

Additional Table 1. The differential genes identified in our *in vitro* experiments and those identified in the *in vivo* experiments conducted by Lau et al.

AD-Endothelial	Aβ₁₋₄₂-hCMEC/D3
Up-regulated genes	
KCNIP4	RPS24
FLT1	NUCKS1
CLDN5	HMGN2
SLC7A5	RPS27A
MT2A	NAMPT
SLCO4A1	RPS21
LRRTM4	RPL9
FGF14	MDM2
RBFOX1	SPCS3
CSMD1	OIP5-AS1
VWF	U2SURP
SLC16A1	E2F7
ST6GALNAC3	POGLUT3
TMSB10	EDEM1
ABCB1	SRSF2
ITM2A	C6orf62
PODXL	TMX3
OPCML	NHLRC2
TGM2	SPPL2A
IFI27	LNPEP
SLC7A1	MPHOSPH9
ID1	DBI
MT1E	CENPU
KCNQ5	BRIP1
SPOCK2	TMTC3
PTPRD	GTF2A1
CNTNAP2	SOAT1
ROBO2	MTAP
LIMCH1	MZT1
DSCAM	CUL5
EGFL7	PIGK
MT1M	CCP110
ATP10A	CRNDE
ELOVL7	TMEM41B
SLC9A3R2	LSM8
NRG3	ORMDL1
HERC2	CENPK
LRRC4C	HNRNPH1
NRXN1	UBE2E1
PTPRB	TRIM59
SNTG1	

ERG
DOCK9
ARMC9
FAM155A
LRP1B
ST8SIA6
HLA-E
KLF2
ANO2
KCND2
ABCG2
NEGR1
NRXN3
RAMP2
RALYL
ADGRL4
CADM2
ANKS1B
SLC39A10
LRRC7
RPS28
CD34
MYRIP
GRASP
FAM19A2
NKAIN2
MFSD2A
CSMD3
AFDN
SAMD12
MECOM
IQCJ-SCHIP1
BST2
IGF1R
CCSER1
SLC2A1
LY6E
NCAM2
GRIK2
IGFBP3
CGNL1
DPP10
SOX18
TM4SF1
ID3
NLGN1

RNASE1
EEF1A1
ICAM2
CCDC85A
GRM5
GRM7
AC092691.1
HSPA1A
NFIB
EPHA4
PHACTR1
PDZRN4
MT1X
A2M
DCC
MDGA2
SLC30A1
PCDH15
KHDRBS2
ANKRD37
CRIP2
ITGA6
TMEM132C
CTNNA2
SRARP
DPP6
CDH2
PECAM1
SPOCK3
SORBS1
SORBS2
RGCC
JCAD
S100A10
CAVIN1
TPST2
THSD7A
TAGLN2
KCTD8
ADIPOR2
STXBP5L
CRIM1
GALNT18
RYS2
ERC2
BTNL9

PCDH9
CXorf36
RPL41
RGS7
WWTR1
FGF12
LINGO2
ANXA3
TIE1
ANGPT2
PCDH7
NRG1
TENM2
LIMS2
DLGAP1
SYT1
ALPL
CYR1
IFITM2
CNTN5
HYAL2
PLEKHG1
PTPRT
TSPAN5
RPS12
SYNE1
HS6ST3
FAM19A1
LHFPL3
S1PR1
MKL2
PDXK
RPS23
SLC52A3
RPL36
TMEM123
RASIP1
TFRC
SLC3A2
SLC1A7
TMEM132D
CDH12
RPS27
NAV3
ABLIM1
AGBL4

KLF4
CHRM3
SHANK3
UNC5D
SLCO2B1
PCAT19
DEPP1
NDRG1
TOX
FRMPD4
SLC38A5
RPS19
MT-CYB
NET1
ENG
SGCZ
APOLD1
KCTD16
ARL15
LSAMP
FLI1
RPS15A
CAVIN2
ACVRL1
SGPP2
DLL4
GALNT15
ARHGAP31
STOM
PLXNA2
SCARB1
ROBO4
SERTAD1
CDH18
RIMS2
ARPP21
ADAM15
ETS2
HSPA1B
CDYL2
LRFN5
DOCK3
ANK3
FOSL2
SEMA6B
GRIA2

HSPH1
AC109466.1
TPT1
HEG1
BSG
SLC39A8
TNR
GRIA4
HLA-B
VIM
ATRNL1
GRB10
ZNF366
GRIA1
IL32
ST6GAL1
SLC1A1
MT1F
TEK
KIAA1217
RPGR
SEMA3F
RPS27A
HSP90AA1
CNTNAP3B
BACE2
GPR85
STOX2
PIK3R3
MTUS2
MT-ATP6
CADPS
DNM3
RPLP1
KAZN
NES
GNAI2
INSR
NPIP5
LRRTM3
MT-ND3
GALNT13
CEMIP2
STXBP6
PON2
TNXB

GALNTL6
FLRT2
CHSY1
PPP2R2B
CPD
IL1RAPL1
RAPGEF3
CPNE8
CCDC85B
MGST2
VSIR
AIF1L
ACTG1
MT-ND4
CNOT8
ATP1A1
TBC1D4
TSC22D1
BRINP3
YES1
DNAJB1
RPL13
CNTNAP5
TM4SF18
MAP3K11
RPL10
DLG2
SMAD6
THSD4
SLC5A6
MYCT1
PTTG1IP
MT-ND2
PKN3
KCTD12
HMCN1
LAMA5
HECW1
CDH5
NELL2
AFF3
MYO10
BCL6B
36951.000
RPL3
PEX5L

LSR
MCTP1
MCL1
PALMD
ARFGEF3
LRP8
MIDN
ACVR1
SEC14L1
MMRN2
OOEP
ATP8A2
IMPDH1
TXNRD1
RPL35
SLC19A3
B2M
RGS3
EMCN
THRB
STARD4
TSHZ2
VAMP5
HCN1
CNOT6L
RASGRP3
S100A16
RPL28
ADGRL2
MYT1L
NCAM1
OLFM3
SEMA6A
FMNL2
RPL13A
LAMA3
CNKSR3
HSP90AB1
SLC24A2
CDH10
RASGRF2
TMEM178B
NOVA2
OCLN
LMBR1
CACNA1B

PTMA
DNAJA1
RPS3
PTPRM
AC006148.1
MGAT1
JAG2
NRCAM
FAM110D
TMSB4X
ACSL5
RPL21
NPAS2
SOCS3
KIAA1549
SHC2
AMBRA1
BMPR2
CCNY
RPS14
CD320
RPS18
TCN2
RNF144B
MCF2L
RIMS1
SDCBP
EPAS1
IFITM3
SLC4A10
PDE1A
FOXF1
SERPINH1
MFHAS1
KIRREL3
GRIN2A
ADGRF5
DEGS2
CHL1
RUNDC3B
CTNND2
PPA1
FRMD5
FXVD5
CA10
PRX

RPL35A
CDH13
IL3RA
CP
NEDD9
ST6GALNAC5
APOO
RIMKLB
SLC35F3
ADGRG1
NOS3
FLNB
TMCC3
RPL34
RPL8
ESAM
DCLK1
TMEFF2
NALCN
CCDC69
LDLR
FAM107A
GRIA3
NRP1
SHE
SEZ6L
MT-ND1
MIR137HG
PKP4
CNKSR2
CNTN3
RHOC
RPS5
DGKI
CTGF
EFNA1
DUSP1
VCAN
MT-CO2
GFOD1
AC018816.1
PPFIBP1
CLEC14A
SERF2
LMO2
FAM167B

PDE10A
SERPINB6
SHISA9
ANKS1A
RPL7A
RPS11
ASIC2
RASSF3
CTNNB1
SCN3A
FAT3
GPR146
CMTM8
RAC1
APP
RPL27
NFKBIA
HIP1R
EPHA6
TANC1
NOTCH4
ZNF804B
SPTAN1
FZD4
FKBP4
GALNT17
EFR3B
KCNH7
SLC35F1
RPL15
KIF1C
EXT1
PRKCH
RPL38
ERBB4
RPL29
ZNF521
AP3S1
PINK1
SH3GL2
SKIL
HERPUD1
MT-CO3
RBMS2
GATA2
NOVA1

HECW2
AHNAK
SLC47A1
EPHB4
SMAD9
PCLO
RIN2
R3HDM1
CPNE4
EDN1
SYN3
FGR
CYTH1
ITGA2
ZFPM2
RPL11
IFI6
ASTN1
CSMD2
CACNA1A
GABRB3
HSPA12B
PPP3CA
SMARCA2
LEPR
MFAP3
TMEM232
ATOH8
ESYT2
CDH8
CCDC50
BAIAP2L1
UNC79
LRRC32
EXOC6
SET
CARHSP1
RNF19B
ITPR3
XKR4
MT1A
GUK1
MIR181A1HG
ITGB1
MACROD2
AGFG1

MT-ND5
PRELID2
PXN
RPS4X
EEF1D
GRIN2B
SMG1
PDGFC
MSRA
TEAD4
CTTNBP2NL
RAPGEF2
FAT4
ESRRG
SH3BP4
MICAL3
RPS29
DAPK1
HLA-A
NTNG1
PRKD2
MAPK11
ARHGEF3
NLK
PLLP
SNU13
FMNL3
TMEM87B
STIP1
CSDE1
PTP4A3
RPL6
VAT1
ARPC1B
CBLN2
FES
UBB
LINC01122
TENM3
ANKRD30BL
SAT1
CHIC2
GIMAP6
EMP2
IRAK3
SLC38A3

PAQR5
CADPS2
ARHGEF28
DUSP23
MYL12B
SRGN
SCN1A
RPS2
MRPL1
TMEM50B
BMS1P14
HLA-C
UBA52
UBC
RIPOR1
EIF1
SOS1
STEAP1B
PPP1R16B
PLA1A
NLGN4X
COBL
EFCAB14
SGK1
COX7A1
USP6NL
ANK2
STXBP5-AS1
GSE1
MAMDC2
ARL4A
GRIK1
CLIC2
DSTN
RPLP0
RPS20
MYO1E
RPL32
STX3
GRIP1
IL6ST
ADGRB3
KSR2
BCAP31
CACYBP
SNRPD2

WWC2
ST3GAL1
NELL1
HSPA8
PDGFB
TGOLN2
SPOCK1
TRIM9
ATOX1
37681.000
USP54
IVNS1ABP
PTPN14
PAK5
RPS7
PTPRN2
CDA
TPM3
CLEC2B
DUSP6
ITGA5
GABRB1
TRGC2
PPARG
IER2
FSTL4
FZD6
PEA15
FGD5
SNED1
RPS19BP1
NECTIN2
SAMM50
TCF15
RBFOX3
LINC00599
RPS16
FSTL5
KHDRBS3
DLGAP2
ICA1
CYR61
GIMAP7
GABRG3
RPS15
RPS6

RAB13
HOMER1
SEMA3B
CENPB
PLEC
SULF2
SH3BGRL2
PCSK2
KLHL2
SH2D3C
MX1
RPS13
LINC01322
KIAA1549L
MIR222HG
GBP4
SLC25A29
HSPB1
C4orf3
SOX7
SYNGR2
HOPX
PERP
SLC31A1
NR4A1
CDC37
CASP10
AK5
KAT2B
ANXA1
SMCO4
SELENOW
EIF4G2
PIZO1
KCNC2
ARAP3
CLIC5
BHLHE40
TINAGL1
ATP8A1
UPP1
PIK3C2A
MKNK2
DSP
ORAI1
TMTC2

CAPNS1
CLEC1A
RPL30
TRHDE
S100A13
FOXC1
WARS
ATP7B
MGAT4C
SGCD
F11R
FUT9
RPS9
AMFR
MID1
CLIC1
EPHA3
ADAMTS6
RFC3
MEF2A
NOD1
ZKSCAN1
VWA1
SSFA2
PGM5
JAM2
GIMAP4
RPS8
ASTN2
SHROOM1
AC002070.1
XYLT1
APOL3
LGALS3
CLSTN2
RPL10A
TMED10
CHST12
SHROOM4
C22orf34
SLCO1A2
LSS
HYAL1
B4GALT1
EFNB2
MYL6

FEZ2
VEZT
MT1G
AHSA1
PPM1F
GRM1
JUN
CELF2
CCNI
PNP
ELOB
CYLD
SORCS3
SCN2A
PPARD
DCHS1
STAU2
PPFIA2
DBN1
SLC44A5
SNAP91
FGD6
TENM4
RPL7
RPS6KA3
NDST1
LITAF
GDAP1
HSPA4
MSX1
ENAH
GNG5
MT-ND4L
AGPAT4
KIAA1211L
RAPGEF1
P4HB
ADD1
MYL12A
DPY19L1
TRIR
SRSF9
NAMPT
COL19A1
INPP5D
OSBPL10

TUBA1C
MLEC
ZNF385D
TCOF1
AL138686.1
MEG8
KIF5B
KLHL5
PTPRO
MIER2
GCH1
C12orf57
RACK1
KCNB2
PICALM
PIP5K1C
IL1RAPL2
CASKIN2
TRIM56
FLT4
SESTD1
IL4R
TPM4
SLCO3A1
CERK
CADM1
YBX1
ME3
SPOP
RFX3
GPR35
MTRF1L
LUZP1
C1orf56
DEDD2
CCDC68
UBE2H
NEK5
AKAP6
TSTA3
SLC8A1
KCNQ2
G3BP1
C2orf83
BCL3
PLAT

Down-regulated genes

FTX	FLNA
NEAT1	MT-ND5
ZBTB20	MYH9
TJP1	LAMA5
MKLN1	AGRN
UTRN	TLN1
MALAT1	FLNB
PTPRK	PLXNB2
PTN	MYO1C
KIAA1109	TAGLN2
SLC12A2	PKN1
SLC12A7	ACADVL
PLCB4	DNM2
HBB	EPAS1
LHFPL6	SMARCA4
AGRN	LAMB2
BPMS	HSPG2
PDE8A	PTPRF
PRELP	TYK2
ISYNA1	COL1A1
CPE	LOXL2
DISC1	TMEM259
NOTCH3	LRP1
RORA	FKBP10
DCN	TLE5
PARD3	PLXNA1
PLXDC1	UBE2S
CACNA1C	MINK1
FRMD3	HTRA1
RIPOR3	EFEMP1
LPP	TTYH3
CALD1	ITPR3
SH3RF1	MYO9B
ARHGAP42	PLOD1
ATP1A2	CDC37
EBF1	KMT2D
PTEN	CNN2
ARHGAP6	LRP10
ZFHX3	KIF1C
MYO1B	PTK7
CASC15	ANKRD52
CARMN	MYL6
TRPC3	SUN2
AC092957.1	SLC16A3
SLC19A1	FBN2

GRAMD2B	TCF3
TFPI	CHD3
SLC6A13	INPPL1
CLMN	OGDH
SLC1A3	MAP7D1
PTH1R	HK1
GRM3	TECR
MAML2	NBEAL2
PDGFRB	CCN1
CACHD1	FLOT2
RNF152	RABL6
P2RY14	TM9SF4
SLC30A10	BMP1
AL138828.1	NECTIN2
AC012409.2	CIZ1
CPM	PDLIM1
ADGRD1	PELP1
UST	GIPC1
HES4	DUSP1
CDH6	SYDE1
GRM8	SEMA6B
PRKG1	CABIN1
SLC6A12	MEGF8
PLCE1	MCAM
ARHGAP10	RAI1
SLC6A1	FADS3
SNTB1	CIC
GPC5	MAST2
SLC38A11	SUPT5H
ABCC9	ARHGEF1
NR2F2-AS1	PCNX3
DLC1	MOGS
KCNE4	FOSL2
EPS8	TBC1D16
COLEC12	RUVBL2
LAMA2	FARSA
PDE3A	PIN1
PAG1	GTPBP1
SLC6A1-AS1	TRAF7
PCBP3	MAN2A2
SGIP1	PLXNA2
PDE7B	USP5
TRPC4	CCN2
APOD	EFHD2
BCL2	SCAP
SLC20A2	MRC2

C11orf96	SDC3
GFAP	XAB2
PID1	PGGHG
TBX2	TCIRG1
SEMA5A	RIPOR1
RORB	FSTL3
RGL3	LZTS2
COL6A2	BCAM
BTBD9	KIAA1522
INPP4B	KIFC3
YBX3	ABCA2
ZEB1	ARHGEF17
KCNT2	SLC35B2
CYTH3	GIT1
COL6A1	HDAC6
RHOJ	SLC2A1
LZTS1	WDR5
ITIH5	ABCA3
GLUL	ZDHHC8
PTPRZ1	CALCOCO1
ACSS3	EPHB4
ANKRD44	BCKDK
ADAMTS9-AS2	ASMTL
GJC1	SH2B1
MFGE8	ILVBL
HBA2	VPS26B
COL4A3	TFE3
COL4A4	GGT5
RBMS3	SLC66A2
SLC6A17	SETD1A
COL5A3	PALM
MTURN	INF2
GPX3	CEP170B
PDE5A	IRS1
MSC-AS1	RNF220
NBEAL1	MAFK
RBMS1	CELSR2
MIR99AHG	CDIPT
AC016831.7	AMPD2
MRC2	BAIAP2
GPC6	LYPLA2
CERS6	UCKL1
SIK2	CHR_HG30_PATCH
ZIC1	DNMT3A
SMOC2	SLC12A9
ATP1B2	RUNX3

DAAM2
PTPN13
RAPH1
NID1
SNRK
LINC00882
CYSLTR2
AXL
CNTLN
CECR2
ABCA5
CTNNA3
RFTN1
BNIP3L
ABCA8
AC022414.1
PLXDC2
GGT5
NR2F1
TTN
BCL6
AC002546.1
NCOA2
COL4A2
TXNIP
LTBP1
CDK14
FRY
ENPEP
FARP1
MIR4435-2HG
PARD3B
DENND2A
WLS
RNMT
TBX15
CRISPLD2
FAM13A
EPB41L3
ARHGEF7
KSR1
TRIQQ
ATP1B3
CD74
MCC
ITGA7

TRPM4

N4BP2L2
ARHGAP17
MAP2K6
TCF7L1
FRMD6
ARHGEF17
SSBP2
BMP2K
HCN2
DNAH11
ADAMTS10
NRGN
UTY
GHR
RBMX
AKAP13
CEBPD
RNF180
FKBP5
ARHGEF12
PTGDR2
ERCC6L2
SUMF1
JUNB
TTY14
GCLC
APOE
GADD45G
FBXL5
ITSN1
COL4A1
ANAPC1
GABRE
COMMD1
SLC17A7
FERMT2
CIRBP
KLHL36
MTREX
PLCL1
FAM110B
ADAMTS9
USP9Y
NTRK3
DIO3OS
PDE1C

PRKN
SLC38A2
IGFBP7
CCDC102B
AC007364.1
TAOK3
RNLS
MPPED2
AL645608.8
HEY2
LAMC3
NDRG2
PTPN9
VMP1
SASH1
TESC
KLF9
XRN1
EDNRA
GBE1
SH3BGRL
RUNX1T1
ATP5MC3
SOX5
TBC1D2B
SRSF2
USP13
CBLB
ITPR2
NF1
FOXP2
NT5DC2
SCLT1
C20orf27
NR2F1-AS1
GUCY1B1
KIAA1328
SLC7A11
JAM3
PIP5K1B
COL24A1
RGS4
PLEKHG3
CAMK2D
PEAR1
RAB28

SPECC1
C4orf48
SLCO1C1
SIPA1L2
ST5
SCMH1
AC007319.1
DUBR
CHCHD10
PLOD1
RASSF4
TET2
TSC22D2
CYBA
SLC25A36
PPCDC
DGKB
ASAH1
FILIP1L
SORL1
GJA4
PPP3CB
PHF21A
OSMR-AS1
NEK1
RHOB
PHLDB2
AC098829.1
BTAF1
PEBP1
CDKN1C
WDR41
TBX18
PDE2A
S1PR3
ATF7IP
C1QTNF1
DST
CYP7B1
IL1R1
TOP1
ADAM33
C2CD2
CREBZF
RCAN2
SNX25

FSTL1
KITLG
LIN7A
SENP6
CRYBG3
PRR16
CD9
NCDN
CTDSPL
EYA1
CSF1R
INVS
ADARB2
NDUFA4L2
LENG8
PITPNC1
BACH1
SLC38A6
LCAT
CA2
AC104389.4
DPYSL2
GRK5
DOCK5
PCSK1N
C1R
BMPR1B
SH3D19
DMXL1
CNTN4
GALNT2
ABCA1
ZNF207
FARP2
CHD9
NR2F2
SLC22A3
LPL
RUFY3
IGF2R
HIF1A
ATF6
STAG1
CUL1
LINC02172
PARP8

SRGAP1
EEF1A2
RNF24
CACNB2
DAB1
MICU3
CNN3
JAG1
NUMA1
ENC1
TOM1L1
TACC2
STARD13
CREB3L2
RBMS3-AS3
ABCA6
KMT2C
APBB2
PLA2R1
STK39
HSPA2
PCCA
RBMS3-AS2
ANPEP
EPB41L2
GPRC5C
BMPR1A
RUNX2
ARHGAP26
REV3L
EFHD2
CKB
TRAK1
ABCA9
LINC01197
ITGA10
STARD9
PPM1L
HEYL
VPS13D
WDFY3
KLF12
HIVEP2
RUNX1
VEGFA
PDE8B

DNMBP
NOTCH2
PACSIN2
38231.000
CAPZB
SETBP1
CHD1
ELL2
DOCK11
ADCY5
ATP6V1B2
PNISR
MT3
SGCE
SLC2A12
UGGT2
DIAPH2
SPATA6
ITM2C
EPS15
ZEB2
NHS
SRSF5
CHST11
MAGED1
ASAP2
GUCY1A2
LINC02256
GRK3
ANO3
FAM13C
PRRX1
BGN
ZBTB37
PHLDA1
NR4A2
EPC2
PIK3CD
VSTM4
LINC02147
FAM49A
ZNF644
HIF1A-AS2
NBL1
CENPP
ABCA10

TNS3
TGFBR1
THOC2
NCK2
FAM76B
ECE1
EDIL3
FHL5
SLC1A2
ETV1
ZEB1-AS1
CCDC91
CHN1
PDGFA
NFATC4
MTSS1
GABBR1
CEBPB
PCSK5
LRP1
ITGA11
THSD7B
SHISA6
OSBPL9
IMMP2L
MYOF
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SLC9A9
SSTR2
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LINC00513
CSPG4
MAF
GPER1
CPQ
PLP1
FAM162B
ATP1B1
TMEM173
UBE2E2
AC019197.1
TTC28
MAP1B
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KLHL23
ARHGFE6

CALY
LINC00894
MLXIP
HIP1
SMURF1
SESN3
LRCH2
UNC5C
NHSL1
ABL1
COL27A1
DLEU2
SCAF8
PHLDB3
AC090825.1
ARHGAP24
ACTA2
PBX1
TIMP1
KIRREL1
PARVA
CPED1
DTX3
C7orf50
DCBLD1
PALD1
SLC22A23
COL1A2
PHLPP1
STXBP4
SNAP25
MUC20-OT1
HNMT
TMEM51
RASL12
NEURL1B
TMTC1
MCAM
MOB3B
SPRED1
AC008014.1
CAST
PLEKHG2
RANBP3L
CFH
TRAF3IP2-AS1

C20orf194

TECR

ZNF618

DACH1

ROR1

CPPED1

WASHC4

ADK

FAM118A

AGAP1

LAMA4

TNFRSF21

ZNF331

GAB2
