

Supporting Table 5:**Perturbed IRGs in sAH livers (DbGaP_phs001807: including sAH and AH_Expl; fold change > 2), related to Supporting Fig. 1**

Upregulated (958 genes)	Downregulated (468 genes)
CREB3L1	COBLL1
B3GNT5	USP30
PNMA1	MT1B
MMP2	GPHN
ABCA3	BBOX1
FAM219A	KLHL13
INSL3	XDH
AP000295.9	GCSH
KIF26B	MYO1B
UGCG	PRADC1
BTG2	CXCL14
CHST8	GSTA1
HSPB1	FAM214A
MEF2D	CYP39A1
PFKP	C1R
ZPLD1	C1RL
PRTG	HMGCS2
CNTD2	DEPDC7
HSPB6	AQP9
NCF4	LDHD
SLC7A6	MREG
TMSB10	ITLN1
CXCL3	MET
PLAU	GALK1
EPB41L4A	CLRN1
NTRK1	PCSK1
CTNND2	SORL1
FRAS1	SERPINF1
ANXA1	SFXN2
MMP7	PRDX6
TC2N	AMBP
DEPDC1B	ACSM3
TICAM1	RP11-249C24.11
MSC	SMO
DTNBP1	CA14
CACNA2D1	LYZL1
CCDC88B	RMDN2
SOD2	MACROD1
ARRDC2	ACAT1
KCNF1	C1QTNF3
PKP1	ALDOC
FGR	CALML4
AATK	GHR

FHL3	CLEC1B
NETO2	ST3GAL1
RAB3IP	STARD5
BAK1	GBP7
PTPRE	RBBP9
UNC5B	AC034228.7
MRPS31P3	DPP4
MFSD6	IL17RC
ALPK3	FOLH1
SLC9A5	EXOSC7
BIK	ANGPTL3
RAB3C	MAOA
SH3RF3	ALDH2
ALOX5	RP11-568A7.1
VSTM2L	CEACAM20
RP11-447L10.1	CNKSR3
CHSY1	FRRS1
VEPH1	NTHL1
GPNMB	MRPL12
ITGA3	GCSHP5
SLC12A4	PGA4
AKAP7	ACBD5
PTPN12	TNFSF10
S1PR2	UGT2B15
RUNX3	DNASE1L3
TGM2	ADI1
FCGR2B	JAKMIP2
PDLIM7	SCP2
ARL14	PKLR
CLDN11	GNG5
RELT	GPD1
APOBR	PCK2
IQCF2	TF
ANXA3	GNG10
EPHA2	CRHBP
RGS3	ALAD
ZMYND15	ZIM2
ABHD4	NIPSNAP1
NFATC1	EBPL
COL1A1	IGFALS
PLK3	LTBP1
TMCO3	VSNL1
SEL1L3	SDC2
CMIP	CFH
ATF3	OR13C4
UCHL1	SLC38A4
EPHX3	ACADL

PRR16	SLC47A1
DGKH	CLEC3B
RP11-204C16.4	RAB26
PLP2	IDNK
TAGLN2	PLCXD2
GFPT2	TNNC1
FOXJ1	FADS2
ITGB4	CYP4F3
RP1-239B22.5	CYP7A1
ABR	AHCY
NCOR2	MTTP
RIPK4	SRD5A2
MAGEE1	KHK
PCDHA4	CNGA1
FBLIM1	ECM1
LAIR1	AKR7A3
DUSP4	ABHD15
HS3ST1	DHFR
PLTP	CPB2
ROR2	ANXA9
CHST1	NR1I3
MYO6	CYP4A22
COL15A1	FCN2
ATP11A	SULT1A2
PLEKHB1	HP
FABP5P2	MT1G
KIAA1211L	TM7SF2
F2RL1	POLD2
HBEGF	CYP2A6
OSMR	BNIP3
FOXC1	SLCO1B7
SOD3	MTHFD1
RASAL1	IL13RA2
HYOU1	CYP3A5
SLC16A5	SIM1
CSF1	HPR
SORT1	GPR158
FNDC1	ALDH6A1
FAM98B	NDRG2
MGAT5	PRKAB2
NFKB2	GDF2
MRAP2	ANO1
C2orf27A	BNIP3P1
TMEM156	HAGH
FAM102B	RP11-612B6.2
SH2B2	SULT1A1
SBNO2	HOGA1

BDKRB1	TIGD2
SLC6A6	AKR7A2
DUSP5	CXCR2P1
C12orf75	AKR1C4
PIK3CB	DBT
MYH9	COQ10A
CDS1	MPC2
SLCO3A1	PGM1
TNFSF15	ADRA1B
NCF2	NUDT6
ADAM19	ASPA
RAP1GAP	MMACHC
FUS	MYCL
CHST11	PHGDH
ADRA2A	F2
BCL9	PCYOX1
ADAMTS9	CFHR1
STMN3	SULT2A1
TMEM200A	SAT2
B3GALT5	CBS
ZFP69B	GAMT
IFITM5	DPYS
SRPK3	TSPAN33
BAMBI	DHTKD1
CTC-479C5.17	SLC16A2
REC8	RRS1
FAT2	SMPDL3A
GBGT1	CYP2E1
RHBDF1	DNAJC25
C3orf52	DNAJC25-GNG10
DLGAP4	USP18
GATAD2A	NET1
ARHGEF2	ESR1
BACE2	KLF12
OXTR	SLCO1B1
SLITRK4	RUNDC3B
IFFO2	GPX4
IGFBP7	CYP2A13
CACNB1	CCT6B
SCN4A	IL1RAP
TMEM87B	ZKSCAN1
FAM135A	ACSL5
FUT6	ANG
NCAM1	DMGDH
DEGS2	ADRB2
PDP1	HPGD
FERMT3	DNAJC12

FLNC	MFAP3L
PRAF2	PER3
NACAD	AC074182.1
SPTAN1	AMACR
TMEM125	ITPR2
NCEH1	CYP4A11
RNF113B	THRSP
TM6SF1	OSBPL6
DSG2	PHYH
FUT4	ART4
JAG1	GNG5P2
DMPK	RXFP1
PAPPA	SERPINF2
KIF2A	RNPC3
VSIG10L	RP11-315D16.2
PRKCD	SPIC
POM121L10P	LONP2
ITPRIPL2	ZFP1
ADAMTS2	CTSF
CRHR2	AADAT
ENAH	KLHDC2
IL1RL1	APOM
PLXNC1	SHMT1
RGS19	IL27
LILRA6	PIN4
AC068491.1	ALDH5A1
THSD1	ACADS
SLC12A2	CPED1
CD58	ECI2
OR2A9P	EPHX2
RLN1	BLVRB
WIPF3	IVD
HOXA3	AC125232.1
LITAF	EBP
DNAAF1	FAM13A
AC093724.2	PROC
TMEM165	ACSM5
KRT15	GRIN3A
IL18BP	PHLPP1
CDH24	PLIN1
KIAA1549L	PDIA5
KRT17	SLC7A2
ABCC4	RP11-1084J3.4
CBX6	FH
ELOVL7	TUBE1
GPR132	ARHGAP20
PIM1	NR3C2

FAM169A	QRSL1P1
THBD	DIRAS3
YWHAZ	RXRG
PGM2L1	ETNPPL
PAQR4	PIK3R4
ARNTL2	SIGIRR
BHLHE22	SULT1E1
MYBPH	DBP
TRAF2	CCL23
AC000403.1	SYT1
SERINC2	ABCG2
FLOT2	C1S
MICALL1	DPF3
CTD-2262B20.1	INS
OXCT1	BDH1
LTBP2	ECM2
GABBR1	FCGRT
FAM222B	RMND5A
LAMB3	FITM1
PDE9A	CNTLN
RRAD	CTD-2008A1.2
FMN1	SLC10A1
ZNF738	ACADM
RALGPS1	CYP4X1
CYP19A1	CDC14B
CLDN9	PGRMC1
TRIM40	MAOB
EPS8L1	CR1L
HOXB5	MYOM2
KSR1	ACOT13
S100A3	RANBP3L
TRPV2	RP4-583P15.15
KCTD10	CYP1A2
SLC9A7	UROC1
YWHAH	SFXN1
IL17D	GSTM1
CTAGE6	LIME1
FABP5P11	ANXA10
TUFT1	SERPINA7
EHBP1L1	RP11-125O5.2
MYOF	STARD10
MFSD2A	SOX5
ZC3H12A	ADHFE1
VANGL2	DCAF6
FA2H	GYS2
STC1	CD5L
SEMA3G	NDST3

C1orf198	ABCA6
EEPD1	LIFR
COL23A1	CMC2
NEDD4L	PLGLB2
GLDN	CYP4F2
AMELX	PGA3
GAS2L3	SIRT5
CD248	MSRB2
GLB1L2	ARRDC3
PDGFD	SLX1B-SULT1A4
CTAGE9	SRD5A1
BEX2	HINT2
ZYX	CFL2
LXN	UPB1
GMIP	LST3
CHST4	NAAA
SCRN1	CYP27A1
ITGB6	AGL
TMC8	CCNG1
TANC2	AZGP1
CADPS	CLU
ANO2	HSD3B2
SPATA12	ACAT2
ANXA8	HADH
AL626787.1	TRPM1
FGFR2	ST8SIA3
ITGAV	EPHX1
THY1	SULT1A3
LZTS1	NR5A2
P2RY8	AVPR1A
ARHGEF3	TOM1L1
HSPA2	EHD3
HSD3B1	PVALB
TNNI2	UNC93A
SAMD1	ABAT
C5orf46	DGAT2
FAM167A	ACSL1
OSBPL3	CPNE6
DPYSL4	SNRNP25
ADAMTS14	ACAA1
ANTXR1	CTSL
HSPA6	CA2
RAB6B	GPER1
BICD1	RALGPS2
SLC25A29	EIF4EBP1
SPHK1	NTF3
SLAMF8	SORD

SPP1	AMDHD1
BARD1	TMEM97
SMCO2	AC079780.3
ADAM9	USP41
CA9	MRPL40
APAF1	SMIM14
KCNC3	SLC41A2
POM121L9P	CYP51A1
GPR176	ANGPTL6
PTGS2	CETP
OLR1	RPS3AP5
SEZ6L2	GOLIM4
GLIPR2	GPAM
CYTH2	AFMID
MAP1A	BRINP2
MYO5A	SEC14L2
AC008132.13	MBNL3
BCAR1	SSTR1
SIPA1L3	PGA5
GNA15	ENO3
TMEM185B	CMBL
KIAA0753	PEG3
TREML4	TRMT10A
AGPAT4	MPDZ
NOX4	ITIH1
NBEAP3	PLG
VWF	DHRS4
CD200	ZMYND12
NCKAP5L	SLC25A10
TPM1	SLC13A5
IL18	SLC39A8
ITGA6	TSLP
GAD2	CENPV
BAG3	PLGLB1
CRIM1	FAM162A
SULF2	FGFBP2
TRPM2	CDH23
NRG2	DCXR
SEMA7A	HAAO
BMP2	AKR1C1
SPTBN5	ADH1B
ACLY	PEMT
DAPK2	SARDH
EREG	NIT2
SFRP4	CAT
KCTD17	GEMIN8P4
TCTEX1D2	AMY2B

MCAM	DIO1
TMOD2	SLC6A12
CTAGE4	CACYBP
FMOD	GCAT
FAM155A	ACSL6
PTP4A3	ENPP1
PODXL	NREP
TNS1	TMEM120A
FAM122B	CCDC150
NDOR1	SLC2A2
TDRD9	FAXDC2
ITGB8	PEX11A
TPRN	PIK3R1
GAP43	GBA3
LENG8	CLEC4G
RALGDS	HSBP1L1
PTX3	AGMO
TNFRSF10C	RP11-468E2.6
TMC6	IDH1
GXYLT2	PEX19
CDKN2B	PPP1R3C
CDR2L	KMO
LIMS1	RNF130
PIK3CD	GFRA1
CDH11	ST13
TGFB1	SLC27A2
ITGA2	TCEA3
GLI3	HAX1
PTCH1	CFHR3
S100A6	G6PC
COX19	MARCO
TES	C2orf42
FZD10	AGXT
RAB36	LCAT
SLC37A1	AMT
TNFRSF8	F12
MLLT3	TDO2
SOCS3	HSD11B1
TMEM132A	AKR1C3
HAVCR1	DHRS1
NIPAL2	HIBADH
SHC3	RP11-351I24.3
ARRDC4	LYZL2
KDEL3	IGFBP3
KLHL25	C4BPA
ZG16B	ALB
PIEZO1	HAMP

LAMA3	CYB5A
BGN	N4BP2L1
ALDOA	TEX30
SLC30A2	KCTD3
LFNG	ING1
LASP1	RP11-166N6.3
SPATS2	SMIM2
TMEM184B	RELN
RAB4B	ACOX2
ARHGAP23	AC093616.4
ABHD17C	STAB2
KIF5C	AR
MSANTD3-TMEFF1	GATM
HEG1	CYP51P2
KRT81	EPB41L5
ZC2HC1A	CYP2J2
AMPD3	SCG5
RAB4B-EGLN2	AL163636.6
SFXN3	MTFR1L
B9D2	SLCO4C1
S100A11	AOX1
ZNF521	LRRD1
COL13A1	FDPS
RAP2B	SERPINA5
COL8A1	CALML6
ZSWIM4	SLC17A8
TARBP1	AMHR2
LPAR2	SELENBP1
MEGF6	HSD17B6
ANGPT1	EHHADH
SPRED3	HEPACAM
STK39	TTC38
KCNQ1	CES1
LIMK2	PIPOX
MMP24	TMEM256
MVP	APOC1
NR2F2	RNASE4
CD109	SLC27A5
RP11-64P12.8	ACSM2B
SLC25A24	AMER1
BSG	ATF7IP2
LYPD1	POLD2P1
TEAD4	BCKDHB
ADAMTS12	PAH
CREB5	C9
EFEMP1	PNP
IL9RP3	ACY3

PCSK1N	NADK2
IGSF21	IQGAP2
ECT2	
FMNL1	
SMOC2	
CCDC74A	
POM121L7	
ZNF618	
VDR	
DNAJC6	
CDK18	
CLOCK	
PPARD	
ANXA2	
LRFN4	
JAG2	
ITGAM	
STX3	
CD34	
CCDC102B	
RHOQP1	
PDPN	
MST1R	
ACYP1	
VASH2	
CACNA1C	
COL3A1	
ENG	
MGAM	
MOB3A	
KIAA1324L	
S100A11P2	
FAM3C	
PRKAA2	
ADARB1	
SGPP2	
PLBD2	
AP1S3	
CCL11	
GPC4	
SOGA1	
COL4A2	
ACSS1	
AF196779.12	
SRCAP	
PPP1R13L	
LUM	

GOLGA7B	
KB-1592A4.15	
UBASH3B	
AC025263.3	
SYNDIG1	
DTX2	
FCGR2A	
GRAMD1B	
TMED3	
TMEM158	
CCDC74B	
TMEM255B	
TSPAN15	
NPHP4	
TMEM155	
PML	
EFNA5	
U4	
TMEM51	
KMT2D	
LRR32	
TUBB2A	
DAB2	
MRAS	
LIMS3	
MARCKS	
B3GNT3	
SERPINH1	
PLD2	
F13A1	
KRT80	
DNAH7	
MN1	
ANO4	
PCDHA5	
ALOX15B	
CD24	
PIK3C2B	
FAP	
ARX	
HTR2B	
SLC44A3	
TMSB15B	
STX1A	
TGFB3	
IRAK2	
SERPINE2	

YWHAZP3	
BTC	
SLC36A1	
PLCB4	
RAI1	
ATP9A	
SNPH	
PYGB	
HIC1	
ADPRH	
ALOX5AP	
NOD1	
PIWIL4	
RIPK3	
GPR27	
SH3PXD2B	
GNAZ	
SPRY1	
LILRB3	
SPI1	
IL9R	
MMP14	
PSORS1C1	
AK8	
MDM2	
ITGBL1	
AC124309.1	
TBC1D30	
FMNL3	
LRCH2	
MAML1	
NQO1	
ADAM28	
CPXM1	
CARD10	
AC244230.1	
KCNAB2	
GPR4	
SPNS2	
PACS1	
CIC	
SYT3	
RP11-934B9.3	
CAPN2	
HCN2	
SRPX2	
CBR3	

RAB3B	
ADORA1	
TTC39A	
DAB2IP	
PLEKHN1	
MIR4689	
ST6GALNAC4	
FGF9	
TSC22D2	
DOK3	
OSBPL7	
FUT3	
SLC22A15	
SOGA3	
SLC2A6	
JUNB	
OR2A20P	
RP11-738E22.2	
ARMC9	
ASIC2	
CCDC80	
SSH1	
IGDCC4	
TMEM190	
MPHOSPH6	
MARK2	
GRM5	
NKD2	
SH3D21	
TMC5	
SKI	
CAPN11	
FCGR2C	
FAIM	
DBNDD1	
G6PD	
KLF5	
EHD4	
FBLN2	
OXGR1	
FAR1	
SOX8	
NRGN	
TNFAIP8	
C11orf80	
PPP1R36	
F2R	

LPCAT4	
BCL2L1	
RAB3IL1	
TUBA1C	
LHX6	
NAV1	
AEBP1	
RAI2	
TXNRD1	
PAQR5	
SRGAP1	
TNFRSF21	
CDC42EP5	
ANKRD2	
CCL28	
HPDL	
TMEM164	
SLC9A1	
PDE7A	
AKR1B1	
CD300LB	
RASL11B	
THBS2	
PLEC	
C15orf39	
UNC13A	
SHB	
MPZL3	
MYCN	
MAPK13	
MTHFD1L	
S100A2	
CASZ1	
KCNK15	
ANKRD29	
PPP1R9B	
SLC43A2	
HOXB6	
SLC25A33	
C5orf30	
AL391319.1	
GAL3ST4	
BICC1	
RASD1	
MACC1	
DBN1	
MFAP2	

OXCT2	
ADAP1	
LDLRAD3	
PTCHD4	
EID3	
LY6H	
HTRA1	
MAP2	
SLC26A2	
ATP2B4	
SUSD4	
TGFA	
PROM1	
VSX1	
PHLDA2	
PADI2	
ILDR1	
RNF24	
TTC22	
GPX8	
RHOQ	
TP53I11	
ST14	
TMEM144	
RHBDF2	
SPON2	
ITGAX	
CANT1	
MGAT4A	
LRRC8B	
RAB11FIP1	
COX7A1	
OLFML2B	
ODC1	
PCDH17	
KLHL29	
CLIP4	
AC024592.12	
DPEP1	
MAP9	
MECOM	
HIP1R	
LRRC1	
TWIST2	
ACTB	
GAS1	
ESRP1	

KRT19	
TMEM163	
SLC35G2	
STK32B	
RAP2A	
TTYH1	
COL4A1	
RNASE1	
SLFN11	
MAP1B	
EXTL1	
ACTBP8	
RP11-37C7.1	
RARG	
GLS	
FBXL16	
IL4R	
ADAM8	
LINC00152	
MNT	
MAGEL2	
TM4SF1	
JUP	
CTBP2	
SLC41A1	
DZIP1L	
FABP5P7	
GLRB	
LOX	
SULF1	
KIF3A	
MAGED4	
PTGFRN	
SUCO	
C6orf132	
DUTP1	
TNFAIP2	
DAGLA	
FERMT1	
SLC38A1	
MMD	
LPL	
CLEC2D	
RPS6KA1	
HCN4	
PLCD3	
SLC7A1	

PKM	
LAMC2	
JAK3	
SPSB1	
CXCL5	
AP1M2	
FAM78B	
RARRES1	
CLEC5A	
B3GNTL1	
MMP25	
SCNN1A	
GCNT3	
SLC35F2	
ZMIZ1	
CTAGE8	
FSTL3	
TOR4A	
NPTX1	
DOK5	
ADCY4	
PKDCC	
CSTB	
SLC6A9	
FGD3	
CUEDC1	
TMEFF1	
PDLIM3	
GPRIN3	
MYO1G	
KCNQ3	
ELMSAN1	
GMNN	
NES	
SEMA4A	
CDCP1	
NUAK2	
ANO8	
GPX3	
KLC2	
YBX3	
PLB1	
LMCD1	
MICAL1	
MICALL2	
ABCC1	
NPM1P5	

BCL3	
MUC13	
RHOQP3	
TOMM40	
KCND2	
LTC4S	
FUT5	
CST2	
PPP1R14C	
MTND4P14	
C11orf96	
CD24P4	
LCN2	
SOBP	
GMDS	
AC006483.1	
RP11-145F16.2	
KCTD12	
CLEC11A	
ANKRD1	
DDR1	
PFKFB4	
PMEPA1	
TNFSF9	
PAGR1	
ZNF385A	
KIF21B	
TREM1	
KCNJ5	
LMNA	
ACTN1	
IFNAR2	
PRICKLE1	
SLIT2	
SEMA6B	
BSPRY	
CTHRC1	
PIK3R6	
ELK3	
ANKRD13D	
DENND6B	
BCAT1	
AHNAK2	
GNA12	
ETV6	
B4GALT5	
MMP19	

FMNL2	
GEM	
KRBA1	
TM4SF19	
TESC	
TTC9	
NOTCH3	
APBB1IP	
MMP10	
TNFSF14	
PRRT2	
FAM3C2	
ATP1B3	
TRNP1	
NUP62	
WNT7B	
PLAUR	
MAP2K3	
ARHGEF10	
BHLHE41	
FJX1	
AMELY	
CLCF1	
SH2D5	
CCDC112	
MAP7D1	
HSPG2	
RASSF6	
LPCAT1	
FLNA	
TRAM1L1	
AAK1	
COL1A2	
MTND5P14	
RP4-798C17.6	
SIK1	
MTMR11	
USH1C	
DNAH5	
SUSD1	
GGT5	
ARSJ	
ARHGAP27	
NR1D1	
KCNS3	
RNF44	
SEMA3C	

CYP1B1	
CSF2RB	
OXCT2P1	
MS4A14	
TFAP2E	
DACT1	
TMEM54	
ACKR3	
C2CD4A	
NCR3LG1	
BAK1P1	
CDX1	
RP11-521I2.3	
N4BP3	
RANGAP1	
CKAP4	
PITPNM1	
ARNT2	
MOB3B	
NRSN2	
WDR63	
MLXIP	