

Supplemental Material

Supplemental Table 1. The top 50 upregulated and top 50 downregulated genes (q=0) following GATA6 overexpression. Gene expression analysis was performed using Affimatrix human gene array on cultured smooth muscle cells transduced with 100MOI Ad-CMV-GATA6 for 144 hours.

Gene symbol	Gene description	Fold change
FDCSP	follicular dendritic cell secreted protein	9.36
BST2	bone marrow stromal cell antigen 2	8.69
GATA6	GATA binding protein 6	8.39
IFIT1	interferon-induced protein with tetratricopeptide repeats 1	8.09
MX1	myxovirus (influenza virus) resistance 1. interferon-inducible protein p78 (mouse)	7.54
CD14	CD14 molecule	7.16
CALB2	calbindin 2	6.62
OAS1	2'-5'-oligoadenylate synthetase 1. 40/46kDa	6.58
IFI6	interferon. alpha-inducible protein 6	6.44
IFI44L	interferon-induced protein 44-like	6.42
HERC6	HECT and RLD domain containing E3 ubiquitin protein ligase family member 6	6.23
HIST1H3H	histone cluster 1. H3h	6.13
CFI	complement factor I	5.92
SLC14A1	solute carrier family 14 (urea transporter). member 1 (Kidd blood group)	5.90
OAS2	2'-5'-oligoadenylate synthetase 2. 69/71kDa	5.83
GBP4	guanylate binding protein 4	5.57
IFI44	interferon-induced protein 44	5.33
MMP12	matrix metalloproteinase 12 (macrophage elastase)	4.83
IFIT3	interferon-induced protein with tetratricopeptide repeats 3	4.79
SAMHD1	SAM domain and HD domain 1	4.52
TMEM150C	transmembrane protein 150C	4.37
KEL	Kell blood group. metallo-endopeptidase	4.34
HCP5	HLA complex P5 (non-protein coding)	4.25
ACE2	angiotensin I converting enzyme 2	4.21
SEBOX // VTN	SEBOX homeobox // vitronectin	4.20
RPLP0P2	ribosomal protein. large. P0 pseudogene 2	4.15
MX2	myxovirus (influenza virus) resistance 2 (mouse)	4.06
SLPI	secretory leukocyte peptidase inhibitor	4.04
IFITM1	interferon induced transmembrane protein 1	3.96
DOCK11	dedicator of cytokinesis 11	3.95
ENPP3	ectonucleotide pyrophosphatase/phosphodiesterase 3	3.89
SERPINB9	serpin peptidase inhibitor. clade B (ovalbumin). member 9	3.81
TAC3	tachykinin 3	3.79
MMD	monocyte to macrophage differentiation-associated	3.78

GPRC5B	G protein-coupled receptor. family C. group 5. member B	3.71
OLR1	oxidized low density lipoprotein (lectin-like) receptor 1	3.67
CEACAM1	carcinoembryonic antigen-related cell adhesion molecule 1 (biliary glycoprotein)	3.54
CYP2S1	cytochrome P450. family 2. subfamily S. polypeptide 1	3.50
PKP2	plakophilin 2	3.44
SERPINB1	serpin peptidase inhibitor. clade B (ovalbumin). member 1	3.37
HIST1H2AI	histone cluster 1. H2ai	3.32
CROT	carnitine O-octanoyltransferase	3.32
CPA4	carboxypeptidase A4	3.28
CLU	clusterin	3.28
OAS3	2'-5'-oligoadenylate synthetase 3. 100kDa	3.27
AQP11	aquaporin 11	3.26
EGFL6	EGF-like-domain. multiple 6	3.24
HCP5	HLA complex P5 (non-protein coding)	3.18
ITGA6	integrin. alpha 6	3.15
SYNPO2	synaptopodin 2	3.15

Gene symbol	Gene description	Fold change
A2M	alpha-2-macroglobulin	0.15
IL24	interleukin 24	0.22
SCG5	secretogranin V (7B2 protein)	0.22
CCL11	chemokine (C-C motif) ligand 11	0.23
RGCC	regulator of cell cycle	0.25
PLCL1	phospholipase C-like 1	0.27
PALMD	palmdelphin	0.28
IBSP	integrin-binding sialoprotein	0.28
NEFM	neurofilament. medium polypeptide	0.28
LRRC38	leucine rich repeat containing 38	0.28
IL11	interleukin 11	0.29
SPANXN4	SPANX family. member N4	0.29
KRTAP7-1	keratin associated protein 7-1 (gene/pseudogene)	0.31
LOC541472	uncharacterized LOC541472	0.31
LOC100292922	ankyrin repeat domain-containing protein 30B-like	0.32
KRTAP2-3	keratin associated protein 2-3	0.32
MRGPRX3	MAS-related GPR. member X3	0.33
LMCD1	LIM and cysteine-rich domains 1	0.33
LINC00862	long intergenic non-protein coding RNA 862	0.33
LOXL4	lysyl oxidase-like 4	0.34
ADAM12	ADAM metallopeptidase domain 12	0.35
OLAH	oleoyl-ACP hydrolase	0.37
GDF6	growth differentiation factor 6	0.38
TREM1	triggering receptor expressed on myeloid cells 1	0.38

TNFRSF10D	tumor necrosis factor receptor superfamily. member 10d. decoy with truncated death domain	0.38
C15orf54	chromosome 15 open reading frame 54	0.39
EDN1	endothelin 1	0.39
ANGPT2	angiopoietin 2	0.40
TRIM55	tripartite motif containing 55	0.40
MME-AS1	MME antisense RNA 1	0.40
GABBR2	gamma-aminobutyric acid (GABA) B receptor. 2	0.41
IL6	interleukin 6 (interferon. beta 2)	0.41
DAW1	dynein assembly factor with WDR repeat domains 1	0.41
PLAU	plasminogen activator. urokinase	0.41
LOC100506394	uncharacterized LOC100506394	0.42
LCP1	lymphocyte cytosolic protein 1 (L-plastin)	0.42
RPSAP52	ribosomal protein SA pseudogene 52	0.42
FIBIN	fin bud initiation factor homolog (zebrafish)	0.42
LOC646999	akirin 1 pseudogene	0.42
VIPR1	vasoactive intestinal peptide receptor 1	0.43
CENPN	centromere protein N	0.43
ARSJ	arylsulfatase family. member J	0.44
XYLT1	xylosyltransferase I	0.44
GREM1	gremlin 1. DAN family BMP antagonist	0.44
VGLL3	vestigial like 3 (Drosophila)	0.44
LINC00312	long intergenic non-protein coding RNA 312	0.45
MYLK	myosin light chain kinase	0.45
MAMDC2	MAM domain containing 2	0.45
CCL8	chemokine (C-C motif) ligand 8	0.45
TNC	tenascin C	0.45

Supplemental Table 2. The top 100 master regulators of gene expression dataset following GATA6 overexpression. The Master regulators were sorted based on absolute Z-score. The positive Z-score indicates activation, whereas the negative Z-score indicates inhibition.

Master Regulator	Molecule Type	Fold Change	Z-score	Absolute Z-score
TNK1	kinase	-1.01	5.74	5.74
DUSP22	phosphatase	-1.01	5.35	5.35
MAPK1	kinase	1.07	-5.25	5.25
SP7	transcription regulator	-1.11	5.24	5.24
CGAS	enzyme	1.30	5.19	5.19
ANO6	ion channel	1.09	5.09	5.09
SCLT1	transporter	-1.23	5.09	5.09
FCAR	transmembrane receptor	-1.01	5.05	5.05
AVPR2	G-protein coupled receptor	1.11	-5.01	5.01
GLI3	transcription regulator	1.18	-4.90	4.90

ZHX2	transcription regulator	1.03	-4.87	4.87
LTBR	transmembrane receptor	1.10	4.84	4.84
FOXP1	transcription regulator	-1.10	-4.80	4.80
PML	transcription regulator	1.43	4.75	4.75
ELF4	transcription regulator	-1.03	4.75	4.75
DRD3	G-protein coupled receptor	-1.04	-4.71	4.71
EDNRA	transmembrane receptor	1.45	-4.67	4.67
RASA1	transporter	-1.19	4.67	4.67
RNF8	enzyme	1.22	-4.64	4.64
ARAF	kinase	-1.02	-4.64	4.64
TGM2	enzyme	-2.13	4.63	4.63
CSF2RA	transmembrane receptor	-1.04	-4.52	4.52
EPS8	peptidase	-1.16	-4.52	4.52
NDST1	enzyme	-1.19	-4.52	4.52
EDN2	growth factor	-1.05	-4.48	4.48
IGF2BP2	translation regulator	-1.14	-4.48	4.48
PDE6G	enzyme	-1.09	-4.48	4.48
ADRA2C	G-protein coupled receptor	-1.17	-4.45	4.45
SIRT1	transcription regulator	-1.05	-4.42	4.42
DNMT3A	enzyme	1.11	4.39	4.39
KLRC2	transmembrane receptor	-1.10	-4.37	4.37
S1PR5	G-protein coupled receptor	-1.12	-4.36	4.36
CMKLR1	G-protein coupled receptor	-1.00	-4.35	4.35
DDX58	enzyme	1.72	4.31	4.31
PTPN7	phosphatase	1.03	4.23	4.23
RAP2B	enzyme	1.27	-4.22	4.22
CCL11	cytokine	-4.39	-4.20	4.20
DNM1	enzyme	1.01	-4.20	4.20
MAP4K1	kinase	1.07	4.15	4.15
CTH	enzyme	1.28	4.14	4.14
CD46	transmembrane receptor	1.15	-4.13	4.13
SLC34A1	transporter	-1.02	-4.12	4.12
TLR9	transmembrane receptor	1.13	4.10	4.10
STC1	kinase	-1.20	4.09	4.09
OXTR	G-protein coupled receptor	1.34	-4.08	4.08
CHRNA2	transmembrane receptor	-1.02	-4.08	4.08
PLCD4	enzyme	1.19	-4.08	4.08
NRP2	kinase	-1.44	4.05	4.05
FES	kinase	1.08	-4.03	4.03
GATA3	transcription regulator	1.02	-4.02	4.02
RASD1	enzyme	-1.15	4.00	4.00

MAPK3	kinase	-1.08	3.95	3.95
PROC	peptidase	1.05	-3.95	3.95
GRM4	G-protein coupled receptor	-1.09	-3.94	3.94
PRKAB1	kinase	1.16	-3.94	3.94
MECOM	transcription regulator	-1.12	3.92	3.92
PLAAT4	enzyme	1.91	3.92	3.92
GLRX	enzyme	-1.18	-3.91	3.91
SULF1	enzyme	1.26	3.90	3.90
PPP2R2C	phosphatase	-1.15	-3.88	3.88
UBASH3A	enzyme	-1.06	-3.88	3.88
ADCY5	enzyme	1.01	-3.88	3.88
STAT5B	transcription regulator	1.19	-3.81	3.81
MFN2	enzyme	1.00	3.79	3.79
DUSP2	phosphatase	-1.12	3.76	3.76
DUSP7	phosphatase	1.06	3.72	3.72
ELF1	transcription regulator	1.01	-3.71	3.71
NKX2-3	transcription regulator	1.01	-3.71	3.71
ATE1	enzyme	1.08	-3.68	3.68
MGAT5	enzyme	1.74	-3.67	3.67
TBXA2R	G-protein coupled receptor	1.03	-3.62	3.62
CHKA	kinase	1.21	-3.61	3.61
CDK5R1	kinase	1.00	3.59	3.59
CD79B	transmembrane receptor	-1.06	-3.59	3.59
PLA2G5	enzyme	1.21	-3.59	3.59
RHOB	enzyme	-1.45	3.57	3.57
DUSP9	phosphatase	-1.09	3.57	3.57
IFNAR1	transmembrane receptor	1.10	3.55	3.55
PTGER4	G-protein coupled receptor	1.03	-3.55	3.55
TREM1	transmembrane receptor	-2.65	-3.50	3.50
PTPN18	phosphatase	-1.03	3.49	3.49
DUSP3	phosphatase	-1.11	3.48	3.48
MC1R	G-protein coupled receptor	1.27	-3.45	3.45
PLCE1	enzyme	-1.04	-3.44	3.44
DRD2	G-protein coupled receptor	1.67	3.44	3.44
CD247	transmembrane receptor	-1.06	-3.43	3.43
JAK1	kinase	1.03	3.43	3.43
BRAF	kinase	1.05	-3.41	3.41
CSF1R	kinase	1.13	-3.40	3.40
SPI1	transcription regulator	-1.10	3.40	3.40
APOC1	transporter	1.03	3.33	3.33
POR	enzyme	1.15	3.30	3.30

WWP2	enzyme	1.24	-3.27	3.27
GNAI2	enzyme	-1.06	-3.22	3.22
RARA	ligand-dependent nuclear receptor	1.05	3.19	3.19
HPRT1	enzyme	-1.19	3.19	3.19
F10	peptidase	1.01	-3.16	3.16
STAT1	transcription regulator	2.08	3.13	3.13
CHUK	kinase	-1.06	3.12	3.12
MMP17	peptidase	1.02	-3.10	3.10

Supplemental Table 3. The overlapped genes between the significant genes from the array and TGFB signaling pathway. Genes with (q=0) from Affimatrix human gene array were overlapped with genes in TGFB signaling pathway using KEGG PATHWAY list (hsa04350).

Gene symbol	Gene description	Fold change
GDF6	growth differentiation factor 6	0.38
BMP2	bone morphogenetic protein 2	0.46
INHBA	inhibin, beta A	0.51
NOG	noggin	0.59
SMAD1	SMAD family member 1	1.45
SMAD3	SMAD family member 3	1.50
BMPRII	bone morphogenetic protein receptor, type II (serine/threonine kinase)	1.64
ID4	inhibitor of DNA binding 4, dominant negative helix-loop-helix protein	1.74
BMP4	bone morphogenetic protein 4	1.83
DCN	decorin	1.91
TGFB3	transforming growth factor, beta 3	2.31
TGFB2	transforming growth factor, beta 2	2.34

Supplemental Table 4. The overlapped genes between the significant genes from the array and MAPK signaling pathway. Genes with (q=0) from Affimatrix human gene array were overlapped with genes in MAPK signaling pathway using KEGG PATHWAY list (hsa04010).

Gene symbol	Gene description	Fold change
FGF7	fibroblast growth factor 7	0.47
DUSP1	dual specificity phosphatase 1	0.49
DUSP5	dual specificity phosphatase 5	0.60
FGF1	fibroblast growth factor 1 (acidic)	0.62
GADD45B	growth arrest and DNA-damage-inducible, beta	0.62
NR4A1	nuclear receptor subfamily 4, group A, member 1	0.63
MKNK2	MAP kinase interacting serine/threonine kinase 2	1.47
MEF2C	myocyte enhancer factor 2C	1.49
RPS6KA5	ribosomal protein S6 kinase, 90kDa, polypeptide 5	1.50

DUSP6	dual specificity phosphatase 6	1.52
MAP3K8	mitogen-activated protein kinase kinase kinase 8	1.52
PLA2G12A	phospholipase A2, group XIIA	1.54
ARRB2	arrestin, beta 2	1.60
PPM1B	protein phosphatase, Mg ²⁺ /Mn ²⁺ dependent, 1B	1.63
RASGRF2	Ras protein-specific guanine nucleotide-releasing factor 2	1.64
IL1R1	interleukin 1 receptor, type I	1.83
DUSP4	dual specificity phosphatase 4	1.87
TGFB3	transforming growth factor, beta 3	2.31
TGFB2	transforming growth factor, beta 2	2.34
CD14	CD14 molecule	7.16