CUGBP, Elav-like family member 4	NM_020180	4.6	up
CENPJ	centromere protein J	NM_018451	2.5	up
CENPK	centromere protein K	NM_022145	3.0	up
CEP152	centrosomal protein 152kDa	NM_014985	2.3	up
CHADL	chondroadherin-like	NM_138481	2.0	up

CHAF1A	chromatin assembly factor 1, subunit A (p150)	NM_005483	2.1	up
CHAF1B	chromatin assembly factor 1, subunit B (p60)	NM_005441	2.3	up
CHDH	choline dehydrogenase	NM_018397	2.6	up
CHPT1	choline phosphotransferase 1	NM_020244	3.1	up
CIDEB	cell death-inducing DFFA-like effector b	NM_014430	2.4	up
CIT	citron (rho-interacting, serine/threonine kinase 21)	NM_007174	2.8	up
CLCF1	cardiotrophin-like cytokine factor 1	NM_013246	2.0	down
CLDN10	claudin 10	NM_182848	70.0	up
CLGN	calmegin	NM_004362	11.5	up
CUL9	cullin 9	NM_015089	2.4	up
CYP4X1	cytochrome P450, family 4, subfamily X, polypeptide 1	NM_178033	12.1	up
CYP4Z1	cytochrome P450, family 4, subfamily Z, polypeptide 1	NM_178134	7.5	up
DAAM1	dishevelled associated activator of morphogenesis 1	NM_014992	2.0	down
DCUN1D5	DCN1, defective in cullin neddylation 1, domain containing 5 (<i>S. cerevisiae</i>)	NM_032299	2.0	down
DDX11	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 11	NM_030653	2.7	up
DHFR	dihydrofolate reductase	NM_000791	2.7	up
DOT1L	DOT1-like, histone H3 methyltransferase (<i>S. cerevisiae</i>)	NM_032482	2.2	up
DSCR6	Down syndrome critical region gene 6	NM_018962	5.1	up
DTX2	deltex homolog 2 (<i>Drosophila</i>)	NM_020892	2.6	up
EGOT	eosinophil granule ontogeny transcript (non-protein coding)	NR_004428	4.4	up
ETV6	ets variant 6	NM_001987	2.2	up
EXOC3L4	exocyst complex component 3-like 4	NM_001077594	4.5	up
EZH2	enhancer of zeste homolog 2 (<i>Drosophila</i>)	NM_004456	2.0	up
F2RL1	coagulation factor II (thrombin) receptor-like 1	NM_005242	7.4	down
FAM111B	family with sequence similarity 111, member B	NM_198947	2.4	up
FAM126A	family with sequence similarity 126, member A	NM_032581	2.2	down
FAM3B	family with sequence similarity 3, member B	NM_058186	18.0	up
FAM89A	family with sequence similarity 89, member A	NM_198552	3.3	down
FANCC	Fanconi anemia, complementation group C	NM_000136	2.4	up
FANCL	Fanconi anemia, complementation group L	NM_001114636	2.5	up
FANCL	Fanconi anemia, complementation group L	NM_018062	2.4	up
FAR1	fatty acyl CoA reductase 1	NM_032228	2.3	up
FBXO43	F-box protein 43	NM_001029860	3.6	up
FLJ22447	uncharacterized LOC400221	NR_039985	4.0	down
FLJ41200	uncharacterized LOC401492	NR_033863	5.0	down
FLJ45482	uncharacterized LOC645566	AK127393	7.0	up
FOXD3	forkhead box D3	NM_012183	6.7	up
FOXRED2	FAD-dependent oxidoreductase domain containing 2	NM_024955	2.6	up

FRMD4A	FERM domain containing 4A	AK001072	2.8	up
GABRP	gamma-aminobutyric acid (GABA) A receptor, pi	NM_014211	43.0	up
GAD1	glutamate decarboxylase 1 (brain, 67kDa)	NM_000817	10.9	up
GALNT1	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 1 (GalNAc-T1)	NM_020474	2.0	down
GLB1L2	galactosidase, beta 1-like 2	NM_138342	3.4	up
GLS2	glutaminase 2 (liver, mitochondrial)	NM_013267	10.4	up
GOLGA7B	golgin A7 family, member B	NM_001010917	5.4	down
GOLT1A	golgi transport 1A	NM_198447	6.4	up
GPC2	glypican 2	NM_152742	3.0	up
GPR137	G protein-coupled receptor 137	NM_020155	2.1	up
GRAMD4	GRAM domain containing 4	NM_015124	2.0	up
GRIN2C	glutamate receptor, ionotropic, N-methyl D-aspartate 2C	NM_000835	7.9	up
GUCY2GP	guanylate cyclase 2G homolog (mouse), pseudogene	NR_028134	2.2	down
GUSBP1	glucuronidase, beta pseudogene 1	NR_027028	2.3	up
HAUS5	HAUS augmin-like complex, subunit 5	NM_015302	2.4	up
HIF1A	hypoxia inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)	NM_181054	2.0	down
HOXB13	homeobox B13	NM_006361	23.6	up
HTR7	5-hydroxytryptamine (serotonin) receptor 7 (adenylate cyclase-coupled)	NM_019859	2.9	down
ICOSLG	inducible T-cell co-stimulator ligand		3.2	up
IGSF9	immunoglobulin superfamily, member 9	NM_020789	3.3	up
IKBKE	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase epsilon	NM_014002	2.5	up
IL17RB	interleukin 17 receptor B	NM_018725	9.0	up
INPP1	inositol polyphosphate-1-phosphatase	NM_002194	3.0	up
IRX6	iroquois homeobox 6	NM_024335	5.9	up
KATNAL2	katanin p60 subunit A-like 2	NM_031303	4.0	up
KCNA2	potassium voltage-gated channel, shaker-related subfamily, member 2	NM_001204269	10.8	up
KCNB2	potassium voltage-gated channel, Shab-related subfamily, member 2	NM_004770	10.1	up
KCNJ14	potassium inwardly-rectifying channel, subfamily J, member 14	NM_170720	2.9	up
KCNS1	potassium voltage-gated channel, delayed-rectifier, subfamily S, member 1	NM_002251	97.9	up
KDM5D	lysine (K)-specific demethylase 5D	NM_004653	11.8	up
KEL	Kell blood group, metallo-endopeptidase	NM_000420	9.7	up
KIAA0368	KIAA0368	NM_001080398	3.3	up
KIAA1147	KIAA1147	NM_001080392	2.6	up
KIAA1328	KIAA1328	NM_020776	2.1	up
KIF24	kinesin family member 24	NM_194313	3.0	up
KIF25	kinesin family member 25	NM_030615	10.2	up

KITLG	KIT ligand	NM_000899	2.1	up
KLHL35	kelch-like 35 (Drosophila)	NM_001039548	10.9	up
KNTC1	kinetochore associated 1	NM_014708	2.9	up
KREMEN1	kringle containing transmembrane protein 1	NM_001039570	3.3	up
KRT19P2	keratin 19 pseudogene 2	NR_036685	84.6	up
LDB3	LIM domain binding 3	NM_001171610	2.4	down
LDHC	lactate dehydrogenase C	NM_002301	6.0	up
LEAP2	liver expressed antimicrobial peptide 2	NM_052971	3.3	up
LIG1	ligase I, DNA, ATP-dependent	NM_000234	2.7	up
LMO4	LIM domain only 4	NM_006769	5.0	up
LOC100127891	uncharacterized LOC100127891	XR_108812	2.4	down
LOC100128191	uncharacterized LOC100128191	NR_027157	2.2	up
LOC100129534	small nuclear ribonucleoprotein polypeptide N pseudogene	NR_024489	2.6	up
LOC100131654	uncharacterized LOC100131654	AK124891	2.3	down
LOC100132832	PMS2 postmeiotic segregation increased 2 (S. cerevisiae) pseudogene	NR_028058	5.2	up
LOC100133050	glucuronidase, beta pseudogene	NR_027503	2.2	up
LOC100170939	glucuronidase, beta pseudogene	NR_024054	2.1	up
LOC100272216	uncharacterized LOC100272216	NR_027439	2.6	up
LOC100288637	OTU domain containing 7A pseudogene	NR_038253	3.6	up
LOC100505729	uncharacterized LOC100505729	XR_108524	2.3	up
LOC100505882		XR_110336	2.6	down
LOC100506003		XR_109785	7.5	up
LOC100506123	uncharacterized LOC100506123	NR_040097	6.1	up
LOC100506503	uncharacterized LOC100506503	XR_109701	2.9	up
LOC100506538	uncharacterized LOC100506538	XR_108868	3.5	up
LOC100506783	uncharacterized LOC100506783	NR_038435	4.0	up
LOC100506860		XR_108813	13.5	down
LOC100506895	uncharacterized LOC100506895	NR_038276	2.0	down
LOC100506994	uncharacterized LOC100506994	NR_038281	3.9	down
LOC100507094	uncharacterized LOC100507094	XR_109558	8.9	up
LOC100507127	uncharacterized LOC100507127	NR_038291	3.7	up
LOC100507161	putative uncharacterized protein NCRNA00269-like	XM_003118878	3.1	down
LOC100507421	transmembrane protein 178-like	NM_001195278	2.5	up
LOC100509075	uncharacterized LOC100509075	XR_111772	7.9	up
LOC100509121		XM_003120334	4.2	up
LOC100509263	uncharacterized LOC100509263	XM_003403443	40.7	up
LOC100652912	uncharacterized LOC100652912	XR_132665	2.5	up
LOC219731	uncharacterized LOC219731	NR_038222	2.2	up
LOC254559	uncharacterized LOC254559	NR_015411	3.2	up
LOC255177	uncharacterized LOC255177	BC031230	5.4	up
LOC283174	uncharacterized LOC283174	NR_024344	2.2	down

LOC283485	uncharacterized LOC283485	AK093862	7.1	up
LOC284630	uncharacterized LOC284630	AK096384	13.8	up
LOC285084	uncharacterized LOC285084	NR_038897	6.2	up
LOC286161	uncharacterized LOC286161	AK091672	33.9	up
LOC375196	uncharacterized LOC375196	NR_028386	2.1	up
LOC389831	uncharacterized LOC389831	NM_001242480	17.7	up
LOC401109	uncharacterized LOC401109	NR_034088	4.7	up
LOC401431	uncharacterized LOC401431	NR_027040	4.8	up
LOC440792	proline dehydrogenase (oxidase) 1 pseudogene	AB051440	2.7	up
LOC441268	uncharacterized LOC441268	AK125166	4.2	up
LOC541473	FK506 binding protein 6, 36kDa pseudogene	NR_003602	2.9	up
LOC642366	uncharacterized LOC642366	XR_108597	14.8	up
LOC728537	uncharacterized LOC728537	NR_038386	6.2	up
LOC728715	ovostatin homolog 2-like	XM_003119524	3.0	up
LOC729732	uncharacterized LOC729732	XR_132886	5.0	up
LOC729887	uncharacterized LOC729887	BC052334	2.6	up
LOC84856	uncharacterized LOC84856	NR_026827	2.3	down
LRR56	leucine rich repeat containing 56	NM_198075	3.3	up
LRR8B	leucine rich repeat containing 8 family, member B	NM_015350	3.2	up
LY75	lymphocyte antigen 75	NM_002349	2.1	up
MAGEA6	melanoma antigen family A, 6	NM_175868	5.1	up
MAGI3	membrane associated guanylate kinase, WW and PDZ domain containing 3	NM_152900	3.6	down
MAMDC4	MAM domain containing 4	NM_206920	2.4	up
MAP1LC3B	microtubule-associated protein 1 light chain 3 beta	NM_022818	3.3	up
MAP3K14	mitogen-activated protein kinase kinase kinase 14	NM_003954	2.0	down
MAP3K6	mitogen-activated protein kinase kinase kinase 6	NM_004672	2.6	up
MAP7D2	MAP7 domain containing 2	NM_152780	2.6	up
MARVELD2	MARVEL domain containing 2	AK055094	10.7	up
MCF2L	MCF.2 cell line derived transforming sequence-like	NM_024979	2.5	up
MCM2	minichromosome maintenance complex component 2	NM_004526	3.4	up
MCM3	minichromosome maintenance complex component 3	NM_002388	3.4	up
MCM5	minichromosome maintenance complex component 5	NM_006739	2.2	up
MCM8	minichromosome maintenance complex component 8	NM_182802	2.2	up
MDM2	Mdm2 p53 binding protein homolog (mouse)	NM_002392	2.6	up
MEI1	meiosis inhibitor 1	NM_152513	2.4	up
MEIS1	Meis homeobox 1	NM_002398	6.6	up
MGAT3	mannosyl (beta-1,4)-glycoprotein beta-1,4-N-acetylglucosaminyltransferase	NM_002409	2.5	up
MICALL2	MICAL-like 2	NM_182924	8.3	up

MLF1IP	MLF1 interacting protein	NM_024629	2.8	up
MMAA	methylmalonic aciduria (cobalamin deficiency) cblA type	NM_172250	2.6	up
MPP2	membrane protein, palmitoylated 2 (MAGUK p55 subfamily member 2)	NM_005374	2.1	up
MPPED1	metallophosphoesterase domain containing 1	NM_001044370	7.2	up
MSH2	mutS homolog 2, colon cancer, nonpolyposis type 1 (E. coli)	NM_000251	4.1	down
MSX2P1	msh homeobox 2 pseudogene 1	NR_002307	2.1	up
MTHFD1L	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like	NM_015440	4.7	down
MXD3	MAX dimerization protein 3	NM_001142935	2.0	down
MYB	v-myb myeloblastosis viral oncogene homolog (avian)	NM_005375	3.1	up
MYCN	v-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian)	NM_005378	5.0	up
MYO3A	myosin IIIA	NM_017433	5.5	up
MYO5A	myosin VA (heavy chain 12, myosin)	NM_000259	10.7	up
NCRNA00185	non-protein coding RNA 185	NR_001544	2.8	down
NDST2	N-deacetylase/N-sulfotransferase (heparan glucosaminyl) 2	BC018681	29.2	up
NEDD1	neural precursor cell expressed, developmentally down-regulated 1	NM_152905	2.6	down
NEURL1B	neuralized homolog 1B (Drosophila)	NM_001142651	3.1	up
NEURL3	neuralized homolog 3 (Drosophila) pseudogene	NR_026875	2.9	up
NINJ1	ninjurin 1	NM_004148	13.0	up
NOTCH1	notch 1	NM_017617	3.0	up
NT5E	5'-nucleotidase, ecto (CD73)	NM_002526	4.4	up
NUP62	nucleoporin 62kDa	NM_153719	3.0	down
OXER1	oxoeicosanoid (OXE) receptor 1	NM_148962	2.0	up
P01115			2.9	up
PAFAH1B3	platelet-activating factor acetylhydrolase 1b, catalytic subunit 3 (29kDa)	NM_002573	3.9	down
PARD6B	par-6 partitioning defective 6 homolog beta (C. elegans)	NM_032521	2.3	up
PAX1	paired box 1	NM_006192	2.8	up
PBX1	pre-B-cell leukemia homeobox 1	NM_002585	69.1	up
PBX4	pre-B-cell leukemia homeobox 4	NM_025245	2.0	up
PCLO	piccolo (presynaptic cytomatrix protein)	NM_014510	3.9	up
PCNA	proliferating cell nuclear antigen	NM_002592	3.8	up
PCP2	Purkinje cell protein 2	NM_174895	2.5	up
PD XK	pyridoxal (pyridoxine, vitamin B6) kinase	NM_003681	2.3	up
PER3	period homolog 3 (Drosophila)	NM_016831	2.9	up
PIDD	p53-induced death domain protein	NM_145886	5.2	up
PLB1	phospholipase B1	BC065041	2.1	up
PLEKHG4	pleckstrin homology domain containing, family G (with RhoGef domain) member 4	NM_015432	2.7	down

PLGLB1	plasminogen-like B1	NM_001032392	3.3	up
PLXNA1	plexin A1	NM_032242	2.9	up
PMS2L2	postmeiotic segregation increased 2-like 2 pseudogene	BC010535	3.0	up
PODXL2	podocalyxin-like 2	NM_015720	2.3	up
POLA1	polymerase (DNA directed), alpha 1, catalytic subunit	NM_016937	5.4	up
POLA2	polymerase (DNA directed), alpha 2 (70kD subunit)	NM_002689	2.1	up
POLD1	polymerase (DNA directed), delta 1, catalytic subunit 125kDa	NM_002691	2.0	up
POLE	polymerase (DNA directed), epsilon	NM_006231	2.2	up
POLH	polymerase (DNA directed), eta	NM_006502	2.4	up
POU4F1	POU class 4 homeobox 1	NM_006237	2.8	up
PP12719	uncharacterized LOC100653022	XM_003403527	6.2	up
PPAPDC3	phosphatidic acid phosphatase type 2 domain containing 3		3.2	up
PPARGC1B	peroxisome proliferator-activated receptor gamma, coactivator 1 beta	NM_133263	3.3	down
PPFIBP2	PTPRF interacting protein, binding protein 2 (liprin beta 2)	NM_003621	3.2	up
PRELID2	PRELI domain containing 2	NM_138492	3.0	up
PRIMA1	proline rich membrane anchor 1	NM_178013	2.9	up
PRINS	psoriasis associated RNA induced by stress (non-protein coding)	NR_023388	6.4	up
PROCR	protein C receptor, endothelial	NM_006404	3.9	up
PRODH	proline dehydrogenase (oxidase) 1	NM_016335	2.3	down
PSIP1	PC4 and SFRS1 interacting protein 1	NM_033222	4.6	up
PTCD2	pentatricopeptide repeat domain 2	NM_024754	2.1	up
PTHLH	parathyroid hormone-like hormone	NM_198965	2.0	up
PTN	pleiotrophin	NM_002825	5.4	down
PTPRF	protein tyrosine phosphatase, receptor type, F	NM_002840	7.8	up
RALGPS1	Ral GEF with PH domain and SH3 binding motif 1	NM_014636	3.0	up
RANBP17	RAN binding protein 17	NM_022897	5.9	up
RBBP9	retinoblastoma binding protein 9	NM_006606	11.0	up
RBM14	RNA binding motif protein 14	NM_006328	2.2	up
REM1	RAS (RAD and GEM)-like GTP-binding 1	NM_014012	4.4	up
RGNEF	190 kDa guanine nucleotide exchange factor	NM_001177693	6.5	up
RGS20	regulator of G-protein signaling 20	NM_170587	4.4	up
RHBDL3	rhomboid, veinlet-like 3 (Drosophila)	NM_138328	2.8	down
RHOXF1	Rhox homeobox family, member 1	NM_139282	8.9	up
RIBC2	RIB43A domain with coiled-coils 2	NM_015653	4.5	up
RNF150	ring finger protein 150	NM_020724	19.1	up
RNF165	ring finger protein 165	NM_152470	4.7	up
RNF207	ring finger protein 207	NM_207396	7.7	up
RNF212	ring finger protein 212	NM_001131034	4.6	up

RNF32	ring finger protein 32	NM_030936	14.6	up
RNF43	ring finger protein 43	NM_017763	6.3	up
RNPC3	RNA-binding region (RNP1, RRM) containing 3	AK289844	3.0	up
RPA2	replication protein A2, 32kDa	NM_002946	2.1	up
RPL3L	ribosomal protein L3-like	NM_005061	2.5	up
RTKN2	rhotekin 2	NM_145307	2.6	down
RTP3	receptor (chemosensory) transporter protein 3	NM_031440	3.7	up
SAP18	Sin3A-associated protein, 18kDa	NM_005870	50.7	up
SAP30	Sin3A-associated protein, 30kDa	NM_003864	2.1	up
SAP30L	SAP30-like	NM_024632	2.2	up
SCAI	suppressor of cancer cell invasion	NM_173690	2.1	up
SEMA4C	sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4C	NM_017789	2.6	up
SESN3	sestrin 3	NM_144665	2.5	up
SIM2	single-minded homolog 2 (Drosophila)	NM_005069	3.1	down
SLC16A8	solute carrier family 16, member 8 (monocarboxylic acid transporter 3)	NM_013356	10.0	up
SLC1A1	solute carrier family 1 (neuronal/epithelial high affinity glutamate transporter, system Xag), member 1	NM_004170	6.0	up
SLC25A23	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 23	NM_024103	4.4	up
SLC35E2	solute carrier family 35, member E2	NM_182838	2.6	up
SLC37A2	solute carrier family 37 (glycerol-3-phosphate transporter), member 2	NM_198277	2.8	up
SLC6A17	solute carrier family 6, member 17	NM_001010898	2.6	down
SLC7A5	solute carrier family 7 (amino acid transporter light chain, L system), member 5	NM_003486	2.2	down
SLC7A8	solute carrier family 7 (amino acid transporter light chain, L system), member 8	NM_182728	2.1	down
SLC9A8	solute carrier family 9 (sodium/hydrogen exchanger), member 8	NM_015266	3.8	down
SMA4	glucuronidase, beta pseudogene	NR_029426	2.2	up
SMARCA2	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 2	NM_139045	2.4	up
SMC1B	structural maintenance of chromosomes 1B	NM_148674	2.7	up
SMG9	smg-9 homolog, nonsense mediated mRNA decay factor (C. elegans)	NM_019108	94.6	up
SMPDL3B	sphingomyelin phosphodiesterase, acid-like 3B	NM_001009568	2.1	up
SNORA11	small nucleolar RNA, H/ACA box 11	NR_002953	5.2	up
SNORA17	small nucleolar RNA, H/ACA box 17	NR_002958	2.4	down
SNORA43	small nucleolar RNA, H/ACA box 43	NR_002975	2.2	down
SNORA71A	small nucleolar RNA, H/ACA box 71A	NR_002911	2.2	down
SNORD65	small nucleolar RNA, C/D box 65	NR_003054	2.0	down
SNORD93	small nucleolar RNA, C/D box 93	NR_003075	2.5	down

SP9	Sp9 transcription factor homolog (mouse)		3.7	down
SPATA5	spermatogenesis associated 5	NM_145207	10.0	up
SPIB	Spi-B transcription factor (Spi-1/PU.1 related)	NM_003121	3.2	up
SPRR4	small proline-rich protein 4	NM_173080	9.1	up
SRGAP3	SLIT-ROBO Rho GTPase activating protein 3	NM_014850	4.8	down
SSX2IP	synovial sarcoma, X breakpoint 2 interacting protein	NM_014021	4.9	up
STAG3	stromal antigen 3	NM_012447	2.2	up
STAR	steroidogenic acute regulatory protein	NM_000349	10.8	up
SUSD4	sushi domain containing 4	NM_017982	5.6	up
SV2B	synaptic vesicle glycoprotein 2B	NM_014848	7.6	up
SYCE2	synaptonemal complex central element protein 2	NM_001105578	6.1	up
SYCP2	synaptonemal complex protein 2	NM_014258	11.4	up
SYNGR3	synaptogyrin 3	NM_004209	23.5	up
SYNPO2	synaptopodin 2	NM_133477	4.3	up
TCAM1P	testicular cell adhesion molecule 1 homolog (mouse), pseudogene	NR_002947	8.6	up
TCP11	t-complex 11 homolog (mouse)	NM_018679	17.8	up
TCTEX1D4	Tctex1 domain containing 4	NM_001013632	5.3	up
TCTN2	tectonic family member 2	NM_024809	2.2	down
THBS1	thrombospondin 1	NM_003246	3.3	up
TIMELESS	timeless homolog (Drosophila)	NM_003920	3.0	down
TLR5	toll-like receptor 5	NM_003268	2.6	up
TLX2	T-cell leukemia homeobox 2	NM_016170	2.6	up
TLX3	T-cell leukemia homeobox 3	NM_021025	4.2	up
TM7SF3	transmembrane 7 superfamily member 3	NM_016551	14.8	up
TMCO4	transmembrane and coiled-coil domains 4	NM_181719	2.6	up
TMCO7	transmembrane and coiled-coil domains 7	NM_024562	2.5	up
TMEM194A	transmembrane protein 194A	NM_015257	2.0	down
TMSB4Y	thymosin beta 4, Y-linked	NM_004202	2.8	up
TNFAIP2	tumor necrosis factor, alpha-induced protein 2	NM_006291	4.1	up
TPD52	tumor protein D52	NM_001025252	4.0	up
TRIM50	tripartite motif containing 50	NM_178125	2.6	up
TROAP	trophinin associated protein (tastin)	NM_005480	5.0	up
TSC2	tuberous sclerosis 2	NM_000548	2.7	up
TTC7B	tetratricopeptide repeat domain 7B	NM_001010854	2.5	up
TTC9C	tetratricopeptide repeat domain 9C	AF289605	2.9	down
TTY14	testis-specific transcript, Y-linked 14 (non-protein coding)	NR_001543	4.1	up
TTY15	testis-specific transcript, Y-linked 15 (non-protein coding)	NR_001545	3.2	up
TXLNG2P	taxilin gamma 2, pseudogene	NR_045128	15.9	up
TXLNG2P	taxilin gamma 2, pseudogene	NR_045129	23.3	up
TYK2	tyrosine kinase 2	NM_003331	22.8	up

TYMS	thymidylate synthetase	NM_001071	2.0	up
UBE2Q2	ubiquitin-conjugating enzyme E2Q family member 2	NM_173469	2.8	up
UPB1	ureidopropionase, beta	NM_016327	2.6	down
URB1	URB1 ribosome biogenesis 1 homolog (S. cerevisiae)	NM_014825	6.7	up
UTY	ubiquitously transcribed tetratricopeptide repeat gene, Y-linked	NM_182660	2.0	up
VCAM1	vascular cell adhesion molecule 1	NM_001078	13.4	up
VMAC	vimentin-type intermediate filament associated coiled-coil protein	NM_001017921	6.3	up
WDR34	WD repeat domain 34	NM_052844	2.0	down
WEE1	WEE1 homolog (S. pombe)	NM_003390	2.2	up
WHSC1	Wolf-Hirschhorn syndrome candidate 1	NM_133330	2.2	up
WIPF3	WAS/WASL interacting protein family, member 3	AK094250	2.8	up
WNK2	WNK lysine deficient protein kinase 2	NM_006648	3.6	up
WRAP73	WD repeat containing, antisense to TP73	NM_017818	6.0	up
XIST	X (inactive)-specific transcript (non-protein coding)	NR_001564	2.1	up
XKR4	XK, Kell blood group complex subunit-related family, member 4	NM_052898	3.3	down
XLOC_000190			9.0	up
XLOC_000363			3.0	up
XLOC_000441		AK023394	4.1	up
XLOC_000778			3.1	up
XLOC_000956		BX089534	3.2	down
XLOC_001286			4.6	up
XLOC_001784			2.4	up
XLOC_002484		AK307257	2.3	down
XLOC_002779		BC035247	2.1	down
XLOC_003422			3.4	up
XLOC_005935		CB123670	2.1	down
XLOC_006915		DA998032	4.0	down
XLOC_007857			2.4	down
XLOC_008323			2.1	down
XLOC_008700			7.7	up
XLOC_009507		AK054718	3.9	down
XLOC_011545			4.8	up
XLOC_011546			4.6	up
XLOC_012079			4.7	up
XLOC_012452		BC084573	4.2	up
XLOC_012895			2.3	down
XLOC_013093			3.9	up
XLOC_013364			2.2	down
XLOC_013541		BX116929	2.6	down

XLOC_013981		BX105611	2.8	down
XLOC_014111		DB312214	2.8	up
XLOC_014257			5.6	up
XLOC_014288			6.9	up
XLOC_014388		XR_109724	3.1	up
XLOC_I2_000101			6.8	up
XLOC_I2_003293		XM_001715897	3.6	up
XLOC_I2_006152			3.7	up
XLOC_I2_006595			2.1	down
XLOC_I2_006745			2.6	up
XLOC_I2_007119			2.1	down
XLOC_I2_008151			2.5	up
XLOC_I2_008991			2.9	up
XLOC_I2_009273		AK127572	3.8	up
XLOC_I2_009301			4.9	up
XLOC_I2_009316			4.6	up
XLOC_I2_009668			4.7	up
XLOC_I2_009888			2.0	down
XLOC_I2_010141		DA697996	4.0	down
XLOC_I2_010239			2.1	down
XLOC_I2_011011		BC036795	2.5	up
XLOC_I2_011649			2.7	up
XLOC_I2_013124		AJ606328	6.8	down
XLOC_I2_013293		BQ441651	2.9	down
XLOC_I2_013485			2.7	up
XLOC_I2_015892			5.8	up
XLOC_I2_015907			3.0	down
XPNPEP3	X-prolyl aminopeptidase (aminopeptidase P) 3, putative	NM_001204827	2.4	down
XRCC1	X-ray repair complementing defective repair in Chinese hamster cells 1	NM_006297	2.2	up
YBX2	Y box binding protein 2	NM_015982	10.3	up
ZADH2	zinc binding alcohol dehydrogenase domain containing 2	NM_175907	2.2	up
ZBTB5	zinc finger and BTB domain containing 5	NM_014872	2.0	up
ZCWPW1	zinc finger, CW type with PWWP domain 1	NM_017984	2.4	up
ZDHHC23	zinc finger, DHHC-type containing 23	NM_173570	3.5	up
ZFH2	zinc finger homeobox 2	NM_033400	3.1	up
ZFP14	zinc finger protein 14 homolog (mouse)	NM_020917	3.0	up
ZFP3	zinc finger protein 3 homolog (mouse)	NM_153018	2.1	up
ZMIZ2	zinc finger, MIZ-type containing 2	NM_031449	2.5	up
ZNF346	zinc finger protein 346	NM_012279	3.6	up
ZNF512	zinc finger protein 512	NM_032434	2.2	up
ZNF541	zinc finger protein 541	NM_001101419	24.6	up

ZNF641	zinc finger protein 641	NM_152320	2.1	up
ZNF827	zinc finger protein 827	NM_178835	4.2	up
ZYG11A	zyg-11 homolog A (C. elegans)	NM_001004339	24.7	up

Table S7: List of DEGs, HPV-active vs HPV-negative, FC 2.

GeneSymbol	GeneName	Genbank Accession	HPV Active vs HPV Negative	
			FC (abs)	Regulation
ABL2	v-abl Abelson murine leukemia viral oncogene homolog 2	NM_007314	2.7	down
ACBD7	acyl-CoA binding domain containing 7	NM_001039844	3.8	up
ACPL2	acid phosphatase-like 2	NM_152282	2.7	up
ACSS1	acyl-CoA synthetase short-chain family member 1	NM_032501	3.4	up
ACTN3	actinin, alpha 3	NM_001104	2.6	down
ACTR3C	ARP3 actin-related protein 3 homolog C (yeast)	BX640643	2.1	up
ADAM1	ADAM metallopeptidase domain 1, pseudogene	NR_036636	2.5	up
ADARB2	adenosine deaminase, RNA-specific, B2	NM_018702	4.6	up
ADCY6	adenylate cyclase 6	NM_015270	2.5	up
AGPAT4	1-acylglycerol-3-phosphate O-acyltransferase 4 (lysophosphatidic acid acyltransferase, delta)	NM_020133	4.1	down
AHDC1	AT hook, DNA binding motif, containing 1	NM_001029882	2.0	up
AIG1	androgen-induced 1		2.8	down
AMY1C	amylase, alpha 1C (salivary)	NM_001008219	6.9	up
ANKRD43	ankyrin repeat domain 43	NM_175873	9.6	up
AP4S1	adaptor-related protein complex 4, sigma 1 subunit	NM_001128126	2.6	down
APOBEC3C	apolipoprotein B mRNA editing enzyme, catalytic polypeptide-like 3C	NM_014508	2.3	up
APOBEC3F	apolipoprotein B mRNA editing enzyme, catalytic polypeptide-like 3F	NM_145298	2.6	up
ARF3	ADP-ribosylation factor 3		2.8	up
ARHGAP26	Rho GTPase activating protein 26	NM_015071	3.4	up
ARHGAP33	Rho GTPase activating protein 33	NM_052948	2.5	up
ARHGAP4	Rho GTPase activating protein 4	NM_001164741	3.6	up
ARHGEF19	Rho guanine nucleotide exchange factor (GEF) 19	NM_153213	2.8	up
ARL4D	ADP-ribosylation factor-like 4D	NM_001661	4.1	down
ARNT2	aryl-hydrocarbon receptor nuclear translocator 2	NM_014862	7.5	up
ATP8B3	ATPase, aminophospholipid transporter, class I, type 8B, member 3	NM_138813	4.6	down
BARD1	BRCA1 associated RING domain 1	NM_000465	2.0	up
BBS5	Bardet-Biedl syndrome 5	NM_152384	2.2	down
BCL11A	B-cell CLL/lymphoma 11A (zinc finger protein)	NM_018014	2.8	up
BCL11A	B-cell CLL/lymphoma 11A (zinc finger protein)	NM_022893	3.6	up
BK250D10.8	uncharacterized LOC339674	NR_024355	4.5	up
BRCA2	breast cancer 2, early onset	NM_000059	2.1	up
BRI3	brain protein I3	NM_001159491	2.8	down
BTNL9	butyrophilin-like 9	NM_152547	14.7	up

BZRAP1	benzodiazapine receptor (peripheral) associated protein 1	NM_004758	4.4	up
BZW1	basic leucine zipper and W2 domains 1	NM_001207068	2.3	down
C11orf85	chromosome 11 open reading frame 85	NM_001037225	3.7	up
C11orf92	chromosome 11 open reading frame 92	NR_034154	43.0	up
C11orf93	chromosome 11 open reading frame 93	NM_001136105	8.9	up
C13orf16	chromosome 13 open reading frame 16	NM_152324	3.4	down
C14orf109	chromosome 14 open reading frame 109	NM_001098621	2.2	down
C14orf126	chromosome 14 open reading frame 126	NM_080664	2.2	down
C14orf149	chromosome 14 open reading frame 149	NM_144581	3.1	down
C14orf33	chromosome 14 open reading frame 33	NR_027123	4.7	down
C16orf57	chromosome 16 open reading frame 57	NM_001204911	3.2	down
C19orf25	chromosome 19 open reading frame 25	NM_152482	2.2	up
C19orf57	chromosome 19 open reading frame 57	NM_024323	7.7	up
C1D	C1D nuclear receptor corepressor	NM_006333	2.1	down
C1orf213	chromosome 1 open reading frame 213	NR_033690	2.5	up
C1orf63	chromosome 1 open reading frame 63	NM_020317	2.1	up
C21orf71	chromosome 21 open reading frame 71	NR_024092	3.2	up
C2CD4D	C2 calcium-dependent domain containing 4D	NM_001136003	2.3	up
C2orf15	chromosome 2 open reading frame 15	NM_144706	2.8	up
C2orf55	chromosome 2 open reading frame 55	NM_207362	5.1	up
C3orf67	chromosome 3 open reading frame 67	NM_198463	7.6	down
C4orf7	chromosome 4 open reading frame 7	NM_152997	131.4	up
C5	complement component 5	NM_001735	4.5	up
C5orf25	chromosome 5 open reading frame 25	AK299336	2.2	up
C7orf13	chromosome 7 open reading frame 13	NR_026865	2.5	up
C8G	complement component 8, gamma polypeptide	NM_000606	9.6	up
CA12	carbonic anhydrase XII	NM_001218	4.8	down
CAB39	calcium binding protein 39	NM_001130849	2.2	down
CAP1	CAP, adenylate cyclase-associated protein 1 (yeast)	NM_006367	2.1	down
CARD6	caspase recruitment domain family, member 6	NM_032587	2.6	down
CASP2	caspase 2, apoptosis-related cysteine peptidase	NM_032982	2.1	up
CATSPER2	cation channel, sperm associated 2	NM_172097	2.4	up
CBS	cystathionine-beta-synthase	NM_000071	4.9	up
CBX5	chromobox homolog 5	NM_001127322	3.0	up
CBX7	chromobox homolog 7	NM_175709	3.3	up
CCDC14	coiled-coil domain containing 14	NM_022757	2.3	up
CCDC146	coiled-coil domain containing 146	NM_020879	2.3	up
CDC42EP4	CDC42 effector protein (Rho GTPase binding) 4	NM_012121	2.9	up
CDC7	cell division cycle 7 homolog (S. cerevisiae)	NM_003503	2.2	up
CDCA7	cell division cycle associated 7	NM_031942	2.1	up
CDK6	cyclin-dependent kinase 6	NM_001259	3.0	down
CDKN2A	cyclin-dependent kinase inhibitor 2A (melanoma,	NM_000077	24.4	up

	p16, inhibits CDK4)			
CDKN2A	cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)	NM_058197	13.1	up
CDKN2B-AS	CDKN2B antisense RNA (non-protein coding)	NR_003529	4.4	up
CDKN2C	cyclin-dependent kinase inhibitor 2C (p18, inhibits CDK4)	NM_078626	5.1	up
CELF4	CUGBP, Elav-like family member 4	NM_020180	11.4	up
CENPJ	centromere protein J	NM_018451	2.4	up
CENPK	centromere protein K	NM_022145	2.3	up
CENPM	centromere protein M	NM_024053	2.4	up
CHADL	chondroadherin-like	NM_138481	3.4	up
CHAF1A	chromatin assembly factor 1, subunit A (p150)	NM_005483	2.3	up
CHAF1B	chromatin assembly factor 1, subunit B (p60)	NM_005441	2.6	up
CHDH	choline dehydrogenase	NM_018397	2.9	up
CHPT1	choline phosphotransferase 1	NM_020244	3.5	up
CIDEB	cell death-inducing DFFA-like effector b	NM_014430	2.0	up
CIT	citron (rho-interacting, serine/threonine kinase 21)	NM_007174	2.6	up
CLCF1	cardiotrophin-like cytokine factor 1	NM_013246	3.2	down
CLDN10	claudin 10	NM_182848	38.4	up
CLGN	calmegin	NM_004362	8.8	up
CLIC4	chloride intracellular channel 4	NM_013943	2.2	down
CLIP4	CAP-GLY domain containing linker protein family, member 4	NM_024692	2.6	down
CLK4	CDC-like kinase 4	NM_020666	2.1	up
CNST	consortin, connexin sorting protein	NM_001139459	2.1	down
CREB3L4	cAMP responsive element binding protein 3-like 4	NM_130898	2.2	up
CUL9	cullin 9	NM_015089	2.6	up
CYP4X1	cytochrome P450, family 4, subfamily X, polypeptide 1	NM_178033	11.8	up
CYP4Z1	cytochrome P450, family 4, subfamily Z, polypeptide 1	NM_178134	6.2	up
DAAM1	dishevelled associated activator of morphogenesis 1	NM_014992	3.3	down
DAAM2	dishevelled associated activator of morphogenesis 2	BC078153	2.2	down
DCUN1D3	DCN1, defective in cullin neddylation 1, domain containing 3 (S. cerevisiae)	NM_173475	2.0	down
DCUN1D5	DCN1, defective in cullin neddylation 1, domain containing 5 (S. cerevisiae)	NM_032299	2.8	down
DDX11	DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 11	NM_030653	2.2	up
DHFR	dihydrofolate reductase	NM_000791	2.8	up
DSCR6	Down syndrome critical region gene 6	NM_018962	6.6	up
DTX2	deltex homolog 2 (Drosophila)	NM_020892	2.0	up
ECHDC1	enoyl CoA hydratase domain containing 1	NM_018479	2.1	down
EGOT	eosinophil granule ontogeny transcript (non-protein coding)	NR_004428	4.2	up
ETNK1	ethanolamine kinase 1	NM_001039481	2.5	down
ETV6	ets variant 6	NM_001987	2.3	up

EXOC3L4	exocyst complex component 3-like 4	NM_001077594	9.1	up
EXOC6B	exocyst complex component 6B	NM_015189	2.9	down
EZH1	enhancer of zeste homolog 1 (Drosophila)	NM_001991	3.1	up
EZH2	enhancer of zeste homolog 2 (Drosophila)	NM_004456	2.3	up
F2RL1	coagulation factor II (thrombin) receptor-like 1	NM_005242	10.7	down
FAM111B	family with sequence similarity 111, member B	NM_198947	2.8	up
FAM126A	family with sequence similarity 126, member A	NM_032581	2.5	down
FAM3B	family with sequence similarity 3, member B	NM_058186	17.9	up
FAM89A	family with sequence similarity 89, member A	NM_198552	3.3	down
FAM91A1	family with sequence similarity 91, member A1	NM_144963	2.5	down
FANCC	Fanconi anemia, complementation group C	NM_000136	2.8	up
FANCL	Fanconi anemia, complementation group L	NM_001114636	2.2	up
FANCL	Fanconi anemia, complementation group L	NM_018062	2.4	up
FBXO3	F-box protein 3	NM_033406	2.0	down
FBXO43	F-box protein 43	NM_001029860	3.9	up
FICD	FIC domain containing	NM_007076	2.4	up
FLJ22447	uncharacterized LOC400221	NR_039985	6.0	down
FLJ41200	uncharacterized LOC401492	NR_033863	4.2	down
FLJ45482	uncharacterized LOC645566	AK127393	5.0	up
FOSL1	FOS-like antigen 1	NM_005438	3.2	down
FOXD3	forkhead box D3	NM_012183	7.6	up
FOXRED2	FAD-dependent oxidoreductase domain containing 2	NM_024955	3.6	up
FRMD4A	FERM domain containing 4A	AK001072	3.1	up
GABRP	gamma-aminobutyric acid (GABA) A receptor, pi	NM_014211	22.8	up
GAD1	glutamate decarboxylase 1 (brain, 67kDa)	NM_000817	8.3	up
GLB1L2	galactosidase, beta 1-like 2	NM_138342	3.8	up
GLS2	glutaminase 2 (liver, mitochondrial)	NM_013267	11.0	up
GOLGA7B	golgin A7 family, member B	NM_001010917	10.6	down
GOLT1A	golgi transport 1A	NM_198447	6.9	up
GPC2	glypican 2	NM_152742	2.8	up
GRAMD4	GRAM domain containing 4	NM_015124	2.1	up
GRIN2C	glutamate receptor, ionotropic, N-methyl D-aspartate 2C	NM_000835	13.3	up
GRIN3B	glutamate receptor, ionotropic, N-methyl-D-aspartate 3B	NM_138690	2.4	down
GUSBP1	glucuronidase, beta pseudogene 1	NR_027028	2.4	up
GUSBP11	glucuronidase, beta pseudogene 11	NR_024448	2.0	up
HAUS5	HAUS augmin-like complex, subunit 5	NM_015302	2.4	up
HEATR5A	HEAT repeat containing 5A	BC062720	2.0	down
HIF1A	hypoxia inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)	NM_181054	2.3	down
HOXB13	homeobox B13	NM_006361	49.5	up
HP1BP3	heterochromatin protein 1, binding protein 3	NM_016287	2.1	up

HTR7	5-hydroxytryptamine (serotonin) receptor 7 (adenylate cyclase-coupled)	NM_019859	3.0	down
ICOSLG	inducible T-cell co-stimulator ligand		3.1	up
IFT122	intraflagellar transport 122 homolog (Chlamydomonas)	NM_018262	2.0	up
IGSF9	immunoglobulin superfamily, member 9	NM_020789	2.9	up
IKBKE	inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase epsilon	NM_014002	2.1	up
IL17RB	interleukin 17 receptor B	NM_018725	8.7	up
INPP1	inositol polyphosphate-1-phosphatase	NM_002194	3.5	up
IRX6	iroquois homeobox 6	NM_024335	5.2	up
KATNAL2	katanin p60 subunit A-like 2	NM_031303	4.8	up
KCNA2	potassium voltage-gated channel, shaker-related subfamily, member 2	NM_001204269	11.1	up
KCNB2	potassium voltage-gated channel, Shab-related subfamily, member 2	NM_004770	13.1	up
KCNJ14	potassium inwardly-rectifying channel, subfamily J, member 14	NM_170720	2.1	up
KCNS1	potassium voltage-gated channel, delayed-rectifier, subfamily S, member 1	NM_002251	63.0	up
KDM5D	lysine (K)-specific demethylase 5D	NM_004653	4.4	up
KEL	Kell blood group, metallo-endoropeptidase	NM_000420	13.3	up
KIAA0368	KIAA0368	NM_001080398	2.5	up
KIAA1147	KIAA1147	NM_001080392	2.1	up
KIAA1328	KIAA1328	NM_020776	2.1	up
KIF13A	kinesin family member 13A	NM_022113	2.1	down
KIF24	kinesin family member 24	NM_194313	2.2	up
KIF25	kinesin family member 25	NM_030615	14.7	up
KITLG	KIT ligand	NM_000899	2.4	up
KLHL35	kelch-like 35 (Drosophila)	NM_001039548	9.5	up
KNTC1	kinetochore associated 1	NM_014708	2.6	up
KREMEN1	kringle containing transmembrane protein 1	NM_001039570	3.0	up
KRT19P2	keratin 19 pseudogene 2	NR_036685	33.2	up
LDHC	lactate dehydrogenase C	NM_002301	3.3	up
LEAP2	liver expressed antimicrobial peptide 2	NM_052971	2.7	up
LIG1	ligase I, DNA, ATP-dependent	NM_000234	2.6	up
LINC00152	long intergenic non-protein coding RNA 152	NR_024204	2.0	down
LIPE	lipase, hormone-sensitive	NM_005357	3.1	up
LMO4	LIM domain only 4	NM_006769	3.5	up
LOC100127891	uncharacterized LOC100127891	XR_108812	2.1	down
LOC100128191	uncharacterized LOC100128191	NR_027157	2.9	up
LOC100129534	small nuclear ribonucleoprotein polypeptide N pseudogene	NR_024489	2.9	up
LOC100130938	uncharacterized LOC100130938	XR_110148	4.1	down
LOC100131654	uncharacterized LOC100131654	AK124891	5.5	up
LOC100132832	PMS2 postmeiotic segregation increased 2 (S.	NR_028058	2.0	up

	cerevisiae) pseudogene			
LOC100133050	glucuronidase, beta pseudogene	NR_027503	2.1	up
LOC100170939	glucuronidase, beta pseudogene	NR_024054	2.9	up
LOC100272216	uncharacterized LOC100272216	NR_027439	2.2	up
LOC100288637	OTU domain containing 7A pseudogene	NR_038253	2.1	up
LOC100505719	uncharacterized LOC100505719	XR_110561	2.6	up
LOC100505729	uncharacterized LOC100505729	XR_108524	2.7	down
LOC100505882		XR_110336	2.5	up
LOC100506003		XR_109785	3.9	up
LOC100506123	uncharacterized LOC100506123	NR_040097	3.5	up
LOC100506503	uncharacterized LOC100506503	XR_109701	2.7	up
LOC100506538	uncharacterized LOC100506538	XR_108868	4.0	up
LOC100506783	uncharacterized LOC100506783	NR_038435	3.8	down
LOC100506860		XR_108813	2.6	down
LOC100506895	uncharacterized LOC100506895	NR_038276	9.8	down
LOC100506994	uncharacterized LOC100506994	NR_038281	4.9	up
LOC100507094	uncharacterized LOC100507094	XR_109558	3.3	up
LOC100507127	uncharacterized LOC100507127	NR_038291	10.0	down
LOC100507161	putative uncharacterized protein NCRNA00269-like	XM_003118878	3.4	up
LOC100507421	transmembrane protein 178-like	NM_001195278	9.4	up
LOC100509075	uncharacterized LOC100509075	XR_111772	3.4	up
LOC100509121		XM_003120334	8.9	up
LOC100509263	uncharacterized LOC100509263	XM_003403443	2.7	up
LOC100652912	uncharacterized LOC100652912	XR_132665	2.7	up
LOC100653329	uncharacterized LOC100653329	XR_133136	2.1	up
LOC100653338	uncharacterized LOC100653338	XR_133053	2.1	down
LOC219731	uncharacterized LOC219731	NR_038222	3.8	up
LOC254559	uncharacterized LOC254559	NR_015411	8.5	up
LOC283174	uncharacterized LOC283174	NR_024344	7.9	up
LOC283485	uncharacterized LOC283485	AK093862	37.5	up
LOC284630	uncharacterized LOC284630	AK096384	6.1	up
LOC285084	uncharacterized LOC285084	NR_038897	48.5	up
LOC286161	uncharacterized LOC286161	AK091672	2.7	up
LOC375196	uncharacterized LOC375196	NR_028386	18.9	up
LOC389831	uncharacterized LOC389831	NM_001242480	3.2	up
LOC401068	uncharacterized LOC401068	XR_110024	2.3	up
LOC401109	uncharacterized LOC401109	NR_034088	5.5	up
LOC401431	uncharacterized LOC401431	NR_027040	5.7	up
LOC440792	proline dehydrogenase (oxidase) 1 pseudogene	AB051440	3.9	up
LOC441268	uncharacterized LOC441268	AK125166	3.6	up
LOC497257	uncharacterized LOC497257	BC030211	2.9	up
LOC541471	uncharacterized LOC541471	NR_024373	2.0	down
LOC541473	FK506 binding protein 6, 36kDa pseudogene	NR_003602	10.4	up

LOC642366	uncharacterized LOC642366	XR_108597	7.4	up
LOC728537	uncharacterized LOC728537	NR_038386	4.6	up
LOC729732	uncharacterized LOC729732	XR_132886	3.5	up
LOC84856	uncharacterized LOC84856	NR_026827	7.1	up
LRRC56	leucine rich repeat containing 56	NM_198075	3.9	up
LY75	lymphocyte antigen 75	NM_002349	3.8	up
MAGEA6	melanoma antigen family A, 6	NM_175868	2.8	down
MAMDC4	MAM domain containing 4	NM_206920	2.9	up
MAP1LC3B	microtubule-associated protein 1 light chain 3 beta	NM_022818	2.1	down
MAP2K4	mitogen-activated protein kinase kinase 4	NM_003010	2.1	down
MAP3K14	mitogen-activated protein kinase kinase kinase 14	NM_003954	3.2	up
MAP3K6	mitogen-activated protein kinase kinase kinase 6	NM_004672	2.4	up
MAP7D2	MAP7 domain containing 2	NM_152780	12.2	up
MCF2L	MCF.2 cell line derived transforming sequence-like	NM_024979	3.4	up
MCFD2	multiple coagulation factor deficiency 2	NM_139279	2.1	down
MCM2	minichromosome maintenance complex component 2	NM_004526	3.4	up
MCM3	minichromosome maintenance complex component 3	NM_002388	2.0	up
MCM5	minichromosome maintenance complex component 5	NM_006739	2.6	up
MCM8	minichromosome maintenance complex component 8	NM_182802	2.6	up
MDM2	Mdm2 p53 binding protein homolog (mouse)	NM_002392	2.7	up
MEI1	meiosis inhibitor 1	NM_152513	7.1	up
MEIS1	Meis homeobox 1	NM_002398	2.8	up
MGAT3	mannosyl (beta-1,4-)-glycoprotein beta-1,4-N-acetylglucosaminyltransferase	NM_002409	11.7	up
MICALL2	MICAL-like 2	NM_182924	2.9	up
MLF1IP	MLF1 interacting protein	NM_024629	2.4	up
MLLT6	myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila); translocated to, 6	NM_005937	2.0	up
MMAA	methylmalonic aciduria (cobalamin deficiency) cblA type	NM_172250	2.8	up
MOSPD1	motile sperm domain containing 1	NM_019556	2.4	down
MPDU1	mannose-P-dolichol utilization defect 1	AK027742	2.4	down
MPP2	membrane protein, palmitoylated 2 (MAGUK p55 subfamily member 2)	NM_005374	2.2	up
MPPED1	metallophosphoesterase domain containing 1	NM_001044370	5.6	down
MSX2P1	msh homeobox 2 pseudogene 1	NR_002307	4.4	down
MTERFD2	MTERF domain containing 2	NR_028049	2.7	up
MTHFD1L	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like	NM_015440	2.3	down
MXD3	MAX dimerization protein 3	NM_001142935	3.1	up
MYB	v-myb myeloblastosis viral oncogene homolog (avian)	NM_005375	5.4	up

MYCN	v-myc myelocytomatosis viral related oncogene, neuroblastoma derived (avian)	NM_005378	4.9	up
MYO3A	myosin IIIA	NM_017433	9.9	up
MYO5A	myosin VA (heavy chain 12, myoxin)	NM_000259	2.9	down
NCRNA00185	non-protein coding RNA 185	NR_001544	9.1	up
NDST2	N-deacetylase/N-sulfotransferase (heparan glucosaminyl) 2	BC018681	2.3	down
NEDD1	neural precursor cell expressed, developmentally down-regulated 1	NM_152905	2.7	up
NEURL1B	neuralized homolog 1B (Drosophila)	NM_001142651	2.5	up
NEURL3	neuralized homolog 3 (Drosophila) pseudogene	NR_026875	6.6	up
NINJ1	ninjurin 1	NM_004148	2.9	up
NOTCH1	notch 1	NM_017617	3.2	up
NT5E	5'-nucleotidase, ecto (CD73)	NM_002526	4.1	down
OXER1	oxoeicosanoid (OXE) receptor 1	NM_148962	3.5	up
P01115			12.9	down
PARD6B	par-6 partitioning defective 6 homolog beta (C. elegans)	NM_032521	2.2	up
PAX1	paired box 1	NM_006192	39.5	up
PBX1	pre-B-cell leukemia homeobox 1	NM_002585	3.4	up
PBX4	pre-B-cell leukemia homeobox 4	NM_025245	3.2	up
PCLO	piccolo (presynaptic cytomatrix protein)	NM_014510	2.9	up
PCNA	proliferating cell nuclear antigen	NM_002592	2.2	up
PCP2	Purkinje cell protein 2	NM_174895	2.8	up
PDXK	pyridoxal (pyridoxine, vitamin B6) kinase	NM_003681	3.1	up
PER3	period homolog 3 (Drosophila)	NM_016831	2.9	up
PGM3	phosphoglucomutase 3	NM_001199919	2.1	down
PGM3	phosphoglucomutase 3	NM_015599	2.0	down
PIDD	p53-induced death domain protein	NM_145886	2.8	up
PLB1	phospholipase B1	BC065041	3.9	down
PLEKHG4	pleckstrin homology domain containing, family G (with RhoGef domain) member 4	NM_015432	3.6	up
PLGLB1	plasminogen-like B1	NM_001032392	3.3	up
PLXNA1	plexin A1	NM_032242	2.5	up
PMS2L2	postmeiotic segregation increased 2-like 2 pseudogene	BC010535	2.0	up
PODXL2	podocalyxin-like 2	NM_015720	6.3	up
POLD1	polymerase (DNA directed), delta 1, catalytic subunit 125kDa	NM_002691	2.2	up
POLE	polymerase (DNA directed), epsilon	NM_006231	2.0	up
POLH	polymerase (DNA directed), eta	NM_006502	2.8	up
POU4F1	POU class 4 homeobox 1	NM_006237	5.9	up
PP12719	uncharacterized LOC100653022	XM_003403527	3.0	up
PPAPDC3	phosphatidic acid phosphatase type 2 domain containing 3		2.5	down
PPARD	peroxisome proliferator-activated receptor delta	NM_006238	2.0	down

PPARGC1B	peroxisome proliferator-activated receptor gamma, coactivator 1 beta	NM_133263	2.8	up
PPFIBP2	PTPRF interacting protein, binding protein 2 (liprin beta 2)	NM_003621	3.0	up
PPP1R3E	protein phosphatase 1, regulatory subunit 3E	NR_026862	2.3	up
PRELID2	PRELI domain containing 2	NM_138492	2.9	up
PRIMA1	proline rich membrane anchor 1	NM_178013	6.9	up
PRINS	psoriasis associated RNA induced by stress (non-protein coding)	NR_023388	3.8	up
PROCR	protein C receptor, endothelial	NM_006404	3.5	down
PRODH	proline dehydrogenase (oxidase) 1	NM_016335	6.2	up
PSIP1	PC4 and SFRS1 interacting protein 1	NM_021144	2.5	up
PSIP1	PC4 and SFRS1 interacting protein 1	NM_033222	2.6	up
PTH1H	parathyroid hormone-like hormone	NM_198965	18.4	down
PTN	pleiotrophin	NM_002825	8.6	up
PTPRF	protein tyrosine phosphatase, receptor type, F	NM_002840	2.1	up
PTPRS	protein tyrosine phosphatase, receptor type, S	NM_002850	2.4	up
QSOX1	quiescin Q6 sulfhydryl oxidase 1	NM_001004128	2.1	down
RALGPS1	Ral GEF with PH domain and SH3 binding motif 1	NM_014636	4.3	up
RANBP17	RAN binding protein 17	NM_022897	9.3	up
RBM14	RNA binding motif protein 14	NM_006328	2.5	up
REM1	RAS (RAD and GEM)-like GTP-binding 1	NM_014012	6.2	up
RGNEF	190 kDa guanine nucleotide exchange factor	NM_001177693	2.1	up
RGS20	regulator of G-protein signaling 20	NM_170587	7.6	down
RHBDL3	rhomboid, veinlet-like 3 (Drosophila)	NM_138328	8.5	up
RHOXF1	Rhox homeobox family, member 1	NM_139282	4.9	up
RIBC2	RIB43A domain with coiled-coils 2	NM_015653	10.0	up
RNF150	ring finger protein 150	NM_020724	4.8	up
RNF165	ring finger protein 165	NM_152470	5.0	up
RNF207	ring finger protein 207	NM_207396	5.7	up
RNF212	ring finger protein 212	NM_001131034	16.3	up
RNF32	ring finger protein 32	NM_030936	5.7	up
RNF43	ring finger protein 43	NM_017763	2.6	up
RNF44	ring finger protein 44	NM_014901	2.0	up
RNPC3	RNA-binding region (RNP1, RRM) containing 3	AK289844	2.6	up
RPA2	replication protein A2, 32kDa	NM_002946	2.3	up
RPF2	ribosome production factor 2 homolog (S. cerevisiae)	NM_032194	2.0	down
RPL3L	ribosomal protein L3-like	NM_005061	2.9	down
RTKN2	rhotekin 2	NM_145307	2.3	up
RTP3	receptor (chemosensory) transporter protein 3	NM_031440	16.4	up
SAMD8	sterile alpha motif domain containing 8	NM_144660	2.3	down
SAP18	Sin3A-associated protein, 18kDa	NM_005870	2.1	up
SCAI	suppressor of cancer cell invasion	NM_173690	2.4	up

SEMA4C	sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4C	NM_017789	2.2	up
SESN3	sestrin 3	NM_144665	2.4	down
SFI1	Sfi1 homolog, spindle assembly associated (yeast)	NM_001007467	2.2	up
SIM2	single-minded homolog 2 (Drosophila)	NM_005069	13.1	up
SLC16A10	solute carrier family 16, member 10 (aromatic amino acid transporter)	NM_018593	3.3	down
SLC16A8	solute carrier family 16, member 8 (monocarboxylic acid transporter 3)	NM_013356	5.5	up
SLC1A1	solute carrier family 1 (neuronal/epithelial high affinity glutamate transporter, system Xag), member 1	NM_004170	4.1	up
SLC25A23	solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 23	NM_024103	3.2	up
SLC35E2	solute carrier family 35, member E2	NM_182838	2.5	up
SLC37A2	solute carrier family 37 (glycerol-3-phosphate transporter), member 2	NM_198277	2.0	down
SLC7A5	solute carrier family 7 (amino acid transporter light chain, L system), member 5	NM_003486	4.0	down
SLC7A8	solute carrier family 7 (amino acid transporter light chain, L system), member 8	NM_182728	6.2	down
SMA4	glucuronidase, beta pseudogene	NR_029426	3.4	up
SMARCA2	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily a, member 2	NM_139045	2.5	up
SMC1B	structural maintenance of chromosomes 1B	NM_148674	84.2	up
SMPDL3B	sphingomyelin phosphodiesterase, acid-like 3B	NM_001009568	4.1	up
SNORA17	small nucleolar RNA, H/ACA box 17	NR_002958	2.3	down
SNORA43	small nucleolar RNA, H/ACA box 43	NR_002975	2.7	down
SNORA71A	small nucleolar RNA, H/ACA box 71A	NR_002911	2.2	down
SNORD65	small nucleolar RNA, C/D box 65	NR_003054	3.5	down
SNORD93	small nucleolar RNA, C/D box 93	NR_003075	3.8	down
SP9	Sp9 transcription factor homolog (mouse)		19.0	up
SPIB	Spi-B transcription factor (Spi-1/PU.1 related)	NM_003121	15.2	up
SPRR4	small proline-rich protein 4	NM_173080	16.9	down
SRGAP3	SLIT-ROBO Rho GTPase activating protein 3	NM_014850	5.2	up
SSX2IP	synovial sarcoma, X breakpoint 2 interacting protein	NM_014021	2.6	up
STAG3	stromal antigen 3	NM_012447	16.0	up
STAR	steroidogenic acute regulatory protein	NM_000349	9.2	up
STRN3	striatin, calmodulin binding protein 3	NM_014574	2.1	down
SUSD4	sushi domain containing 4	NM_017982	6.3	up
SUV420H2	suppressor of variegation 4-20 homolog 2 (Drosophila)	NM_032701	2.1	up
SV2B	synaptic vesicle glycoprotein 2B	NM_014848	6.2	up
SYCE2	synaptonemal complex central element protein 2	NM_001105578	9.6	up
SYCP2	synaptonemal complex protein 2	NM_014258	30.2	up

SYNGR3	synaptogyrin 3	NM_004209	2.9	up
SYNPO2	synaptopodin 2	NM_133477	20.7	up
TCAM1P	testicular cell adhesion molecule 1 homolog (mouse), pseudogene	NR_002947	17.6	up
TCP11	t-complex 11 homolog (mouse)	NM_018679	4.3	up
TCTEX1D4	Tctex1 domain containing 4	NM_001013632	2.2	down
THBS1	thrombospondin 1	NM_003246	2.6	down
TIMELESS	timeless homolog (Drosophila)	NM_003920	2.5	up
TLR5	toll-like receptor 5	NM_003268	2.3	up
TLX2	T-cell leukemia homeobox 2	NM_016170	5.6	up
TLX3	T-cell leukemia homeobox 3	NM_021025	20.8	up
TM7SF3	transmembrane 7 superfamily member 3	NM_016551	2.8	up
TMCO4	transmembrane and coiled-coil domains 4	NM_181719	2.4	up
TMEM194A	transmembrane protein 194A	NM_015257	2.2	up
TMSB4Y	thymosin beta 4, Y-linked	NM_004202	3.7	up
TNFAIP2	tumor necrosis factor, alpha-induced protein 2	NM_006291	3.5	up
TPD52	tumor protein D52	NM_001025252	2.5	up
TPM4	tropomyosin 4	NM_003290	2.1	down
TRIM50	tripartite motif containing 50	NM_178125	6.1	up
TRMT12	tRNA methyltransferase 12 homolog (S. cerevisiae)	NM_017956	2.8	down
TROAP	trophinin associated protein (tastin)	NM_005480	2.5	up
TSC2	tuberous sclerosis 2	NM_000548	2.0	up
TTC7B	tetratricopeptide repeat domain 7B	NM_001010854	3.3	down
TTC9C	tetratricopeptide repeat domain 9C	AF289605	2.5	up
TTY14	testis-specific transcript, Y-linked 14 (non-protein coding)	NR_001543	2.7	up
TTY15	testis-specific transcript, Y-linked 15 (non-protein coding)	NR_001545	4.2	up
TXLNG2P	taxilin gamma 2, pseudogene	NR_045128	6.7	up
TXLNG2P	taxilin gamma 2, pseudogene	NR_045129	5.4	up
TYMS	thymidylate synthetase	NM_001071	2.5	up
UBE2H	ubiquitin-conjugating enzyme E2H	NM_003344	2.2	down
UBE2Q2	ubiquitin-conjugating enzyme E2Q family member 2	NM_173469	2.0	down
UPB1	ureidopropionase, beta	NM_016327	5.6	up
URB1	URB1 ribosome biogenesis 1 homolog (S. cerevisiae)	NM_014825	2.3	up
UTY	ubiquitously transcribed tetratricopeptide repeat gene, Y-linked	NM_182660	4.5	up
VCAM1	vascular cell adhesion molecule 1	NM_001078	8.0	up
WDR34	WD repeat domain 34	NM_052844	2.1	up
WHSC1	Wolf-Hirschhorn syndrome candidate 1	NM_133330	2.4	up
WIPF3	WAS/WASL interacting protein family, member 3	AK094250	5.1	up
WNK2	WNK lysine deficient protein kinase 2	NM_006648	8.3	up
XIST	X (inactive)-specific transcript (non-protein coding)	NR_001564	12.7	down
XKR4	XK, Kell blood group complex subunit-related family, member 4	NM_052898	13.7	up

XLOC_000190			4.4	up
XLOC_000363			3.7	up
XLOC_000441		AK023394	3.1	up
XLOC_000778			6.2	down
XLOC_000956		BX089534	4.6	up
XLOC_001286			4.6	up
XLOC_001784			2.2	down
XLOC_001869			2.5	down
XLOC_002484		AK307257	2.2	down
XLOC_002779		BC035247	3.3	up
XLOC_005105		BX096383	4.2	down
XLOC_005935		CB123670	5.8	down
XLOC_006915		DA998032	2.0	down
XLOC_008152			2.6	up
XLOC_008323			3.5	up
XLOC_008700			6.9	down
XLOC_009507		AK054718	4.5	up
XLOC_009994			2.3	down
XLOC_011545			7.3	up
XLOC_011546			7.7	up
XLOC_012079			2.8	up
XLOC_012452		BC084573	11.2	down
XLOC_012895			3.6	up
XLOC_013364			3.5	down
XLOC_013541		BX116929	4.6	down
XLOC_013981		BX105611	2.6	up
XLOC_014111		DB312214	4.2	up
XLOC_014257			4.9	up
XLOC_014288			3.2	up
XLOC_014388		XR_109724	3.9	up
XLOC_I2_000101			3.1	up
XLOC_I2_003293		XM_001715897	3.7	up
XLOC_I2_003293		XM_003119524	4.7	up
XLOC_I2_003293			5.9	up
XLOC_I2_006152		AK311448	2.3	up
XLOC_I2_006595			2.1	down
XLOC_I2_006745			2.5	up
XLOC_I2_008151			3.4	up
XLOC_I2_008991			4.9	up
XLOC_I2_009273		AK127572	3.1	up
XLOC_I2_009301			7.1	up
XLOC_I2_009316			5.4	up
XLOC_I2_009668			6.9	up

XLOC_I2_009888			2.1	down
XLOC_I2_010139			2.2	down
XLOC_I2_010141		DA697996	4.0	down
XLOC_I2_011011		BC036795	2.0	up
XLOC_I2_011649			2.7	up
XLOC_I2_013124		AJ606328	7.8	down
XLOC_I2_013293		BQ441651	2.3	down
XLOC_I2_015892			3.9	up
XLOC_I2_015907			2.1	down
XPNPEP3	X-prolyl aminopeptidase (aminopeptidase P) 3, putative	NM_001204827	2.0	down
XRCC1	X-ray repair complementing defective repair in Chinese hamster cells 1	NM_006297	2.3	up
YBX2	Y box binding protein 2	NM_015982	8.2	up
ZADH2	zinc binding alcohol dehydrogenase domain containing 2	NM_175907	2.0	up
ZCWPW1	zinc finger, CW type with PWWP domain 1	NM_017984	3.6	up
ZDHC23	zinc finger, DHHC-type containing 23	NM_173570	3.0	up
ZFHX2	zinc finger homeobox 2	NM_033400	3.0	up
ZFP14	zinc finger protein 14 homolog (mouse)	NM_020917	3.3	up
ZFP3	zinc finger protein 3 homolog (mouse)	NM_153018	2.2	up
ZFP62	zinc finger protein 62 homolog (mouse)	NM_152283	2.0	up
ZMIZ2	zinc finger, MIZ-type containing 2	NM_031449	2.8	up
ZNF10	zinc finger protein 10	NM_015394	2.1	up
ZNF346	zinc finger protein 346	NM_012279	2.8	up
ZNF541	zinc finger protein 541	NM_001101419	54.1	up
ZNF655	zinc finger protein 655	NM_024061	2.3	down
ZNF827	zinc finger protein 827	NM_178835	2.1	up
ZNF862	zinc finger protein 862	NM_001099220	3.6	up
ZYG11A	zyg-11 homolog A (C. elegans)	NM_001004339	5.6	up

Table S8: List of DEGs, HPV-inactive vs HPV-negative, FC 2.

			HPV Inactive vs HPV Negative	
GeneSymbol	GeneName	Genbank Accession	FC (abs)	Regulation
AGPAT4	1-acylglycerol-3-phosphate O-acyltransferase 4 (lysophosphatidic acid acyltransferase, delta)	NM_020133	2.3	down
ANKRD43	ankyrin repeat domain 43	NM_175873	2.1	up
ATP8B3	ATPase, aminophospholipid transporter, class I, type 8B, member 3	NM_138813	3.0	up
BTNL9	butyrophilin-like 9	NM_152547	2.3	up
C13orf16	chromosome 13 open reading frame 16	NM_152324	2.2	down
C4orf7	chromosome 4 open reading frame 7	NM_152997	2.3	up
C7orf13	chromosome 7 open reading frame 13	NR_026865	2.1	down
CA12	carbonic anhydrase XII	NM_001218	2.1	down
CD36	CD36 molecule (thrombospondin receptor)	NM_001001547	6.4	up
CELF4	CUGBP, Elav-like family member 4	NM_020180	2.5	up
EXOC3L4	exocyst complex component 3-like 4	NM_001077594	2.0	up
EXOC6B	exocyst complex component 6B	NM_015189	2.1	down
FOSL1	FOS-like antigen 1	NM_005438	2.7	down
GOLGA7B	golgin A7 family, member B	NM_001010917	2.0	down
HOXB13	homeobox B13	NM_006361	2.1	up
KDM5D	lysine (K)-specific demethylase 5D	NM_004653	2.7	down
KRT19P2	keratin 19 pseudogene 2	NR_036685	2.5	down
LIPE	lipase, hormone-sensitive	NM_005357	2.3	up
LOC100505882		XR_110336	2.9	down
LOC100506783	uncharacterized LOC100506783	NR_038435	3.5	up
LOC100506895	uncharacterized LOC100506895	NR_038276	2.5	down
LOC100507127	uncharacterized LOC100507127	NR_038291	3.3	down
LOC100509121		XM_003120334	4.6	down
LOC283485	uncharacterized LOC283485	AK093862	2.7	up
LOC401431	uncharacterized LOC401431	NR_027040	2.1	up
LOC497257	uncharacterized LOC497257	BC030211	2.1	up
LOC84856	uncharacterized LOC84856	NR_026827	2.1	up
NCRNA00185	non-protein coding RNA 185	NR_001544	3.2	down
NEURL3	neuralized homolog 3 (Drosophila) pseudogene	NR_026875	2.0	down
P01115			3.3	down
PTH1H	parathyroid hormone-like hormone	NM_198965	3.4	down
RGNEF	190 kDa guanine nucleotide exchange factor	NM_001177693	2.1	down
RGS20	regulator of G-protein signaling 20	NM_170587	2.8	down
RTP3	receptor (chemosensory) transporter protein 3	NM_031440	3.1	down
SLC16A10	solute carrier family 16, member 10 (aromatic amino acid transporter)	NM_018593	2.2	down

SPRR4	small proline-rich protein 4	NM_173080	3.5	down
SYNPO2	synaptopodin 2	NM_133477	2.4	up
TNXB	tenascin XB	NM_019105	2.3	up
TTY15	testis-specific transcript, Y-linked 15 (non-protein coding)	NR_001545	3.8	down
TXLNG2P	taxilin gamma 2, pseudogene	NR_045128	3.4	down
TXLNG2P	taxilin gamma 2, pseudogene	NR_045129	4.3	down
UTY	ubiquitously transcribed tetratricopeptide repeat gene, Y-linked	NM_182660	3.0	down
XIST	X (inactive)-specific transcript (non-protein coding)	NR_001564	2.2	up
XLOC_005105		BX096383	2.6	down
XLOC_005935		CB123670	2.0	down
XLOC_008323			2.2	down
XLOC_012452		BC084573	4.8	down
ZNF541	zinc finger protein 541	NM_001101419	2.2	up
ZNF827	zinc finger protein 827	NM_178835	2.0	down
ZNF862	zinc finger protein 862	NM_001099220	2.0	up
ZYG11A	zyg-11 homolog A (C. elegans)	NM_001004339	2.8	down

Table S9: AA HPV-Negative vs EA HPV-Negative tumors p 0.02, FC 2

FC (abs)	Direction of change	Gene Symbol	Genbank Accession
2.52	down	AADAT	NM_016228
2.87	down	ABCC6	NM_001079528
4.09	down	ADAM12	NM_021641
2.25	down	ADC	NM_052998
3.75	down	ADRA2C	NM_000683
2.46	up	AIF1L	NM_001185096
3.59	up	ALDH7A1	NM_001182
2.95	up	ALDH7A1	NM_001182
2.80	down	ANKK1	NM_178510
2.13	down	ARHGAP1	NM_004308
2.37	up	ATG4C	NM_032852
3.23	down	ATP9A	NM_006045
2.48	down	ATP9A	NM_006045
2.60	down	AVIL	NM_006576
3.16	down	BBS5	NM_152384
2.33	down	BCAS3	NM_017679
2.59	up	BFSP2	NM_003571
2.54	down	BHLHB9	NM_030639
2.42	down	C10orf114	NM_001010911
5.76	down	C11orf53	NM_198498
4.42	down	C11orf70	NM_001195005
3.46	down	C11orf70	NM_032930
2.43	down	C14orf132	NR_023938
2.58	up	C17orf105	NM_001136483
3.74	down	C19orf21	NM_173481
2.79	up	C1orf210	NM_182517
2.09	down	C20orf108	NM_080821
2.13	up	C21orf33	
2.53	down	C4orf47	NM_001114357
2.11	up	C5orf44	NR_003545
2.17	down	C8orf42	NM_175075
2.96	down	CCDC40	NM_001243342
2.03	down	CD151	NM_004357
2.57	down	CDH13	NM_001257
6.94	down	CFHR4	NM_006684
4.15	down	CHST6	NM_021615
2.34	down	COL27A1	AK021957

2.70	down	COL7A1	NM_000094
2.16	up	CPA5	NM_001127442
2.68	down	CPAMD8	NM_015692
3.00	up	CRYBB2	NM_000496
2.85	up	CRYBB2P1	NR_033734
6.27	down	CST2	NM_001322
2.71	down	CXCR7	NM_020311
2.37	up	CYB5RL	BC071735
4.18	down	CYP27C1	NM_001001665
2.18	down	DCBLD1	NM_173674
3.39	down	DDX11L9	NR_034090
2.26	down	DHRS3	NM_004753
5.16	down	DNAH17	
8.43	down	DNAH5	NM_001369
6.31	up	DNASE1L3	NM_004944
2.76	down	DYNLRB2	NM_130897
2.18	up	ECEL1P2	NR_028501
2.41	down	EFCAB1	NM_001142857
2.61	down	EFHC2	NM_025184
4.40	up	EIF2A	NM_032025
2.06	down	ENC1	NM_003633
5.71	down	ENKUR	NM_145010
2.92	down	EPHA3	NM_005233
2.69	down	FAM114A1	NM_138389
4.00	down	FAM164A	NM_016010
2.79	down	FAM87B	XR_112085
3.14	down	FAT1	NM_005245
3.02	down	FBXO32	NM_058229
2.06	up	FCER1G	
3.13	down	FHOD3	NM_025135
2.19	down	FLJ20021	NR_033874
4.39	down	FLJ37644	XR_109424
2.73	down	FLJ45671	AK127576
3.62	down	FLJ45983	NR_024256
2.36	down	FRG1B	BC095491
4.56	up	FUT7	NM_004479
2.39	down	FZD1	NM_003505
3.03	down	GHR	NM_001242462
2.26	up	GNASAS	
2.20	down	GOLGA6L10	NM_001164465
2.10	down	GOLGA6L10	NM_001164465
2.12	down	GOLGA6L9	NM_198181
2.07	down	GOLGA6L9	NM_198181
2.42	down	GPR125	NM_145290
2.33	up	GPR31	NM_005299
2.35	down	GPR56	NM_201525
6.94	down	GUCY1B2	NR_003923
2.60	down	HGSNAT	NM_152419
2.01	down	HHAT	NM_018194

2.04	up	HHEX	NM_002729
2.03	down	HOMER3	NM_001145722
2.55	down	HSPG2	NM_005529
2.35	down	HTATSFP2	BX648511
5.34	down	IBSP	NM_004967
2.11	down	IER5L	NM_203434
4.20	up	IL1R2	NM_004633
2.11	down	ITGAV	NM_002210
2.07	down	ITGB4	NM_000213
2.11	down	ITGB5	NM_002213
2.25	down	JAG1	NM_000214
2.04	down	KDM5B	NM_006618
3.49	down	KIAA1549	NM_001164665
2.12	down	KIF16B	NM_001199866
2.02	down	KIF16B	NM_024704
3.63	down	KIF26B	NM_018012
4.27	down	LARP6	NM_197958
2.66	down	LARP6	NM_018357
2.39	down	LCA5	NM_181714
2.58	down	LEPR	NM_001003680
5.78	down	LIF	NM_002309
3.49	down	LIMCH1	NM_014988
3.45	down	LINC00174	NR_026873
8.75	down	LINGO2	NM_152570
2.11	up	LOC100128164	NR_027622
2.13	down	LOC100130027	XR_110587
2.07	up	LOC100131581	AK092544
2.44	up	LOC100132147	BC036435
2.80	down	LOC100133299	XR_108564
2.08	up	LOC100133612	NR_024455
2.01	down	LOC100170939	NR_024054
3.75	down	LOC100216001	NR_024475
3.46	down	LOC100216001	NR_024475
3.45	down	LOC100240735	NR_026658
2.64	down	LOC100270746	NR_026776
3.15	down	LOC100288748	NR_034034
3.46	up	LOC100294145	NR_037177
2.69	up	LOC100294145	NR_037177
10.94	down	LOC100505495	NR_040109
3.04	down	LOC100505634	XR_109905
3.47	down	LOC100505912	NR_037877
2.58	up	LOC100506302	XR_108708
2.80	up	LOC100506328	XR_109927
3.30	down	LOC100506451	AK090817
4.30	down	LOC100506718	XR_110230
5.50	down	LOC100507150	XR_108536
2.52	down	LOC100507299	NR_039990
3.57	up	LOC100507429	XR_110179
3.52	up	LOC100507429	XR_110179

3.69	down	LOC100507460	XR_109894
3.42	down	LOC100507460	XR_109894
3.36	down	LOC100507474	XR_109895
4.82	down	LOC100507580	XR_109752
2.04	down	LOC100507624	XR_110188
2.99	up	LOC100508384	XM_003119544
2.31	up	LOC100652730	XR_132670
2.12	up	LOC100652730	XR_132670
2.06	down	LOC100652838	XR_132689
4.97	up	LOC146880	NR_026899
4.72	up	LOC219347	NR_027428
3.70	down	LOC283861	AK098143
3.10	up	LOC388906	NR_036498
2.25	up	LOC440570	XR_113295
2.74	down	LOC441204	NR_015364
2.01	down	LOC541471	NR_015395
2.13	down	LOC645954	XR_109026
8.39	down	LOC729444	NR_038388
2.50	down	LRP12	NM_013437
2.02	down	MAGI2	NM_012301
10.38	up	MAL	NM_002371
3.83	down	MCOLN3	BC060765
2.96	down	MECOM	NM_004991
3.60	down	MGC4294	XR_109628
2.78	down	MIR143HG	NR_027180
26.40	down	MMP7	NM_002423
2.26	down	MN1	NM_002430
2.40	up	MPRIP	
2.57	down	MRC2	NM_006039
3.82	up	MZT2A	
2.08	down	ND4L	AK311996
2.06	down	NEAT1	AF001893
3.51	down	NEK10	AK057247
4.66	down	NLGN4X	NM_020742
3.82	down	NLGN4Y	NM_014893
2.18	up	NPHS1	NM_004646
2.49	down	NRP2	NM_201264
2.12	down	NRP2	NM_201264
2.62	down	NUAK1	NM_014840
6.01	up	OTOP3	NM_178233
2.54	down	PALLD	NM_001166109
2.03	down	PALLD	NM_016081
2.05	down	PBX3	NM_006195
2.23	down	PDXDC2P	BX647358
2.24	down	PER3	NM_016831
2.20	down	PGM5P2	NR_002836
4.12	down	PLCB4	NM_182797
2.02	down	PLEC	NM_201380
3.50	down	PMEPA1	NM_020182

3.12	down	PMEPA1	NM_020182
2.58	down	PNMA6C	NM_001170944
3.01	down	PPARGC1A	NM_013261
2.54	down	PPP1R1C	NM_001080545
2.11	down	PRICKLE1	NM_153026
2.14	down	PROCA1	NM_152465
5.19	up	PSPH	NM_004577
2.22	down	PTPRG	NM_002841
2.38	down	PTPRU	NM_005704
2.32	down	RAI14	NM_015577
2.42	down	RASGEF1A	NM_145313
2.13	up	RASGRP2	NM_153819
2.00	up	RAX	NM_013435
2.27	down	RBMS3	NM_014483
2.63	down	RBPMS	AK057533
2.01	down	RHOBTB1	NM_001242359
2.50	up	RNF112	NM_007148
2.48	down	RPS23	NM_001025
2.07	up	RSPH9	AK055407
2.03	up	RXRG	NR_033824
5.41	down	SALL4	NM_020436
2.19	down	SEC14L2	NM_033382
3.20	down	SEPW1	NM_003009
2.44	down	SH3PXD2A	NM_014631
2.01	down	SH3PXD2A	NM_014631
7.50	down	SHISA2	NM_001007538
2.24	up	SHMT1	NM_004169
4.01	down	SIX5	NM_175875
5.51	up	SLC27A2	NM_003645
6.11	down	SLITRK6	NM_032229
4.32	down	SLITRK6	NM_032229
2.04	down	SLMO1	NM_006553
2.49	down	SMA4	NR_029426
2.02	up	SNORD105	NR_004381
2.17	up	SNORD119	NR_003684
3.31	up	SNORD34	NR_000019
3.15	up	SNORD45B	NR_002748
2.12	up	SNORD59B	NR_003046
2.28	up	SNORD65	NR_003054
2.16	up	SNORD67	NR_003056
2.35	down	SOX4	NM_003107
2.07	up	SPEG	
3.16	up	SPINK7	NM_032566
3.63	down	SPOCK1	NM_004598
2.72	down	STRA6	NM_001142620
2.68	down	TCF7L2	NM_030756
2.17	down	TCP11L1	NM_018393
4.78	down	TEKT2	NM_014466
2.14	down	TJP2	

3.25	down	TMCC2	NM_014858
4.15	down	TMEM108	NM_023943
3.83	down	TMEM190	NM_139172
2.26	down	TMEM63C	NM_020431
4.43	down	TNFRSF12A	NM_016639
3.93	down	TOB2P1	NR_002936
2.43	down	TPST1	NM_003596
2.59	up	TREML2	NM_024807
3.73	down	TTC25	NM_031421
3.62	down	TTLL7	NM_024686
2.39	down	TTLL7	NM_024686
3.43	down	VGF	NM_003378
2.18	up	VTRNA1-1	NR_026703
3.34	down	WDR86	NM_198285
2.78	down	WNT3	NM_030753
2.37	down	WNT5B	NM_030775
2.77	down	XIAP	NM_001167
4.61	down	XLOC_000587	
3.77	down	XLOC_000587	AK124056
2.66	down	XLOC_000647	CR617576
2.21	up	XLOC_002323	
2.12	down	XLOC_003515	BX110533
2.12	up	XLOC_003546	AL833514
4.34	down	XLOC_004229	
2.09	up	XLOC_004456	
3.13	up	XLOC_004643	DB301429
3.54	down	XLOC_005361	
2.50	up	XLOC_005490	
3.02	down	XLOC_006721	
3.20	down	XLOC_007467	
2.17	up	XLOC_007607	
4.23	up	XLOC_009120	
3.35	down	XLOC_011052	
2.80	down	XLOC_012467	
3.62	up	XLOC_013737	AK090932
3.67	down	XLOC_12_001011	BC030750
5.61	up	XLOC_12_003897	
2.48	up	XLOC_12_008009	
2.01	down	XLOC_12_008031	
3.16	down	XLOC_12_008203	
2.73	down	XLOC_12_008203	
2.69	down	XLOC_12_008288	CD557693
9.53	down	XLOC_12_009332	AK096564
2.91	down	XLOC_12_009332	
3.62	up	XLOC_12_009539	
2.12	down	XLOC_12_011204	BX104493
2.01	down	XLOC_12_011204	BX104493
2.90	down	XLOC_12_012925	
2.25	up	XLOC_12_015878	

2.26	down	ZBED1	NM_001171135
2.15	down	ZNF514	NM_032788
2.10	up	ZNF799	NM_001080821
3.10	down		AK130638
3.02	up		BX115224
2.62	up		Y15200
2.30	up		BU535024
2.22	up		X15019
2.17	down		AF264629
2.13	up		DB028131
2.08	up		AF239727
2.07	down		XM_003118656
2.05	up		BC071639
2.02	down		AK025716