Table S8. Upstream regulators and their potential targets in summer cumulus cells

Upstream Regulator	Molecule Type	Predicted Activation / Inhibition State	Activation z-score	p-value of overlap	Target molecules in dataset
Upstream regulators showing significantly different expression in summer cumulus cells					
↑↑FOXO1	transcription regulator		-0.600	2.30×10^{-2}	↓↓ANGPT2, ↓↓CTSV, ↓↓DAPK1, ↓↓DDIT4, ↑↑FOXO1, ↓↓LHCGR, ↓↓MMP1
↓↓LHCGR	G-protein coupled receptor			3.06×10^{-5}	↑↑ADAMTS1, ↓↓CTSV, ↓↓CYP19A1, ↓↓LHCGR, ↓↓TNFAIP6
↓CAV1	transmembrane receptor			1.20×10^{-4}	↓CAV1, ↓CAV2, ↓↓MMP1, ↓SLC12A2, ↑↑SLC20A1, ↑↑SLC7A2, ↑↑TFPI
↓mir-210	microRNA			8.49×10^{-3}	↓CDCA7L, ↑COL4A2, ↓ELK3, ↓↓LHFP
↓CAV2	other			9.63×10^{-3}	↓CAV1
↓SKP2	other			1.28×10^{-2}	↓SKP2, ↓↓SLC2A1
↓↓SAP30	transcription regulator			1.92×10^{-2}	↓↓LHCGR
↑↑BMPR1B	kinase			2.22×10^{-2}	↓↓CYP19A1, ↓POSTN
↑TOX	other			2.86×10^{-2}	↑↑FOXO1
↑↑HPGD	enzyme			2.86×10^{-2}	↓↓CYP19A1
↑↑RORA	ligand-dependent nuclear receptor			2.92×10^{-2}	↓BHMT, ↓↓CYP19A1, ↑CYP2B6, ↑↑HPGD, ↑↑RORA
↓SMAD7	transcription regulator			3.21×10^{-2}	↑↑BMPR1B, ↑↑DCN, ↓↓MMP1, ↓SMAD7
↓HMGB1	transcription regulator			3.23×10^{-2}	↓HMGB1, ↓↓MMP1, ↓SMAD7
Upstream regulators (not showing significantly different expression in summer cumulus cells) with predicted activation/inhibition state (|z|>1.96)					
AGT	growth factor	Inhibited	-2.757	9.37×10^{-4}	↓↓ANGPT2, ↑↑ANK3, ↓↓ATP2B1, ↓CAV1, ↓↓COX4I1, ↓↓CYP19A1, ↓POSTN, ↓↓SLC2A1, ↓SMAD7, ↑↑TFPI, ↓VEGFC, ↓ZEB1
ERBB2	kinase	Inhibited	-2.754	2.50×10^{-3}	↓↓BNIP3, ↓↓COL5A1, ↓↓CRIP1, ↓ELK3, ↑↑FOXO1, ↓IRX3, ↓↓MMP1, ↓SKP2, ↓↓SLC2A1, ↓SMAD7, ↓TYMS, ↓VEGFC, ↑↑VWF, ↓ZEB1
OSM	cytokine	Inhibited	-2.402	1.67×10^{-3}	↑↑ADAMTS1, ↑↑AKR1C1/AKR1C2, ↓↓ANGPT2, ↑↑BTC, ↓↓CTSV, ↓↓CYP19A1, ↓↓DAPK1, ↓↓MMP1, ↑MT1X, ↓↓PYGL, ↑↑RORA, ↑↑SYNE1, ↑↑TNFRSF11A
testosterone	chemical - endogenous mammalian	Inhibited	-2.361	9.50×10^{-2}	↓↓ATP2B1, ↓CAV1, ↓↓CYP19A1, ↓↓LHCGR, ↓RIMS2, ↑TMEM144
HIF1A	transcription regulator	Inhibited	-2.271	1.17×10^{-5}	↑↑ADAMTS1, ↓↓BNIP3, ↓CAV1, ↓EGLN1, ↓↓ENO2, ↑↑FAM13A, ↓↓MMP1, ↑↑NOV, ↓PFKFB4, ↓↓SLC2A1, ↓SMAD7, ↓↓STC2, ↓VEGFC

STAT5B	transcription regulator	Inhibited	-2.236	4.48×10^{-3}	↑↑AKR1C1/AKR1C2, ↓ASAP1, ↑CYP2B6, ↓RASD1, ↑↑TNFRSF11A, ↑TOX
ARNT2	transcription regulator	Inhibited	-2.236	4.95×10^{-2}	↓↓ANGPT2, ↓↓COL12A1, ↓POSTN, ↓↓RYR2, ↓↓SLC2A1
P38 MAPK	group	Inhibited	-2.229	1.24×10^{-2}	↓↓BNIP3, ↓CAV1, ↓↓CYP19A1, ↑↑MAP4K4, ↓↓MMP1, ↓POSTN, ↑↑RGS4, ↓VEGFC
CD38	enzyme	Inhibited	-2.219	1.73×10^{-2}	↓↓BNIP3, ↓↓CRIP1, ↓EGLN1, ↓↓SAP30, ↓↓SLC2A1
FGF1	growth factor	Inhibited	-2.156	5.15×10^{-3}	↑ACPL2, ↓POSTN, ↑↑PRICKLE1, ↑↑SLC7A2, ↓VEGFC
WNT3A	cytokine	Activated	2.132	7.87×10^{-4}	↑ACPL2, ↑↑DCN, ↓↓DDIT4, ↓IRX3, ↑↑KCTD12, ↑MT1X, ↑↑PRICKLE1, ↑↑SLC7A2
LY294002	chemical - kinase inhibitor	Activated	2.045	1.83×10^{-2}	↑↑ADAMTS1, ↑↑AKR1C1/AKR1C2, ↓↓ATP2B1, ↓↓CYP19A1, ↓↓LHCGR, ↓POSTN, ↓↓SLC2A1, ↓TYMS, ↓VEGFC, ↓ZEB1
ERK1/2	group	Inhibited	-2.025	2.62×10^{-4}	↓↓ANGPT2, ↓BHMT, ↓CAV1, ↓↓CTSV, ↓↓CYP19A1, ↓↓DAPK1, ↓↓MMP1, ↓PFKFB4, ↓POSTN, ↓ZEB1
COMMD1	transporter	Activated	2.000	3.59×10^{-5}	↓↓BNIP3, ↓↓DDIT4, ↓EGLN1, ↓↓STC2
NEDD9	other	Inhibited	-2.000	3.87×10^{-4}	↓↓ANKRD37, ↓↓BNIP3, ↓↓DDIT4, ↓↓SLC2A1
Ras	group	Inhibited	-2.000	2.97×10^{-2}	↓↓BNIP3, ↓CAV1, ↓↓MMP1, ↓ZEB1
VHL	transcription regulator	Activated	1.987	2.44×10^{-5}	↓↓BNIP3, ↓CAV1, ↓↓ENO2, ↓GLCE, ↓SKP2, ↓↓SLC2A1, ↓TYMS, ↓VEGFC
PTGS2	enzyme	Inhibited	-1.985	4.17×10^{-2}	↓↓ANGPT2, ↓↓CYP19A1, ↓↓TNFAIP6, ↓VEGFC
H89	chemical - kinase inhibitor	Activated	1.964	3.37×10^{-2}	↓↓CYP19A1, ↓↓LHCGR, ↓↓MMP1, ↓↓TNFAIP6

Upstream regulators (not showing significantly different expression in summer cumulus cells) with uncharacterized activation/inhibition state (|z|<1.96)

Other				
INHBA	growth factor	-1.958	7.96×10^{-2}	↓↓CYP19A1, ↓HMGB1, ↓↓LHCGR, ↓SMAD7
PPARG	ligand-dependent nuclear receptor	-1.858	3.48×10^{-2}	↑↑ALDH9A1, ↓CAV1, ↓CAV2, ↓↓CYP19A1, ↓↓ENO2, ↓↓PYGL, ↓↓SLC2A1, ↓↓UGT1A9 (includes others)
estrogen receptor	group	1.803	3.47×10^{-4}	↓CAV1, ↓CAV2, ↓↓COL12A1, ↑COL4A2, ↓↓COL5A1, ↑CYP2B6, ↓↓MMP1, ↓VEGFC, ↓ZEB1
E2F1	transcription regulator	-1.718	9.62×10^{-3}	↓↓ANGPT2, ↓↓BNIP3, ↓CAV1, ↓↓COX4I1, ↓↓ENO2, ↑↑FOXO1, ↓HMGB1, ↓↓MMP1, ↓TYMS
EGFR	kinase	-1.698	1.09×10^{-3}	↓↓ANGPT2, ↑↑BTC, ↓CAV1, ↓↓CYP19A1, ↓↓MMP1, ↓POSTN, ↓↓PTGIS, ↓↓TNFAIP6, ↓ZEB1
IL1B	cytokine	-1.697	7.01×10^{-4}	↑ACPP, ↑↑ADAMTS1, ↓↓CYP19A1, ↑CYP2B6, ↑↑DCN, ↓↓DDIT4, ↑↑FOXO1, ↓HMGB1, ↓MAP2K6, ↓↓MMP1, ↓↓PTGIS, ↑↑RORA, ↑↑SLC20A1, ↓↓SLC2A1, ↓SMAD7, ↓↓TNFAIP6, ↑↑TNFRSF11A, ↓VEGFC

ESR2	ligand-dependent nuclear receptor	-1.680	8.13×10^{-4}	↓CAV1, ↓↓CYP19A1, ↓↓ELAVL2, ↑↑HPGD, ↓↓LHCGR, ↓↓MMP1, ↓↓PTGIS, ↓SKP2
NKX2-3	transcription regulator	-1.633	1.56×10^{-2}	↓↓ANGPT2, ↓↓ANKRD37, ↓CHST7, ↓↓DCLK1, ↓POSTN, ↓SMAD7
EDN1	cytokine	-1.542	9.66×10^{-3}	↑↑ANXA4, ↓↓COL5A1, ↓↓MMP1, ↓↓SLC2A1, ↓VEGFC, ↑↑VWF
GATA4	transcription regulator	-1.485	4.27×10^{-3}	↓↓ACTN2, ↓↓CYP19A1, ↓↓LHCGR, ↓POSTN, ↓↓RYR2
IGF1	growth factor	-1.453	4.44×10^{-4}	↑↑AKR1C1/AKR1C2, ↓↓ANGPT2, ↓↓CYP19A1, ↓↓DCLK1, ↓↓DDIT4, ↑↑FOXO1, ↓HMGB1, ↓↓LHCGR, ↓↓MMP1, ↑↑SLC20A1, ↓↓SLC2A1, ↓VEGFC
androgen	chemical - other	1.408	3.96×10^{-3}	↓↓COL12A1, ↑COL4A2, ↓↓CTSV, ↓↓ENO2, ↓SKP2, ↓VEGFC
EP300	transcription regulator	-1.387	3.93×10^{-2}	↓↓CYP19A1, ↑↑FOXO1, ↓↓MMP1, ↓SKP2, ↓SMAD7
AHR	ligand-dependent nuclear receptor	-1.381	2.75×10^{-4}	↓↓ATP2B1, ↓↓COL12A1, ↑↑COL14A1, ↑COL4A2, ↓↓COL5A1, ↓↓CYP19A1, ↑CYP2B6, ↑↑DCN, ↓HMGB1, ↓INSIG2, ↓VEGFC
FSH	complex	-1.365	2.27×10^{-7}	↑ACPP, ↑↑ADAMTS1, ↓↓ATP2B1, ↑↑BMPR1B, ↑↑BTC, ↓↓CYP19A1, ↓↓DAPK1, ↓↓LHCGR, ↑↑MAP4K4, ↑MT1X, ↑↑RGS4, ↓↓RGS7, ↓↓SLC2A1, ↓SMAD7, ↓↓TNFAIP6, ↓VEGFC, ↓ZEB1
SB203580	chemical - kinase inhibitor	1.287	5.88×10^{-3}	↑↑ADAMTS1, ↓MAP2K6, ↓↓MMP1, ↓POSTN, ↓↓RGS7, ↑↑SLC20A1, ↓↓STC2, ↓↓TNFAIP6, ↓VEGFC
FGF2	growth factor	-1.283	2.78×10^{-5}	↓↓ANGPT2, ↓CAV1, ↑↑DCN, ↑↑FOXO1, ↓HMGB1, ↓↓MMP1, ↑↑NOV, ↑↑SLC20A1, ↓↓SLC2A1, ↑↑TFPI, ↓VEGFC, ↑↑VWF, ↓ZEB1
dihydrotestosterone	chemical - endogenous mammalian	1.246	4.38×10^{-3}	↑ACPP, ↑↑ADAMTS1, ↓ASAP2, ↓CANX, ↓↓CYP19A1, ↑↑FOXO1, ↑↑HPGD, ↓↓MMP1, ↓POSTN, ↓↓SLC2A1, ↑↑TFPI, ↓ZEB1
heparin	chemical - endogenous mammalian	1.209	4.08×10^{-4}	↓↓LHCGR, ↓↓MMP1, ↓↓SLC2A1, ↑↑TFPI, ↓↓TNFAIP6
PI3K (complex)	complex	-1.195	4.99×10^{-2}	↑↑FOXO1, ↓↓LHCGR, ↓↓MMP1, ↓POSTN, ↓SKP2, ↑↑TNFRSF11A
progesterone	chemical - endogenous mammalian	1.192	4.18×10^{-4}	↑ACPP, ↑↑ADAMTS1, ↓BCAT1, ↓CAV1, ↓↓CTSV, ↓↓CYP19A1, ↑CYP2B6, ↑↑FOXO1, ↓↓KCNAB1, ↓↓LHCGR, ↓↓MMP1, ↓POSTN, ↓SKP2, ↓ZEB1
HGF	growth factor	-1.149	9.12×10^{-4}	↑↑ADAMTS1, ↓↓ANGPT2, ↑↑ANK3, ↓CAV1, ↑CYP2B6, ↑↑GPR116, ↓GUCY1B3, ↓↓MMP1, ↓SKP2, ↑↑SLC20A1, ↓↓TNFAIP6, ↓VEGFC, ↓ZEB1
CEBPB	transcription regulator	-1.129	3.32×10^{-3}	↓BHMT, ↓↓CYP19A1, ↓↓DAPK1, ↑↑DCN, ↓↓LHCGR, ↓↓MMP1, ↑↑RGS4, ↑↑RORA, ↓SLC12A2, ↓↓TNFAIP6

PDGF BB	complex	-1.124	3.44×10^{-2}	↓↓ATP2B1, ↓CAV2, ↑↑DCN, ↓GUCY1B3, ↓↓MMP1, ↓POSTN, ↑↑SYNE1
TGFB3	growth factor	-1.109	1.97×10^{-3}	↓↓COL5A1, ↓↓CYP19A1, ↓↓MMP1, ↑↑NOV, ↓SMAD7
ERG	transcription regulator	-1.067	5.84×10^{-3}	↓↓DYNC1I1, ↓↓GUCY1A3, ↓GUCY1B3, ↓HMGB1, ↓↓MMP1, ↑↑VWF
TP63	transcription regulator	1.042	7.21×10^{-4}	↑↑ADAMTS1, ↑↑COL4A3, ↓↓COL5A1, ↓↓DDIT4, ↑↑DST, ↓↓PELP1, ↓POSTN, ↓↓UGT1A9 (includes others), ↓ZEB1
BMP15	growth factor	1.000	1.80×10^{-5}	↑↑BTC, ↓↓CYP19A1, ↓↓LHCGR, ↓↓TNFAIP6
CTGF	growth factor	1.000	2.22×10^{-4}	↑↑ADAMTS1, ↑COL4A2, ↑↑DCN, ↓↓LHCGR, ↓↓MMP1, ↑↑NOV
SFTPA1	transporter	-1.000	5.69×10^{-3}	↑↑AKR1C1/AKR1C2, ↓↓GUCY1A3, ↓RASD1, ↓TCEA3
COL18A1	other	1.000	1.16×10^{-2}	↓↓DDIT4, ↓EGLN1, ↓↓MMP1, ↑↑VWF
IKZF1	transcription regulator	1.000	2.74×10^{-2}	↓AJUBA, ↑↑FOXO1, ↓↓LHFP, ↑↑VWF
SMAD4	transcription regulator	-0.985	3.64×10^{-2}	↓↓ANGPT2, ↓↓DAPK1, ↓↓MMP1, ↓SMAD7, ↓↓TNFAIP6
TGFB1	growth factor	-0.982	5.80×10^{-7}	↑ACPP, ↑↑AKR1C1/AKR1C2, ↓CAV1, ↓CAV2, ↑COL4A2, ↓↓COL5A1, ↓↓DAPK1, ↑↑DCN, ↓↓DDIT4, ↓EGLN1, ↓ELK3, ↑↑FAM110B, ↑↑FOXO1, ↓GGPS1, ↓GLCE, ↑↑HPGD, ↓↓LHCGR, ↓↓MMP1, ↑↑NOV, ↓↓OPN3, ↓POSTN, ↑RBMS3, ↑↑RORA, ↑↑SLC20A1, ↓↓SLC2A1, ↓SMAD7, ↓↓ST3GAL5, ↓↓STC2, ↓↓TNFAIP6, ↑↑TNFRSF11A, ↓↓TRIM9, ↓TYMS, ↓↓UST, ↓↓VAT1L, ↓VEGFC, ↑↑VWF, ↓ZEB1
IL1	group	-0.941	1.16×10^{-3}	↑↑ADAMTS1, ↑↑AKR1C1/AKR1C2, ↑CYP2B6, ↑↑DCN, ↓HMGB1, ↓MAP2K6, ↓↓MMP1, ↑↑RORA, ↓↓SLC2A1, ↓↓TNFAIP6
IL17A	cytokine	-0.930	7.28×10^{-3}	↓HMGB1, ↓↓MMP1, ↓↓SLC2A1, ↑↑TNFRSF11A, ↓VEGFC, ↑↑VWF
TNF	cytokine	-0.915	7.52×10^{-4}	↑↑ALCAM, ↓↓ANGPT2, ↓↓ATP2B1, ↓CAV1, ↑↑COL4A3, ↓↓CYP19A1, ↑↑DCN, ↓ELK3, ↓HMGB1, ↑↑HPGD, ↓↓LHCGR, ↓MAP2K6, ↓↓MMP1, ↑↑NOV, ↓NSG1, ↓POSTN, ↓RASD1, ↑↑RGS4, ↓↓RGS7, ↑↑SLC20A1, ↓↓SLC2A1, ↓SMAD7, ↑↑SND1, ↓↓ST3GAL5, ↑↑TFPI, ↓↓TNFAIP6, ↑↑TNFRSF11A, ↓VEGFC
SMAD3	transcription regulator	-0.876	3.71×10^{-2}	↓↓CYP19A1, ↓↓DAPK1, ↓↓MMP1, ↑↑NOV, ↓SMAD7
benzyloxycarbonyl-Leu-Leu-Leu aldehyde	chemical - protease inhibitor	0.859	1.54×10^{-2}	↑↑AKR1C1/AKR1C2, ↑↑DCN, ↑↑FOXO1, ↓↓MMP1, ↑↑RGS4, ↓↓RGS7, ↓SKP2

PD98059	chemical - kinase inhibitor	0.858	2.07×10^{-3}	↓↓ANGPT2, ↓↓BNIP3, ↓CAV1, ↓↓ENO2, ↑↑FAM13A, ↑↑HPGD, ↓↓MMP1, ↑↑PABPC1, ↓POSTN, ↓↓SLC26A2, ↓↓SLC2A1, ↑↑TNFRSF11A, ↓VEGFC
MYC	transcription regulator	-0.850	1.88×10^{-3}	↑↑ADAMTS1, ↑↑ALCAM, ↓↓ANGPT2, ↑↑ANXA4, ↓BCAT1, ↓CANX, ↓CAV1, ↑↑COL14A1, ↑COL4A2, ↓↓COL5A1, ↓↓CRIP1, ↓↓CTSV, ↓EGLN1, ↑↑HNRNPD, ↓SKP2, ↓↓SLC2A1, ↓TES, ↓TYMS
prostaglandin E2	chemical - endogenous mammalian	-0.844	6.84×10^{-3}	↑↑ADAMTS1, ↓↓ANGPT2, ↓↓CYP19A1, ↑↑DCN, ↑↑FOXO1, ↓↓MMP1, ↓↓TNFAIP6, ↓VEGFC
dinoprost	chemical - endogenous mammalian	0.822	7.89×10^{-4}	↑↑AKR1C1/AKR1C2, ↑↑ANXA4, ↓↓CYP19A1, ↓↓LHCGR, ↓↓MMP1
CGA	other	-0.790	1.23×10^{-4}	↑↑ADAMTS1, ↓↓CTSV, ↓↓LHCGR, ↓SKP2
ESR1	ligand-dependent nuclear receptor	0.760	3.13×10^{-4}	↓CAV1, ↓CAV2, ↓↓CYP19A1, ↓↓DDIT4, ↓↓GUCY1A3, ↓GUCY1B3, ↓↓LHCGR, ↓↓MMP1, ↑↑SLC7A2, ↓↓STC2, ↓↓TNFAIP6, ↓VEGFC
D-glucose	chemical - endogenous mammalian	-0.758	6.98×10^{-4}	↓↓ANGPT2, ↓↓ATP2B1, ↓BCAT1, ↓CANX, ↓CAV1, ↓↓CTSV, ↑↑DCN, ↓↓DDIT4, ↓HMGB1, ↓↓MMP1, ↓PON2, ↓↓PTGIS, ↓↓SLC2A1
PGR	ligand-dependent nuclear receptor	0.732	2.85×10^{-3}	↑↑ADAMTS1, ↓↓CYP19A1, ↑↑DST, ↑↑HPGD, ↓POSTN, ↓ZEB1
NUPR1	transcription regulator	-0.677	8.78×10^{-3}	↑↑ANK3, ↓↓BNIP3, ↓C9orf91, ↓EGLN1, ↓↓ENO2, ↓MSANTD3, ↑MT1X, ↓PFKFB4, ↓↓RFTN2, ↓SKP2, ↓↓SLC2A1
Lh	complex	-0.669	5.08×10^{-6}	↑ACPP, ↑↑ADAMTS1, ↓↓ATP2B1, ↑↑BTC, ↓↓CYP19A1, ↓↓DAPK1, ↓↓LHCGR, ↑↑MAP4K4, ↑↑RGS4, ↓↓RGS7, ↓↓TNFAIP6, ↓VEGFC
Alpha catenin	group	0.647	7.62×10^{-4}	↑↑ADAMTS1, ↓↓COL5A1, ↓↓CTSV, ↓ELK3, ↑↑NOV, ↓↓TNFAIP6
IL6	cytokine	-0.623	1.29×10^{-2}	↑↑ADAMTS1, ↓CES1, ↓↓COX4I1, ↓↓CYP19A1, ↑CYP2B6, ↑↑DCN, ↓↓ENO2, ↑↑HPGD, ↓↓MMP1, ↑↑RORA, ↓SLC12A2, ↓SMAD7, ↑↑TNFRSF11A
SIRT1	transcription regulator	-0.600	5.94×10^{-3}	↓↓BNIP3, ↓↓CYP19A1, ↓↓MMP1, ↑↑TFPI, ↓ZEB1
beta-estradiol	chemical - endogenous mammalian	0.584	6.30×10^{-5}	↑ACPP, ↓↓ATP2B1, ↑↑BMPR1B, ↓CAV1, ↓CAV2, ↓↓CYP19A1, ↑CYP2B6, ↓↓DCLK1, ↑↑DCN, ↓↓DDIT4, ↑↑FOXO1, ↓↓GUCY1A3, ↓GUCY1B3, ↑↑HNRNPD, ↑↑HPGD, ↓INSIG2, ↓↓KCNAB1, ↓↓LHCGR, ↓MAP2K6, ↓↓MMP1, ↓PON2, ↓↓PTGIS, ↓↓SAP30, ↓SKP2, ↓SLC12A2, ↑↑SLC20A1, ↓↓SLC2A1, ↑↑SLC7A2, ↓↓STC2, ↑↑TFPI, ↓↓TNFAIP6, ↓ZEB1

butyric acid	chemical - endogenous mammalian	0.579	2.14×10^{-3}	↑COL4A2, ↓↓COL5A1, ↑CYP2B6, ↓↓DAPK1, ↓ELK3, ↓HMGB1, ↓↓PYGL, ↓SKP2, ↓↓SLC26A2, ↓↓SLC2A1, ↓TYMS
BMP2	growth factor	-0.570	2.73×10^{-3}	↑↑BTC, ↓↓CYP19A1, ↑↑FOXO1, ↓↓LHCGR, ↓POSTN, ↓↓SLC26A2, ↓SMAD7
TP53	transcription regulator	0.558	4.38×10^{-2}	↑↑ALDH9A1, ↑↑ANXA4, ↓↓BNIP3, ↓CAV1, ↑↑COL14A1, ↓↓DAPK1, ↓↓DDIT4, ↑↑FOXO1, ↓HMGB1, ↓IKBIP, ↑↑INPP4A, ↓MAP2K6, ↓↓MMP1, ↓POSTN, ↓PROSC, ↓↓SLC2A1, ↓SMAD7, ↓TYMS, ↓ZEB1
phosphate	chemical - endogenous mammalian	0.447	1.79×10^{-3}	↓↓COL5A1, ↑↑DCN, ↓POSTN, ↑↑SLC20A1, ↓↓STC2
ERK	group	-0.422	1.93×10^{-2}	↓CAV1, ↑↑FOXO1, ↑↑MAP4K4, ↓↓MMP1, ↑↑RGS4, ↓↓SLC2A1
Tgf beta	group	-0.410	6.00×10^{-3}	↑↑DCN, ↓↓MMP1, ↓POSTN, ↑↑RORA, ↓↓RYR2, ↓SMAD7, ↑↑TNFRSF11A
MYOD1	transcription regulator	-0.391	2.80×10^{-2}	↓POSTN, ↓SLC12A2, ↓↓SLC2A1, ↓SMAD7, ↓ZEB1
SRC	kinase	0.314	6.93×10^{-4}	↓CAV1, ↓↓CTSV, ↓↓MMP1, ↓POSTN, ↑↑TNFRSF11A, ↓VEGFC
tretinoin	chemical - endogenous mammalian	-0.303	6.34×10^{-3}	↑↑ALDH9A1, ↓BHMT, ↑↑BMPR1B, ↓↓BNIP3, ↑↑BTC, ↓CES1, ↑COL4A2, ↑CYP2B6, ↑↑DCN, ↑↑HNRNPD, ↓↓MMP1, ↑↑NOV, ↓↓OLFM4, ↓POSTN, ↓↓PTGIS, ↓SKP2, ↓SLC12A2, ↑↑SLC7A2, ↓SMAD7, ↓↓TNFAIP6, ↑↑TNFRSF11A, ↓VEGFC, ↑↑VWF
IL13	cytokine	0.284	2.95×10^{-3}	↓↓CTSV, ↓↓DYNLT3, ↓↓JAKMIP2, ↓↓MMP1, ↑MT1X, ↓↓PID1, ↓↓RIN2, ↓SEPT11, ↑↑SLC7A2, ↑↑TNFRSF11A
IGFBP2	other	0.283	9.94×10^{-4}	↑↑COL14A1, ↓MRPL30, ↓POSTN, ↑RBMS3
CEBPA	transcription regulator	-0.274	6.44×10^{-5}	↑↑AKR1C1/AKR1C2, ↓BHMT, ↓↓COX4I1, ↓↓CYP19A1, ↑CYP2B6, ↓↓DYNLT3, ↑↑FOXO1, ↑↑HPGD, ↓↓LHCGR, ↓RNF144A, ↑↑RORA, ↓↓TNFAIP6, ↑↑TNFRSF11A
HNF4A	transcription regulator	0.264	3.84×10^{-2}	↓AJUBA, ↑↑AKR1C1/AKR1C2, ↓BHMT, ↓CAV1, ↓CDCA7L, ↓CDK8, ↓↓CRIP1, ↑CYP2B6, ↓DCAF13, ↑↑FOXO1, ↓GLCE, ↓HMGB1, ↓MRPL44, ↑MT1X, ↓PFKFB4, ↑↑PKN2, ↓↓PYGL, ↓↓RHPN2, ↑↑RORA, ↓SKP2, ↓STYXL1, ↓↓TNFAIP6, ↑TOX, ↓TRMT61B, ↓TYMS, ↓↓UGT1A9 (includes others), ↓VEGFC
FOXO3	transcription regulator	-0.246	1.44×10^{-2}	↓↓BNIP3, ↓↓CTSV, ↓↓DDIT4, ↑↑FOXO1, ↓SKP2
CTNNB1	transcription regulator	-0.191	1.87×10^{-2}	↑↑ALCAM, ↑COL4A2, ↓↓CRIP1, ↓↓CYP19A1, ↓↓ENO2, ↓↓LHCGR, ↓↓MMP1, ↓SLC12A2, ↓↓SLC26A2, ↓SMAD7, ↓ZEB1

U0126	chemical - kinase inhibitor	0.187	3.35×10^{-2}	↓CAV1, ↓↓CYP19A1, ↑CYP2B6, ↑↑HPGD, ↑↑INPP4A, ↓↓MMP1, ↑↑PABPC1, ↓POSTN, ↓↓STC2
Cg	complex	0.169	4.02×10^{-8}	↑ACPP, ↑↑ADAMTS1, ↓BCAT1, ↓BHMT, ↑↑BTC, ↓↓CTSV, ↓↓CYP19A1, ↓↓ELAVL2, ↓ELK3, ↑↑HPGD, ↓↓LHCGR, ↓↓MMP1, ↑↑RGS4, ↑↑RORA, ↑↑SLC20A1, ↓↓TNFAIP6, ↓VEGFC
Vegf	group	-0.133	5.92×10^{-4}	↑↑ADAMTS1, ↓↓ANGPT2, ↑↑COL4A3, ↑↑GPR116, ↓GUCY1B3, ↓↓SHISA2, ↓SKP2, ↑↑SLC20A1, ↑↑TNFRSF11A, ↓VEGFC, ↑↑VWF, ↓ZEB1
tyrphostin AG 1478	chemical - kinase inhibitor	-0.132	3.78×10^{-3}	↑↑BTC, ↓CAV1, ↓↓MMP1, ↓↓SLC2A1
F2	peptidase	0.128	3.62×10^{-2}	↓↓ANGPT2, ↑CYP2B6, ↑↑DST, ↓SKP2, ↑↑TFPI, ↑↑VWF
INHA	growth factor	0.116	1.65×10^{-2}	↑↑ADAMTS1, ↓↓CYP19A1, ↓↓LHCGR, ↓SMAD7
PTH	other	0.076	1.56×10^{-2}	↑↑ADAMTS1, ↑↑ANK3, ↓↓MMP1, ↓POSTN, ↓SMAD7
PRL	cytokine	0.060	8.66×10^{-4}	↓CAV1, ↓↓COL5A1, ↓↓COX4I1, ↓↓CTSV, ↑↑DCN, ↓↓LHCGR, ↓RASD1, ↑↑SND1
PKD1	ion channel	0.000	6.35×10^{-3}	↑↑ALG6, ↓BCAT1, ↑↑FOXO1, ↓↓JAKMIP2, ↑↑SYNE1, ↑↑VWF
Akt	group	0.000	1.89×10^{-2}	↓↓COX4I1, ↓↓CYP19A1, ↑↑HPGD, ↓↓LHCGR, ↓SKP2, ↑↑TNFRSF11A
SYVN1	transporter	0.000	3.99×10^{-2}	↓BCAT1, ↑↑SLC20A1, ↓↓SLC2A1, ↑↑SLC7A2
5'-methylthioadenosine	chemical - endogenous mammalian		1.82×10^{-4}	↓↓GUCY1A3, ↓GUCY1B3, ↓↓MMP1
TAZ	enzyme		2.81×10^{-4}	↑↑ADAMTS1, ↓CAV1, ↓CAV2, ↑↑RGS4, ↓↓SORBS2
leupeptin	chemical - protease inhibitor		3.68×10^{-4}	↓CAV1, ↑↑FOXO1, ↑↑RGS4
phenylacetate	chemical - endogenous mammalian		5.47×10^{-4}	↓CAV1, ↓CAV2
CTSS	peptidase		6.46×10^{-4}	↑COL4A2, ↑↑COL4A3, ↓↓CTSV
EPAS1	transcription regulator		8.07×10^{-4}	↓↓ANGPT2, ↓↓BNIP3, ↓CAV1, ↓↓ENO2, ↑↑FAM13A, ↓↓SLC2A1, ↓↓STC2
VAV3	cytokine		1.35×10^{-3}	↑↑BTC, ↓CAV1, ↓CAV2
GJA1	transporter		1.53×10^{-3}	↑↑FOXO1, ↑↑NOV, ↓SKP2
TERT	enzyme		1.58×10^{-3}	↓ASAP1, ↓↓BNIP3, ↓CAV1, ↓ELK3, ↓HMGB1, ↓↓MMP1
ZNF100	other		1.88×10^{-3}	↓MRPL30, ↓POSTN
ZNF85	transcription regulator		1.88×10^{-3}	↓MRPL30, ↓POSTN
ZNF254	other		1.88×10^{-3}	↓MRPL30, ↓POSTN
RASSF8	other		1.88×10^{-3}	↓MRPL30, ↓POSTN

ZNF431	other	1.88×10^{-3}	↓MRPL30, ↓POSTN
ZNF708	other	1.88×10^{-3}	↓MRPL30, ↓POSTN
ZNF665	other	1.88×10^{-3}	↓MRPL30, ↓POSTN
ZNF528	other	1.88×10^{-3}	↓MRPL30, ↓POSTN
ZNF43	other	1.88×10^{-3}	↓MRPL30, ↓POSTN
ZNF429	other	1.88×10^{-3}	↓MRPL30, ↓POSTN
GNA11	enzyme	1.88×10^{-3}	↑↑ADAMTS1, ↓↓CTSV
NPR1	enzyme	1.94×10^{-3}	↓↓GUCY1A3, ↓GUCY1B3, ↑↑RGS4
TRG	other	2.49×10^{-3}	↓CAV1, ↓CAV2
ZNF91	other	2.49×10^{-3}	↓MRPL30, ↓POSTN
HOXB5	transcription regulator	2.49×10^{-3}	↓↓ANGPT2, ↓↓MMP1
pepstatin	chemical - protease inhibitor	2.49×10^{-3}	↓CAV1, ↓↓STC2
GDF9	growth factor	2.67×10^{-3}	↓↓CYP19A1, ↓↓LHCGR, ↓↓TNFAIP6
IGF2R	transmembrane receptor	3.18×10^{-3}	↓MRPL30, ↓POSTN
LONP1	peptidase	3.95×10^{-3}	↓↓MT-ATP8, ↓↓MT-ND4L
RBL1	transcription regulator	4.21×10^{-3}	↓↓LHCGR, ↓SKP2, ↓TYMS, ↓ZEB1
RET	kinase	4.27×10^{-3}	↑↑ANXA4, ↓↓CTSV, ↑↑DCN, ↓↓MMP1, ↑↑NOV
SUMO3	other	4.59×10^{-3}	↓CAV1, ↓CAV2, ↑↑NOV
SMARCB1	transcription regulator	4.62×10^{-3}	↓↓BNIP3, ↑↑COL14A1, ↓↓DAPK1, ↓↓MMP1, ↓POSTN, ↓SKP2
L-histidine	chemical - endogenous mammalian	4.79×10^{-3}	↓↓DDIT4, ↑↑HNRNPD
SYK/ZAP	group	4.79×10^{-3}	↓↓MMP1, ↓VEGFC
mevalonic acid	chemical - endogenous mammalian	4.97×10^{-3}	↑CYP2B6, ↓↓LHCGR, ↓↓MMP1
PRKAG3	kinase	5.36×10^{-3}	↓IRX3, ↓MAP2K6, ↓↓SHISA2, ↓↓SLC2A1, ↑↑SLC7A2, ↓↓UGT1A9 (includes others)
ACVR1	kinase	5.37×10^{-3}	↑AUTS2, ↑↑DCN, ↑↑NOV
SUMO2	enzyme	5.37×10^{-3}	↓CAV1, ↓CAV2, ↑↑NOV
TCF3	transcription regulator	5.58×10^{-3}	↓↓CTSV, ↑↑FOXO1, ↓↓LHCGR, ↑↑RORA, ↓SLC12A2, ↑TOX, ↓TYMS
NPPC	other	5.72×10^{-3}	↓↓GUCY1A3, ↓GUCY1B3
GPI	enzyme	6.71×10^{-3}	↓CAV1, ↓SKP2
ADAM10	peptidase	8.14×10^{-3}	↓↓DCLK1, ↓RABEP1, ↑↑RGS4, ↓↓TRIM9
APOA1	transporter	8.18×10^{-3}	↓CAV1, ↓↓PTGIS, ↓↓SLC2A1

epoprostenol	chemical - endogenous mammalian	8.92×10^{-3}	↓↓MMP1, ↓↓PTGIS
SBDS	other	9.22×10^{-3}	↑↑AKR1C1/AKR1C2, ↑↑COL14A1, ↓↓OPN3, ↑↑RGS4
L-alpha-lysophosphatidylcholine, stearoyl	chemical - endogenous mammalian	9.63×10^{-3}	↓HMGB1
Integrin alpha V beta 3	complex	9.63×10^{-3}	↓↓MMP1
ADTRP	other	9.63×10^{-3}	↑↑TFPI
LMF1	other	9.63×10^{-3}	↓CANX
PCGF5	other	9.63×10^{-3}	↓↓MCC
ATXN2	other	9.63×10^{-3}	↑↑PABPC1
APBB3	other	9.63×10^{-3}	↓TYMS
MED25	other	9.63×10^{-3}	↓↓MMP1
NDP	growth factor	9.63×10^{-3}	↓↓ANGPT2
GBP1	enzyme	9.63×10^{-3}	↓↓MMP1
CCL20	cytokine	9.63×10^{-3}	↓POSTN
SCO2	other	9.63×10^{-3}	↓↓COX4I1
SPTBN4	other	9.63×10^{-3}	↑↑ANK3
MYT1L	transcription regulator	9.63×10^{-3}	↑RBFOX1
B4GALNT2	enzyme	9.63×10^{-3}	↑↑VWF
ARR3	other	9.63×10^{-3}	↓↓LHCGR
CDK3	kinase	9.63×10^{-3}	↓TYMS
Mvk	kinase	9.63×10^{-3}	↓↓LHCGR
S100A2	other	9.63×10^{-3}	↓↓BNIP3
TNFAIP8	other	9.63×10^{-3}	↓↓MMP1
SMARCD1	transcription regulator	9.63×10^{-3}	↓↓MMP1
CGB (includes others)	other	1.01×10^{-2}	↓↓LHCGR, ↓↓TNFAIP6
GNAS	enzyme	1.01×10^{-2}	↓↓CYP19A1, ↓↓LHCGR
KISS1R	G-protein coupled receptor	1.01×10^{-2}	↓↓LHCGR, ↑TMEM144
BMP6	growth factor	1.04×10^{-2}	↑↑ADAMTS1, ↓↓SAP30, ↑↑SLC20A1, ↓ZEB1
KLF2	transcription regulator	1.06×10^{-2}	↓↓ANGPT2, ↓↓PTGIS, ↓↓SLC2A1, ↑↑TFPI, ↑↑VWF
miR-141-3p (and other miRNAs w/seed AACACUG)	mature microRNA	1.14×10^{-2}	↑↑AKR1C1/AKR1C2, ↓ZEB1
CEACAM1	other	1.14×10^{-2}	↓↓ANGPT2, ↓VEGFC
MTM1	phosphatase	1.28×10^{-2}	↓↓BNIP3, ↓↓CTSV

ITGA2	transmembrane receptor	1.28×10^{-2}	↑↑DCN, ↓↓MMP1
ADRB1	G-protein coupled receptor	1.28×10^{-2}	↑↑ANXA4, ↓↓RYR2
FSHR	G-protein coupled receptor	1.31×10^{-2}	↑ACPP, ↓↓CYP19A1, ↓↓LHCGR
miR-29b-3p (and other miRNAs w/seed AGCACCA)	mature microRNA	1.31×10^{-2}	↓CAV2, ↑COL4A2, ↓↓TRIM9
SNAI1	transcription regulator	1.31×10^{-2}	↓↓CYP19A1, ↑↑HPGD, ↓ZEB1
RORC	ligand-dependent nuclear receptor	1.37×10^{-2}	↓BHMT, ↑CYP2B6, ↑↑HPGD, ↑↑RORA, ↑↑SLC7A2
IGF2BP1	translation regulator	1.42×10^{-2}	↑↑COL14A1, ↓↓COL5A1
FBN1	other	1.42×10^{-2}	↑COL4A2, ↓↓MMP1
GABPB1	transcription regulator	1.42×10^{-2}	↓↓COX4I1, ↓SKP2
NFKBIB	transcription regulator	1.45×10^{-2}	↓↓CTSV, ↓↓DAPK1, ↓SMAD7
MAP3K1	kinase	1.52×10^{-2}	↑↑NOV, ↑↑RGS4, ↓↓RGS7
ELOVL5	enzyme	1.56×10^{-2}	↑↑FOXO1, ↓INSIG2
GATA6	transcription regulator	1.60×10^{-2}	↓CAV1, ↓↓CYP19A1, ↓↓LHCGR
hemin	chemical - endogenous mammalian	1.60×10^{-2}	↑↑AKR1C1/AKR1C2, ↓↓GUCY1A3, ↓GUCY1B3
PIK3R1	kinase	1.68×10^{-2}	↑↑FOXO1, ↓↓SLC2A1, ↓VEGFC
NAMPT	cytokine	1.72×10^{-2}	↓↓MMP1, ↑↑TFPI
FASN	enzyme	1.72×10^{-2}	↑↑FOXO1, ↓SKP2
Gh	cytokine	1.84×10^{-2}	↑CYP2B6, ↓↓SLC2A1, ↑TOX
FAM3B	cytokine	1.88×10^{-2}	↓CAV1, ↑↑DCN
LTBP1	other	1.88×10^{-2}	↓SMAD7, ↑↑VWF
CASR	G-protein coupled receptor	1.88×10^{-2}	↑CYP2B6, ↓TYMS
glucose oxidase	group	1.92×10^{-2}	↓↓SLC2A1
Gα12/13	group	1.92×10^{-2}	↓↓MMP1
APBB2	other	1.92×10^{-2}	↓TYMS
TOX4	other	1.92×10^{-2}	↓ZEB1
GFRA1	transmembrane receptor	1.92×10^{-2}	↑ACPP
CCNC	other	1.92×10^{-2}	↓TYMS
LAMA3	other	1.92×10^{-2}	↓↓MMP1
PPP1R3C	phosphatase	1.92×10^{-2}	↓↓SLC2A1
UTS2	other	1.92×10^{-2}	↑↑HPGD

VRK1	kinase	1.92×10^{-2}	↓↓MMP1
ZNF410	other	1.92×10^{-2}	↓↓MMP1
ATP9A	other	1.92×10^{-2}	↓VEGFC
FKBP1B	enzyme	1.92×10^{-2}	↓↓RYR2
DUSP2	phosphatase	1.92×10^{-2}	↓↓MMP1
PNRC1	other	1.92×10^{-2}	↓↓CYP19A1
NR2F6	ligand-dependent nuclear receptor	1.92×10^{-2}	↓↓LHCGR
4-[(4'-chloro-2'-fluoro)phenylamino]-6,7-dimethoxyquinazoline	chemical - kinase inhibitor	1.92×10^{-2}	↓↓ANGPT2
SOX2-OCT4-NANOG	complex	2.04×10^{-2}	↑↑KAT6A, ↓↓RIF1
TWIST2	transcription regulator	2.04×10^{-2}	↓POSTN, ↓ZEB1
ITGA1	other	2.04×10^{-2}	↓CAV1, ↑↑DCN
PROX1	transcription regulator	2.04×10^{-2}	↓↓ANGPT2, ↑↑RGS4
SHH	peptidase	2.10×10^{-2}	↑↑ADAMTS1, ↓↓ANGPT2, ↑↑BMPR1B, ↓CAV1, ↓TYMS
TWIST1	transcription regulator	2.10×10^{-2}	↑↑DCN, ↑↑FOXO1, ↓ZEB1
TBX5	transcription regulator	2.10×10^{-2}	↓↓ACTN2, ↓POSTN, ↓↓RYR2
AREG/AREGB	growth factor	2.22×10^{-2}	↓↓MMP1, ↓↓TNFAIP6
TRIB3	kinase	2.22×10^{-2}	↓↓DDIT4, ↓↓STC2
NFIC	transcription regulator	2.22×10^{-2}	↓HMGB1, ↓↓LHCGR
JUND	transcription regulator	2.29×10^{-2}	↓↓CYP19A1, ↓↓LHCGR, ↓↓MMP1
FOXA1	transcription regulator	2.32×10^{-2}	↓ELK3, ↓↓LHFP, ↑↑RORA, ↓SLC12A2
FAS	transmembrane receptor	2.34×10^{-2}	↑COL4A2, ↓↓COL5A1, ↑↑FOXO1, ↑↑INPP4A, ↑↑MAP4K4, ↓↓MMP1, ↑↑PKN2, ↓↓TNFAIP6
Notch	group	2.39×10^{-2}	↓↓GUCY1A3, ↓GUCY1B3, ↓ZEB1
Smad	complex	2.39×10^{-2}	↓EGLN1, ↓SMAD7
NR1D1	ligand-dependent nuclear receptor	2.39×10^{-2}	↓↓BNIP3, ↓↓CTSV
SAA	group	2.58×10^{-2}	↓↓MMP1, ↑↑TFPI
AMH	growth factor	2.58×10^{-2}	↓↓CYP19A1, ↓↓LHCGR
CR1L	other	2.58×10^{-2}	↑COL4A2, ↓↓COL5A1
CCR1	G-protein coupled receptor	2.58×10^{-2}	↓↓CTSV, ↑↑TNFRSF11A
ATF4	transcription regulator	2.67×10^{-2}	↓BCAT1, ↓↓DDIT4, ↓↓STC2, ↑↑TNFRSF11A
POU2F1	transcription regulator	2.74×10^{-2}	↑CYP2B6, ↓↓DDIT4, ↓ELK3, ↑↑VWF

kynurenine	chemical - endogenous mammalian	2.86×10^{-2}	↓↓MMP1
Beta Arrestin	group	2.86×10^{-2}	↓↓LHCGR
RNF31	enzyme	2.86×10^{-2}	↓↓CYP19A1
CHD5	enzyme	2.86×10^{-2}	↓ZEB1
EPM2A	phosphatase	2.86×10^{-2}	↓↓SLC2A1
CACNA1D	ion channel	2.86×10^{-2}	↓↓RYR2
Hspg	group	2.86×10^{-2}	↓↓MMP1
WISP1	other	2.86×10^{-2}	↓↓MMP1
EMP2	other	2.86×10^{-2}	↓CAV1
PTPRA	phosphatase	2.86×10^{-2}	↓↓ENO2
mir-96	microRNA	2.86×10^{-2}	↑↑FOXO1
SDHA	enzyme	2.86×10^{-2}	↓↓SLC2A1
SDC4	other	2.86×10^{-2}	↓↓ANGPT2
PPP1R13L	transcription regulator	2.86×10^{-2}	↓↓SLC2A1
CCL25	cytokine	2.86×10^{-2}	↓↓MMP1
HTR6	G-protein coupled receptor	2.86×10^{-2}	↓↓DYNC1I1
CTSK	peptidase	2.86×10^{-2}	↓↓CTSV
MLF1	other	2.86×10^{-2}	↓SKP2
CD99	other	2.86×10^{-2}	↓CAV1
HES6	transcription regulator	2.86×10^{-2}	↓↓MMP1
GPX4	enzyme	2.86×10^{-2}	↓↓MMP1
CBFA2T3	transcription regulator	2.86×10^{-2}	↓PFKFB4
SERPINH1	other	2.86×10^{-2}	↑COL4A2
myristoylated PKCzeta pseudosubstrate peptide inhibitor	chemical - kinase inhibitor	2.86×10^{-2}	↓↓LHCGR
(Ala9)-autocamtide-2	chemical - kinase inhibitor	2.86×10^{-2}	↓↓MMP1
SPDEF	transcription regulator	2.90×10^{-2}	↑COL4A2, ↓↓COL5A1, ↓ZEB1
PRKG1	kinase	2.96×10^{-2}	↓↓GUCY1A3, ↓GUCY1B3
ABL1	kinase	2.96×10^{-2}	↓CAV1, ↓↓MMP1
PAK1	kinase	2.96×10^{-2}	↓↓CYP19A1, ↑↑TFPI
LIPE	enzyme	2.97×10^{-2}	↓H3F3A/H3F3B, ↓POSTN, ↓SMAD7, ↓↓ST3GAL5
TNFRSF1B	transmembrane receptor	3.01×10^{-2}	↓↓ANGPT2, ↓↓MMP1, ↑↑TNFRSF11A
TCOF1	transporter	3.12×10^{-2}	↓ASAP1, ↓↓BNIP3, ↓↓SLC2A1

HISTONE	group	3.16×10^{-2}	↑↑HPGD, ↓↓PTGIS
ETV4	transcription regulator	3.16×10^{-2}	↓CAV1, ↑↑HPGD
AGTR2	G-protein coupled receptor	3.16×10^{-2}	↓↓ANGPT2, ↓ZEB1
S100A6	transporter	3.16×10^{-2}	↑↑ADAMTS1, ↓TYMS
PRKD1	kinase	3.16×10^{-2}	↓AJUBA, ↓↓MMP1
IDH1	enzyme	3.36×10^{-2}	↓↓SLC2A1, ↓ZEB1
NPPB	other	3.36×10^{-2}	↓↓CYP19A1, ↓SMAD7
GAB2	other	3.57×10^{-2}	↓SMAD7, ↓ZEB1
PTGER2	G-protein coupled receptor	3.57×10^{-2}	↓↓CYP19A1, ↓↓TNFAIP6
PLG	peptidase	3.57×10^{-2}	↓CAV1, ↓↓MMP1
GNAQ	enzyme	3.57×10^{-2}	↑↑ADAMTS1, ↓↓CTSV
RB1	transcription regulator	3.74×10^{-2}	↓↓ANGPT2, ↓↓BNIP3, ↓CDCA7L, ↓SKP2, ↓TYMS, ↓ZEB1
ACVRL1	kinase	3.79×10^{-2}	↓↓ANGPT2, ↓SMAD7
UXT	other	3.79×10^{-2}	↓↓ENO2, ↑↑HPGD
FEZF1	other	3.80×10^{-2}	↓↓MMP1
GJB6	transporter	3.80×10^{-2}	↓BHMT
VLDL	complex	3.80×10^{-2}	↓PON2
LAMTOR5	other	3.80×10^{-2}	↓SKP2
ABL2	kinase	3.80×10^{-2}	↓↓MMP1
HIF1AN	enzyme	3.80×10^{-2}	↓↓SLC2A1
GNB5	enzyme	3.80×10^{-2}	↓↓RGS7
CUL3	enzyme	3.80×10^{-2}	↓↓MMP1
PODXL	kinase	3.80×10^{-2}	↓↓MMP1
PSIP1	other	3.80×10^{-2}	↓VEGFC
SULT1E1	enzyme	3.80×10^{-2}	↓↓TNFAIP6
PLAGL2	transcription regulator	3.80×10^{-2}	↓↓BNIP3
AQP4	transporter	3.80×10^{-2}	↓↓SLC2A1
FIGF	growth factor	3.80×10^{-2}	↓VEGFC
BATF3	transcription regulator	3.80×10^{-2}	↓↓MMP1
SSTR3	G-protein coupled receptor	3.80×10^{-2}	↓↓DYNC1I1
RECK	other	3.80×10^{-2}	↓SKP2
methylamine	chemical - endogenous mammalian	3.80×10^{-2}	↓↓SLC2A1

miR-182-5p (and other miRNAs w/seed UUGGCAA)	mature microRNA	4.01×10^{-2}	↑↑FOXO1, ↑↑VWF
mir-182	microRNA	4.01×10^{-2}	↑↑FOXO1, ↑↑VWF
CEBPD	transcription regulator	4.21×10^{-2}	↓↓CYP19A1, ↓↓TNFAIP6, ↓VEGFC
WT1	transcription regulator	4.56×10^{-2}	↓↓CTSV, ↓↓CYP19A1, ↓↓ENO2, ↑↑SLC20A1
GDF2	growth factor	4.61×10^{-2}	↓CAV1, ↓POSTN, ↓SMAD7
ARNT	transcription regulator	4.61×10^{-2}	↓↓BNIP3, ↓CAV1, ↓↓SLC2A1
ETS1	transcription regulator	4.62×10^{-2}	↓CAV1, ↑↑HPGD, ↓↓MMP1, ↓TYMS, ↓ZEB1
HNRNPA2B1	other	4.66×10^{-2}	↓↓CRIP1, ↓↓DCLK1, ↑↑KCTD12, ↓RIMKLB
STAT	group	4.69×10^{-2}	↓↓MMP1, ↓SMAD7
IFNE	cytokine	4.69×10^{-2}	↓↓SLC2A1, ↑↑SLC7A2
phosphatidylinositol	chemical - endogenous mammalian	4.72×10^{-2}	↓↓MMP1
lactosylceramide	chemical - endogenous mammalian	4.72×10^{-2}	↑↑TNFRSF11A
alpha-estradiol	chemical - endogenous mammalian	4.72×10^{-2}	↑CYP2B6
chondroitin sulfate E	chemical - endogenous mammalian	4.72×10^{-2}	↑↑PRICKLE1
Erm	group	4.72×10^{-2}	↓CAV1
RNU7-1	other	4.72×10^{-2}	↓H3F3A/H3F3B
ZNF521	other	4.72×10^{-2}	↑↑TNFRSF11A
Proinsulin	group	4.72×10^{-2}	↑↑FOXO1
LGI1	other	4.72×10^{-2}	↓↓MMP1
RBBP4	enzyme	4.72×10^{-2}	↓↓LHCGR
CRK	other	4.72×10^{-2}	↓CAV1
CLDN1	other	4.72×10^{-2}	↓ZEB1
ZBTB46	other	4.72×10^{-2}	↓VEGFC
miR-192-5p (and other miRNAs w/seed UGACCUA)	mature microRNA	4.72×10^{-2}	↓ZEB1
mir-183	microRNA	4.72×10^{-2}	↑↑FOXO1
ITIH2	other	4.72×10^{-2}	↓↓TNFAIP6
HSPA2	other	4.72×10^{-2}	↑↑AKAP4
CDH4	other	4.72×10^{-2}	↓↓MMP1
MYCT1	other	4.72×10^{-2}	↓EGLN1

SLC9A1	ion channel	4.72×10^{-2}	↓SLC12A2
BMX	kinase	4.72×10^{-2}	↓↓ENO2
YWHAE	other	4.72×10^{-2}	↓↓MMP1
CDC27	other	4.72×10^{-2}	↓SKP2
ELN	other	4.72×10^{-2}	↓↓MMP1
PLAA	other	4.72×10^{-2}	↑↑ANXA4
ACTN4	other	4.72×10^{-2}	↓↓MMP1
SIAH1	enzyme	4.72×10^{-2}	↓SMAD7
alpha-hydroxyglutarate	chemical - endogenous mammalian	4.72×10^{-2}	↓ZEB1
starch	chemical - endogenous mammalian	4.72×10^{-2}	↓↓ATP2B1
lactose	chemical - endogenous mammalian	4.72×10^{-2}	↓↓MMP1
FOXM1	transcription regulator	4.89×10^{-2}	↓CAV1, ↓SKP2, ↓ZEB1

Symbols for regulators with increased (or decreased) expression and fold-change>=2 are preceded with ↑↑ (or ↓↓). Symbols for genes with increased (or decreased) expression and fold-change<2 are preceded with ↑ (or ↓).