canonical Wnt signaling pathway.SYMBOL

cluster
age
CTNNB1
PLPP3
PTEN
CSNK1E
EDNRB
DIXDC1
DVL1
STK11
FZD3
DVL3
PORCN
NR4A2
FZD1
FZD7
EXT1
PYGO2
LRP6
RECK
BCL9
AXIN1
WNT10B
PYGO1
MED12
BCL9L
WNT5A
RYK
DVL2
SFRP2
FZD8
WNT7B
FRZB
SFRP1
EDN1
KLF4
WNT4
FZD6
FZD2
WNT7A
LRRK2
FZD4
DISC1
RARG
TCF7L1
LEF1
WNT3
LRP5
FRAT1
TCF7L2
SFRP4
SFRP5

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of neuron projection development.SYMBOL

cluster
age

SNAP25
NCS1
NRCAM
CTNNA2
PTEN
BRSK1
CCDC88A
ACAP3
CAMK2G
GSK3A
GSK3B
BRSK2
AKT1
FBXO7
PSEN1
NTNG2
SLC39A12
NDEL1
ZNF365
MARK1
TBR1
ZNF804A
SFRP1
GRID2
NTNG1
SFRP2
KLK6

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

urogenital system development.SYMBOL

cluster
age

ACVR1
CRKL
SRD5A1
ACD
EPHB2
EPHB3
OSR1

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of neurogenesis.SYMBOL

cluster
age

CTNNB1
CX3CL1
BHLHE41
YTHDF2
HEY1
FEZF2
HES1
HES6
DOCK7
BHLHE40
PRUNE1
ARNTL
PER2
ASCL1
YAP1
HMGB2
CHD7
CX3CR1
HES5
WNT3
HEY2
DLL1
HEYL
IL1B

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of cell morphogenesis.SYMBOL

cluster
age

CFL1
SPARC
CAPZB
FMNL2
PDZD8
CAMSAP1
ZRANB1
ZMYM3
FERMT2
ZMYM4
STRIP1
PHIP
ARC
LARP4
ZMYM6
AGO4
FITM2
BCL9L
ZNF135
SH3D19
WTIP
CLDN3

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

macroautophagy.SYMBOL

cluster
age

GABARAPL2
GABARAP
GABARAPL1
MAP1LC3A
MAP1LC3B
SQSTM1
VCP
UBXN6
VPS28
VPS4A
UBQLN1
CHMP4B
CHMP2A
CHMP3
VTI1B
EI24
HGS
ULK1
VTA1
NBR1
VPS41
TBC1D5
TSG101
BECN1
VPS4B
ATG4B
VPS36
CHMP2B
ATG12
VPS37B
STAM
PIK3C3
MTMR3
SNF8
TECPR1
ILRUN
PGAM5
VPS25
CHMP4A
PRKN
ATG16L1
PLAA
ATG5
VPS37A
ATG7
VPS37C
STAM2
TMEM74
PIK3R4
ZFYVE1
MTMR14
CHMP6
SRC
MVB12A
VPS37D
YOD1
ATG14
VTI1A
HDAC10
ATG10

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

translational initiation.SYMBOL

cluster
age

EIF1
RPS3A
RPS17
RPS5
RPS3
EIF4G2
LARP1
EIF3K
EIF1B
DDX3X
EIF1AX
EIF3M
EIF3I
EIF4G1
EIF3F
EIF3E
EIF3H
EIF3A
EIF3G
EIF3B
EIF4E3
PAIP1
EIF2S3
COPS5
EIF6
EIF5B
EIF3J
EIF3L
ABCE1
EIF2S1
EIF2B5
EIF4E2
EIF3D
EIF2A
EIF2B1
EIF2B3
DHX33
AGO2
EIF2B4
EIF2B2
MTFMT
EIF1AD
LTO1
EIF1AY

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

forebrain development.SYMBOL

cluster
age

APP
APLP1
DCLK1
DNAJB1
CNP
ARHGAP35
FYN
ATRX
TOP2B
SSTR2
SOX2
SSTR1
ZEB1
NDST1
HTRA2
SETD2
FRS2
SRC
NR2F2
NOTCH1
DLC1
NOTCH3
TWSG1
KDM2B
PRKG1
DYNC2H1
MSX1
TYROBP
SSTR3
APAF1
POU3F1
E2F1
LRP2
OTX2

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

oxidative phosphorylation.SYMBOL

cluster
age

UQCRB
UQCRH
CHCHD10
UQCRC1
ATP5F1C
UQCRC2
NIPSNAP2
C2orf69
MSH2
FXN
TEFM

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

chromatin remodeling.SYMBOL

cluster
age

ACTB
HNRNPC
CHD5
NPM1
SMARCA2
CHD3
ATRX
SOX9
CBX3
SMARCD3
PAK1
RERE
BRD2
YY1
SMARCA5
CHD4
SMARCA4
RBBP4
HDAC2
ZBTB7A
BRD4
MLLT1
HDAC5
RUVBL2
CFDP1
SMARCA1
RSF1
BPTF
RBBP7
TFPT
UCHL5
MTA3
ACTL6B
HCFC1
PHF10
CHD2
TOP1
ARID1A
DR1
KAT2A
MBD3
MCRS1
SATB1
SMARCC2
KAT2B
GATAD2B
KDM5C
TADA2B
CHD8
MLLT3
ING2
MTA1
BAZ1B
YEATS2
SMARCE1
CHD6
BRD3
SMARCB1
EZH1
BAZ2A
KDM4B
KDM5B
MYSM1
RB1
GATAD2A
SMARCD1
DAXX
PBRM1
POLE3
SMARCAD1
BAZ2B
MIER1
JARID2
KDM6B
ING2
NPM2
RUVBL1
GATAD1
NUDT5
MPND
MORC2
HDAC4
ZNF827
HDAC1
SMARCC1
KDM4A
MBD2
ING2
NFRKB
KDM4C
HCFC2
YEATS4
TTI1
TAF6L
KDM5D
SCMH1
SMARCD2
KDM5A
ING2
ZBTB1
CHD1
MTA2
KDM6A
ACTR8
ING2
NPM3
TADA2A
CHD1L
CHD7
CECR2
CHRAC1
SATB2
ACTL6A
BAZ1A
MYC

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

ossification.SYMBOL

cluster
age

GPM6B
RPL38
SORT1
THRA
SOX9
PAM16
DHX36
BMP7
CDH11
EXT2
TAPT1
SP3
MESD
RIPPLY2
SUCO
CLEC11A
RASSF2
EGFR
IGSF10
MINPP1
EXT1
PDLIM7
OSTF1
NPPC
CSF1
FSTL3
NPR2
CCN2
TWSG1
DDR2
BCL2
CHRDL1
MGP
COL5A2
BMP8A
EIF2AK3
TRAF6
GPLD1
COL11A1
PPARGC1B
ECM1
BMP1
BMP8B
SLC26A2
CLEC3B
IFITM1
COL1A1

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

cell junction assembly.SYMBOL

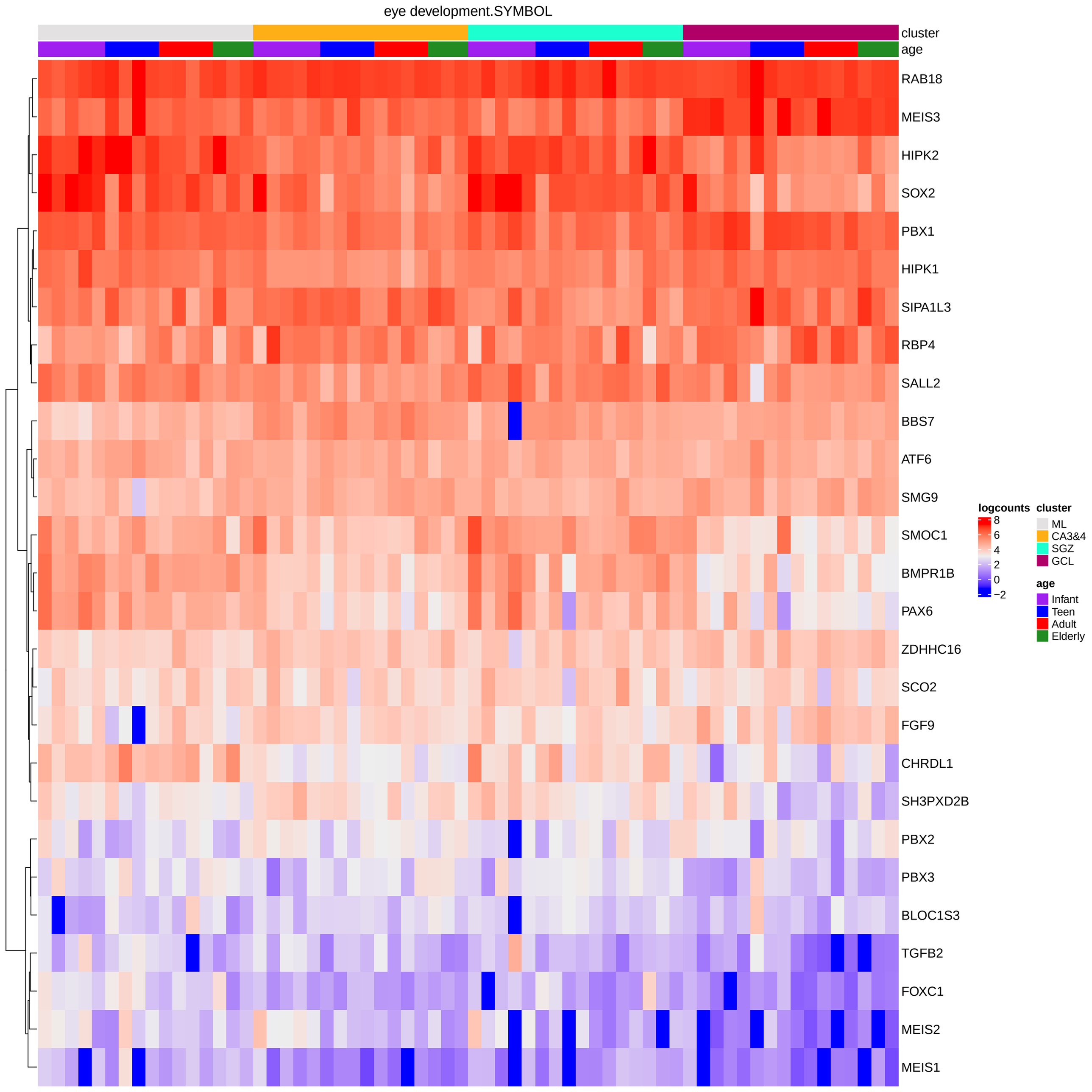
cluster
age

RHOA
CDC42
VMP1
CAPZA1
MYO9A
OPHN1
SH3BP1

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


eye development.SYMBOL
cluster
age
RAB18
MEIS3
HIPK2
SOX2
PBX1
HIPK1
SIPA1L3
RBP4
SALL2
BBS7
ATF6
SMG9
SMOC1
BMPR1B
PAX6
ZDHHC16
SCO2
FGF9
CHRDL1
SH3PXD2B
PBX2
PBX3
BLOC1S3
TGFB2
FOXC1
MEIS2
MEIS1
logcounts
8
6
4
2
0
−2
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

synapse organization.SYMBOL

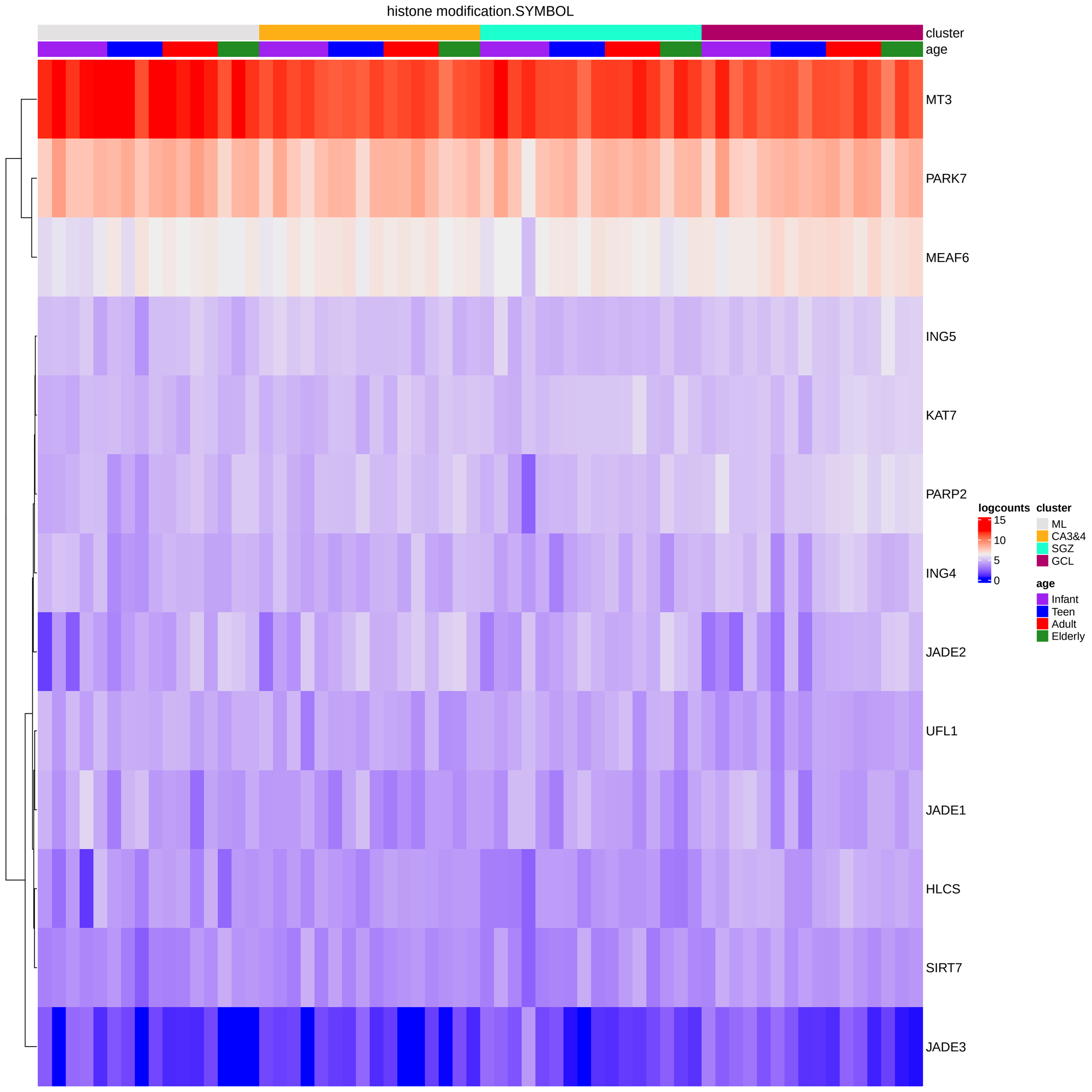
cluster
age

APP
SYN1
SNCB
PIN1
SNCA
CTNNB1
MAPT
CTNND2
SLC8A2
PRRT1
PAK3
PPFIA2
SLC6A1
TNR
PPFIA3
NLGN3
SNCG
NLGN2
NFASC
PPFIBP1
GRM5
NLGN4X
LRRTM1
L1CAM
SLC1A1
APBB2
DVL1
PPFIA4
PSEN1
LRRTM2
LRP4
FLNA
RAB39B
TSC1
PPFIA1
C1QA
SEMA3E
ELFN1
DRP2
SLC8A3
CBLN2
AGRN
WNT7B
PPFIBP2

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


histone modification.SYMBOL
cluster
age
MT3
PARK7
MEAF6
ING5
KAT7
PARP2
ING4
JADE2
UFL1
JADE1
HLCS
SIRT7
JADE3
logcounts
15
10
5
0
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

regulation of synapse structure or activity.SYMBOL

cluster
age
SLC17A7
APP
PPT1
SYNGAP1
SLC17A6

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of cell junction assembly.SYMBOL

cluster
age

ROCK2
RAPGEF2
RAPGEF1
RAP1B
TJP1
RAP1A
ROCK1

logcounts
7
6
5
4
3

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of synapse organization.SYMBOL

cluster
age

GPM6A
TUBA1A
TUBB
VCP
PTPRO
CDH8
DAG1
SLITRK4
SHANK2
SLC7A11
SLITRK2
CTTNBP2
WNT5A
C1QL3

logcounts
15
10
5
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

developmental growth involved in morphogenesis.SYMBOL

cluster
age

EXT1

WNT7B

TBX2

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

tube formation.SYMBOL

cluster
age

YWHAZ
ITGB1BP1
DAB2IP
SDCCAG8
VEGFA
BCAS3
NOTCH1
ATOH8

logcounts
15
10
5
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

vacuolar transport.SYMBOL

cluster
age

NDFIP1
ATP6V0D1
NDFIP2
VIPAS39

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

postsynapse assembly.SYMBOL

cluster
age

WNT5A

WNT7A

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

gliogenesis.SYMBOL

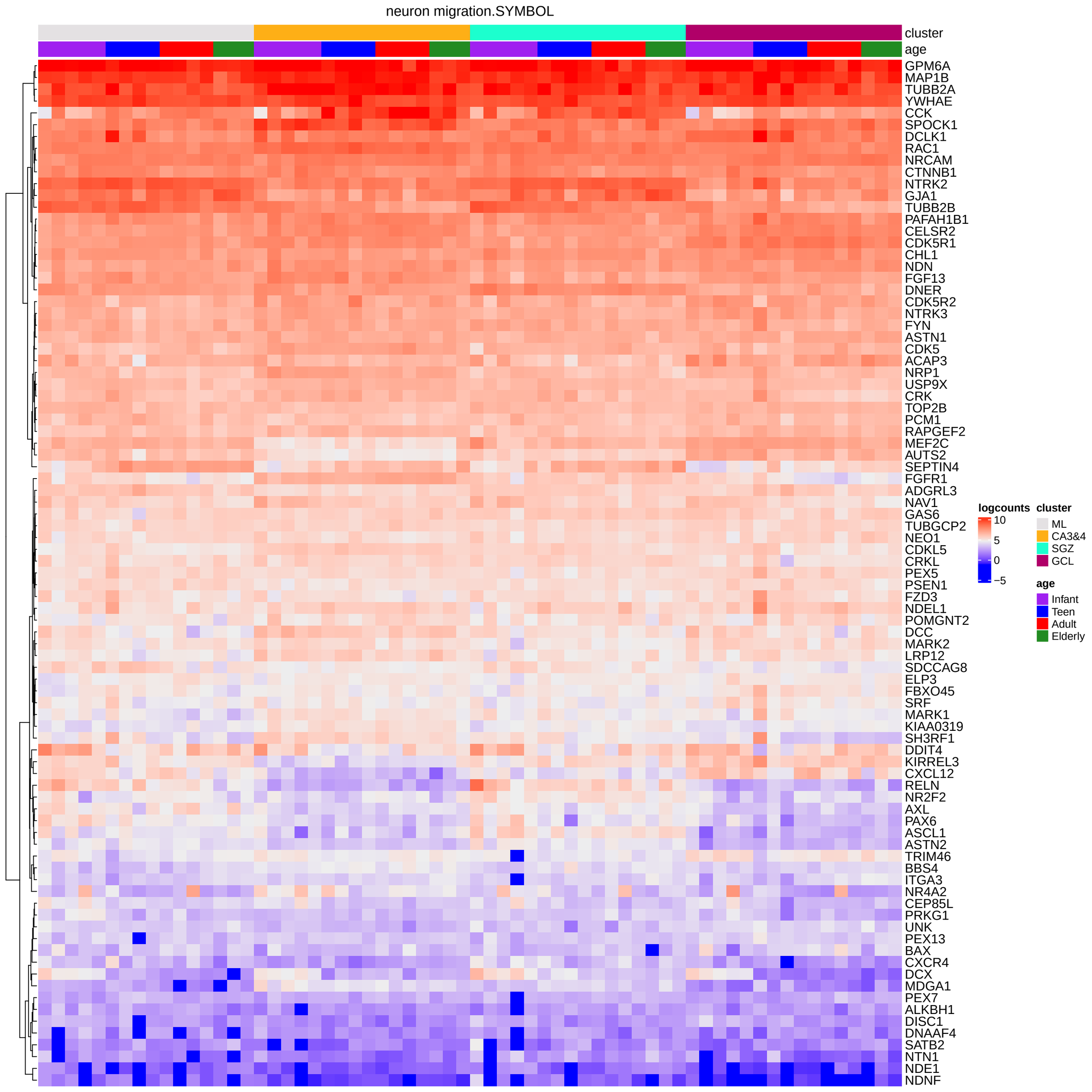
cluster
age

NDUFS2
METTL3
METTL14
CDK6
ANXA1

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


neuron migration.SYMBOL
cluster
age
GPM6A
MAP1B
TUBB2A
YWHAE
CCK
SPOCK1
DCLK1
RAC1
NRCAM
CTNNB1
NTRK2
GJA1
TUBB2B
PAFAH1B1
CELSR2
CDK5R1
CHL1
NDN
FGF13
DNER
CDK5R2
NTRK3
FYN
ASTN1
CDK5
ACAP3
NRP1
USP9X
CRK
TOP2B
PCM1
RAPGEF2
MEF2C
AUTS2
SEPTIN4
FGFR1
ADGRL3
NAV1
GAS6
TUBGCP2
NEO1
CDKL5
CRKL
PEX5
PSEN1
FZD3
NDEL1
POMGNT2
DCC
MARK2
LRP12
SDCCAG8
ELP3
FBXO45
SRF
MARK1
KIAA0319
SH3RF1
DDIT4
KIRREL3
CXCL12
RELN
NR2F2
AXL
PAX6
ASCL1
ASTN2
TRIM46
BBS4
ITGA3
NR4A2
CEP85L
PRKG1
UNK
PEX13
BAX
CXCR4
DCX
MDGA1
PEX7
ALKBH1
DISC1
DNAAF4
SATB2
NTN1
NDE1
NDNF
logcounts
10
5
0
−5
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

rhythmic process.SYMBOL

cluster
age

DDX5
RACK1
PRKCG
CDK5R1
SFPQ
MAPK10
DDB1
DNM1L
MAPK9
FBXW7
CDK5
CBX3
CRTC1
HLF
FBXW11
CIPC
USP7
ROCK2
USP9X
UBE3A
TARDBP
DHX9
BTRC
CSNK2A1
TEF
PRKDC
PSPC1
MAPK8
CREBBP
CCAR2
FBXL3
CREM
KDM5C
KDM5B
MTOR
NLGN1
CUL4A
KAT2B
SIAH2
SRRD
ATG7
PRKAA2
SIN3A
PRKAA1
RORB
MAGEL2
SP1
NFYA
GRIN3A

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

antigen processing and presentation of exogenous antigen.SYMBOL

cluster
age
PSME1
MR1

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

neural tube development.SYMBOL

cluster
age

ITPK1
PKD1
ZFP36L1
NF1
PHGDH
ZNF358
DVL1
SEMA3C
PROX1
PLXNA2
NUP133
NOTCH1
HES5
DCHS1
PLOD3
C2CD3
PKD2
TGFB1
DACT1
ALDH1A2

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

mesenchyme development.SYMBOL

cluster

age

BMP7

BMP2

logcounts

8
6
4
2
0
−2

cluster

ML
CA3&4
SGZ
GCL

age

Infant
Teen
Adult
Elderly

cellular response to transforming growth factor beta stimulus.SYMBOL

cluster
age

PDE2A
PDCD5
FYN
CRK
MEF2C
PPM1A
HDAC2
ZFP36L1
SOX9
ZFP36L2
CRKL
PAK2
IGF1R
NR3C1
ABL1
FGFR2
ZEB1
STK16
PDGFA
SMAD7
COL4A2
YES1
EPB41L5
SMAD3
CX3CR1
PENK
DLX1
WNT7A
WNT5A
SOX5
SOX6
FBN1
MAPK7
APAF1
DAB2
HYAL2
LIMS1
WWOX
TGFBR1
TGFB1
SCX
SFRP1
EDN1
WNT4
CAV1
PDE3A
CLEC3B
ACVRL1
COL1A1

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

stem cell differentiation.SYMBOL

cluster
age

GPM6A
PUM1
A2M
KIT
PSMD11
NELFB
METTL5
SETD2
ZNF281
PHF5A
MTF2
JARID2
SOX21
MSX1
SETD6
PHF19
FOXO4
EPCAM
EPOP
SHC4
OSR1

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

protein targeting.SYMBOL

cluster
age

YWHAZ
YWHAE
YWHAG
YWHAB
YWHAQ
RPL11
GABARAP
SYNGR1
SORL1
CACNG3
AKAP6
CDC37
OS9
TRAK1
TRAK2
GIPC1
HOMER3
LAMP2
ERBIN
SRPRA
NLGN1
KATNB1
AP4S1
AP4B1
SYNJ2BP
HPS4
NUP54
AP4M1
KIF13B
HAP1
MYO1C
AP4E1
STXBP4

logcounts
12
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

glycerophospholipid metabolic process.SYMBOL

cluster
age
PGP
PLA2G15
PIP5K1A

logcounts
7
6
5
4
3

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

establishment of protein localization to membrane.SYMBOL

cluster
age

RAB11A
RAB10
RAB11B
BRAF
BID
NPC1
COLQ
SYNE3

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

somatic stem cell population maintenance.SYMBOL

cluster
age
SOX2
SOX9
LDB2
ZFP36L2
HES1
RBPJ
RAF1
SKI
VPS72
CUL4A
LIG4
KIT
KLF10
BCL9
SOX4
ZHX2
YAP1
NR2E1
NOG
SPI1
REST
WNT7A
SFRP1
LRP5

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

neural precursor cell proliferation.SYMBOL

cluster
age

NDUFS2
DBN1
BLOC1S2
TMEM14B
TRNP1
ORC3
IFT20
ZNF503
EPHB1
TARBP2

logcounts
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of cell−substrate adhesion.SYMBOL

cluster
age

EDIL3
RAC1
SPOCK2
PRKCE
ARL2
HSD17B12
NPY
COL26A1
PDGFB
RSU1
PPM1F
RELL2
VWC2
ITGA3
LIMS1
CCDC80
FBLN2
CCN1
NPNT
NID1
JAK2
EMILIN1
ABI3BP
ECM2
ITGA5
FOXF1
NDNF

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

response to transforming growth factor beta.SYMBOL

cluster
age

ROCK2
SMAD4
FNDC4
MEN1
ROCK1
CITED1
ZFHX3

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

proteasomal protein catabolic process.SYMBOL

cluster
age

PSMB4
PSMA7
PSMB5
VCP
PSMB7
PSMB3
DDB1
PSMA4
FBXO44
PSMB6
PSMB1
PSMA6
PSMB2
PSMA1
BAG6
PRPF19
PSMA2
PSMA5
PSMB10
RNF41
PSMA3
CUL4B
ATE1
DDI2
PRKN
NR1D1
SOCS6
PSMB8
PSMB9
PMAIP1

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

kidney epithelium development.SYMBOL

cluster
age

SALL1

KANK2

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

heart morphogenesis.SYMBOL

cluster
age

FKBP1A
PTK2
ZMIZ1
CERT1
MESP1
MTOR
GAA
ZMPSTE24
FLRT2
ASXL1
FLNA
INSR
NIPBL
VEGFA
DLC1
TAB1
PTCH1
ARID2
CHD7
TGFBR3
ALDH1A2
TGFB2
CCM2L
TH

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

actin cytoskeleton reorganization.SYMBOL

cluster
age

RHOA
EZR
PLEC
GRB2
MINK1
SIPA1L1
PHACTR1
ATP2C1
RAP2A
NRP1
PAK1
MYH9
CTTN
CXADR
CDC42BPB
CDC42BPA
BRSK2
AUTS2
KIT
S1PR1
TNIK
RALA
MKLN1
PARVA
FLNA
ANTXR1
RICTOR
PTPN1
PIP5K1A
CAPN10
MICALL2
PARVB
EPS8
FER
THSD7A
DTNBP1
SHC1
FARP2
PDLIM4
GAB1
ANXA1
PTK7
SYDE1
FGF7
CLDN3

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

pattern specification process.SYMBOL

cluster
age

APC
ASPH
APC2
SYNGAP1
ZEB1
NRG3
RNF111
RFNG
CRAMP1
DCHS1
MID1
ZIC1
EYA1
SHROOM3
FOXJ1
FST
SOSTDC1

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

limb morphogenesis.SYMBOL

cluster
age

ASPH
MEGF8
IQCE
PCSK5
PTCH1
ZNF141
GLI3
BAK1
PKDCC

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of neural precursor cell proliferation.SYMBOL

cluster
age

RHOA
ID2
PTBP2
FOXO3
NF2
FOXO1

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

pyruvate metabolic process.SYMBOL

cluster
age
LDHB
VDAC1
LDHA
ME2
PC
ME1
ME3

logcounts
10
8
6
4

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

endosome to lysosome transport.SYMBOL

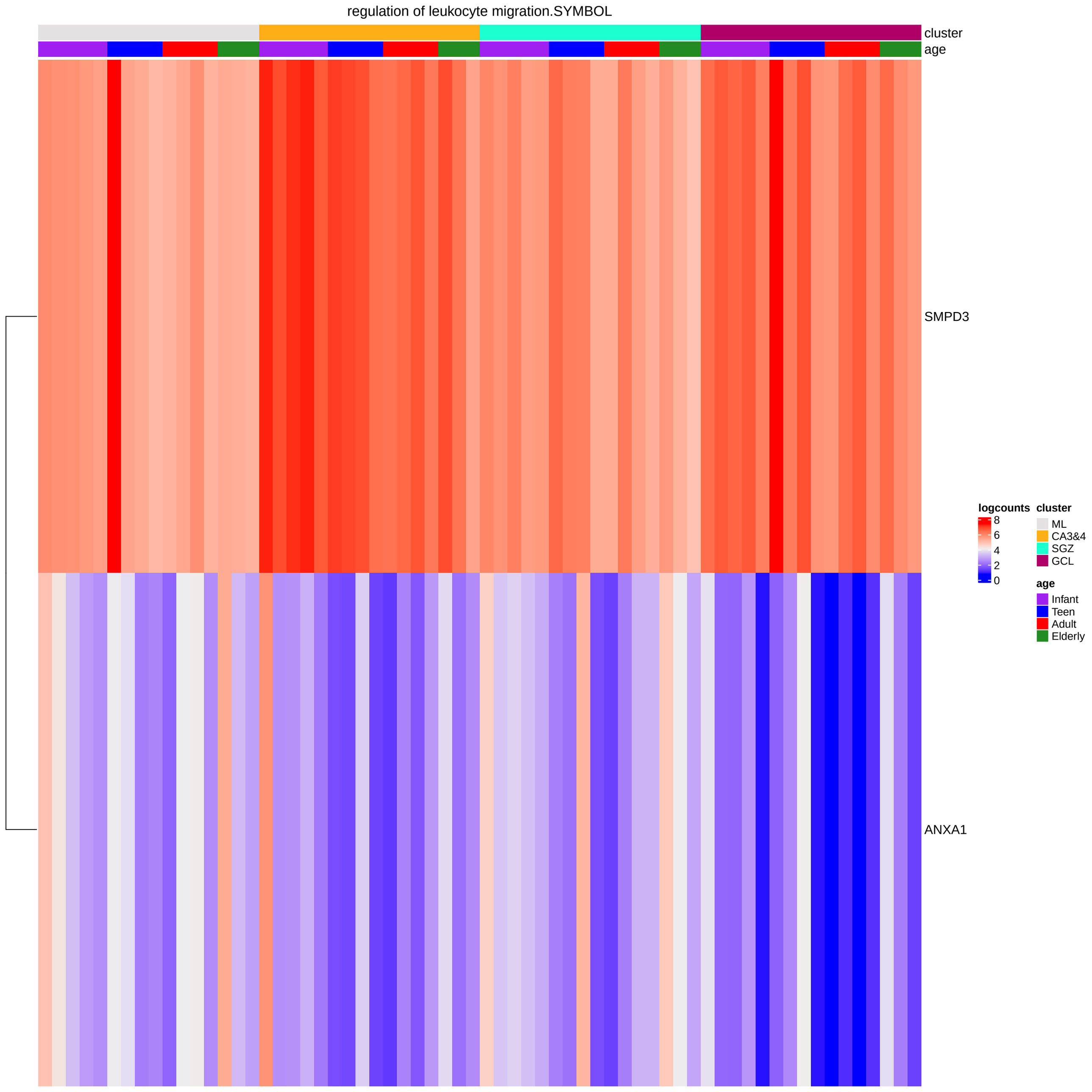
cluster
age

SORT1
RHOB
RAB7A
BIN1
GPRASP1
RNF157
M6PR
VPS39
TRAK1
SNX27
VPS41
TSG101
AKTIP
MGRN1
SCYL2
HOOK3
RAB12
VAMP7
VPS11
STX8
SNAPIN
HOOK1
VPS16
TGFBRAP1
VPS33A
CLEC16A
EPG5
KIF13A
VPS18
ATG14
RILP
MTM1
VIPAS39
UEVLD
HMGXB4
HOOK2
SNX16
DENND3
DTX3L

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


regulation of leukocyte migration.SYMBOL
cluster
age
SMPD3
ANXA1
logcounts
8
6
4
2
0
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

response to retinoic acid.SYMBOL

cluster
age

IGFBP7
SYNJ1
CDKN2D
GDAP1
RXRB
RBP4
TFRC
CTSH
SREBF1
RXRA
ASXL1
IGF2R
RARA
PDGFA
AQP3
ASCL1
IGFBP2
TMEM161A
PDGFRB
CD38
PTCH1
DNAAF2
GDAP2
RXRG
SLC10A3
RARG
TIE1
TRIM16
KLF4
MMP2
TBX2
MICB

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

platelet−derived growth factor receptor signaling pathway.SYMBOL

cluster
age
ZFAND5
PTPN11
NRP1
SMPD3
BCAR1
RGS14
PTPRJ
PLEKHA1
TXNIP
PDGFRA
PIK3C2A
PDGFB
PDGFA
NR4A3
CSRNP1
PDGFRB
PLAT
SGPL1
FER
IQGAP1
TIPARP
ARID5B
CSPG4
PDGFC
JAK2
MYO1E

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

respiratory tube development.SYMBOL

cluster
age

HECA
PCSK5
TRAF4
FOXF1

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

negative regulation of ERK1 and ERK2 cascade.SYMBOL

cluster
age

NDRG2
PIN1
SIRPA
GSTP1
LMO3
EPHA4
EZR
TIMP3
PTEN
EIF3A
DUSP3
WNK2
RGS14
DUSP26
SMAD4
SPRED1
SPRY2
ITGB1BP1
RANBP9
SLC9A3R1
DAB2IP
DLG1
FBLN1
DUSP4
DUSP6
ABL1
CSK
SEMA6A
TNIP1
FLCN
SPRED2
PTPN1
EPHB2
SYNJ2BP
VRK3
ERRFI1
PTPRR
RPS6KA6
PTPN2
C3orf33
TLR4
DUSP9
LYN
SPRY4
SPRY1
ATF3
DAB2
SPRED3
EMILIN1
GPER1
BTN2A2
GBP1
CNKSR3
DUSP10
PTPRC

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

cognition.SYMBOL

cluster
age

APP
FAM107A
SLC8A2
CHL1
C12orf57
DGCR2
TUSC3
SLC1A4
NF1
SOBP
GPR155
GRM5
CHRM1
MGAT3
JAKMIP1
ADORA1
CHMP2B
CYFIP1
MFSD2A
SETD5
NIPBL
CHRNB2
NSUN5
CHRNA4
HLA−DRA
ST3GAL4
DOP1B
MAGT1
METTL23
RP9
HRH3
CHD7
PTCHD1
LINS1
CTNS
CBR3
CUX2
SHROOM4

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

exocytosis.SYMBOL

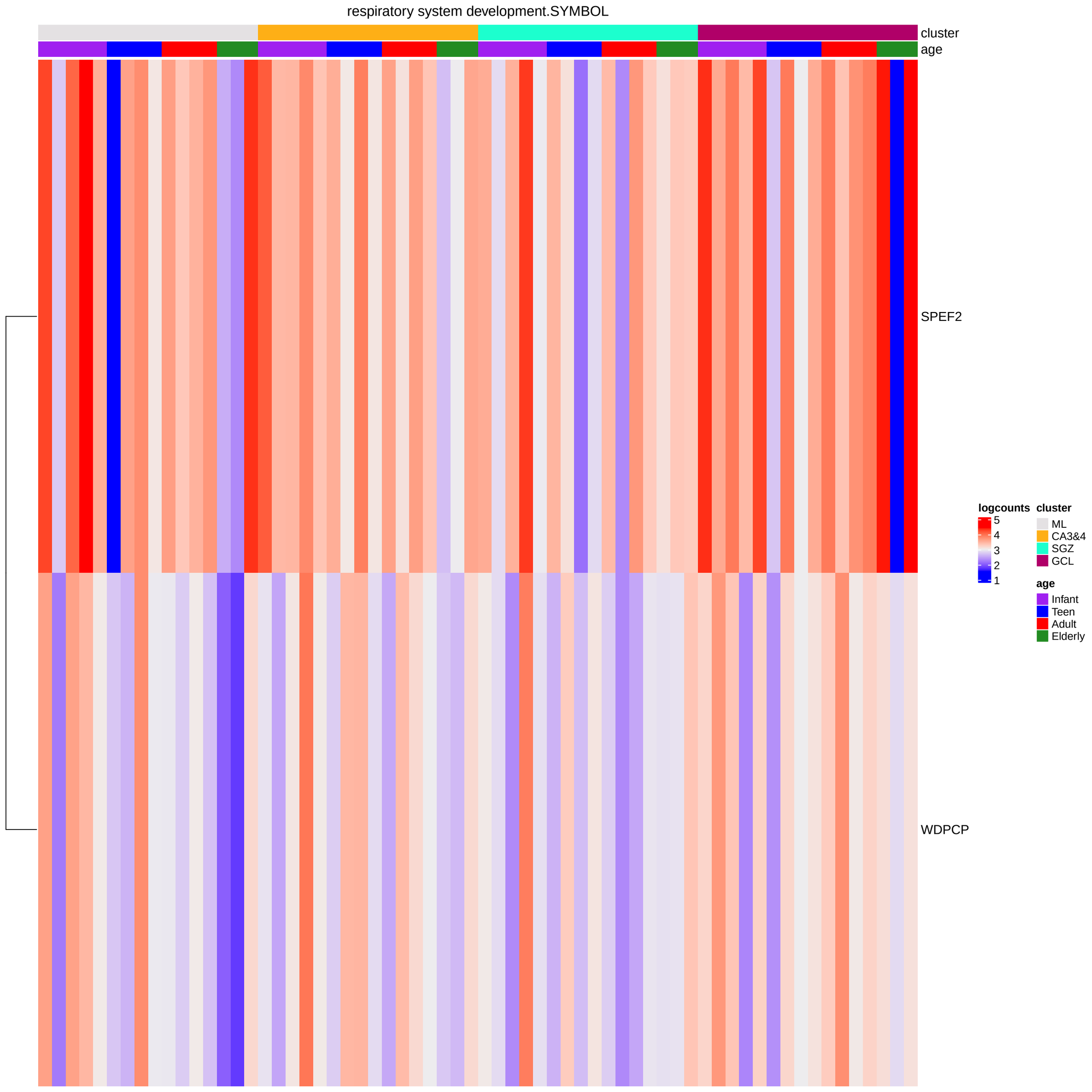
cluster
age

SNAP25
NSF
VAMP2
RAB3A
SCAMP5
DNAJC5
STX1B
CADPS
RAB11A
SCAMP1
STXBP6
CPLX1
STX1A
PAK1
BAIAP3
LIN7C
CDK16
RAB11B
EXOC7
SCRN1
BRSK2
WASHC1
ARHGAP44
STXBP5L
SNAP47
ITSN1
EXOC5
SRCIN1
RALA
SYT16
MICAL3
MIA3
WASHC3
LIN7B
LIN7A
EXOC4
STXBP5
EXOC3
EXOC6B
RIMS4
STX4
TXLNA
ARFGEF2
EXOC6
EXOC1
JAGN1
SNX19
ARFGEF1
RAB3IP
VAMP7
LGI3
PIK3C2A
VAMP3
SNAP29
STX3
STX2
EXOC2
STX17
EXOC8
SYTL2
SYTL5
SNAP23
LLGL1
NKD2
CADPS2
HAP1
TNFAIP2
ANK1
RAB3IL1
SYTL4
PRSS12

logcounts
15
10
5
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


respiratory system development.SYMBOL
cluster
age
SPEF2
WDPCP
logcounts
5
4
3
2
1
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

gland morphogenesis.SYMBOL

cluster
age

SLC9A3R1

FGFR2

MSN

BCL2

logcounts
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

substrate adhesion−dependent cell spreading.SYMBOL

cluster
age

RAC1
RHOA
RAB1A
TMEFF2
NRP1
MEGF9
PIK3R1
ITGAV
ATRNL1
ATRN
SRCIN1
ILK
SRGAP2
PARVA
TYRO3
NTNG2
FN1
FERMT2
LAMB1
ABL1
PEAK1
MICALL2
PARVB
AKIP1
ANTXR1
VAMP3
LAMB2
AXL
SRC
FER
PXN
FZD7
ITGA4
MERTK
LAMC1
LAMA5
EPHB3
TEK
FZD4
NTN4
NTNG1
EFNA1
ITGA8
RADIL
LAMC3
BVES

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

ATP metabolic process.SYMBOL

cluster
age

ATP1B1
HSPA8
ATP1A2
ATP6V1B2
AK5
HSPA1A
HSPA1B
VCP
OLA1
NDUFS1
AK1
BAD
AK4
SLC25A25
CLPX
NADK
AK2
FIGNL1
CTNS
ENTPD5
MYH7

logcounts
15
10
5
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

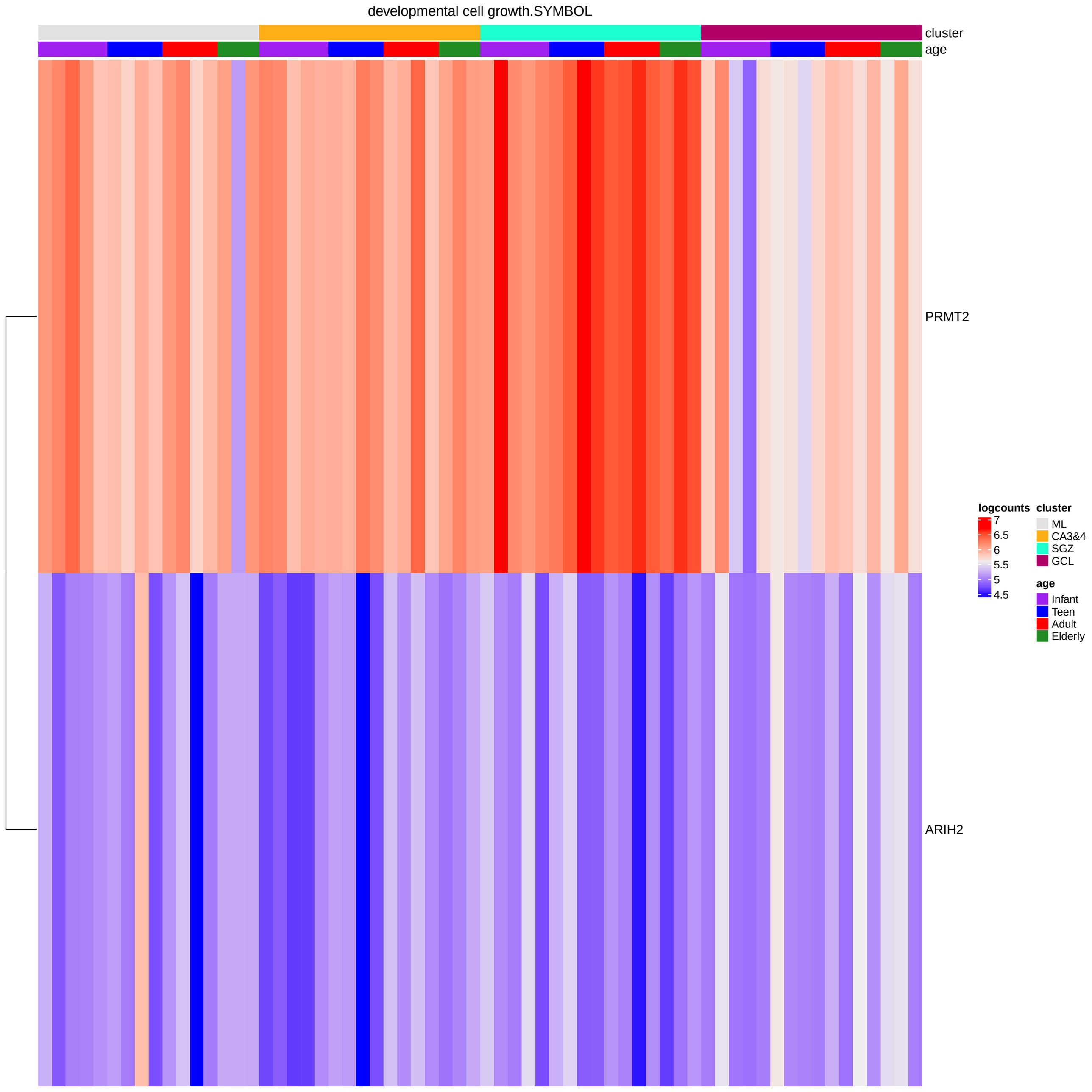
regulation of macroautophagy.SYMBOL

cluster
age
GAPDH
UCHL1
ATP6V0C
ATP6V0B
ATP6V0E2
ATP6V1H
ATP6V1E1
ATP6V0D1
ATP6V0A1
ATP6V1A
ATP6V1B2
RHEB
ATP6V1G2
CDK5R1
CAPNS1
ATP6V1D
ATP6V1C1
VPS35
UBQLN2
UBQLN1
ATP6V1G1
PRKACA
ATP13A2
CDK5
VPS26B
EXOC7
ULK1
GBA
VPS26A
BECN1
MAPK8
EXOC4
CAPN1
ATP6V0E1
SNX5
PIK3C3
SH3GLB1
MTOR
SNX6
EXOC1
PRKAA2
CASP3
HDAC6
SNX32
PIK3R4
EXOC8
ATG14
ATP6V0A2

logcounts
12
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


developmental cell growth.SYMBOL
cluster
age
PRMT2
ARIH2
logcounts
7
6.5
6
5.5
5
4.5
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

T cell activation via T cell receptor contact with antigen bound to MHC molecule on antigen presenting cell.SYMBOL

cluster
age

APBB1IP

FGL2

ICAM1

logcounts
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

leukocyte migration.SYMBOL

cluster
age

FYN
ADD2
MYH9
ITGA7
PDE4B
SOS1
AIMP1
ROCK1
MSN
ITGA6
YES1
SRC
ITGA9
ITGA3
LYN
ITGA4
SELPLG
CD34
B4GALT1
FOXJ1
ICAM1

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

ameboidal−type cell migration.SYMBOL

cluster
age

PAFAH1B1

CAP1

CENPV

WASF2

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

midbrain dopaminergic neuron differentiation.SYMBOL

cluster
age

CTNNB1

NR4A2

LRP6

RYK

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of MAPK cascade.SYMBOL

cluster
age

PPIA
PRDX2
SOD1
NTRK2
CD81
HMGB1
CTNNB1
PRKCE
CX3CL1
MAP2K2
MADD
NENF
LAMTOR1
FGFR3
GPR37L1
SOX2
ROCK2
HRAS
SPAG9
MYDGF
GRM5
CDH2
LAMTOR3
DOK6
LAMTOR2
EIF2AK2
FGFR1
ADORA1
CARTPT
KIT
CD74
LAPTM5
HLA−DRB1
PLCG2
DAB2IP
WWC1
TAOK2
SHC2
RAF1
KSR1
CDK10
PTPRJ
IGF1R
NDST1
TRAF7
FGFR2
FGF2
GRM1
INSR
ROCK1
FRS2
DHX33
ADRA1B
GSDME
ZNF622
RIT2
FLT1
PDGFB
PDGFA
DOK5
ADRA2A
GPR37
SORBS3
LPAR1
IGFBP4
IGF1
SHC1
IQGAP1
TGFBR1
CSPG4
MAP2K3
AVPI1
RYK
DOK4
IGFBP6
ADRA1D
BCAR3
PELI2
ERBB2
DUSP19
JAK2
EFNA1
BMP2
AR
LPAR3
JCAD
TEK
CAV2
PLCE1
TGFB3
CD4
ADRA2C
RET
ITGA1
KDR
C1QTNF1
GPER1
PTPRC
F2R
BMP4

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of cell cycle.SYMBOL

cluster
age

RPS15A
CALR
FOXG1
SRPK2
RAD23A
C6orf89
ANKRD17
CCPG1
MARK4
HCFC1
PROX1
FGFR2
NUPR1
RARA
LRP6
CITED2
TRIM32
ASCL1
NR2E1
TGFB2
MYC
TBX3

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

miRNA metabolic process.SYMBOL

cluster
age

DDX17
KHSRP
DICER1
AGO2
DROSHA
XPO5
TUT4
AGO4
TUT7

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

leukocyte cell−cell adhesion.SYMBOL

cluster
age

EZR
ITGB1
MSN
ROCK1
TNIP1
NT5E
PECAM1
CERCAM
ITGB2
ITGA4
F11R
VCAM1
OLR1
PTPRC
ITGA5
ICAM1

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of chemokine production.SYMBOL

cluster
age

ZFPM1

ACKR1

logcounts
6
5
4
3
2
1

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

actin polymerization or depolymerization.SYMBOL

cluster
age

DSTN
CAPZB
ABI2
EVL
WASL
ABI1
ENAH
GSN
FLII
SPATC1L
VILL
CAPG
WIPF1
VASP

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of MAP kinase activity.SYMBOL

cluster
age

HRAS
HGS
TSG101
KSR1
SOS1
TRIB2
TRIB1
CDK12
LIME1
DUSP19
TRIB3

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

head morphogenesis.SYMBOL

cluster

age

ATP6AP2

FLVCR1

WNT3

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

vasculogenesis.SYMBOL

cluster
age

NTRK2
QKI
JUNB
FBXW7
ZMIZ1
ITGAV
ZFP36L1
ITGB8
ZFPM2
CCM2
EGFL7
RASA1
AGGF1
AMOT
RAMP2
VEGFA
APLNR
ENG
CITED2
SGPL1
CUL7
HDAC7
TIPARP
HEG1
YAP1
CITED1
TGFB1
SOX18
TGFBR2
GLMN
ACKR3
HEY2
FZD4
RASIP1
TIE1
SMO
WARS2
PAXIP1
ADM
CAV1
KDR
GJC1
TMEM100
MYO1E
FOXF1
TNNI3

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of actin polymerization or depolymerization.SYMBOL

cluster
age

BRK1
ARHGAP35
CIT
CXCL12
NAA80

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

response to mechanical stimulus.SYMBOL

cluster
age

MAP1B
ACTG1
PTK2B
JUND
RHOA
LRP11
CLCN6
MAPK8
STAT1
TXNIP
BTG2
FOSB
ENDOG
RPS6KB1
MBD2
P2RY1
SRC
PPL
CITED2
KCNK2
PTCH1
PSPH
IGFBP2
BGLAP
P2RX7
KCNA5
TGFBR2
CHI3L1
MMP2
MMP14
MEIS2
COL1A1
ANGPT2
THBS1
PIEZO2

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

Ras protein signal transduction.SYMBOL

cluster
age

GNB1
PARK7
G3BP2
SDCBP
DHCR24
JUN
GRB2
PLK2
RAPGEF4
RAPGEF5
SHTN1
HRAS
TRIM28
RAPGEF2
RASGRF1
SYNGAP1
RAPGEFL1
NF1
SHOC2
RAPGEF1
MRAS
RASGRF2
RASGRP1
RALA
CRKL
G3BP1
USP8
RGL1
KRAS
RASGEF1A
KSR1
RALGDS
SOS1
RALB
KSR2
MAPKAPK5
RALGPS2
FGF2
RB1
NRAS
DNMT1
RALGPS1
SOS2
RFXANK
RGL2
BRAP
RASGEF1B
ADRA2A
RERG
IGF1
RASGRP2
RRAS2
RAPGEF3
RASSF1
PRKD1
RIT1
RIT2
RAPGEF6
SETDB1
USP28
RASGEF1C
ZNF304
CDKN1A
TP53
PLCE1
RRAS
RASGRP3
PLD1
LAT
RREB1
NTN1

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

Wnt signaling pathway, planar cell polarity pathway.SYMBOL

cluster
age

RAC1
CELSR2
RHOA
CDC42
TIAM1
PRICKLE2
DVL1
FZD3
DVL3
DAAM1
FZD7
PRICKLE1
CELSR3
GPC4
SMURF2
SMURF1
MED12
VANGL2
WNT5A
DVL2
WNT7A
GPC6
FZD6
FZD2

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

dephosphorylation.SYMBOL

cluster
age

ATP1A1
PPP3CA
ATP1A2
PPP3CB
PDXP
ENTPD6
ENOPH1
PTEN
HDDC2
DUSP3
NT5DC3
PPP1CA
PGP
INPP4A
PPM1A
NT5C3B
PFKFB3
DUSP8
G6PC3
LHPP
LPIN2
HDHD2
LPIN1
FRA10AC1
ACP2
DUSP23
TNS3
NT5C2
NUDT16
APTX
ARMT1
INPP5K
NT5C3A
PFKFB2
DUSP4
PXYLP1
NT5DC1
PRUNE1
TIGAR
PLPP7
DUSP28
DUSP12
NT5C
NT5E
NT5DC2
EPHX2
PSPH
NT5M
PUDP
DUSP16
PTPRB
DUSP5
THNSL2
ACP6
PFKFB4
ALPL
DUSP15
DUSP10
PTPRC
FBP2

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

maintenance of blood−brain barrier.SYMBOL

cluster
age

ACTB
ACTG1
MBP
GJA1
CLDN5
TJP1
SLC1A1
DMD
JAM3
GJB6
JAM2
ITGB1
SLC12A2
MFSD2A
CLDN12
VCL
TJP2
WNK3
LAMC1
OCLN
ESAM
PECAM1
CDH5
LSR
F11R
LAMA2
CLDN3

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of T cell activation.SYMBOL

cluster
age

THY1
B2M
SIRPA
HSPD1
CD47
HLA−DRB1
HLA−DPB1
HLA−DRA
HLA−DPA1
HLA−DQB1
FCHO1
BCL10
HLA−DMB
HLA−DMA
CD4
CCDC88B
PYCARD
PRKCQ
CCL2
HLA−DQA1
HLA−DRB5

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of microtubule polymerization.SYMBOL

cluster
age
MAP2
MAPRE3
MAPT
CAMSAP2
ARL2
CAMSAP1
GBA2
SLC39A12
CAMSAP3
ABL1
PRUNE1

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

ERK1 and ERK2 cascade.SYMBOL

cluster
age

MT3
YWHAZ
MAPK1
MAP2K1
AGT
MAP2K2
MAPK3
ITGAV
SMAD4
ZFP36L1
SOX9
ZFP36L2
TF
CTSH
GRB10
DUSP7
DUSP6
IGF1
DUSP5
DUSP9
LGALS9
EDN1
KDR
MYC

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

cellular amino acid metabolic process.SYMBOL

cluster
age

QDPR
PEPD
PTS
SLC16A2
GCAT
GSS
GLS2
KYAT3
BPHL
GGT5
SCLY
ACY1
CTNS

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

prostate gland development.SYMBOL

cluster
age

SOX9
FKBP4
RARA
PTCH1
GLI3
ANXA1

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

muscle tissue development.SYMBOL

cluster
age

CSRP1

CSRP2

POGLUT1

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

negative regulation of locomotion.SYMBOL

cluster
age

GRM5

ADORA2A

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of developmental growth.SYMBOL

cluster

age

NIPBL

AR

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

pyrimidine deoxyribonucleotide catabolic process.SYMBOL

cluster
age
NT5C
NT5M

logcounts
5
4
3
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

lymphocyte proliferation.SYMBOL

cluster

age

HPRT1

IMPDH2

PURA

logcounts

8
7
6
5
4

cluster

ML
CA3&4
SGZ
GCL

age

Infant
Teen
Adult
Elderly

response to ischemia.SYMBOL

cluster
age

UCHL1
CAMK2A
FAIM2
PINK1
SLC8A2
CX3CL1
SQSTM1
STUB1
ROCK2
CPEB4
HYOU1
BCL2L2
PIK3CB
EGR1
RCAN1
CIB1
MAP3K5
PPIF
CSF1R
NQO1
CX3CR1
PANX2
AIFM1
NOL3
TIGAR
PER2
CSF1
BCL2
MAP2K3
CASP9
ABRAXAS2
MAP2K6
P2RX7
EEF2K
MLYCD
P2RX2
P2RX4
TP53
TREM2
REST
CAV1
HK2
BVES
NDNF

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

extracellular matrix organization.SYMBOL

cluster
age

GFAP
APP
APLP1
SPOCK2
DNAJB6
TNR
MMP17
HSD17B12
NF1
SOX9
POMT1
FURIN
FBLN1
PDGFRA
ADAMTS1
MMP16
MMP24
RECK
ST7
ERO1A
GFOD2
COL18A1
ADAMTS8
COL5A3
SMOC1
VWA1
PRDX4
MMP28
CCDC80
CSGALNACT1
COL16A1
ERCC2
SERAC1
ATXN1L
COL4A2
COL4A1
FBLN2
CCN1
NPNT
COL5A2
COL1A2
ADAMTS10
COL11A1
MMP15
COL9A2
NR2E1
COL9A3
SLC39A8
ELN
ADAMTSL2
COLQ
ADAMTS13
PXDN
ITGA8
ADAMTS16
POSTN
OLFML2B
COL4A5
ADAMTS4
ABI3BP
B4GALT1
COL11A2
COL27A1
CRISPLD2
FOXF2
BCL3
FOXF1
SMOC2
COL9A1
MMP2
ADAMTS9
PAPLN
ECM2
MMP14
TGFBI
COL1A1
COL3A1
COL24A1
NDNF

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of DNA binding.SYMBOL

cluster
age

CSNK2B

TAF10

TGFB1

BCL3

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

response to steroid hormone.SYMBOL

cluster
age

SST
ABCA2
PPP1R9B
PAQR8
RBBP7
SPP1
IDH1
HMGB2
PAQR7
TGFBR2
DAB2

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

cellular response to lectin.SYMBOL

cluster
age

PLCG2

MYC

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of focal adhesion assembly.SYMBOL

cluster
age

ACTG1
GPM6B
PTPRA
RHOA
MACF1
LIMCH1
ROCK2
DUSP3
PTK2
CLASP1
CORO1C
SLK
DAPK3
CAMSAP3
PEAK1
ROCK1
VCL
SLC9A1
WDPCP
GREM1

logcounts
10
5
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

behavioral response to pain.SYMBOL

cluster
age

AKT1
MTOR
CAPN2
VWA1
TSPO
P2RX2
THBS4
PIRT
P2RX4
TRPV1
SCN9A
LPAR5
TACR1
THBS1

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

viral process.SYMBOL

cluster
age

RAN
BICD1
PARD6A
CALCOCO2
HCFC2
TP53

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

glutathione metabolic process.SYMBOL

cluster
age

SOD1
GPX4
EEF1G
SOD2
ARL6IP5
GSTP1
HAGH
GLO1
GSTM3
GDAP1
PTGES2
GSTO1
GSR
GSTA4
SLC7A11
GDAP1L1
GLRX2
GSTM5
GSTM4
GSTK1
IDH1
G6PD
ETHE1
GSTT2B
CLIC1
MMACHC
GSTZ1
GSTO2
CTNS
OPLAH
GSTM2
GSTM1

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

establishment of epithelial cell polarity.SYMBOL

cluster
age

CLASP1
SIPA1L3
HES1
CYTH1
CYTH3
FRMD4A
ARF6
PARD3
HES5
FRMD4B
FBF1

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of endopeptidase activity.SYMBOL

cluster
age

AKIRIN2
ADRM1
PRELID1
PSMD14
PSME3
PSENEN
PSME1
NCSTN
APH1A
PSME2
VSIR
APH1B
SFRP2

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of GTPase activity.SYMBOL

cluster
age

CHN1
SOD1
STMN3
NTRK2
PAFAH1B1
EPHA4
RAP1GAP
SIPA1L1
PTK2
PLXNA4
SYNGAP1
ADAP1
SBF1
CRK
NF1
RABGAP1
ITGB1BP1
MLST8
PLXNA1
ARHGAP44
OCRL
TRAPPC6B
EPHA5
PLXNB1
RDX
NGEF
RAB3GAP1
RAB3GAP2
TBC1D10B
DAB2IP
PLXNA2
RALBP1
ARHGAP12
MTOR
RASAL1
PLXNB2
RASAL2
GAPVD1
RICTOR
SBF2
FGD4
TBC1D15
GPR137B
RASA3
BCL6
FGD1
PLXNA3
RASA2
PLXNC1
TRAPPC6A
IQGAP1
PRKG1
RAPGEF6
VAV2
PLXND1
EPHB3
CBLB
FGD6
ARHGAP15
RASIP1
ARHGAP27
RASGRP3
BVES
PYCARD

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

lipid droplet formation.SYMBOL

cluster
age

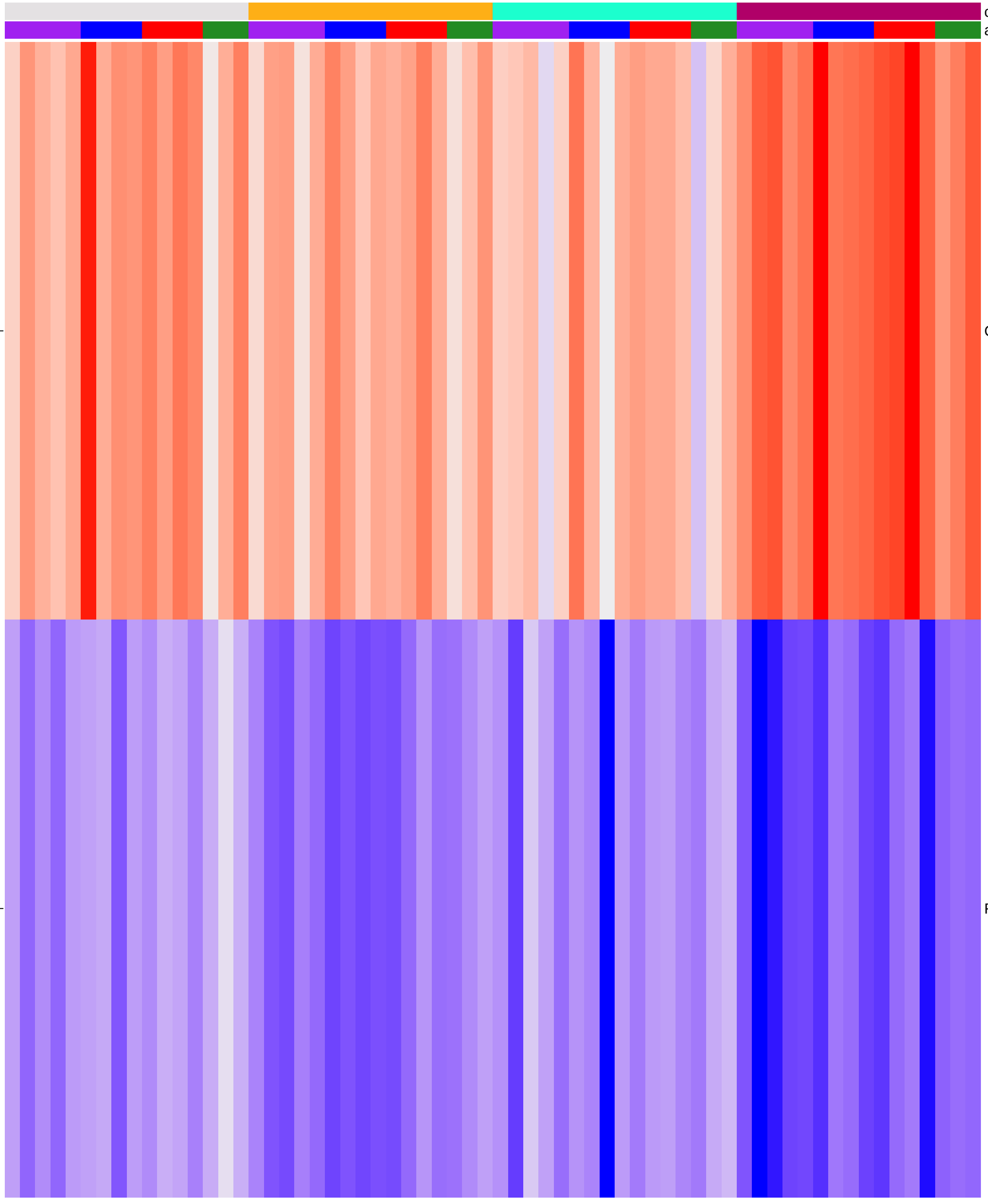
BSCL2
CDS2
AUP1
SQLE
CDS1
PLA2G4C
ZFYVE1
RNF213
FITM2

logcounts
10
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of syncytium formation by plasma membrane fusion.SYMBOL



neural crest cell migration.SYMBOL

cluster
age

ANXA6
SEMA6B
SEMA5A
HIF1A
EDNRB
ACVR1
CORO1C
SEMA4D
SEMA7A
SEMA4F
SEMA5B
SEMA3C
SOX8
SOX10
SEMA6D
ERBB4
SEMA6A
SEMA4B
SEMA6C
SEMA4A
SEMA4C
SEMA3E
SEMA3B
PHACTR4
LAMA5
KITLG
SEMA4G
EFNB1
SEMA3G
EDN3
SMO
RADIL
RET
SEMA3D

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

epithelial cell development.SYMBOL

cluster
age

E2F4
B4GALT1
CXCR4
HYDIN
SHROOM3
SLC4A5

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

viral release from host cell.SYMBOL

cluster
age

PPIA
VAPA
RAB7A
DDB1
VPS4A
CHMP2A
CHMP3
IST1
TSG101
CHMP2B
PPID
PC
VPS37B
TRIM25
TRIM62
CAV2
TRIM31

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of gene expression, epigenetic.SYMBOL

cluster
age

CGGBP1
HDAC5
MTA1
CTCF
HDAC6
ZNF335
HDAC4
KLF2
TDG
IFI16
GLMN

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

cellular response to molecule of bacterial origin.SYMBOL

cluster
age

SIRT2

CD14

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

negative regulation of cell activation.SYMBOL

cluster
age

TREM2

EMILIN1

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of DNA−templated transcription in response to stress.SYMBOL

cluster
age

BCLAF1
RGS14
RELA
RPS6KA3
RPS6KA1
TCIM

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

response to hydrogen peroxide.SYMBOL

cluster
age

SOD1
PPP2CB
PTK2B
CRYAB
SOD2
FYN
BAD
STK25
PRDX3
CRK
UBE3A
STK24
SLC8A1
FKBP1B
STAT1
CAPN2
TXNIP
GLRX2
APTX
PDCD10
PPP1R15B
ADAM9
CAT
CASP3
HBB
HBA2
HBA1
PDGFRB
SIRT1
BCL2
KCNA5
BAK1
MMP2
HMOX1
COL1A1

logcounts
10
5
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

endoderm formation.SYMBOL

cluster
age

DUSP1
SMAD2
DUSP4
NOG
DUSP5
DUSP2
SOX7

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

response to metal ion.SYMBOL

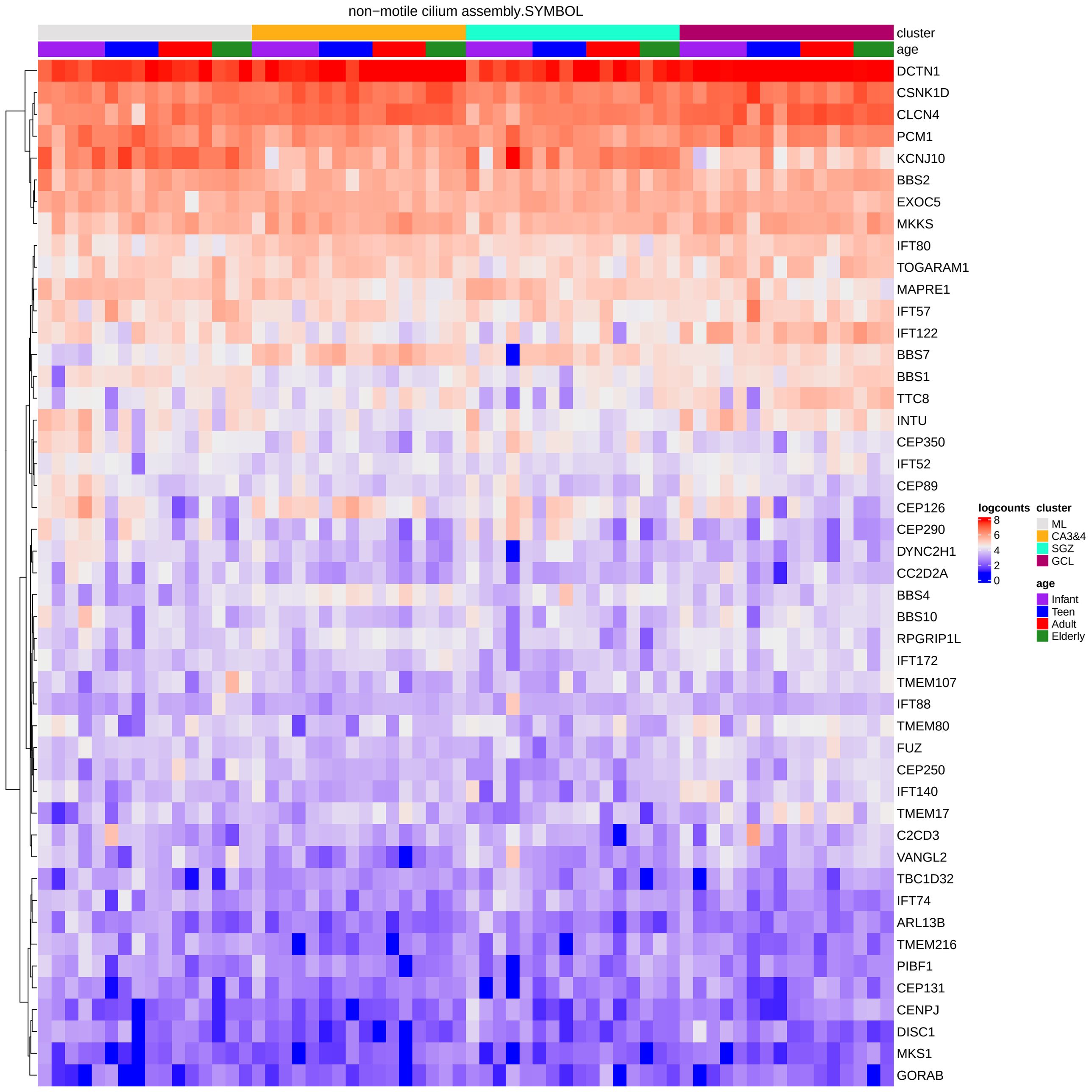
cluster
age

CUTA
NEDD4L
MT1X
NDRG1
GPHN
MTF1

logcounts
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


non−motile cilium assembly.SYMBOL
cluster
age
DCTN1
CSNK1D
CLCN4
PCM1
KCNJ10
BBS2
EXOC5
MKKS
IFT80
TOGARAM1
MAPRE1
IFT57
IFT122
BBS7
BBS1
TTC8
INTU
CEP350
IFT52
CEP89
CEP126
CEP290
DYNC2H1
CC2D2A
BBS4
BBS10
RPGRIP1L
IFT172
TMEM107
IFT88
TMEM80
FUZ
CEP250
IFT140
TMEM17
C2CD3
VANGL2
TBC1D32
IFT74
ARL13B
TMEM216
PIBF1
CEP131
CENPJ
DISC1
MKS1
GORAB
logcounts
8
6
4
2
0
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

positive regulation of phosphatidylinositol 3−kinase signaling.SYMBOL

cluster
age
NTRK2
AGT
NTRK3
MAZ
PTK2
UBE3A
SOX9
PLXNB1
FN1
MYDGF
HAX1
BECN1
SEMA4D
FGFR1
KIT
PDGFRA
DCN
INSR
CAT
FGF2
ERBB4
IGF1R
CBL
PPARD
PDGFB
PDGFA
PRR5
RGL2
SRC
SIRT1
ERBB3
FLT1
RELN
UNC5B
PDGFRB
IGF1
PDGFC
ANGPT1
TEK
JAK2
TREM2
HCST
HCLS1
F2R
KDR
GPER1
TGFB2
PRR5L

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

stimulatory C−type lectin receptor signaling pathway.SYMBOL

cluster
age

PAK3
FYN
PAK1
PLCG2
CREBBP
PAK2
MAP3K7
EP300
TYROBP
SRC
IKBKB
TRAF6
LYN
KLRC3
KLRC2

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of neuron death.SYMBOL

cluster
age
CLU
PRNP
SNCA
MAPT
FOS
EGR1
GRIN2B
FYN
BAD
PARP1
PICALM
GSK3B
ELK1
DDIT4
ADORA1
MAP3K5
EIF2S1
CAPN2
ZNF746
SARM1
EFNB2
DAXX
AIMP2
WNT5A
C1QA
TYROBP
ITGB2

logcounts
15
10
5
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

proteoglycan biosynthetic process.SYMBOL

cluster
age

BMPR2
FAM20B
B3GALT6
CHST10
CANT1
CHST11
CHST12
XYLT1
B4GALT7
GAL3ST3
BMPR1B
CSGALNACT1
CSGALNACT2
IGF1
CHST9
CHST8
GAL3ST4

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of kinase activity.SYMBOL

cluster
age
NTRK2
LMO4
EPHA4
NTRK3
FGFR3
DDR1
KIT
CD74
EPHB6
CSF1R
HLA−DRB1
LAMTOR3
EPHA5
FGFR1
FGFR2
PDGFRA
TYRO3
DSTYK
LMTK2
VAC14
RAD50
NBN
IGF1R
EPHA7
ERBB4
EGFR
AXL
INSR
GCN1
EPHB2
ZNF622
EPHB1
ERBB3
DDR2
PDGFRB
RYK
MRE11
FLT1
MERTK
EPHB3
BCL10
TEK
EPHA10
PIFO
ERBB2
TREM2
CD4
RET
TIE1
KDR
MET

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of viral life cycle.SYMBOL

cluster
age

KPNA2
TYRO3
KPNA6
AXL
CLEC4G

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

cellular response to extracellular stimulus.SYMBOL

cluster
age

SLC1A2
TLE5
ARHGAP35
PLEC
ADNP
FOS
AXL
AIF1
SFRP2
NR4A2
LYN
P2RX7
ADORA2B
CDKN1A
GSDMD
PTPRC

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of protein transport.SYMBOL

cluster
age

PRKCZ

CHP1

SRC

logcounts
8
6
4
2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

carbohydrate catabolic process.SYMBOL

cluster
age

DERA
NAGA
ENOSF1

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

leukocyte activation involved in inflammatory response.SYMBOL

cluster
age

TRAF3IP2

MYD88

logcounts
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of collagen biosynthetic process.SYMBOL

cluster
age
VIM
RGCC
LARP6
ARRB2
HDAC2
SUCO
ENG
PDGFRB
CCN2
UCN
TGFB1
SCX
TGFB3
CREB3L1
WNT4
F2R
BMP4
ITGA2

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

protein localization to centrosome.SYMBOL

cluster
age

DCTN2
SNX10
CSNK1D
PCM1
HOOK3
MAPRE1
CEP350
BBS4
CCDC14
C2CD3
CEP192
KIAA0753
MCPH1
CEP83
PIBF1
CEP131
DISC1
SPAG5

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

proton transmembrane transport.SYMBOL

cluster
age

COX6A1
ATP5F1B
COX4I1
COX5B
ATP1A1
ATP1A3
ATP6V0E2
COX8A
UQCR10
UQCRH
RNASEK
COX6B1
ATP5MF
ATP1A2
ATP6V1H
ATP6V1E1
ATP6V0D1
ATP6V1A
ATP6V1B2
SLC25A3
COX7B
ATP5PO
ATP6V1G2
SLC25A4
ATP6V1F
COX5A
SLC9A6
UQCRC1
SLC25A22
UQCRFS1
CYC1
SLC25A5
ATP6V1C1
COX7A2L
ATP6V1G1
CLCN4
SLC4A10
NNT
COX7A1
SLC25A18
SURF1
ATP6V0E1
SLC9A7
SLC11A2
SLC47A1
CYB5A
TMCO3
SLC15A2
SLC33A1
COX15
SLC17A5
SLC9A1
MFSD3
SLC15A4
DMAC2L
SLC9B2
SLC9A8
SLC9A5
SLC46A1
SLC9A9
HVCN1
SLC36A1
SLC9A2
CTNS
SLC2A10
UCP2
SLC15A3
SLC47A2

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

myeloid cell homeostasis.SYMBOL

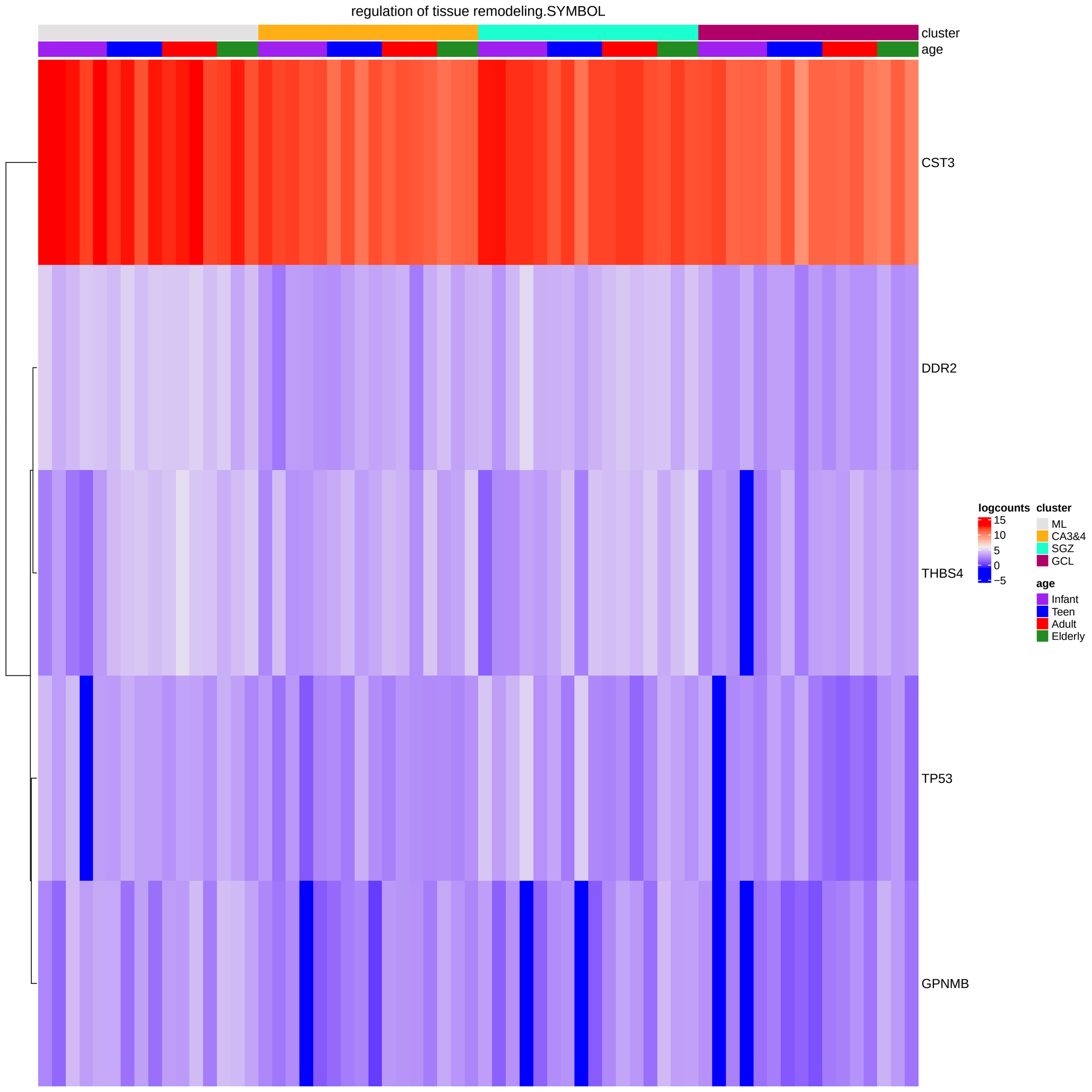
cluster
age

SOD1
ITPKB
NCSTN
BAX
BAK1
HAMP

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly


regulation of tissue remodeling.SYMBOL
cluster
age
CST3
DDR2
THBS4
TP53
GPNMB
logcounts
15
10
5
0
−5
cluster
ML
CA3&4
SGZ
GCL
age
Infant
Teen
Adult
Elderly

regulation of cytokine production involved in immune response.SYMBOL

cluster
age
TRIL
ATG5
TNFRSF1B

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

regulation of cell size.SYMBOL

cluster
age

RAC1
MTPN
LAMTOR4
LAMTOR5
RAP1GAP2
SLC9A3R1
RDX
MTOR
RPTOR
WDTC1
CREB1
MSN
CLN8
VAV2
XK
RARG

logcounts
10
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

cellular lipid catabolic process.SYMBOL

cluster

age

MT3

SIRT2

logcounts

14
12
10
8
6

cluster

ML
CA3&4
SGZ
GCL

age

Infant
Teen
Adult
Elderly

regulation of hepatocyte proliferation.SYMBOL

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

negative regulation of execution phase of apoptosis.SYMBOL

cluster
age

MTRNR2L12
MTRNR2L8
MTRNR2L1
MTRNR2L10
BCL2L1
FZD3
DFFA
MTRNR2L3
MTRNR2L11
MTRNR2L6
MTRNR2L4

logcounts
15
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

nitric oxide biosynthetic process.SYMBOL

cluster
age

CYB5R3
CYB5B
AKT1
DDAH2
NQO1
ARG2
RORA
GCHFR
SPR
NOS1
CYP1B1
GCH1

logcounts
8
6
4
2
0
−2

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

organelle localization by membrane tethering.SYMBOL

cluster
age
CALM1
ATP2A2
VMP1

logcounts
12
10
8
6
4

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

plasma membrane repair.SYMBOL

cluster
age

SYT11
RAB3A
ANXA6
ARL8B
SYT7
MYH9
CHMP1A
CHMP4B
CHMP2A
CHMP5
CHMP3
CHMP1B
SMPD1
CHMP2B
CHMP7
CHMP4A
CHMP6
DYSF
SYTL4
MYOF

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

positive regulation of calcium ion transport.SYMBOL

cluster
age

CAMK2A
ANK2
ATP2B1
ARRB2
HOMER1
WFS1
CACNB2
STIM2
TSPO
MYLK
CACNA1D
WNK3
JAK3
P2RX4
ORAI1
MCHR1
F2R

logcounts
10
5
0
−5

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly

'de novo' post−translational protein folding.SYMBOL

cluster
age

SELENOF
UGGT1
CHCHD4
ENTPD5

logcounts
8
6
4
2
0

cluster
ML
CA3&4
SGZ
GCL

age
Infant
Teen
Adult
Elderly