

Table S3. Complete list of the differentially expressed proteins in SILAC experiments

Table S3-1. Summary of upregulated proteins after HOTAIR knockdown

*superscript denotes the reference number

Accession	Gene name	Protein	Ratio (siHOTAIR/siNC)	HOTAIR Knockdown			HOTAIR Overexpression	
				Panc1 (siHOTAIR/siNC) ⁶¹	GIST-T1 (siHOTAIR/siNC) ⁶²	SBC-3 (siHOTAIR/siGFP) ⁶³	TTFs (HOTAIR KO/WT) ⁶⁵	MDA-MB-231 (HOTAIR/vector) ⁶⁴
IPI00396378	HNRNP2B1	Isoform B1 of Heterogeneous nuclear ribonucleoproteins A2/B1	1.46					
IPI00848161	DDX39B	Isoform 1 of Spliceosome RNA helicase DDX39B	1.47					
IPI00305692	TXNL1	Thioredoxin-like protein 1	1.47					
IPI00119912	HSD17B4	Peroxisomal multifunctional enzyme type 2	1.48					
IPI00117617	DDX5	Probable ATP-dependent RNA helicase DDX5	1.48					
IPI0056494	RPL36AL	RPL36AL 60S ribosomal protein L36a-like	1.48					
IPI00302688	ECHDC1	ECHDC1 Isoform 1 of Enoyl-CoA hydratase domain-containing protein 1	1.49					
IPI00445051	PURB	PURB Transcriptional activator protein Pur-beta	1.49				1.60	
IPI0027699	PSMD10	PSMD10 Uncharacterized protein	1.49		2.12			
IPI0020793	NIP7	NIP7 Isoform 2 of 60S ribosome subunit biogenesis protein NIP7 homolog	1.50					
IPI00564786	TXNRD1	TXNRD1 Isoform 5 of Thioredoxin reductase 1, cytoplasmic	1.50				0.60	
IPI00215888	SRP72	SRP72 Signal recognition particle 72 kDa protein	1.50					
IPI0007935	PDLIM5	PDLIM5 Isoform 1 of PDZ and LIM domain protein 5	1.50					9.44
IPI0031564	GGCT	GGCT Isoform 1 of Gamma-glutamylcyclotransferase	1.50					
IPI0009904	PDIA4	PDIA4 Protein disulfide-isomerase A4	1.50					
IPI0028091	ACTR3	ACTR3 Actin-related protein 3	1.51					
IPI0295098	SRPR8	SRPR8 Signal recognition particle receptor subunit beta	1.51					
IPI0023542	TMED9	TMED9 Transmembrane emp24 domain-containing protein 9	1.51					
IPI0012382	SNRPA	SNRPA U1 small nuclear ribonucleoprotein A	1.51					
IPI0220578	GNAI3	GNAI3 Guanine nucleotide-binding protein G(k) subunit alpha	1.52				1.73	
IPI0748145	GNAI2	GNAI2 Isoform 1 of Guanine nucleotide-binding protein G(i) subunit alpha-2	1.52					
IPI00470610	PYCR2	PYCR2 Pyrroline-5-carboxylate reductase 2	1.52					
IPI01010145	RBM12	RBM12 cDNA FLJ90464 fis, clone NT2RP3002281, highly similar to RNA-binding protein 12	1.53					
IPI01011421	DL2	DL2 Dihydropyridinase	1.53					
IPI00003327	ARL3	ARL3 ADP-ribosylation factor-like protein 3	1.53					
IPI00005198	ILF2	ILF2 Interleukin enhancer-binding factor 2	1.54					
IPI00759596	HNRNPC	HNRNPC Isoform 4 of Heterogeneous nuclear ribonucleoproteins C1/C2	1.54					
IPI00440493	ATP5A1	ATP5A1 ATP synthase subunit alpha, mitochondrial	1.55					
IPI00791136	IKBIP	IKBIP Isoform 1 of Inhibitor of nuclear factor kappa-B kinase-interacting protein	1.55					
IPI00291643	SPRYD4	SPRYD4 SPRY domain-containing protein 4	1.56					
IPI0015947	DNAJB1	DNAJB1 DnaJ homolog subfamily B member 1	1.56					
IPI00303722	FAM136A	FAM136A Protein FAM136A	1.56					
IPI00011159	GCN1L1	GCN1L1 Translational activator GCN1	1.56					
IPI00218547	ALDH18A1	ALDH18A1 Isoform Short of Delta-1-pyrroline-5-carboxylate synthase	1.58		2.23		0.65	
IPI00294158	BLVRA	BLVRA Biliverdin reductase A	1.58					
IPI00012268	PSMD2	PSMD2 26S proteasome non-ATPase regulatory subunit 2	1.59					
IPI01012012	GALNT2	GALNT2 61 kDa protein	1.59					
IPI00300074	FARSB	FARSB Phenylalanyl-tRNA synthetase beta chain	1.59					1.84
IPI00298961	XPO1	XPO1 Exportin-1	1.60		2.11		1.66	
IPI00306290	XPOT	XPOT Exportin-T	1.61		6.88			
IPI00396203	TBCD	TBCD Isoform 1 of Tubulin-specific chaperone D	1.61					
IPI00014230	C1QBP	C1QBP Complement component 1 Q subcomponent-binding protein, mitochondrial	1.61					
IPI0010779	TPM4	TPM4 Isoform 1 of Tropomyosin alpha-4 chain	1.62					
IPI00011107	IDH2	IDH2 Isocitrate dehydrogenase [NADP], mitochondrial	1.63					
IPI00645898	XPNPEP1	XPNPEP1 X-prolyl aminopeptidase (Aminopeptidase P) 1, soluble	1.64				0.67	
IPI00031655	VPS25	VPS25 Vacuolar protein-sorting-associated protein 25	1.65					
IPI00032406	DNAJA2	DNAJA2 DnaJ homolog subfamily A member 2	1.65					
IPI00984662	DAP3	DAP3 28S ribosomal protein S29, mitochondrial isoform 3	1.66					2.25
IPI00916936	MED20	MED20 Uncharacterized protein	1.66		2.32			
IPI00929464	SRP54	SRP54 signal recognition particle 54 kDa protein isoform 2	1.67					
IPI00550689	C22orf28	C22orf28 tRNA-splicing ligase RtcB homolog	1.70					
IPI00413611	TOP1	TOP1 DNA topoisomerase 1	1.70		2.37		1.67	
IPI00168262	GLT25D1	GLT25D1 Procollagen galactosyltransferase 1	1.70					
IPI00655650	RPS26	RPS26 40S ribosomal protein S26	1.71					
IPI00418471	VIM	VIM Vimentin	1.71					
IPI00031570	NTPCR	NTPCR Cancer-related nucleoside-triphosphatase	1.73					
IPI00795318	MCM4	MCM4 cDNA FLJ54365, highly similar to DNA replication licensing factor MCM4	1.74					
IPI01014223	PTPN1	PTPN1 cDNA FLJ50851, highly similar to Tyrosine-protein phosphatase non-receptor type 1	1.74					
IPI00299095	SNX2	SNX2 Sorting nexin-2	1.75					
IPI00550243	THUMP1	THUMP1 THUMP domain-containing protein 1	1.76		3.04			
IPI00026230	HNRNPH2	HNRNPH2 Heterogeneous nuclear ribonucleoprotein H2	1.78				1.67	
IPI00884341	DIAPH1	DIAPH1 Isoform 2 of Protein diaphanous homolog 1	1.79					1.62
IPI00936002	ALDH7A1	ALDH7A1 Isoform 2 of Alpha-aminoacidic semialdehyde dehydrogenase	1.79					
IPI00106642	SDF2L1	SDF2L1 Dihydropyrimidinase-like 2	1.79					
IPI00004833	RPS5	RPS5 40S ribosomal protein S5	1.79					
IPI00027851	HEXA	HEXA cDNA FLJ53927, highly similar to Beta-hexosaminidase alpha chain	1.80					
IPI00553204	MOSPD1	MOSPD1 Isoform 2 of Motile sperm domain-containing protein 1	1.80					
IPI0015842	RCN1	RCN1 Reticulocalbin-1	1.81					
IPI00465294	CDC5L	CDC5L Cell division cycle 5-like protein	1.82					
IPI00179953	NASP	NASP Isoform 1 of Nuclear autoantigenic sperm protein	1.82					
IPI00553165	PIN4	PIN4 Protein (Peptidylprolyl cis/trans isomerase) NIMA-interacting, 4	1.83				1.75	
IPI0013452	EPRS	EPRS Bifunctional aminoacyl-tRNA synthetase	1.84					
IPI00745335	GPX4	GPX4 Isoform Cytoplasmic of Phospholipid hydroperoxide glutathione peroxidase, mitochondrial	1.84					
IPI00182757	KIAA1967	KIAA1967 Isoform 1 of Protein KIAA1967	1.84					1.80
IPI01013988	EIF3F	EIF3F cDNA FLJ52696, highly similar to Eukaryotic translation initiation factor 3 subunit 5	1.91					
IPI00945855	PFN2	PFN2 Uncharacterized protein	1.92	0.59	2.53			
IPI00013871	RRM1	RRM1 Ribonucleoside-diphosphate reductase large subunit	1.93					

IPI0002535	FKBP2	FKBP2 Peptidyl-prolyl cis-trans isomerase FKBP2	1.95			
IPI00043598	IKBIP	IKBIP Isoform 4 of Inhibitor of nuclear factor kappa-B kinase-interacting protein	1.95			
IPI00005045	ABCF2	ABCF2 ATP-binding cassette sub-family F member 2	1.96			2.20
IPI00013195	MRPL49	MRPL49 39S ribosomal protein L49, mitochondrial	2.00			
IPI00386189	NAA15	NAA15 Isoform 1 of N-alpha-acetyltransferase 15, NatA auxiliary subunit	2.02		1.93	
IPI00017339	SF3B4	SF3B4 Splicing factor 3B subunit 4	2.03	0.42		1.56
IPI00016373	RAB13	RAB13 Ras-related protein Rab-13	2.03			
IPI00003505	TRIP13	TRIP13 Isoform 1 of Pachytene checkpoint protein 2 homolog	2.10		1.52	
IPI00028004	PSMB3	PSMB3 Proteasome subunit beta type-3	2.13			
IPI00011217	NDUFS4	NDUFS4 NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial	2.13			
IPI00017342	RHOG	RHOG Rho-related GTP-binding protein RhoG	2.14			
IPI00551024	DAK	DAK Bifunctional ATP-dependent dihydroxyacetone kinase/FAD-AMP lyase (cyclizing)	2.15			
IPI00017283	IARS2	IARS2 Isoleucyl-tRNA synthetase, mitochondrial	2.15			
IPI01011577	ERLIN2	ERLIN2 Uncharacterized protein	2.15			2.51
IPI00413451	SERPINB6	SERPINB6 Serpin B6	2.20			
IPI00022018	DPM1	DPM1 Dolichol-phosphate mannosyltransferase	2.21			
IPI00946334	NDUFS2	NDUFS2 NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial isoform 2 precursor	2.25			5.61
IPI00005578	EHD4	EHD4 EH domain-containing protein 4	2.37			
IPI00103415	STAT5B	STAT5B Signal transducer and activator of transcription 5B	2.38			1.60
IPI00029631	ERH	ERH Enhancer of rudimentary homolog	2.41			
IPI00031804	VDAC3	VDAC3 Isoform 1 of Voltage-dependent anion-selective channel protein 3	2.41			
IPI00000760	DDAH2	DDAH2 N(G),N(G)-dimethylarginine dimethylaminohydrolase 2	2.42			
IPI00009946	TOMM34	TOMM34 Mitochondrial import receptor subunit TOM34	2.45	1.57		
IPI00004534	PFAS	PFAS Phosphoribosylformylglycinamide synthase	2.48			
IPI00021016	TSFM	TSFM Isoform 1 of Elongation factor Ts, mitochondrial	2.49			
IPI00020164	PTP4A1	PTP4A1 Protein tyrosine phosphatase type IVA 1	2.61		2.09	1.57
IPI00020416	TPP2	TPP2 Tripeptidyl-peptidase 2	2.67			
IPI01012991	LUC7L2	LUC7L2 Isoform 1 of Putative RNA-binding protein Luc7-like 2	2.67		1.52	
IPI00744135	RRBP1	RRBP1 Isoform 2 of Ribosome-binding protein 1	2.89			
IPI00335385	DCPS	DCPS Scavenger mRNA-decapping enzyme DcpS	2.94			
IPI00025974	CHMP4B	CHMP4B Charged multivesicular body protein 4b	3.03			
IPI00025039	FBL	FBL rRNA 2'-O-methyltransferase fibrillarin	3.20			
IPI00334282	FAM3C	FAM3C Protein FAM3C	3.37			1.61 1.59
IPI00005160	ARPC1B	ARPC1B Actin-related protein 2/3 complex subunit 1B	3.49			
IPI00942092	ADSL	ADSL Isoform 1 of Adenylosuccinate lyase	3.64			2.19
IPI00011619	PAPSS1	PAPSS1 Bifunctional 3'-phosphoadenosine 5'-phosphosulfate synthase 1	4.17		2.75	
IPI00216230	TMPO	TMPO Lamina-associated polypeptide 2, isoform alpha	4.84		2.42	
IPI00301395	CPVL	CPVL Probable serine carboxypeptidase CPVL	5.72			0.00
IPI00478854	ZNF574	ZNF574 Isoform 1 of Zinc finger protein 574	7.72			
IPI00470674	CYB5R1	CYB5R1 NADH-cytochrome b5 reductase 1	7.73			
IPI00738655	POTEJ	POTEJ POTE ankyrin domain family member J	13.20			

Table S3-2. Summary of downregulated proteins after HOTAIR knockdown

Accession	Gene name	Protein	Ratio (siHOTAIR/siNC)	HOTAIR Knockdown			HOTAIR Overexpression		
				Panc1 (siHOTAIR/siNC) ⁵¹	GIST-T1 (siHOTAIR/siNC) ⁵²	SBC-3 (siHOTAIR/siGFP) ⁵³	TTFs (HOTAIR KO/WT) ⁵⁵	MDA-MB-231 (HOTAIR/vector) ⁵⁴	KYSE180 (HOTAIR/vector) ⁵⁰
IPI00217963	KRT16	KRT16 Keratin, type I cytoskeletal 16	0.07				0.00		
IPI00220327	KRT1	KRT1 Keratin, type II cytoskeletal 1	0.14				0.00		
IPI00019359	KRT9	KRT9 Keratin, type I cytoskeletal 9	0.17				0.00		
IPI00021304	KRT2	KRT2 Keratin, type II cytoskeletal 2 epidermal	0.18				0.00		
IPI00024742	UQCRCQ	UQCRCQ Cytochrome b-c1 complex subunit 8	0.19						
IPI00009865	KRT10	KRT10 Keratin, type I cytoskeletal 10	0.27				1.95		
IPI00165261	SCFD1	SCFD1 Sec1 family domain-containing protein 1	0.28				2.03		
IPI00101095	C20orf27	C20orf27 Isoform 1 of UPPF0687 protein C20orf27	0.28					3.65	
IPI00334291	LONP1	LONP1 Lon protease homolog	0.34						
IPI00019733	RAE1	RAE1 mRNA export factor	0.35						
IPI00384444	KRT14	KRT14 Keratin, type I cytoskeletal 14	0.39				0.20		
IPI00797038	PCK2	PCK2 Isoform 1 of Phosphoenolpyruvate carboxykinase [GTP], mitochondrial	0.39		2.15		0.53		
IPI00869040	NUBP1	NUBP1 Isoform 2 of Cytosolic Fe-S cluster assembly factor NUBP1	0.39						
IPI00412771	CD2AP	CD2AP CD2-associated protein	0.43				2.04		
IPI00953925	AIP	AIP Aryl hydrocarbon receptor interacting protein	0.43						
IPI00472939	SPCS2	LOC653566:SPCS2 Signal peptidase complex subunit 2	0.46						
IPI00008333	CGA	CGA Glycoprotein hormones alpha chain	0.46				0.00		
IPI00983062	C11orf48	C11orf48 14 kDa protein	0.46						
IPI00927538	TBL2	TBL2 Uncharacterized protein	0.48						
IPI00306398	NUDCD1	NUDCD1 Isoform 2 of NudC domain-containing protein 1	0.48					1.97	
IPI00016746	CBFB	CBFB Isoform 1 of Core-binding factor subunit beta	0.49						
IPI00009867	KRT5	KRT5 Keratin, type II cytoskeletal 5	0.49						
IPI00019487	NUDT15	NUDT15 Probable 7,8-dihydro-8-oxoguanine triphosphatase NUDT15	0.49						
IPI00005154	SSRP1	SSRP1 FACT complex subunit SSRP1	0.53						
IPI00006440	MRPS7	MRPS7 28S ribosomal protein S7, mitochondrial	0.54						
IPI00032827	SF3B14	SF3B14 Pre-mRNA branch site protein p14	0.56						
IPI00909766	PSMD5	PSMD5 cDNA FLJ52877, highly similar to 26S proteasome non-ATPase regulatory subunit 5	0.56		2.88				
IPI00028618	MGMT	MGMT methylated-DNA-protein-cysteine methyltransferase	0.57					1.98	
IPI00414836	OSTF1	OSTF1 Osteoclast-stimulating factor 1	0.57						
IPI01011723	ARL1	ARL1 cDNA FLJ51704, highly similar to ADP-ribosylation factor-like protein 1	0.57						
IPI00020021	DEK	DEK Protein DEK	0.58				2.37	2.25	
IPI00027681	NNMT	NNMT Nicotinamide N-methyltransferase	0.58				0.44		
IPI00219301	MARCKS	MARCKS Myristoylated alanine-rich C-kinase substrate	0.58						
IPI00011770	NDUFA4	NDUFA4 NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 4	0.58					2.67	
IPI00789806	LAP3	LAP3 Isoform 2 of Cytosol aminopeptidase	0.59						
IPI0033838	ACOT1	ACOT1 Acyl-coenzyme A thioesterase 1	0.61						
IPI00024524	PNO1	PNO1 RNA-binding protein PNO1	0.61						

IPI00218848	ATP5I	ATP5I ATP synthase, H+ transporting, mitochondrial F0 complex, subunit E
IPI00002557	CHD3	CHD3;LOC732272;SNORA69;COPG2 Coatomer subunit gamma-2
IPI00927101	RPSA	SNORA6;RPSAP15;SNORA62;RPSA Uncharacterized protein
IPI00016179	S100A13	S100A13 Protein S100-A13
IPI00301058	VASP	VASP Vasodilator-stimulated phosphoprotein
IPI00220637	SARS	SARS Seryl-tRNA synthetase, cytoplasmic
IPI01014729	NAP1L4	NAP1L4 Uncharacterized protein
IPI00219155	RPL27	RPL27 60S ribosomal protein L27
IPI00978664	EIF1AD	EIF1AD Uncharacterized protein
IPI00291939	SMC1A	SMC1A Structural maintenance of chromosomes protein 1A
IPI00017510	MT-CO2	MT-CO2 Cytochrome c oxidase subunit 2
IPI00643583	DYNLRB1	DYNLRB1 Isoform 1 of Dynein light chain roadblock-type 1
IPI00719611	GPD2	GPD2 Isoform 2 of Glycerol-3-phosphate dehydrogenase, mitochondrial
IPI00291328	NDUFV2	NDUFV2 NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial
IPI00024920	ATP5D	ATP synthase subunit delta, mitochondrial

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