

Supplementary Table 2

Upstream Regulator	Exp Log Ratio	Molecule Type	Predicted Activation State	Activation z-score	Bias Term	Bias-corrected z-score	p-value of overlap	Target molecules in dataset
congithione		chemical drug	inhibited	-2.611	-0.019	-2.55	1.31E-02	CERPA.CLEC7A.DC02.EBG.FABP3.M.YCD.MR1.PLIN3.TERT.UCP3
fenitrothate		chemical drug	inhibited	-2.408	-0.015	-2.371	1.47E-02	APOL1.APOB.FADS2.M.YCD.TERT.TM617A.UCP3
mir-4308 (and other miRNAs whose CCGUGGA)		mature microRNA	inhibited	-2.210	0.053	-2.334	1.33E-01	ABHDAP30.C11orf83.SYN2.SYT12.VPS33C
mir-1913 (and other miRNAs whose CUGCCCC)		mature microRNA	inhibited	-2.179	0.053	-2.327	2.30E-01	ATP9B2.BCL11A.DEPY3.3.KMT2D.PGP.SYT12.TM1HE.ZDHHC8
uronic acid		chemical drug	inhibited	-2.205	-0.004	-2.184	1.73E-02	APOL1.FADS2.ECER1G.ITGB5.MACR3.M.YCD.PL.RS.TM617A.TM1HE.UCP3
LiCl		chemical	inhibited	-2.179	-0.006	-2.161	3.21E-02	CND2.CNK6.CLEC7A.ECER1G.MAP3K8.MAP3K4.NFIBD.TERT
cyclic AMP		chemical - endogenous mammalian	inhibited	-2.216	-0.034	-2.14	1.35E-01	CND2.CERPA.NHBA.TF.TYRP1
mir-1504 (and other miRNAs whose UCCACAC)		mature microRNA	inhibited	-2	0.053	-2.107	4.13E-01	ABHD13.FAM120C.TM171A.ZNF708B
mir-3194-3p (miRNAs whose GCUCUGC)		mature microRNA	inhibited	-1.982	0.053	-2.009	1.39E-01	ASPN.ATP9B2.MMP16.PGP
mir-475-5p (and other miRNAs whose AUACCUUC)		mature microRNA	inhibited	-1.98	0.053	-2.086	7.17E-02	BCL11A.BEV1.LDCL.WNK3
mir-128-5p (and other miRNAs whose CUGAGAC)		mature microRNA	inhibited	-1.981	0.053	-2.085	8.78E-02	CNR15.FOXJ1.SR15.WNK3
GC1TOR		other	inhibited	-2	0.039	-2.077	2.97E-01	ATP9VC2.ATP9VID.PPA2.PSM48
SPDEF		transcription regulator	inhibited	-2	0.035	-2.069	4.85E-03	COL6A1.COL6A3.MUC5AC.UCP3
mir-3176 (and other miRNAs whose CUGGCCU)		mature microRNA	inhibited	-1.964	0.053	-2.059	2.24E-01	ATF7P2.GPRC3.ITGB5.ZNF441
mir-3127-3p (and other miRNAs whose CCCCUGC)		mature microRNA	inhibited	-1.951	0.053	-2.055	2.53E-01	C2orf88.DDX6.CK1.TMLHE
mir-305-5p (and other miRNAs whose CAGGAGC)		mature microRNA	inhibited	-1.912	0.053	-2.051	3.36E-02	ITGB8.PCNX1.SMARCA2.SPTSSA.SYN2.TRM59.ZDHHC8
KDM5B		transcription regulator	inhibited	-1.987	0.026	-2.038	5.37E-02	ESR1.NCL1.SMARCA2.SPTSSA
methotrex		chemical drug	inhibited	-1.984	0.018	-2.016	6.11E-02	APCB.CND2.SR15.TERT
BCL6		transcription regulator	inhibited	-1.964	0.016	-1.999	6.83E-02	CND2.EB139.SOX6
NKX2-3		transcription regulator	inhibited	-1.987	0	-1.989	1.87E-01	MTURN.SRPX.TNFSF18.UCP3
SP1		transcription regulator	inhibited	-1.989	-0.011	-1.927	2.17E-02	BCL11A.CND2.CERPA.CCER1S.39p.MBP
EDN1		cytokine	inhibited	-2	-0.042	-1.919	1.55E-01	INHBA.MBP.PLCB4.TYRP1
PTEN		phosphatase	inhibited	-1.897	0.003	-1.904	4.88E-01	CDK6.CE1BPA.ESR1.HLA.DMA.MBP
SYN1		transporter	inhibited	-2	-0.05	-1.899	5.37E-02	COL.DA2.GPRC3A.STOM
Lidopa		chemical - endogenous mammalian	inhibited	-1.912	-0.006	-1.897	1.00E+00	ADCK4.CASZ1.CSMD3.MRP.NOL.3.SYN2.SYT12
ECR2		transcription regulator	inhibited	-1.982	-0.047	-1.889	7.31E-02	DDX.MBP.MR1.UCP3
CPEB1		transcription regulator	inhibited	-1.929	-0.017	-1.875	2.78E-02	COL.DC02.EBG.NHBA.MUC5AC.NFKBID.NR5N1.SRDEA1.STC1.SYN2.TF
mir-128-2p (and other miRNAs whose CACAGUG)		mature microRNA	inhibited	-1.631	0.053	-1.852	3.29E-02	ALG8.BHLHE41.CPEB3.DDX6.FAM120C.FANC.FOXN4.GAREM1.KIAA1109.MTURN.PCNX1.PDE10A.PLAGL1.OKI.SEM6D.SMARCA2.UST.WNK3
mir-303-5p (miRNAs whose GAUCAG)		mature microRNA	inhibited	-1.673	0.053	-1.801	2.76E-02	CND2.CLEC3A.MALL.MESDC2.PCNX1.OKI
mir-3156-3p (miRNAs whose UCCCAAU)		mature microRNA	inhibited	-1.633	0.053	-1.764	9.40E-03	ANKRD44.DDX6.HTRA4.RFX3.TUFM.ZNF708B
mir-4638-3p (and other miRNAs whose CUGGACA)		mature microRNA	inhibited	-1.558	0.053	-1.678	1.24E-02	INHBA.PSM48.OKI.SYT12.VPS33C
PPARA		lipid-dependent nuclear receptor	inhibited	-1.716	-0.016	-1.67	1.88E-02	APOL1.CERPA.DC02.FABP3.FADS2.M.YCD.PLIN3.SR15.TERT.UCP3
mir-1286-5p (miRNAs whose UAGGGCC)		mature microRNA	inhibited	-1.547	0.053	-1.664	1.02E-02	ALG8.C2orf88.NRCAM.SYN2.TRM59
mir-505 (and other miRNAs whose UACAGGC)		mature microRNA	inhibited	-1.438	0.053	-1.601	8.51E-03	C11orf83.C11orf70.C2orf42.MESDC2.MYOB.NUMBL.POLH.PPA2.TLDC1
mir-302b (and other miRNAs whose AAAGCUG)		mature microRNA	inhibited	-1.36	0.053	-1.6	1.18E-04	ABHD13.ALG9.ATF7P2.ATL3.B4GALT6.BHLHE41.C2orf88.CND2.CNK6.CPEB3.DPY3.3.FAM120C.GOLGA1.MAGI1.MINL3.MLT3.MMP16.PDE10A.PTPB3.SPTSSA.LUBE2D3
mir-3194-5p (miRNAs whose GCCAGCC)		mature microRNA	inhibited	-1.394	0.053	-1.561	4.26E-02	ATP9B2.CASP14.CSMD3.DZANK1.FAM120C.KMT2D.NUMBL.RFPL.TLDC1.TMPRSS13
decalone		chemical drug	inhibited	-1.657	-0.041	-1.539	1.77E-02	CASZ1.CND2.COL6A3.DAPK1.EGR4.ESR1.GPR98.HELL3.KR2D1.2.SMARCA2.TERT
Vinif		group	inhibited	-1.419	-0.039	-1.539	3.51E-02	ENPP2.HELL5.IL11.NHBA.ITGB5.MAGI1.MALL.MAP3K8.NRCAM.STC1
mir-3175 (miRNAs whose GGGGAGA)		mature microRNA	inhibited	-1.784	0.053	-1.646	2.89E-01	ACT.LD.DC02.FADS2.GPRC3A.PDE6G.PPKAR1B.WNK3
oxyfretre		chemical drug	inhibited	-1.698	0	-1.698	9.40E-03	COLA.ENPP2.ESR1.GPRC3A.SYT1.TERT
mir-3173-5p (and other miRNAs whose GCCCUGC)		mature microRNA	inhibited	-1.895	0.053	-1.747	7.54E-02	CASZ1.CD84.CEP126.FAM107A.BAG7.MBNL3.MR1.PXDC1
mir-303-3p (and other miRNAs whose CAGCAAG)		mature microRNA	inhibited	-1.957	0.053	-1.748	6.20E-03	ACT2.ANRK4A.BCL11A.CNK6.CPEB3.DPY3.3.ESR1.HUNE1.KMT2D.MBNL3.SIP3A1.2.SOX6.TRM59.LUBE2OL.WNK3
mir-361-3p (miRNAs whose CCCCCAG)		mature microRNA	inhibited	-1.912	0.053	-1.772	3.52E-01	CERPA.CSNK1G1.EMX1.GSE1.IL11.KIAA1644.SYN2
mir-149-5p (miRNAs whose CUGGCUUC)		mature microRNA	inhibited	-1.904	0.053	-1.759	9.51E-02	CDK6.CSNK1G1.FAM120C.EZLN4.GAREM1.IL11.KMT2D.MTHFR.TSPAN33.ZNF335
mir-697-5p (and other miRNAs whose AGGGAGC)		mature microRNA	inhibited	-1.947	0.053	-1.808	5.52E-02	CASP14.HCSA.MBP.PDE6G.RPL1.LUBE2OL.UCP3
mir-4769-3p (and other miRNAs whose CUGCCAU)		mature microRNA	inhibited	-1.934	0.053	-1.831	1.84E-02	CSNK1G1.HWEZ2.NR3A.3.RANL
mir-1972 (miRNAs whose CAGGCCA)		mature microRNA	inhibited	-1.56	0.053	-1.825	2.81E-01	ALX4.DAPK1.MR1.MTHFR
CTNBL1		transcription regulator	inhibited	-1.781	-0.043	-1.861	1.06E-01	CND2.CERPA.COL7A1.DC02.ENPP2.CER1G.PSD2.GRIK1.MMP16.NRCAM.TERT
lufesant		chemical drug	Activated	-1.969	0.012	-1.945	2.85E-01	APOL1.ESR1.RNF128.STC1
mir-343-5p (and other miRNAs whose GGGGUGC)		mature microRNA	Activated	-2.138	0.053	-1.987	5.53E-02	FAM107A.FOXN4.GOLGA1.GPRC3A.PDE6G.SYNPQ2.ZDHHC1.ZNF395
INHBA	-3.398	growth factor	Activated	-1.994	-0.028	-2.051	1.28E-01	CND2.CD4.ESR1.NHBA
SMAD3		transcription regulator	Activated	-1.973	-0.028	-2.059	4.01E-06	APOL1.APOB.ASPN.CND2.COL6A1.COL6A3.DAPK1.DOCK4.ESR1.ITGB5.TERT.TF