

**SupplementaryTable 1.** C-terminal PDZ-ligand motif mutant Jagged1 ( $\Delta$ Jagged1) cooperates with HPV-16 E6 and E7 in transformation of HaCaT cells in *in vitro* soft agar colony formation assays<sup>a</sup>.

	<i>HaCaT-Neo</i>	<i>HaCaT-Jagged1</i>	<i>HaCaT-<math>\Delta</math>Jagged1</i>	
			Neo	MFng
<b>Neo</b>	4.3 $\pm$ 0.8	4 $\pm$ 0.5	4.6 $\pm$ 1.2	4 $\pm$ 0.57
<b>E6 + E7</b>	6.6 $\pm$ 0.8	<b>20.3 <math>\pm</math> 2</b>	<b>22 <math>\pm</math> 1.5</b>	<b>12 <math>\pm</math> 1.7</b>

<sup>a</sup> The data represent mean  $\pm$  standard errors of three independent experiments. HaCaT cells stably expressing mock vector (HaCaT Neo), Jagged1 (HaCaT-Jagged1) and c-terminus PDZ-binding motif mutant Jagged1 (HaCaT- $\Delta$ Jagged1) are shown in boldface italics, and transient transfections of plasmids encoding E6 and E7, mock neomycin resistance (Neo) alone or along with Manic Fringe (MFng) are shown in boldface type. Increase and decrease in colony numbers are shown in red and blue, respectively.

## Supplementary Table 2

Table represents the list of genes either up or downregulated in the microarray analysis of HaCaT cells stably expressing either Jagged1 or Delta1. We used DNA microarrays printed with 9600 distinct human transcripts obtained from the Ontario Cancer Microarray Centre (<http://www.uhnres.utoronto.co/services/microarray/products.html>). Complete protocols for the generation of fluorescence-labeled cDNA from total RNA, hybridization to microarrays and image processing can be found at the array web site. Briefly, total RNA (50µg) was extracted from HaCaT cells stably expressing DSL-ligands (Jagged1 or Delta1) or mock vector (Neo) according to the manufacturer's instructions using Qiagen Rneasy kit and were used to create CY3- or CY5-labeled cDNA by using Micro Max Direct cDNA labeling kit (NEN). Samples were hybridized for 16 h and washed at Genomic Solutions (GS) automatic hybridization station using a step down protocol provided by the manufacturer. Fluorescence intensities were captured using a GS LS-IV scanner, analyzed and normalized by GS Array Analyzer software. A minimum of four experiments (including the reverse Cy3/Cy5 labeling) was performed with each sample to establish the relative fold differences in gene expression. For each clone, coefficient of variation (CV) was used to determine the reproducibility of hybridization signals {i.e., if the CV is close to 0, then the reproducibility is perfect} (14). Genes whose expression levels were consistently altered by more than a factor of 1.7 (up or down), in at least three of the experiments were identified. The complete list of clones that showed consistent up or down regulation is provided along with statistics in individual columns of the table [Exp-Experiment number, Aver.ratio-Average Ratio, Std.Dev-Standard Deviation, Std.Err-Standard Error, Coff.Var-Coefficient of Variation]. The table shows genes up and down regulated in HaCaT-Jagged1 and -Delta1 cells sequentially.

## Supplementary Table 1

### HaCat Neo Vs HaCat Jagged1

### UPREGULATED GENES

Gene Name	GeneID	Normalized Expression Ratio					Aver.ratio	Std.Dev	Std.Err	Coff.Var
		Exp1	Exp2	Exp3	Exp4					
fatty acid binding protein 5 (psoriasis-associated)	H00627	2.108	3.027	1.945	2.03	2.27748522	0.5038051	0.251903	0.221211	
keratin 7	H03673	2.13	2.09	2.47	2.06	2.1875	0.1905037	0.095252	0.087087	
cyclin-dependent kinase 9 (CDC2-related kinase)	H05457	2.364	2.182	1.864	2.246	2.1640121	0.2137202	0.10686	0.098761	
collagen, type XVIII, alpha 1	H08667	3.624	2.511	2.78	2.84	2.93858952	0.4786562	0.239328	0.162886	
guanine nucleotide binding protein (G protein), q polypep	H09598	2.83	2.03	5.54	2.83	3.3075	1.5353691	0.767685	0.464208	
CD1D antigen, d polypeptide	H11025	10.07	2.15	3.21	3.11	4.635	3.6547093	1.827355	0.788503	
putative DNA binding protein	H12670	2.35	2.13	2.83	1.99	2.325	0.3678315	0.183916	0.158207	
copine III	H12998	3.88	3.31	3.03	1.77	2.9975	0.8914922	0.445746	0.297412	
collagen, type XI, alpha 2	H13347	2.178	2.91	2.26	1.99	2.33441118	0.4000143	0.200007	0.171356	
small nuclear ribonucleoprotein polypeptides B and B1	H13355	2.186	1.984	2.32	2.57	2.26505622	0.2457591	0.12288	0.1085	
p21-activated protein kinase 6	H15287	3.982	2.625	2.517	2.94	3.01606349	0.6687028	0.334351	0.221714	
CGI-204 protein	H16597	2.364	2.112	2.09	2.02	2.14655779	0.1502371	0.075119	0.06999	
cyclin D1 (PRAD1- parathyroid adenomatosis 1)	H20529	2.11	1.93	2.22	2.42	2.17	0.2051016	0.102551	0.094517	
scaffold attachment factor B	H21122	5.57	2.94	1.84	3.22	3.3925	1.5691054	0.784553	0.462522	
transglutaminase 2 (C polypeptide, protein-glutamine-ga	H22933	2.114	3.83	2.7	2.25	2.72339453	0.7791237	0.389562	0.286086	
vitronectin (serum spreading factor, somatomedin B, con	H29155	3.24	3.06	2.92	1.91	2.7825	0.5962312	0.298116	0.214279	
intercellular adhesion molecule 2	H29482	1.96	1.77	7.35	4.08	3.79	2.5940316	1.297016	0.684441	
zinc finger protein 238	H29607	2.111	2.722	2.645	2.03	2.37693046	0.3569326	0.178466	0.150165	
leptin (murine obesity homolog)	H39701	2.63	2.58	2.26	2.02	2.3725	0.2865164	0.143258	0.120766	
paired basic amino acid cleaving system 4	H69430	1.963	2.039	2.05	1.81	1.96532486	0.1105595	0.05528	0.056255	
follistatin	R01927	2.41	2.18	3.4	3.19	2.795	0.5911853	0.295593	0.211515	
ets variant gene 4 (E1A enhancer-binding protein, E1AF)	R07222	2.752	2.89	2.08	2.04	2.44045742	0.4432219	0.221611	0.181614	
aldehyde dehydrogenase 5 family, member A1 (succinat	R11674	2.31	2.23	2.05	3.14	2.4325	0.4840368	0.242018	0.198987	
nucleolar protein 1 (120kD)	R11719	2.075	2.03	1.78	2.11	1.99878736	0.1494898	0.074745	0.07479	
secreted protein, acidic, cysteine-rich (osteonectin)	R12744	2.74	2.4	1.78	3.13	2.5125	0.5722106	0.286105	0.227746	
early growth response 3	R13988	2.29	2.06	2.14	2.26	2.1875	0.1068878	0.053444	0.048863	
APG5 (autophagy 5, S. cerevisiae)-like	R14042	3.407	2.532	2.3	1.97	2.55234202	0.6148822	0.307441	0.240909	
EphA7	R15219	2.41	4.01	3.88	0.52	2.705	1.6273598	0.81368	0.601612	
carbohydrate (chondroitin 6/keratan) sulfotransferase 1	R15740	2.8	1.94	3.2	2.04	2.495	0.6069322	0.303466	0.243259	
trophinin	R17436	3.51	2.75	2.24	1.82	2.58	0.7273239	0.363662	0.281908	
core1 UDP-galactose N-acetylgalactosamine-alpha-R be	R22983	6.54	2.51	4.37	3.85	4.3175	1.6760942	0.838047	0.388209	
protein tyrosine phosphatase, non-receptor type 21	R23593	2.86	1.961	2.68	1.87	2.34274272	0.5000613	0.250031	0.213451	
interferon-stimulated transcription factor 3, gamma (48k	R34002	1.989	3.39	7.1	4.86	4.33467232	2.1847234	1.092362	0.504011	
arylsulfatase A	R39701	3.773	2.304	3.81	2.51	3.09935668	0.8038328	0.401916	0.259355	

CDC5 (cell division cycle 5, <i>S. pombe</i> , homolog)-like	R40873	2.61	2.2	5.2	2.85	3.215	1.3502716	0.675136	0.419991
Snf2-related CBP activator protein	R44375	3.174	2.825	6.01	3	3.75228651	1.5118596	0.75593	0.402917
MADS box transcription enhancer factor 2, polypeptide C	R59202	2.44	2.35	2.75	2.38	2.48	0.1838478	0.091924	0.074132
ADP-ribosylation factor domain protein 1, 64kD	R60064	3.504	2.96	2.5	1.76	2.68114005	0.7386076	0.369304	0.275483
fibronectin leucine rich transmembrane protein 2	R60392	4.79	3.86	2.53	2.76	3.485	1.045833	0.522917	0.300096
clusterin-like 1 (retinal)	R61492	1.99	7.59	3.859	2.572	4.00269499	2.5159785	1.257989	0.628571
restin (Reed-Steinberg cell-expressed intermediate filam	R69282	4.178	2.26	2.42	2.62	2.86946602	0.8846105	0.442305	0.308284
paired-like homeodomain transcription factor 2	R78177	4.23	2.71	2.743	2.131	2.95333191	0.8963376	0.448169	0.3035
activating transcription factor 4 (tax-responsive enhancer	R81715	0.323	0.14	0.21	2	0.66835496	0.8909746	0.445487	1.333086
VW domain-containing oxidoreductase	T74734	2.88	2.47	1.92	3.43	2.675	0.6387749	0.319387	0.238794
phosphoinositide-3-kinase, regulatory subunit, polypeptic	T78213	1.995	2.05	1.95	1.88	1.96886137	0.0719775	0.035989	0.036558
dedicator of cyto-kinesis 3	T80400	1.78	2.09	1.89	2.12	1.97	0.1626858	0.081343	0.082582
endothelial differentiation-related factor 1	T82048	2.69	2.19	2.408	2.24	2.38204953	0.2255204	0.11276	0.094675
homogentisate 1,2-dioxygenase (homogentisate oxidase	T83013	2	5.35	5.1	3.4	3.9625	1.5691691	0.784585	0.396005
PDZ domain containing 1	T85956	3.56	3.45	2.7	3.12	3.2075	0.3865553	0.193278	0.120516
expressed in activated T/LAK lymphocytes	T86350	1.99	2.05	1.81	0.277	1.53183981	0.8425152	0.421258	0.550002
platelet/endothelial cell adhesion molecule (CD31 antigen	T97049	3.48	2.83	2.98	3.22	3.1275	0.2846489	0.142324	0.091015
cathepsin K (pseudochondrodystrophy)	R00859	3.1	2.662	3.041	2.932	2.93354467	0.1941852	0.097093	0.066195
matrix Gla protein	H12634	2.262	2.027	2.132	2.242	2.16558938	0.1087184	0.054359	0.050203
intercellular adhesion molecule 5, telencephalin	H46937	1.95	1.79	2.12	1.88	1.935	0.1396424	0.069821	0.072167
pleckstrin	H01482	2.71	2.36	2.71		2.59333333	0.2020726	0.116667	0.07792
inositol(myo)-1(or 4)-monophosphatase 1	H02889	2.096	2.051	1.74		1.96252427	0.1940235	0.11202	0.098864
calcium/calmodulin-dependent protein kinase (CaM kina	H05538	6.15	2.29	2.12		3.52	2.2792323	1.315915	0.647509
butyrylcholinesterase	H05834	2.021	2.95	2.08		2.35032362	0.520173	0.300322	0.22132
MCF.2 cell line derived transforming sequence	H05800	1.81	2.7	2.13		2.21333333	0.4508141	0.260278	0.203681
biphenyl hydrolase-like (serine hydrolase; breast epitheli	H06847	3.014	2.16	2.15		2.44119741	0.4957337	0.286212	0.20307
neuronal specific transcription factor DAT1	H08433	3.769	2.62	2.29		2.89295284	0.7762945	0.448194	0.26834
adenylyl cyclase-associated protein 2	H08589	2.978	2.612	0.46		2.01641332	1.360245	0.785338	0.674586
profilin 2	H10406	2.254	1.86	1.73		1.94805278	0.2729477	0.157586	0.140113
inhibitor of DNA binding 3, dominant negative helix-loop-	H13942	8.13	2.29	1.88		4.1	3.4960978	2.018473	0.852707
guanine deaminase	H14348	2.364	2.104	5.5		3.32256381	1.8902067	1.091311	0.5689
islet cell autoantigen 1 (69kD)	H15227	2.67	3.78	2.43		2.96	0.7202083	0.415812	0.243314
PWP2 (periodic tryptophan protein, yeast) homolog	H16818	2.62	2.42	1.82		2.28666667	0.4163332	0.24037	0.18207
core-binding factor, runt domain, alpha subunit 2; translo	H17078	2.01	3.41	1.91		2.4433657	0.8386246	0.48418	0.343225
calbindin 2, (29kD, calretinin)	H17963	3.377	2.01	1.85		2.41248506	0.8395091	0.484691	0.347985
cell division cycle 42 (GTP-binding protein, 25kD)	H18275	4.042	2.106	2.64		2.92953032	0.9997865	0.577227	0.341279
Rab9 effector p40	H20945	1.93	1.76	1.91		1.86666667	0.0929157	0.053645	0.049776
caveolin 2	H21748	2.04	2.39	1.98		2.13666667	0.2214347	0.127845	0.103636
Ris	H24125	2.94	2.12	1.79		2.28333333	0.592143	0.341874	0.259333
STRIN protein	H25541	2.062	1.948	1.78		1.93014789	0.1420238	0.081997	0.073582
flavin containing monooxygenase 1	H39963	1.924	2.071	1.75		1.91524585	0.1609185	0.092906	0.08402
elastase 2, neutrophil	H58275	4.47	4.03	2.59		3.69666667	0.9833277	0.567725	0.266004
acyl-Coenzyme A dehydrogenase, C-2 to C-3 short chair	H65845	2.023	2.05	2		2.02442892	0.0250196	0.014445	0.012359
recoverin	H87835	2.829	2.198	2.04		2.3559202	0.4176888	0.241153	0.177293

SWI/SNF related, matrix associated, actin dependent repressor 1, hepatic; LF-B1, hepatic nuclear factor 1	R07823	1.964	1.915	2.26	2.0463234	0.1866837	0.107782	0.091229
nuclear receptor coactivator 2	R08880	2.484	1.979	1.81	2.09100227	0.350415	0.202312	0.167582
ADP-ribosylation factor binding protein GGA1	R09705	2.209	2.29	2.01	2.16964401	0.1440752	0.083182	0.066405
fragile X mental retardation, autosomal homolog 2	R09735	2.505	2.33	4.14	2.99161812	0.9983633	0.576405	0.33372
ryanodine receptor 1 (skeletal)	R11793	2.024	3.57	1.94	2.51131737	0.9178064	0.529896	0.365468
SH3-domain GRB2-like 2	R12817	4.15	2.31	1.77	2.74333333	1.2477713	0.720401	0.454838
branched chain aminotransferase 2, mitochondrial	R13964	1.99	2.04	2.03	2.02	0.0264575	0.015275	0.013098
mitochondrial ribosomal protein L19	R14309	2.055	2.56	2.28	2.29840782	0.2528912	0.146007	0.110029
lipopolysaccharide-binding protein	R15731	7.59	2.45	2.34	4.12666667	2.9998389	1.731958	0.72694
anaphase-promoting complex 2	R20845	3.43	2.24	2.08	2.58333333	0.7375862	0.425846	0.285517
hydroxysteroid (11-beta) dehydrogenase 2	R23749	2.84	2.08	1.77	2.23	0.5505452	0.317857	0.246881
Down syndrome critical region gene 1-like 2	R26919	4.49	1.93	1.98	2.8	1.4637964	0.845123	0.522784
solute carrier family 5 (sodium-dependent vitamin transporter)	R34261	4.34	2.64	2.6	3.19333333	0.9932438	0.57345	0.311037
ribosomal protein L14	R46217	2.02	1.9	1.74	1.88654711	0.1403052	0.081005	0.074371
phospholipid transfer protein	R50551	2.95	2.85	1.81	2.53666667	0.631295	0.364478	0.248868
checkpoint with forkhead and ring finger domains	R55178	2.54	2.26	2.23	2.34333333	0.1709776	0.098714	0.072963
cyclin-E binding protein 1	R59506	1.76	2.89	2.2	2.28333333	0.5695905	0.328853	0.249456
paralemmin	R60222	2.195	1.92	1.77	1.96165049	0.2155157	0.124428	0.109864
neurobeachin	R60879	1.93	1.85	1.81	1.86333333	0.061101	0.035277	0.032791
BAI1-associated protein 3	R60906	1.76	2.388	2.21	2.11942404	0.3237815	0.186935	0.152769
inositol 1,4,5-triphosphate receptor, type 2	R61092	2.07	2.19	5.56	3.27333333	1.9812202	1.143858	0.605261
centromere protein B (80kD)	R61381	1.83	1.83	2.22	1.96	0.2251666	0.13	0.114881
prodynorphin	R61508	1.79	2.29	1.86	1.98	0.2707397	0.156312	0.136737
ectonucleoside triphosphate diphosphohydrolase 6 (putative)	R61762	2.879	2.48	3.37	2.90976848	0.4457813	0.257372	0.153202
heat shock transcription factor 1	R76298	2.355	1.981	1.76	2.03210356	0.3007043	0.173612	0.147977
small inducible cytokine subfamily D (Cys-X3-Cys), member 1	R87691	2.71	1.94	1.78	2.14333333	0.4972256	0.287073	0.231987
Link guanine nucleotide exchange factor II	R87983	1.82	1.8	6.09	3.23666667	2.4710794	1.426678	0.763464
guanine nucleotide binding protein (G protein), beta 5	R94499	1.92	2.1	1.97	1.99666667	0.0929157	0.053645	0.046535
inositol 1,4,5-triphosphate receptor, type 3	T80464	1.945	2.24	1.81	1.99828479	0.219923	0.126973	0.110056
prohibitin	T80625	5.83	2.37	3.62	3.94	1.7520559	1.01155	0.444684
pleckstrin	H26072	1.93	3.94	6.95	4.27333333	2.5265457	1.458702	0.591235
lysophosphatidic acid acyltransferase-delta	H18455	3.09	2.08	1.88	2.35	0.6486139	0.374477	0.276006
junctional adhesion molecule	R01692	2.84	2.42	2.3	2.52	0.2835489	<b>0.1637</b>	0.112519
hairy/enhancer-of-split related with YRPW motif 1	H18233	2.2	2.22	2.09	2.17	0.07	<b>0.0404</b>	0.032258
		2.2	1.8	2.27	2.09	0.2535744	<b>0.1464</b>	0.121327

## HaCat Neo Vs HaCat Jagged1

## DOWNREGULATED GENES

## Normalized Expression Ratio

Gene Name	GeneID	Exp1	Exp2	Exp3	Exp4	Aver.ratio	Std.Dev	Std.Err	Coff.Var
spermidine/spermine N1-acetyltransferase	H03112	0.266	0.377	0.31	0.32	0.31835437	0.0455024	0.022751	0.14293
claudin 1	H03348	0.441	0.511	0.46	0.51	0.48042108	0.0357354	0.017868	0.074384
ras homolog gene family, member I	H09686	0.12	0.13	0.132	0.144	0.1315	0.0098489	0.004924	0.074896
RAP1B, member of RAS oncogene family	H10327	0.38	0.59	0.48	0.362	0.453	0.1050524	0.052526	0.231904
tissue factor pathway inhibitor 2	H12333	0.399	0.483	0.235	0.253	0.34250063	0.1191953	0.059598	0.348015
aldolase A, fructose-bisphosphate	H13744	0.351	0.357	0.27	0.301	0.31976992	0.0416762	0.020838	0.130332
ATPase, Na+/K+ transporting, alpha 3 polypeptide	H14143	0.452	2.17	0.24	0.27	0.78297324	0.9294118	0.464706	1.187029
Rac/Cdc42 guanine exchange factor (GEF) 6	H14999	0.122	0.155	0.33	0.46	0.2667233	0.1579182	0.078959	0.592067
acyl-Coenzyme A oxidase 1, palmitoyl	H15642	0.22	0.58	0.26	0.51	0.3925	0.1791415	0.089571	0.456411
ATP-binding cassette, sub-family C (CFTR/MRP), memb	H16193	0.233	0.253	0.24	0.31	0.25891748	0.0351018	0.017551	0.135571
RAB5B, member RAS oncogene family	H18154	0.37	0.5	0.11	0.13	0.2775	0.1896268	0.094813	0.68334
EGF-like repeats and discoidin I-like domains 3	H19297	0.421	0.465	0.42	0.43	0.43395709	0.0208651	0.010433	0.048081
Ran GTPase activating protein 1	H21130	0.539	0.55	0.234	0.288	0.40246087	0.1651397	0.08257	0.410325
NADH dehydrogenase (ubiquinone) Fe-S protein 7 (20kD)	H21214	0.162	0.164	0.5	0.07	0.22409223	0.1891126	0.094556	0.843905
keratin 15	H21366	0.496	0.542	0.16	0.17	0.34207282	0.2053607	0.10268	0.600342
catenin (cadherin-associated protein), alpha 1H	H22022	0.47	0.5	0.44	0.46	0.4675	0.025	0.0125	0.053476
ATP synthase, H+ transporting, mitochondrial F0 comple	H25157	0.529	0.532	0.335	0.337	0.43318622	0.1125036	0.056252	0.259712
interferon induced transmembrane protein 1 (9-27)	H25306	0.531	0.546	0.392	0.42	0.47230445	0.0775707	0.038785	0.164239
FXRD domain-containing ion transport regulator 5	H25585	0.432	0.47	0.56	0.6	0.51557282	0.0777149	0.038857	0.150735
CD81 antigen (target of antiproliferative antibody 1)	H26124	0.36	0.431	0.268	0.292	0.33774621	0.0732793	0.03664	0.216966
gelsolin (amyloidosis, Finnish type)	H26465	0.438	0.478	0.329	0.415	0.41487001	0.0629619	0.031481	0.151763
discoidin domain receptor family, member 1	H27334	0.388	0.443	0.22	0.26	0.32778641	0.10512	0.05256	0.320697
v-Ha-ras Harvey rat sarcoma viral oncogene homolog	H27352	0.274	0.364	0.15	0.27	0.26445631	0.0877094	0.043855	0.331659
KIAA0441 gene product	H29924	0.54	0.362	0.44	0.61	0.4881014	0.1089917	0.054496	0.223297
integrin, alpha 3 (antigen CD49C, alpha 3 subunit)	H41926	0.322	0.415	0.388	0.364	0.37229126	0.0393717	0.019686	0.105755
cytochrome c oxidase subunit VIII	H43653	0.433	0.479	0.244	0.288	0.36088522	0.1125974	0.056299	0.312003
neogenin (chicken) homolog 1	H44733	0.404	0.488	0.16	0.19	0.3106355	0.1607565	0.080378	0.517509
integrin cytoplasmic domain-associated protein 1	H45010	0.06	0.08	0.06	0.064	0.066	0.0095219	0.004761	0.144271
serum amyloid A1	H45773	0.423	0.333	0.25	0.27	0.31899509	0.0778656	0.038933	0.244097
PFTAIRE protein kinase 1	H46382	0.27	0.313	0.051	0.08	0.17871265	0.1321871	0.066094	0.739663
organic cation transporter	H49989	0.49	0.5	0.4	0.56	0.4875	0.0660177	0.033009	0.135421
ubiquitin-conjugating enzyme E2 variant 1	H50029	0.417	0.428	0.31	0.47	0.40630097	0.0681225	0.034061	0.167665
death effector filament-forming Ced-4-like apc homolog	H51285	0.36	0.46	0.38	0.42	0.405	0.0443471	0.022174	0.109499
guanylate kinase associated kinesin	H51325	0.305	0.35	0.466	0.518	0.40985841	0.0989105	0.049455	0.241328
HMT1 (hnRNP methyltransferase, S. cerevisiae)-like 2	H52742	0.461	0.499	0.24	0.27	0.36728495	0.131409	0.065705	0.357785
cytochrome c oxidase subunit IV	H52746	0.336	0.541	0.233	0.249	0.33978568	0.1418856	0.070943	0.417574
homolog of yeast Nop10p	H58462	0.194	0.341	0.404	0.496	0.35867014	0.126906	0.063453	0.353824
caspase 10, apoptosis-related cysteine protease	H59563	0.33	0.36	0.42	0.34	0.3625	0.0403113	0.020156	0.111204

cytochrome P450, subfamily IIIA, polypeptide 7	H67999	0.268	0.302	0.59	0.6	0.43981537	0.179777	0.089888	0.408756
proteoglycan 2, bone marrow (natural killer cell activator,	H73057	0.264	0.388	0.38	0.41	0.36064039	0.0654374	0.032719	0.181448
protein translocation complex beta	H73928	0.219	0.249	0.49	0.5	0.36452913	0.1511784	0.075589	0.414723
heparan sulfate (glucosamine) 3-O-sulfotransferase 1	H86876	0.552	0.44	0.28	0.52	0.44790291	0.121391	0.060696	0.271021
growth differentiation factor 8	H92027	0.39	0.45	0.24	0.37	0.3625	0.088459	0.04423	0.244025
hyaluronan-mediated motility receptor (RHAMM)	R10284	0.41	0.45	0.34	0.39	0.3975	0.0457347	0.022867	0.115056
retinoid x receptor interacting protein	R18164	0.3	0.43	0.13	0.15	0.2525	0.1405643	0.070282	0.55669
phosphodiesterase 9A	R19767	0.18	0.49	0.47	0.52	0.415	0.1580084	0.079004	0.380743
synaptosomal-associated protein, 23kD	R22893	0.448	0.473	0.48	0.56	0.49025615	0.0485347	0.024267	0.098999
protein kinase, cAMP-dependent, regulatory, type II, alph	R23436	0.2	0.56	0.44	0.58	0.445	0.1746425	0.087321	0.392455
heparan sulfate proteoglycan 2 (perlecan)	R23999	0.128	0.222	0.04	0.05	0.11003398	0.0843984	0.042199	0.767021
heterogeneous nuclear ribonucleoprotein D (AU-rich eler	R25899	0.175	0.201	0.22	0.24	0.2091165	0.0276352	0.013818	0.132152
filamin B, beta (actin-binding protein-278)	R26320	0.278	0.446	0.097	0.135	0.23886317	0.1588164	0.079408	0.664884
epithelial membrane protein 2	R32270	0.474	0.55	0.57	0.47	0.51591317	0.0515793	0.02579	0.099977
PR domain containing 10	R35195	0.466	0.37	0.29	0.39	0.37911677	0.0725108	0.036255	0.191262
secretogranin II (chromogranin C)	R41603	0.448	0.454	0.48	0.51	0.47303227	0.0282962	0.014148	0.059819
plakophilin 3	R50489	0.456	0.53	0.155	0.191	0.33316711	0.1878547	0.093927	0.563845
3-hydroxy-3-methylglutaryl-Coenzyme A synthase 1 (sol	R53567	0.41	0.44	0.5	0.57	0.48	0.0707107	0.035355	0.147314
endothelin 1	R55829	0.409	0.411	0.57	0.52	0.47740685	0.0806812	0.040341	0.168999
retinoid X receptor, gamma	R56631	0.39	0.39	0.32	0.44	0.385	0.0493288	0.024664	0.128127
nuclear receptor interacting protein 1	R59543	0.44	0.49	0.48	0.49	0.475	0.0238048	0.011902	0.050115
ciliary neurotrophic factor receptor	R73050	0.274	0.33	0.59	0.51	0.42593204	0.1486854	0.074343	0.349083
lymphotoxin beta receptor (TNFR superfamily, member 3	R77028	0.366	0.36	0.6	0.57	0.47397573	0.128806	0.064403	0.271757
cholecystokinin	R80701	0.38	0.44	0.43	0.41	0.415	0.0264575	0.013229	0.063753
galactosidase, beta 1	R83247	0.52	0.442	0.547	0.51	0.50475549	0.0446254	0.022313	0.08841
ATP-binding cassette, sub-family A (ABC1), member 3	R84724	0.56	0.43	0.35	0.44	0.445	0.0866025	0.043301	0.194612
protein tyrosine phosphatase, receptor type, H	R87386	0.49	0.5	0.46	0.35	0.45	0.0687992	0.0344	0.152887
RaP2 interacting protein 8	R87923	0.536	0.47	0.5	0.52	0.50649867	0.0284411	0.014221	0.056152
Ran GTPase activating protein 1	R88426	0.47	0.57	0.47	0.291	0.45008323	0.1162176	0.058109	0.258214
<b>plakophilin 4</b>	<b>R89855</b>	0.537	0.35	0.42	0.36	0.41683134	0.0860718	0.043036	0.206491
keratin 13	T83421	0.238	0.303	0.55	0.358	0.3624501	0.1342658	0.067133	0.370439
epithelial membrane protein 2	T88721	0.369	0.538	0.44	0.42	0.44181553	0.0710225	0.035511	0.160752
programmed cell death 8 (apoptosis-inducing factor)	T99761	0.42	0.393	0.36	0.38	0.38835329	0.0251714	0.012586	0.064816
fibroblast growth factor receptor 3 (achondroplasia, than	R84974	0.46	0.45	0.502	0.53	0.48557385	0.0370943	0.018547	0.076393
<b>v-abl Abelson murine leukemia viral oncogene</b>	<b>H81820</b>	<b>0.27</b>	<b>0.3</b>	<b>0.59</b>	<b>0.6</b>	<b>0.43981537</b>	<b>0.179777</b>	<b>0.089888</b>	<b>0.408756</b>
MAP kinase-interacting serine/threonine kinase 1	H04901	0.32	0.28	0.31		0.30333333	0.0208167	0.012019	0.068626
stomatin-like protein 1	H06393	0.4	0.45	0.51		0.45333333	0.0550757	0.031798	0.121491
transcription elongation factor B (SIII), polypeptide 2 (18	H10355	0.508	0.307	0.357		0.39087218	0.1043854	0.060267	0.267058
chimerin (chimaerin) 2	H11638	0.45	0.46	0.47		0.46	0.01	0.005774	0.021739
LBP protein 32	H12032	0.41	0.51	0.55		0.49	0.072111	0.041633	0.147165
Ral guanine nucleotide exchange factor RalGPS1A	H12126	0.41	0.47	0.52		0.46666667	0.0550757	0.031798	0.118019
ribosomal protein L22	H18220	0.459	0.458	0.248		0.38827994	0.1217554	0.070296	0.313576
frizzled (Drosophila) homolog 10	H19514	0.21	0.22	0.21		0.21333333	0.0057735	0.003333	0.027063

leucyl-tRNA synthetase, mitochondrial	H19822	0.554	0.32	0.41	0.42813592	0.1182516	0.068273	0.276201
hypothetical protein FLJ13159	H19984	0.424	0.549	0.55	0.50777334	0.0721901	0.041679	0.14217
solute carrier family 22 (organic anion transporter), mem	H20345	0.451	0.2	0.23	0.29367638	0.1370946	0.079152	0.466822
guanine nucleotide binding protein (G protein), gamma 3	H20802	0.35	0.13	0.17	0.21666667	0.1171893	0.067659	0.540874
cadherin 11, type 2, OB-cadherin (osteoblast)	H25418	0.53	0.42	0.38	0.44333333	0.0776745	0.044845	0.175206
collagen, type IX, alpha 2	H30258	0.17	0.51	0.34	0.34	0.17	0.09815	0.5
mitogen-activated protein kinase 8 interacting protein 2	H38446	0.57	0.22	0.55	0.44666667	0.1965536	0.11348	0.440045
glutamate-ammonia ligase (glutamine synthase)	H39089	0.517	0.04	0.12	0.2256457	0.2554173	0.147465	1.13194
integrin, alpha 10	H43656	0.34	0.34	0.51	0.39666667	0.0981495	0.056667	0.247436
solute carrier family 25 (mitochondrial carrier; citrate tran	H44309	0.362	0.458	0.58	0.46667961	0.1092139	0.063055	0.234023
double-stranded RNA specific adenosine deaminase	H46899	0.45	0.44	0.59	0.49333333	0.083865	0.048419	0.169997
transcriptional activator of the c-fos promoter	H50524	0.48	0.28	0.32	0.36	0.1058301	0.061101	0.293972
keratin 8	H60463	0.418	0.499	0.459	0.45871675	0.0405522	0.023413	0.088404
nuclear factor of activated T-cells, cytoplasmic, calcineur	H63794	0.5	0.56	0.6	0.55333333	0.0503322	0.029059	0.090962
crystallin, alpha A	H82654	0.51	0.14	0.4	0.35	0.19	0.109697	0.542857
integrin, alpha L (antigen CD11A (p180), lymphocyte fun	N/A2	0.196	0.213	0.24	0.21646041	0.022055	0.012733	0.101889
cytochrome P450, subfamily IIIA, polypeptide 7	R00015	0.473	0.5	0.55	0.50777334	0.0389265	0.022474	0.076661
claudin 4	R05961	0.575	0.42	0.52	0.50494498	0.0785077	0.045326	0.155478
ubiquitin associated protein	R11156	0.503	0.26	0.55	0.43777556	0.1557168	0.089903	0.3557
tumor necrosis factor (ligand) superfamily, member 13b	R16934	0.315	0.44	0.6	0.45178975	0.1426812	0.082377	0.315813
collagen, type IV, alpha 1	R26967	0.503	0.32	0.34	0.38753398	0.1001523	0.057823	0.258435
MYC-associated zinc finger protein (purine-binding trans	R28340	0.544	0.386	0.433	0.45419907	0.0813454	0.046965	0.179096
RecQ protein-like 5	R31058	0.42	0.18	0.27	0.29	0.1212436	0.07	0.418081
prominin (mouse)-like 1	R36499	0.38	0.4	0.53	0.43666667	0.0814453	0.047022	0.186516
phosphodiesterase 1B, calmodulin-dependent	R45488	0.4	0.49	0.53	0.47333333	0.0665833	0.038442	0.140669
ADP-ribosylation factor-like 7	R50328	0.329	0.28	0.51	0.37284764	0.1212319	0.069993	0.325151
opioid-binding protein/cell adhesion molecule-like	R52832	0.39	0.44	2.11	0.98	0.978928	0.565184	0.998906
collagen, type XI, alpha 1	R52906	0.164	0.217	0.49	0.29027944	0.175029	0.101053	0.602967
platelet-derived growth factor receptor-like	R53211	0.41	0.37	0.48	0.4200377	0.0556675	0.03214	0.13253
cadherin 8, type 2	R56302	0.59	0.54	0.48	0.53666667	0.0550757	0.031798	0.102626
dual-specificity tyrosine-(Y)-phosphorylation regulated ki	R63622	0.123	0.222	0.51	0.28512531	0.2010138	0.116055	0.705002
ubiquitin 1	R67199	0.488	0.34	0.5	0.44279612	0.0892132	0.051507	0.201477
ralA binding protein 1	R71155	0.3	0.42	0.486	0.4021202	0.0944581	0.054535	0.2349
ribosomal protein L3	R73377	0.3	0.45	0.05	0.26666667	0.2020726	0.116667	0.757772
adenylyl cyclase-associated protein 2	R75967	0.335	0.423	0.529	0.42907443	0.0973466	0.056203	0.226876
RAN binding protein 2-like 1	R82691	0.382	0.305	0.31	0.33241747	0.0430139	0.024834	0.129397
EphB6	R85150	0.105	0.07	0.08	0.08508091	0.0181624	0.010486	0.213472
RaP2 interacting protein 8	R86861	0.397	0.51	0.402	0.43632705	0.0638591	0.036869	0.146356
centrosomal protein 2	R88035	0.392	0.1	0.1	0.19720388	0.1683621	0.097204	0.853746
quiescin Q6	R88085	0.43	0.05	0.06	0.18	0.2165641	0.125033	1.203134
death-associated protein	R92012	0.48	0.504	0.356	0.44668852	0.0792376	0.045748	0.177389
cytochrome P450, subfamily IID (debrisoquine, sparteine	R96672	0.37	0.38	0.49	0.41333333	0.0665833	0.038442	0.161089
integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)	R97881	0.44	0.484	0.498	0.47383455	0.030154	0.017409	0.063638



glypican 1 T66194 0.46 0.51 0.6 0.52333333 0.070946 0.040961 0.135566

## HaCat Neo Vs HaCat Delta1

## UPREGULATED GENES

Gene Name	GeneID	Normalized Expression Ratio				Aver.ratio	Std.Dev	Std.Err	Coff.Var
		Exp1	Exp2	Exp3	Exp4				
Sp2 transcription factor	H00136	3.12	1.91	3.62	2.59	2.81	0.7327119	0.366356	0.260752
fatty acid binding protein 5 (psoriasis-associated)	H00627	2.86	3.1	3.05	2.48	2.8725	0.2813509	0.140675	0.097946
guanine nucleotide-releasing factor 2 (specific for crk pro	H02075	2.212	4.05	4.2	3.37	3.4579595	0.9058498	0.452925	0.261961
epoxide hydrolase 2, cytoplasmic	H04900	1.93	1.85	1.96	1.84	1.895	0.0591608	0.02958	0.031219
retinoic acid receptor, beta	H09105	2.03	2.95	2.47	3.06	2.6275	0.4735944	0.236797	0.180245
ras homolog gene family, member I	H09686	2.286	2.016	2.3	2.24	2.21028557	0.1323007	0.06615	0.059857
CD1D antigen, d polypeptide	H11025	5.41	4.84	4.62	5.54	5.1025	0.4425965	0.221298	0.086741
ubiquitin specific protease 8	H12419	2.88	8.2	2.08	2.41	3.8925	2.8903676	1.445184	0.742548
putative DNA binding protein	H12670	3.41	4.02	2.9	2.89	3.305	0.5349455	0.267473	0.161859
collagen, type XI, alpha 2	H13347	1.98	2.25	2.97	2.17	2.3425	0.4333878	0.216694	0.185011
small nuclear ribonucleoprotein polypeptides B and B1	H13355	2.258	2.26	1.98	2.49	2.24693397	0.2086642	0.104332	0.092866
reticulocalbin 2, EF-hand calcium binding domain	H13366	2.323	2.13	3.7	2.61	2.69066981	0.7011949	0.350597	0.260602
ATPase, Na+/K+ transporting, alpha 3 polypeptide	H14143	1.856	2.14	2.44	1.88	2.07891485	0.2729615	0.136481	0.1313
Rac/Cdc42 guanine exchange factor (GEF) 6	H14999	5.273	4.938	3.52	3.19	4.2301999	1.0286884	0.514344	0.243177
retinoic acid receptor, alpha	H15010	8.84	2.76	3.59	2.81	4.5	2.9181844	1.459092	0.648485
dishevelled 3 (homologous to Drosophila dsh)	H15755	6.03	3.95	7.57	3.85	5.35	1.7889289	0.894464	0.334379
hairy/enhancer-of-split related with YRPW motif 1	H18233	2.5	1.89	2.44	2.24	2.2675	0.2751212	0.137561	0.121332
Link guanine nucleotide exchange factor II	H18802	2.971	2.49	1.93	1.8	2.29770979	0.5394455	0.269723	0.234775
cyclin D1 (PRAD1- parathyroid adenomatosis 1)	H20529	2.18	2.17	2.29	2.18	2.205	0.0568624	0.028431	0.025788
caveolin 2	H21748	1.97	3.44	2.24	2.31	2.49	0.6500769	0.325038	0.261075
filamin A, alpha (actin-binding protein-280)	H23101	2.19	2.69	2.3	3.5	2.67	0.5934644	0.296732	0.222271
pleckstrin	H26072	1.95	2.49	2.66	2.11	2.3025	0.328773	0.164386	0.14279
glycoprotein, synaptic 2	H46667	2.71	2.37	2.43	2.3	2.4525	0.1796988	0.089849	0.073272
elastase 2, neutrophil	H58275	1.93	13.05	4.06	2.55	5.3975	5.179494	2.589747	0.95961
protein kinase C, theta	H60824	2.19	1.98	2.06	1.88	2.0275	0.1309898	0.065495	0.064607
v-abl Abelson murine leukemia viral oncogene homolog	H81820	2.077	5.38	3.02	6.05	4.1317108	1.888248	0.944124	0.457014
uncoupling protein 4	H83501	2.49	2.84	2.61	2.82	2.69	0.1691153	0.084558	0.062868
choline dehydrogenase	H84106	2.269	2.102	2.41	3.85	2.65767913	0.804803	0.402401	0.302822
polymerase (RNA) II (DNA directed) polypeptide G	H84217	2.73	2.56	4.5	2.15	2.985	1.0389257	0.519463	0.348049
solute carrier family 12, (potassium-chloride transporter)	H84293	2.18	1.9	2.47	8.62	3.7925	3.226736	1.613368	0.85082
pre-B-cell leukemia transcription factor 3	H84325	2.55	5.49	9.41	5.18	5.6575	2.8280662	1.414033	0.499879

ATP-binding cassette, sub-family E (OABP), member 1	R01105	3.456	5.8	3.61	1.83	3.67396677	1.6301217	0.815061	0.443695
folliculin	R01927	7.62	6.78	2.69	2.21	4.825	2.7707099	1.385355	0.57424
amyloid P component, serum	R07120	2.955	2.84	2.21	3.91	2.97883697	0.7019027	0.350951	0.23563
ets variant gene 4 (E1A enhancer-binding protein, E1AF)	R07222	8.23	6.81	5.74	4.28	6.265	1.6707384	0.835369	0.266678
transcription factor 1, hepatic; LF-B1, hepatic nuclear fac	R07823	2.61	2.34	5.94	2.97	3.465	1.6700599	0.83503	0.48198
5,10-methylenetetrahydrofolate synthetase (5-formyltetra	R08326	1.843	6.8	5.95	3.41	4.50079958	2.2832136	1.141607	0.507291
protein phosphatase 1, regulatory subunit 6	R10183	3.98	2.07	2.78	2.82	2.9125	0.7906695	0.395335	0.271475
ryanodine receptor 1 (skeletal)	R11793	2.32	2.32	2.322	2.32	2.3205	0.001	0.0005	0.000431
homolog of mouse quaking QKI (KH domain RNA bindin	R11951	3.14	1.83	2.81	2.01	2.4475	0.6281388	0.314069	0.256645
apoptosis regulator	R12025	2.01	1.97	1.86	1.75	1.8975	0.1170114	0.058506	0.061666
NY-REN-24 antigen	R12233	2.37	2.28	2.32	2.01	2.245	0.1609348	0.080467	0.071686
secreted protein, acidic, cysteine-rich (osteonectin)	R12744	2.15	2.31	2.61	2.13	2.3	0.2218107	0.110905	0.096439
PR domain containing 4	R14633	2.692	2.165	2.45	2.32	2.40668566	0.2230801	0.11154	0.092692
carbohydrate (chondroitin 6/keratan) sulfotransferase 1	R15740	9.36	4.67	4.1	2.19	5.08	3.0440653	1.522033	0.599225
tumor necrosis factor (ligand) superfamily, me	R16934	5.03	3.97	4.24	4.72	4.49	0.4751842	0.237592	0.105832
mal, T-cell differentiation protein	R17499	2.34	2.21	2.02	1.89	2.115	0.1994158	0.099708	0.094286
methyltransferase-like 1	R17664	2.44	2.17	2.32	1.96	2.2225	0.206942	0.103471	0.093112
superiorcervical ganglia, neural specific 10	R19072	2.178	2.11	3.64	2.04	2.4919107	0.7674509	0.383725	0.307977
anaphase-promoting complex 2	R20845	2.02	2.29	2.04	3.183	2.38337419	0.547376	0.273688	0.229664
EST-YD1 protein	R22229	1.88	2.24	3.63	4.07	2.955	1.0591978	0.529599	0.358443
core1 UDP-galactose-N-acetylgalactosamine-alpha-R be	R22983	3.04	5.43	4.12	4.096	4.1713837	0.9785257	0.489263	0.234581
protein tyrosine phosphatase, non-receptor type 21	R23593	1.833	2.2	3.72	2.81	2.64070353	0.8247115	0.412356	0.312307
hydroxysteroid (11-beta) dehydrogenase 2	R23749	2.23	2.19	4.17	2.09	2.67	1.0017318	0.500866	0.37518
nuclear LIM interactor-interacting factor	R25117	2.338	2.13	2.95	2.7	2.52949	0.3661413	0.183071	0.144749
matrix Gla protein	R26327	2.02	1.94	2.22	1.92	2.025	0.1369915	0.068496	0.06765
Down syndrome critical region gene 1-like 2	R26919	4.351	2.567	1.914	2.31	2.78544393	1.0777201	0.53886	0.386911
cytochrome P450, subfamily 46 (cholesterol 24-hydroxyl	R36281	3.832	3.825	3.382	2.49	3.38210735	0.6308128	0.315406	0.186515
myelin protein zero-like 1	R37525	2.329	1.86	5.03	1.93	2.78726156	1.509365	0.754683	0.541523
phospholipase C, beta 2	R37960	4.09	3.26	8.25	7.26	5.715	2.4139111	1.206956	0.422382
dedicator of cyto-kinesis 3	R39312	2.798	2.246	1.86	1.8	2.17598306	0.4592124	0.229606	0.211037
myelin associated glycoprotein	R42831	1.91	2.362	2.62	2.12	2.25295298	0.3066903	0.153345	0.136128
nuclear factor (erythroid-derived 2)-like 3	R43198	2.13	1.94	2.22	1.98	2.0675	0.1304799	0.06524	0.06311
inhibitor of DNA binding 4, dominant negative helix-loop-	R43511	2.13	2.04	2.7	1.93	2.2	0.34322	0.17161	0.156009
Snf2-related CBP activator protein	R44375	2.678	2.381	7.62	6.27	4.73729751	2.6109482	1.305474	0.551147
similar to Xenopus gamma-tubulin interacting protein (ye	R50785	1.99	1.94	2.82	1.77	2.13	0.4695388	0.234769	0.220441
v-myc avian myelocytomatosis viral related oncogene, n	R52824	2.76	2.06	3.03	2.11	2.49	0.4809019	0.240451	0.193133
steroid-5-alpha-reductase, alpha polypeptide 1 (3-oxo-5 ;	R54327	2.374	2.138	4.77	3.44	3.18048546	1.2015463	0.600773	0.377787
MADS box transcription enhancer factor 2, polypeptide C	R59202	2.857	2.485	2.26	4.21	2.95291018	0.8734318	0.436716	0.295787
paralemmin	R60222	2.02	2.9	2.98	2.85	2.6875	0.4482094	0.224105	0.166776
fibronectin leucine rich transmembrane protein 2	R60392	1.97	2.37	2.23	2.65	2.305	0.2834902	0.141745	0.122989
fatty acid binding protein 7, brain	R60407	2.07	1.97	4.62	3.36	3.005	1.2489596	0.62448	0.415627
discoidin domain receptor family, member 2	R60908	2.08	1.99	2.46	3.2	2.4325	0.5507192	0.27536	0.226401
dedicator of cyto-kinesis 2	R62401	2.118	2.6	2.47	3.87	2.76441551	0.7647048	0.382352	0.276624

hyaluronoglucosaminidase 4	R67698	2.34	2.08	2.37	1.82	2.1525	0.257083	0.128541	0.119435
AU RNA-binding protein/enoyl-Coenzyme A hydratase	R67993	5.51	2.14	4.04	6.47	4.54	1.8864252	0.943213	0.415512
paired-like homeodomain transcription factor 2	R78177	2.37	2.21	2.02	1.86	2.115	0.2221861	0.111093	0.105053
protein tyrosine phosphatase, receptor type, C	R80064	1.92	4.71	4.34	3	3.4925	1.2800879	0.640044	0.366525
microtubule-associated protein, RP/EB family, member 3	R80191	2.25	2.15	2.15	2.6	2.2875	0.2136001	0.1068	0.093377
golgi autoantigen, golgin subfamily a, 4	R81347	2.109	2.04	2.14	1.85	2.03468706	0.1300172	0.065009	0.0639
fibroblast growth factor receptor 3 (achondroplasia, thanatophoric dysplasia)	R84974	2.96	4.59	2.85	1.811	3.05275182	1.148154	0.574077	0.376105
iduronidase, alpha-L-	R86686	3.469	2.31	4.68	3.65	3.52734164	0.971073	0.485536	0.275299
v-ets avian erythroblastosis virus E26 oncogene related 1	R87572	4.82	6.62	5.77	2.66	4.9675	1.705	0.8525	0.343231
dipeptidylpeptidase VI	R87715	2.89	2	4.49	2.63	3.0025	1.0597287	0.529864	0.352949
muscle specific gene	R87846	2.26	2.06	2.62	1.77	2.1775	0.3570598	0.17853	0.163977
RaP2 interacting protein 8	R87923	2.789	2.705	2.21	1.91	2.40357217	0.4166152	0.208308	0.173332
Link guanine nucleotide exchange factor II	R87983	1.998	1.861	2.24	4.19	2.57219367	1.0898691	0.544935	0.423712
actin, gamma 2, smooth muscle, enteric	R90884	2.534	2.364	2.57	2.55	2.50455867	0.0945514	0.047276	0.037752
cadherin 8, type 2	T65284	2.58	2.35	2.42	2.64	2.4975	0.1352467	0.067623	0.054153
tumor necrosis factor receptor superfamily, member 1A	T65422	2.99	1.83	3.77	2.51	2.775	0.8163945	0.408197	0.294196
dual specificity phosphatase 6	T65557	2.105	2.82	2.57	1.99	2.37123201	0.3903661	0.195183	0.164626
glycogen synthase kinase 3 alpha	T72585	2.53	2.42	2.64	2.22	2.4525	0.1791415	0.089571	0.073044
nicastrin	T74007	4.68	2.3	2.71	1.94	2.9075	1.2228212	0.611411	0.420575
retinoic acid receptor, alpha	T75564	1.89	3.39	2.12	2.36	2.44	0.6617653	0.330883	0.271215
ATP-binding cassette, sub-family B (MDR/TAP), member 1	T78010	2.3	1.97	2.35	1.95	2.1425	0.2118765	0.105938	0.098892
death-associated protein kinase 1	T78664	2.85	2.61	2.24	2.48	2.545	0.2546239	0.127312	0.100049
adenylate cyclase 2 (brain)	T80236	2.37	1.9	2.88	2.51	2.415	0.4051749	0.202587	0.167774
CD34 antigen	T80274	3.26	2.37	3	2.31	2.735	0.468935	0.234467	0.171457
expressed in activated T/LAK lymphocytes	T86350	3.345	1.91	3.25	3.49	2.99868899	0.7324729	0.366236	0.244264
heterogeneous nuclear ribonucleoprotein F	T86631	2.37	2.13	6.49	4.05	3.76	2.0104726	1.005236	0.5347
Sp2 transcription factor	H00136	2.801	2.89	3.386	2.776	2.96338276	0.2859297	0.142965	0.096488
protein-kinase, interferon-inducible double stranded RNA	H00619	2.01	2.67	2.14		2.27333333	0.3496188	0.201853	0.153791
MAP kinase-interacting serine/threonine kinase	H04901	2.167	2.072	2.42		2.21966852	0.1799256	0.10388	0.08106
butyrylcholinesterase	H05834	2.8	2.34	2.15		2.43	0.3342155	0.192959	0.137537
biphenyl hydrolase-like (serine hydrolase; breast epithelial)	H06847	1.964	2.54	2.84		2.44786027	0.4454155	0.257161	0.181961
annexin A6	H08529	2.073	1.795	1.81		1.89270682	0.1560397	0.09009	0.082443
adenylate cyclase activating polypeptide 1 (pituitary) receptor	H09078	2.06	2.57	1.91		2.18	0.3459769	0.19975	0.158705
guanine nucleotide binding protein (G protein), q polypeptide	H09598	2.064	3.32	2.23		2.53812738	0.6821663	0.393849	0.268768
kinesin family member 3C	H11052	2.252		1.86		2.05616822	0.2774238	0.160171	0.134923
cadherin 8, type 2	H14496	2.11	2.73	2.18		2.34	0.3395585	0.196044	0.14511
PWP2 (periodic tryptophan protein, yeast) homolog	H16818	2.86	2.56	1.9		2.44	0.4911212	0.283549	0.201279
protocadherin beta 15	H17173	1.96	1.84	2.12		1.97333333	0.1404754	0.081104	0.071187
leukocyte immunoglobulin-like receptor, subfamily B (with CD28)	H18946	3.12	2.11	1.96		2.39666667	0.6308988	0.36425	0.26324
ADP-ribosylation factor 1	H20379	2.256	2.062	2.35		2.22269833	0.1471189	0.084939	0.066189
Rab9 effector p40	H20945	5.73	2.14	1.99		3.28666667	2.1173175	1.222434	0.644214
v-abl Abelson murine leukemia viral oncogene homolog 2	H23248	2.1	4.79	3.6		3.49666667	1.3479738	0.778253	0.385503
diacylglycerol kinase, gamma (90kD)	H23494	2.71	5.5	3.79		4	1.4068049	0.812219	0.351701

potassium voltage-gated channel, KQT-like subfamily, m	H23701	3.096	2.366	1.8	2.42053568	0.6495371	0.37501	0.268344
bullous pemphigoid antigen 1 (230/240kD)	H25843	1.944	1.97	1.97	1.96149327	0.0147341	0.008507	0.007512
zinc finger protein 238	H29607	2.503	2.44	2.83	2.59086535	0.2094483	0.120925	0.080841
glutathione S-transferase A2	H56050	2.011	2.42	1.76	2.06356552	0.3331611	0.192351	0.161449
phosphofructokinase, muscle	H59568	2.338	2.034	3.57	2.64719258	0.8135332	0.469694	0.307319
heat shock 70kD protein 8	H62557	3.96	3.32	2.36	3.21333333	0.8053157	0.464949	0.250617
hsp70-interacting protein	H84149	2.46	2.35	1.99	2.26666667	0.2458319	0.141931	0.108455
programmed cell death 7	H84606	3.58	3.01	2.43	3.00666667	0.5750072	0.331981	0.191244
<b>caspase recruitment domain 4</b>	<b>R02588</b>	<b>2.07</b>	<b>2</b>	<b>2.26</b>	2.11	0.1345362	0.077675	0.063761
karyopherin beta 2b, transportin	R08597	2.12	3.3	1.92	2.44666667	0.7457435	0.430555	0.3048
nuclear receptor coactivator 2	R08880	2.94	2.92	2.5	2.78666667	0.2484619	0.14345	0.089161
inositol 1,4,5-triphosphate receptor, type 2	R09245	9.11	2.45	8.87	6.81	3.7777771	2.181101	0.55474
sphingomyelin phosphodiesterase 1, acid lysosomal (aci	R09248	3.18	1.93	2.11	2.40666667	0.6757465	0.390142	0.280781
rec	R09585	2.94	2.92	2.5	2.78666667	0.2484619	0.14345	0.089161
ring finger protein 9	R10282	3.4	1.91	2.07	2.46	0.8179853	0.472264	0.332514
aldehyde dehydrogenase 5 family, member A1 (succinat	R11674	3.16	2.07	1.84	2.35666667	0.7051477	0.407117	0.299214
nucleolar protein 1 (120kD)	R11719	3.61	3.34	1.93	2.96	0.9021641	0.520865	0.304785
microtubule-associated protein tau	R12882	2.05	1.84	2.52	2.13666667	0.3481858	0.201025	0.162957
mitogen-activated protein kinase-activated protein kinase	R13561	2.05	1.84	2.52	2.13666667	0.3481858	0.201025	0.162957
cofactor required for Sp1 transcriptional activation, subur	R14275	2.07	1.94	2.51	2.17333333	0.2987195	0.172466	0.137448
nuclear factor, interleukin 3 regulated	R14288	2.2	9.15	3.68	5.01	3.6609152	2.11363	0.730722
piccolo (presynaptic cytomatrix protein)	R14631	1.94	2.1	2.04	2.02666667	0.080829	0.046667	0.039883
serine/threonine kinase with Dbl- and pleckstrin homolog	R19839	2.24	3.28	2.16	2.56	0.62482	0.36074	0.24407
zinc finger protein ANC_2H01	R19999	1.87	2.88	1.83	2.19333333	0.595007	0.343527	0.27128
chondroitin sulfate proteoglycan BEHAB/brevican	R20427	2.09	3.15	2.68	2.64	0.5311309	0.306649	0.201186
basonuclin	R26526	2.431	1.84	2.22	2.16363937	0.2994636	0.172895	0.138407
DEAD/H (Asp-Glu-Ala-Asp/His) box polypeptide 3	R34214	1.89	1.84	2.01	1.91333333	0.0873689	0.050442	0.045663
cytochrome P450 retinoid metabolizing protein	R34539	2.099	2.08	1.8	1.99285369	0.1672738	0.096576	0.083937
pescadillo (zebrafish) homolog 1, containing BRCT domæ	R37665	2.35	2.15	1.89	2.13	0.2306513	0.133167	0.108287
Ras association (RalGDS/AF-6) domain family 2	R37954	3.09	2.77	1.98	2.61333333	0.5713434	0.329865	0.218626
mitogen-activated protein kinase 4	R38384	3.25	2.7	1.81	2.58666667	0.726659	0.419537	0.280925
cysteine and histidine rich protein	R40870	2.23	5.18	2.17	3.19333333	1.7207653	0.993484	0.538862
<b>non-metastatic cells 1, protein (NM23A) expre</b>	<b>R53559</b>	<b>2.34</b>	<b>2.28</b>	<b>2.42</b>	2.34666667	0.0702377	0.040552	0.029931
cadherin 13, H-cadherin (heart)	R55805	2.21	4.53	3.18	3.30666667	1.1651752	0.672714	0.352372
chondroitin sulfate proteoglycan 4 (melanoma-associated	R61690	1.84	1.95	1.93	1.90666667	0.0585947	0.03383	0.030731
cytokine inducible SH2-containing protein	R63534	2.105	2.22	2.94	2.42164268	0.4525827	0.261299	0.186891
bone morphogenetic protein 6	R67103	3.343	3.25	1.92	2.8375572	0.7959776	0.459558	0.280515
Fas (TNFRSF6) associated factor 1	R70834	2.98	5.93	4.24	4.38325099	1.4803311	0.85467	0.337724
ribosomal protein L3	R73377	6.16	7.95	3.86	5.99	2.0502927	1.183737	0.342286
ubiquitin specific protease 4 (proto-oncogene)	R77960	2.9	2.44	2.18	2.50650961	0.3643461	0.210355	0.14536
microtubule-associated protein 1A	R87232	2.194	4.57	2.69	3.15135532	1.2533564	0.723626	0.39772
lysosomal-associated membrane protein 1	R89056	4.66	4.54	2.64	3.94666667	1.1331961	0.654251	0.287127
eukaryotic translation initiation factor 4A, isoform 2	R89143	2.97	11.55	8.04	7.51996192	4.3136318	2.490477	0.573624

dedicator of cyto-kinesis 3	T80400	2.25	1.9	9.39	4.51333333	4.2269414	2.440426	0.936545
inositol 1,4,5-triphosphate receptor, type 3	T80464	2.3	2.23	2.48	2.33666667	0.1289703	0.074461	0.055194
activating transcription factor 2	T83053	1.92	4.39	2.88	3.06333333	1.245164	0.718896	0.406474

## HaCat Neo Vs HaCat Delta1

## DOWNREGULATED GENES

Gene Name	GeneID	Normalized Expression Ratio				Aver.ratio	Std.Dev	Std.Err	Coff.Var
		Exp1	Exp2	Exp3	Exp4				
adducin 3 (gamma)	H00946	0.402	0.478	0.4	0.4	0.4200433	0.0388403	0.01942	0.092467
spermidine/spermine N1-acetyltransferase	H03112	0.322	0.34	0.21	0.21	0.27031899	0.070035	0.035018	0.259083
proteolipid protein (Pelizaeus-Merzbacher disease, spastin)	H06957	0.42	0.45	0.47	0.38	0.43	0.0391578	0.019579	0.091065
hypothetical protein DKFZp762P2111	H08319	0.47	0.49	0.2	0.26	0.355	0.1466288	0.073314	0.413039
SGC32445 protein	H11651	0.332	0.37	0.16	0.22	0.27039826	0.0972849	0.048642	0.359784
C-type (calcium dependent, carbohydrate-recognition domain)	H11732	0.321	0.378	0.27	0.29	0.31480581	0.0470351	0.023518	0.14941
Ral guanine nucleotide exchange factor RalG1	H12126	0.28	0.43	0.28	0.45	0.36	0.0927362	0.046368	0.257601
Mad4 homolog	H12149	0.426	0.49	0.16	0.47	0.38661531	0.153388	0.076694	0.396746
Sarcolemmal-associated protein	H12660	0.581	0.348	0.45	0.53	0.47715281	0.1018862	0.050943	0.21353
lysophosphatidic acid acyltransferase-delta	H18455	0.32	0.52	0.23	0.31	0.345	0.1234234	0.061712	0.357749
LIM domain only 7	H21060	0.461	0.52	0.54	0.54	0.51514538	0.0375998	0.0188	0.072989
keratin 15	H21366	0.499	0.16	0.18	0.39	0.30719757	0.1647325	0.082366	0.536243
schwannomin interacting protein 1	H24397	0.53	0.37	0.38	0.42	0.425	0.0732575	0.036629	0.172371
cellular repressor of E1A-stimulated genes	H28623	0.433	0.449	0.54	0.58	0.50048899	0.0709153	0.035458	0.141692
proteolipid protein (Pelizaeus-Merzbacher disease, spastin)	H28975	0.44	0.44	0.27	0.35	0.375	0.0818535	0.040927	0.218276
vitronectin (serum spreading factor, somatomedin B, connective tissue type III)	H29155	0.475	0.498	0.39	0.29	0.41337833	0.0945218	0.047261	0.228657
thyroid hormone receptor interactor 8	H43746	0.46	0.47	0.36	0.4	0.4225	0.0518813	0.025941	0.122796
PFTAIRE protein kinase 1	H46382	0.197	0.47	0.58	0.07	0.32918502	0.2362594	0.11813	0.717771
excision repair cross-complementing rodent repair deficiency	H47146	0.58	0.59	0.45	0.5	0.53	0.0668331	0.033417	0.1261
BCL2-associated athanogene 4	H53288	0.41	0.43	0.49	0.33	0.415	0.0660808	0.03304	0.159231
aldo-keto reductase family 1, member C2 (dihydrodiol dehydratase)	H64003	0.375	0.387	0.34	0.35	0.36309595	0.0218558	0.010928	0.060193
protein kinase, cAMP-dependent, regulatory, type II, alpha	R23436	0.32	0.4	0.21	0.31	0.31	0.0778888	0.038944	0.251254
citron (rho-interacting, serine/threonine kinase 21)	R24294	0.569	0.572	0.35	0.35	0.46009865	0.1271365	0.063568	0.276324
zinc finger protein 185 (LIM domain)	R25798	0.5	0.54	0.32	0.37	0.4325	0.1043631	0.052182	0.241302
interleukin 1 receptor accessory protein	R37898	0.402	0.406	0.33	0.33	0.36686553	0.0426032	0.021302	0.116128
A kinase (PRKA) anchor protein (yotiao) 9	R59109	0.426	0.58	0.59	0.36	0.48911531	0.1140673	0.057034	0.233211
NADH dehydrogenase (ubiquinone) flavoprotein 1 (51kDa)	R67754	0.265	0.323	0.59	0.49	0.41701388	0.1497029	0.074851	0.358988
oligoprenin 1	R81942	0.28	0.4	0.37	0.39	0.36	0.0547723	0.027386	0.152145
RAN binding protein 2-like 1	R82691	0.291	0.378	0.11	0.12	0.22463358	0.1315565	0.065778	0.585649
H1 histone family, member 2	R98517	0.361	0.5	0.5	0.42	0.4452203	0.0677022	0.033851	0.152065
keratin 13	T83421	0.496	0.505	0.218	0.233	0.36296127	0.1589456	0.079473	0.437913
claudin 1	H03348	0.25	0.27	0.48		0.33333333	0.1274101	0.07356	0.38223
DNA (cytosine-5-)-methyltransferase 3 alpha	H03349	0.57	0.44	0.49		0.5	0.0655744	0.037859	0.131149

cannabinoid receptor 1 (brain)	H06204	0.32	0.41	0.49	0.40666667	0.085049	0.049103	0.209137
protein tyrosine phosphatase, receptor type, N polypeptid	H06958	0.56	0.45	0.49	0.5	0.0556776	0.032146	0.111355
vascular cell adhesion molecule 1	H07071	0.55	0.34	0.44	0.44333333	0.1050397	0.060645	0.236932
receptor tyrosine kinase-like orphan receptor	H10666	0.445	0.43	0.57	0.48181162	0.0767623	0.044319	0.15932
p21-activated protein kinase 6	H15287	0.453	0.47	0.422	0.44836224	0.02422	0.013983	0.054019
pM5 protein	H17327	0.49	0.49	0.38	0.45333333	0.0635085	0.036667	0.140092
ribosomal protein L5	H17614	0.52	0.3	0.48	0.43333333	0.1171893	0.067659	0.270437
cell cycle related kinase	H17616	0.41	0.38	0.44	0.41	0.03	0.017321	0.073171
p53-inducible ribonucleotide reductase small subunit 2 h	H18868	0.45	0.34	0.44	0.41	0.0608276	0.035119	0.14836
ESTs, Highly similar to 3-phosphoinositide de	H20164	0.5	0.39	0.44	0.44333333	0.0550757	0.031798	0.124231
carbonic anhydrase II	H23187	0.416	0.58	0.58	0.52517	0.0949683	0.05483	0.180834
sal (Drosophila)-like 3	H23192	0.43	0.45	0.5	0.46	0.0360555	0.020817	0.078382
immunoglobulin kappa constant	H25578	0.41	0.51	0.41	0.44333333	0.057735	0.033333	0.130229
phosphoinositide-3-kinase, regulatory subunit	H30017	0.48	0.54	0.52	0.51333333	0.0305505	0.017638	0.059514
step II splicing factor SLU7	H30114	0.5	0.39	0.46	0.45	0.0556776	0.032146	0.123728
egf-like module containing, mucin-like, hormone recepto	H43635	0.53	0.33	0.38	0.41333333	0.1040833	0.060093	0.251814
potassium voltage-gated channel, KQT-like subfamily, m	H45987	0.36	0.3	0.47	0.37666667	0.0862168	0.049777	0.228894
tumor protein p53-binding protein, 1	H51388	2.419	1.85	1.76	2.00981918	0.3575999	0.20646	0.177926
D-type cyclin-interacting protein 1	H53894	0.401	0.37	0.41	0.39357952	0.0209389	0.012089	0.053201
BTG family, member 2	H69582	0.46	0.55	0.48	0.49666667	0.0472582	0.027285	0.095151
cyclin-dependent kinase 6	H73724	0.45	0.5	0.48	0.47666667	0.0251661	0.01453	0.052796
polymerase (RNA) II (DNA directed) polypeptide J (13.3k	H85095	0.25	0.41	0.43	0.36333333	0.0986577	0.05696	0.271535
junctional adhesion molecule	R01692	0.4	0.42	0.44	0.42	0.02	0.011547	0.047619
regulator of G-protein signalling 6	R12209	0.48	0.3	0.53	0.43666667	0.1209683	0.069841	0.277027
retinoid x receptor interacting protein	R18164	0.13	0.13	0.49	0.25	0.2078461	0.12	0.831384
carbonyl reductase 1	R19107	0.43	0.54	0.41	0.46	0.07	0.040415	0.152174
endothelin converting enzyme 1	R24778	0.51	0.4	0.47	0.46	0.0556776	0.032146	0.121038
neuronatin	R32695	0.45	0.49	0.43	0.45666667	0.0305505	0.017638	0.066899
platelet/endothelial cell adhesion molecule (C	R33251	0.43	0.5	0.46	0.46333333	0.0351188	0.020276	0.075796
homeo box B5	R33892	0.42	0.51	0.53	0.48666667	0.0585947	0.03383	0.1204
oxidative 3 alpha hydroxysteroid dehydrogenase; retinol	R35197	0.38	0.39	0.41	0.39333333	0.0152753	0.008819	0.038835
CGI-108 protein	R36651	0.52	0.57	0.45	0.51333333	0.0602771	0.034801	0.117423
His-domain protein tyrosine phosphatase	R52028	0.56	0.34	0.35	0.41666667	0.124231	0.071725	0.298154
oculocutaneous albinism II (pink-eye dilution (murine) ho	R52315	0.59	0.42	0.45	0.48666667	0.0907377	0.052387	0.186447
arginase, type II	R55110	0.502	0.21	0.28	0.33070037	0.1525079	0.08805	0.461166
ets variant gene 5 (ets-related molecule)	R66676	0.458	0.29	0.49	0.4126805	0.1074394	0.06203	0.260345
inhibin, beta A (activin A, activin AB alpha polypeptide)	R67237	0.51	0.57	0.33	0.47	0.1249	0.072111	0.265745
karyopherin alpha 3 (importin alpha 4)	R79164	0.53	0.47	0.44	0.48	0.0458258	0.026458	0.09547
EphB6	R85150	0.25	0.3	0.43	0.32666667	0.0929157	0.053645	0.284436
laminin, gamma 3	R17731	0.464	0.36	0.56	0.46125727	0.1000237	0.057749	0.21685