

# Supplementary tables

A sustained deficiency of mitochondrial respiratory complex III induces an apoptotic cell death through the p53-mediated inhibition of pro-survival activities of the Activating Transcription Factor 4

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**Table S1 A list of genes up-regulated by myxothiazol in the absence of p53 activation**

A list of genes, up-regulated after treatment HCT116 cells with myxothiazol for 5 h or with myxothiazol and uridine for 13 h (no p53 activation), but not up-regulated after treatment with myxothiazol alone for 13 h (after p53 activation); mRNA-Seq results.

<b>Ensemble ID</b>	<b>Gene symbol</b>	<b>David Gene Name</b>
ENSG00000090861	<a href="#">AARS</a>	alanyl-tRNA synthetase
ENSG00000128165	<a href="#">Adm2</a>	adrenomedullin 2
ENSG00000026652	<a href="#">AGPAT4</a>	1-acylglycerol-3-phosphate O-acyltransferase 4 (lysophosphatidic acid acyltransferase, delta)
ENSG00000131016	<a href="#">AKAP12</a>	A kinase (PRKA) anchor protein 12
ENSG00000151743	<a href="#">AMN1</a>	antagonist of mitotic exit network 1 homolog (S. cerevisiae)
ENSG00000145362	<a href="#">ank2</a>	ankyrin 2, neuronal
ENSG00000138660	<a href="#">AP1AR</a>	chromosome 4 open reading frame 16
ENSG00000172901	<a href="#">AQPEP</a>	laeverin
ENSG00000109321	<a href="#">AREG</a>	amphiregulin; amphiregulin B
ENSG00000124143	<a href="#">ARHGAP40</a>	chromosome 20 open reading frame 95
ENSG00000117407	<a href="#">Artn</a>	artemin
ENSG00000151693	<a href="#">Asap2</a>	ArfGAP with SH3 domain, ankyrin repeat and PH domain 2
ENSG00000128272	<a href="#">ATF4</a>	activating transcription factor 4 (tax-responsive enhancer element B67); activating transcription factor 4C
ENSG00000174718	<a href="#">C12orf35</a>	chromosome 12 open reading frame 35
ENSG00000166780	<a href="#">c16orf45</a>	chromosome 16 open reading frame 45
ENSG00000174749	<a href="#">c4orf32</a>	chromosome 4 open reading frame 32
ENSG00000151881	<a href="#">C5orf28</a>	chromosome 5 open reading frame 28
ENSG00000137038	<a href="#">C9orf123</a>	chromosome 9 open reading frame 123
ENSG00000110888	<a href="#">CAPRIN2</a>	caprin family member 2
ENSG00000105971	<a href="#">CAV2</a>	caveolin 2
ENSG00000114654	<a href="#">CCDC48</a>	coiled-coil domain containing 48
ENSG00000163814	<a href="#">CDCP1</a>	CUB domain containing protein 1
ENSG00000168944	<a href="#">CEP120</a>	centrosomal protein 120kDa
ENSG00000128965	<a href="#">CHAC1</a>	ChaC, cation transport regulator homolog 1 (E. coli)
ENSG00000115295	<a href="#">CLIP4</a>	CAP-GLY domain containing linker protein family, member 4
ENSG00000103647	<a href="#">CORO2B</a>	coronin, actin binding protein, 2B
ENSG00000116761	<a href="#">CTH</a>	cystathionase (cystathionine gamma-lyase)
ENSG00000168209	<a href="#">dit4</a>	DNA-damage-inducible transcript 4
ENSG00000142197	<a href="#">Dopey2</a>	dopey family member 2
ENSG00000139318	<a href="#">dusp6</a>	dual specificity phosphatase 6

ENSG00000107404	<a href="#">DVL1</a>	dishevelled, dsh homolog 1 (Drosophila); dishevelled, dsh homolog 1 (Drosophila)-like 1
ENSG00000146648	<a href="#">egfr</a>	epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) oncogene homolog, avian)
ENSG00000120738	<a href="#">Egr1</a>	early growth response 1
ENSG00000156976	<a href="#">EIF4A2</a>	similar to eukaryotic translation initiation factor 4A2; eukaryotic translation initiation factor 4A, isoform 2
ENSG00000187840	<a href="#">EIF4EBP1</a>	eukaryotic translation initiation factor 4E binding protein 1
ENSG00000134531	<a href="#">emp1</a>	epithelial membrane protein 1
ENSG00000136628	<a href="#">eprs</a>	glutamyl-prolyl-tRNA synthetase
ENSG00000124882	<a href="#">ereg</a>	epiregulin
ENSG00000116285	<a href="#">ERRFI1</a>	ERBB receptor feedback inhibitor 1
ENSG00000179715	<a href="#">FAM113B</a>	family with sequence similarity 113, member B
ENSG00000101311	<a href="#">FERMT1</a>	fermitin family homolog 1 (Drosophila)
ENSG00000162344	<a href="#">FGF19</a>	fibroblast growth factor 19
ENSG00000166206	<a href="#">GABRB3</a>	gamma-aminobutyric acid (GABA) A receptor, beta 3
ENSG00000106105	<a href="#">Gars</a>	glycyl-tRNA synthetase
ENSG00000159131	<a href="#">GART</a>	phosphoribosylglycinamide formyltransferase, phosphoribosylglycinamide synthetase, phosphoribosylaminoimidazole synthetase
ENSG00000001084	<a href="#">GCLC</a>	glutamate-cysteine ligase, catalytic subunit
ENSG00000198380	<a href="#">GFPT1</a>	glutamine-fructose-6-phosphate transaminase 1
ENSG00000112699	<a href="#">Gmids</a>	GDP-mannose 4,6-dehydratase
ENSG00000159592	<a href="#">GPBP1L1</a>	GC-rich promoter binding protein 1-like 1
ENSG00000125772	<a href="#">GPCPD1</a>	hypothetical protein KIAA1434
ENSG00000023171	<a href="#">Gramd1b</a>	GRAM domain containing 1B
ENSG00000106070	<a href="#">GRB10</a>	growth factor receptor-bound protein 10
ENSG00000068097	<a href="#">HEATR6</a>	HEAT repeat containing 6
ENSG00000122557	<a href="#">herpud2</a>	HERPUD family member 2
ENSG00000182952	<a href="#">HMGN4</a>	high mobility group nucleosomal binding domain 4
ENSG00000115756	<a href="#">hpcal1</a>	hippocalcin-like 1
ENSG00000002587	<a href="#">Hs3st1</a>	heparan sulfate (glucosamine) 3-O-sulfotransferase 1
ENSG00000003147	<a href="#">Ica1</a>	islet cell autoantigen 1, 69kDa
ENSG00000160888	<a href="#">ier2</a>	immediate early response 2
ENSG00000006652	<a href="#">ifrd1</a>	interferon-related developmental regulator 1
ENSG00000164171	<a href="#">ITGA2</a>	integrin, alpha 2 (CD49B, alpha 2 subunit of VLA-2 receptor)
ENSG00000008083	<a href="#">jarid2</a>	jumonji, AT rich interactive domain 2
ENSG00000140044	<a href="#">JDP2</a>	Jun dimerization protein 2
ENSG00000006459	<a href="#">Jhdm1d</a>	jumonji C domain containing histone demethylase 1 homolog D (S. cerevisiae)
ENSG00000026559	<a href="#">KCNG1</a>	potassium voltage-gated channel, subfamily G, member 1
ENSG00000104783	<a href="#">KCNN4</a>	potassium intermediate/small conductance calcium-activated channel, subfamily N, member 4
ENSG00000114656	<a href="#">KIAA1257</a>	KIAA1257
ENSG00000169926	<a href="#">KLF13</a>	Kruppel-like factor 13
ENSG00000136826	<a href="#">Klf4</a>	Kruppel-like factor 4 (gut)
ENSG00000102554	<a href="#">Klf5</a>	Kruppel-like factor 5 (intestinal)
ENSG00000171401	<a href="#">KRT13</a>	keratin 13
ENSG00000186007	<a href="#">LEMD1</a>	LEM domain containing 1
ENSG00000124831	<a href="#">Lrrfip1</a>	leucine rich repeat (in FLII) interacting protein 1
ENSG00000119681	<a href="#">LTBP2</a>	latent transforming growth factor beta binding protein 2
ENSG00000166986	<a href="#">mars</a>	methionyl-tRNA synthetase
ENSG00000112139	<a href="#">MDGA1</a>	MAM domain containing glycosylphosphatidylinositol anchor 1
ENSG00000120254	<a href="#">MTHFD1L</a>	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 1-like
ENSG00000065911	<a href="#">mthfd2</a>	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 2, methenyltetrahydrofolate cyclohydrolase
ENSG00000188554	<a href="#">NBR1</a>	neighbor of BRCA1 gene 1
ENSG00000135318	<a href="#">NT5E</a>	5'-nucleotidase, ecto (CD73)
ENSG00000101188	<a href="#">Ntsr1</a>	neurotensin receptor 1 (high affinity)
ENSG00000184232	<a href="#">OAF</a>	OAF homolog (Drosophila)

ENSG00000205922	<a href="#">Onecut3</a>	one cut homeobox 3
ENSG00000137819	<a href="#">Paqr5</a>	progesterone and adiponectin receptor family member V
ENSG00000168300	<a href="#">PCMTD1</a>	protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1
ENSG00000150593	<a href="#">PDCD4</a>	programmed cell death 4 (neoplastic transformation inhibitor)
ENSG00000060642	<a href="#">PIGV</a>	phosphatidylinositol glycan anchor biosynthesis, class V
ENSG00000137193	<a href="#">Pim1</a>	pim-1 oncogene
ENSG00000154217	<a href="#">PITPNC1</a>	phosphatidylinositol transfer protein, cytoplasmic 1
ENSG00000010438	<a href="#">prss3</a>	protease, serine, 3
ENSG00000135069	<a href="#">PSAT1</a>	chromosome 8 open reading frame 62; phosphoserine aminotransferase 1
ENSG00000070159	<a href="#">Ptpn3</a>	protein tyrosine phosphatase, non-receptor type 3
ENSG00000179912	<a href="#">R3HDM2</a>	R3H domain containing 2
ENSG00000185989	<a href="#">Rasa3</a>	RAS p21 protein activator 3
ENSG00000144468	<a href="#">RHBDD1</a>	rhomboid domain containing 1
ENSG00000139725	<a href="#">Rhof</a>	ras homolog gene family, member F (in filopodia)
ENSG00000013561	<a href="#">RNF14</a>	ring finger protein 14
ENSG00000130363	<a href="#">RSPH3</a>	radial spoke 3 homolog (Chlamydomonas)
ENSG00000159216	<a href="#">Runx1</a>	runt-related transcription factor 1
ENSG00000031698	<a href="#">SARS</a>	seryl-tRNA synthetase
ENSG00000064932	<a href="#">SBNO2</a>	strawberry notch homolog 2 (Drosophila)
ENSG00000185033	<a href="#">SEMA4B</a>	sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4B
ENSG00000147010	<a href="#">Sh3kbp1</a>	SH3-domain kinase binding protein 1
ENSG00000125089	<a href="#">SH3TC1</a>	SH3 domain and tetratricopeptide repeats 1
ENSG00000144136	<a href="#">SLC20A1</a>	solute carrier family 20 (phosphate transporter), member 1
ENSG00000134294	<a href="#">slc38a2</a>	solute carrier family 38, member 2
ENSG00000149150	<a href="#">SLC43A1</a>	solute carrier family 43, member 1
ENSG00000196517	<a href="#">SLC6A9</a>	solute carrier family 6 (neurotransmitter transporter, glycine), member 9
ENSG00000139514	<a href="#">SLC7A1</a>	solute carrier family 7 (cationic amino acid transporter, y+ system), member 1
ENSG00000151012	<a href="#">SLC7A11</a>	solute carrier family 7, (cationic amino acid transporter, y+ system) member 11
ENSG00000166949	<a href="#">SMAD3</a>	SMAD family member 3
ENSG00000108854	<a href="#">SMURF2</a>	SMAD specific E3 ubiquitin protein ligase 2
ENSG00000072310	<a href="#">Srebf1</a>	sterol regulatory element binding transcription factor 1
ENSG00000113739	<a href="#">STC2</a>	stanniocalcin 2
ENSG00000196182	<a href="#">Stk40</a>	serine/threonine kinase 40
ENSG00000135269	<a href="#">tes</a>	testis derived transcript (3 LIM domains)
ENSG00000150403	<a href="#">TMCO3</a>	transmembrane and coiled-coil domains 3
ENSG00000067182	<a href="#">TNFRSF1A</a>	tumor necrosis factor receptor superfamily, member 1A
ENSG00000101255	<a href="#">TRIB3</a>	tribbles homolog 3 (Drosophila)
ENSG00000102804	<a href="#">Tsc22d1</a>	TSC22 domain family, member 1
ENSG00000111981	<a href="#">ULBP1</a>	UL16 binding protein 1
ENSG00000128564	<a href="#">VGF</a>	VGF nerve growth factor inducible
ENSG00000100219	<a href="#">Xbp1</a>	X-box binding protein 1
ENSG00000184575	<a href="#">Xpot</a>	exportin, tRNA (nuclear export receptor for tRNAs); similar to Exportin-T (tRNA exportin) (Exportin(tRNA))
ENSG00000134684	<a href="#">Yars</a>	tyrosyl-tRNA synthetase
ENSG00000188177	<a href="#">ZC3H6</a>	zinc finger CCCH-type containing 6
ENSG00000104231	<a href="#">Zfand1</a>	zinc finger, AN1-type domain 1
ENSG00000128016	<a href="#">ZFP36</a>	zinc finger protein 36, C3H type, homolog (mouse)
ENSG00000185650	<a href="#">zfp3611</a>	zinc finger protein 36, C3H type-like 1
ENSG00000160961	<a href="#">ZNF333</a>	zinc finger protein 333
ENSG00000198205	<a href="#">ZXDA</a>	zinc finger, X-linked, duplicated A

**Table S2** A list of genes whose expression was up-regulated in HCT116 cells in all three cases (myxothiazol 5h, 13h, myxothiazol +uridine 13h), but reliably decreased after myxothiazol alone treatment for 13 h in comparison to the expression of the same genes after treatment by myxothiazol and uridine for 13 h. mRNA-Seq results.

Ensemble ID	Gene symbol	David Gene Name
ENSG00000179833	<a href="#">SERTAD2</a>	SERTA domain containing 2
ENSG00000184489	<a href="#">ptp4a3</a>	protein tyrosine phosphatase type IVA, member 3
ENSG00000187720	<a href="#">THSD4</a>	thrombospondin, type I, domain containing 4
ENSG00000101280	<a href="#">Anqpt4</a>	angiopoietin 4
ENSG00000205420	<a href="#">KRT6A</a>	keratin 6A
ENSG00000163216	<a href="#">SPRR2D</a>	small proline-rich protein 2D
ENSG00000136068	<a href="#">FLNB</a>	filamin B, beta (actin binding protein 278)
ENSG00000175197	<a href="#">DDIT3</a>	DNA-damage-inducible transcript 3
ENSG00000125826	<a href="#">RBCK1</a>	RanBP-type and C3HC4-type zinc finger containing 1
ENSG00000120875	<a href="#">DUSP4</a>	dual specificity phosphatase 4
ENSG00000185567	<a href="#">AHNAK2</a>	AHNAK nucleoprotein 2
ENSG00000196352	<a href="#">Cd55</a>	CD55 molecule, decay accelerating factor for complement (Cromer blood group)
ENSG00000138678	<a href="#">AGPAT9</a>	1-acylglycerol-3-phosphate O-acyltransferase 9
ENSG00000005884	<a href="#">ITGA3</a>	integrin, alpha 3 (antigen CD49C, alpha 3 subunit of VLA-3 receptor)
ENSG00000198431	<a href="#">TXNRD1</a>	thioredoxin reductase 1; hypothetical LOC100130902
ENSG00000049239	<a href="#">H6pd</a>	hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase)
ENSG00000166750	<a href="#">Slfn5</a>	schlafen family member 5
ENSG00000166123	<a href="#">GPT2</a>	glutamic pyruvate transaminase (alanine aminotransferase) 2
ENSG00000183696	<a href="#">upp1</a>	uridine phosphorylase 1
ENSG00000175592	<a href="#">FOSL1</a>	FOS-like antigen 1
ENSG00000135842	<a href="#">FAM129A</a>	family with sequence similarity 129, member A
ENSG00000105281	<a href="#">SLC1A5</a>	solute carrier family 1 (neutral amino acid transporter), member 5
ENSG00000167767	<a href="#">KRT80</a>	keratin 80
ENSG00000132470	<a href="#">ITGB4</a>	integrin, beta 4
ENSG00000137936	<a href="#">bcar3</a>	breast cancer anti-estrogen resistance 3
ENSG00000103257	<a href="#">SLC7A5</a>	solute carrier family 7 (cationic amino acid transporter, y+ system), member 5
ENSG00000116584	<a href="#">Arhaef2</a>	Rho/Rac guanine nucleotide exchange factor (GEF) 2
ENSG00000165175	<a href="#">mid1ip1</a>	MID1 interacting protein 1 (gastrulation specific G12 homolog (zebrafish))
ENSG00000186832	<a href="#">Krt16</a>	keratin 16; keratin type 16-like
ENSG00000135480	<a href="#">Krt7</a>	keratin 7
ENSG00000187678	<a href="#">SPRY4</a>	sprouty homolog 4 (Drosophila)
ENSG00000169504	<a href="#">CLIC4</a>	chloride intracellular channel 4
ENSG00000156510	<a href="#">HKDC1</a>	hexokinase domain containing 1
ENSG00000172432	<a href="#">atpbbp2</a>	GTP binding protein 2

**Table S3.** Differential expression of apoptotic genes in HCT116 cells on the basis of mRNA-Seq data after mitochondrial ETC complex III inhibition with myxothiazol for 5h (M5), 13 h (M13), 17 h (M17) and for 13 h in the presence of uridine (MU13). N16 – treatment with Nutlin-3 for 16 h. Fold changes in mRNA levels are presented (FDR < 0.05). NC – no change.

Ensemble ID	Gene symbol	David Gene Name	mRNA fold changes				
			M5	M13	M17	MU13	N16
ENSG00000143382	<a href="#">ADAMTSL4</a>	ADAMTS-like 4	NC	3.0	3.2	NC	NC
ENSG00000183773	<a href="#">aifm3</a>	apoptosis-inducing factor, mitochondrion-associated, 3	NC	4.01	3.2	NC	NC
ENSG00000105290	<a href="#">Aplp1</a>	amyloid beta (A4) precursor-like protein 1	NC	2.57	3.09	NC	NC
ENSG00000105327	<a href="#">BBC3</a>	BCL2 binding component 3	1.45	1.89	2.96	NC	6.40
ENSG00000153094	<a href="#">BCL2L11</a>	BCL2-like 11 (apoptosis facilitator)	NC	2.01	2.06	NC	NC
ENSG00000100290	<a href="#">BIK</a>	BCL2-interacting killer (apoptosis-inducing)	1.88	1.38	2.04	NC	2.1
ENSG00000166619	<a href="#">BLCAP</a>	bladder cancer associated protein	NC	2.47	2.47	NC	2.18
ENSG00000164305	<a href="#">Casp3</a>	caspase 3, apoptosis-related cysteine peptidase	NC	2.44	2.57	NC	NC
ENSG00000165806	<a href="#">casp7</a>	caspase 7, apoptosis-related cysteine peptidase	NC	1.68	2.76	0.67	NC
ENSG00000144655	<a href="#">CSRNP1</a>	cysteine-serine-rich nuclear protein 1	1.59	3.01	4.13	NC	2.01
ENSG00000110925	<a href="#">CSRNP2</a>	cysteine-serine-rich nuclear protein 2	1.66	4.29	3.74	NC	NC
ENSG00000136048	<a href="#">DRAM1</a>	DNA-damage regulated autophagy modulator 1	NC	1.51	2.08	NC	2.98
ENSG00000026103	<a href="#">Fas</a>	Fas (TNF receptor superfamily, member 6)	NC	2.50	3.40	NC	4.25
ENSG00000116717	<a href="#">GADD45A</a>	growth arrest and DNA-damage-inducible, alpha	1.82	2.77	2.55	1.52	3.72
ENSG00000111653	<a href="#">Ing4</a>	inhibitor of growth family, member 4	NC	2.37	2.41	NC	NC
ENSG00000177606	<a href="#">Jun</a>	jun oncogene	1.68	3.26	4.91	NC	NC
ENSG00000177595	<a href="#">Lrdd</a>	leucine-rich repeats and death domain containing	NC	2.47	2.97	NC	2.31
ENSG00000165943	<a href="#">Moap1</a>	modulator of apoptosis 1	NC	3.10	3.08	NC	NC
ENSG00000064300	<a href="#">Ngfr</a>	nerve growth factor receptor (TNFR superfamily, member 16)	2.99	3.52	4.18	NC	NC
ENSG00000091592	<a href="#">Nlrp1</a>	NLR family, pyrin domain containing 1	2.60	2.15	2.36	1.73	7.54
ENSG00000181649	<a href="#">phlda2</a>	pleckstrin homology-like domain, family A, member 2	2.07	2.68	3.65	NC	NC
ENSG00000174307	<a href="#">Phlda3</a>	pleckstrin homology-like domain, family A, member 3	NC	1.58	2.80	0.73	4.88
ENSG00000141682	<a href="#">PMAIP1</a>	phorbol-12-myristate-13-acetate-induced protein 1	2.04	4.79	3.10	1.72	NC
ENSG00000164543	<a href="#">STK17A</a>	serine/threonine kinase 17a	1.37	1.95	2.48	NC	NC
ENSG00000120889	<a href="#">tnfrsf10b</a>	tumor necrosis factor receptor superfamily, member 10b	1.60	2.77	2.42	1.30	2.74
ENSG00000125657	<a href="#">TNFSF9</a>	tumor necrosis factor (ligand) superfamily, member 9	NC	3.34	3.23	NC	NC
ENSG00000164938	<a href="#">TP53INP1</a>	tumor protein p53 inducible nuclear protein 1	NC	10.78	28.58	NC	125.4