

**Supplemental Table 1.** microarray gene list

<b>Gene symbol</b>	<b>Gene name</b>	<b>Accession No.</b>	<b>Fold Change</b>
<b>GRAMD1B</b>	GRAM domain containing 1B	<a href="#">NM_020716</a>	21.8
CYSLTR2	cysteinyl leukotriene receptor 2	<a href="#">NM_020377</a>	18.9
TNFRSF10D	tumor necrosis factor receptor superfamily, member 10d, decoy with truncated death domain	<a href="#">NM_003840</a>	15.9
CASP1	caspase 1, apoptosis-related cysteine peptidase (interleukin 1, beta, convertase)	<a href="#">NM_001223</a>	14.2
<b>BACE2</b>	beta-site APP-cleaving enzyme 2	<a href="#">NM_012105</a>	13.1
<b>CADPS</b>	Ca <sup>2+</sup> -dependent secretion activator	<a href="#">NM_003716</a>	12.5
<b>UNC13A</b>	unc-13 homolog A (C. elegans)	<a href="#">NM_00108042</a>	10.6
PPP1R3C	protein phosphatase 1, regulatory (inhibitor) subunit 3C	<a href="#">NM_005398</a>	10.1
CCL18	chemokine (C-C motif) ligand 18 (pulmonary and activation-regulated)	<a href="#">NM_002988</a>	10.0
<b>EEA1</b>	early endosome antigen 1, 162kD	<a href="#">NM_003566</a>	9.2
LYZ	lysozyme (renal amyloidosis)	<a href="#">NM_000239</a>	8.8
ABCC2	ATP-binding cassette, sub-family C (CFTR	<a href="#">NM_000392</a>	8.8
RGS1	regulator of G-protein rystalli 1	<a href="#">NM_002922</a>	8.1
LRAP	leukocyte-derived arginine aminopeptidase	<a href="#">NM_022350</a>	7.7
MOSC1	MOCO sulphurase C-terminal domain containing 1	<a href="#">NM_022746</a>	7.5
LRRFIP1	leucine rich repeat (in FLII) interacting protein 1	<a href="#">NM_0010137550</a>	7.5
<b>FGF12</b>	fibroblast growth factor 12	<a href="#">NM_004113</a>	7.1
<b>CTSK</b>	cathepsin K	<a href="#">NM_000396</a>	6.6
FER1L3	fer-1-like 3, myoferlin (C. elegans)	<a href="#">NM_133337</a>	6.5
WFDC1	WAP four-disulfide core domain 1	<a href="#">NM_021197</a>	6.3
<b>PXDN</b>	peroxidasin homolog (Drosophila)	<a href="#">NM_012293</a>	6.1
GPX7	glutathione peroxidase 7	<a href="#">NM_015696</a>	5.8
<b>RGL1</b>	ral guanine nucleotide dissociation stimulator-like 1	<a href="#">NM_015149</a>	5.8
ANKRD30B	ankyrin repeat domain 30B	<a href="#">NM_001029862</a>	5.7
PRDM7	PR domain containing 7	<a href="#">NM_052996</a>	5.5
ZNF93	zinc finger protein 93	<a href="#">NM_031218</a>	5.3
PRKG2	protein kinase, cGMP-dependent, type II	<a href="#">NM_006259</a>	5.3
ACP5	acid phosphatase 5, tartrate resistant	<a href="#">NM_001611</a>	5.3

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<b>PDE7B</b>	phosphodiesterase 7B	<a href="#">NM_018945</a>	5.3
RNF125*	ring finger protein 125	<a href="#">NM_017831</a>	5.2
<b>PCSK1</b>	proprotein convertase subtilisin	<a href="#">NM_000439</a>	5.2
SESN3	sestrin 3	<a href="#">NM_144665</a>	5.0
TSPAN7	tetraspanin 7	<a href="#">NM_004615</a>	5.0
SPATS1	spermatogenesis associated, serine-rich 1	<a href="#">NM_145026</a>	4.9
TMSB4X	thymosin, beta 4, X-linked	<a href="#">NM_021109</a>	4.9
<b>ATRX</b>	alpha thalassemia	<a href="#">NM_000489</a>	4.8
<b>NRCAM</b>	neuronal cell adhesion molecule	<a href="#">NM_001037132</a>	4.8
CMBL	carboxymethylenebutenolidase homolog (Pseudomonas)	<a href="#">NM_138809</a>	4.7
<b>GLRX*</b>	glutaredoxin (thioltransferase)	<a href="#">NM_002064</a>	4.7
<b>GCNT2</b>	glucosaminyl (N-acetyl) transferase 2, I-branching enzyme (I blood group)	<a href="#">NM_145649</a>	4.6
<b>MYO5B</b>	myosin VB	<a href="#">NM_001080467</a>	4.6
B3GALNT1	beta-1,3-N-acetylgalactosaminyltransferase 1 (globoside blood group)	<a href="#">NM_001038628</a>	4.6
<b>EIF5B</b>	eukaryotic translation initiation factor 5B	<a href="#">NM_015904</a>	4.5
PTPN20B	protein tyrosine phosphatase, non-receptor type 20B	<a href="#">NM_001042389</a>	4.5
ANXA6	annexin A6	<a href="#">NM_001155</a>	4.5
<b>PI15</b>	peptidase inhibitor 15	<a href="#">NM_015886</a>	4.4
<b>FAM70A</b>	family with sequence similarity 70, member A	<a href="#">NM_017938</a>	4.3
SLC37A2	solute carrier family 37 (glycerol-3-phosphate transporter), member 2	<a href="#">NM_198277</a>	4.3
MX2	myxovirus (influenza virus) resistance 2 (mouse)	<a href="#">NM_002463</a>	4.3
ZNF84	zinc finger protein 84	<a href="#">M61870</a>	4.3
<b>WIPF1</b>	WAS	<a href="#">NM_003387</a>	4.3
<b>PRKAR1A</b>	protein kinase, cAMP-dependent, regulatory, type I, alpha (tissue specific extinguisher 1)	<a href="#">NM_212472</a>	4.2
<b>MPZ</b>	myelin protein zero (Charcot-Marie-Tooth neuropathy 1B)	<a href="#">NM_000530</a>	4.2
PLA1A	phospholipase A1 member A	<a href="#">NM_015900</a>	4.0
FER1L3	fer-1-like 3, myoferlin (C. elegans)	<a href="#">NM_133337</a>	4.0
<b>MAP1A</b>	microtubule-associated protein 1A	<a href="#">NM_002373</a>	3.9

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<b>KIT</b>	v-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog	<a href="#">NM_000222</a>	3.9
MGST1	microsomal glutathione S-transferase 1	<a href="#">NM_145792</a>	3.9
LAYN	layilin	<a href="#">NM_178834</a>	3.8
AHNAK	AHNAK nucleoprotein (desmoyokin)	<a href="#">NM_024060</a>	3.8
<b>RBM25</b>	RNA binding motif protein 25	<a href="#">NM_021239</a>	3.8
EXTL1	exostoses (multiple)-like 1	<a href="#">NM_004455</a>	3.8
SLC19A3*	solute carrier family 19, member 3	<a href="#">NM_025243</a>	3.7
KDR	kinase insert domain receptor (a type III receptor tyrosine kinase)	<a href="#">NM_002253</a>	3.7
MMP8	matrix metalloproteinase 8 (neutrophil collagenase)	<a href="#">NM_002424</a>	3.7
PKLR	pyruvate kinase, liver and RBC	<a href="#">NM_000298</a>	3.7
GOLGB1	golgi autoantigen, golgin subfamily b, macrogolgin (with transmembrane signal), 1	<a href="#">NM_004487</a>	3.7
CENPF	centromere protein F, 350	<a href="#">NM_016343</a>	3.7
EPHB1	EPH receptor B1	<a href="#">NM_004441</a>	3.6
SLC16A4*	solute carrier family 16, member 4 (monocarboxylic acid transporter 5)	<a href="#">NM_004696</a>	3.6
HSD17B7	hydroxysteroid (17-beta) dehydrogenase 7	<a href="#">NM_016371</a>	3.6
IGFBP2	insulin-like growth factor binding protein 2	<a href="#">NM_000597</a>	3.6
CPS1	carbamoyl-phosphate synthetase 1, mitochondrial	<a href="#">NM_001875</a>	3.6
KIAA1199	KIAA1199	<a href="#">NM_018689</a>	3.6
<b>GALNT14</b>	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 14 (GalNAc-T14)	<a href="#">NM_024572</a>	3.6
CCDC55	coiled-coil domain containing 55	<a href="#">NM_032141</a>	3.6
<b>PRUNE2</b>	prune homolog 2 (Drosophila)	<a href="#">NM_138818</a>	3.6
ZNF682	zinc finger protein 682	<a href="#">NM_001077349</a>	3.5
<b>GALM</b>	galactose mutarotase (aldose 1-epimerase)	<a href="#">NM_138801</a>	3.5
<b>OLFM1</b>	olfactomedin 1	<a href="#">NM_014279</a>	3.5
KIAA1212	KIAA1212	<a href="#">NM_018084</a>	3.5
PAIP1	poly(A) binding protein interacting protein 1	<a href="#">NM_006451</a>	3.5
PPIG	peptidylprolyl isomerase G (cyclophilin G)	<a href="#">NM_004792</a>	3.5
ZNF253	zinc finger protein 253	<a href="#">NM_021047</a>	3.4
ZNF724P	zinc finger protein 724P	<a href="#">XM_001132303</a>	3.4

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CAPG	capping protein (actin filament), gelsolin-like	<a href="#">NM_001747</a>	3.4
CST2	cystatin SA	<a href="#">NM_001322</a>	3.4
ZNF382	zinc finger protein 382	<a href="#">NM_032825</a>	3.4
OR2A20P	olfactory receptor, family 2, subfamily A, member 20 pseudogene	<a href="#">BC016940</a>	3.4
KIAA1914	KIAA1914	<a href="#">NM_032550</a>	3.4
SPG3A	spastic paraplegia 3A (autosomal dominant)	<a href="#">NM_015915</a>	3.3
COP1	caspase-1 dominant-negative inhibitor pseudo-ICE	<a href="#">NM_052889</a>	3.3
OR7A5	olfactory receptor, family 7, subfamily A, member 5	<a href="#">NM_017506</a>	3.3
ZNF415	zinc finger protein 415	<a href="#">NM_018355</a>	3.3
SCML1	sex comb on midleg-like 1 (Drosophila)	<a href="#">NM_006746</a>	3.3
<b>MKI67</b>	antigen identified by monoclonal antibody Ki-67	<a href="#">NM_002417</a>	3.3
<b>MUM1L1</b>	melanoma associated antigen (mutated) 1-like 1	<a href="#">NM_152423</a>	3.3
<b>ITGB3</b>	integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)	<a href="#">NM_000212</a>	3.2
NUCB2	nucleobindin 2	<a href="#">NM_005013</a>	3.2
<b>HSPB8</b>	heat shock 22kDa protein 8	<a href="#">NM_014365</a>	3.2
ARHGDI3	Rho GDP dissociation inhibitor (GDI) gamma	<a href="#">NM_001176</a>	3.2
<b>VAMP8</b>	vesicle-associated membrane protein 8 (endobrevin)	<a href="#">NM_003761</a>	3.2
ZC3H13	zinc finger CCCH-type containing 13	<a href="#">NM_015070</a>	3.2
LUM	lumican	<a href="#">NM_002345</a>	3.2
TPR	translocated promoter region (to activated MET oncogene)	<a href="#">NM_003292</a>	3.1
KIAA0367	KIAA0367	<a href="#">NM_015225</a>	3.1
ASB9	ankyrin repeat and SOCS box-containing 9	<a href="#">NM_024087</a>	3.1
<b>CEP170</b>	centrosomal protein 170kDa	<a href="#">NM_001042404</a>	3.1
<b>PIK3R3</b>	phosphoinositide-3-kinase, regulatory subunit 3 (p55, gamma)	<a href="#">NM_003629</a>	3.1
ZNF257	zinc finger protein 257	<a href="#">NM_033468</a>	3.1
CCDC112	coiled-coil domain containing 112	<a href="#">NM_152549</a>	3.1
PLXDC2	plexin domain containing 2	<a href="#">NM_032812</a>	3.1
<b>TIAM1</b>	T-cell lymphoma invasion and metastasis 1	<a href="#">NM_003253</a>	3.1
LY6E	lymphocyte antigen 6 complex, locus E	<a href="#">NM_002346</a>	3.1
GSTM1	glutathione S-transferase M1	<a href="#">NM_000561</a>	3.1

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FBLN1*	fibulin 1	<a href="#">NM_006486</a>	3.0
DPP4	dipeptidyl-peptidase 4 (CD26, adenosine deaminase complexing protein 2)	<a href="#">NM_001935</a>	3.0
<b>IQGAP2</b>	IQ motif containing GTPase activating protein 2	<a href="#">NM_006633</a>	3.0
EDG7	endothelial differentiation, lysophosphatidic acid G-protein-coupled receptor, 7	<a href="#">NM_012152</a>	3.0
<b>LDLR</b>	low density lipoprotein receptor (familial hypercholesterolemia)	<a href="#">NM_000527</a>	3.0
ZNF605	zinc finger protein 605	<a href="#">NM_183238</a>	3.0
RP1-32F7.2	hypothetical protein FLJ37659	<a href="#">NM_173698</a>	3.0
TNFRSF10A	tumor necrosis factor receptor superfamily, member 10a	<a href="#">NM_003844</a>	3.0
<b>ABCA1</b>	ATP-binding cassette, sub-family A (ABC1), member 1	<a href="#">NM_005502</a>	3.0
<b>TFPI2</b>	tissue factor pathway inhibitor 2	<a href="#">NM_006528</a>	2.9
<b>L1CAM</b>	L1 cell adhesion molecule	<a href="#">NM_000425</a>	2.9
GALNTL4	UDP-N-acetyl-alpha-D-galactosamine: polypeptide N-acetylgalactosaminyl transferase-like 4	<a href="#">NM_198516</a>	2.9
RNU5D	RNA, U5D small nuclear	<a href="#">NR_002755</a>	2.9
<b>KLHL13</b>	kelch-like 13 (Drosophila)	<a href="#">NM_033495</a>	2.9
SNX10	sorting nexin 10	<a href="#">NM_013322</a>	2.9
CENPE	centromere protein E, 312kDa	<a href="#">NM_001813</a>	2.9
<b>NOX4</b>	NADPH oxidase 4	<a href="#">NM_016931</a>	2.9
ZNF626	zinc finger protein 626	<a href="#">NM_145297</a>	2.9
ZNF91	zinc finger protein 91	<a href="#">NM_003430</a>	2.9
PHLDB2	pleckstrin homology-like domain, family B, member 2	<a href="#">NM_145753</a>	2.9
<b>GULP1</b>	GULP, engulfment adaptor PTB domain containing 1	<a href="#">NM_016315</a>	2.9
MRGPRX4	MAS-related GPR, member X4	<a href="#">NM_054032</a>	2.8
CEP290	centrosomal protein 290kDa	<a href="#">NM_025114</a>	2.8
<b>TMPRSS13</b>	transmembrane protease, serine 13	<a href="#">NM_001077263</a>	2.8
PTPN20A	protein tyrosine phosphatase, non-receptor type 20A	<a href="#">NM_001042390</a>	2.8
ZNF90	zinc finger protein 90	<a href="#">BC038096</a>	2.8
ADFP	adipose differentiation-related protein	<a href="#">NM_001122</a>	2.8
<b>ATP2B4</b>	ATPase, Ca <sup>++</sup> transporting, plasma membrane 4	<a href="#">NM_001001396</a>	2.8
S100B	S100 calcium binding protein B	<a href="#">NM_006272</a>	2.8
LXN	latexin	<a href="#">NM_020169</a>	2.8
NID1	nidogen 1	<a href="#">NM_002508</a>	2.8

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ALDH1L2	aldehyde dehydrogenase 1 family, member L2	<a href="#">NM_001034173</a>	2.8
<b>MAPK4</b>	mitogen-activated protein kinase 4	<a href="#">NM_002747</a>	2.8
SNRPN*	small nuclear ribonucleoprotein polypeptide N	<a href="#">NM_003097</a>	2.8
HLA-DPB1	major histocompatibility complex, class II, DP beta 1	<a href="#">NM_002121</a>	2.8
<b>ABCD1</b>	ATP-binding cassette, sub-family D (ALD), member 1	<a href="#">NM_000033</a>	2.8
<b>FZD6</b>	frizzled homolog 6 (Drosophila)	<a href="#">NM_003506</a>	2.7
<b>TAOK3</b>	TAO kinase 3	<a href="#">NM_016281</a>	2.7
DYNC2H1	dynein, cytoplasmic 2, heavy chain 1	<a href="#">NM_001377.2</a>	2.7
TMEM16D	transmembrane protein 16D	<a href="#">NM_178826</a>	2.7
ZNF320	zinc finger protein 320	<a href="#">NM_207333</a>	2.7
<b>AKAP9*</b>	A kinase (PRKA) anchor protein (yotiao) 9	<a href="#">NM_005751</a>	2.7
MOSC2	MOCO sulphurase C-terminal domain containing 2	<a href="#">NM_017898</a>	2.7
<b>BCAT1</b>	branched chain aminotransferase 1, cytosolic	<a href="#">NM_005504</a>	2.7
CTSH	cathepsin H	<a href="#">NM_004390</a>	2.7
NFATC2	nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 2	<a href="#">NM_012340</a>	2.7
<b>GCC2</b>	GRIP and coiled-coil domain containing 2	<a href="#">NM_181453</a>	2.7
<b>GOLPH3L</b>	golgi phosphoprotein 3-like	<a href="#">NM_018178</a>	2.7
<b>KIAA1217</b>	KIAA1217	<a href="#">NM_019590</a>	2.7
TSPAN13	tetraspanin 13	<a href="#">NM_014399</a>	2.6
<b>SLC7A8</b>	solute carrier family 7 (cationic amino acid transporter, y+ system), member 8	<a href="#">NM_182728</a>	2.6
TMEM171	transmembrane protein 171	<a href="#">NM_173490</a>	2.6
<b>PTBP2</b>	polypyrimidine tract binding protein 2	<a href="#">NM_021190</a>	2.6
<b>KIF3A</b>	kinesin family member 3A	<a href="#">NM_007054</a>	2.6
<b>MNS1</b>	meiosis-specific nuclear structural 1	<a href="#">NM_018365</a>	2.6
<b>RAPGEF4</b>	Rap guanine nucleotide exchange factor (GEF) 4	<a href="#">NM_007023</a>	2.6
BDP1	B double prime 1, subunit of RNA polymerase III transcription initiation factor IB	<a href="#">NM_018429</a>	2.6
PDLIM4	PDZ and LIM domain 4	<a href="#">NM_003687</a>	2.6
<b>VAV2</b>	vav 2 oncogene	<a href="#">NM_003371</a>	2.6
ZNF271	zinc finger protein 271	<a href="#">NM_006629</a>	2.6
CCDC8	coiled-coil domain containing 8	<a href="#">NM_032040</a>	2.6
<b>RSF1</b>	remodeling and spacing factor 1	<a href="#">NM_016578</a>	2.6

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ZNF197	zinc finger protein 197	<a href="#">NM_006991</a>	2.6
<b>EPHB4</b>	EPH receptor B4	<a href="#">NM_004444</a>	2.6
LY96	lymphocyte antigen 96	<a href="#">NM_015364</a>	2.6
<b>KTN1</b>	kinectin 1 (kinesin receptor)	<a href="#">NM_182926</a>	2.6
MCTP2	multiple C2 domains, transmembrane 2	<a href="#">NM_018349</a>	2.6
SCARA5	scavenger receptor class A, member 5 (putative)	<a href="#">NM_173833</a>	2.6
STARD4	START domain containing 4, sterol regulated	<a href="#">NM_139164</a>	2.6
LGALS12	lectin, galactoside-binding, soluble, 12 (galectin 12)	<a href="#">NM_033101</a>	2.6
<b>SMARCA1</b>	SWI	<a href="#">NM_139035</a>	2.5
CROP	cisplatin resistance-associated overexpressed protein	<a href="#">NM_016424</a>	2.5
FHL2	four and a half LIM domains 2	<a href="#">NM_201557</a>	2.5
<b>SGTB</b>			2.5
<b>ARHGAP21</b>	Rho GTPase activating protein 21	<a href="#">NM_020824</a>	2.5
CDC42BPA	AT rich interactive domain 4B (RBP1-like)	<a href="#">NM_016374</a>	2.5
PRO2012	CDC42 binding protein kinase alpha (DMPK-like)	<a href="#">NM_003607</a>	2.5
SOX2	SRY (sex determining region Y)- box 2	<a href="#">NM_003106</a>	2.5
SRGAP1	SLIT-ROBO Rho GTPase activating protein 1	<a href="#">NM_020762</a>	2.5
<b>SEMA3B</b>	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (rystalline) 3B	<a href="#">NM_001005914</a>	2.5
ARID4B	AT rich interactive domain 4B (RBP1-like)	<a href="#">NM_016374</a>	2.5
ZNF66	zinc finger protein 66	<a href="#">XM_001132102</a>	2.5
ZNF607	zinc finger protein 607	<a href="#">NM_032689</a>	2.5
<b>GOLGA4*</b>	golgi autoantigen, golgin subfamily a, 4	<a href="#">NM_002078</a>	2.5
RIPK5	receptor interacting protein kinase 5	<a href="#">NM_199462</a>	2.5
<b>TMTC1</b>	transmembrane and tetratricopeptide repeat containing 1	<a href="#">NM_175861</a>	2.5
DEPDC6	DEP domain containing 6	<a href="#">NM_022783</a>	2.5
ROCK1	Rho-associated, coiled-coil containing protein kinase 1	<a href="#">NM_005406</a>	2.5
SNAI2	snail homolog 2 (Drosophila)	<a href="#">NM_003068</a>	2.5
ZNF493	zinc finger protein 493	<a href="#">NM_001076678</a>	2.5
SQLE	squalene epoxidase	<a href="#">NM_003129</a>	2.5
<b>NPAT</b>	nuclear protein, ataxia- telangiectasia locus	<a href="#">NM_002519</a>	2.5

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NLRP3	NLR family, pyrin domain containing 3	<a href="#">NM_004895</a>	2.4
<b>MTSS1</b>	metastasis suppressor 1	<a href="#">NM_014751</a>	2.4
<b>TRIB1</b>	tribbles homolog 1 (Drosophila)	<a href="#">NM_025195</a>	2.4
SERPINF1	serpin peptidase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1	<a href="#">NM_002615</a>	2.4
MAL	mal, T-cell differentiation protein	<a href="#">NM_002371</a>	2.4
RAD50*	RAD50 homolog	<a href="#">NM_133482</a>	2.4
C3AR1	complement component 3a receptor 1	<a href="#">NM_004054</a>	2.4
ZNF585B	zinc finger protein 585B	<a href="#">NM_152279</a>	2.4
<b>ARHGAP12</b>	Rho GTPase activating protein 12	<a href="#">NM_018287</a>	2.4
<b>ANKRD26</b>	ankyrin repeat domain 26	<a href="#">NM_014915</a>	2.4
FAM44A	family with sequence similarity 44, member A	<a href="#">NM_148894</a>	2.4
EMP3	epithelial membrane protein 3	<a href="#">NM_001425</a>	2.4
<b>ANKRD12</b>	ankyrin repeat domain 12	<a href="#">NM_015208</a>	2.4
ZFP30*	zinc finger protein 30 homolog (mouse)	<a href="#">NM_014898</a>	2.4
DOCK10	dedicator of cytokinesis 10	<a href="#">NM_014689</a>	2.4
ADCY8	adenylate cyclase 8 (brain)	<a href="#">NM_001115</a>	2.4
SMYD3	SET and MYND domain containing 3	<a href="#">NM_022743</a>	2.4
CST7	cystatin F (leukocystatin)	<a href="#">NM_003650</a>	2.4
ZNF208	zinc finger protein 208	<a href="#">AK096236</a>	2.4
<b>FXVD6</b>	FXVD domain containing ion transport regulator 6	<a href="#">NM_022003</a>	2.4
<b>SFRS12</b>	splicing factor, arginine	<a href="#">NM_139168</a>	2.4
DDX10	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10	<a href="#">NM_004398</a>	2.4
OCA2	oculocutaneous albinism II (pink-eye dilution homolog, mouse)	<a href="#">NM_000275</a>	2.4
BAT2D1	BAT2 domain containing 1	<a href="#">NM_015172</a>	2.4
ANTXR2	anthrax toxin receptor 2	<a href="#">NM_058172</a>	2.4
ZNF480	zinc finger protein 480	<a href="#">BC065503</a>	2.4
<b>FNBP1</b>	rystal binding protein 1	<a href="#">NM_015033</a>	2.4
<b>THOC2</b>	THO complex 2	<a href="#">NM_020449</a>	2.4
<b>STK10</b>	serine	<a href="#">NM_005990</a>	2.4
DENND2D	DENN	<a href="#">NM_024901</a>	2.4
HIST2H4A	histone cluster 2, H4a	<a href="#">NM_003548</a>	2.4
CASP4	caspase 4, apoptosis-related cysteine peptidase	<a href="#">NM_033307</a>	2.4
<b>NAV3</b>	neuron navigator 3	<a href="#">NM_014903</a>	2.4
SELENBP1	selenium binding protein 1	<a href="#">NM_003944</a>	2.4
PWCR1	Prader-Willi syndrome chromosome region 1	<a href="#">NR_003106</a>	2.4



<b>Gene symbol</b>	<b>Gene name</b>	<b>Accession No.</b>	<b>Fold Change</b>
TTC3	tetratricopeptide repeat domain 3	<a href="#">NM_001001894</a>	2.4
TMEM45A	transmembrane protein 45A	<a href="#">NM_018004</a>	2.4
HTATIP2	HIV-1 Tat interactive protein 2, 30kDa	<a href="#">NM_006410</a>	2.4
QPRT*	quinolinate phosphoribosyltransferase (nicotinate-nucleotide pyrophosphorylase (carboxylating))	<a href="#">NM_014298</a>	2.4
<b>PREX1</b>	phosphatidylinositol 3,4,5-trisphosphate-dependent RAC exchanger 1	<a href="#">NM_020820</a>	2.4
NOV	nephroblastoma overexpressed gene	<a href="#">NM_002514</a>	2.4
<b>KIF5B</b>	kinesin family member 5B	<a href="#">NM_004521</a>	2.4
F2R	coagulation factor II (thrombin) receptor	<a href="#">NM_001992</a>	2.4
<b>PCF11</b>	PCF11, cleavage and polyadenylation factor subunit, homolog (S. cerevisiae)	<a href="#">NM_015885</a>	2.3
DMN	desmuslin	<a href="#">NM_145728</a>	2.3
LPXN	leupaxin	<a href="#">NM_004811</a>	2.3
<b>SETBP1</b>	SET binding protein 1	<a href="#">NM_015559</a>	2.3
<b>NTS</b>	neurotensin	<a href="#">NM_006183</a>	2.3
<b>DENND2C</b>	DENN	<a href="#">NM_198459</a>	2.3
PDE3A	phosphodiesterase 3A, cGMP-inhibited	<a href="#">NM_000921</a>	2.3
LAMB3	laminin, beta 3	<a href="#">NM_000228</a>	2.3
<b>AMOT</b>	angiominin	<a href="#">NM_133265</a>	2.3
TRMT12	tRNA methyltransferase 12 homolog (S. cerevisiae)	<a href="#">NM_017956</a>	2.3
CART1	cartilage paired-class homeoprotein 1	<a href="#">NM_006982</a>	2.3
RSN	restin (Reed-Steinberg cell-expressed intermediate filament-associated protein)	<a href="#">NM_198240</a>	2.3
<b>IGF2BP1</b>	insulin-like growth factor 2 mRNA binding protein 1	<a href="#">NM_006546</a>	2.3
<b>HBEGF</b>	heparin-binding EGF-like growth factor	<a href="#">NM_001945</a>	2.3
PDE3B	phosphodiesterase 3B, cGMP-inhibited	<a href="#">NM_000922</a>	2.3
CPNE8	copine VIII	<a href="#">NM_153634</a>	2.3
ZNF483	zinc finger protein 383	<a href="#">NM_133464</a>	2.3
<b>MLH3</b>	mutL homolog 3 (E. coli)	<a href="#">NM_001040108</a>	2.3
MBP	myelin basic protein	<a href="#">NM_001025101</a>	2.3
FAM19A5	family with sequence similarity 19 (chemokine (C-C motif)-like), member A5	<a href="#">NM_015381</a>	2.3

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RAB4B	RAB4B, member RAS oncogene family	<a href="#">NM_016154</a>	2.3
NAIP	NLR family, apoptosis inhibitory protein	<a href="#">NM_004536</a>	2.3
AS3MT	arsenic (+3 oxidation state) methyltransferase	<a href="#">NM_020682</a>	2.3
NUPR1	nuclear protein 1	<a href="#">NM_001042483</a>	2.3
<b>TSPAN9</b>	tetraspanin 9	<a href="#">NM_006675</a>	2.3
<b>SH3TC2</b>	SH3 domain and tetratricopeptide repeats 2	<a href="#">NM_024577</a>	2.3
CD74	CD74 molecule, major histocompatibility complex, class II invariant chain	<a href="#">NM_001025159</a>	2.3
<b>UPF3B</b>	UPF3 regulator of nonsense transcripts homolog B (yeast)	<a href="#">NM_080632</a>	2.3
<b>MPP1</b>	membrane protein, palmitoylated 1, 55kDa	<a href="#">NM_002436</a>	2.3
<b>DNAJA4</b>	DnaJ (Hsp40) homolog, subfamily A, member 4	<a href="#">NM_018602</a>	2.3
<b>ADCYAP1</b>	adenylate cyclase activating polypeptide 1 (pituitary)	<a href="#">NM_001117</a>	2.3
<b>CLDN1</b>	claudin 1	<a href="#">NM_021101</a>	2.3
HRSP12	heat-responsive protein 12	<a href="#">NM_005836</a>	2.3
<b>PRPF38B</b>	PRP38 pre-mRNA processing factor 38 (yeast) domain containing B	<a href="#">NM_018061</a>	2.3
<b>ROCK2</b>	Rho-associated, coiled-coil containing protein kinase 2	<a href="#">NM_004850</a>	2.2
ZRF1	zuotin related factor 1	<a href="#">NM_014377</a>	2.2
GPRIN3	GPRIN family member 3	<a href="#">NM_198281</a>	2.2
NSBP1	nucleosomal binding protein 1	<a href="#">NM_030763</a>	2.2
<b>ZHX1*</b>	zinc fingers and homeoboxes 1	<a href="#">NM_001017926</a>	2.2
<b>CEP350</b>	centrosomal protein 350kDa	<a href="#">NM_014810</a>	2.2
DDX26B	DEAD	<a href="#">NM_182540</a>	2.2
<b>GDF11</b>	growth differentiation factor 11	<a href="#">NM_005811</a>	2.2
KIAA1166	KIAA1166	<a href="#">NM_018684</a>	2.2
IKIP	IKK interacting protein	<a href="#">NM_153687</a>	2.2
TCN1	transcobalamin I (vitamin B12 binding protein, R binder family)	<a href="#">NM_001062</a>	2.2
HMCN1	hemicentin 1	<a href="#">NM_031935</a>	2.2
NSDHL	NAD(P) dependent steroid dehydrogenase-like	<a href="#">NM_015922</a>	2.2
PAX6	paired box gene 6 (aniridia, keratitis)	<a href="#">NM_001604</a>	2.2
<b>CPM*</b>	carboxypeptidase M	<a href="#">NM_001005502</a>	2.2
CKMT1A	creatine kinase, mitochondrial 1A	<a href="#">NM_001015001</a>	2.2
CKMT1B	creatine kinase, mitochondrial 1B	<a href="#">NM_020990</a>	2.2
ARMCX1	armadillo repeat containing, X-linked 1	<a href="#">NM_016608</a>	2.2

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ZNF625	zinc finger protein 625	<a href="#">NM_145233</a>	2.2
HMGCR	3-hydroxy-3-methylglutaryl-Coenzyme A reductase	<a href="#">NM_000859</a>	2.2
MAGED2	melanoma antigen family D, 2	<a href="#">NM_177433</a>	2.2
RAB39	RAB39, member RAS oncogene family	<a href="#">NM_017516</a>	2.2
<b>ENC1</b>	ectodermal-neural cortex (with BTB-like domain)	<a href="#">NM_003633</a>	2.2
IRF4	interferon regulatory factor 4	<a href="#">NM_002460</a>	2.2
<b>MYO5A*</b>	myosin VA (heavy chain 12, myosin)	<a href="#">NM_000259</a>	2.2
MLSTD1	male sterility domain containing 1	<a href="#">NM_018099</a>	2.2
<b>ATP11C</b>	ATPase, Class VI, type 11C	<a href="#">NM_173694</a>	2.2
SPATS2*	spermatogenesis associated, serine-rich 2	<a href="#">NM_023071</a>	2.2
<b>EPHA4</b>	EPH receptor A4	<a href="#">NM_004438</a>	2.2
IDI1	isopentenyl-diphosphate delta isomerase 1	<a href="#">NM_004508</a>	2.2
<b>FGD1</b>	FYVE, RhoGEF and PH domain containing 1 (faciogenital dysplasia)	<a href="#">NM_004463</a>	2.2
FOXP1B	forkhead box G1B	<a href="#">NM_005249</a>	2.2
<b>ACBD3</b>	acyl-Coenzyme A binding domain containing 3	<a href="#">NM_022735</a>	2.2
<b>ZNF37A</b>	zinc finger protein 37A	<a href="#">NM_003421</a>	2.1
SERINC5	serine incorporator 5	<a href="#">BC101282</a>	2.1
<b>UACA</b>	uveal autoantigen with coiled-coil domains and ankyrin repeats	<a href="#">NM_001008224</a>	2.1
CETN2	centrin, EF-hand protein, 2	<a href="#">NM_004344</a>	2.1
KIF14	kinesin family member 14	<a href="#">NM_014875</a>	2.1
TNRC15	trinucleotide repeat containing 15	<a href="#">NM_015575</a>	2.1
SEZ6L2	SEZ6L2	<a href="#">NM_012410</a>	2.1
<b>RAB18</b>	RAB18, member RAS oncogene family	<a href="#">NM_021252</a>	2.1
TMEM22	transmembrane protein 22	<a href="#">NM_025246</a>	2.1
<b>NCAM1</b>	neural cell adhesion molecule 1	<a href="#">NM_001076682</a>	2.1
SIAE	sialic acid acetyltransferase	<a href="#">NM_170601</a>	2.1
INDO	indoleamine-pyrrole 2,3 dioxygenase	<a href="#">NM_002164</a>	2.1
STK32A	serine	<a href="#">NM_145001</a>	2.1
CTLA4	cytotoxic T-lymphocyte-associated protein 4	<a href="#">NM_005214</a>	2.1
GPRASP2	G protein-coupled receptor associated sorting protein 2	<a href="#">NM_001004051</a>	2.1
PRKCZ	protein kinase C, zeta	<a href="#">NM_002744</a>	2.1
FAH	fumarylacetoacetate hydrolase (fumarylacetoacetase)	<a href="#">NM_000137</a>	2.1
ARG2	arginase, type II	<a href="#">NM_001172</a>	2.1

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<b>BAZ2B*</b>	bromodomain adjacent to zinc finger domain, 2B	<a href="#">NM_013450</a>	2.1
CA5B*	carbonic anhydrase VB, mitochondrial	<a href="#">NM_007220</a>	2.1
<b>PARVA*</b>	parvin, alpha	<a href="#">NM_018222</a>	2.1
SLC35F2	solute carrier family 35, member F2	<a href="#">NM_017515</a>	2.1
DTWD2	DTW domain containing 2	<a href="#">NM_173666</a>	2.1
TRAF5	TNF receptor-associated factor 5	<a href="#">NM_145759</a>	2.1
SERF1A*	small EDRK-rich factor 1A (telomeric)	<a href="#">NM_021967</a>	2.1
SERF1B*	small EDRK-rich factor 1B (centromeric)	<a href="#">NM_022978</a>	2.1
CCBE1	collagen and calcium binding EGF domains 1	<a href="#">NM_133459</a>	2.1
<b>PPP1R12A</b>	protein phosphatase 1, regulatory (inhibitor) subunit 12A	<a href="#">NM_002480</a>	2.1
<b>CAST</b>	calpastatin	<a href="#">NM_001042441</a>	2.1
TM4SF18	transmembrane 4 L six family member 18	<a href="#">NM_138786</a>	2.1
<b>CD44</b>	CD44 molecule (Indian blood group)	<a href="#">NM_000610</a>	2.1
CCDC46	coiled-coil domain containing 46	<a href="#">NM_001037325</a>	2.1
<b>MPHOSPH9</b>	M-phase phosphoprotein 9	<a href="#">NM_022782</a>	2.1
<b>MAP1B</b>	microtubule-associated protein 1B	<a href="#">NM_005909</a>	2.1
MAGED1*	melanoma antigen family D, 1	<a href="#">NM_001005332</a>	2.1
<b>PCSK2</b>	proprotein convertase subtilisin	<a href="#">NM_002594</a>	2.1
ST8SIA1	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 1	<a href="#">NM_003034</a>	2.1
PDE4B	phosphodiesterase 4B, cAMP-specific (phosphodiesterase E4 dunce homolog, Drosophila)	<a href="#">NM_002600</a>	2.1
PIGN	phosphatidylinositol glycan anchor biosynthesis, class N	<a href="#">NM_176787</a>	2.1
CSTB	cystatin B (stefin B)	<a href="#">NM_000100</a>	2.1
<b>KCTD21</b>	potassium channel tetramerisation domain containing 21	<a href="#">NM_001029859</a>	2.1
ATP6V0D2	ATPase, H <sup>+</sup> transporting, lysosomal 38kDa, V0 subunit d2	<a href="#">NM_152565</a>	2.1
<b>TTC13*</b>	tetratricopeptide repeat domain 13	<a href="#">NM_024525</a>	2.1
<b>ACBD5</b>	acyl-Coenzyme A binding domain containing 5	<a href="#">NM_145698</a>	2.1
PDSS1	prenyl (decaprenyl) diphosphate synthase, subunit 1	<a href="#">NM_014317</a>	2.1
DLGAP1	discs, large (Drosophila) homolog-associated protein 1	<a href="#">NM_004746</a>	2.1

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PARP15	poly (ADP-ribose) polymerase family, member 15	<a href="#">NM_152615</a>	2.1
CCDC131	coiled-coil domain containing 131	<a href="#">NM_144982</a>	2.1
<b>ANKRD50</b>	ankyrin repeat domain 50	<a href="#">NM_020337</a>	2.1
<b>FRMD4B</b>	FERM domain containing 4B	<a href="#">NM_015123.1</a>	2.1
<b>GNAL</b>	guanine nucleotide binding protein (G protein), alpha activating activity polypeptide, olfactory type	<a href="#">NM_182978</a>	2.1
ANXA1	annexin A1	<a href="#">NM_000700</a>	2.1
<b>DUSP10</b>	dual specificity phosphatase 10	<a href="#">NM_007207</a>	2.1
<b>CUL2</b>	cullin 2	<a href="#">NM_003591</a>	2.0
HSD17B14	hydroxysteroid (17-beta) dehydrogenase 14	<a href="#">NM_016246</a>	2.0
ATG4A	ATG4 autophagy related 4 homolog A (S. cerevisiae)	<a href="#">NM_178271</a>	2.0
<b>MGLL</b>	monoglyceride lipase	<a href="#">NM_001003794</a>	2.0
<b>HOXB13</b>	homeobox B13	<a href="#">NM_006361</a>	2.0
PRCP	prolylcarboxypeptidase (angiotensinase C)	<a href="#">NM_199418</a>	2.0
<b>MDFI</b>	MyoD family inhibitor	<a href="#">NM_005586</a>	2.0
HSPC048	HSPC048 protein	<a href="#">NM_024725.3</a>	2.0
IGFBP7	insulin-like growth factor binding protein 7	<a href="#">NM_001553</a>	2.0
ZNF84	zinc finger protein 84	<a href="#">NM_003428</a>	2.0
VEZT	vezatin, adherens junctions transmembrane protein	<a href="#">NM_017599</a>	2.0
PECR*	peroxisomal trans-2-enoyl-CoA reductase	<a href="#">NM_018441</a>	2.0
ZNF721	zinc finger protein 721	<a href="#">NM_133474</a>	2.0
PITRM1	pitrilysin metalloproteinase 1	<a href="#">NM_014889</a>	2.0
FABP5	fatty acid binding protein 5 (psoriasis-associated)	<a href="#">NM_001444</a>	2.0
CSS3	chondroitin sulfate synthase 3	<a href="#">NM_175856</a>	2.0
ESCO1	establishment of cohesion 1 homolog 1 (S. cerevisiae)	<a href="#">NM_052911</a>	2.0
RBM41	RNA binding motif protein 41	<a href="#">NM_018301</a>	2.0
TRPV4	transient receptor potential cation channel, subfamily V, member 4	<a href="#">NM_021625</a>	2.0
<b>DKK3</b>	dickkopf homolog 3 (Xenopus laevis)	<a href="#">NM_015881</a>	2.0
SLK	STE20-like kinase (yeast)	<a href="#">NM_014720</a>	2.0
ZNF493	zinc finger protein 493	<a href="#">NM_001076678</a>	2.0
IL12RB2	interleukin 12 receptor, beta 2	<a href="#">NM_001559</a>	2.0
MAMDC1	MAM domain containing 1	<a href="#">NM_182830</a>	2.0
ZNF483	zinc finger protein 483	<a href="#">NM_133464</a>	2.0
TP53INP1	tumor protein p53 inducible nuclear protein 1	<a href="#">NM_033285</a>	2.0

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<b>ITSN1</b>	intersectin 1 (SH3 domain protein)	<a href="#">NM_003024</a>	2.0
MIPOL1	mirror-image polydactyly 1	<a href="#">NM_138731</a>	2.0
ZNF266*	zinc finger protein 266	<a href="#">NM_006631</a>	2.0
<b>GPR158</b>	G protein-coupled receptor 158	<a href="#">NM_020752</a>	2.0
ZNF486	zinc finger protein 486	<a href="#">XM_371152</a>	2.0
LRRC33	leucine rich repeat containing 33	<a href="#">NM_198565</a>	2.0
<b>NRIP1</b>	nuclear receptor interacting protein 1	<a href="#">NM_003489</a>	2.0
CARD8*	caspase recruitment domain family, member 8	<a href="#">NM_014959</a>	2.0
<b>ATP6V1C1</b>	ATPase, H <sup>+</sup> transporting, lysosomal 42kDa, V1 subunit C1	<a href="#">NM_001695</a>	2.0
ZNF426	zinc finger protein 426	<a href="#">NM_024106</a>	2.0
ZNF438	zinc finger protein 438	<a href="#">NM_182755</a>	2.0
<b>MLLT11</b>	myeloid	<a href="#">NM_006818</a>	2.0
<b>LIMA1</b>	LIM domain and actin binding 1	<a href="#">NM_016357</a>	2.0
<b>EPB41L3</b>	erythrocyte membrane protein band 4.1-like 3	<a href="#">NM_012307</a>	2.0
SCG3	secretogranin III	<a href="#">NM_013243</a>	2.0
PNPLA4	patatin-like phospholipase domain containing 4	<a href="#">NM_004650</a>	2.0
<b>GPR155*</b>	G protein-coupled receptor 155	<a href="#">NM_152529</a>	2
GLA	galactosidase, alpha	<a href="#">NM_000169</a>	2.0
LGALS1	lectin, galactoside-binding, soluble, 1 (galectin 1)	<a href="#">NM_002305</a>	2.0
S100A10	S100 calcium binding protein A10	<a href="#">NM_002966</a>	2.0
CACNA2D1	calcium channel, voltage-dependent, alpha 2	<a href="#">NM_000722</a>	0.5
MT1X	metallothionein 1X	<a href="#">NM_005952</a>	0.5
MTERFD3	MTERF domain containing 3	<a href="#">NM_025198</a>	0.5
PFKFB4	6-phosphofructo-2-kinase	<a href="#">NM_004567</a>	0.5
PDLIM3	PDZ and LIM domain 3	<a href="#">NM_014476</a>	0.5
BDH1	3-hydroxybutyrate dehydrogenase, type 1	<a href="#">NM_203314</a>	0.5
RFC2	replication factor C (activator 1) 2, 40kDa	<a href="#">NM_181471</a>	0.5
HIST2H3D	G protein-coupled receptor, family C, group 5, member A	<a href="#">NM_003979</a>	0.5
GPRC5A	G protein-coupled receptor, family C, group 5, member A	<a href="#">NM_003979</a>	0.5
<b>RCBTB1</b>	regulator of chromosome condensation (RCC1) and BTB (POZ) domain containing protein 1	<a href="#">NM_018191</a>	0.5
LONRF1	LON peptidase N-terminal domain and ring finger 1	<a href="#">NM_152271</a>	0.5

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DPYD	dihydropyrimidine dehydrogenase	<a href="#">NM_000110</a>	0.5
COCH	coagulation factor C homolog, cochlin (Limulus polyphemus)	<a href="#">NM_004086</a>	0.5
HIST1H3I	histone cluster 1, H3i	<a href="#">NM_003533</a>	0.5
ULK4	unc-51-like kinase 4 (C. elegans)	<a href="#">BC014794</a>	0.5
PFKFB4	6-phosphofructo-2-kinase	<a href="#">NM_004567</a>	0.5
PLAT	plasminogen activator, tissue	<a href="#">NM_000931</a>	0.5
MND1	meiotic nuclear divisions 1 homolog (S. cerevisiae)	<a href="#">NM_032117</a>	0.5
ASCC3	activating signal cointegrator 1 complex subunit 3	<a href="#">NM_006828</a>	0.5
<b>NLGN1</b>	neuroligin 1	<a href="#">NM_014932</a>	0.5
SRD5A2L	steroid 5 alpha-reductase 2-like	<a href="#">NM_024592</a>	0.5
MBD3	methyl-CpG binding domain protein 3	<a href="#">NM_003926</a>	0.5
CDC45L	CDC45 cell division cycle 45-like (S. cerevisiae)	<a href="#">NM_003504</a>	0.5
<b>PALLD</b>	rystal, cytoskeletal associated protein	<a href="#">NM_016081</a>	0.5
HIST1H4B	histone cluster 1, H4b	<a href="#">NM_003544</a>	0.5
MT1A			0.5
<b>SEMA3C</b>	sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (rystalline) 3C	<a href="#">NM_006379</a>	0.5
SGCE	sarcoglycan, epsilon	<a href="#">NM_003919</a>	0.5
GAL	galanin	<a href="#">NM_015973</a>	0.5
CDT1	chromatin licensing and DNA replication factor 1	<a href="#">NM_030928</a>	0.5
TYR	tyrosinase (oculocutaneous albinism IA)	<a href="#">NM_000372.4</a>	0.5
MT2A	metallothionein 2A	<a href="#">NM_005953</a>	0.5
TLR6	toll-like receptor 6	<a href="#">NM_006068</a>	0.5
<b>IGSF9B</b>	immunoglobulin superfamily, member 9B	<a href="#">NM_014987.1</a>	0.5
HERC6	hect domain and RLD 6	<a href="#">NM_017912</a>	0.5
GSTZ1	glutathione transferase zeta 1 (maleylacetoacetate isomerase)	<a href="#">NM_145870</a>	0.5
AZGP1	alpha-2-glycoprotein 1, zinc-binding	<a href="#">NM_001185</a>	0.5
BTBD2	BTB (POZ) domain containing 2	<a href="#">NM_017797</a>	0.5
TMTC4	transmembrane and tetratricopeptide repeat containing 4	<a href="#">NM_032813</a>	0.5
<b>KLHL24</b>	kelch-like 24 (Drosophila)	<a href="#">NM_017644</a>	0.5
<b>POLE4</b>	polymerase (DNA-directed), epsilon 4 (p12 subunit)	<a href="#">NM_019896</a>	0.5
<b>NR4A2</b>	nuclear receptor subfamily 4, group A, member 2	<a href="#">NM_173173</a>	0.5

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TRIM4	tripartite motif-containing 4	<a href="#">NM_033017</a>	0.5
<b>BCL2L11</b>	BCL2-like 11 (apoptosis facilitator)	<a href="#">NM_138621</a>	0.5
<b>TNFRSF21</b>	tumor necrosis factor receptor superfamily, member 21	<a href="#">NM_014452</a>	0.5
TRMT11	tRNA methyltransferase 11 homolog ( <i>S. cerevisiae</i> )	<a href="#">NM_001031712</a>	0.5
POLRMT	polymerase (RNA) mitochondrial (DNA directed)	<a href="#">NM_005035</a>	0.5
<b>GABRA3</b>	gamma-aminobutyric acid (GABA) A receptor, alpha 3	<a href="#">NM_000808</a>	0.5
GALNT3	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 3 (GalNAc-T3)	<a href="#">NM_004482</a>	0.5
<b>ENTPD1</b>	ectonucleoside triphosphate diphosphohydrolase 1	<a href="#">NM_001776</a>	0.5
CCDC76	coiled-coil domain containing 76	<a href="#">NM_019083</a>	0.5
DAK	dihydroxyacetone kinase 2 homolog ( <i>S. cerevisiae</i> )	<a href="#">NM_015533</a>	0.5
<b>FHL2</b>	four and a half LIM domains 2	<a href="#">NM_201557</a>	0.5
<b>IGF1R</b>	insulin-like growth factor 1 receptor	<a href="#">NM_000875</a>	0.5
WIPF2	WAS	<a href="#">NM_133264</a>	0.5
<b>KIF5C</b>	kinesin family member 5C	<a href="#">NM_004522</a>	0.5
<b>XRRA1</b>	X-ray radiation resistance associated 1	<a href="#">BC064584</a>	0.5
MLL3	myeloid	<a href="#">NM_021230</a>	0.5
HIST1H3J	histone cluster 1, H3j	<a href="#">NM_003535</a>	0.5
<b>KIAA1024</b>	KIAA1024 protein	<a href="#">NM_015206</a>	0.5
UQCR	ubiquinol-cytochrome c reductase, 6.4kDa subunit	<a href="#">NM_006830</a>	0.5
<b>WASF1</b>	WAS protein family, member 1	<a href="#">NM_003931</a>	0.5
<b>SLC16A10</b>	solute carrier family 16, member 10 (aromatic amino acid transporter)	<a href="#">NM_018593</a>	0.5
DTNA	dystrobrevin, alpha	<a href="#">NM_001390</a>	0.5
CDCA5	cell division cycle associated 5	<a href="#">NM_080668</a>	0.5
JPH1	junctionophilin 1	<a href="#">NM_020647</a>	0.5
RP11-54H7.1	myosin heavy chain Myr 8	<a href="#">NM_015011</a>	0.5
LRRN1	leucine rich repeat neuronal 1	<a href="#">NM_020873</a>	0.5
ATP5D	ATP synthase, H <sup>+</sup> transporting, mitochondrial F1 complex, delta subunit	<a href="#">NM_001687</a>	0.5
CCDC28A	coiled-coil domain containing 28A	<a href="#">NM_015439</a>	0.5
<b>AKAP7</b>	A kinase (PRKA) anchor protein 7	<a href="#">NM_016377</a>	0.5
ODC1	ornithine decarboxylase 1	<a href="#">NM_002539</a>	0.5



Gene symbol	Gene name	Accession No.	Fold Change
<b>PDK4</b>	pyruvate dehydrogenase kinase, isozyme 4	<a href="#">NM_002612</a>	0.5
FOXO3A	forkhead box O3A	<a href="#">NM_001455</a>	0.5
HIST1H2AL	histone cluster 1, H2al	<a href="#">NM_003511</a>	0.5
CXCL1	chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)	<a href="#">NM_001511</a>	0.5
<b>TTLL7</b>	tubulin tyrosine ligase-like family, member 7	<a href="#">NM_024686</a>	0.5
<b>FOXD1</b>	forkhead box D1	<a href="#">NM_004472</a>	0.5
GEM	GTP binding protein overexpressed in skeletal muscle	<a href="#">NM_181702</a>	0.5
<b>SLCO3A1</b>	solute carrier organic anion transporter family, member 3A1	<a href="#">NM_013272</a>	0.5
FAM24B	family with sequence similarity 24, member B	<a href="#">NM_152644</a>	0.5
<b>MFAP2</b>	microfibrillar-associated protein 2	<a href="#">NM_002403</a>	0.5
<b>UST</b>	uronyl-2-sulfotransferase	<a href="#">NM_005715</a>	0.5
BSG	basigin (Ok blood group)	<a href="#">NM_001728</a>	0.5
<b>MMD</b>	monocyte to macrophage differentiation-associated	<a href="#">NM_012329</a>	0.5
<b>COL4A2</b>	collagen, type IV, alpha 2	<a href="#">NM_001846</a>	0.5
<b>CDC34</b>	cell division cycle 34 homolog (S. cerevisiae)	<a href="#">NM_004359</a>	0.5
MAL2	mal, T-cell differentiation protein 2	<a href="#">NM_052886</a>	0.5
CADPS2	Ca <sup>2+</sup> -dependent activator protein for secretion 2	<a href="#">NM_017954</a>	0.4
HIST1H4A	histone cluster 1, H4a	<a href="#">NM_003538</a>	0.4
PAGE2B	P antigen family, member 2B	<a href="#">NM_001015038</a>	0.4
GPR63	G protein-coupled receptor 63	<a href="#">NM_030784</a>	0.4
RLN2	relaxin 2	<a href="#">NM_005059</a>	0.4
PLEKHG4	pleckstrin homology domain containing, family G (with RhoGef domain) member 4	<a href="#">NM_015432</a>	0.4
ITGA7	integrin, alpha 7	<a href="#">NM_002206</a>	0.4
EFCAB4B	EF-hand calcium binding domain 4B	<a href="#">NM_032680</a>	0.4
POTE2	protein expressed in prostate, ovary, testis, and placenta 2	<a href="#">NM_001004054</a>	0.4
CPT1C	carnitine palmitoyltransferase 1C	<a href="#">NM_152359</a>	0.4
<b>NFE2L3</b>	nuclear factor (erythroid-derived 2)-like 3	<a href="#">NM_004289</a>	0.4
<b>SEMA6D</b>	sema domain, transmembrane domain, and cytoplasmic domain, (rystalline) 6D	<a href="#">NM_153618</a>	0.4
<b>ELOVL4</b>	elongation of very long chain fatty acids (FEN1)	<a href="#">NM_022726</a>	0.4
<b>IL8</b>	interleukin 8	<a href="#">NM_000584</a>	0.4

<b>Gene symbol</b>	<b>Gene name</b>	<b>Accession No.</b>	<b>Fold Change</b>
<b>ADM</b>	adrenomedullin	<a href="#">NM_001124</a>	0.4
<b>PTGS2</b>	prostaglandin-endoperoxide synthase 2 (prostaglandin G	<a href="#">NM_000963</a>	0.4
<b>ATP1B1</b>	ATPase, Na <sup>+</sup>	<a href="#">NM_001677</a>	0.4
AKR1CL2*	aldo-keto reductase family 1, member C-like 2	<a href="#">NM_001040177</a>	0.4
ASF1B	ASF1 anti-silencing function 1 homolog B ( <i>S. cerevisiae</i> )	<a href="#">NM_018154</a>	0.4
ACY1	aminoacylase 1	<a href="#">NM_000666</a>	0.4
<b>ADRBK2*</b>	adrenergic, beta, receptor kinase 2	<a href="#">NM_005160</a>	0.4
<b>MME</b>	membrane metallo-endopeptidase (neutral endopeptidase, enkephalinase)	<a href="#">NM_007288</a>	0.4
<b>TLE4</b>	transducin-like enhancer of split 4 ( <i>E(sp1)</i> homolog, <i>Drosophila</i> )	<a href="#">NM_007005</a>	0.4
HSPA2	heat shock 70kDa protein 2	<a href="#">NM_021979</a>	0.4
GNAO1	guanine nucleotide binding protein (G protein), alpha activating activity polypeptide O	<a href="#">NM_020988</a>	0.4
<b>TCF4*</b>	transcription factor 4	<a href="#">NM_003199</a>	0.4
SLFN11	schlafen family member 11	<a href="#">NM_152270</a>	0.4
EMB	embigin homolog (mouse)	<a href="#">NM_198449</a>	0.4
ACOXL	acyl-Coenzyme A oxidase-like	<a href="#">NM_018308</a>	0.4
CENPH	centromere protein H	<a href="#">NM_022909</a>	0.4
PPAP2C	phosphatidic acid phosphatase type 2C	<a href="#">NM_177543</a>	0.4
HIST2H2AB	histone cluster 2, H2ab	<a href="#">NM_175065</a>	0.4
<b>SMAD1</b>	SMAD family member 1	<a href="#">NM_001003688</a>	0.4
SEZ6L2	seizure related 6 homolog (mouse)-like 2	<a href="#">NM_012410</a>	0.4
BEX1	brain expressed, X-linked 1	<a href="#">NM_018476</a>	0.4
<b>MIDN</b>	midnolin	<a href="#">NM_177401</a>	0.4
<b>KIAA0101*</b>	Homo sapiens KIAA0101 (KIAA0101), transcript variant 1	<a href="#">NM_014736</a>	0.4
MUM1	melanoma associated antigen (mutated) 1	<a href="#">NM_032853</a>	0.4
<b>DUSP16</b>	dual specificity phosphatase 16	<a href="#">NM_030640</a>	0.4
JARID1D	jumonji, AT rich interactive domain 1D	<a href="#">NM_004653</a>	0.4
<b>HOOK1</b>	hook homolog 1 ( <i>Drosophila</i> )	<a href="#">NM_015888</a>	0.4
STARD10	START domain containing 10	<a href="#">NM_006645</a>	0.4
FANCD2*	Fanconi anemia, complementation group D2	<a href="#">NM_033084</a>	0.4
CLDN11*	claudin 11 (oligodendrocyte transmembrane protein)	<a href="#">NM_005602</a>	0.4
<b>CDC7</b>	cell division cycle 7 homolog ( <i>S. cerevisiae</i> )	<a href="#">NM_003503</a>	0.4
<b>RORB</b>	RAR-related orphan receptor B	<a href="#">NM_006914</a>	0.4

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ORC4L	origin recognition complex, subunit 4-like (yeast)	<a href="#">NM_002552</a>	0.4
GPRC5B	G protein-coupled receptor, family C, group 5, member B	<a href="#">NM_016235</a>	0.4
HIST1H1A	histone cluster 1, H1a	<a href="#">NM_005325</a>	0.4
ISG20	interferon stimulated exonuclease gene 20kDa	<a href="#">NM_002201</a>	0.4
GUSB*	glucuronidase, beta	<a href="#">NM_000181</a>	0.4
<b>ALCAM</b>	activated leukocyte cell adhesion molecule	<a href="#">NM_001627</a>	0.4
ALDH1A3	aldehyde dehydrogenase 1 family, member A3	<a href="#">NM_000693</a>	0.4
MAGEC1	melanoma antigen family C, 1	<a href="#">NM_005462</a>	0.4
<b>ITGA3</b>	integrin, alpha 3 (antigen CD49C, alpha 3 subunit of VLA-3 receptor)	<a href="#">NM_002204</a>	0.4
EVI1	ecotropic viral integration site 1	<a href="#">NM_005241</a>	0.4
<b>CREB5</b>	cAMP responsive element binding protein 5	<a href="#">NM_182899</a>	0.4
SPATA13	spermatogenesis associated 13	<a href="#">NM_153023</a>	0.4
<b>SORBS2</b>	sorbin and SH3 domain containing 2	<a href="#">NM_003603</a>	0.4
<b>KIAA1244</b>	KIAA1244	<a href="#">NM_020340</a>	0.4
PAEP	progestagen-associated endometrial protein (placental protein 14, pregnancy-associated endometrial alpha-2-globulin, alpha uterine protein)	<a href="#">NM_001018049</a>	0.4
RBMX*	RNA binding motif protein, X-linked	<a href="#">NM_002139</a>	0.4
ZNF35	zinc finger protein 35	<a href="#">NM_003420</a>	0.4
<b>EGR3</b>	early growth response 3	<a href="#">NM_004430</a>	0.4
AMIGO2	adhesion molecule with Ig-like domain 2	<a href="#">NM_181847</a>	0.4
<b>KLF15</b>	Kruppel-like factor 15	<a href="#">NM_014079</a>	0.4
<b>CDC42EP3</b>	CDC42 effector protein (Rho GTPase binding) 3	<a href="#">NM_006449</a>	0.4
<b>PTPRU</b>	protein tyrosine phosphatase, receptor type, U	<a href="#">NM_133178</a>	0.4
HIST1H3B	histone cluster 1, H3b	<a href="#">NM_003537</a>	0.4
<b>DDX3Y</b>	DEAD (Asp-Glu-Ala-Asp) box polypeptide 3, Y-linked	<a href="#">NM_004660</a>	0.4
GRIN2B	glutamate receptor, ionotropic, N-methyl D-aspartate 2B	<a href="#">NM_000834</a>	0.4
<b>BAI3</b>	brain-specific angiogenesis inhibitor 3	<a href="#">NM_001704</a>	0.4
<b>FZD7</b>	frizzled homolog 7 (Drosophila)	<a href="#">NM_003507</a>	0.4
<b>PLEKHH1</b>	pleckstrin homology domain containing, family H (with MyTH4 domain) member 1	<a href="#">NM_020715</a>	0.4

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MCM2	MCM2 minichromosome maintenance deficient 2, mitotin (S. cerevisiae)	<a href="#">NM_004526</a>	0.4
<b>ABLIM1</b>	actin binding LIM protein 1	<a href="#">NM_001003408</a>	0.4
<b>NT5E</b>	5'-nucleotidase, ecto (CD73)	<a href="#">NM_002526</a>	0.4
<b>GLI3</b>	GLI-Kruppel family member GLI3 (Greig cephalopolysyndactyly syndrome)	<a href="#">NM_000168</a>	0.4
<b>BIN3</b>	bridging integrator 3	<a href="#">NM_018688</a>	0.4
CTCFL	CCCTC-binding factor (zinc finger protein)-like	<a href="#">NM_080618</a>	0.4
<b>COL6A3</b>	collagen, type VI, alpha 3	<a href="#">NM_057164</a>	0.4
GPR98	G protein-coupled receptor 98	<a href="#">NM_032119</a>	0.4
<b>STK11</b>	serine	<a href="#">NM_000455</a>	0.4
TMEPAI	transmembrane, prostate androgen induced RNA	<a href="#">NM_020182</a>	0.4
<b>IL6R</b>	interleukin 6 receptor	<a href="#">NM_000565</a>	0.4
<b>HHIP</b>	hedgehog interacting protein	<a href="#">NM_022475</a>	0.4
TRPM1	transient receptor potential cation channel, subfamily M, member 1	<a href="#">NM_002420</a>	0.4
HLA-DPA1	major histocompatibility complex, class II, DP alpha 1	<a href="#">NM_033554</a>	0.4
<b>PDE8B</b>	phosphodiesterase 8B	<a href="#">NM_001029853</a>	0.4
TM6SF1	transmembrane 6 superfamily member 1	<a href="#">NM_023003</a>	0.3
<b>ACVR2A</b>	activin A receptor, type IIA	<a href="#">NM_001616</a>	0.3
SLFN5	schlafen family member 5	<a href="#">NM_144975</a>	0.3
HIST1H4F	histone cluster 1, H4f	<a href="#">NM_003540</a>	0.3
CRYZ	rystalline, zeta (rystal reductase)	<a href="#">NM_001889</a>	0.3
<b>NR4A3</b>	nuclear receptor subfamily 4, group A, member 3	<a href="#">NM_173200</a>	0.3
<b>FAM129A</b>	family with sequence similarity 129, member A	<a href="#">NM_052966</a>	0.3
<b>HOXA7</b>	homeobox A7	<a href="#">NM_006896</a>	0.3
PARM1	Homo sapiens prostate androgen-regulated mucin-like protein 1	<a href="#">NM_015393</a>	0.3
<b>NKD1</b>	naked cuticle homolog 1 (Drosophila)	<a href="#">NM_033119</a>	0.3
CCDC109B	coiled-coil domain containing 109B	<a href="#">NM_017918</a>	0.3
KIAA0274	KIAA0274	<a href="#">NM_014845</a>	0.3
SLC27A2	solute carrier family 27 (fatty acid transporter), member 2	<a href="#">NM_003645</a>	0.3
BEST1	bestrophin 1	<a href="#">NM_004183</a>	0.3
RPS4Y1	ribosomal protein S4, Y-linked 1	<a href="#">NM_001008</a>	0.3
<b>CRIM1</b>	cysteine rich transmembrane BMP regulator 1 (chordin-like)	<a href="#">NM_016441</a>	0.3

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<b>CYBASC3</b>	cytochrome b, ascorbate dependent 3	<a href="#">NM_153611</a>	0.3
<b>TSPAN5</b>	tetraspanin 5	<a href="#">NM_005723</a>	0.3
<b>RARB</b>	retinoic acid receptor, beta	<a href="#">NM_000965</a>	0.3
KIAA1324L	KIAA1324-like	<a href="#">NM_152748</a>	0.3
<b>MET</b>	met proto-oncogene (hepatocyte growth factor receptor)	<a href="#">NM_000245</a>	0.3
<b>TRPS1</b>	trichorhinophalangeal syndrome I	<a href="#">NM_014112</a>	0.3
ADD2	rystall 2 (beta)	<a href="#">NM_001617</a>	0.3
<b>CTNND2</b>	catenin (cadherin-associated protein), delta 2 (neural plakophilin-related arm-repeat protein)	<a href="#">NM_001332</a>	0.3
GPHN	gephyrin	<a href="#">NM_020806</a>	0.3
SNORD49B	small nucleolar RNA, C	<a href="#">NR_003043</a>	0.3
<b>NFIB</b>	nuclear factor I	<a href="#">NM_005596</a>	0.3
<b>HIPK2</b>	homeodomain interacting protein kinase 2	<a href="#">NM_022740</a>	0.3
<b>ULK2</b>	unc-51-like kinase 2 (C. elegans)	<a href="#">NM_014683</a>	0.3
HIST1H2AB	histone cluster 1, H2ab	<a href="#">NM_003513</a>	0.3
PHF11	PHD finger protein 11	<a href="#">NM_001040444</a>	0.3
ACTBL1	actin, beta-like 1	<a href="#">NM_001004053</a>	0.3
LTBP1	latent transforming growth factor beta binding protein 1	<a href="#">NM_206943</a>	0.3
<b>UCN2</b>	urocortin 2	<a href="#">NM_033199</a>	0.3
<b>GPR126</b>	G protein-coupled receptor 126	<a href="#">NM_020455</a>	0.3
HIST1H2AJ	histone cluster 1, H2aj	<a href="#">NM_021066</a>	0.3
ZFX	zinc finger protein, X-linked	<a href="#">NM_003410</a>	0.3
<b>SEMA5A</b>	sema domain, seven thrombospondin repeats transmembrane domain <sup>TM</sup> and short cytoplasmic domain, (rystalline) 5A	<a href="#">NM_003966</a>	0.3
ST6GALNAC2	ST6 (alpha-N-acetyl-neuraminy-2,3-beta-galactosyl-1,3)-N-acetylgalactosaminide alpha-2,6-sialyltransferase 2	<a href="#">NM_006456</a>	0.3
PDZRN3	PDZ domain containing RING finger 3	<a href="#">NM_015009</a>	0.3
<b>HEY2</b>	hairy	<a href="#">NM_012259</a>	0.3
EIF1AY	eukaryotic translation initiation factor 1A, Y-linked	<a href="#">NM_004681</a>	0.3
<b>USP7</b>	ubiquitin specific peptidase 7 (herpes virus-associated)	<a href="#">NM_003470</a>	0.3
CD33	CD33 molecule	<a href="#">NM_001772</a>	0.3
<b>ZNF711</b>	zinc finger protein 711	<a href="#">NM_021998</a>	0.3
<b>DDAH1</b>	dimethylarginine dimethylaminohydrolase 1	<a href="#">NM_012137</a>	0.3
OCLN	occludin	<a href="#">NM_002538</a>	0.3

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GABRA5	gamma-aminobutyric acid (GABA) A receptor, alpha 5	<a href="#">NM_000810</a>	0.3
ALDOC	aldolase C, fructose-bisphosphate	<a href="#">NM_005165</a>	0.3
<b>SLC27A3</b>	solute carrier family 27 (fatty acid transporter), member 3	<a href="#">NM_024330</a>	0.3
<b>EMP1</b>	epithelial membrane protein 1	<a href="#">NM_001423</a>	0.3
CNDP1	carnosine dipeptidase 1 (metallopeptidase M20 family)	<a href="#">NM_032649</a>	0.3
NETO2	neuropilin (NRP) and tolloid (TLL)-like 2	<a href="#">NM_018092</a>	0.3
SNORD13	small nucleolar RNA, C	<a href="#">NR_003041</a>	0.3
GPR56	G protein-coupled receptor 56	<a href="#">NM_201525</a>	0.3
<b>STARD13</b>	START domain containing 13	<a href="#">NM_178007</a>	0.3
<b>LGALS8</b>	lectin, galactoside-binding, soluble, 8 (galectin 8)	<a href="#">NM_006499</a>	0.3
RP6-213H19.1	serine	<a href="#">NM_001042452</a>	0.3
NLRP2	NLR family, pyrin domain containing 2	<a href="#">NM_017852</a>	0.3
<b>LIFR</b>	leukemia inhibitory factor receptor alpha	<a href="#">NM_002310</a>	0.3
MATN2	matrilin 2	<a href="#">NM_002380</a>	0.3
SERPINB6	serpin peptidase inhibitor, clade B (ovalbumin), member 6	<a href="#">NM_004568</a>	0.2
ACSL5	acyl-CoA synthetase long-chain family member 5	<a href="#">NM_203380</a>	0.2
<b>SATB1</b>	special AT-rich sequence binding protein 1 (binds to nuclear matrix)	<a href="#">NM_002971</a>	0.2
ULBP1	UL16 binding protein 1	<a href="#">NM_025218</a>	0.2
PAGE5	P antigen family, member 5 (prostate associated)	<a href="#">NM_130467</a>	0.2
FADS2	fatty acid desaturase 2	<a href="#">NM_004265</a>	0.2
ZNF620	zinc finger protein 620	<a href="#">NM_175888</a>	0.2
<b>CIRBP</b>	cold inducible RNA binding protein	<a href="#">NM_001280</a>	0.2
SPP1	secreted phosphoprotein 1 (osteopontin, bone sialoprotein I, early T-lymphocyte activation 1)	<a href="#">NM_001040060</a>	0.2
PASD1	PAS domain containing 1	<a href="#">NM_173493</a>	0.2
<b>SOCS3</b>	suppressor of cytokine signaling 3	<a href="#">NM_003955</a>	0.2
<b>PLCB1</b>	phospholipase C, beta 1 (phosphoinositide-specific)	<a href="#">NM_182734</a>	0.2
<b>PPARGC1A</b>	peroxisome proliferator-activated receptor gamma, coactivator 1 alpha	<a href="#">NM_013261</a>	0.2
<b>NAP1L5</b>	nucleosome assembly protein 1-like 5	<a href="#">NM_153757</a>	0.2

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PRR6	rystal rich 6	<a href="#">NM_181716</a>	0.2
<b>UTY*</b>	ubiquitously transcribed tetratricopeptide repeat gene, Y-linked	<a href="#">NM_182659</a>	0.2
MAN1A1	mannosidase, alpha, class 1A, member 1	<a href="#">NM_005907</a>	0.2
TSPAN12	tetraspanin 12	<a href="#">NM_012338</a>	0.2
<b>SH3BGR2</b>	SH3 domain binding glutamic acid-rich protein like 2	<a href="#">NM_031469</a>	0.2
NCAM2	neural cell adhesion molecule 2	<a href="#">NM_004540</a>	0.2
P2RY5	purinergic receptor P2Y, G-protein coupled, 5	<a href="#">NM_005767</a>	0.2
HIST1H3A	histone cluster 1, H3a	<a href="#">NM_003529</a>	0.2
<b>SERPINA3</b>	serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 3	<a href="#">NM_001085</a>	0.2
KCNH1	potassium voltage-gated channel, subfamily H (eag-related), member 1	<a href="#">NM_172362</a>	0.2
PFTK1	PFTAIRE protein kinase 1	<a href="#">NM_012395</a>	0.2
TMEM163	transmembrane protein 163	<a href="#">NM_030923.4</a>	0.2
ABCB4	ATP-binding cassette, sub-family B (MDR	<a href="#">NM_018849</a>	0.2
<b>ADCY2</b>	adenylate cyclase 2 (brain)	<a href="#">NM_020546</a>	0.2
TMEM46	transmembrane protein 46	<a href="#">NM_001007538</a>	0.2
MAGEA6	melanoma antigen family A, 6	<a href="#">NM_005363</a>	0.2
TF	transferrin	<a href="#">NM_001063</a>	0.2
<b>MEST</b>	mesoderm specific transcript homolog (mouse)	<a href="#">NM_177524</a>	0.2
<b>SLCO5A1</b>	solute carrier organic anion transporter family, member 5A1	<a href="#">NM_030958</a>	0.2
SDCCAG10	serologically defined colon cancer antigen 10	<a href="#">NM_005869</a>	0.2
<b>CCND2</b>	cyclin D2	<a href="#">NM_001759</a>	0.2
CRYAB	rystalline, alpha B	<a href="#">NM_001885</a>	0.2
<b>FSTL5</b>	follistatin-like 5	<a href="#">NM_020116</a>	0.2
TSPY2	testis specific protein, Y-linked 2	<a href="#">NM_022573</a>	0.2
PSMD5	proteasome (prosome, macropain) 26S subunit, non-ATPase, 5	<a href="#">NM_005047</a>	0.1
<b>JAG1</b>	jagged 1 (Alagille syndrome)	<a href="#">NM_000214</a>	0.1
<b>NLGN4X</b>	neuroligin 4, X-linked	<a href="#">NM_181332</a>	0.1
TSPY1	testis specific protein, Y-linked 1	<a href="#">NM_003308</a>	0.1
<b>THBS1</b>	thrombospondin 1	<a href="#">NM_003246</a>	0.1
ABCB5	ATP-binding cassette, sub-family B (MDR	<a href="#">NM_178559</a>	0.1
HIST1H2BM	histone cluster 1, H2bm	<a href="#">NM_003521</a>	0.1
PNLDC1	poly(A)-specific ribonuclease (PARN)-like domain containing 1	<a href="#">NM_173516</a>	0.1

<b>Gene symbol</b>	<b>Gene name</b>	<b>Accession No.</b>	<b>Fold Change</b>
ABCB1	ATP-binding cassette, sub-family B (MDR	<a href="#">NM_000927</a>	0.1
MOXD1	monooxygenase, DBH-like 1	<a href="#">NM_001031699</a>	0.04



**Supplemental Table 2.** Expression and function of ADAR1 regulated genes

Gene symbol	Gene name	Accession No.	Fold change		Function	Canonical pathways	reference
			Microarray	qRT-PCR			
<b>ITGB3</b>	integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)	NM_000212	4.6	7.2±0.7	Integral cell surface protein, key player in tumor proliferation, survival and metastasis. Correlates with disease progression in various tumor types	PI3K/AKT, P53, NF-κB, MAPK, FAK, TGFB, VEGF	(1, 2)
<b>VAV2</b>	vav 2 guanine nucleotide exchange factor	NM_003371	3.7	7.7±0.4	Involved in the remodeling of the actin cytoskeleton, which is critical for cell division, growth, proliferation, adhesion and locomotion.	Rac, Ras Jak/Rho, MAPK and PI3K/Akt	(3-5)
<b>SOX2</b>	SRY (sex determining region Y)-box 2	NM_003106	3.6	10.3±0.7	HMG box containing transcription factor, associated with cell "stemness" phenotype, increase proliferation and tumorigenicity.	TGFB	(6-8)
<b>PAX6</b>	paired box gene 6	NM_001604	3.1	2.5±0.3	Transcription Factor. Overexpressed in various cell types, required for cancer cells growth and survival.	embryonic development (regulation of visual system development)	(9-11)
<b>CD44</b>	CD44 molecule (Indian blood group)	NM_000610	4.2	7.3±0.3	Cell surface protein, promotes proliferation, migration, invasion, angiogenesis and correlates with poor survival.	PI3K/AKT, Ras, ERK	(12, 13)
<b>IGFBP2</b>	insulin-like growth factor binding protein 2, 36kDa	NM_000597	4.1	5.1±0.2	IGF-independent effects on cellular proliferation, apoptosis, and mobility	p38-MAPK , ERK1/2, SAPK/JNK and PI3K/Akt	(14-16)

<b>SOCS3</b>	suppressor of cytokine signaling 3	NM_003955	-4.4	-4.1±0.01	Reduce proliferation, mainly, by downregulate JAK/STAT signaling pathways.	JAK/STAT, ERK, FAK and p53	(17, 18)
<b>CCND2</b>	cyclin D2	NM_001759	-2.4	-2.7±0.02	Key role in the progression of Cell cycle. Interact and construct complexes with CDK4 or 6. Often silenced epigenetically in various tumors. Has inhibitory potential on proliferative ability and induced cell death in a CDK-independent manner.	PI3K/AKT, Wnt, cell cycle, GSK3, NF-κB.	(19-21)
<b>BCL2L11</b>	BCL2-like 11 (apoptosis facilitator)	NM_138621	-3.1	-3.6±0.02	A member of the Bcl protein family. Essential initiator of apoptosis, and act as tumor suppressor.	NOTCH, FasL, AKT, MAPK/ERK, EGFR	(22-24)
<b>SMAD1</b>	SMAD family member 1	NM_001003688	-5.9	-6.1±0.004	Signal transducer and transcriptional modulator . The SMAD-BMP signaling cascade regulate cell differentiation, proliferation, and apoptosis.	SMAD/BMP	(25-27)

**Supplemental Table 3.** miRNAs expression profile

miR	Fold-Change	Function	reference
<b>hsa-miR-29a</b>	-62.4	TS	(28, 29)
hsa-miR-509-3p	-43.8		
<b>hsa-miR-503</b>	-19.3	TS	(30, 31)
hsa-miR-509-3-5p	-15.2		
hsa-miR-330-3p	-13.3	TS	(32)
<b>hsa-miR-138</b>	-10.6	TS	(33, 34)
<b>hsa-miR-744</b>	-9.4	BOTH	(35, 36)
<b>hsa-let-7e</b>	-8.8	TS	(37)
hsa-miR-193a-5p	-8.4	TS	(38)
hsa-miR-324-5p	-8.2	TS	(39)
hsa-miR-886-3p	-8.1	OG	(40)
<b>hsa-miR-99b</b>	-7.8	BOTH	(41-43)
hsa-miR-652	-6.9	OG	(44)
<b>hsa-miR-378</b>	-5.9	OG	(45)
<b>hsa-miR-125b</b>	-5.8	TS	(46, 47)
<b>hsa-miR-193b</b>	-5.8	TS	(48, 49)
hsa-miR-324-3p	-5.6		
<b>hsa-let-7d</b>	-5.4	TS	(50, 51)
hsa-miR-1307	-5.0		
hsa-miR-455-3p	-4.9	OG	(52, 53)
hsa-miR-502-3p	-4.8		
hsa-miR-1249	-4.7		
hsa-miR-151-3p	-4.2	BOTH	(54, 55)
<b>hsa-miR-411</b>	-4.2		
hsa-miR-125a-5p	-4.0	TS	(56, 57)
<b>hsa-miR-1301</b>	-3.9		
<b>hsa-miR-609</b>	-3.8		
<b>hsa-miR-320c</b>	-3.8	TS	(58)
<b>hsa-miR-320a</b>	-3.7	TS	(58)
<b>hsa-miR-30d</b>	-3.6	BOTH	
<b>hsa-miR-1253</b>	-3.5		
<b>hsa-miR-320b</b>	-3.5	TS	(58)
hsa-miR-508-5p	-3.4		
<b>hsa-miR-877</b>	-3.4		
<b>hsa-miR-15a</b>	-3.4	TS	(59, 60)
<b>hsa-miR-766</b>	-3.2		
<b>hsa-miR-220a</b>	-3.2		
<b>hsa-miR-1275</b>	-3.2		
<b>hsa-miR-1248</b>	-3.1		
<b>hsa-miR-29b</b>	-3.1	TS	(28, 61)
<b>hsa-miR-892b</b>	-3.1		
<b>hsa-miR-1260</b>	-3.0		
<b>hsa-miR-377</b>	-2.9		
<b>hsa-miR-940</b>	-2.9		
<b>hsa-miR-130b</b>	-2.9	OG	
<b>hsa-miR-320d</b>	-2.8	TS	(58)
hsa-miR-542-5p	-2.7	TS	(62, 63)

miR	Fold-Change	Function	reference
hsa-miR-767-3p	-2.7		
hsa-miR-512-5p	-2.7	TS	(64)
hsa-miR-628-3p	-2.7	TS	(65)
<b>hsa-miR-30a</b>	-2.7	TS	(66, 67)
hsa-miR-671-5p	-2.6		
<b>hsa-miR-563</b>	-2.5		
<b>hsa-miR-659</b>	-2.5		
<b>hsa-miR-939</b>	-2.5		
<b>hsa-miR-1271</b>	-2.4		
hsa-miR-34c-3p	-2.4	TS	(68, 69)
hsa-miR-509-5p	-2.4		
<b>hsa-miR-185</b>	-2.4	TS	(70, 71)
hsa-miR-933	-2.4		
<b>hsa-miR-211</b>	-2.3	TS	(72, 73)
hsa-miR-491-5p	-2.3	TS	(74)
hsa-miR-941	-2.3		
<b>hsa-miR-346</b>	-2.3	OG	(75)
<b>hsa-miR-1280</b>	-2.3		
<b>hsa-miR-668</b>	-2.3		
hsa-miR-720	-2.2		
<b>hsa-miR-1202</b>	-2.2		
hsa-miR-331-3p	-2.2	TS	(76)
<b>hsa-let-7a</b>	-2.2	TS	(77, 78)
<b>hsa-miR-34a</b>	-2.2	TS	(79, 80)
hsa-miR-532-3p	-2.2		
<b>hsa-miR-22</b>	-2.2	TS	(81, 82)
<b>hsa-miR-559</b>	-2.1	TS	(83)
hsa-miR-768-5p	-2.1		
<b>hsa-miR-758</b>	-2.1		
<b>hsa-miR-1269</b>	-2.1		
hsa-miR-125a-3p	-2.1	TS	(84)
<b>hsa-miR-489</b>	-2.1	TS	(85)
<b>hsa-miR-1296</b>	-2.1	TS	(86)
hsa-miR-191	-2.1	BOTH	(87-89)
<b>hsa-miR-938</b>	-2.0	TS	(90)
<b>hsa-miR-663</b>	-2.0	TS	(91)
<b>hsa-miR-1227</b>	-2.0		
<b>hsa-miR-874</b>	-2.0	TS	(92)
hsa-miR-423-3p	2.0	OG	(93)
hsa-miR-219-5p	2.0	TS	(94)
<b>hsa-miR-92a</b>	2.0	OG	(95, 96)
<b>hsa-miR-548i</b>	2.0		
<b>hsa-miR-526b</b>	2.0		
<b>hsa-miR-422a</b>	2.0		
hsa-miR-574-3p	2.1	OG	(97)
<b>hsa-miR-106b</b>	2.1	OG	(98, 99)
<b>hsa-miR-214</b>	2.1	OG	(100, 101)
hsa-miR-485-3p	2.2		
<b>hsa-miR-1256</b>	2.2		

miR	Fold-Change	Function	reference
<b>hsa-miR-1184</b>	2.2		
<b>hsa-miR-613</b>	2.2		
hsa-miR-576-5p	2.3		
hsa-miR-1292	2.3		
hsa-miR-188-5p	2.4		
hsa-miR-523	2.4		
hsa-miR-28-3p	2.5	OG	(102, 103)
<b>hsa-miR-92b</b>	2.5	OG	(95)
hsa-miR-885-5p	2.6	BOTH	(97, 104)
hsa-miR-887	2.7		
<b>hsa-miR-494</b>	2.7	OG	(54, 105)
hsa-miR-361-5p	3.2		
<b>hsa-miR-181a</b>	3.3	TS	(106, 107)
<b>hsa-miR-221</b>	3.3	OG	(108, 109)
<b>hsa-miR-425</b>	3.4		
<b>hsa-miR-500</b>	3.6	OG	(110)
<b>hsa-miR-149</b>	3.8	TS	(111)
<b>hsa-miR-130a</b>	3.9	OG	(112, 113)
<b>hsa-miR-1231</b>	4.6		
hsa-miR-768-3p	5.1	BOTH	(114)
<b>hsa-miR-132</b>	5.8	OG	(94, 115)
<b>hsa-miR-345</b>	5.9	OG	(116)
<b>hsa-miR-27a</b>	7.0	OG	(117, 118)
hsa-miR-151-5p	7.2	OG	(119, 120)
<b>hsa-miR-1826</b>	9.3		
<b>hsa-miR-100</b>	9.7	TS	(121, 122)
<b>hsa-miR-25</b>	10.5	OG	(98, 102)
<b>hsa-miR-222</b>	10.8	OG	(123, 124)
<b>hsa-miR-181b</b>	12.5	OG	(125, 126)
<b>hsa-miR-20a</b>	19.0	OG	(127, 128)
<b>hsa-miR-21</b>	20.0	OG	(129, 130)
<b>hsa-miR-19b</b>	22.2	OG	(131)
hsa-miR-146a	36.1	OG	(132, 133)
<b>hsa-miR-26a</b>	36.3	TS	(134, 135)
hsa-miR-886-5p	61.5	TS	(136)

## Supplemental Table 4. Primers and Probes

### Real-Time primers

primer	Sequence 5'→3'
BCL2L11 Fwd	5' CTATCTCAGTGCAATGGCTTCCA
BCL2L11 Rev	5' GGCGATCCATATCTCTGGGC
CCND2 Fwd	5' ACCAACACAGACGTGGATTGTC
CCND2 Rev	5' GCTGCAGGCTATTGAGGAGC
CD44 Fwd	5' GACAGAATCCCTGCTACCAATATGG
CD44 Rev	5' CTGTGTTTGGATTTGCAGTAGGCT
IGFBP2 Fwd	5' CTACTIONCCTGCACATCCCCAA
IGFBP2 Rev	5' TTCAGAGACATCTTGCACTGTTTGAG
ITGB3 Fwd	5' AAACCCCTGCTATGATATGAAGACC
ITGB3 Rev	5' TTCAGAGACATCTTGCACTGTTTGAG
PAX6 Fwd	5' CCACCACACCGGTTTCCTC
PAX6 Rev	5' GGTGTTTGTGAGGGCTGTGTCT
SMAD1 Fwd	5' CGATGGACACAAACATGATGG
SMAD1 Rev	5' GCAACCGCCTGAACATCTCCT
SOCS3 Fwd	5' TCGATTCCGGACCAGCC
SOCS3 Rev	5' GAGCCAGCGTGGATCTGC
VAV2 Fwd	5' GCGAGACTTTGGAAAGGTCATCT
VAV2 Rev	5' TCCCTTTGTTCTGCGCGAT
SOX2 Fwd	5' GCTAGTCTCCAAGCGACGAA
SOX2 Rev	5' GCAAGAAGCCTCTCCTTGAA
S100B Fwd	5' TAGAGGAAATCAAAGAGCAGGAGG
S100B Rev	5' TTCGCCGTCTCCATCATTG
GAPDH F	5'TGCACCACCAACTGCTTAGC
GAPDH R	5' GGCATGGACTGTGGTCATGAG
ADAR1 F	5' ACAGCCAAAGACACTCCCTCTC
ADAR1 R	5' GGCTCAGCATGGCTATCTGG
ZSL_HIS_F	5' CAGCTGCAATCCCTGAGAC
ZSL_HIS_R	5' GGTGATGGTGTGATGACAGGTG
DSSL_His_F	5' GCTCTCCGTGTCTTGATTGGG
DSSL_His_R	5' TGGTGTGGTGTGATGCACTG
Dicer Fwd	5' GCCATTGGACACATCAATAGATACTG
Dicer Rev	5' GTTTCTGCATTTAGGAGCTAGATGA
Drosha Fwd	5' CTGTGGGAAAGGACCAAGTATTCAG
Drosha Rev	5' ATGAACCGCTTCTGATGGGC
DGCR8 Fwd	5' CAAGATGGTCAAGCAGGAGACAT
DGCR8 Rev	5' TGTGCAGGTTGGGCTTGTTTC
HPRT F	5' TGACACTGGCAAAACAATGCA
HPRT R	5' GGTCTTTTTACCAGCAAGCT
pri-miR-34a F	5' GGCCAGCTGTGAGTGTCTTCT
pri-miR-34a R	5' CAAGAGGGAAGATGAAGCGAG
pre-miR-34a	5' GCAGTGTCTTAGCTGGTTGTTGTG
pre-miR-34a	5' GCAGCACTTCTAGGGCAGTATACTTG
Pri-miR-21 F	5' TTTTGTGTTTGGCTTGGGAGGA
pri-miR-21 R	5' AGCAGACAGTCAGGCAGGAT
pre-miR-21	5' TGTCCGGTAGCTTATCAGAC
pre-miR-21	5' TGTCCAGACAGCCCATCGACT
ADAR1 CAT F	5' GTGACTACGAGACGGCCAA
ADAR1 CAT R	5' GGTGATGATGTACTIONGGGCAG

## Cloning primers

primer	Sequence 5'→3'
ADAR1-P150 F	5'CGGGCAATGCCTCGC
ADAR1-P150 R	5' AATGGATGGGTGTAGTATCCGC
ADAR1-P110 F	5' GGCAGCCTCCGGGTG
ADAR1-P110 R	5' CTGTCTGTGCTCATAGCCTTGA
ADAR1-L Fwd	5' GCTAAGCTTGCCGCCACCATGAATCCGCGGCAGGGGTATTC
ADAR1-L Rev	5' GCTCTCGAGCTATACTGGGCAGAGATAAAAAGTTCTTTTCCTCC
ADAR1-S Fwd	5' GCTAAGCTTGCCGCCACCATG GCCGAGATCAAGGAGAAAATCTGC
ADAR1-S Rev	5' GCTCTCGAGCTATACTGGGCAGAGATAAAAAGTTCTTTTCCTCC
ADAR1-L Res F	5' GGAGAAAATCTGTGATTACCTCTTCAATGTGTC
ADAR1-L Res R	5' GACACATTGAAGAGGTAATCACAGATTTTCTCC
ADAR1-S Res F	5' GCTAAGCTTGCCGCCACC ATGGCCGAGATCAAGGAGAAAATCTGTGATTACCTCTTC
ADAR1 UTR 17 F	5' GCTCTCGAGCTACTTCCCCTCTTTCCCTTCT
ADAR1 UTR 17 R	5' GTACGCGGCCGCAAACCTCTGCTATTGCTTGAGC
SDM miR17 F	5' CCATCCTGTAATGTAGCCAGC
SDM miR17 R	5' GCTGGCTACATTACAGGATGG
miR-17 Fwd	5' GTACGCGGCCGCGCTGAATTTGTATGGTTTATAGTTGTTA
miR-17 Rev	5' GTGAATTCGCACCTTAGAACAAAAAGCACT
ADAR1 UTR 432 F	5' GCTCTCGAGGGTTGTCTTCAAACCTCTGTGAGG
ADAR1 UTR 432 R	5' GTACGCGGCCGCAAAGTCACTGTTATCAAGGGACACAT
SDM miR432-A F	5'-TTAGAGTGTGGTTCATGACGCTACGAGCAGAGCAGGGAAGAGC
SDM miR432-A R	5'-GCTCTTCCCTGCTCTGCTCGTAGCGTCATGACCAACACTCTAA
SDM miR432-B F	5'-TTGGAGTCTTGGTTGTGACGCTACGAGCAGAGTGAGGAAGACC
SDM miR432-B R	5'-GGTCTTCTCACTCTGCTCGTAGCGTCACAACCAAGACTCCAA
miR-432 Fwd	5' GTACGCGGCCGCTGACTGATGCTTCTTTTCATCC
miR-432 Rev	5' GTGAATTCATAAGAATCCATCATCAAAACAA
ADAR1-L DOM F	5' GCTAAGCTTGCCGCCACCATGAATCCGCGGCAGGGGTAT
ADAR1-S DOM F	5' GCTAAGCTTGCCGCCACCATGGCCGAGATCAAGGAGAAA
ΔCAT Rev	5' GATCTCGAGCTAATGGTGATGGTGATGATGCACTGGGGTTACCTCTGTGAA
Z-DBD Rev	5' GATCTCGAGCTAATGGTGATGGTGATGATGACAGGTGAGGAACCTCTGCGTTTCT
dsRBD Fwd	5' GCTAAGCTTGCCGCCACCCCTCTTCTACAGTCATGGCTTG
CAT ONLY F	5' GCTAAGCTTGCCGCCACCATGACCTTCCATGACCAGATAGCC
CAT ONLY R	5' GATCTCGAGCTAATGGTGATGGTG
CAT mut F	5' ACTGTCAATGACTGCCAAGCAGCAAATAATCTCCCGGAGAG
CAT mut R	5' CTCTCCGGGAGATTATTGCTGCTTGGCAGTCATTGACAGT

## Additional primers and probes

primer	Sequence 5'→3'
mir432 amp10F	5' AGGAAGAGAGTTTTTGTGTTTTTGTAGGTTTTGT
mir432 amp10R	5' CAGTAATACGACTCACTATAGGGAGAAGGCTAAAAAATCCACCCAATAACCTACTC
RTL1 amp16F	5' AGGAAGAGAGTTGTTTTAGAGAGGTGGATGGTTAG
RTL1 amp16R	5' CAGTAATACGACTCACTATAGGGAGAAGGCTAATACCTAAAACCACAAAAAATTC
T7-promoter tag	5' CAGTAATACGACTCACTATAGGGAGAAGGCT
10-mer tag	5' AGGAAGAGAG
U6 probe	5' CACGAATTTGCGTGTATCCTT
miR-21 probe	5' TCAACATCAGTCTGATAAGCTA
miR-34a probe	5' ACAACCAGCTAAGACACTGCCA

**Supplemental Table 5.** Target genes of miR-21 and miR-34a

<b>miR</b>	<b>Target Gene</b>	<b>Fold Change</b>	<b>Validated Target</b>	<b>Reference</b>
<b>miR-21</b>	ACVR2A	0.3		
	EGR3	0.4	<b>Yes</b>	<b>(137, 138)</b>
	JAG1	0.1	<b>Yes</b>	<b>(139, 140)</b>
	LIFR	0.3		
	MATN2	0.3		
	NFIB	0.3	<b>Yes</b>	<b>(141, 142)</b>
	SATB1	0.2	<b>Yes</b>	<b>(143)</b>
<b>miR-34a</b>	ABCD1	2.8		
	ACBD3	2.2		
	EEA1	9.2		
	FAM70A	4.3		
	GOLPH3L	2.7		
	ITSN1	2.0		
	KIAA1217	2.7		
	MAP1A	3.9		
	NAV3	2.4		
	PDE7B	5.3		



## **Supplementary Methods:**

### **DNA extraction and bisulfate treatment**

Genomic DNA of melanoma cell lines was extracted using Wizard® genomic DNA purification kit (Promega) according to manufacturer's instructions. Bisulfate treatment was carried out on 1µg of gDNA EZ-DNA® methylation gold kit (Zymo) according to manufacturer's instructions.

### **Quantification of massARRAY methylation analysis**

PCR was performed using the 1 µg of bisulfate treated DNA as template with specific primers (Supplemental Table 4) especially designed, using EpiDesigner BETA software (Sequenom®), to amplify highly methylated areas in the genomic template. Each reverse primer has a T7-promoter tag and each forward primer has a 10-mer tag (Supplemental Table 4). A total of 3 primer pairs were designed, all gave specific PCR products (300-500bp). After PCR amplification, a SAP (Shrimp Alkaline Phosphate) treatment was performed using 5µl of PCR product. 2µl of the SAP treated PCR product was subjected to in vitro transcription and RNaseA cleavage for the T-cleavage reaction (MASScleave). The samples were purified by resin treatment and spotted on 384-well spectroCHIP® by MASSarray® Nanodispenser. This was followed by spectral acquisition on a MASSarray Analyser. The results were later analyzed by EpiTyper software which gives quantitative methylation levels of individual CpG sites. The average methylation ratio was calculated by averaging the ratios of the melanoma vs. normal samples. Non Template control (NTC) sample used as negative control. Methylation readings that had other signal overlaps and silent peaks were eliminated from the calculations.

### **De-methylation experiments**

Melanoma cell lines A375 and MeWo were treated for 2, 4 and 6 days with 3µM anti-methylation reagent 5'-Aza-2-deoxycytidine (Sigma-Aldrich) dissolved in 50% acetic acid and 3mM anti-acetylation agent 4-phenylbutyric acid (4-PBA, Sigma-Aldrich) dissolved in

50% EtOH. Control samples were treated with medium containing the same volume of 50% acetic acid and 50% EtOH. The growth medium containing these reagent or dissolvent only was changed daily. The treated cells and the control samples were harvested at day 2, 4 and 6. RNA, cell lysate and gDNA were extracted from the cells, as previously mentioned.

### **Northern Blot**

Total RNA isolation was performed using the Tri-Reagent protocol (Sigma-Aldrich). RNA samples (50 ug each) were electrophoresed on 10% Acrylamide Urea gels (Amersham Bioscience) and transferred onto nylon based membrane (GeneScreen Plus), using semi dry method (Amersham Biosciences). Pre-Hybridization was done at 42°C in 3ml of ExpressHyb® (BD bioscience) solution for 30 min. Labeled probe was added directly into the prehybridization solution and the membrane was hybridized at 42°C for 1 h. Membranes were shortly washed at 42°C 3 times with 10ml room temperature SSCX0.1 0.05% SDS solution and twice with 10ml warm (42°C) SSCX0.1 0.05% SDS solution for 30 min. The oligonucleotides used as probes are the complementary sequences of the mature miRNA (miRbase Registry). U6 was used to normalize expression levels. 100 ng of each probe was end labeled with 100 mCi [ $\gamma$ -32P]ATP using the polynucleotide kinase (New England Biolabs). Blots were stripped in boiling 0.1% SDS for 10 min before rehybridization.

### **Immunoprecipitation**

HEK 293T cells were transfected with pCDNA3 ADAR1-P110, CEACAM1 or pCDNA3 empty vector (Mock). Cells were harvested 48 hrs post transfection, total cell lysates were extracted and incubated for 40 min at 4°C with either anti-ADAR1 or anti-CEACAM1 antibody coated 1.5 mg Dynabeads® protein G beads (Sigma-Aldrich). Following incubation, the beads-antibody-target protein complex was washed and the immunoprecipitated protein was eluted according to manufacturer's instructions. Both total cell lysates and immunoprecipitates were analyzed in SDS-PAGE or Western blot according to standard protocols. In experiments where RNA-protein binding was tested, the assay was performed on  $20 \times 10^6$  cells. Total RNA was isolated from the immunoprecipitate with Tri Reagent (Sigma-

Aldrich) or with miRNeasy® kit (Qiagen), according to the manufacturer's instructions, followed by standard cDNA synthesis and real time PCR assays.

## **Supplementary Tables - Legends:**

### **Supplemental Table 1:** *Whole genome microarray gene list*

List of significantly (defined as >2 or <0.5 fold change) altered genes expression level. Fold-change, represents relative ( $2^{-\log}$ ) values used to identify genes with different expression level between treatments - ADAR1 knockdown divided by Control, that are outside of the threshold level (determined by the microarray internal control). P-value cutoff, characterizing the significance of the difference between the treatments is lower than 0.05. Genes bioinformatically predicted as editing targets are indicated with an asterix (\*). Genes bioinformatically predicted as targets of miRNAs are indicated in bold.

### **Supplemental Table 2:** *Validation of microarray results using quantitative real time PCR*

Ten genes were selected for validation of microarray results. Their expression was examined by qRT-PCR; Fold-change, represents relative ( $2^{-\Delta\Delta C_t}$ ) values used to identify genes with different expression levels between treatments - ADAR1 knockdown vs. Control (Results represent the means  $\pm$ SE of three independent experiments). The expression values of both microarray and the qRT-PCR are presented; Function, the role of each gene based on literary review; Canonical pathway, the affiliation of each gene to the appropriate cellular pathway based on literary review.

### **Supplemental Table 3:** *miRNAs expression profile*

List of the 131 significantly changed miRNAs (defined as >2 or <0.5 fold change) expressed in 624mel ADAR1-KD cells compared to control. Star miRs are not included in this list. OG represents oncogenic miRNAs; TS represents tumor suppressor miRNAs. miRs bioinformatically predicted to target genes from the whole genome microarray gene list (supplemental table 1) are indicated in bold.

### **Supplemental Table 4:** *List of Primers*

List of the primers used for PCR, Real Time RT-PCR, Northern Blot and Methylation assay in this study (primers are displayed 5'  $\rightarrow$  3').

### **Supplemental Table 5:** *miR-21 and miR-34a targets*

List of bioinformatically predicted targets (Target Scan 5.1) of miR-21 and miR-34 based on the genes presented in supplemental table 1. Several targets are validated.

## **Supplementary Figures - Legends:**

### **Supplemental Figure 1:** *Expression of ADAR1 in melanoma progression*

Immunohistochemical staining of ADAR in (A) Normal skin (control); (B) Nevi; (C) primary tumor; and (D) metastatic melanoma from two independent TMA slides set provided by MGH and CDP; Tissues were stained for ADAR1 (brown) followed by hematoxylin counterstaining (blue).

### **Supplemental Figure 2:** *Evaluation of gross cell morphology and image analysis*

Microphotographs of cells were taken using an Olympus digital camera and Olympus light microscope (original magnification  $\times 20$ ). The morphological differences between the cells were quantified with ImageJ (NIH) image processing and analysis software, using NeuronJ to evaluate the long and short axes of each cell (144). Measurements were performed for more than 50 randomly selected cell images in each experiment. The data were converted from pixels to  $\mu\text{m}$  with an appropriate scale. Data represent the mean  $\pm$ SEM. Asterisks represent P values: \*\*\* $P < 0.001$  (2-tailed t-test).

### **Supplemental Figure 3:** *the effect of ADAR1 on proliferation rate in multiple melanoma cell lines.*

multiple melanoma cell lines were stably transduced with ADAR1 shRNA (ADAR1-KD) and scrambled sequence (Control) vector. (A) Net proliferation was monitored by standardized XTT assay, in 24 hrs intervals, for 72 hrs; Trypan blue staining confirmed  $>97\%$  viability of the cells. (B) Expression of ADAR1 gene was examined using qPCR. Data represent the mean  $\pm$ SEM of three independent experiments, each performed in triplicates. Asterisks represent P values: \* $P < 0.05$ , \*\* $P < 0.01$ , \*\*\* $P < 0.001$  (2-tailed t-test).

### **Supplemental Figure 4:** *Chemotherapy induced apoptosis in 624mel ADAR1 manipulated cell system.*

Apoptotic response following 48 hrs of treatment with (A) Cisplatin ( $100\mu\text{M}$ ) or (B) Taxol ( $50\mu\text{M}$ ). Annexin V-FITC and PI staining followed by FACS analysis were performed to quantify the percentage of cells undergoing apoptosis. The quadrant settings were set according to the Control samples data. A Representative dot blot out of three experiments is shown.

### **Supplemental Figure 5:** *functional effects of 526mel ADAR1 manipulated cell system.*

(A) 526mel cells were stably transduced with ADAR1 shRNA and scrambled sequence (control) vector. (A) Net proliferation was monitored by standardized XTT assay, in 24 hrs intervals, for 72 hrs; Trypan blue staining confirmed  $>97\%$  viability of the cells (B) Morphology of the cells was assessed using a phase-contrast

microscope. (C) A to I editing rate of BLCAP by ADAR1 was estimated by Sequenom massarray. (D) Expression of ADAR1 gene was examined using qPCR. Data for A, C, D represent the mean  $\pm$ SEM of three independent experiments, each performed in triplicates Asterisks represent P values: \*P<0.05, \*\*P<0.01, \*\*\*P<0.001 (2-tailed t-test).

**Supplemental Figure 6:** *Reduced ADAR1 regulate gene expression in an RNA editing independent manner.*

624mel cells were stably transduced with ADAR1 shRNA, Rescue-L, Reascue-S, scrambled sequence (control) vector and empty vector. (A) FACS staining with anti-CD44 and anti-ITGB3 antibodies to validate gene expression level as described by microarray results (Supplemental Table 1). 624mel cells were stably transduced with both ADAR1 isoforms over-expression, mock plasmid and deletion constructs plasmids. (B) Verification of RNA editing independent ADAR1-dependent regulation of ITGB3, VAV2 and CD44 expression pattern, representatives of microarray gene profile, in 624mel domains cell system compared to mock (control). The mRNA levels of ADAR1 were examined using qRT-PCR. Data represent the mean  $\pm$ SEM of three independent experiments, each performed in triplicates Asterisks represent P values: \*\*P<0.01 (2-tailed t-test).

**Supplemental Figure 7:** *Construction of Dual luciferase system based on HAG and PAG melanoma cell lines*

(A) Construction of dual luciferase system for miR-17-5p and miR-432 based on their seed sequence (underlined) and the naïve and mutated target sequences (underlined) of ADAR1 3'UTR (B) miR-17-5p, (C) miR-432 and (D) ADAR1 expression level examined by qRT-PCR. . Data represent the mean  $\pm$ SEM of three independent experiments, each performed in triplicates Asterisks represent P values: \*\*P<0.01 (2-tailed t-test).

**Supplemental Figure 8:** *Specific correlation between ADAR1, miR-17-5p and miR432 expression.*

14 low-passage primary cultures of metastatic melanoma and 1 normal melanocytes were tested for miR-204, -185, -184, -133a, -20a, -31 and ADAR1 expression, normalized to the appropriate endogenous control and presented as 1/ $\Delta$ Ct;

**Supplemental Figure 9:** *Methylation sites at chr.14q32.2 genomic area*

Description of the Dlk1-Dio3 genomic area and the amplicons used to test methylation rate of miR-432 (amplicon A, underlined nucleotides) and positive control (amplicon B, located at a known methylated site in RTL1 gene)

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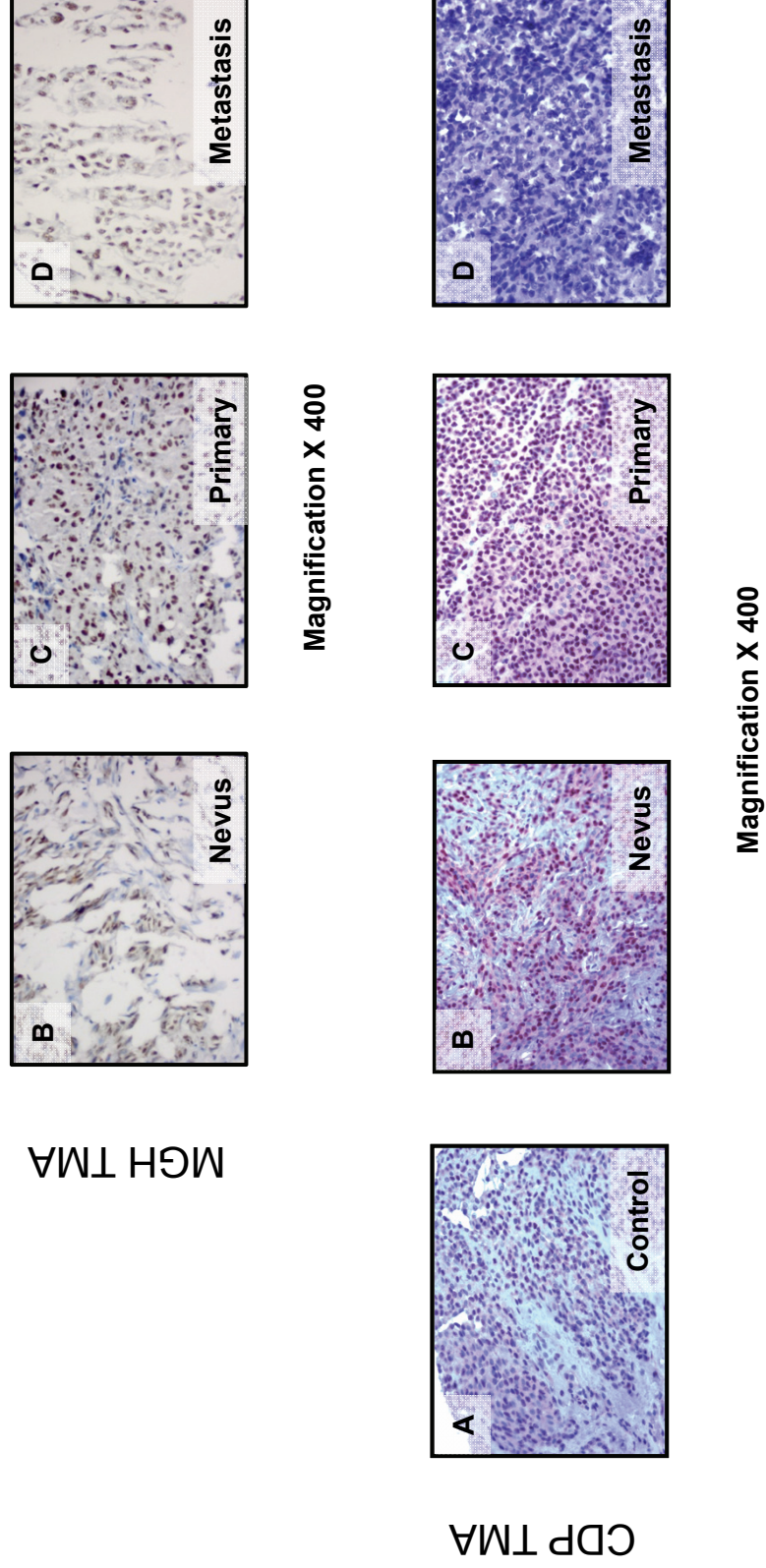
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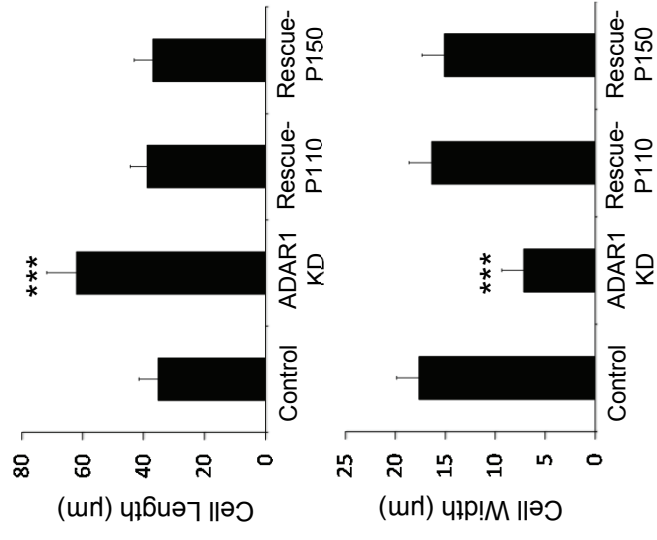
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# Supplemental Figure 1

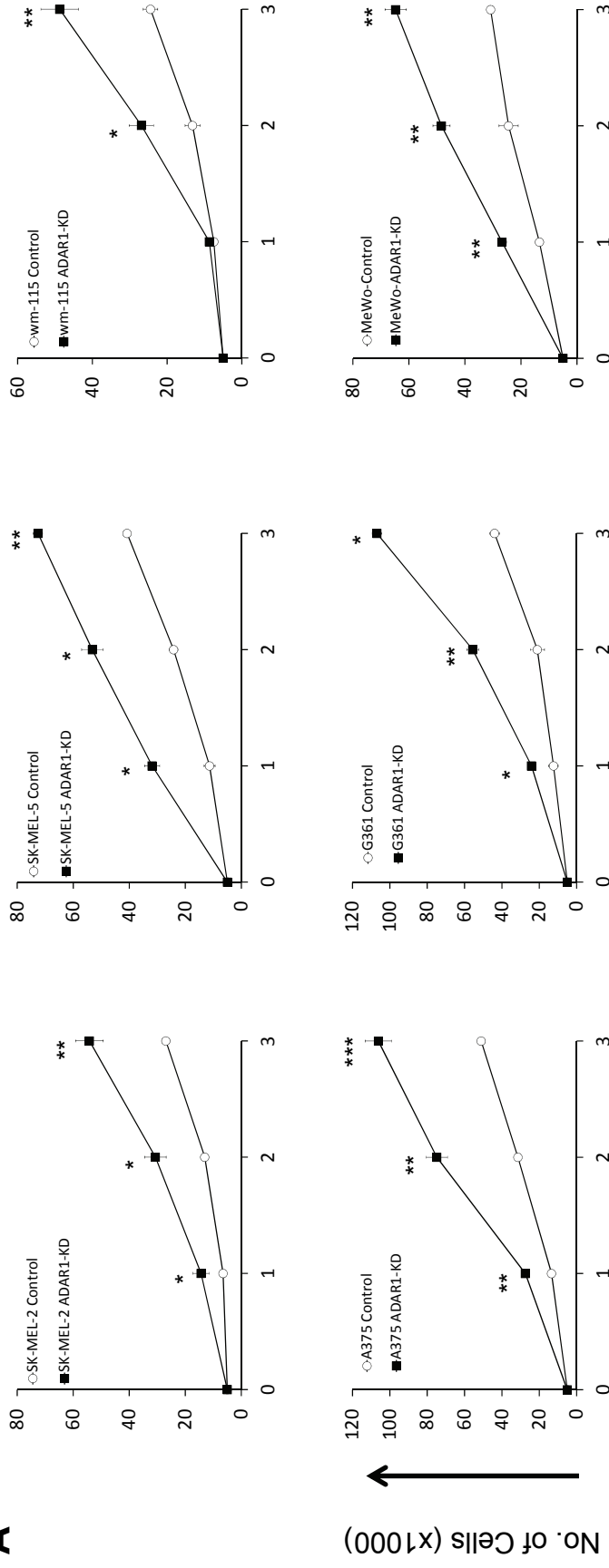


**Supplemental Figure 2**

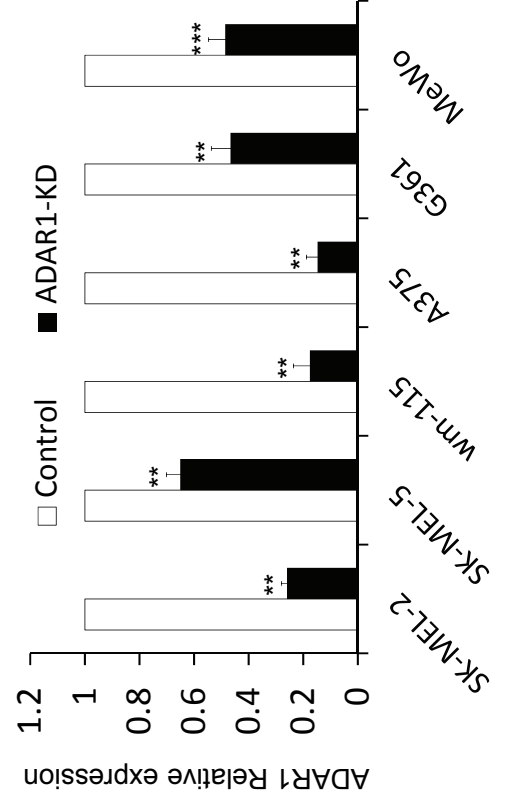


# Supplemental Figure 3

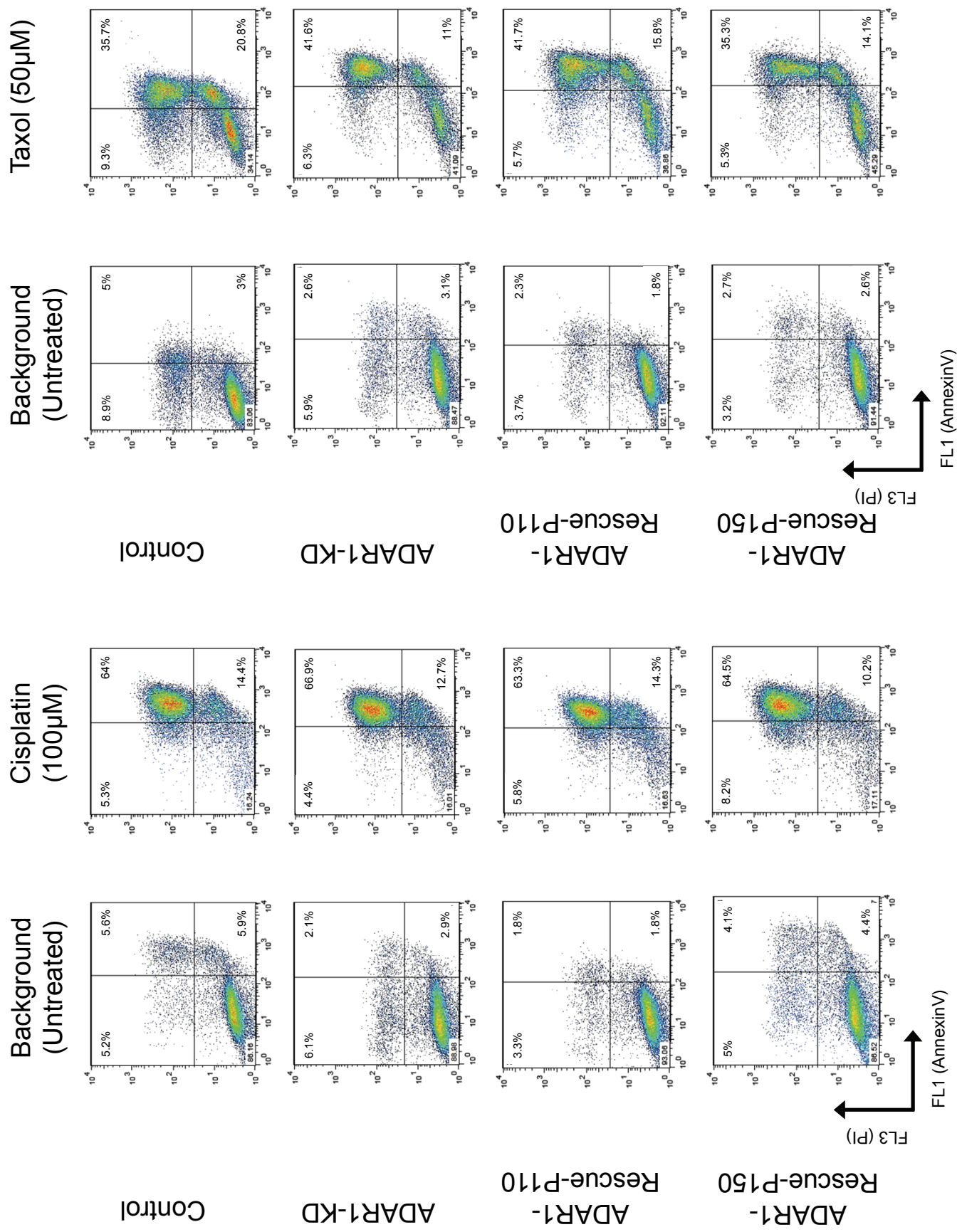
**A**



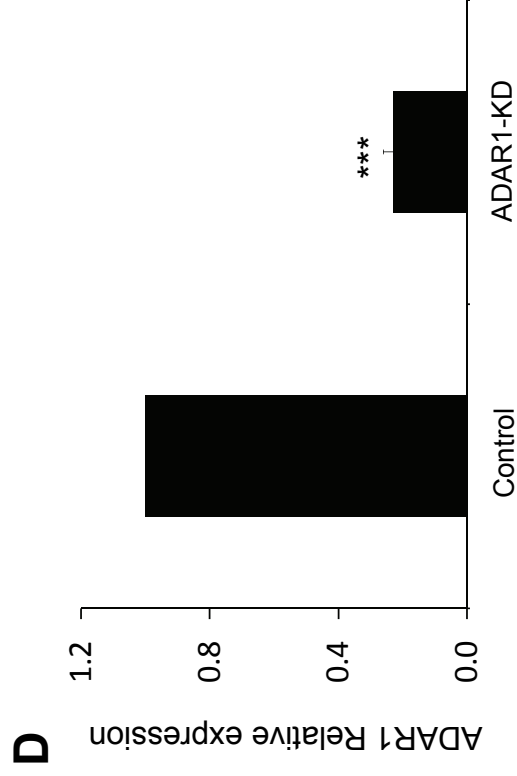
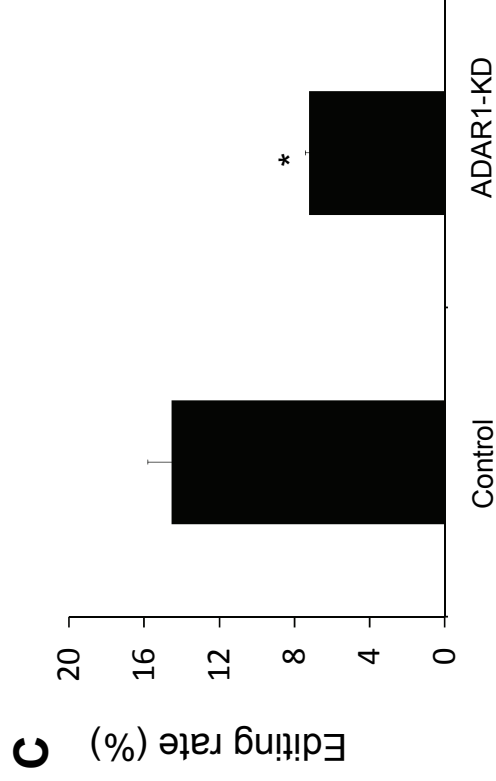
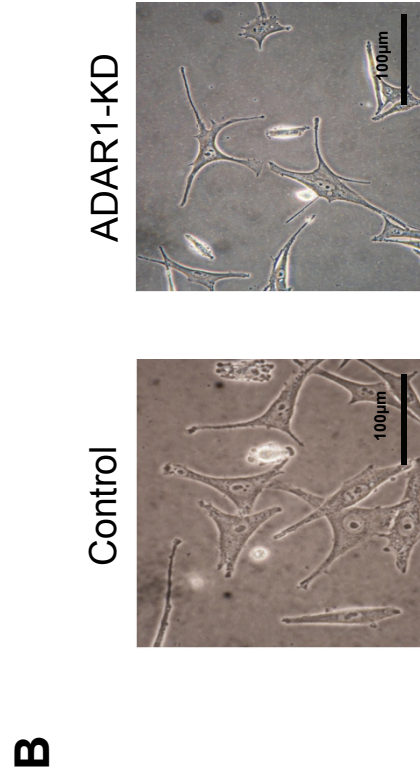
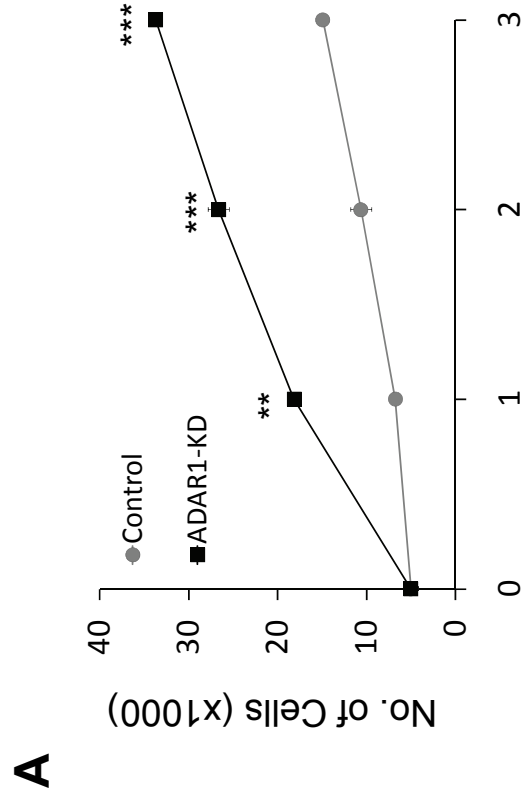
**B**



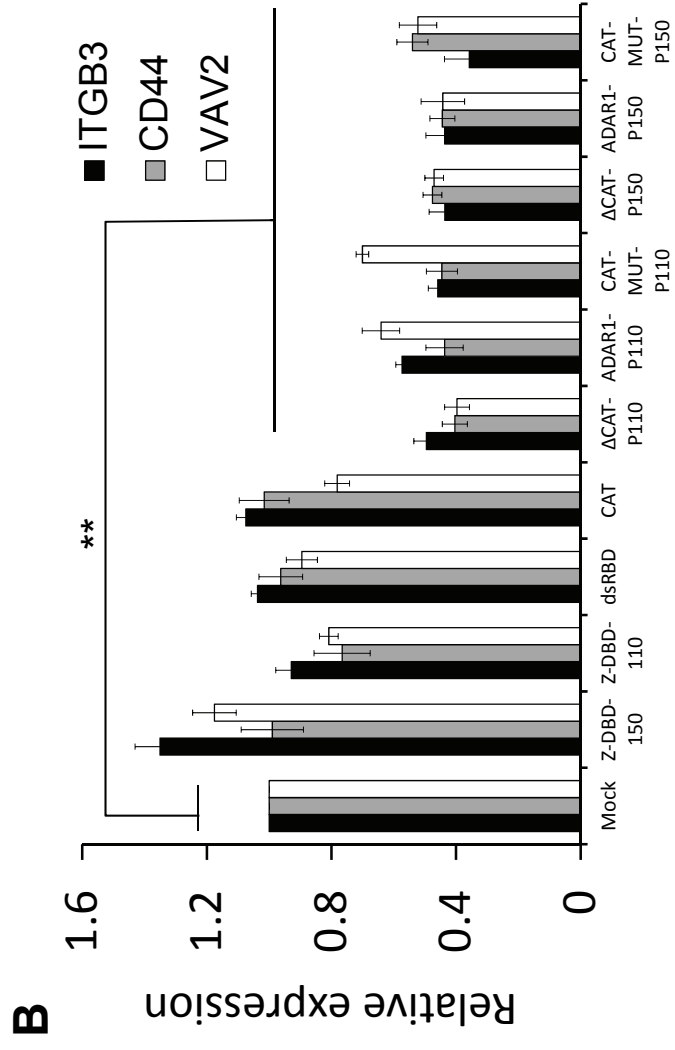
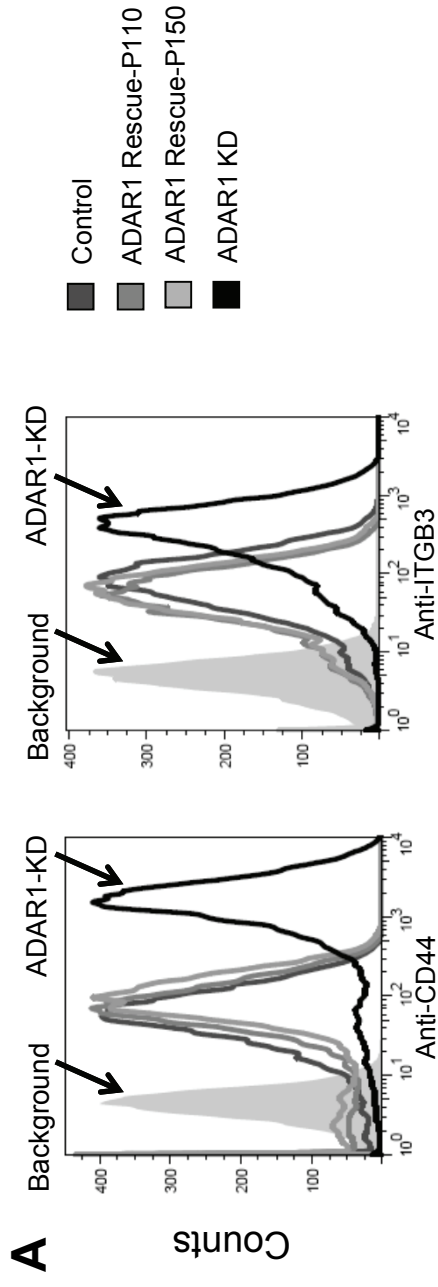
# Supplemental Figure 4



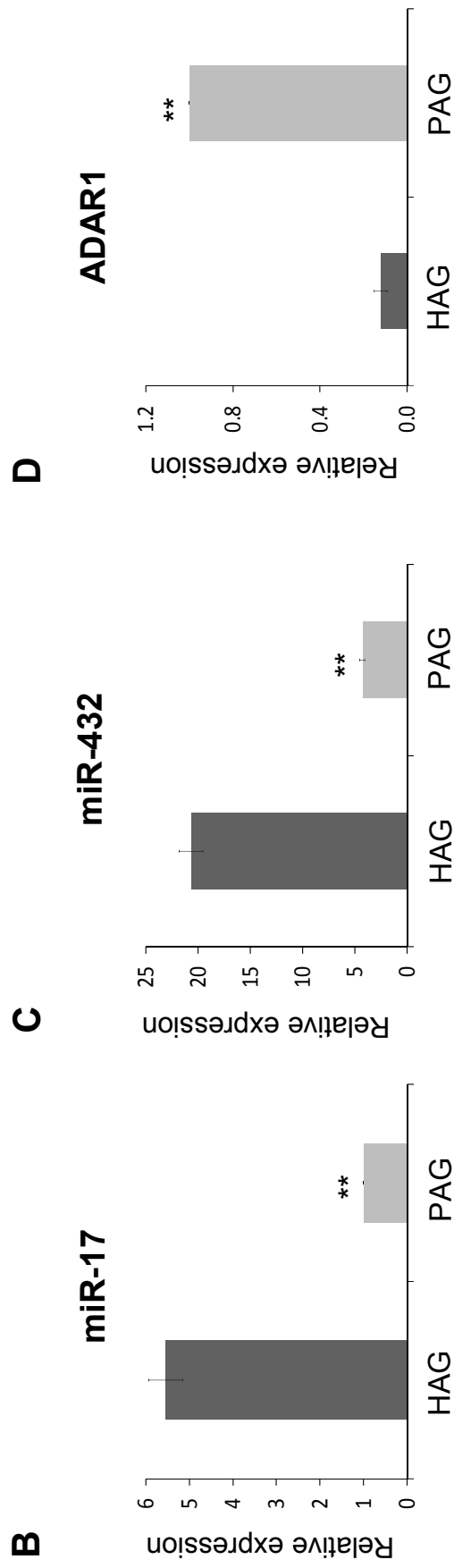
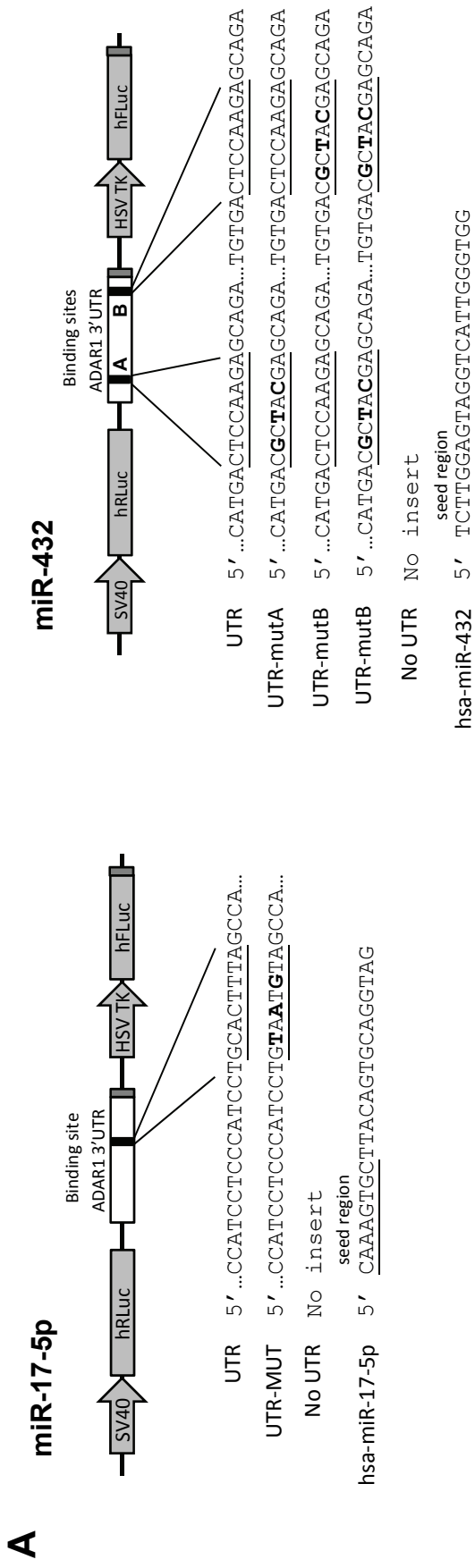
# Supplemental Figure 5



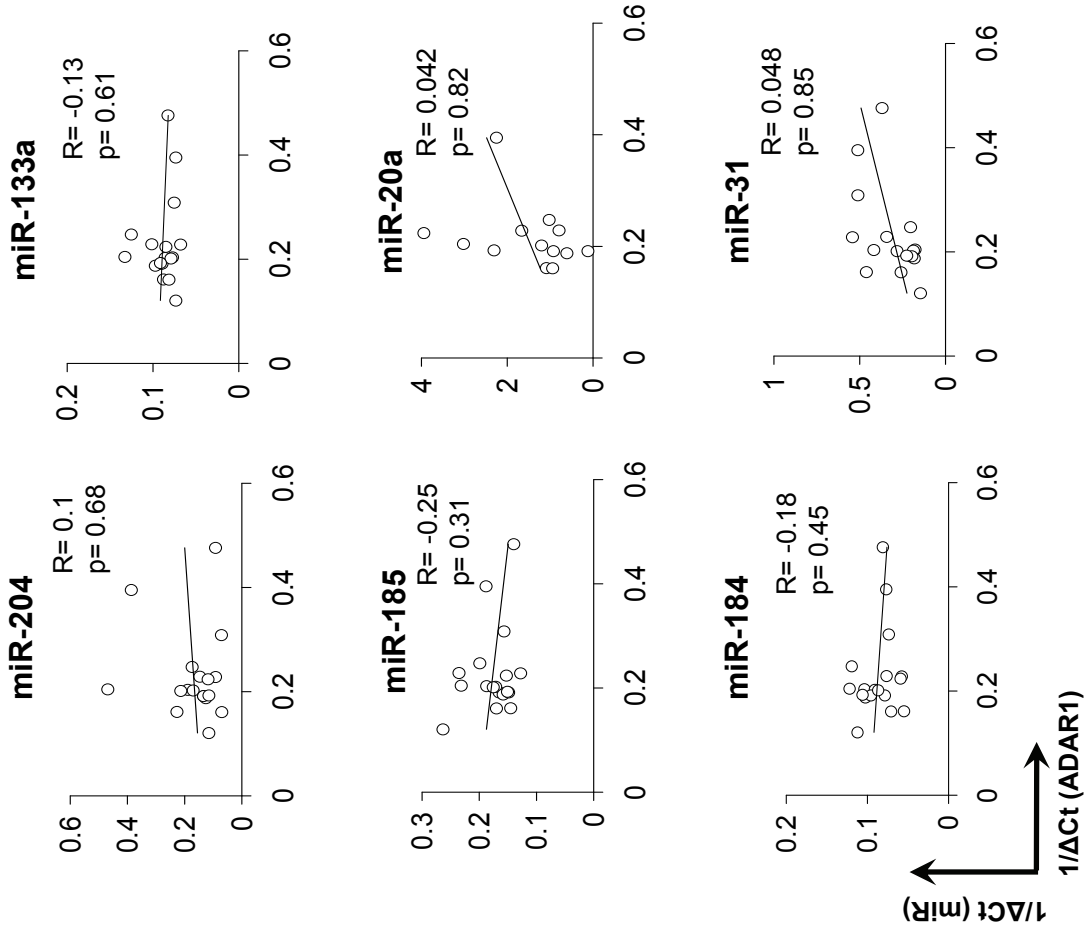
# Supplemental Figure 6



# Supplemental Figure 7

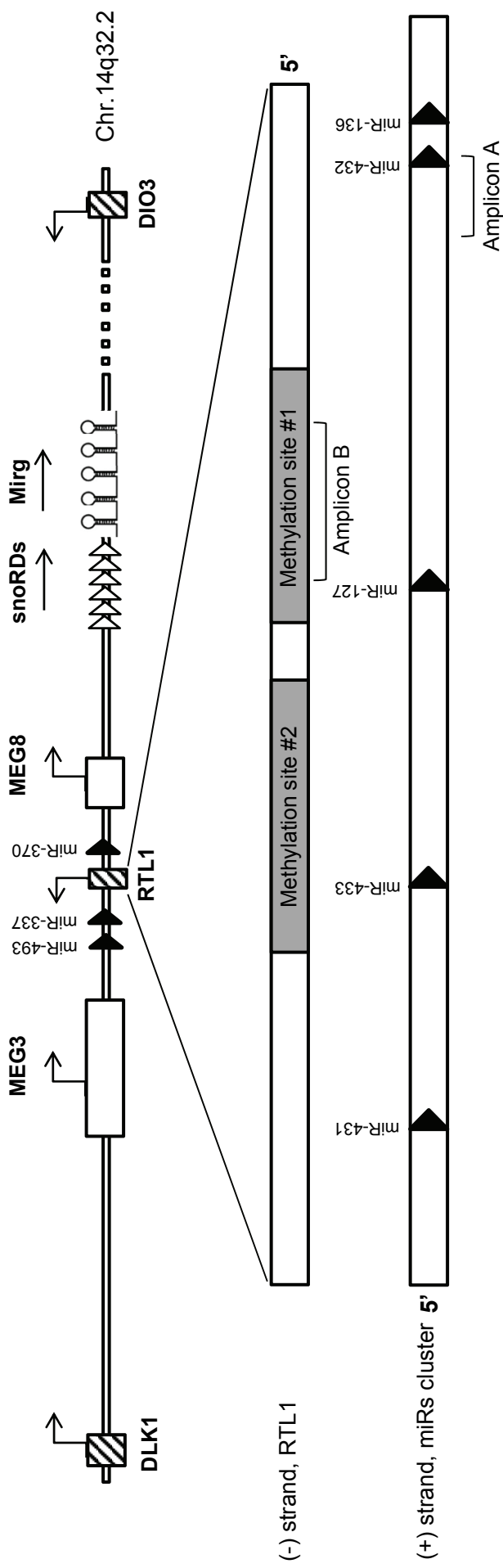


# Supplemental Figure 8





# Supplemental Figure 9



## Amplicon A

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 GTGAGCCCTCTTGTCTTCTCGGGCTCCCGATGGGTTGACTGATGCTT  
 CTTTCATCCTATCAGATGCTCCACTGAGTGGATCCCCCTTGCCTGG  
 TGTGAACCGTTGCATGACTCCTCCAGGTCTTGGAGTAGGTCATTGGG  
TGGATCCCTCT

## Amplicon B

GCGAAGTCCAATCCGGACATCAATCGCGCCACCTCTTCCGTGCTGCTC  
 ATGGTGAGAGTGAACCCCTACCACAGCGTCCGCGGTCCAGGCCCTGGT  
 GGATTCGGGAGCTGACGGCAACTTCAATGGATGAGAAGTTCGCCCAAG  
 AGCACTACGTCGAGCTTACGAGAAGCCGTACCCACAGCCGGTCCAA  
 TCCGTGGACGGCTCGTGAATGGCAACGAGCCCTGTCTGGCTCTACAC  
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