

Supplementary Table S1

A list of 244 genes in SEA

MAN2B1
XDH
TYMS
QTRT1
PLAUR
PAOX
RR
DNM1
ADH7
TLR8
PAM
FDPS
ADH1B
CA3
CES2
GGPS1
LPAR3
GNAI1
GNAI3
CA6
ADH1C
GNAO1
CES1
CA5B
ADH1A
SLC22A1
CA5A
RELA
EPHX1
TLR2
LAP3
LPAR2
CA4
CA14
CA7
SLC22A8
HAO1
FAAH
SPHK1
GABRQ
KDM7A
BBOX1
CYP4F2
PHF8
FOLH1
GSTK1

A list of 442 genes in STP

ACHE
SLC5A7
LSS
PYGL
SLC18A3
DNM1
FUCA2
PLA2G2A
PLA2G1B
FUCA1
GLB1
MGAM
GAA
SI
GBA2
UGCG
GANAB
GLA
CDK2
CDK1
CDK4
TYR
DAO
GBA
NAAA
SIGMAR1
SLC22A2
SLC47A1
GRIN1
GRIN2A
CA7
CA3
CA6
CA12
CA14
CA9
CA4
CA5B
CA5A
CA13
NISCH
HTR2B
HTR2A
HTR2C
SLC6A4
KDM1A

NAALAD2
SLC6A11
KDM2A
SLC22A6
ENPEP
KDM5A
KDM4A
KDM4C
KDM4E
GABBR2
EGLN3
GABBR1
KDM5C
OXER1
GABRR1
TPO
ERN1
CYP1B1
TUBB1
CYP1A1
NFE2L2
NQO2
ENGASE
MTNR1B
MTNR1A
PPARA
GPR84
PLA2G4B
LPAR4
SLC25A20
LPAR6
COL4A3BP
P2RY10
ACER2
MPEG1
GPR34
PLA2G2C
POLM
PLA2G5
LPAR1
GPR174
FABP3
BHMT
SLCO2A1
S1PR2
SELL
CDC25C
SMPD2
LTB4R

MAOB
HTR1B
MAOA
RCOR1
ADRA2A
HTR1D
ADRB1
HTR1A
HTR1E
DPP4
HTR7
HTR6
TAAR1
PAOX
SLC6A3
SCN4A
ADRA1A
GRIN2B
AKR1B1
CA2
ERN1
TGM2
ALDH1A1
CTSK
TDP2
TYMP
AKR1A1
PARP2
AKR1B10
KDM5C
KDM4B
KDM5B
KDM4A
CA1
TLR9
MTNR1B
MIF
NOS2
TOP2A
TRPA1
CYP2A6
PPARA
PPARD
FABP4
FABP5
FABP3
FABP2
FFAR1
SLC22A6

ACP1
SELP
ENPP2
HMGCR
GSTM1
NOD1
PLA2G4C
RARB
CDC25B
PTGER2
EPHX2
THRB
GSR
POLH
THRA
TBXAS1
S1PR3
CDC25A
POLL
POLK
S1PR4
NAAA
PLA2G10
POLB
PRKCA
PLA2G2A
HSD17B3
S1PR5
PPARG
TBXA2R
DAGLA
PTGER4
PTGIR
PLA2G4A
FFAR4
GSTA1
PTGER3
FABP4
PTGFR
GPR35
ATG4B
PPARD
S1PR1
TRPV1
CNR1
CPT2
PTPN7
SPTLC1
SPTLC2

CDC25A
HSD11B1
UGT2B7
NR1H4
CYP19A1
SERPINA6
SHBG
HSD17B3
G6PD
GABBR1
POLB
PTGER2
KDM2A
GABRA2
GPBAR1
VDR
AR
FNTA
PHF8
PTPN1
PLG
GSTK1
FAAH
PPARG
TERT
FABP1
HSD11B2
PTGFR
NPC1L1
RARG
RARB
RARA
GLRA1
CDC45
PTPRC
HAO1
RXRB
RXRG
RXRA
CYP26B1
CYP26A1
NR0B2
SCD
CACNA2D1
HMGCR
PTGER4
CHRNA7
SAE1
GRM5

PAFAH1B2
PDCD4
MGLL
ABCC2
CNR2
SOAT2
PRKCE
SPHK2
LPAR5
ALOX12
TOP1
ATP12A
MSR1
SQLE
ADH4
LDLR
CEL
KCNQ3
GLA
PTPN13
KCNQ2
BMP1
CCND3
KAT2B
ASAH1
POLB
KAT5
IARS
PTPRC
GABBR2
KDM4E
PPM1A
VEGFA
PLCG2
LSS
FNTB
FNNTA
ICMT
FDFT1
TTPA
PHLPP1
BCHE
AKT1
CYP17A1
NPC1L1
GPBAR1
SRD5A2
SHBG
SLC10A1

PDE4A
PDE4B
SLC16A1
GABRB2
GABRG2
FNTB
UBA2
PTPN2
PTGS1
PREP
PTPN6
PTGES
CDC25B
ALOX5
RORC
PDE4D
LTB4R
TOP1
CD81
PRKCH
NR1H3
CYP51A1
PTPRF
PTGS2
PTPN11
CES2
NR3C1
TRPV1
CYP17A1
ACP1
PTGIR
ADORA3
MAPK3
PTGER1
BCHE
BACE1
NR1H3
CNR1
CHRM2
SLC6A2
CYP2C19
PGR
SRD5A2
IDO1
RORA
NR3C2
ESR2
FFAR4
ALOX12

ABCC4
CD4
GC
CDC45
G6PD
SRD5A1
SERPINA6
VDR
NR1H3
NR1H4
AR
ESR2
ST3GAL1
CYP24A1
RORA
POLA1
SLC10A2
SREBF2
ESR1
ABCB11
CA2
CA1
EBP
CYP19A1
CYP27B1
EPHA7
EPHA2
EPHA5
EPHA4
EPHA8
EPHB3
EPHB1
SHH
EPHA1
EPHA6
ATIC
NR1H2
RORC
EPHB2
GBA2
PTPN2
CD81
PTPN1
HSD11B2
AKR1B10
PTPN6
IL1B
F3
PLCG1

ATP12A
RPS6KA5
PDCD4
TAS2R31
PPP2CA
CYP11B1
CYP11B2
LRRK2
IARS
TTL
GSR
HMOX1
PRKCA
BRD4
BRD2
ABCC9
KCNJ11
CDK5R1
F2RL1
MGLL
DRD4
AOC3
ATP1A1
CDC7
PSEN2
PDE10A
RASGRP3
LIPA
CDK5
PSENEN
NCSTN
APH1A
PSEN1
APH1B
ADH1A
ADH1C
PARP1
EPHX2
NQO2
SRD5A1
THRA
THRB
GRM1
MTNR1A
HRH1
PTAFR
HLCS
ABCG2
EPHX1

PTPRF
HSD11B1

MAPK14
JAK2
TRPM8
KIF11
P2RX7
NR1I2
AVPR2
ADORA1
ADORA2A
HSD17B1
NMT1
ADH1B
TNKS2
TNKS
CTSL
CTSB
SLC6A15
GRM2
DRD2
CYP24A1
TSPO
CNR2
DBF4
RAPGEF4
BRD3
PIK3CA
PIM1
ITK
PIM3
NAMPT
CHRNA4
MMP13
MMP1
NPY5R
CTSD
KCNA5
CHRNA2
GRIA2
FNTA FNTB
HRH3
HRH4
QPCT
CPT1A
STS
HPGD
PIK3CG
PI4KB
PI4KA
LDLR

DHFR
F2R
PDE7A
LTA4H
ALOX15
ABCC1
ABCB1
TBXA2R
PLA2G4A
RORB
MAPK1
HNF4A
GABRB3
LIMK2
IMPDH2
C5AR1
SLC9A1
ABL1
YES1
LCK
SRC
EPHB4
ALOX5AP
SLC6A9
KDR
NTRK1
HIPK1
PGGT1B
GCGR
AURKB
ROCK2
MCL1
BCL2
PDE5A
CASR
OPRD1
BRPF1
CHUK
PDE6D
CRHR1
CSF1R
KIT
ABHD6
SCN9A
MTOR
GSK3A
LIPE
CD38
VCP

CALCRL
PFKFB3
RAMP1
GABRA3
GABRA1
GABRA5
PRKCG
PRKCD
PRKCE
PRKCQ
DHCR7
PRKCB
ESR1
ICMT
TNF
ACACB
ITGAL
SMO
MDM2
CHRM4
CHRM5
CHRM1
CHRM3
ICAM1
ITGB2
SIRT2
OPRK1
BDKRB1
F2
PAM
JAK3
EGFR
ECE1
CDK9
PRCP
PPM1B
PPP1CC
MET
TGFB1
CACNA1B
AVPR1A
FLT1
GLO1
AKT1
BRAF
PPP5C
MAPK10
NMBR
FKBP1A

IDH1
SCARB1
KCNK3
KCNK9
SREBF2
ELANE
CYP2C9
MCHR1
F10
CFTR
NPY1R
MOGAT2
GNRHR
MPO
DCK
SYK
GPR119
FYN
PDGFRB
CCND3
CCR8
LIMK1
ERBB2
ERBB4
BDKRB2
PDE3A
CCND1
CCND2
CCNT1
TRPV4
S1PR3
S1PR1
LPAR6
LPAR5
IL2
PPP1CA
S1PR5
S1PR4
FASN
IKBKE
TBK1
SQLE
PHLPP1
ILK
CCKAR
ADK
AURKA
JAK1
PLA2G7

PDK1
BACE2
NR1H2
FDFT1

Supplementary Table S2

A list of 3,028 genes related to obesity

MC4R
PPARG
POMC
CPE
AGRP
SH2B1
LEP
LEPR
PCSK1
ENPP1
SIM1
UCP3
NR0B2
BBS4
MKKS
BBS1
CNR1
CRP
ESR1
SIRT3
SIRT1
HSD11B1
IL6
IRS1
LBP
LPL
CCL2
ADIPOQ
ICAM1
CYP2E1
F2
PMCH
ACSL1
FOXO3
GPX3
HK2
NPY5R
CD40
HADH
ADRB2
ADRB3

GLUL
APOE
INS
NPY1R
GHRL
INPP5E
TF
FTO
NEIL1
CARTPT
ADCY3
GNAS
NPC1
PRKAR1A
AHR
SDCCAG8
MYT1L
NTRK2
SDC3
KCNMA1
RAI1
MRAP2
BBS9
BBS2
VPS13B
AFF4
HOXB5
PACS1
BBS10
PHF6
NAMPT
TTC8
TMEM18
BBS5
GNPDA2
BBS12
DPYD
RMST
AKT1
FAAH
FASN
NEGR1
FGF21
GCG
GH1
GNB3
HCRT
HTR2C
IGF2

AQP7
LDLR
MC3R
MMP9
SERPINE1
ANGPTL4
PLIN1
PPARA
PPARD
MKS1
BBS7
PRKCH
PYY
PTPN1
TNF
UCP1
UCP2
PNPLA3
ARL6
TBC1D1
HTR2A
BCHE
TUB
KCTD15
HSPA5
MIR21
CIDEA
PPARGC1B
ADRB1
MTCH2
GCK
PTGS2
SREBF1
ALMS1
FGFR1
SAT1
TNFRSF1B
NR1I3
CTSS
CYP1B1
HMOX1
MIR34A
STS
SOD1
TRPV1
NR1I2
CD163
CD68
CES1

KSR2
ACACB
IGFBP2
NHLH2
SOD2
CTF1
OGG1
PCK1
RAPGEF3
GPX1
ITGAM
ACHE
SLC22A1
VLDLR
CEBPA
ADH1B
PARP1
CS
DDIT3
ZNF169
FCGR3B
FTL
IDO1
MIR130B
MRC1
PFKFB3
PRKAR2B
TFRC
CA3
AKR1C3
ALDH1L1
PPARGC1A
LACTB
COX7C
CPB2
APCDD1
PPM1L
CYB5A
ACE
NQO1
DRD2
ECHS1
ABCA1
EFNB1
EP300
ESR2
ETFDH
RAB21
ZFR2

MTOR
GFPT1
GIP
GLP1R
MCHR1
NR3C1
HMGB2
ACADM
IFNG
IL1B
IL10
IL18
LCN2
LIPE
MIR130A
MIR184
ME1
ALDH6A1
MMUT
ZFH3
ACLY
NOS3
NPY
NPY2R
NUCB2
ZBTB7B
ADIPOR1
DCXR
ACP5
CYCS
FGGY
CYP26B1
RARRES2
RBP4
SCD
ATPAF1
SLC22A3
SLC22A2
STAT3
TGFB1
TLR4
UQCRC2
ADIPOR2
AKAP1
CASP1
GAS7
PEX11A
SUCLG2
SUCLA2

APLN
WNT3A
SOCS3
SLC16A7
CD36
ENTPD6
SIRT6
SERPINF1
CPT1A
SERPINA12
DRD4
STK11
CCKAR
NR1H4
HP
RPS6KB1
NMU
GOT2
LIPC
PRKCB
C3
CDKN2A
CST3
AKT2
IGFBP3
AR
NMB
PNLIP
CCL5
ANGPTL6
CAV1
MFN2
NR1H3
HRH3
CRH
ANKRD26
NNT
GUCY2C
JAK2
ASIP
NPPB
PRLH
BCL2
SNAP25
TSC1
AOC3
SOCS1
ALOX12
GAPDH

GLRX
HK1
IGF1R
SLC27A1
FADS1
NOS1
PON2
PRKG1
SREBF2
NR1H2
XDH
CRHBP
DCN
CFD
DRD1
GABRA6
PRLHR
HSD11B2
ATP5F1B
KDM3A
PROX1
BAD
PTPRF
CCL4
SDC1
TYK2
GALP
NCOA1
CDKN1B
ADARB1
CTSC
EHD1
CPS1
CYP19A1
DEFB1
ALB
FGG
G6PD
GIPR
GJA5
PCSK1N
GPR12
GSTT1
HMGCS1
HTR1B
APOBEC1
RHOA
MAPT
KITLG

MYC
MYOD1
MYOG
NCF2
NDUFB6
ATP4B
OTC
OXCT1
ATP5F1D
PDE3A
PIK3R1
PRKCD
PRKCI
PLSCR3
GPAM
RSC1A1
BDNF
ABCG5
SFTPB
SFTP1
SLC9A3
SLC10A1
AACS
BNIP3
SRD5A1
STAT4
C5AR1
EHMT1
CAV2
FADD
FAIM2
DMD
BEST1
CTNNA1
LMNA
SEC16B
COMT
ETV5
APPL1
PTEN
HNF1A
TFAP2B
EGF
ARG1
PRDM16
NRXN3
ATP6AP2
DUSP6
CADM2

HNFB4A
MLXIPL
MAGEL2
MAP2K5
RAP1A
KISS1R
H6PD
ABCA4
SETD2
HLA-DRB1
SOX6
MTMR9
TBX1
UBE3A
HDAC4
CEL
LINGO2
EMD
PDX1
ANOS1
MECP2
NF2
PAX6
WVOX
WNT4
LZTFL1
AHI1
PROK2
ABCC8
TULP1
KMT2D
CUL4B
CEP19
EIF2S3
ELN
ARL13B
FGFR3
TRIM32
FTSJ1
GATA4
GLDC
KCNJ11
NEUROD1
PAK3
TNNI3K
RAB23
KIDINS220
RPTOR
RFC2

BLK
SOX2
SOX3
WT1
HESX1
ARNT2
MED12
NR2E3
ZGLP1
GHRLOS
KCNJ18
BCDIN3D-AS1
FPGT-TNNI3K
HUWE1
LINC01524
SCN1A-AS1
TOPORS
APC2
SEMA3A
MERTK
DEAF1
LRRC53
PRPF8
FARS2
CETP
LINC02465
LINC02055
PNPLA6
IFT27
MID2
CRYZL2P-SEC16B
IL1RAPL1
PNKP
NLRP3
ADCY9
RAB39B
APOA5
CLCN4
CANT1
CNGB1
CNGA1
PROKR2
ZNF513
POC5
HGSNAT
PTCHD1
CRX
SOCS2-AS1
RDH12

CTSH
KLB
C8orf37
CYP7A1
DGKG
DCC
LRRN4
ARX
DLG3
AGER
DNMT3A
DPP4
AGT
AGTR2
EDN1
MEGF8
AHSG
ERBB2
FABP4
FABP2
ACSL4
FAT1
JMJD1C
FGF8
FHL1
CNKSR2
ZNF365
SNRNP200
FOXO1
IQSEC2
POGZ
FLII
SYNE2
DDHD2
RPGRIP1L
TTC28
SYNE1
ARHGEF18
ADNP
CRB1
ARL2BP
PDSS1
FLRT3
PRPF6
FNDC5
GABPA
GABRA3
GABRD
FSCN2

SIN3A
NSMF
COPD
PRPF31
IFT172
MYCBP
TBL2
GDI1
HS6ST3
RNU1-1
GHR
GHSR
RBMX
AMY1A
AMY1B
AMY1C
GNAT2
GP1BB
TTC28-AS1
CCDC141
GPT
GRN
GTF2I
GUCA1B
SH3KBP1
HCFC1
HIF1A
HLA-DQB1
HOXB3
APOA1
IAPP
APOB
FFAR4
IDH3A
IDH3B
EYS
ZNF81
IGF1
APP
APRT
KLK3
IL1A
IL1RN
IL6R
CXCL8
IL17A
IMPDH1
INSR
ACADVL

ITPR3
KIF7
CERKL
LHFPL3
KCNH2
PCARE
FEZF1
USP27X
LIMK1
EML6
LINC01122
CASC15
ARL3
HOXB-AS3
SMAD4
MAK
ARVCF
MFAP1
NR3C2
MOG
MTHFR
MYH9
NCAM2
RERE
NEK2
NFE2L2
NINJ1
NPHP1
NRL
BDNF-AS
SCAPER
OTX2
P2RY11
PAX4
PAX5
IMPG2
PCDH9
WDPCP
INSIG2
NIN
PDE4D
PDE6A
PDE6G
PDGFB
PDE6B
SUFU
PIK3CA
PIK3CB
PIK3CD

PIK3CG
PLG
POLG
PON1
PRMT7
POU3F4
UGT1A10
UGT1A8
UGT1A7
UGT1A6
UGT1A5
ATRX
UGT1A9
UGT1A4
UGT1A1
UGT1A3
IL17RD
CNNM2
PHIP
PRKAA1
POMGNT1
PRKAA2
CHD7
PRKAB1
WDR11
ERMARD
SPATA7
KIZ
ANGPTL8
MAPK1
KLHL7
MAPK8
PRL
RETN
MRPS22
PNPLA2
PTH
HACE1
KIAA1549
SLC7A14
SUGP1
HAMP
PTX3
RAP1B
RBP3
PRPH2
REN
RGR
RHO

RLBP1
AGBL5
ROM1
RP9
RP1
RP2
RPGR
RPE65
RPS6KA3
RREB1
SAG
BGLAP
SCN1A
CXorf56
SEMA4A
NSD1
SHBG
SHOX
SKI
UPF3B
RSRC2
SLC2A4
SLC5A2
SLC6A4
SLC8A1
SMARCB1
SOX10
SPP1
BRAF
SRY
BRCA2
BRS3
SYP
TACR3
TAF1
TBCE
TBX3
TCF7L2
TCOF1
TSPAN7
TP53
HIRA
TNFSF4
UFD1
USH2A
CLRN1
KDM6A
VDR
VEGFA

CLIP2
ZNF711
ZNF41
CA4
PRCD
CACNA1S
CCDC28B
TMEM43
IRX3
STEAP4
ZNF408
ALG13
RABEP2
DHDDS
GLRA3
IFT74
CEP290
SPG11
ALPK1
IFT88
SPRY4
LAS1L
USP9X
TRAPPC9
FAM161A
CCDC77
KLF11
SLC9A7
OFD1
KCNAB2
SHANK3
IRS2
DGAT1
FGF17
PROM1
CCK
BAZ1B
AIP
USP8
TMEM67
PRPF4
PRPF3
CDHR1
LRAT
BBIP1
REEP6
NRXN1
HS6ST1
ARHGEF6

GDF15
GTF2IRD1
CLOCK
SEC24C
IFT140
FRMPD4
DHX38
TRIM66
FGF19
ZBTB7C
GCKR
MSTN
LPA
ARSA
MPO
NNMT
BAAT
SORT1
CIDEA
SPARC
SPX
IL33
CMKLR1
GPBAR1
GRK2
EDNRA
LPIN1
GAD2
GCGR
APOA2
APOC3
MIR122
MIR155
MAOA
PHB
CHDH
AZGP1
ACKR3
SFRP5
SI
CASR
MGAM
CD59
CXCR6
GPR151
CPT2
NRG4
ADRA1A
ADRA2B

AGTR1
EPO
FBN1
SIRT2
PCSK9
AMH
GPR42
IL15
ENHO
LGALS3
MIR146A
MME
MMP2
CDKAL1
LGR6
MBOAT4
TNMD
SSTR4
THBS1
TNFRSF1A
CAT
LPAR2
KHDRBS1
ADAMTS13
CAPN10
NISCH
MGLL
C1QTNF5
MRGPRX3
MRGPRX4
MAPK14
CXADR
OXER1
DIO2
EGFR
F5
GPRC6A
ANGPTL2
LPAR3
MRGPRX1
IL37
ANPEP
GOLGA6A
ITGAX
LECT2
MIR221
MIR27A
VN1R17P
GPR166P

NTS
TNFRSF11B
GAL
PDK4
AVP
RCBTB1
CHPT1
TRIB3
CCND1
BRD2
ATXN2
SGK1
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PTPRB
PTPRC
PTPRE
PTPRJ
PTPRS
PTBP2
PVALB
CXCL16
NLRC4
BCAT1
BCAT2
RAC1
RASA1
RASA2
TRPV4
ALOXE3
RBMS1
REG1A
RGS4
ACTB
FAM3A
RNASE2
BCL6
EXOC4
ELOVL5
CPAT1
GAS5
TNFRSF17
ROBO1
ROCK1
OPN1SW
RPL10
RPL11
RPL29
BCS1L
DELYQ11
MIR483
RPS19
RRAS
RYR2
S100A4
S100A6
S100A7
S100A12
CFB
SAA3P
TSPAN31

MSMO1
CCL3
BHMT
CCL7
CCL8
CCL14
CCL17
CCL18
CCL22
BID
CXCL11
CX3CL1
SDC2
CXCL12
UBE2O
DMRTA1
SEL1L
SELE
NPVF
SELENOW
MAP2K4
SFPQ
SFRP2
POU5F1P3
SRSF1
TRA2B
BLVRA
MTMR14
SCG5
SH3GL1
POU5F1P4
CLEC7A
EBF2
NUCKS1
BMI1
ST6GAL1
ST3GAL2
AIDA
RFX7
PPP1R3G
NDRG4
NBEAL1
WNK1
SLC2A3
SLC2A5
SLC5A5
RPL7P9
SLC6A12
SLC12A3

SLC16A1
SLC19A1
BMPR2
SLPI
SNAI2
SMARCA2
STK33
SMO
SMPD1
SNCA
SNCG
FSCN1
SOAT1
DST
SPI1
SPINK1
SPTA1
SPTBN1
SRC
ITPRID2
SSTR2
ST2
ST13
ZFP36L1
STAT1
STAU1
STC1
SULT1E1
STXBP3
SULT1A1
SUV39H1
SYT4
TAC1
TAC3
TADA2A
TAT
TBL1X
TBXA2R
TCEA1
HNF1B
MIR33B
MIR551B
MIR593
MIR634
TCN2
BUB1B
TFDP1
TFF2
TFF3

TGFB3
TGFB2
THBS2
TSPO
THRA
TIE1
TIMP4
TSPAN8
TNNI3
TP73
NR2C2
TRAF6
TRP-TGG3-1
TRPC3
TRPS1
MIR652
TTR
MCHR2-AS1
USP17L24
USP17L25
POTEF
USP17L26
USP17L27
TUFM
USP17L28
USP17L29
USP17L30
OPN1MW2
SERF1B
TYRO3
UGT1A
UTRN
VAV2
VEGFC
WAS
LAT2
WNT7A
WRN
YY1
YWHAZ
ZFP36
CFAP410
CA5A
MIR758
ZBTB16
ZNF214
PRDM2
MOGS
FZD5

SEMA3B
NABP2
REEP5
ASPSCR1
ELOVL6
APOO
MBOAT7
LAP
PPP1R3B
FN3KRP
GHS
TBL1XR1
CARF
CSPP1
MAP9
RIN3
CALD1
DOCK5
PTGES2
ASRGL1
SPSB1
FUZ
LHX3
LPAL2
ADAM12
MFAP5
ITIH5
CMIP
HMGA2
WNT5B
CAMK2A
SLC38A1
CAMP
GDF5
NCOA3
BAS
CAPN1
CAPN2
CAPN3
CAPNS1
NAA10
TKTL1
SERF1A
PICALM
BRAP
ARHGAP24
PARP9
ITCH
LOH19CR1

TMTC1
IMMP2L
ADGRV1
TAGLN2
HORMAD1
ULK1
CASP8
POLR1B
MEHMO
MAF1
CHCHD5
NCK2
DOC2B
HOPX
COL25A1
ZGPAT
ZNF469
CNDP1
GPAT3
PERM1
RAX2
MFSD2A
SLC35B4
CYP4F2
ABCC11
LGALS12
HELZ2
TSPYL5
MAPKAPK5
BHLHE40
PIAS1
DENR
PDXK
RUNX1
RUNX1T1
UNC5C
PDE5A
SLC4A4
STX16
BECN1
TNFRSF25
ADAM19
CBR1
TNFSF12
TNFSF9
TRIM24
FGF18
CES2
NRP1

HCAR3
ASAP2
LDB1
PER3
CCKBR
KRIT1
EIF2S2
ACTN3
SNURF
WASF1
CCNE1
SIGLEC12
UCN2
SCRN2
MCU
TBL1Y
PYGO2
USP10
CERS5
PCSK7
ZBED1
SLC33A1
LRRFIP1
GGTLC1
AURKB
UBE2L6
GPR50
DHRS3
SLC38A5
S1PR2
MS4A1
PRDM6
B4GALT5
SNAP29
SLC22A6
LONP1
SFXN1
FADS2
PPP1R14A
NCR2
GSTO1
AIM2
MAP4K4
CD33
LY86
CHST3
STX8
SCARB1
SCARB2

ADAMTS1
GAL3ST1
ENTPD1
BAG3
PTGES
CXCL14
MRPL33
VPS26A
BCAR1
NR1D1
PREPL
WTAP
CD47
NCOR1
CD48
CD69
EDEM1
PUM1
CD74
SEMA3E
CD79A
SART3
CD81
KMT2B
PIZO1
CDK1
MELK
GAB2
C2CD5
SGSM2
SEC16A
KBTBD11
LPGAT1
THRAP3
CDC42
KCNE2
GLP2R
HAP1
ACVR1
CEP350
DCAF1
NCOR2
JCAD
RAB11A
RPAIN
YWHAG
RUBCNL
RIPK1
LMF1

MMD
CHTOP
ARID5A
PACERR
FGFR1OP
ANIB1
NCAN
SYPL2
NFATC1
AGFG1
LAMB3
AQP4
CNR2
BCKDHB
ZNF771
SNORA73A
MIR412
NLK
PTPRN2
ARID5B
LIMD2
TMEM134
LINC00839
ARHGEF2
PDE8B
AKTIP
GPX6
RRAS2
SKA1
HCP5
CTPP
MIR642B
MIR1203
RAMP2-AS1
CNP
CORD1
NMS
GYS2
GPX5
IMPDH2
LMX1B
KCNC2
ITIH4
TP63
POTEM
POTEKP
SRI
FHL5
CD27

PCLAF
CD19
MAGT1
INO80B
MKRN3
ACTG2
ACTG1
MET
ALPI
EEC1
SERPINA3
ACOT7
ALPP
ACTBL2
MAP6
CECR
AGTRAP
RIT2
GPR162
MAN1B1
SETD5
RNPC3
HDAC8
PSMD12
RAD21
CDH23
XYLT1
ARMC5
SMC1A
SLC7A7
SMC3
PCNT
ARL14EP
BPTF
FMR1
NIPBL
ZBTB20
KMT2A
DYRK1B
APMAP
IGF2R
GART
PAICS
LEPQTL1
PDHX
DYRK3
IK
P2RX1
PWRN1

SNORD116-1
HERC2
IPW
SNORD115-1
NPAP1
PWAR1
MKRN3-AS1
RTP4
HSP90B1
CH25H
HLA-A
NPHS2
IRAK1BP1
ZDHHC24
SYNGAP1
ND5
NDUFA12
SLCO4C1
TTC4
GREM1
ADIG
DKK1
NUDC
AHDC1
PIGX
COX6C
LYST
GPC3
SERPINB1
HCRTR2
HTR1A
AOMS3
BMIQ20
AOMS1
COH1
BMIQ9
WTS
BMIQ4
BMIQ10
OB AIRH
MORMS
BMIQ12
BMIQ14
OBHD
LEPD
LEPRD
BMIQ18
MOSPGF
RDOB

CHOPS
MRD39
SINO
BMIQ19
CHUJANS
AOMS4
BMIQ8
BMIQ11
BMIQ7
SSOS
TP53INP2
PWS
BMIQ1
ALMS
BMIQ13
T2D
AS
BBS6
BBS3
CLABARS
PCOS1
PHP1A
SMS
MRXSC
CELA2A
GBD1
UMS
CRPT1
BFLS
MRXHF1
MRT13
BBS16
BBS17
BBS19
IGHD4
NOS2A
MTCYB
CLMP
ACH
CWS1
AIMAH1
MRXS11
FXS
CDLS5
JBTS8
ADIPQTL1
ACNINV2

Supplementary Table S3

A list of the overlapping 116 genes between SEA and STP

PAOX
DNM1
PAM
ADH1B
CA3
CES2
CA6
ADH1C
CA5B
ADH1A
CA5A
EPHX1
CA4
CA14
CA7
HAO1
FAAH
PHF8
GSTK1
KDM2A
SLC22A6
KDM4A
GABBR1
KDM5C
ERN1
NQO2
MTNR1B
MTNR1A
PPARA
LPAR6
FABP3
LTB4R
ACP1
HMGCR
RARB
CDC25B
PTGER2
EPHX2
THRB
GSR
THRA
S1PR3
CDC25A
S1PR4
NAAA
POLB

PRKCA
PLA2G2A
HSD17B3
S1PR5
PPARG
TBXA2R
PTGER4
PTGIR
PLA2G4A
FFAR4
FABP4
PTGFR
PPARD
S1PR1
TRPV1
CNR1
PDCD4
MGLL
CNR2
PRKCE
LPAR5
ALOX12
TOP1
ATP12A
SQLE
LDLR
GLA
CCND3
IARS
PTPRC
LSS
FNTB
FNTA
ICMT
FDFT1
PHLPP1
BCHE
AKT1
CYP17A1
NPC1L1
GPBAR1
SRD5A2
SHBG
CDC45
G6PD
SRD5A1
SERPINA6
VDR
NR1H3

NR1H4
AR
ESR2
CYP24A1
RORA
SREBF2
ESR1
CA2
CA1
CYP19A1
NR1H2
RORC
GBA2
PTPN2
CD81
PTPN1
HSD11B2
AKR1B10
PTPN6
PTPRF
HSD11B1

Supplementary Table S4

A list of the overlapping 64 genes between SEA and STP

PAM
ADH1B
CA3
CES2
CA5A
CA4
FAAH
GSTK1
SLC22A6
ERN1
MTNR1B
PPARA
FABP3
ACP1
THRB
GSR
THRA
NAAA
PRKCA

PLA2G2A
PPARG
TBXA2R
PLA2G4A
FFAR4
FABP4
PPARD
TRPV1
CNR1
PDCD4
MGLL
CNR2
LPAR5
ALOX12
LDLR
PTPRC
FDFT1
PHLPP1
BCHE
AKT1
CYP17A1
NPC1L1
GPBAR1
SHBG
G6PD
SRD5A1
SERPINA6
VDR
NR1H3
NR1H4
AR
ESR2
CYP24A1
SREBF2
ESR1
CYP19A1
NR1H2
RORC
PTPN2

CD81

PTPN1

HSD11B2

PTPN6

PTPRF

HSD11B1