

## Supplementary Information

# Distinguishing between cancer cell differentiation and resistance induced by all-trans retinoic acid using transcriptional profiles and functional pathway analysis

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**Supplementary Table S1.** Differently expressed genes in resistant HL-60[R] and differentiated HL-60 cells.

Genes/ESTs	*Resistance Fold change	#Differentiation Fold change	Gene Bank Acc No	Gene symbol
proteasome 26S subunit, ATPase, 1	6.86	0.40	BG829879	PSMC1
ligase I, DNA, ATP-dependent	6.11	0.29	NM_000234	LIG1
retinoic acid receptor responder 2	4.77	0.26	AV707399	RARRES2
transcription elongation factor A (SII), 1	4.28	0.08	N41981	TCEA1
KIAA0376 protein	4.08	0.06	AB002374	KIAA0376
SKB1 homolog	4.01	0.04	BG505503	SKB1
dual specificity phosphatase 3	3.66	0.24	AL555009	DUSP3
protein predicted by clone 23733	3.59	0.16	AW958081	HSU79274
uracil-DNA glycosylase	3.56	0.13	NM_003362	UNG
proteasome subunit, beta type, 6	3.56	0.29	BF205294	PSMB6
DEAD/H box polypeptide 1	3.55	0.43	X70649	DDX1
translocation protein 1	3.39	0.36	NM_003262	TLOC1
CD36 antigen-like 1	3.37	0.11	AL519943	CD36L1
neurofilament, heavy polypeptide	3.35	0.44	X15306	NEFH
CCR4-NOT transcription complex, subunit 3	3.34	0.18	NM_014516	CNOT3

similar to KIAA0010 gene product	3.27	0.05	AW960949	LOC89910
CD14 antigen	3.26	0.41	AL549182	CD14
flap structure-specific endonuclease 1	3.19	0.36	AU142907	FEN1
cellular retinoic acid binding protein 2	3.12	0.10	BG832163	CRABP2
hypothetical protein FLJ12820	3.04	0.18	NM_022451	FLJ12820
CTD phosphatase, subunit 1	3.04	0.20	NM_004715	CTDP1
eukaryotic translation initiation factor 2	2.95	0.23	BG503248	EIF2S1
multimerin	2.94	0.21	NM_007351	MMRN
serologically defined colon cancer antigen 16	2.87	0.46	BC001149	SDCCAG16
v-myc myelocytomatosis viral oncogene homolog	2.84	0.50	BG256267	MYC
solute carrier family 21, member 3	2.84	28.14	AF085224	SLC21A3
methylenetetrahydrofolate dehydrogenase	2.77	0.16	BC001014	MTHFD1
ubiquitin carrier protein	2.75	0.46	AI571293	E2-EPF
similar to <i>S. pombe</i> dim1+	2.73	0.19	BG686300	DIM1
zinc finger protein 263	2.73	0.23	NM_005741	ZNF263
splicing factor, arginine/serine-rich 10	2.72	0.44	AL560128	SFRS10
splicing factor, arginine/serine-rich 3	2.71	0.37	BG287081	SFRS3
CDC-like kinase 2	2.71	0.13	BG286233	CLK2
ADP-ribosyltransferase	2.69	0.42	AU138067	ADPRT
prostatic binding protein	2.69	0.46	BG706215	PBP
thymopoietin	2.68	0.49	U09088	TMPO
tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein	2.66	0.41	NM_006826	YWHAQ
golgi-specific brefeldin A resistance factor 1	2.65	0.03	AK025330	GBF1
FLN29 gene product	2.63	0.40	BG717965	FLN29
glucosamine-6-phosphate isomerase	2.62	0.25	BE886578	GNPI
KIAA0153 protein	2.62	0.32	BC001070	KIAA0153
eukaryotic translation initiation factor 3, subunit 9	2.61	0.49	BG677679	EIF3S9
nucleoporin 88kD	2.57	0.12	BC000335	NUP88
amyloid precursor protein binding protein 1	2.56	0.24	NM_003905	APPBP1
matrin 3	2.55	0.44	BG179511	MATR3
suppressor of var1, 3-like 1	2.55	0.18	BE784830	SUPV3L1
chloride channel, nucleotide-sensitive, 1A	2.52	0.42	AU143440	CLNS1A
tissue specific transplantation antigen P35B	2.52	0.18	BG673954	TSTA3
zinc finger protein 313	2.50	0.28	AF131742	ZNF313
solute carrier family 16, member 1	2.49	0.29	NM_003051	SLC16A1
polymerase (RNA) II polypeptide F	2.48	0.26	BE389988	POLR2F
SET translocation	2.48	0.06	NM_003011	SET
runt-related transcription factor 1	2.47	0.26	D43968	RUNX1
cleavage stimulation factor, 3' pre-RNA	2.46	0.47	NM_001325	CSTF2
ATP/GTP-binding protein	2.45	0.21	AA188236	HEAB
G protein-coupled receptor kinase 6	2.44	0.22	NM_002082	GPRK6
zinc finger protein 230	2.43	0.06	NM_006300	ZNF230
leucine rich repeat interacting protein 1	2.41	19.31	BG261015	LRRFIP1
voltage-dependent anion channel 2	2.40	0.21	BG178874	VDAC2
lysosomal-associated membrane protein 2	2.35	0.50	BG719002	LAMP2
ADP-ribosylation factor 4-like	2.33	0.28	U70072	ARF4L
acetyl-Coenzyme A acetyltransferase 1	2.32	0.22	NM_000019	ACAT1
GTP-binding protein homologous to <i>Saccharomyces cerevisiae</i>	2.30	0.23	NM_006822	SEC4L

SEC4				
phosphoenolpyruvate carboxykinase 2	2.29	0.17	BC001454	PCK2
acidic 82 kDa protein mRNA	2.26	0.04	BG697006	HSU15552
similar to DNA-directed RNA polymerase I	2.25	0.20	BC004882	Rpo1-2
X-ray repair complementing defective repair in Chinese hamster cells 5	2.25	0.37	BE538067	XRCC5
D123 gene product	2.25	0.20	BE792735	D123
general transcription factor IIIA	2.25	0.21	BG576277	GTF3A
SFRS protein kinase 1	2.24	0.12	AW958364	SRPK1
pyruvate dehydrogenase alpha 1	2.23	0.38	AU130883	PDHA1
doublecortin and CaM kinase-like 1	2.22	0.23	NM_004734	DCAMKL1
hypothetical protein MGC2217	2.22	0.19	BE876967	MGC2217
KIAA0089 protein	2.21	0.36	BC006168	KIAA0089
polymerase (RNA) III polypeptide F	2.20	0.35	AL121893	POLR3F
KIAA0543 protein	2.19	0.48	AB011115	KIAA0543
interferon gamma receptor 1	2.19	9.32	J03143	IFNGR1
protein tyrosine phosphatase, receptor type, C-associated protein	2.19	0.49	BG397566	PTPRCAP
brain abundant, membrane attached signal protein 1	2.19	0.15	BG398345	BASP1
ATP synthase, H <sup>+</sup> transporting, mitochondrial	2.18	0.21	NM_001689	ATP5G3
hypothetical protein MGC19556	2.18	0.43	BG830088	MGC19556
replication factor C (activator 1) 5	2.18	0.41	AL532485	RFC5
phosphoglucomutase 1	2.16	0.08	BG674834	PGM1
nuclear transcription factor Y, alpha	2.15	0.04	AL031778	NFYA
cadherin 17, LI cadherin	2.15	0.19	NM_004063	CDH17
exonuclease 1	2.15	0.30	AC004783	EXO1
heat shock protein 75	2.13	0.29	BE901723	TRAP1
calcium channel, voltage-dependent, beta 3	2.12	0.37	AL565681	CACNB3
COP9 constitutive photomorphogenic homolog subunit 3	2.11	0.21	AA287305	COPS3
deafness, autosomal dominant 5	2.11	0.23	AL035855	DFNA5
squamous cell carcinoma antigen recognised by T cells 3	2.10	0.46	NM_014706	SART3
KIAA0614 protein	2.10	0.17	AB014514	KIAA0614
TGFB-induced factor	2.09	82.00	AL549846	TGIF
bleomycin hydrolase	2.08	0.31	AA044158	BLMH
nucleoporin 62kD	2.07	0.41	NM_016553	NUP62
heat shock 70kD protein 4	2.06	0.41	BE742483	HSPA4
phosphatidylinositol 4-kinase, catalytic	2.06	0.20	BG025389	PIK4CB
G protein-coupled receptor, family C, group 1, member B	2.06	0.12	BG900235	GPRC5B
KIAA0171 gene product	2.05	0.07	NM_014666	KIAA0171
sperm associated antigen 9	2.05	6.04	AL043034	SPAG9
myosin ID	2.05	0.34	AI146861	MYO1D
interleukin enhancer binding factor 2, 45kD	2.04	0.32	AU135389	ILF2
colony stimulating factor 2 receptor, beta	2.03	8.70	AW959214	CSF2RB
general transcription factor IIIH	2.03	0.40	NM_001516	GTF2H3
potassium voltage-gated channel, Shaw-related subfamily, member 4	2.03	0.32	BE797730	KCNC4
NHP2 non-histone chromosome protein 2	2.02	0.38	BF528185	NHP2L1
5-methyltetrahydrofolate-homocysteine methyltransferase reductase	2.02	0.23	NM_024010	MTRR
adenylosuccinate lyase	2.01	0.37	BE783176	ADSL

non-metastatic cells 1, protein NM23A	2.00	0.28	BG753664	NME1
U3 snoRNP-associated 55-kDa protein	2.00	0.28	BC010048	U3-55K
glutaminase	0.88	3.39	AF223943	GLS
hypothetical protein FLJ11560	0.50	0.04	BF340474	FLJ11560
hypothetical protein MGC11061	0.50	3.09	BG036183	MGC11061
RAB27A, member RAS oncogene family	0.50	2.30	AW665469	RAB27A
POU domain, class 2, transcription factor 1	0.50	8.83	NM_002697	POU2F1
heat shock 27kD protein 2	0.50	0.03	NM_001541	HSPB2
cortistatin	0.50	12.50	AI022128	CORT
natriuretic peptide precursor A	0.50	4.05	M30262	NPPA
fibrillin 1 (Marfan syndrome)	0.50	3.69	NM_000138	FBN1
p53-induced protein	0.49	4.50	AL542839	PIG11
KIAA0295 protein	0.49	3.56	AI569681	KIAA0295
KIAA0625 protein	0.49	9.96	AI458143	KIAA0625
carcinoembryonic antigen-related cell adhesion molecule 6	0.49	3.88	AW303433	CEACAM6
dystrobrevin, alpha	0.49	23.20	AW513384	DTNA
actin related protein 2/3 complex, subunit 5	0.49	0.11	AL560125	ARPC5
bone morphogenetic protein receptor, type IB	0.49	0.11	NM_001203	BMPR1B
KIAA0763 gene product	0.48	4.85	AU143342	KIAA0763
lymphotoxin beta	0.48	2.27	AA287870	LTB
KIAA0532 protein	0.48	0.10	BG680662	KIAA0532
transglutaminase 1)	0.48	0.08	NM_000359	TGM1
p21/Cdc42/Rac1-activated kinase 1	0.48	2.20	AA912798	PAK1
UDP-Gal:betaGlcNAc beta 1,4- galactosyltransferase, polypeptide 4	0.48	26.13	AK001006	B4GALT4
3'-phosphoadenosine 5'-phosphosulfate synthase 2	0.48	0.01	NM_004670	PAPSS2
elaC homolog 1	0.48	0.14	AA524364	ELAC1
PET112-like	0.47	2.16	BF195982	PET112L
sparc/osteonectin, cwcv and kazal-like domains proteoglycan	0.46	4.92	AC005213	SPOCK
sphingosine-1-phosphatase	0.46	3.91	AI581085	LOC81537
six transmembrane epithelial antigen of the prostate	0.46	5.00	AF186249	STEAP
zinc finger protein 217	0.46	4.01	AA513383	ZNF217
nidogen (enactin)	0.45	2.83	NM_002508	NID
chloride channel, calcium activated, family member 1	0.45	2.18	AI660957	CLCA1
cleft lip and palate associated transmembrane protein 1	0.45	4.28	AL531509	CLPTM1
protocadherin beta 6	0.44	5.00	AA290901	PCDHB6
potassium voltage-gated channel, delayed-rectifier, subfamily S, member 3	0.44	0.14	BC004148	KCNS3
Gardner-Rasheed feline sarcoma viral oncogene homolog	0.44	5.53	AI479655	FGR
KIAA1036 protein	0.43	2.71	AI811178	KIAA1036
Mid-1-related chloride channel 1	0.43	16.57	AA406603	KIAA0761
interleukin 7	0.43	0.14	NM_000880	IL7
TRIAD3 protein	0.42	0.07	BF515713	TRIAD3
sterol-C4-methyl oxidase-like	0.42	2.29	BG939095	SC4MOL
pinch-2	0.42	8.74	AA570650	LOC96626
DNA-dependent protein kinase catalytic subunit-interacting protein 2	0.42	0.08	BE042882	KIP2
sestrin 2	0.42	3.65	AW673709	SES2
p53 regulated PA26 nuclear protein	0.41	4.61	AI572037	PA26
sarcoglycan, beta	0.40	0.06	NM_000232	SGCB

amylase, alpha 2B; pancreatic	0.40	2.38	M24895	AMY2B
potassium voltage-gated channel	0.40	3.43	BG760324	KCNAB2
aconitase 1, soluble	0.39	2.70	AI762790	ACO1
solute carrier family 12, member 7	0.39	15.25	AW207409	SLC12A7
syntaxin 6	0.39	5.20	AL527857	STX6
kallikrein 7	0.39	2.07	NM_005046	KLK7
T-box 5	0.38	0.03	AF221714	TBX5
sialyltransferase 8E	0.38	2.80	NM_013305	SIAT8E
adenomatosis polyposis coli	0.37	6.08	AA813571	APC
KIAA0187 gene product	0.37	2.24	AW205569	KIAA0187
stanniocalcin 2	0.37	3.53	AB012664	STC2
holocytochrome c synthase	0.37	0.10	AW951033	HCCS
KIAA1441 protein	0.37	3.93	AL519335	KIAA1441
myosin VA	0.37	2.46	NM_000259	MYO5A
mannosidase, alpha, class 1A, member 2	0.36	3.48	N30111	MAN1A2
albumin	0.34	2.90	AI383957	ALB
H1 histone family, member X	0.33	3.49	BE746713	H1FX
thioredoxin interacting protein	0.32	141.60	AU139227	TXNIP
short-chain alcohol dehydrogenase family member	0.32	4.43	NM_005794	HEP27
CMRF35 leukocyte immunoglobulin-like receptor	0.30	7.06	NM_006678	CMRF35
four and a half LIM domains 3	0.30	2.13	BF220053	FHL3
SNARE protein	0.30	0.05	AI432607	YKT6
plexin B3	0.29	2.75	AF149019	PLXNB3
sphingomyelin phosphodiesterase 1	0.28	0.08	NM_000543	SMPD1
protein kinase, cGMP-dependent, type I	0.27	16.50	NM_006258	PRKG1
hypothetical protein SP192	0.27	2.15	NM_021639	SP192
forkhead box F1	0.26	3.13	NM_001451	FOXF1
peroxisomal acyl-CoA thioesterase	0.24	2.20	AI628256	PTE1
hypothetical protein FLJ20535	0.23	5.90	AU159187	FLJ20535
epidermal growth factor receptor	0.22	0.02	NM_005228	EGFR
synovial sarcoma, X breakpoint 3	0.22	0.03	BC005904	SSX3
nucleosome assembly protein 1-like 3	0.22	3.25	NM_004538	NAP1L3
zinc finger protein 161	0.22	8.79	AA195154	ZNF161
KIAA0551 protein	0.21	2.28	AB011123	KIAA0551
short-chain dehydrogenase/reductase 1	0.20	311.64	AI858402	SDR1
kallikrein B, plasma (Fletcher factor) 1	0.18	3.01	AW471415	KLKB1
heat shock protein 75	0.17	3.32	AI652114	TRAP1
myeloid differentiation primary response gene	0.17	5.02	AW965179	MYD88
KIAA1535 protein	0.17	2.67	AW243139	KIAA1535
apolipoprotein C-II	0.15	3.25	AV725009	APOC2
plasminogen activator, urokinase receptor	0.12	0.04	AL554548	PLAUR
solute carrier family 21, member 9	0.05	3.20	N63052	SLC21A9
MHC class I region ORF	0.03	3.40	NM_006674	P5-1
RE1-silencing transcription factor	0.01	3.77	NM_005612	REST

\*HL-60[R] cells maintained in 1.0  $\mu$ M *ATRA* for 6 months compared to parental HL-60 cells.

#HL-60 cells treated with 1.0  $\mu$ M *ATRA* for 6 days compared to untreated HL-60 cells.