Test

```
character(0)
[1] "The data files listed below match the conditions in the 'dataload'function:"
[1] "FR_RNA_T1D_MS_20251103_P1_1363029033.csv"
[2] "FR_RNA_T1D_MS_20251103_P1_1363029192.csv"
[1] TRUE
[1] FALSE
[1] FALSE
[1] TRUE
[1] "User selected Panel 1 and CellID"
[1] "These are the plates that were assessed by Panels 1 and CellID. They will be loaded into R for anal
[1] "FR_RNA_T1D_MS_20251103_P1"
[1] "The panel's pulled for analysis are: "
[1] "Panel1" "CellID"
[1] "Number of rows prior to duplicate genes, per cell, being combined: 18432"
[1] "Predicted number of rows after removing duplicate genes, per cell: 18432"
[1] "The predicted number of rows DOES match the number of rows, post duplicate gene removal"
[1] "Are blood samples in this table? FALSE"

No expression detected in 0/96 cells

[1] "Column Names are: "
  [1] "cellSource" "probe"      "age"        "patient"    "SPA"
  [6] "SPAM"       "SPAMcell"   "cellType"   "ACTA2"      "ACVR1"
 [11] "ADGRE1"     "Aim2"       "ANGPT1"     "ANPEP"      "Bcl2"
 [16] "Bcl6"       "BMP5"       "BMP7"       "Ccr1"       "ccr2"
 [21] "ccr3"       "ccr4"       "ccr5"       "ccr6"       "Ccr7"
 [26] "CD14"       "CD24A"      "cd28"       "CD36"       "cd3e"
 [31] "CD3E"       "cd4"        "CD4"        "cd40"       "Cd44"
 [36] "CD44"       "CD74"       "cd80"       "CD80"       "CD83"
 [41] "cd86"       "CD86"       "cd8a"       "CD8A"       "Ceacam1"
 [46] "CLEC7A"     "COL11A1"    "COL1A1"     "COL1A2"     "CSF1"
 [51] "CSF1R"      "CSF2RA"     "CSF2RB"     "ctla4"      "Cxcl10"
 [56] "CXCL13"     "Cxcr3"      "Cxcr4"      "DES"        "EGFR"
 [61] "FAP"        "FCGR1"      "FGFR1"      "FGFR3"      "FGR"
 [66] "FLT4"       "foxp3"      "Fyn"        "gapdh"      "gata4"
 [71] "GCG"        "GFAP"       "GHRL"       "GM13889"    "gsk3a"
 [76] "gsk3b"      "H2-AA"      "H2-DMA"     "HIF1A"      "Hprt"
 [81] "IAPP"       "icam1"      "ICAM1"      "ICAM2"      "Icos"
 [86] "ICOSL"      "Ifi44"      "Ifi44l"     "Ifit1"      "Ifit3"
 [91] "ifng"       "IFNG"       "Ifngr1"     "IGF1"       "IGF2"
 [96] "IL-21"      "il10"       "il12b"      "Il12rb"     "il17A"
[101] "Il18r1"     "IL1A"       "IL1B"       "il1r2"      "il2"
[106] "il25"       "Il27"       "Il27r"      "il2ra"      "il3"
[111] "IL34"       "il4"        "il4ra"      "il5"        "il5ra"
[116] "il6"        "il7"        "il7r"       "INS1"       "INS2"
[121] "Irf1"       "Irf2"       "Irf4"       "Irf7"       "Isg15"
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[126] "ITGAX"      "ITGB1"      "Jak1"       "Jak2"       "KDR"
[131] "KLF5"       "LCK"        "LEPR"       "Ly6e"       "LY75"
[136] "Map2k6"     "Mapk8"      "MMP1A"      "MMP2"       "MMP3"
[141] "MMP9"       "Mx1"        "NFATC1"     "nfkb1"      "NLRP3"
[146] "Nur77"      "Oas1b"      "Oas2"       "Oasl1"      "Pd1"
[151] "PDGFA"      "PDGFB"      "PDGFRB"     "Pdl-1"      "PDPN"
[156] "PECAM1"     "ppara"      "pparg"      "ppargc1a"   "PPY"
[161] "pten"       "PTGS2"      "PTK2"       "Rsad2"      "RSPO1"
[166] "SELE"       "SFRP1"      "Socs3"      "SPP1"       "SST"
[171] "Stat1"      "Stat3"      "Stat4"      "Stat5"      "Tbx21"
[176] "TEK"        "TGFB1"      "Tgfbr2"     "TIMP1"      "TIMP2"
[181] "TLR3"       "TLR4"       "TLR7"       "TLR9"       "TNC"
[186] "tnf"        "Tnfaip3"    "tnfrsf1a"   "tnfrsf1b"   "TNFSF11"
[191] "Traf2"      "Vav1"       "VCAM1"      "VEGFA"      "VEGFB"
[196] "WNT2B"      "WNT4"       "Zap70"      "ZAP70"      "Zeb2"
[1] TRUE
[1] TRUE
[1] TRUE
[1] TRUE
[1] "The panel observed in the panel detection tests, in the 'clusterFilter.R' script, is 1 and 3"
[1] "Warning! The panel detected and the panel number input by the user are not the same!"


[1] "Test 1 is FALSE"
[1] "Test 2 is FALSE"
[1] "Test1and2 is TRUE"
[1] "Test3 is FALSE"
  [1] "cellSource" "probe"      "age"        "patient"    "SPA"
  [6] "SPAM"       "SPAMcell"   "cellType"   "ACTA2"      "ACVR1"
 [11] "ADGRE1"     "Aim2"       "ANGPT1"     "ANPEP"      "Bcl2"
 [16] "Bcl6"       "BMP5"       "BMP7"       "Ccr1"       "ccr2"
 [21] "ccr3"       "ccr4"       "ccr5"       "ccr6"       "Ccr7"
 [26] "CD14"       "CD24A"      "cd28"       "CD36"       "cd3e"
 [31] "CD3E"       "cd4"        "CD4"        "cd40"       "Cd44"
 [36] "CD44"       "CD74"       "cd80"       "CD80"       "CD83"
 [41] "cd86"       "CD86"       "cd8a"       "CD8A"       "Ceacam1"
 [46] "CLEC7A"     "COL11A1"    "COL1A1"     "COL1A2"     "CSF1"
 [51] "CSF1R"      "CSF2RA"     "CSF2RB"     "ctla4"      "Cxcl10"
 [56] "CXCL13"     "Cxcr3"      "Cxcr4"      "DES"        "EGFR"
 [61] "FAP"        "FCGR1"      "FGFR1"      "FGFR3"      "FGR"
 [66] "FLT4"       "foxp3"      "Fyn"        "gapdh"      "gata4"
 [71] "GCG"        "GFAP"       "GHRL"       "GM13889"    "gsk3a"
 [76] "gsk3b"      "H2-AA"      "H2-DMA"     "HIF1A"      "Hprt"
 [81] "IAPP"       "icam1"      "ICAM1"      "ICAM2"      "Icos"
 [86] "ICOSL"      "Ifi44"      "Ifi44l"     "Ifit1"      "Ifit3"
 [91] "ifng"       "IFNG"       "Ifngr1"     "IGF1"       "IGF2"
 [96] "IL-21"      "il10"       "il12b"      "Il12rb"     "il17A"
[101] "Il18r1"     "IL1A"       "IL1B"       "il1r2"      "il2"
[106] "il25"       "Il27"       "Il27r"      "il2ra"      "il3"
[111] "IL34"       "il4"        "il4ra"      "il5"        "il5ra"
[116] "il6"        "il7"        "il7r"       "INS1"       "INS2"
[121] "Irf1"       "Irf2"       "Irf4"       "Irf7"       "Isg15"
[126] "ITGAX"      "ITGB1"      "Jak1"       "Jak2"       "KDR"
[131] "KLF5"       "LCK"        "LEPR"       "Ly6e"       "LY75"
[136] "Map2k6"     "Mapk8"      "MMP1A"      "MMP2"       "MMP3"
```
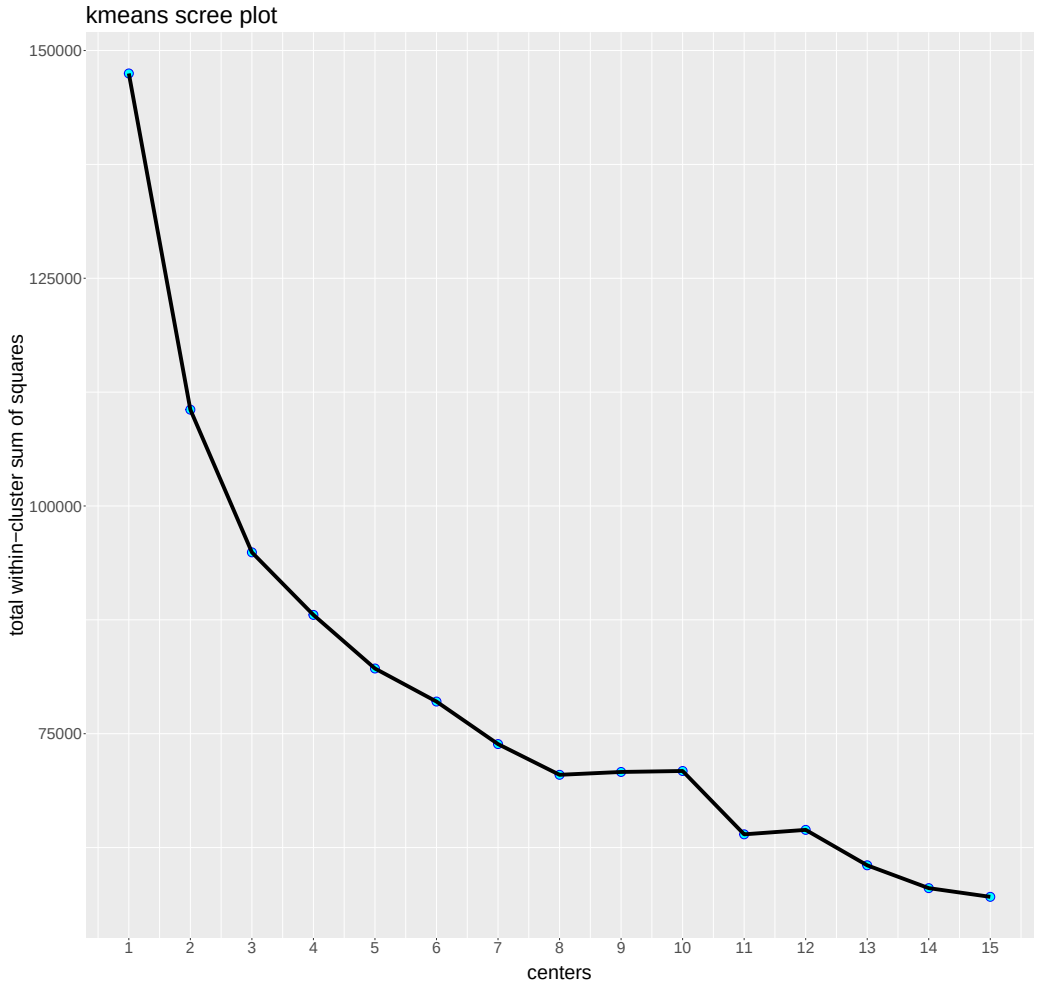

```
[141] "MMP9"       "Mx1"        "NFATC1"     "nfkb1"      "NLRP3"
[146] "Nur77"      "Oas1b"      "Oas2"       "Oasl1"      "Pd1"
[151] "PDGFA"      "PDGFB"      "PDGFRB"     "Pdl-1"      "PDPN"
[156] "PECAM1"     "ppara"      "pparg"      "ppargc1a"   "PPY"
[161] "pten"       "PTGS2"      "PTK2"       "Rsad2"      "RSPO1"
[166] "SELE"       "SFRP1"      "Socs3"      "SPP1"       "SST"
[171] "Stat1"      "Stat3"      "Stat4"      "Stat5"      "Tbx21"
[176] "TEK"        "TGFB1"      "Tgfbr2"     "TIMP1"      "TIMP2"
[181] "TLR3"       "TLR4"       "TLR7"       "TLR9"       "TNC"
[186] "tnf"        "Tnfaip3"    "tnfrsf1a"   "tnfrsf1b"   "TNFSF11"
[191] "Traf2"      "Vav1"       "VCAM1"      "VEGFA"      "VEGFB"
[196] "WNT2B"      "WNT4"       "Zap70"      "ZAP70"      "Zeb2"
[1] "The first column you'll pull is: 9"
[1] "The last column you'll pull is: 200"
  [1] "ACTA2"    "ACVR1"    "ADGRE1"   "Aim2"     "ANGPT1"   "ANPEP"
  [7] "Bcl2"     "Bcl6"     "BMP5"     "BMP7"     "Ccr1"     "ccr2"
 [13] "ccr3"     "ccr4"     "ccr5"     "ccr6"     "Ccr7"     "CD14"
 [19] "CD24A"    "cd28"     "CD36"     "cd3e"     "CD3E"     "cd4"
 [25] "CD4"      "cd40"     "Cd44"     "CD44"     "CD74"     "cd80"
 [31] "CD80"     "CD83"     "cd86"     "CD86"     "cd8a"     "CD8A"
 [37] "Ceacam1"  "CLEC7A"   "COL11A1"  "COL1A1"   "COL1A2"   "CSF1"
 [43] "CSF1R"    "CSF2RA"   "CSF2RB"   "ctla4"    "Cxcl10"   "CXCL13"
 [49] "Cxcr3"    "Cxcr4"    "DES"      "EGFR"     "FAP"      "FCGR1"
 [55] "FGFR1"    "FGFR3"    "FGR"      "FLT4"     "foxp3"    "Fyn"
 [61] "gapdh"    "gata4"    "GCG"      "GFAP"     "GHRL"     "GM13889"
 [67] "gsk3a"    "gsk3b"    "H2-AA"    "H2-DMA"   "HIF1A"    "Hprt"
 [73] "IAPP"     "icam1"    "ICAM1"    "ICAM2"    "Icos"     "ICOSL"
 [79] "Ifi44"    "Ifi44l"   "Ifit1"    "Ifit3"    "ifng"     "IFNG"
 [85] "Ifngr1"   "IGF1"     "IGF2"     "IL-21"    "il10"     "il12b"
 [91] "Il12rb"   "il17A"    "Il18r1"   "IL1A"     "IL1B"     "il1r2"
 [97] "il2"      "il25"     "Il27"     "Il27r"    "il2ra"    "il3"
[103] "IL34"     "il4"      "il4ra"    "il5"      "il5ra"    "il6"
[109] "il7"      "il7r"     "INS1"     "INS2"     "Irf1"     "Irf2"
[115] "Irf4"     "Irf7"     "Isg15"    "ITGAX"    "ITGB1"    "Jak1"
[121] "Jak2"     "KDR"      "KLF5"     "LCK"      "LEPR"     "Ly6e"
[127] "LY75"     "Map2k6"   "Mapk8"    "MMP1A"    "MMP2"     "MMP3"
[133] "MMP9"     "Mx1"      "NFATC1"   "nfkb1"    "NLRP3"    "Nur77"
[139] "Oas1b"    "Oas2"     "Oasl1"    "Pd1"      "PDGFA"    "PDGFB"
[145] "PDGFRB"   "Pdl-1"    "PDPN"     "PECAM1"   "ppara"    "pparg"
[151] "ppargc1a" "PPY"      "pten"     "PTGS2"    "PTK2"     "Rsad2"
[157] "RSPO1"    "SELE"     "SFRP1"    "Socs3"    "SPP1"     "SST"
[163] "Stat1"    "Stat3"    "Stat4"    "Stat5"    "Tbx21"    "TEK"
[169] "TGFB1"    "Tgfbr2"   "TIMP1"    "TIMP2"    "TLR3"     "TLR4"
[175] "TLR7"     "TLR9"     "TNC"      "tnf"      "Tnfaip3"  "tnfrsf1a"
[181] "tnfrsf1b" "TNFSF11"  "Traf2"    "Vav1"     "VCAM1"    "VEGFA"
[187] "VEGFB"    "WNT2B"    "WNT4"     "Zap70"    "ZAP70"    "Zeb2"
[1] "PanelNumber equals: 1 and 3 . Columns to be sent for kmeans testing: "
  [1] "ACTA2"    "ACVR1"    "ADGRE1"   "Aim2"     "ANGPT1"   "ANPEP"
  [7] "Bcl2"     "Bcl6"     "BMP5"     "BMP7"     "Ccr1"     "ccr2"
 [13] "ccr3"     "ccr4"     "ccr5"     "ccr6"     "Ccr7"     "CD14"
 [19] "CD24A"    "cd28"     "CD36"     "cd3e"     "CD3E"     "cd4"
 [25] "CD4"      "cd40"     "Cd44"     "CD44"     "CD74"     "cd80"
 [31] "CD80"     "CD83"     "cd86"     "CD86"     "cd8a"     "CD8A"
 [37] "Ceacam1"  "CLEC7A"   "COL11A1"  "COL1A1"   "COL1A2"   "CSF1"
```

```
 [43] "CSF1R"    "CSF2RA"   "CSF2RB"   "ctla4"    "Cxcl10"   "CXCL13"
 [49] "Cxcr3"    "Cxcr4"    "DES"      "EGFR"     "FAP"      "FCGR1"
 [55] "FGFR1"    "FGFR3"    "FGR"      "FLT4"     "foxp3"    "Fyn"
 [61] "gapdh"    "gata4"    "GCG"      "GFAP"     "GHRL"     "GM13889"
 [67] "gsk3a"    "gsk3b"    "H2-AA"    "H2-DMA"   "HIF1A"    "Hprt"
 [73] "IAPP"     "icam1"    "ICAM1"    "ICAM2"    "Icos"     "ICOSL"
 [79] "Ifi44"    "Ifi44l"   "Ifit1"    "Ifit3"    "ifng"     "IFNG"
 [85] "Ifngr1"   "IGF1"     "IGF2"     "IL-21"    "il10"     "il12b"
 [91] "Il12rb"   "il17A"    "Il18r1"   "IL1A"     "IL1B"     "il1r2"
 [97] "il2"      "il25"     "Il27"     "Il27r"    "il2ra"    "il3"
[103] "IL34"     "il4"      "il4ra"    "il5"      "il5ra"    "il6"
[109] "il7"      "il7r"     "INS1"     "INS2"     "Irf1"     "Irf2"
[115] "Irf4"     "Irf7"     "Isg15"    "ITGAX"    "ITGB1"    "Jak1"
[121] "Jak2"     "KDR"      "KLF5"     "LCK"      "LEPR"     "Ly6e"
[127] "LY75"     "Map2k6"   "Mapk8"    "MMP1A"    "MMP2"     "MMP3"
[133] "MMP9"     "Mx1"      "NFATC1"   "nfkb1"    "NLRP3"    "Nur77"
[139] "Oas1b"    "Oas2"     "Oasl1"    "Pd1"      "PDGFA"    "PDGFB"
[145] "PDGFRB"   "Pdl-1"    "PDPN"     "PECAM1"   "ppara"    "pparg"
[151] "ppargc1a" "PPY"      "pten"     "PTGS2"    "PTK2"     "Rsad2"
[157] "RSPO1"    "SELE"     "SFRP1"    "Socs3"    "SPP1"     "SST"
[163] "Stat1"    "Stat3"    "Stat4"    "Stat5"    "Tbx21"    "TEK"
[1] "Column names after searching for the column pattern and after selecting the right columns. The foll
  [1] "ACTA2"    "ACVR1"    "ADGRE1"   "Aim2"     "ANGPT1"   "ANPEP"
  [7] "Bcl2"     "Bcl6"     "BMP5"     "BMP7"     "Ccr1"     "ccr2"
 [13] "ccr3"     "ccr4"     "ccr5"     "ccr6"     "Ccr7"     "CD14"
 [19] "CD24A"    "cd28"     "CD36"     "cd3e"     "CD3E"     "cd4"
 [25] "CD4"      "cd40"     "Cd44"     "CD44"     "CD74"     "cd80"
 [31] "CD80"     "CD83"     "cd86"     "CD86"     "cd8a"     "CD8A"
 [37] "Ceacam1"  "CLEC7A"   "COL11A1"  "COL1A1"   "COL1A2"   "CSF1"
 [43] "CSF1R"    "CSF2RA"   "CSF2RB"   "ctla4"    "Cxcl10"   "CXCL13"
 [49] "Cxcr3"    "Cxcr4"    "DES"      "EGFR"     "FAP"      "FCGR1"
 [55] "FGFR1"    "FGFR3"    "FGR"      "FLT4"     "foxp3"    "Fyn"
 [61] "gapdh"    "gata4"    "GCG"      "GFAP"     "GHRL"     "GM13889"
 [67] "gsk3a"    "gsk3b"    "H2-AA"    "H2-DMA"   "HIF1A"    "Hprt"
 [73] "IAPP"     "icam1"    "ICAM1"    "ICAM2"    "Icos"     "ICOSL"
 [79] "Ifi44"    "Ifi44l"   "Ifit1"    "Ifit3"    "ifng"     "IFNG"
 [85] "Ifngr1"   "IGF1"     "IGF2"     "IL-21"    "il10"     "il12b"
 [91] "Il12rb"   "il17A"    "Il18r1"   "IL1A"     "IL1B"     "il1r2"
 [97] "il2"      "il25"     "Il27"     "Il27r"    "il2ra"    "il3"
[103] "IL34"     "il4"      "il4ra"    "il5"      "il5ra"    "il6"
[109] "il7"      "il7r"     "INS1"     "INS2"     "Irf1"     "Irf2"
[115] "Irf4"     "Irf7"     "Isg15"    "ITGAX"    "ITGB1"    "Jak1"
[121] "Jak2"     "KDR"      "KLF5"     "LCK"      "LEPR"     "Ly6e"
[127] "LY75"     "Map2k6"   "Mapk8"    "MMP1A"    "MMP2"     "MMP3"
[133] "MMP9"     "Mx1"      "NFATC1"   "nfkb1"    "NLRP3"    "Nur77"
[139] "Oas1b"    "Oas2"     "Oasl1"    "Pd1"      "PDGFA"    "PDGFB"
[145] "PDGFRB"   "Pdl-1"    "PDPN"     "PECAM1"   "ppara"    "pparg"
[151] "ppargc1a" "PPY"      "pten"     "PTGS2"    "PTK2"     "Rsad2"
[157] "RSPO1"    "SELE"     "SFRP1"    "Socs3"    "SPP1"     "SST"
[163] "Stat1"    "Stat3"    "Stat4"    "Stat5"    "Tbx21"    "TEK"
```

```
[169] "TGFB1"    "Tgfbr2"   "TIMP1"    "TIMP2"    "TLR3"     "TLR4"
[175] "TLR7"     "TLR9"     "TNC"      "tnf"      "Tnfaip3"  "tnfrsf1a"
[181] "tnfrsf1b" "TNFSF11"  "Traf2"    "Vav1"     "VCAM1"    "VEGFA"
[187] "VEGFB"    "WNT2B"    "WNT4"     "Zap70"    "ZAP70"    "Zeb2"
```



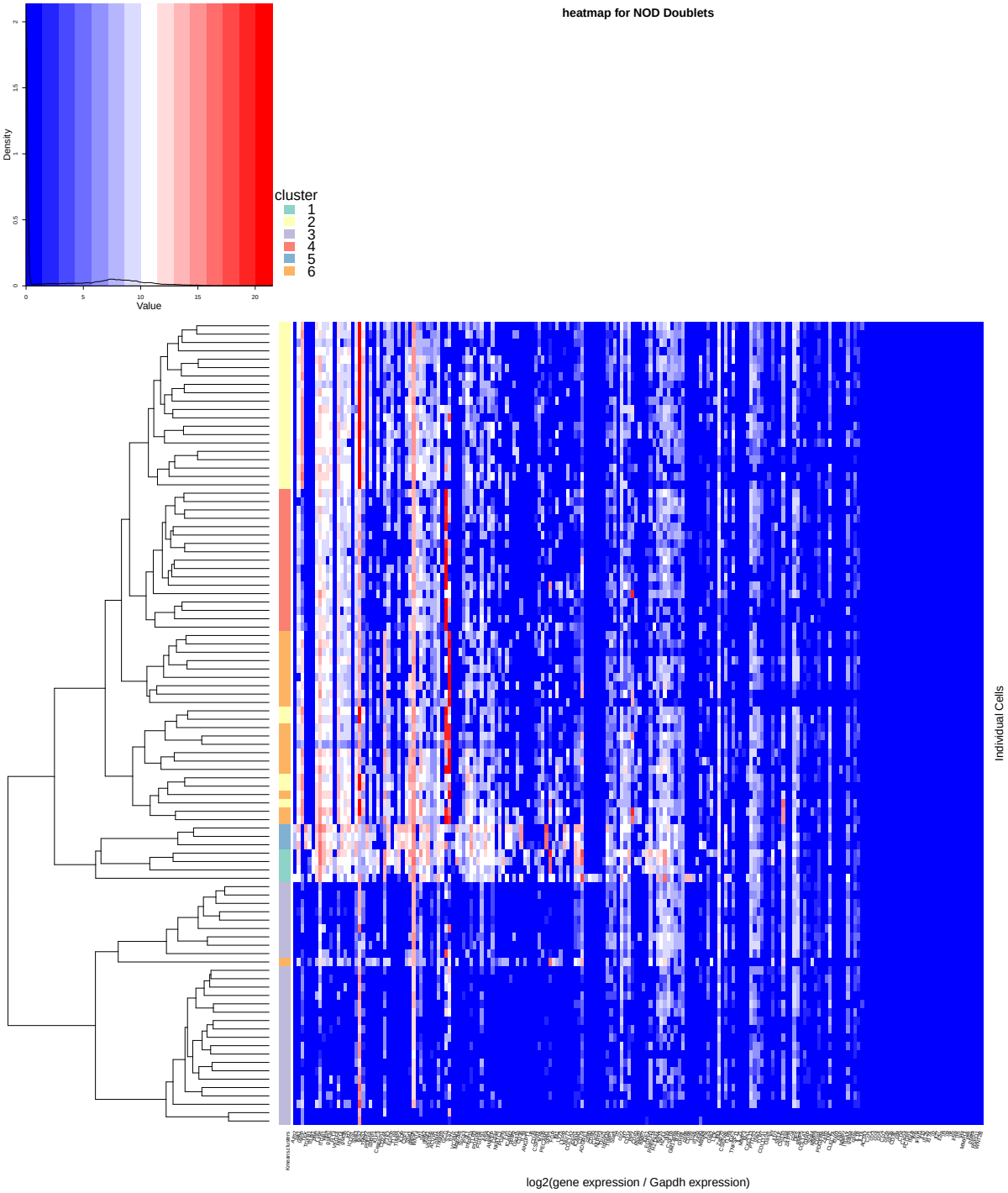

```
[1] "Column Names for ctClust are: "
  [1] "cellSource"      "probe"           "age"             "patient"
  [5] "SPA"             "SPAM"            "SPAMcell"        "cellType"
```

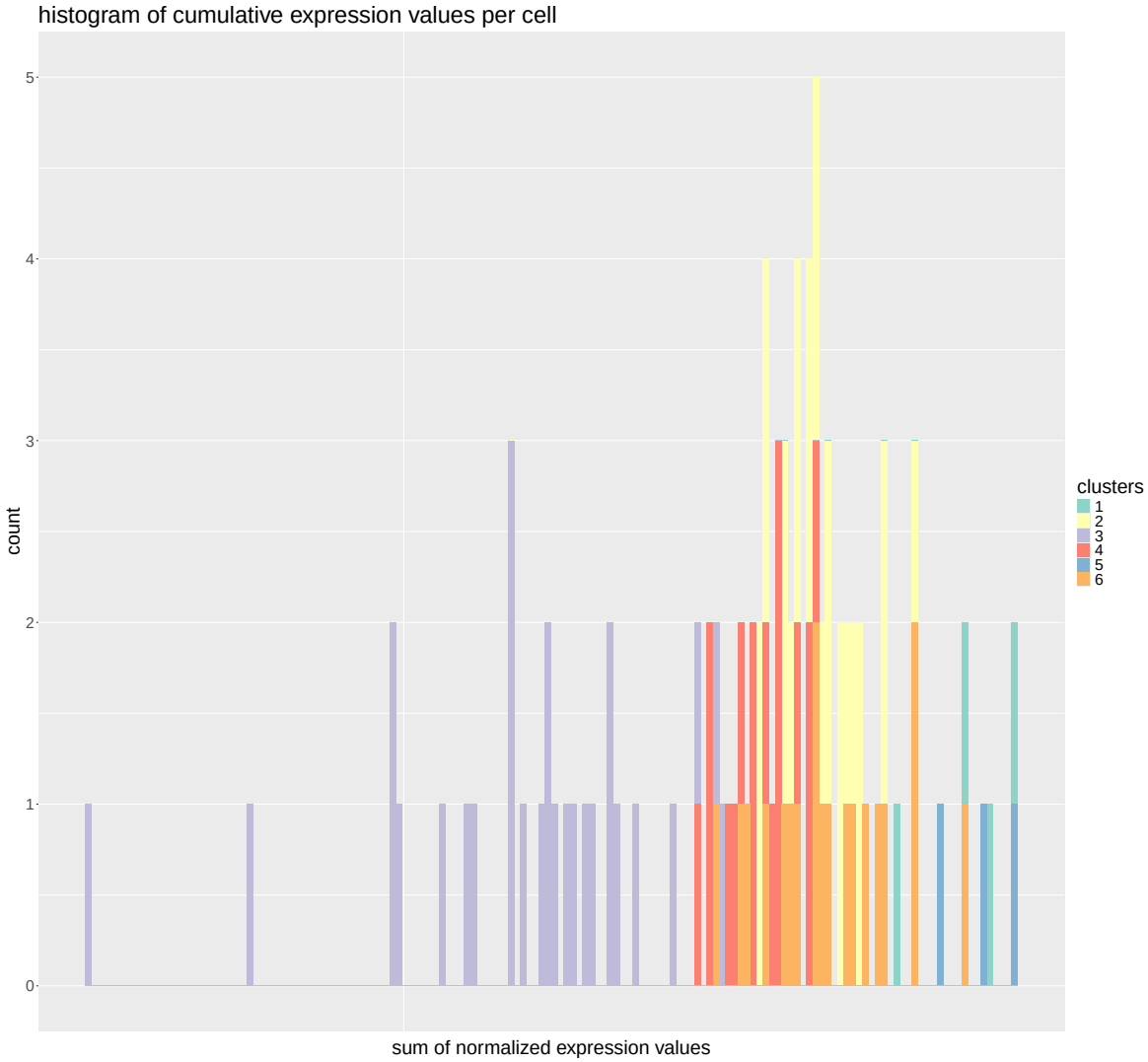
```
 [9] "ACTA2"           "ACVR1"           "ADGRE1"          "Aim2"
[13] "ANGPT1"          "ANPEP"           "Bcl2"            "Bcl6"
[17] "BMP5"            "BMP7"            "Ccr1"            "ccr2"
[21] "ccr3"            "ccr4"            "ccr5"            "ccr6"
[25] "Ccr7"            "CD14"            "CD24A"           "cd28"
[29] "CD36"            "cd3e"            "CD3E"            "cd4"
[33] "CD4"             "cd40"            "Cd44"            "CD44"
[37] "CD74"            "cd80"            "CD80"            "CD83"
[41] "cd86"            "CD86"            "cd8a"            "CD8A"
[45] "Ceacam1"         "CLEC7A"          "COL11A1"         "COL1A1"
[49] "COL1A2"          "CSF1"            "CSF1R"           "CSF2RA"
[53] "CSF2RB"          "ctla4"           "Cxcl10"          "CXCL13"
[57] "Cxcr3"           "Cxcr4"           "DES"             "EGFR"
[61] "FAP"             "FCGR1"           "FGFR1"           "FGFR3"
[65] "FGR"             "FLT4"            "foxp3"           "Fyn"
[69] "gapdh"           "gata4"           "GCG"             "GFAP"
[73] "GHRL"            "GM13889"         "gsk3a"           "gsk3b"
[77] "H2.AA"           "H2.DMA"          "HIF1A"           "Hprt"
[81] "IAPP"            "icam1"           "ICAM1"           "ICAM2"
[85] "Icos"            "ICOSL"           "Ifi44"           "Ifi44l"
[89] "Ifit1"           "Ifit3"           "ifng"            "IFNG"
[93] "Ifngr1"          "IGF1"            "IGF2"            "IL.21"
[97] "il10"            "il12b"           "Il12rb"          "il17A"
[101] "Il18r1"         "IL1A"            "IL1B"            "il1r2"
[105] "il2"            "il25"            "Il27"            "Il27r"
[109] "il2ra"          "il3"             "IL34"            "il4"
[113] "il4ra"          "il5"             "il5ra"           "il6"
[117] "il7"            "il7r"            "INS1"            "INS2"
[121] "Irf1"           "Irf2"            "Irf4"            "Irf7"
[125] "Isg15"          "ITGAX"           "ITGB1"           "Jak1"
[129] "Jak2"           "KDR"             "KLF5"            "LCK"
[133] "LEPR"           "Ly6e"            "LY75"            "Map2k6"
[137] "Mapk8"          "MMP1A"           "MMP2"            "MMP3"
[141] "MMP9"           "Mx1"             "NFATC1"          "nfkb1"
[145] "NLRP3"          "Nur77"           "Oas1b"           "Oas2"
[149] "Oasl1"          "Pd1"             "PDGFA"           "PDGFB"
[153] "PDGFRB"         "Pdl.1"           "PDPN"            "PECAM1"
[157] "ppara"          "pparg"           "ppargc1a"        "PPY"
[161] "pten"           "PTGS2"           "PTK2"            "Rsad2"
[165] "RSPO1"          "SELE"            "SFRP1"           "Socs3"
[169] "SPP1"           "SST"             "Stat1"           "Stat3"
[173] "Stat4"          "Stat5"           "Tbx21"           "TEK"
[177] "TGFB1"          "Tgfbr2"          "TIMP1"           "TIMP2"
[181] "TLR3"           "TLR4"            "TLR7"            "TLR9"
[185] "TNC"            "tnf"             "Tnfaip3"         "tnfrsf1a"
[189] "tnfrsf1b"       "TNFSF11"         "Traf2"           "Vav1"
[193] "VCAM1"          "VEGFA"           "VEGFB"           "WNT2B"
[197] "WNT4"           "Zap70"           "ZAP70"           "Zeb2"
[201] "normFit.cluster"
[1] "Column Numbers for ctClust after moving around the columns:"
 [1] "cellSource"     "probe"          "age"            "patient"
 [5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
 [9] "kmeans.cluster" "ACTA2"          "ACVR1"          "ADGRE1"
[13] "Aim2"           "ANGPT1"         "ANPEP"          "Bcl2"
```

```
 [17] "Bcl6"           "BMP5"           "BMP7"           "Ccr1"
 [21] "ccr2"           "ccr3"           "ccr4"           "ccr5"
 [25] "ccr6"           "Ccr7"           "CD14"           "CD24A"
 [29] "cd28"           "CD36"           "cd3e"           "CD3E"
 [33] "cd4"            "CD4"            "cd40"           "Cd44"
 [37] "CD44"           "CD74"           "cd80"           "CD80"
 [41] "CD83"           "cd86"           "CD86"           "cd8a"
 [45] "CD8A"           "Ceacam1"        "CLEC7A"         "COL11A1"
 [49] "COL1A1"         "COL1A2"         "CSF1"           "CSF1R"
 [53] "CSF2RA"         "CSF2RB"         "ctla4"          "Cxcl10"
 [57] "CXCL13"         "Cxcr3"          "Cxcr4"          "DES"
 [61] "EGFR"           "FAP"            "FCGR1"          "FGFR1"
 [65] "FGFR3"          "FGR"            "FLT4"           "foxp3"
 [69] "Fyn"            "gapdh"          "gata4"          "GCG"
 [73] "GFAP"           "GHRL"           "GM13889"        "gsk3a"
 [77] "gsk3b"          "H2.AA"          "H2.DMA"         "HIF1A"
 [81] "Hprt"           "IAPP"           "icam1"          "ICAM1"
 [85] "ICAM2"          "Icos"           "ICOSL"          "Ifi44"
 [89] "Ifi44l"         "Ifit1"          "Ifit3"          "ifng"
 [93] "IFNG"           "Ifngr1"         "IGF1"           "IGF2"
 [97] "IL.21"          "il10"           "il12b"          "Il12rb"
[101] "il17A"          "Il18r1"         "IL1A"           "IL1B"
[105] "il1r2"          "il2"            "il25"           "Il27"
[109] "Il27r"          "il2ra"          "il3"            "IL34"
[113] "il4"            "il4ra"          "il5"            "il5ra"
[117] "il6"            "il7"            "il7r"           "INS1"
[121] "INS2"           "Irf1"           "Irf2"           "Irf4"
[125] "Irf7"           "Isg15"          "ITGAX"          "ITGB1"
[129] "Jak1"           "Jak2"           "KDR"            "KLF5"
[133] "LCK"            "LEPR"           "Ly6e"           "LY75"
[137] "Map2k6"         "Mapk8"          "MMP1A"          "MMP2"
[141] "MMP3"           "MMP9"           "Mx1"            "NFATC1"
[145] "nfkb1"          "NLRP3"          "Nur77"          "Oas1b"
[149] "Oas2"           "Oasl1"          "Pd1"            "PDGFA"
[153] "PDGFB"          "PDGFRB"         "Pdl.1"          "PDPN"
[157] "PECAM1"         "ppara"          "pparg"          "ppargc1a"
[161] "PPY"            "pten"           "PTGS2"          "PTK2"
[165] "Rsad2"          "RSPO1"          "SELE"           "SFRP1"
[169] "Socs3"          "SPP1"           "SST"            "Stat1"
[173] "Stat3"          "Stat4"          "Stat5"          "Tbx21"
[177] "TEK"            "TGFB1"          "Tgfbr2"         "TIMP1"
[181] "TIMP2"          "TLR3"           "TLR4"           "TLR7"
[185] "TLR9"           "TNC"            "tnf"            "Tnfaip3"
[189] "tnfrsf1a"       "tnfrsf1b"       "TNFSF11"        "Traf2"
[193] "Vav1"           "VCAM1"          "VEGFA"          "VEGFB"
[197] "WNT2B"          "WNT4"           "Zap70"          "ZAP70"
[201] "Zeb2"
[1] "The values in lenghtofkmeans is: 9"
[1] "The length of lengthofkmeans object is 1"
[1] "When heatmapfactor is set to 'kmeans.cluster', the first column being pulled is kmeans.cluster"
[1] "Value laoded into idCols: 9 which corresponds to column kmeans.cluster. The second to last column i
  [1] "cellSource"     "probe"          "age"            "patient"
  [5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
  [9] "kmeans.cluster" "ACTA2"          "ACVR1"          "ADGRE1"
```

```
 [13] "Aim2"          "ANGPT1"        "ANPEP"         "Bcl2"
 [17] "Bcl6"          "BMP5"          "BMP7"          "Ccr1"
 [21] "ccr2"          "ccr3"          "ccr4"          "ccr5"
 [25] "ccr6"          "Ccr7"          "CD14"          "CD24A"
 [29] "cd28"          "CD36"          "cd3e"          "CD3E"
 [33] "cd4"           "CD4"           "cd40"          "Cd44"
 [37] "CD44"          "CD74"          "cd80"          "CD80"
 [41] "CD83"          "cd86"          "CD86"          "cd8a"
 [45] "CD8A"          "Ceacam1"       "CLEC7A"        "COL11A1"
 [49] "COL1A1"        "COL1A2"        "CSF1"          "CSF1R"
 [53] "CSF2RA"        "CSF2RB"        "ctla4"         "Cxcl10"
 [57] "CXCL13"        "Cxcr3"         "Cxcr4"         "DES"
 [61] "EGFR"          "FAP"           "FCGR1"         "FGFR1"
 [65] "FGFR3"         "FGR"           "FLT4"          "foxp3"
 [69] "Fyn"           "gapdh"         "gata4"         "GCG"
 [73] "GFAP"          "GHRL"          "GM13889"       "gsk3a"
 [77] "gsk3b"         "H2.AA"         "H2.DMA"        "HIF1A"
 [81] "Hprt"          "IAPP"          "icam1"         "ICAM1"
 [85] "ICAM2"         "Icos"          "ICOSL"         "Ifi44"
 [89] "Ifi44l"        "Ifit1"         "Ifit3"         "ifng"
 [93] "IFNG"          "Ifngr1"        "IGF1"          "IGF2"
 [97] "IL.21"         "il10"          "il12b"         "Il12rb"
[101] "il17A"         "Il18r1"        "IL1A"          "IL1B"
[105] "il1r2"         "il2"           "il25"          "Il27"
[109] "Il27r"         "il2ra"         "il3"           "IL34"
[113] "il4"           "il4ra"         "il5"           "il5ra"
[117] "il6"           "il7"           "il7r"          "INS1"
[121] "INS2"          "Irf1"          "Irf2"          "Irf4"
[125] "Irf7"          "Isg15"         "ITGAX"         "ITGB1"
[129] "Jak1"          "Jak2"          "KDR"           "KLF5"
[133] "LCK"           "LEPR"          "Ly6e"          "LY75"
[137] "Map2k6"        "Mapk8"         "MMP1A"         "MMP2"
[141] "MMP3"          "MMP9"          "Mx1"           "NFATC1"
[145] "nfkb1"         "NLRP3"         "Nur77"         "Oas1b"
[149] "Oas2"          "Oasl1"         "Pd1"           "PDGFA"
[153] "PDGFB"         "PDGFRB"        "Pdl.1"         "PDPN"
[157] "PECAM1"        "ppara"         "pparg"         "ppargc1a"
[161] "PPY"           "pten"          "PTGS2"         "PTK2"
[165] "Rsad2"         "RSPO1"         "SELE"          "SFRP1"
[169] "Socs3"         "SPP1"          "SST"           "Stat1"
[173] "Stat3"         "Stat4"         "Stat5"         "Tbx21"
[177] "TEK"           "TGFB1"         "Tgfbr2"        "TIMP1"
[181] "TIMP2"         "TLR3"          "TLR4"          "TLR7"
[185] "TLR9"          "TNC"           "tnf"           "Tnfaip3"
[189] "tnfrsf1a"      "tnfrsf1b"      "TNFSF11"       "Traf2"
[193] "Vav1"          "VCAM1"         "VEGFA"         "VEGFB"
[197] "WNT2B"         "WNT4"          "Zap70"         "ZAP70"
[201] "Zeb2"
  [1]   4 120  73 168 169  93 153 126 119  72  67  58 186  71  68 114  78 164
 [19] 112 111 170 143 159 123  37  19 155  52 174 172 122  42 163  61 189 113
 [37] 121  85 187   2 136 179  63 162 100 185 128 160 146 180 173 144  55 105
 [55] 183   6  27 135 147  60  76 150 139  21 103   5 108  28  44   8 148 161
 [73]  57  81 127 125 138  41  74  75  29   3  30  31  49 137 167 181 171 166
 [91] 109  12 116  18 152  32 156  10  86  56 151  70 117  69  79  43  66   7
```

```
[109]  65  33  34  77  91  26 129  98 140 124  82 190  45 176  87 182  88 132
[127] 134  48 154 184 175  39 141 178  96 158  47  46 191  16  51   9  40  64
[145] 165 133  36 145 192 177  38  59  53 131 118  62  35  95  94   1  11  13
[163]  14  15  17  20  22  23  24  25  50  54  80  83  84  89  90  92  97  99
[181] 101 102 104 106 107 110 115 130 142 149 157 188
[1] "Length of pvals is 192"
    uniqueAges     colorsList
      "islets" "deepskyblue2"
     [,1]     [,2]
[1,] "islets" "deepskyblue2"
uniqueSources    colorsList
     "tissue"            NA
[1] "The value in idCols is 9 which should be the 'kmeans' column"
[1] "The value in  and the first column for the heatmap is Aim2. The last gene is: WNT2B"
 chr [1:96, 1] "#BEBADA" "#BEBADA" "#BEBADA" "#BEBADA" "#BEBADA" "#BEBADA" ...
 - attr(*, "dimnames")=List of 2
  ..$ : NULL
  ..$ : chr "Kmeans.clusters"
```


heatmap for NOD Doublets
Density
Value
cluster
1
2
3
4
5
6
Individual Cells
log2(gene expression / Gapdh expression)



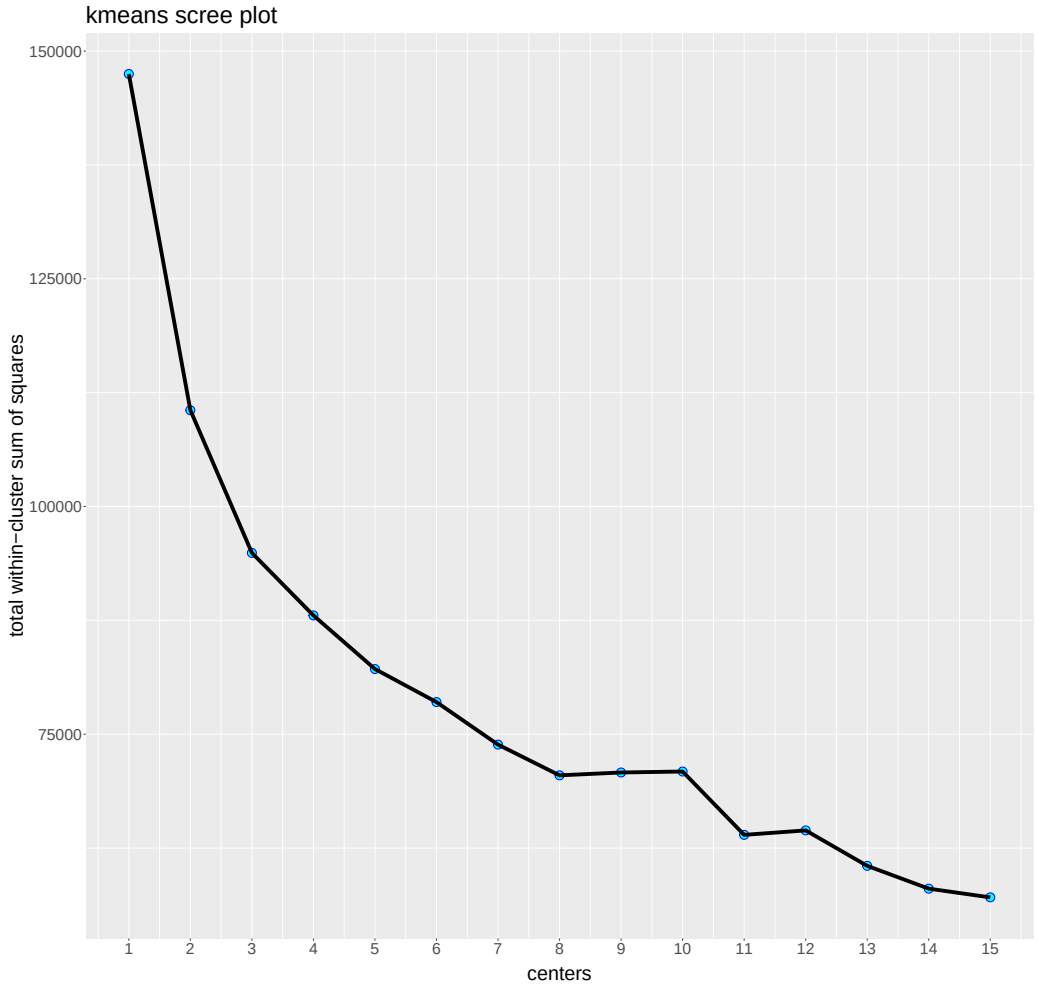

```
[1] "Column Names are: "
  [1] "cellSource"     "probe"          "age"            "patient"
  [5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
  [9] "kmeans.cluster" "Aim2"           "Jak1"           "IAPP"
 [13] "TEK"            "TGFB1"          "Il18r1"         "pten"
 [17] "Ly6e"           "ITGB1"          "Hprt"           "gsk3a"
 [21] "FLT4"           "VEGFA"          "HIF1A"          "gsk3b"
 [25] "Irf2"           "ICOSL"          "Stat3"          "INS2"
```

```
 [29] "INS1"           "Tgfbr2"         "PDGFA"          "SFRP1"
 [33] "KLF5"           "Ceacam1"        "CD24A"          "PTK2"
 [37] "EGFR"           "TLR4"           "TIMP2"          "KDR"
 [41] "CSF1"           "Stat1"          "gapdh"          "WNT4"
 [45] "Irf1"           "Jak2"           "Ifngr1"         "VEGFB"
 [49] "ACVR1"          "nfkb1"          "Tnfaip3"        "GCG"
 [53] "SST"            "Il27r"          "VCAM1"          "Map2k6"
 [57] "Socs3"          "Pdl.1"          "tnfrsf1a"       "TLR3"
 [61] "PDGFB"          "FGFR1"          "il4ra"          "Traf2"
 [65] "ANPEP"          "Cd44"           "NFATC1"         "PDPN"
 [69] "Fyn"            "ICAM2"          "pparg"          "Oas1b"
 [73] "CD36"           "IL34"           "ANGPT1"         "il6"
 [77] "CD44"           "CSF2RA"         "Bcl6"           "PECAM1"
 [81] "SPP1"           "FGR"            "Ifit1"          "LY75"
 [85] "LEPR"           "Nur77"          "COL1A2"         "icam1"
 [89] "ICAM1"          "CD74"           "ADGRE1"         "cd80"
 [93] "CD80"           "Cxcr3"          "NLRP3"          "Tbx21"
 [97] "tnfrsf1b"       "TIMP1"          "Stat5"          "il7"
[101] "ccr2"           "Irf7"           "CD14"           "PPY"
[105] "CD83"           "Rsad2"          "BMP7"           "IGF1"
[109] "FGFR3"          "ppargc1a"       "H2.DMA"         "Isg15"
[113] "H2.AA"          "Ifi44"          "CSF1R"          "GM13889"
[117] "Bcl2"           "GHRL"           "cd86"           "CD86"
[121] "Icos"           "Il12rb"         "cd40"           "Mapk8"
[125] "il25"           "Oas2"           "LCK"            "Ifit3"
[129] "Zap70"          "CSF2RB"         "TLR9"           "IGF2"
[133] "TNFSF11"        "IL.21"          "MMP3"           "Mx1"
[137] "CXCL13"         "PTGS2"          "Vav1"           "TLR7"
[141] "COL11A1"        "Oasl1"          "tnf"            "il1r2"
[145] "SELE"           "Cxcl10"         "ctla4"          "ZAP70"
[149] "ccr6"           "DES"            "BMP5"           "COL1A1"
[153] "GFAP"           "Stat4"          "MMP9"           "CD8A"
[157] "PDGFRB"         "Zeb2"           "TNC"            "CLEC7A"
[161] "foxp3"          "FAP"            "MMP2"           "ITGAX"
[165] "gata4"          "cd8a"           "IL1B"           "IL1A"
[169] "ACTA2"          "Ccr1"           "ccr3"           "ccr4"
[173] "ccr5"           "Ccr7"           "cd28"           "cd3e"
[177] "CD3E"           "cd4"            "CD4"            "Cxcr4"
[181] "FCGR1"          "Ifi44l"         "ifng"           "IFNG"
[185] "il10"           "il12b"          "il17A"          "il2"
[189] "Il27"           "il2ra"          "il3"            "il4"
[193] "il5"            "il5ra"          "il7r"           "Irf4"
[197] "MMP1A"          "Pd1"            "ppara"          "RSPO1"
[201] "WNT2B"
[1] TRUE
[1] FALSE
[1] TRUE
[1] FALSE
[1] "The panel determined in the 'Panel Detection' tests, in the 'clusterFilter.R' script, is 1"
[1] "Warning! The panel detected and the panel number input by the user are not the same!"

 [1] "cellSource"     "probe"          "age"            "patient"
 [5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
 [9] "kmeans.cluster" "Aim2"           "Jak1"           "IAPP"
```

```
 [13] "TEK"           "TGFB1"         "Il18r1"        "pten"
 [17] "Ly6e"          "ITGB1"         "Hprt"          "gsk3a"
 [21] "FLT4"          "VEGFA"         "HIF1A"         "gsk3b"
 [25] "Irf2"          "ICOSL"         "Stat3"         "INS2"
 [29] "INS1"          "Tgfbr2"        "PDGFA"         "SFRP1"
 [33] "KLF5"          "Ceacam1"       "CD24A"         "PTK2"
 [37] "EGFR"          "TLR4"          "TIMP2"         "KDR"
 [41] "CSF1"          "Stat1"         "gapdh"         "WNT4"
 [45] "Irf1"          "Jak2"          "Ifngr1"        "VEGFB"
 [49] "ACVR1"         "nfkb1"         "Tnfaip3"       "GCG"
 [53] "SST"           "Il27r"         "VCAM1"         "Map2k6"
 [57] "Socs3"         "Pdl.1"         "tnfrsf1a"      "TLR3"
 [61] "PDGFB"         "FGFR1"         "il4ra"         "Traf2"
 [65] "ANPEP"         "Cd44"          "NFATC1"        "PDPN"
 [69] "Fyn"           "ICAM2"         "pparg"         "Oas1b"
 [73] "CD36"          "IL34"          "ANGPT1"        "il6"
 [77] "CD44"          "CSF2RA"        "Bcl6"          "PECAM1"
 [81] "SPP1"          "FGR"           "Ifit1"         "LY75"
 [85] "LEPR"          "Nur77"         "COL1A2"        "icam1"
 [89] "ICAM1"         "CD74"          "ADGRE1"        "cd80"
 [93] "CD80"          "Cxcr3"         "NLRP3"         "Tbx21"
 [97] "tnfrsf1b"      "TIMP1"         "Stat5"         "il7"
[101] "ccr2"          "Irf7"          "CD14"          "PPY"
[105] "CD83"          "Rsad2"         "BMP7"          "IGF1"
[109] "FGFR3"         "ppargc1a"      "H2.DMA"        "Isg15"
[113] "H2.AA"         "Ifi44"         "CSF1R"         "GM13889"
[117] "Bcl2"          "GHRL"          "cd86"          "CD86"
[121] "Icos"          "Il12rb"        "cd40"          "Mapk8"
[125] "il25"          "Oas2"          "LCK"           "Ifit3"
[129] "Zap70"         "CSF2RB"        "TLR9"          "IGF2"
[133] "TNFSF11"       "IL.21"         "MMP3"          "Mx1"
[137] "CXCL13"        "PTGS2"         "Vav1"          "TLR7"
[141] "COL11A1"       "Oasl1"         "tnf"           "il1r2"
[145] "SELE"          "Cxcl10"        "ctla4"         "ZAP70"
[149] "ccr6"          "DES"           "BMP5"          "COL1A1"
[153] "GFAP"          "Stat4"         "MMP9"          "CD8A"
[157] "PDGFRB"        "Zeb2"          "TNC"           "CLEC7A"
[161] "foxp3"         "FAP"           "MMP2"          "ITGAX"
[165] "gata4"         "cd8a"          "IL1B"          "IL1A"
[169] "ACTA2"         "Ccr1"          "ccr3"          "ccr4"
[173] "ccr5"          "Ccr7"          "cd28"          "cd3e"
[177] "CD3E"          "cd4"           "CD4"           "Cxcr4"
[181] "FCGR1"         "Ifi44l"        "ifng"          "IFNG"
[185] "il10"          "il12b"         "il17A"         "il2"
[189] "Il27"          "il2ra"         "il3"           "il4"
[193] "il5"           "il5ra"         "il7r"          "Irf4"
[197] "MMP1A"         "Pd1"           "ppara"         "RSPO1"
[201] "WNT2B"
[1] "Which genes are dashed in the panel?  IL-21 Pdl-1"
[1] "Test 1 is FALSE"
[1] "Test 2 is FALSE"
[1] "Test1and2 is FALSE"
[1] "Test3 is FALSE"
[1] "The first column you'll pull is: Aim2"
```

```
[1] "The last column you'll pull is: WNT2B"
  [1] "Aim2"     "Jak1"     "IAPP"     "TEK"      "TGFB1"    "Il18r1"
  [7] "pten"     "Ly6e"     "ITGB1"    "Hprt"     "gsk3a"    "FLT4"
 [13] "VEGFA"    "HIF1A"    "gsk3b"    "Irf2"     "ICOSL"    "Stat3"
 [19] "INS2"     "INS1"     "Tgfbr2"   "PDGFA"    "SFRP1"    "KLF5"
 [25] "Ceacam1"  "CD24A"    "PTK2"     "EGFR"     "TLR4"     "TIMP2"
 [31] "KDR"      "CSF1"     "Stat1"    "gapdh"    "WNT4"     "Irf1"
 [37] "Jak2"     "Ifngr1"   "VEGFB"    "ACVR1"    "nfkb1"    "Tnfaip3"
 [43] "GCG"      "SST"      "Il27r"    "VCAM1"    "Map2k6"   "Socs3"
 [49] "Pdl-1"    "tnfrsf1a" "TLR3"     "PDGFB"    "FGFR1"    "il4ra"
 [55] "Traf2"    "ANPEP"    "Cd44"     "NFATC1"   "PDPN"     "Fyn"
 [61] "ICAM2"    "pparg"    "Oas1b"    "CD36"     "IL34"     "ANGPT1"
 [67] "il6"      "CD44"     "CSF2RA"   "Bcl6"     "PECAM1"   "SPP1"
 [73] "FGR"      "Ifit1"    "LY75"     "LEPR"     "Nur77"    "COL1A2"
 [79] "icam1"    "ICAM1"    "CD74"     "ADGRE1"   "cd80"     "CD80"
 [85] "Cxcr3"    "NLRP3"    "Tbx21"    "tnfrsf1b" "TIMP1"    "Stat5"
 [91] "il7"      "ccr2"     "Irf7"     "CD14"     "PPY"      "CD83"
 [97] "Rsad2"    "BMP7"     "IGF1"     "FGFR3"    "ppargc1a" "H2.DMA"
[103] "Isg15"    "H2.AA"    "Ifi44"    "CSF1R"    "GM13889"  "Bcl2"
[109] "GHRL"     "cd86"     "CD86"     "Icos"     "Il12rb"   "cd40"
[115] "Mapk8"    "il25"     "Oas2"     "LCK"      "Ifit3"    "Zap70"
[121] "CSF2RB"   "TLR9"     "IGF2"     "TNFSF11"  "IL-21"    "MMP3"
[127] "Mx1"      "CXCL13"   "PTGS2"    "Vav1"     "TLR7"     "COL11A1"
[133] "Oasl1"    "tnf"      "il1r2"    "SELE"     "Cxcl10"   "ctla4"
[139] "ZAP70"    "ccr6"     "DES"      "BMP5"     "COL1A1"   "GFAP"
[145] "Stat4"    "MMP9"     "CD8A"     "PDGFRB"   "Zeb2"     "TNC"
[151] "CLEC7A"   "foxp3"    "FAP"      "MMP2"     "ITGAX"    "gata4"
[157] "cd8a"     "IL1B"     "IL1A"     "ACTA2"    "Ccr1"     "ccr3"
[163] "ccr4"     "ccr5"     "Ccr7"     "cd28"     "cd3e"     "CD3E"
[169] "cd4"      "CD4"      "Cxcr4"    "FCGR1"    "Ifi44l"   "ifng"
[175] "IFNG"     "il10"     "il12b"    "il17A"    "il2"      "Il27"
[181] "il2ra"    "il3"      "il4"      "il5"      "il5ra"    "il7r"
[187] "Irf4"     "MMP1A"    "Pd1"      "ppara"    "RSPO1"    "WNT2B"
[1] "PanelNumber equals: 1 . Columns to be sent for kmeans testing:  Aim2  and  WNT2B"
[1] "Column names after searching for the column pattern and after selecting the right columns. The foll
  [1] "Aim2"     "Jak1"     "IAPP"     "TEK"      "TGFB1"    "Il18r1"
  [7] "pten"     "Ly6e"     "ITGB1"    "Hprt"     "gsk3a"    "FLT4"
 [13] "VEGFA"    "HIF1A"    "gsk3b"    "Irf2"     "ICOSL"    "Stat3"
 [19] "INS2"     "INS1"     "Tgfbr2"   "PDGFA"    "SFRP1"    "KLF5"
 [25] "Ceacam1"  "CD24A"    "PTK2"     "EGFR"     "TLR4"     "TIMP2"
 [31] "KDR"      "CSF1"     "Stat1"    "gapdh"    "WNT4"     "Irf1"
 [37] "Jak2"     "Ifngr1"   "VEGFB"    "ACVR1"    "nfkb1"    "Tnfaip3"
 [43] "GCG"      "SST"      "Il27r"    "VCAM1"    "Map2k6"   "Socs3"
 [49] "Pdl-1"    "tnfrsf1a" "TLR3"     "PDGFB"    "FGFR1"    "il4ra"
 [55] "Traf2"    "ANPEP"    "Cd44"     "NFATC1"   "PDPN"     "Fyn"
 [61] "ICAM2"    "pparg"    "Oas1b"    "CD36"     "IL34"     "ANGPT1"
 [67] "il6"      "CD44"     "CSF2RA"   "Bcl6"     "PECAM1"   "SPP1"
 [73] "FGR"      "Ifit1"    "LY75"     "LEPR"     "Nur77"    "COL1A2"
 [79] "icam1"    "ICAM1"    "CD74"     "ADGRE1"   "cd80"     "CD80"
 [85] "Cxcr3"    "NLRP3"    "Tbx21"    "tnfrsf1b" "TIMP1"    "Stat5"
 [91] "il7"      "ccr2"     "Irf7"     "CD14"     "PPY"      "CD83"
 [97] "Rsad2"    "BMP7"     "IGF1"     "FGFR3"    "ppargc1a" "H2.DMA"
[103] "Isg15"    "H2.AA"    "Ifi44"    "CSF1R"    "GM13889"  "Bcl2"
[109] "GHRL"     "cd86"     "CD86"     "Icos"     "Il12rb"   "cd40"
```

```
[115] "Mapk8"    "il25"     "Oas2"     "LCK"      "Ifit3"    "Zap70"
[121] "CSF2RB"   "TLR9"     "IGF2"     "TNFSF11"  "IL-21"    "MMP3"
[127] "Mx1"      "CXCL13"   "PTGS2"    "Vav1"     "TLR7"     "COL11A1"
[133] "Oasl1"    "tnf"      "il1r2"    "SELE"     "Cxcl10"   "ctla4"
[139] "ZAP70"    "ccr6"     "DES"      "BMP5"     "COL1A1"   "GFAP"
[145] "Stat4"    "MMP9"     "CD8A"     "PDGFRB"   "Zeb2"     "TNC"
[151] "CLEC7A"   "foxp3"    "FAP"      "MMP2"     "ITGAX"    "gata4"
[157] "cd8a"     "IL1B"     "IL1A"     "ACTA2"    "Ccr1"     "ccr3"
[163] "ccr4"     "ccr5"     "Ccr7"     "cd28"     "cd3e"     "CD3E"
[169] "cd4"      "CD4"      "Cxcr4"    "FCGR1"    "Ifi44l"   "ifng"
[175] "IFNG"     "il10"     "il12b"    "il17A"    "il2"      "Il27"
[181] "il2ra"    "il3"      "il4"      "il5"      "il5ra"    "il7r"
[187] "Irf4"     "MMP1A"    "Pd1"      "ppara"    "RSPO1"    "WNT2B"
```




```
[1] "Column Names for ctClust after adding the 'normFit$cluster' to the dataframe are: "
  [1] "cellSource"      "probe"           "age"             "patient"
  [5] "SPA"             "SPAM"            "SPAMcell"        "cellType"
  [9] "kmeans.cluster"  "Aim2"            "Jak1"            "IAPP"
 [13] "TEK"             "TGFB1"           "Il18r1"          "pten"
 [17] "Ly6e"            "ITGB1"           "Hprt"            "gsk3a"
 [21] "FLT4"            "VEGFA"           "HIF1A"           "gsk3b"
 [25] "Irf2"            "ICOSL"           "Stat3"           "INS2"
```

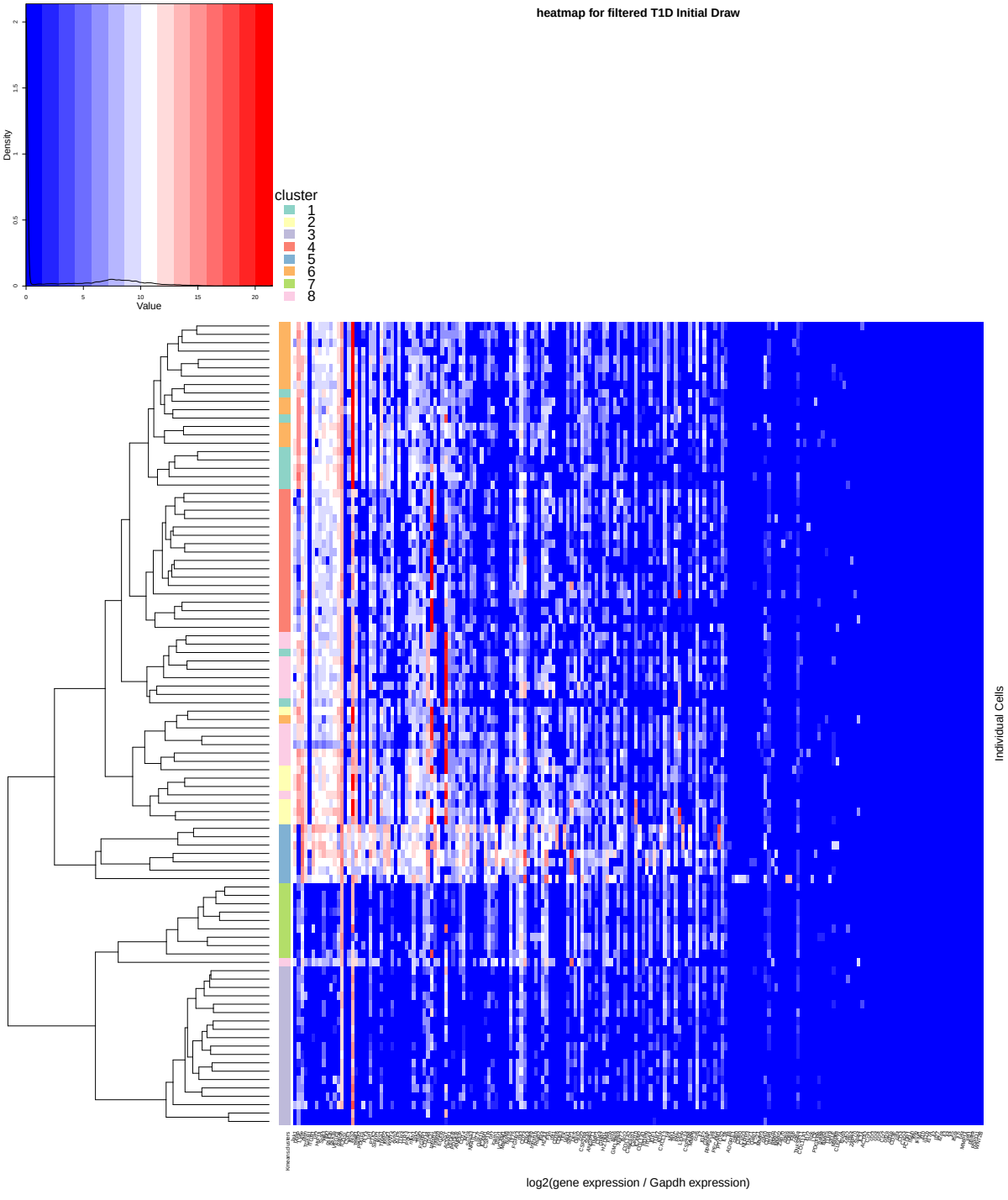
```
 [29] "INS1"            "Tgfbr2"          "PDGFA"           "SFRP1"
 [33] "KLF5"            "Ceacam1"         "CD24A"           "PTK2"
 [37] "EGFR"            "TLR4"            "TIMP2"           "KDR"
 [41] "CSF1"            "Stat1"           "gapdh"           "WNT4"
 [45] "Irf1"            "Jak2"            "Ifngr1"          "VEGFB"
 [49] "ACVR1"           "nfkb1"           "Tnfaip3"         "GCG"
 [53] "SST"             "Il27r"           "VCAM1"           "Map2k6"
 [57] "Socs3"           "Pdl-1"           "tnfrsf1a"        "TLR3"
 [61] "PDGFB"           "FGFR1"           "il4ra"           "Traf2"
 [65] "ANPEP"           "Cd44"            "NFATC1"          "PDPN"
 [69] "Fyn"             "ICAM2"           "pparg"           "Oas1b"
 [73] "CD36"            "IL34"            "ANGPT1"          "il6"
 [77] "CD44"            "CSF2RA"          "Bcl6"            "PECAM1"
 [81] "SPP1"            "FGR"             "Ifit1"           "LY75"
 [85] "LEPR"            "Nur77"           "COL1A2"          "icam1"
 [89] "ICAM1"           "CD74"            "ADGRE1"          "cd80"
 [93] "CD80"            "Cxcr3"           "NLRP3"           "Tbx21"
 [97] "tnfrsf1b"        "TIMP1"           "Stat5"           "il7"
[101] "ccr2"            "Irf7"            "CD14"            "PPY"
[105] "CD83"            "Rsad2"           "BMP7"            "IGF1"
[109] "FGFR3"           "ppargc1a"        "H2.DMA"          "Isg15"
[113] "H2.AA"           "Ifi44"           "CSF1R"           "GM13889"
[117] "Bcl2"            "GHRL"            "cd86"            "CD86"
[121] "Icos"            "Il12rb"          "cd40"            "Mapk8"
[125] "il25"            "Oas2"            "LCK"             "Ifit3"
[129] "Zap70"           "CSF2RB"          "TLR9"            "IGF2"
[133] "TNFSF11"         "IL-21"           "MMP3"            "Mx1"
[137] "CXCL13"          "PTGS2"           "Vav1"            "TLR7"
[141] "COL11A1"         "Oasl1"           "tnf"             "il1r2"
[145] "SELE"            "Cxcl10"          "ctla4"           "ZAP70"
[149] "ccr6"            "DES"             "BMP5"            "COL1A1"
[153] "GFAP"            "Stat4"           "MMP9"            "CD8A"
[157] "PDGFRB"          "Zeb2"            "TNC"             "CLEC7A"
[161] "foxp3"           "FAP"             "MMP2"            "ITGAX"
[165] "gata4"           "cd8a"            "IL1B"            "IL1A"
[169] "ACTA2"           "Ccr1"            "ccr3"            "ccr4"
[173] "ccr5"            "Ccr7"            "cd28"            "cd3e"
[177] "CD3E"            "cd4"             "CD4"             "Cxcr4"
[181] "FCGR1"           "Ifi44l"          "ifng"            "IFNG"
[185] "il10"            "il12b"           "il17A"           "il2"
[189] "Il27"            "il2ra"           "il3"             "il4"
[193] "il5"             "il5ra"           "il7r"            "Irf4"
[197] "MMP1A"           "Pd1"             "ppara"           "RSPO1"
[201] "WNT2B"           "normFit$cluster"
[1] "Column Numbers for ctClust after moving around the columns:"
  [1] "cellSource"     "probe"          "age"            "patient"
  [5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
  [9] "kmeans.cluster" "Aim2"           "Jak1"           "IAPP"
 [13] "TEK"            "TGFB1"          "Il18r1"         "pten"
 [17] "Ly6e"           "ITGB1"          "Hprt"           "gsk3a"
 [21] "FLT4"           "VEGFA"          "HIF1A"          "gsk3b"
 [25] "Irf2"           "ICOSL"          "Stat3"          "INS2"
 [29] "INS1"           "Tgfbr2"         "PDGFA"          "SFRP1"
 [33] "KLF5"           "Ceacam1"        "CD24A"          "PTK2"
```

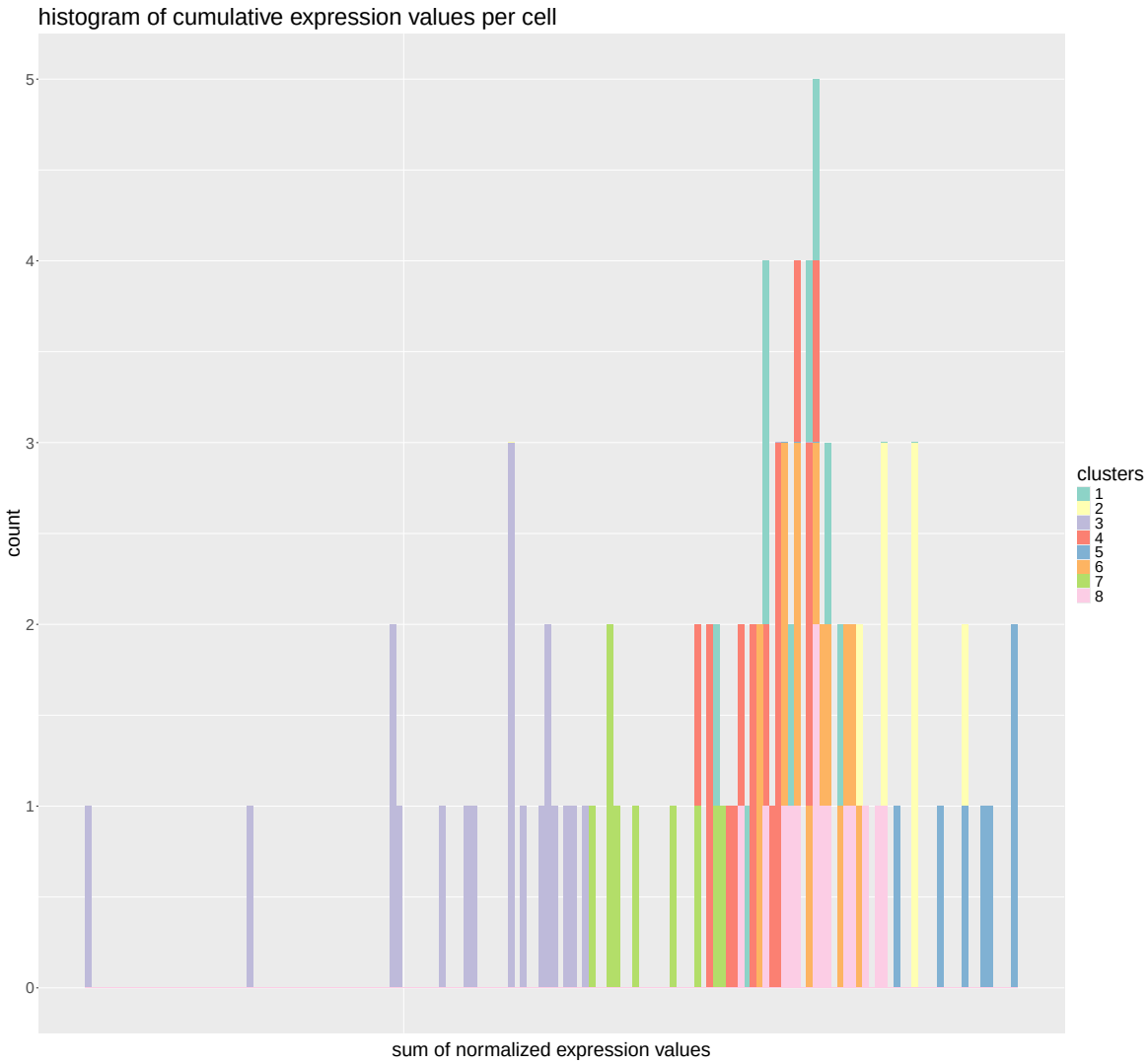
```
 [37] "EGFR"           "TLR4"           "TIMP2"          "KDR"
 [41] "CSF1"           "Stat1"          "gapdh"          "WNT4"
 [45] "Irf1"           "Jak2"           "Ifngr1"         "VEGFB"
 [49] "ACVR1"          "nfkb1"          "Tnfaip3"        "GCG"
 [53] "SST"            "Il27r"          "VCAM1"          "Map2k6"
 [57] "Socs3"          "Pdl-1"          "tnfrsf1a"       "TLR3"
 [61] "PDGFB"          "FGFR1"          "il4ra"          "Traf2"
 [65] "ANPEP"          "Cd44"           "NFATC1"         "PDPN"
 [69] "Fyn"            "ICAM2"          "pparg"          "Oas1b"
 [73] "CD36"           "IL34"           "ANGPT1"         "il6"
 [77] "CD44"           "CSF2RA"         "Bcl6"           "PECAM1"
 [81] "SPP1"           "FGR"            "Ifit1"          "LY75"
 [85] "LEPR"           "Nur77"          "COL1A2"         "icam1"
 [89] "ICAM1"          "CD74"           "ADGRE1"         "cd80"
 [93] "CD80"           "Cxcr3"          "NLRP3"          "Tbx21"
 [97] "tnfrsf1b"       "TIMP1"          "Stat5"          "il7"
[101] "ccr2"           "Irf7"           "CD14"           "PPY"
[105] "CD83"           "Rsad2"          "BMP7"           "IGF1"
[109] "FGFR3"          "ppargc1a"       "H2.DMA"         "Isg15"
[113] "H2.AA"          "Ifi44"          "CSF1R"          "GM13889"
[117] "Bcl2"           "GHRL"           "cd86"           "CD86"
[121] "Icos"           "Il12rb"         "cd40"           "Mapk8"
[125] "il25"           "Oas2"           "LCK"            "Ifit3"
[129] "Zap70"          "CSF2RB"         "TLR9"           "IGF2"
[133] "TNFSF11"        "IL-21"          "MMP3"           "Mx1"
[137] "CXCL13"         "PTGS2"          "Vav1"           "TLR7"
[141] "COL11A1"        "Oasl1"          "tnf"            "il1r2"
[145] "SELE"           "Cxcl10"         "ctla4"          "ZAP70"
[149] "ccr6"           "DES"            "BMP5"           "COL1A1"
[153] "GFAP"           "Stat4"          "MMP9"           "CD8A"
[157] "PDGFRB"         "Zeb2"           "TNC"            "CLEC7A"
[161] "foxp3"          "FAP"            "MMP2"           "ITGAX"
[165] "gata4"          "cd8a"           "IL1B"           "IL1A"
[169] "ACTA2"          "Ccr1"           "ccr3"           "ccr4"
[173] "ccr5"           "Ccr7"           "cd28"           "cd3e"
[177] "CD3E"           "cd4"            "CD4"            "Cxcr4"
[181] "FCGR1"          "Ifi44l"         "ifng"           "IFNG"
[185] "il10"           "il12b"          "il17A"          "il2"
[189] "Il27"           "il2ra"          "il3"            "il4"
[193] "il5"            "il5ra"          "il7r"           "Irf4"
[197] "MMP1A"          "Pd1"            "ppara"          "RSPO1"
[201] "WNT2B"
[1] "The values in lenghtofkmeans is: 9"
[1] "The length of lengthofkmeans object is 1"
[1] "When heatmapfactor is set to 'kmeans.cluster', the first column being pulled is kmeans.cluster"
[1] "Value laoded into idCols: 9 which corresponds to column kmeans.cluster. The last column name is: W
  [1] "cellSource"     "probe"          "age"            "patient"
  [5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
  [9] "kmeans.cluster" "Aim2"           "Jak1"           "IAPP"
 [13] "TEK"            "TGFB1"          "Il18r1"         "pten"
 [17] "Ly6e"           "ITGB1"          "Hprt"           "gsk3a"
 [21] "FLT4"           "VEGFA"          "HIF1A"          "gsk3b"
 [25] "Irf2"           "ICOSL"          "Stat3"          "INS2"
 [29] "INS1"           "Tgfbr2"         "PDGFA"          "SFRP1"
```

```
 [33] "KLF5"           "Ceacam1"        "CD24A"          "PTK2"
 [37] "EGFR"           "TLR4"           "TIMP2"          "KDR"
 [41] "CSF1"           "Stat1"          "gapdh"          "WNT4"
 [45] "Irf1"           "Jak2"           "Ifngr1"         "VEGFB"
 [49] "ACVR1"          "nfkb1"          "Tnfaip3"        "GCG"
 [53] "SST"            "Il27r"          "VCAM1"          "Map2k6"
 [57] "Socs3"          "Pdl-1"          "tnfrsf1a"       "TLR3"
 [61] "PDGFB"          "FGFR1"          "il4ra"          "Traf2"
 [65] "ANPEP"          "Cd44"           "NFATC1"         "PDPN"
 [69] "Fyn"            "ICAM2"          "pparg"          "Oas1b"
 [73] "CD36"           "IL34"           "ANGPT1"         "il6"
 [77] "CD44"           "CSF2RA"         "Bcl6"           "PECAM1"
 [81] "SPP1"           "FGR"            "Ifit1"          "LY75"
 [85] "LEPR"           "Nur77"          "COL1A2"         "icam1"
 [89] "ICAM1"          "CD74"           "ADGRE1"         "cd80"
 [93] "CD80"           "Cxcr3"          "NLRP3"          "Tbx21"
 [97] "tnfrsf1b"       "TIMP1"          "Stat5"          "il7"
[101] "ccr2"           "Irf7"           "CD14"           "PPY"
[105] "CD83"           "Rsad2"          "BMP7"           "IGF1"
[109] "FGFR3"          "ppargc1a"       "H2.DMA"         "Isg15"
[113] "H2.AA"          "Ifi44"          "CSF1R"          "GM13889"
[117] "Bcl2"           "GHRL"           "cd86"           "CD86"
[121] "Icos"           "Il12rb"         "cd40"           "Mapk8"
[125] "il25"           "Oas2"           "LCK"            "Ifit3"
[129] "Zap70"          "CSF2RB"         "TLR9"           "IGF2"
[133] "TNFSF11"        "IL-21"          "MMP3"           "Mx1"
[137] "CXCL13"         "PTGS2"          "Vav1"           "TLR7"
[141] "COL11A1"        "Oasl1"          "tnf"            "il1r2"
[145] "SELE"           "Cxcl10"         "ctla4"          "ZAP70"
[149] "ccr6"           "DES"            "BMP5"           "COL1A1"
[153] "GFAP"           "Stat4"          "MMP9"           "CD8A"
[157] "PDGFRB"         "Zeb2"           "TNC"            "CLEC7A"
[161] "foxp3"          "FAP"            "MMP2"           "ITGAX"
[165] "gata4"          "cd8a"           "IL1B"           "IL1A"
[169] "ACTA2"          "Ccr1"           "ccr3"           "ccr4"
[173] "ccr5"           "Ccr7"           "cd28"           "cd3e"
[177] "CD3E"           "cd4"            "CD4"            "Cxcr4"
[181] "FCGR1"          "Ifi44l"         "ifng"           "IFNG"
[185] "il10"           "il12b"          "il17A"          "il2"
[189] "Il27"           "il2ra"          "il3"            "il4"
[193] "il5"            "il5ra"          "il7r"           "Irf4"
[197] "MMP1A"          "Pd1"            "ppara"          "RSPO1"
[201] "WNT2B"
  [1]   2   3   8   7   5   9  16  14  18  10  15  11  13  34  17  32  19  33
 [19]  21  22  12  36  27  23  20  30  38  35   1  24  29  51  49  41  37  55
 [37]  53  26  43  50  42  28  44  40  39  52  56  94  54  48  58  45  63  80
 [55] 106  93  79   6  46  47 103  75 100 119  81  57  62  88  97 105 104  60
 [73]  74  64  96   4 130  72 141 117  92  69  90  66  89  68 109 102  73  70
 [91] 107  77 108  78  25 137  61 143  59 155  99 131  31 128 134 127 150  95
[109]  76  65 121 146 140  91 123 144 101 116  71 129 158  67  82  83  84  85
[127]  86  87 133 125 126 114 147 113  98 154 120 110 111 153 157 124 132 135
[145] 112 118 148 156 142 122 136 115 151 152 149 138 139 145 159 160 161 162
[163] 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180
[181] 181 182 183 184 185 186 187 188 189 190 191 192
```

```
[1] "Length of pvals is 192"
    uniqueAges     colorsList
      "islets" "deepskyblue2"
     [,1]     [,2]
[1,] "islets" "deepskyblue2"
uniqueSources    colorsList
     "tissue"            NA
  [1] "cellSource"     "probe"          "age"            "patient"
  [5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
  [9] "kmeans.cluster" "Jak1"           "IAPP"           "Ly6e"
 [13] "pten"           "TGFB1"          "ITGB1"          "Irf2"
 [17] "HIF1A"          "Stat3"          "Hprt"           "gsk3b"
 [21] "gsk3a"          "VEGFA"          "gapdh"          "ICOSL"
 [25] "CSF1"           "INS2"           "Stat1"          "Tgfbr2"
 [29] "PDGFA"          "FLT4"           "Irf1"           "PTK2"
 [33] "SFRP1"          "INS1"           "TIMP2"          "Ifngr1"
 [37] "WNT4"           "Aim2"           "KLF5"           "TLR4"
 [41] "TLR3"           "Pdl-1"          "nfkb1"          "Jak2"
 [45] "Traf2"          "FGFR1"          "CD24A"          "GCG"
 [49] "tnfrsf1a"       "Tnfaip3"        "EGFR"           "SST"
 [53] "ACVR1"          "VEGFB"          "PDGFB"          "ANPEP"
 [57] "CD14"           "il4ra"          "Socs3"          "NFATC1"
 [61] "Il27r"          "Oas1b"          "ICAM1"          "CSF1R"
 [65] "Irf7"           "icam1"          "Il18r1"         "VCAM1"
 [69] "Map2k6"         "Isg15"          "LY75"           "FGFR3"
 [73] "Ifit3"          "CD74"           "Cd44"           "pparg"
 [77] "tnfrsf1b"       "Rsad2"          "Ifi44"          "H2.AA"
 [81] "Fyn"            "Ifit1"          "CD36"           "CD83"
 [85] "TEK"            "Vav1"           "SPP1"           "DES"
 [89] "Oas2"           "ccr2"           "CSF2RA"         "Stat5"
 [93] "ANGPT1"         "TIMP1"          "CD44"           "GHRL"
 [97] "H2.DMA"         "FGR"            "Bcl6"           "GM13889"
[101] "Nur77"          "Bcl2"           "COL1A2"         "Ceacam1"
[105] "Cxcl10"         "ICAM2"          "COL1A1"         "PDPN"
[109] "ITGAX"          "IGF1"           "TLR7"           "KDR"
[113] "CXCL13"         "tnf"            "Mx1"            "TNC"
[117] "PPY"            "LEPR"           "IL34"           "CSF2RB"
[121] "MMP9"           "ccr6"           "il7"            "IGF2"
[125] "GFAP"           "ppargc1a"       "il25"           "PECAM1"
[129] "PTGS2"          "IL1B"           "il6"            "ADGRE1"
[133] "cd80"           "CD80"           "Cxcr3"          "NLRP3"
[137] "Tbx21"          "Oasl1"          "IL-21"          "MMP3"
[141] "cd40"           "CD8A"           "Il12rb"         "BMP7"
[145] "MMP2"           "Zap70"          "cd86"           "CD86"
[149] "FAP"            "cd8a"           "TNFSF11"        "COL11A1"
[153] "il1r2"          "Icos"           "LCK"            "PDGFRB"
[157] "gata4"          "BMP5"           "TLR9"           "SELE"
[161] "Mapk8"          "CLEC7A"         "foxp3"          "Zeb2"
[165] "ctla4"          "ZAP70"          "Stat4"          "IL1A"
[169] "ACTA2"          "Ccr1"           "ccr3"           "ccr4"
[173] "ccr5"           "Ccr7"           "cd28"           "cd3e"
[177] "CD3E"           "cd4"            "CD4"            "Cxcr4"
[181] "FCGR1"          "Ifi44l"         "ifng"           "IFNG"
[185] "il10"           "il12b"          "il17A"          "il2"
```

```
[189] "Il27"          "il2ra"         "il3"           "il4"
[193] "il5"           "il5ra"         "il7r"          "Irf4"
[197] "MMP1A"         "Pd1"           "ppara"         "RSPO1"
[201] "WNT2B"
[1] "The value in idCols is 9 and the first column for the heatmap is kmeans.cluster while the last colu
```






```
#### t-sne reports ####
###This function has been updated from LG's original. The colorby vector can take the following options

ctClust <- plotTSNE(ctClust, colorby = c("kmeans.cluster", "Gene_List"), Genes = c("ACTA2","ACVR1","ADGR
"CCL13","CCR1","CCR2","CCR3","CCR4","CCR5","CCR6","CCR7","CD14","CD24A","CD28",
"CD36","CD3E","CD4","CD40","CD44","CD74","CD80","CD83","CD86","CD8A","CEACAM1",
"CLEC7A","COL11A1","COL1A1","COL1A2","CSF1","CSF1R","CSF2RA","CSF2RB","CXCL10",
"CXCL13","CXCR3","CXCR4","DES","EGFR","FAP","FCGR1","FGFR1","FGFR3","FGR","FYN",
```

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"GAPDH","GATA4","GCG","GFAP","GHRL","GM13889","GSK3A","GSK3B","H2-AA","H2-DMA",
"HIF1A","HPRT","IAPP","ICAM1","ICAM2","ICOS","ICOSL","IFIT1","IFIT3","IFI44",
"IFI44L","IFNG","IFNGR1","IGF1","IGF2","IL-21","IL1A","IL1B","IL1R2","IL2","IL2RA",
"IL3","IL4","IL4RA","IL5","IL5RA","IL6","IL7","IL7R","IL10","IL12B","IL12RB","IL17A",
"IL18R1","IL25","IL27","IL27R","IL34","INS1","INS2","IRF1","IRF2","IRF4","IRF7",
"ISG15","ITGAX","ITGB1","JAK1","JAK2","KDR","KLF5","LCK","LEPR","LY6E","LY75",
"MAP2K6","MAPK8","MMP1A","MMP2","MMP3","MMP9","MX1","NFATC1","NFKB1","NLRP3",
"NUR77","OAS1B","OAS2","OASL1","PD1","PDL-1","PDGFA","PDGFB","PDGFRB","PDPN",
"PECAM1","PPARA","PPARG","PPARGC1A","PPY","PTEN","PTGS2","PTK2","RSAD2","RSPO1",
"SELE","SFRP1","SOCS3","SPP1","SST","STAT1","STAT3","STAT4","STAT5","TBX21",
"TEK","TGFB1","TGFBR2","TIMP1","TIMP2","TLR3","TLR4","TLR7","TLR9","TNC",
"TNF","TNFAIP3","TNFRSF1A","TNFRSF1B","TNFSF11","TRAF2","VAV1","VCAM1","VEGFA",
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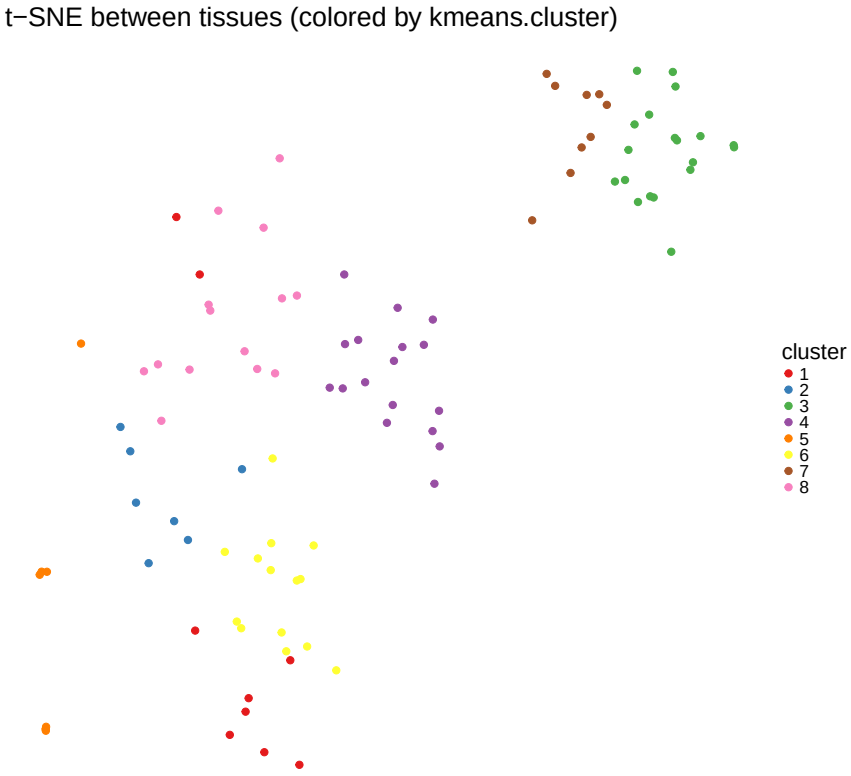


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[13] "CCR2"     "CCR3"     "CCR4"     "CCR5"     "CCR6"     "CCR7"
[19] "CD14"     "CD24A"    "CD28"     "CD36"     "CD3E"     "CD4"
[25] "CD40"     "CD44"     "CD74"     "CD80"     "CD83"     "CD86"
[31] "CD8A"     "CEACAM1"  "CLEC7A"   "COL11A1"  "COL1A1"   "COL1A2"
[37] "CSF1"     "CSF1R"    "CSF2RA"   "CSF2RB"   "CXCL10"   "CXCL13"
[43] "CXCR3"    "CXCR4"    "DES"      "EGFR"     "FAP"      "FCGR1"
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 [49] "FGFR1"    "FGFR3"    "FGR"      "FYN"      "GAPDH"    "GATA4"
 [55] "GCG"      "GFAP"     "GHRL"     "GM13889"  "GSK3A"    "GSK3B"
 [61] "H2-AA"    "H2-DMA"   "HIF1A"    "HPRT"     "IAPP"     "ICAM1"
 [67] "ICAM2"    "ICOS"     "ICOSL"    "IFIT1"    "IFIT3"    "IFI44"
 [73] "IFI44L"   "IFNG"     "IFNGR1"   "IGF1"     "IGF2"     "IL-21"
 [79] "IL1A"     "IL1B"     "IL1R2"    "IL2"      "IL2RA"    "IL3"
 [85] "IL4"      "IL4RA"    "IL5"      "IL5RA"    "IL6"      "IL7"
 [91] "IL7R"     "IL10"     "IL12B"    "IL12RB"   "IL17A"    "IL18R1"
 [97] "IL25"     "IL27"     "IL27R"    "IL34"     "INS1"     "INS2"
[103] "IRF1"     "IRF2"     "IRF4"     "IRF7"     "ISG15"    "ITGAX"
[109] "ITGB1"    "JAK1"     "JAK2"     "KDR"      "KLF5"     "LCK"
[115] "LEPR"     "LY6E"     "LY75"     "MAP2K6"   "MAPK8"    "MMP1A"
[121] "MMP2"     "MMP3"     "MMP9"     "MX1"      "NFATC1"   "NFKB1"
[127] "NLRP3"    "NUR77"    "OAS1B"    "OAS2"     "OASL1"    "PD1"
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[145] "PTK2"     "RSAD2"    "RSPO1"    "SELE"     "SFRP1"    "SOCS3"
[151] "SPP1"     "SST"      "STAT1"    "STAT3"    "STAT4"    "STAT5"
[157] "TBX21"    "TEK"      "TGFB1"    "TGFBR2"   "TIMP1"    "TIMP2"
[163] "TLR3"     "TLR4"     "TLR7"     "TLR9"     "TNC"      "TNF"
[169] "TNFAIP3"  "TNFRSF1A" "TNFRSF1B" "TNFSF11"  "TRAF2"    "VAV1"
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[181] "ZEB2"
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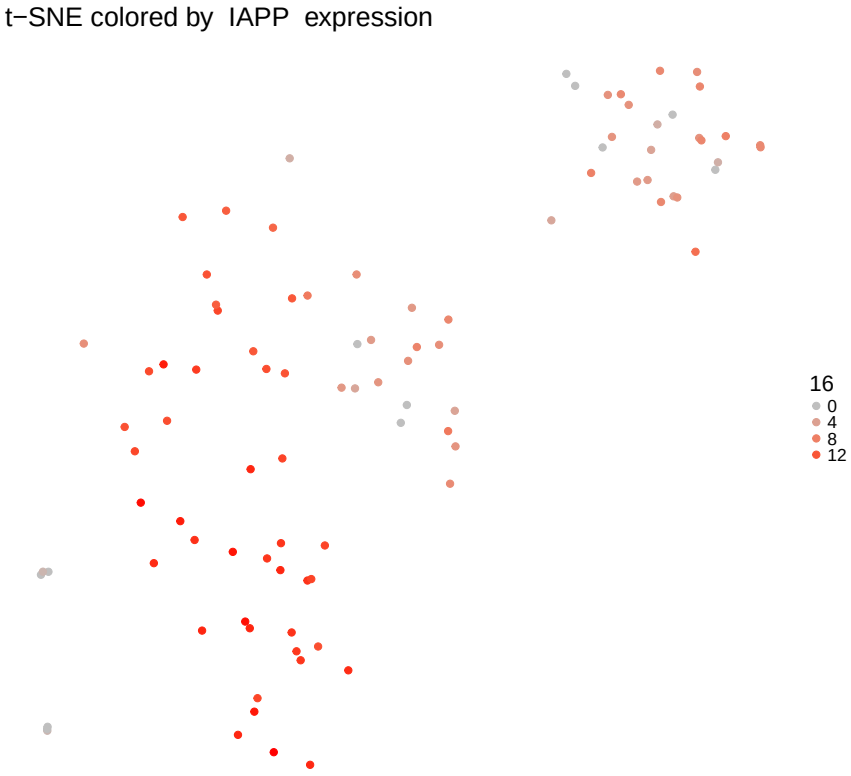
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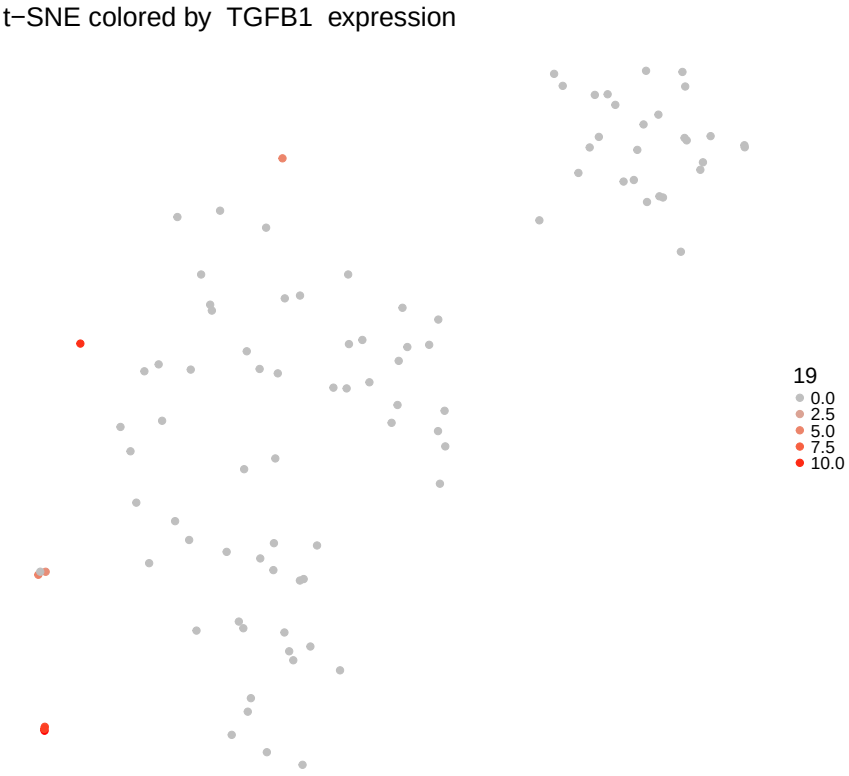
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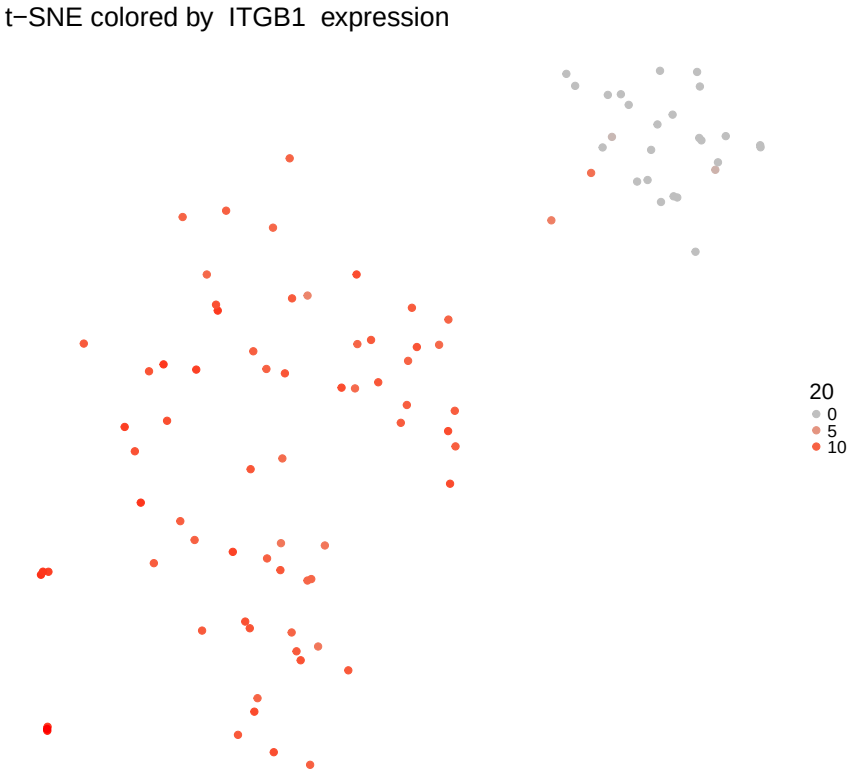
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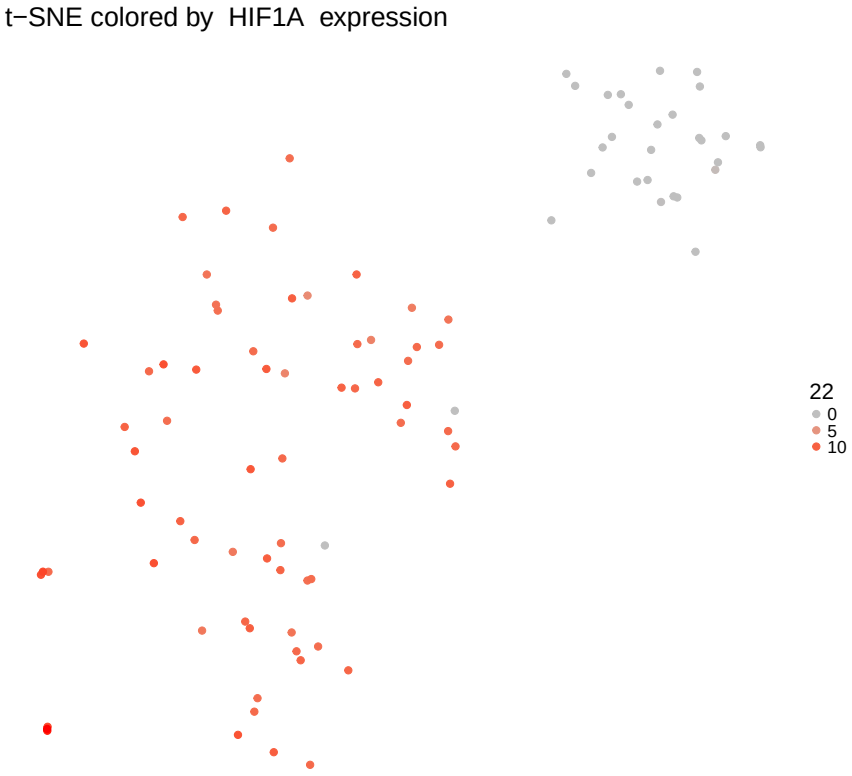
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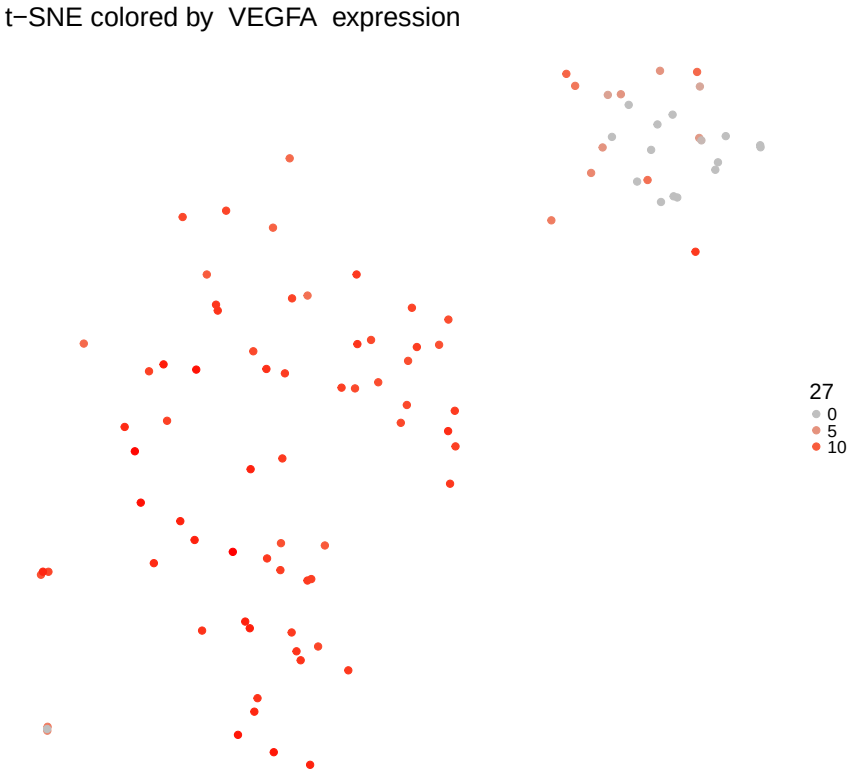
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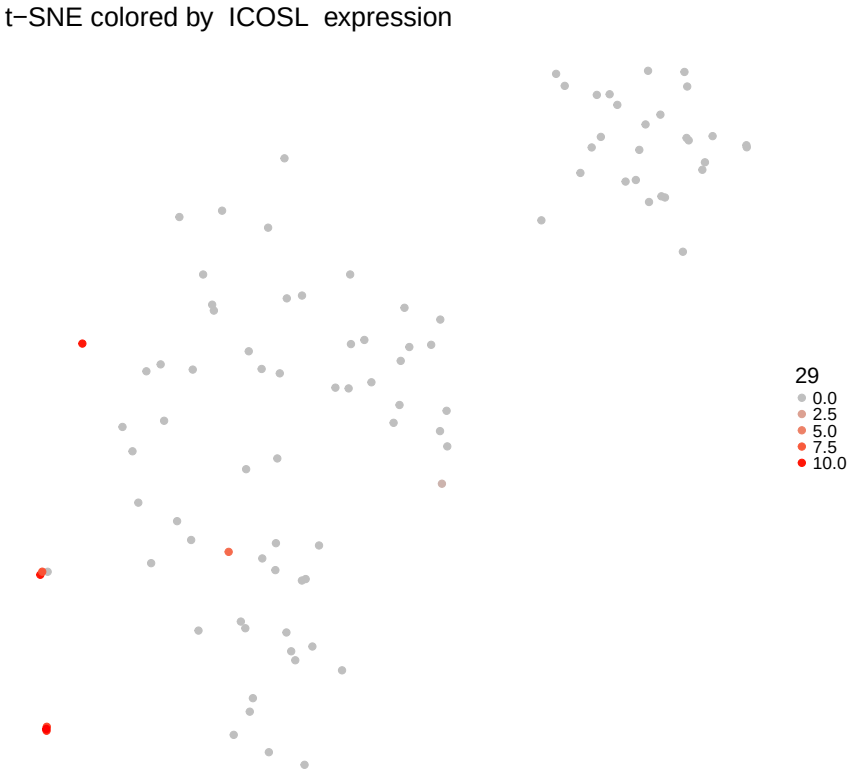
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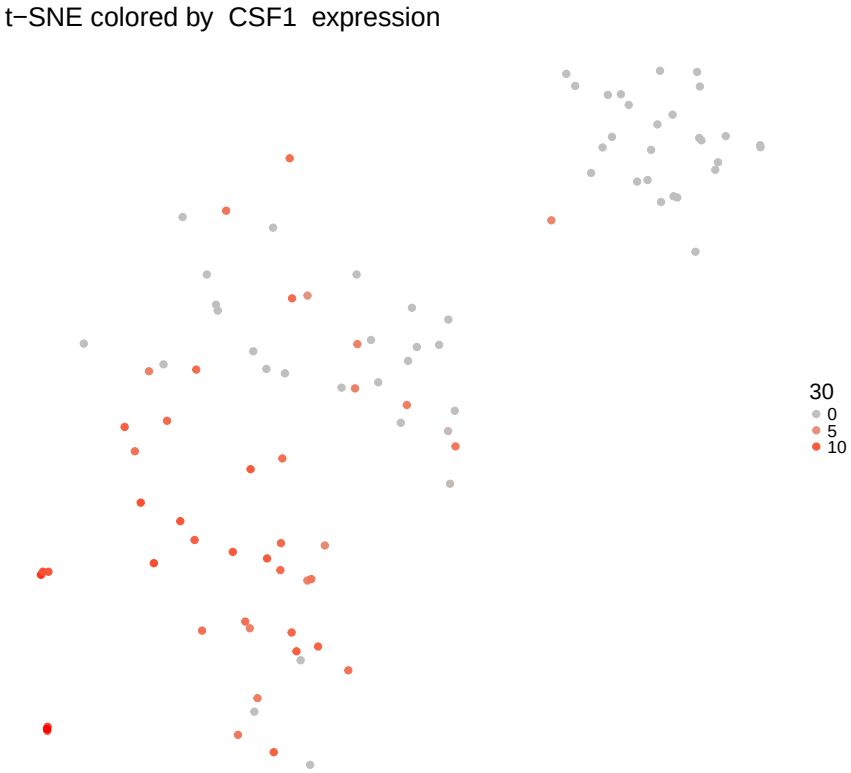
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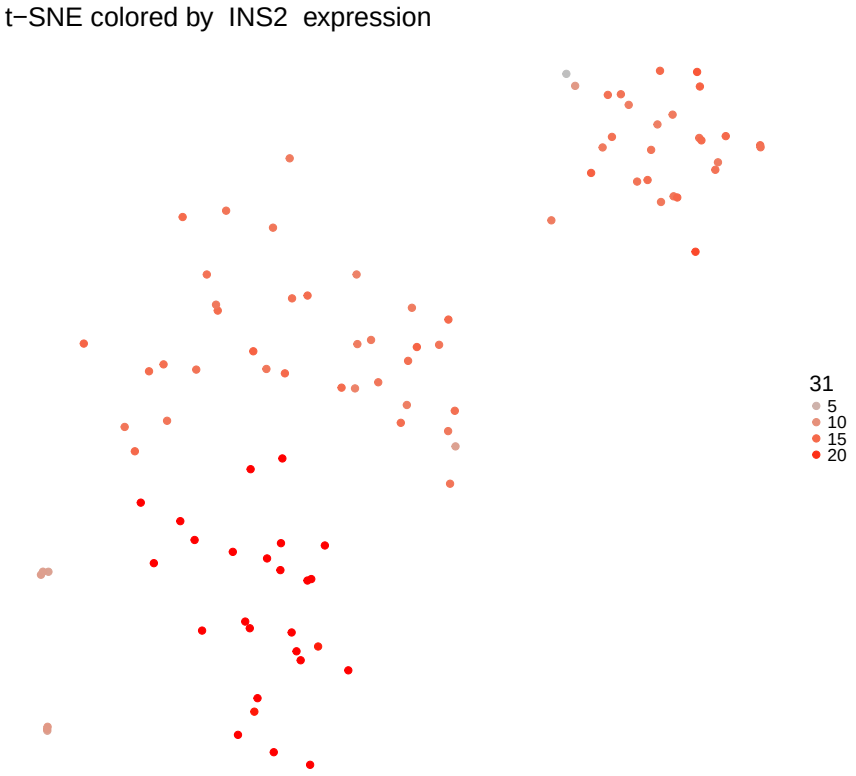
10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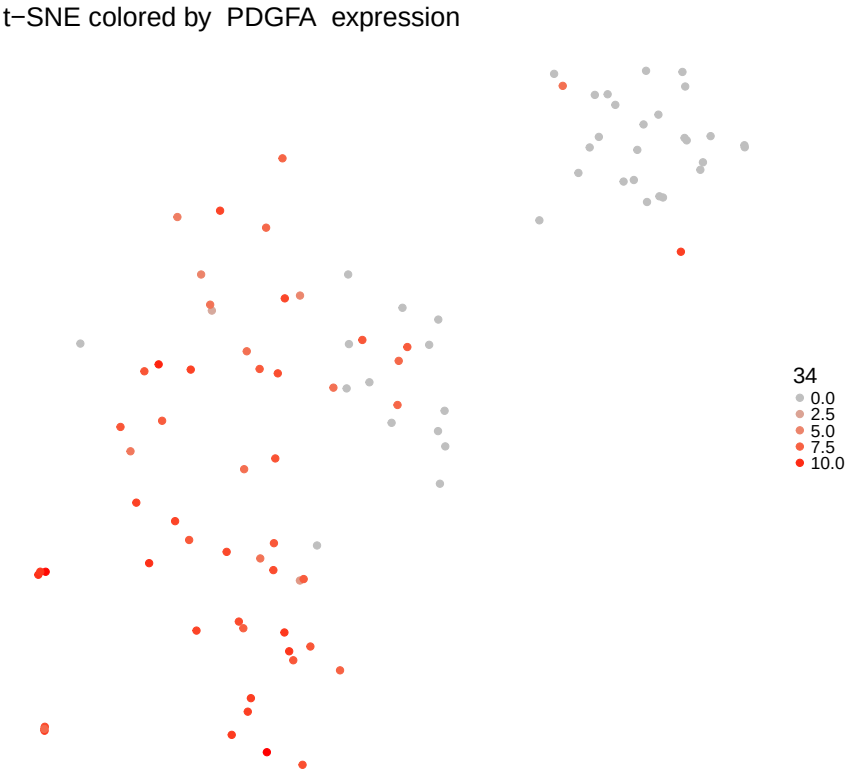
5
10
15
20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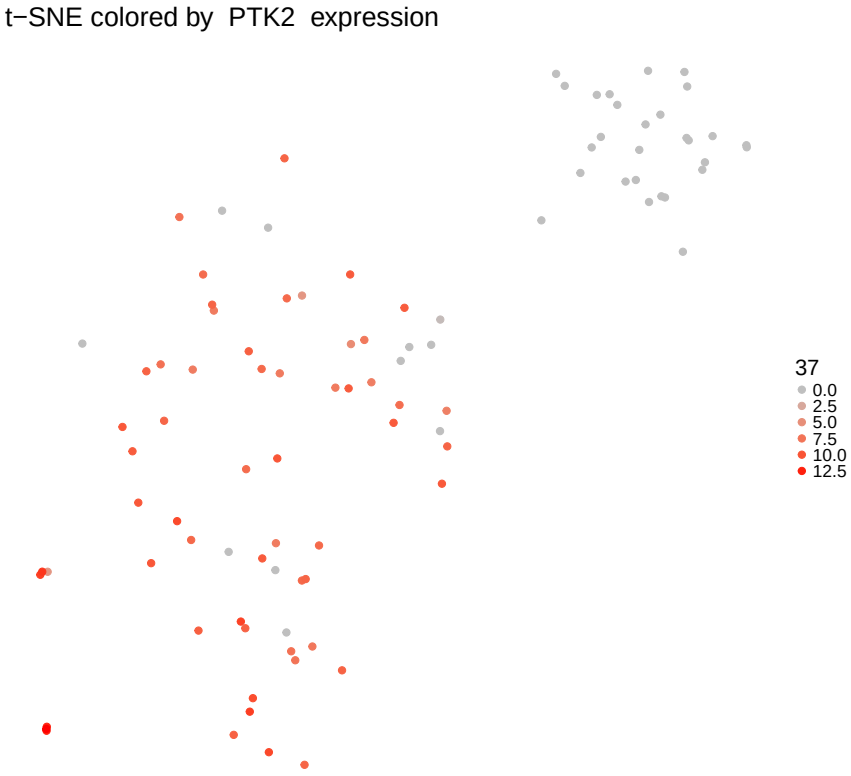
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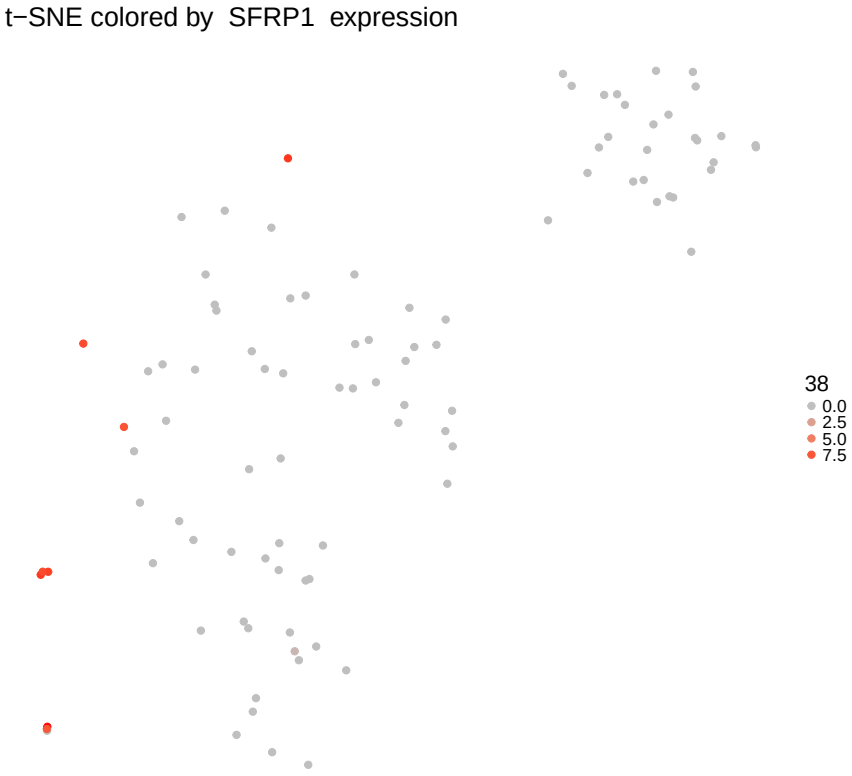
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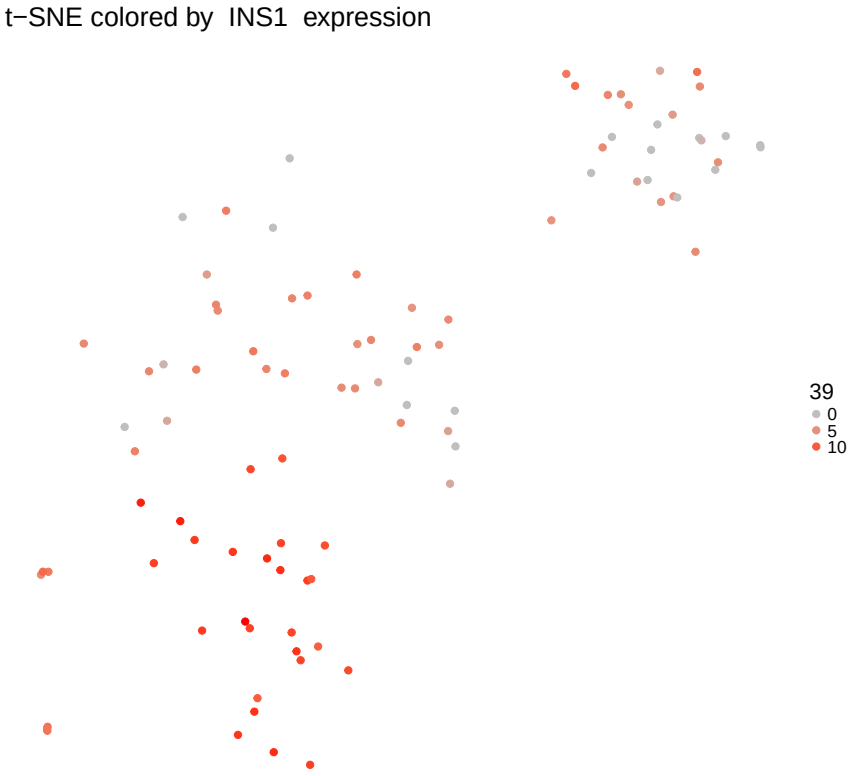
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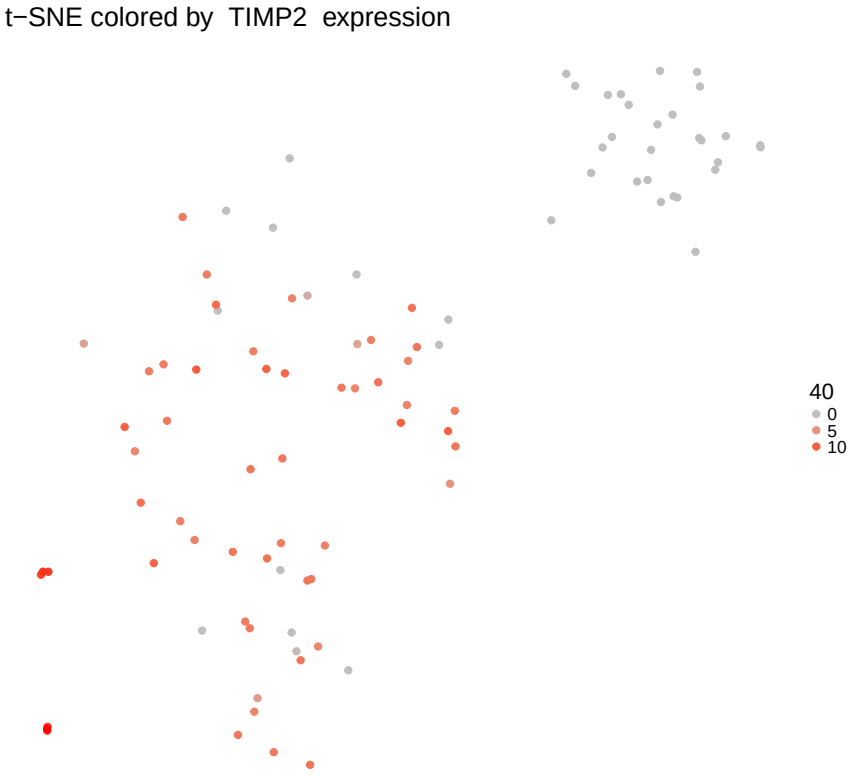
10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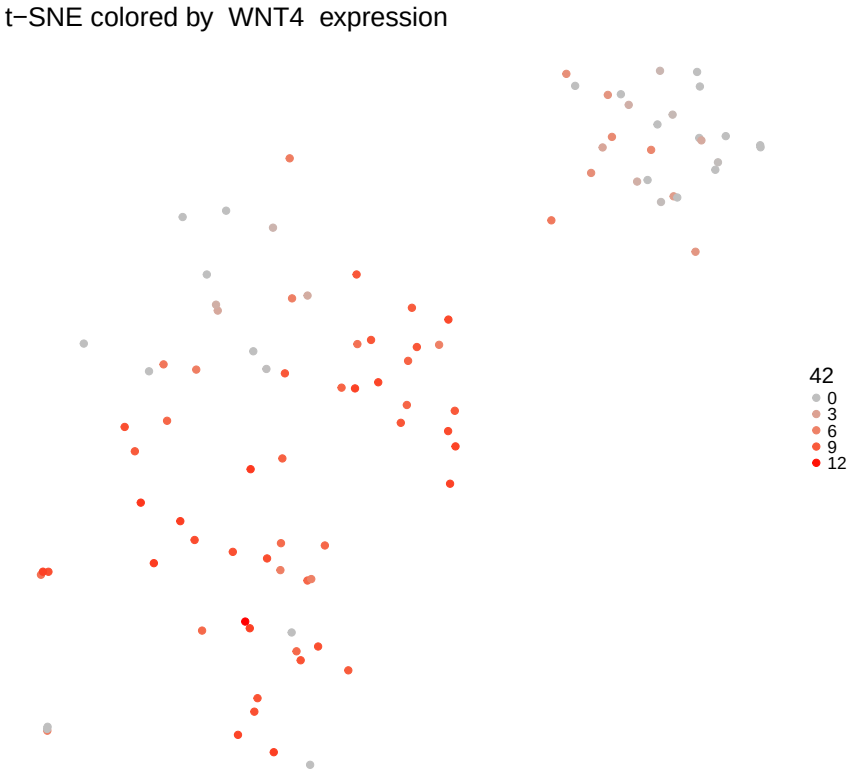
5
10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9
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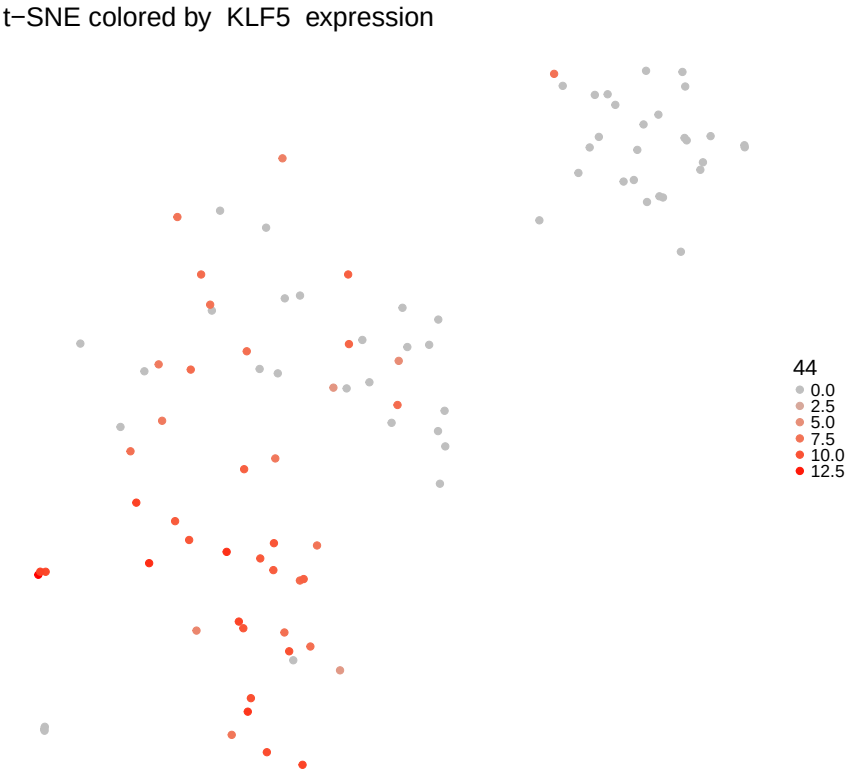
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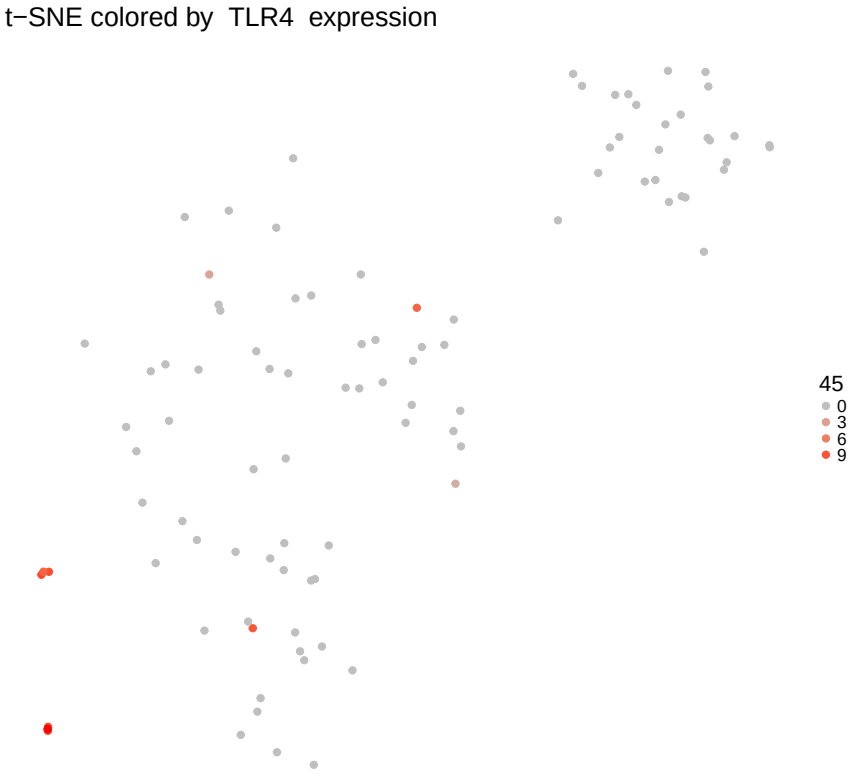
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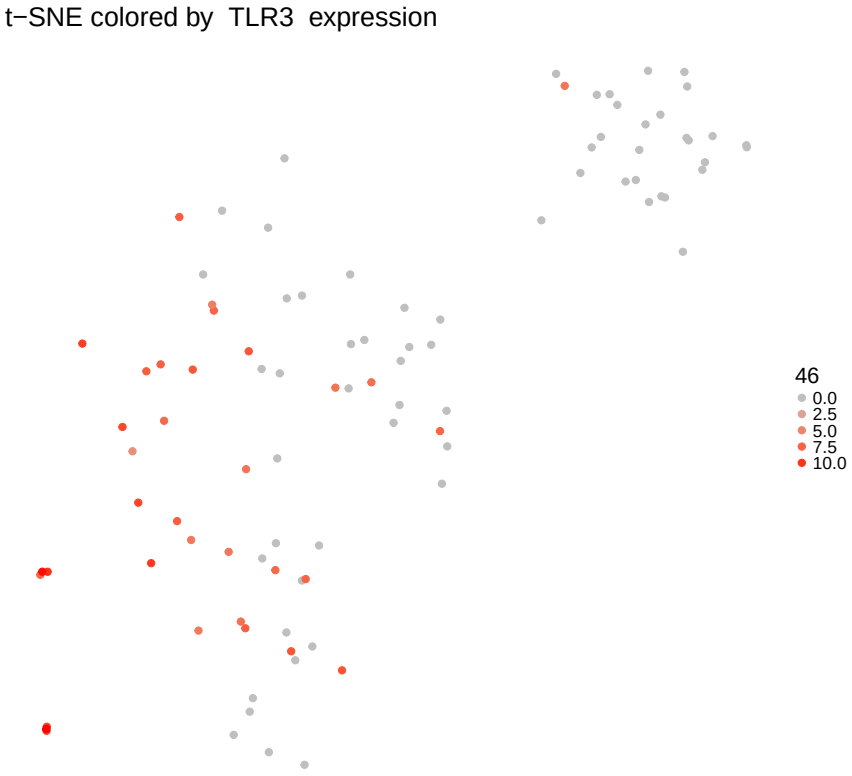
3
6
9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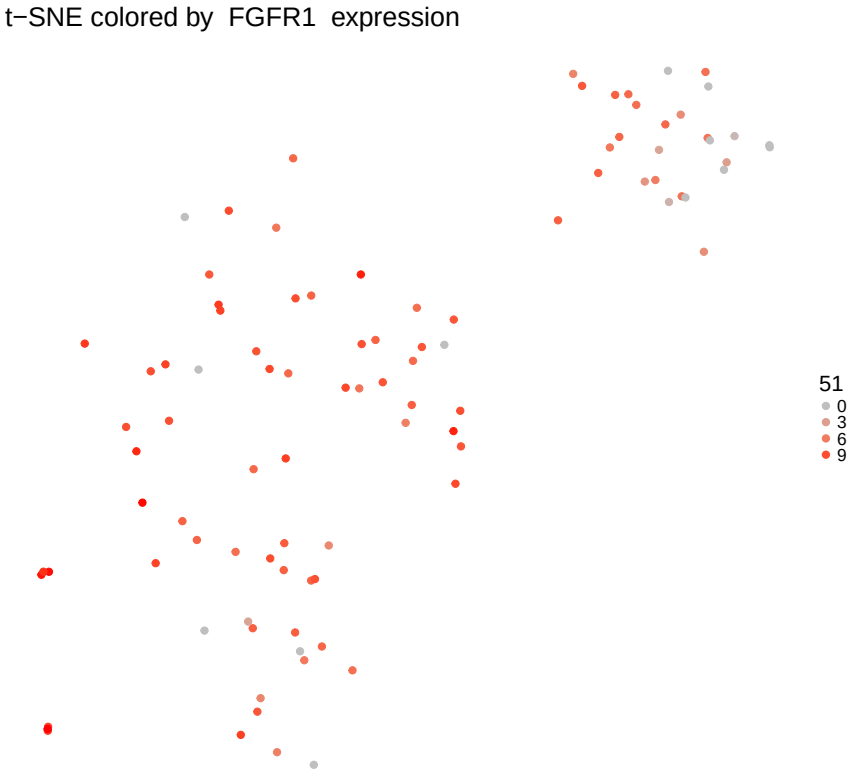
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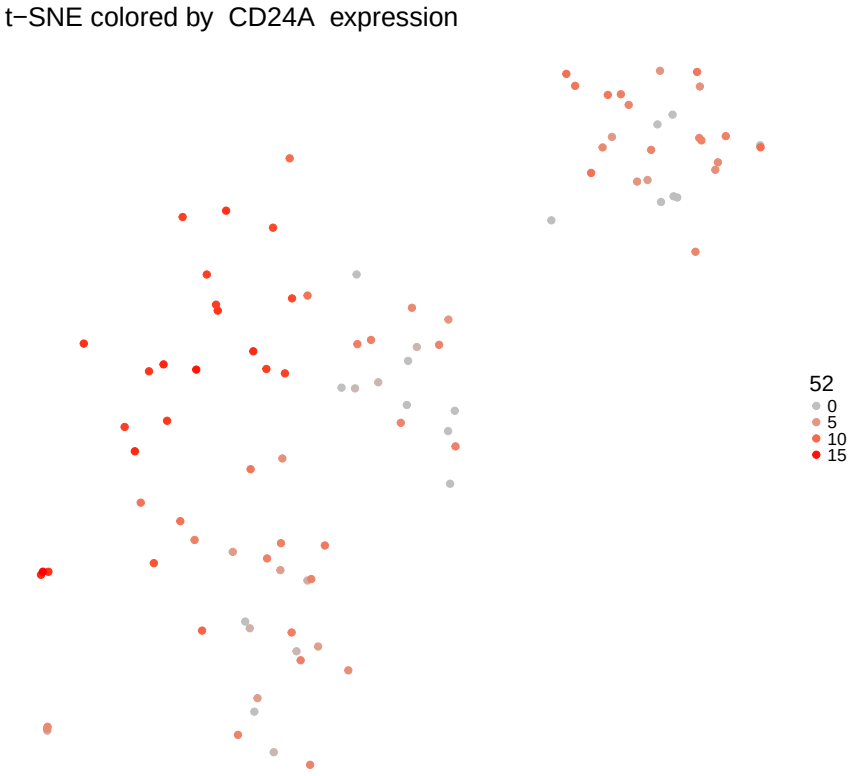
6
9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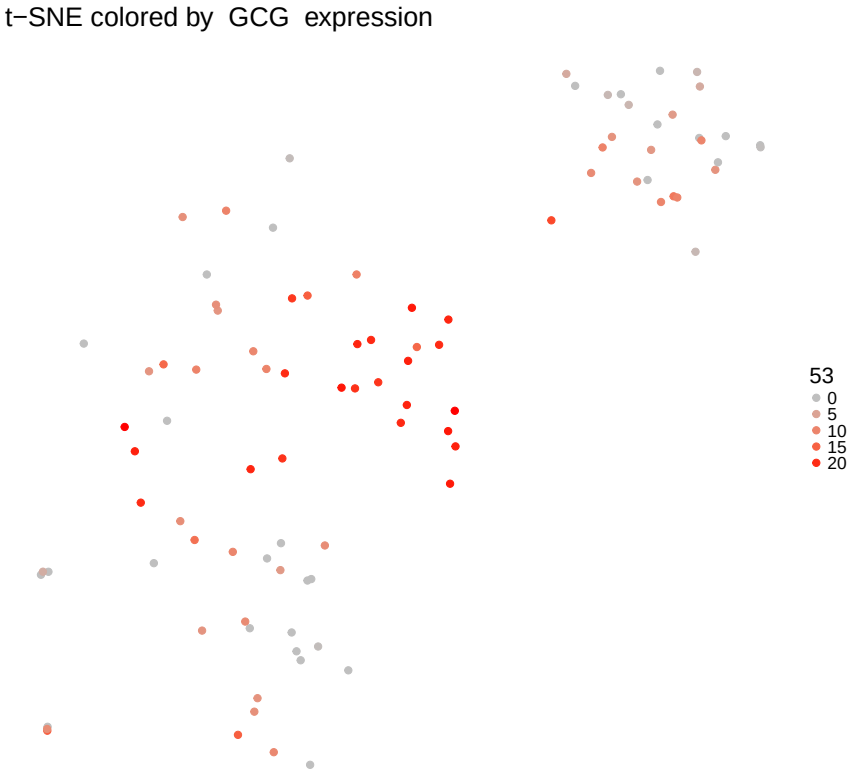
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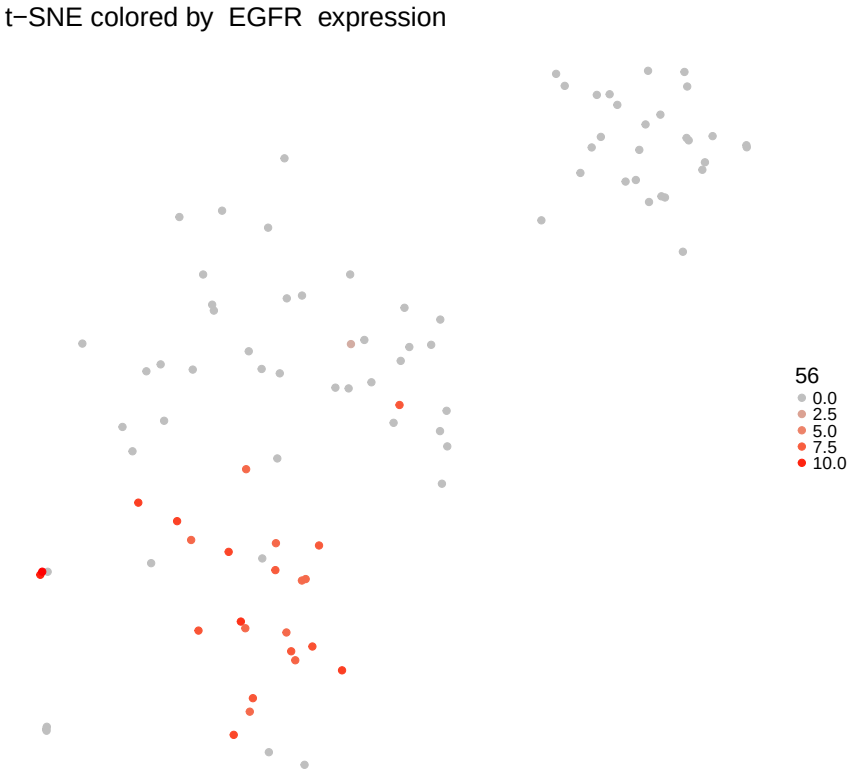
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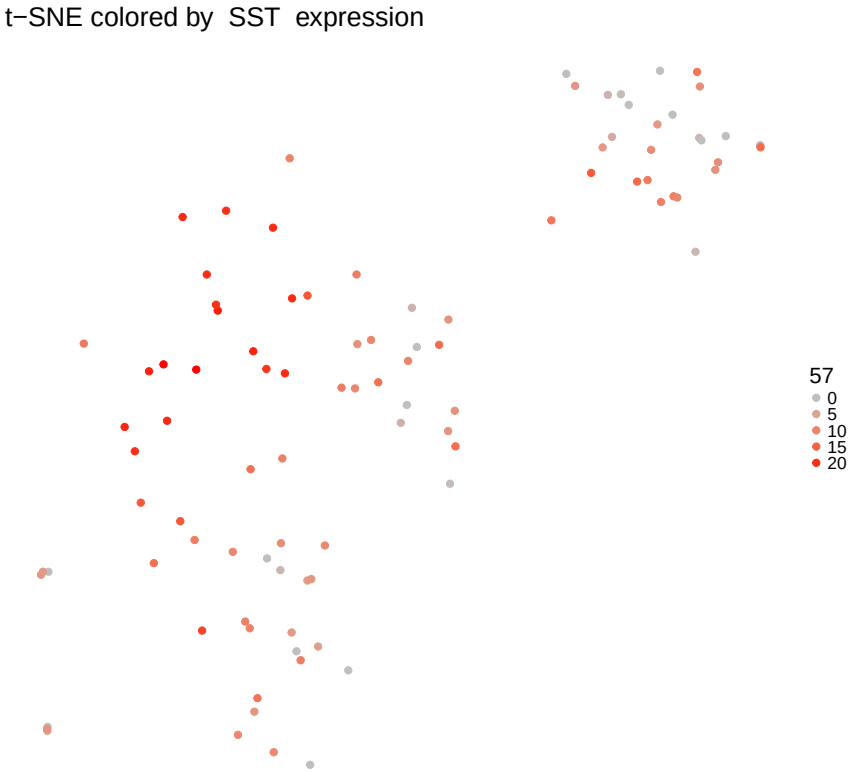
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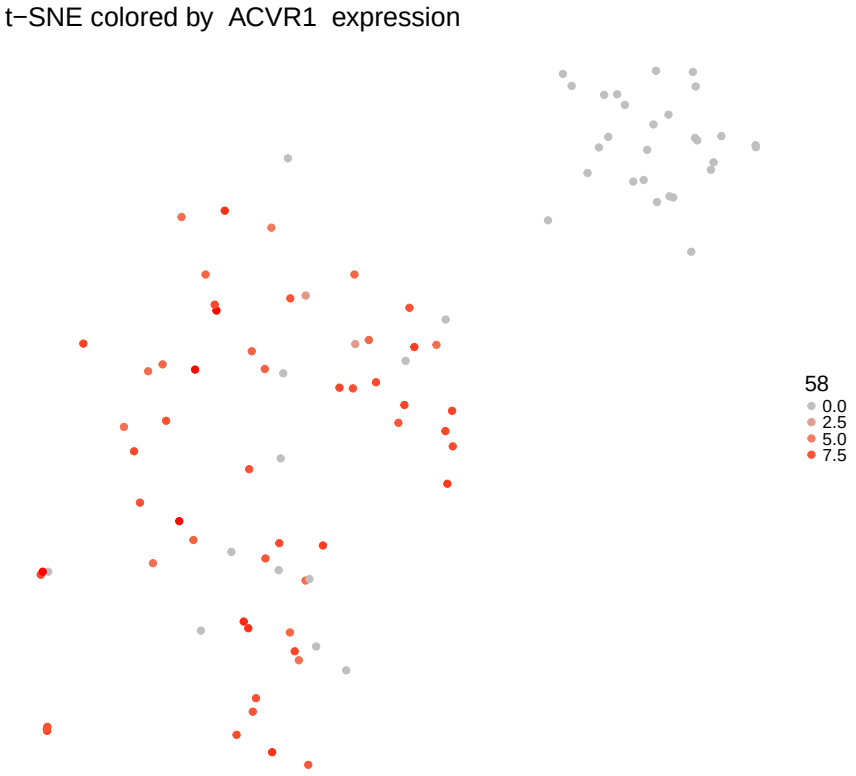
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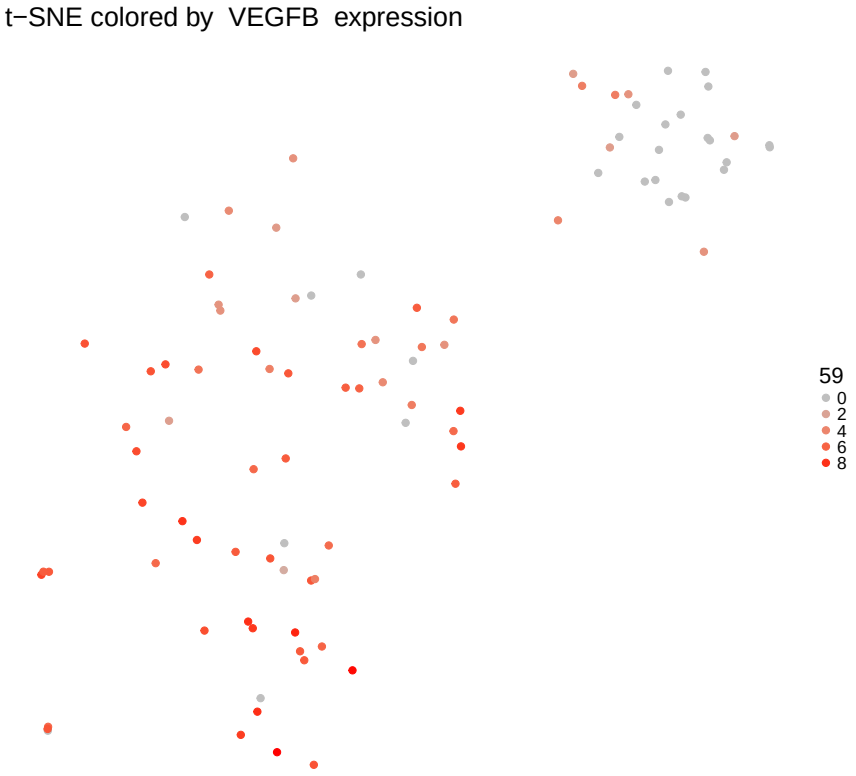
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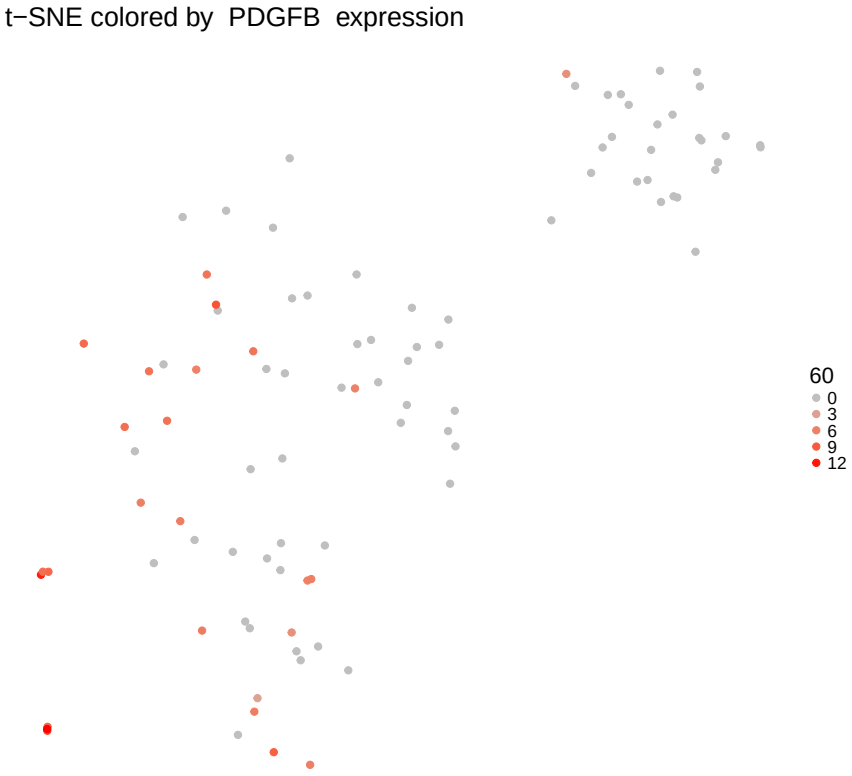
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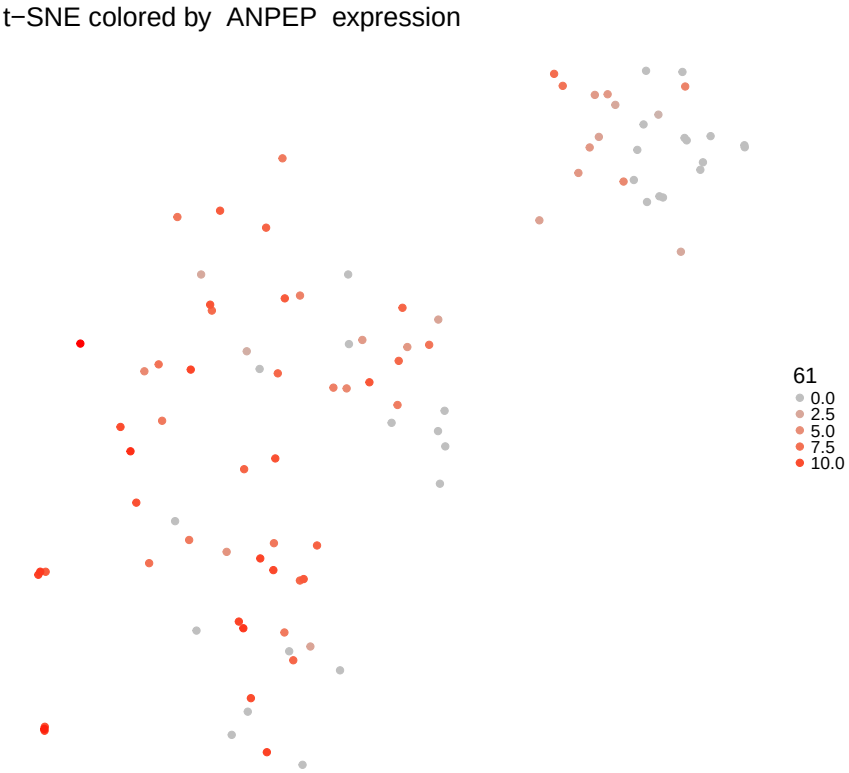
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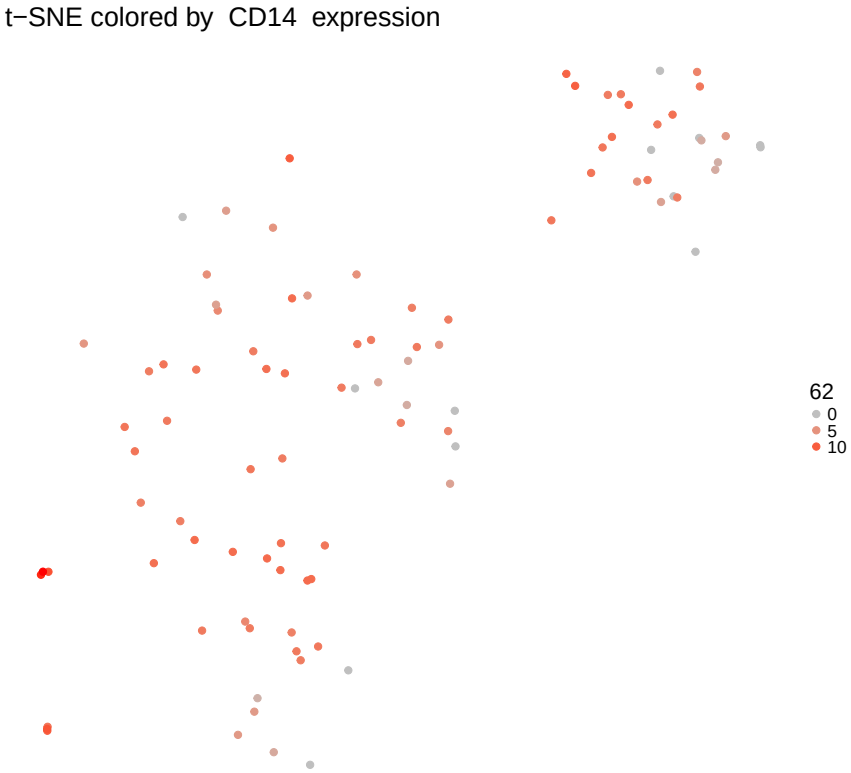
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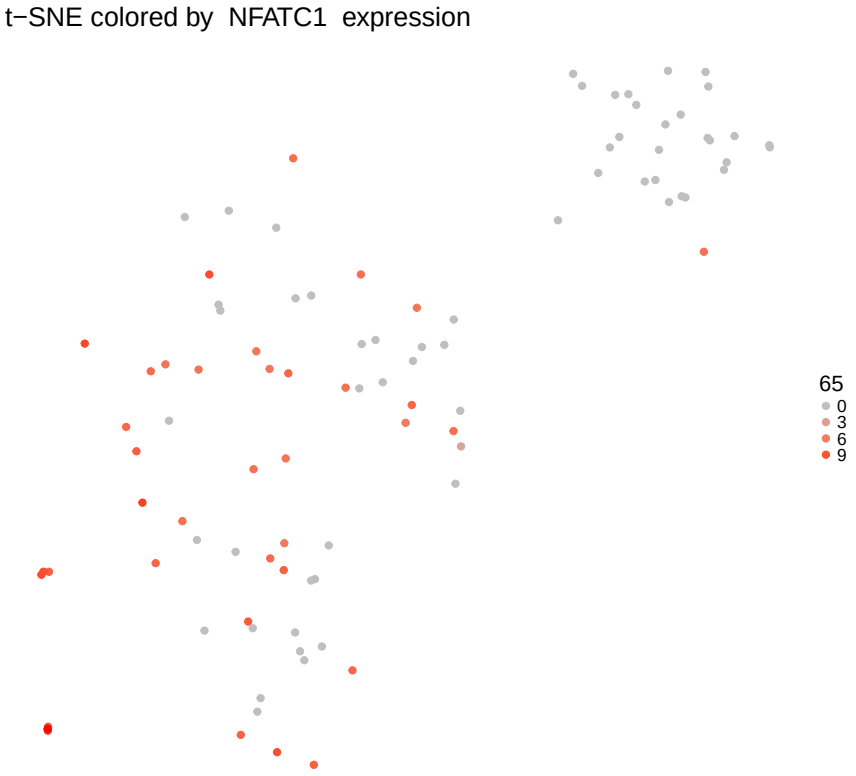
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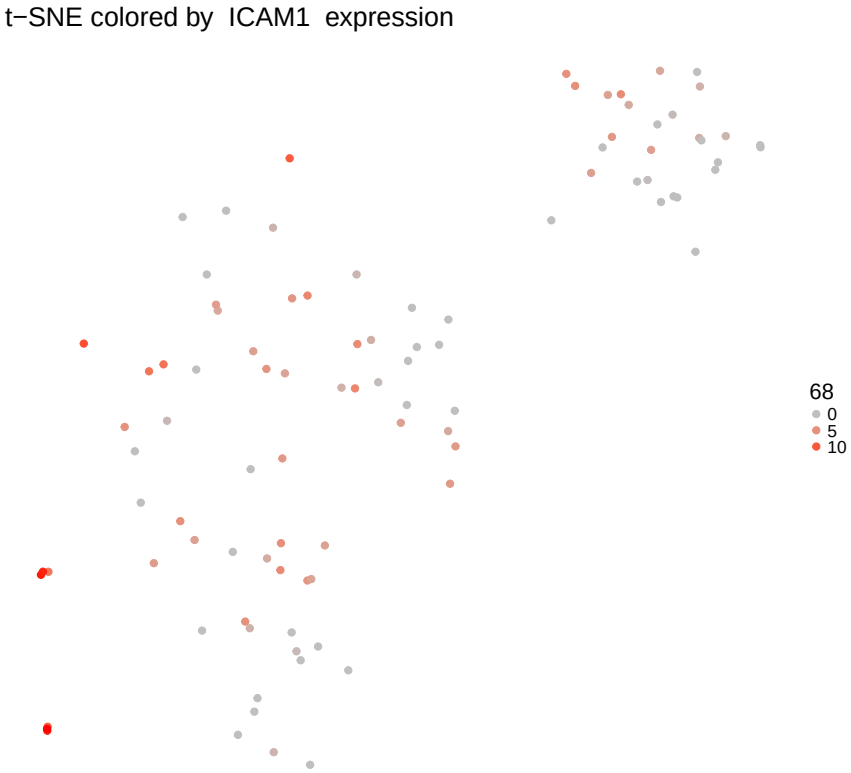
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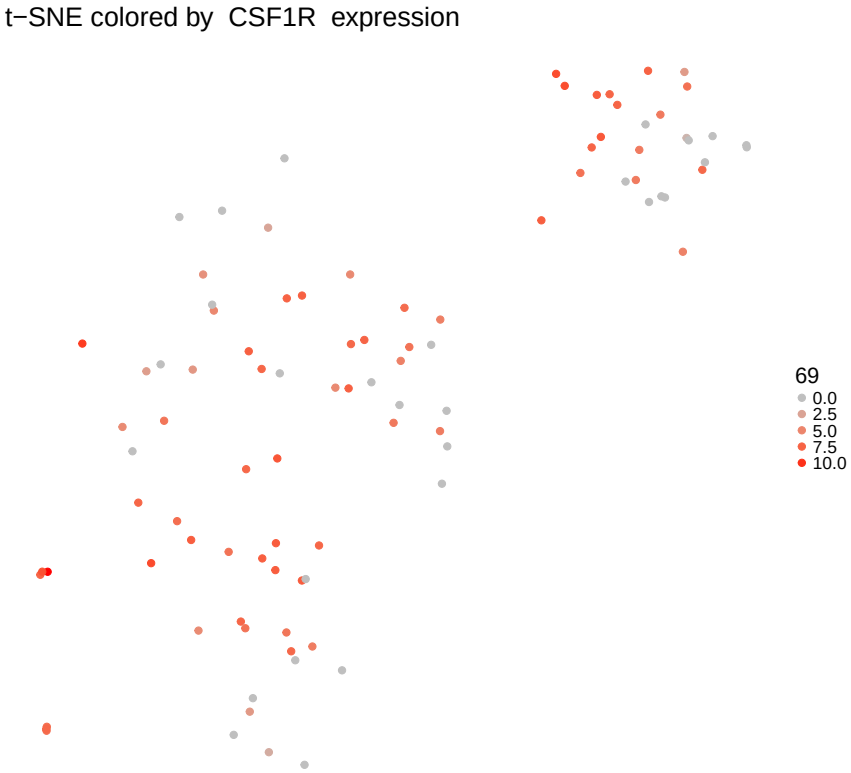
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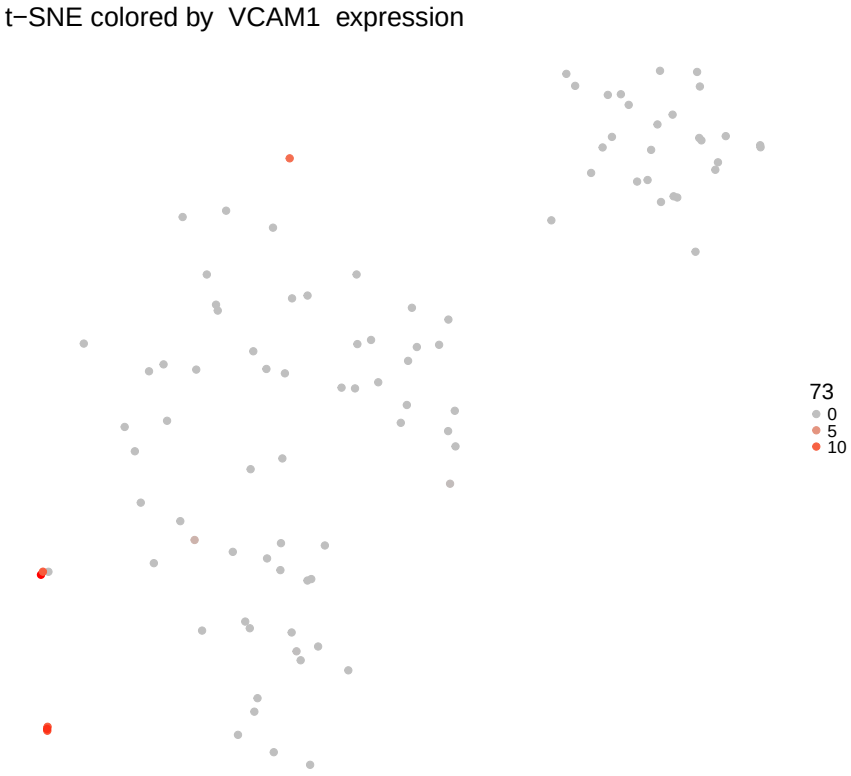
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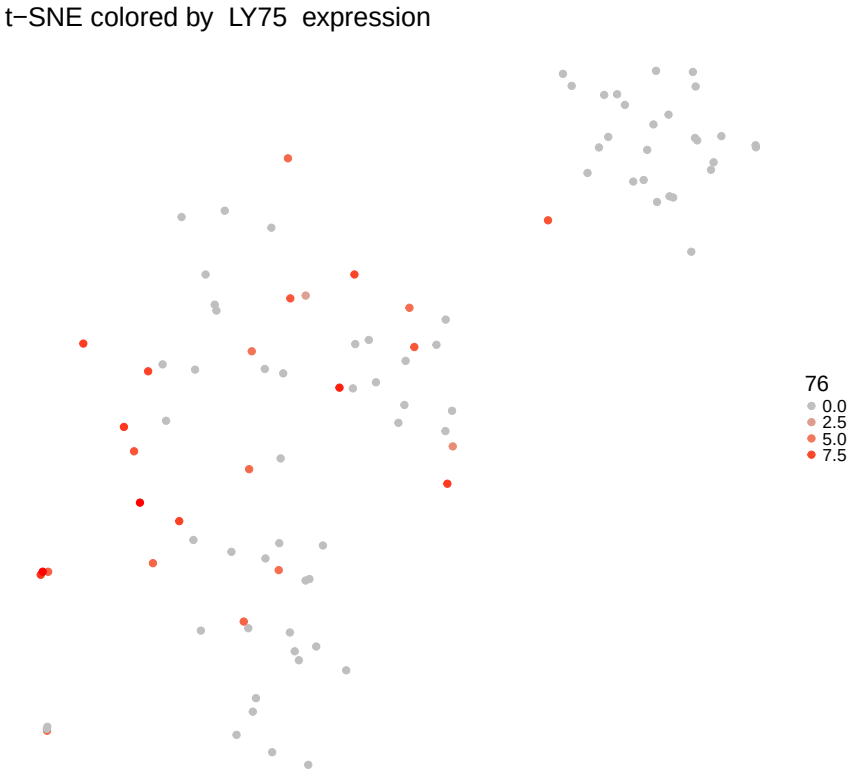
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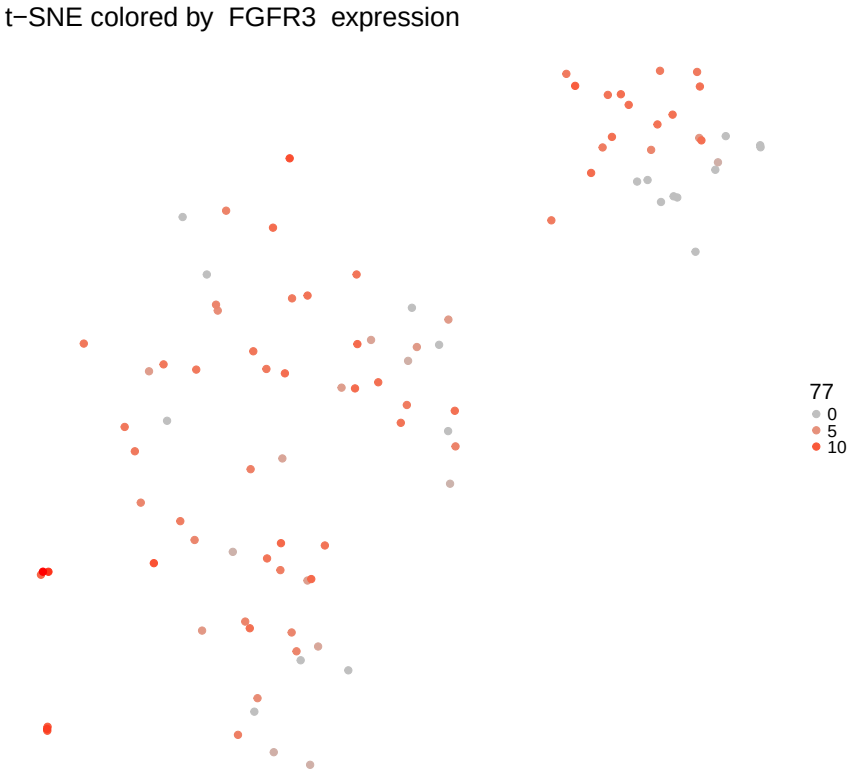
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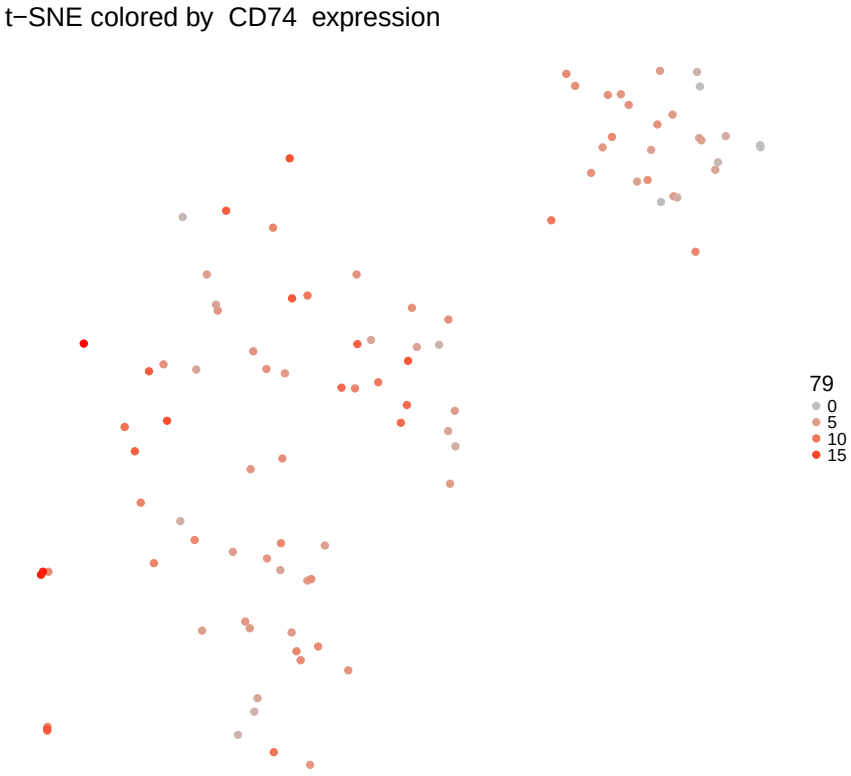
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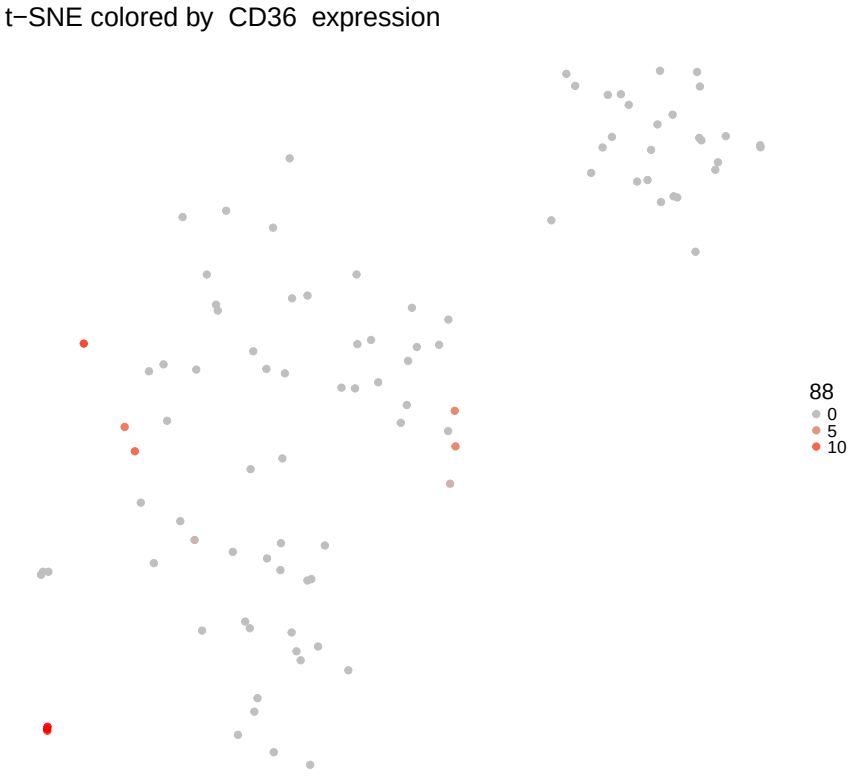
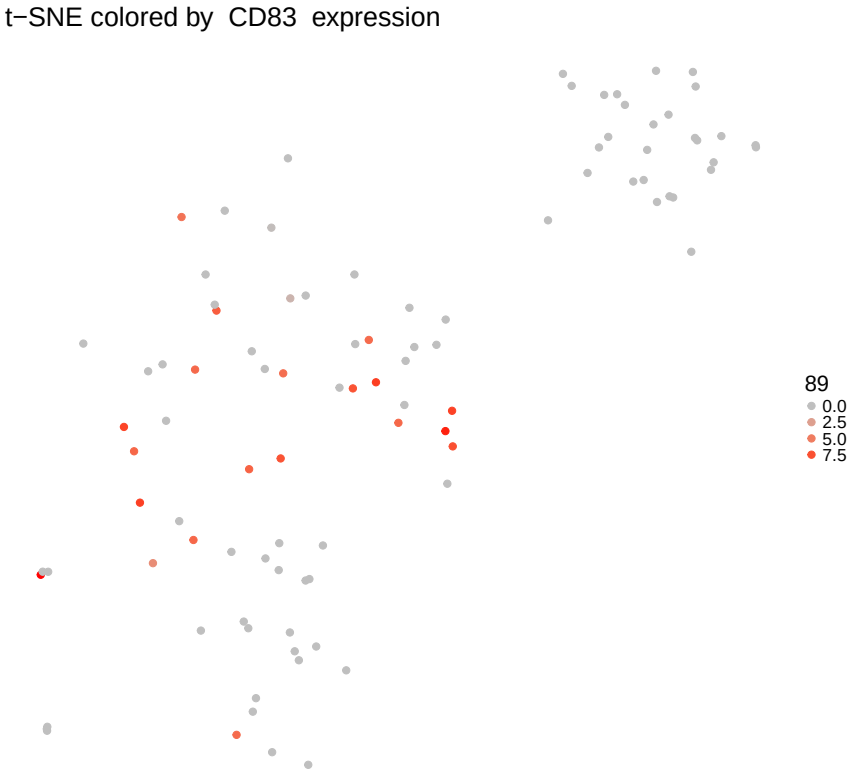
10
15


t−SNE colored by CD36 expression
88
0
5
10


t−SNE colored by CD83 expression
89
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2.5
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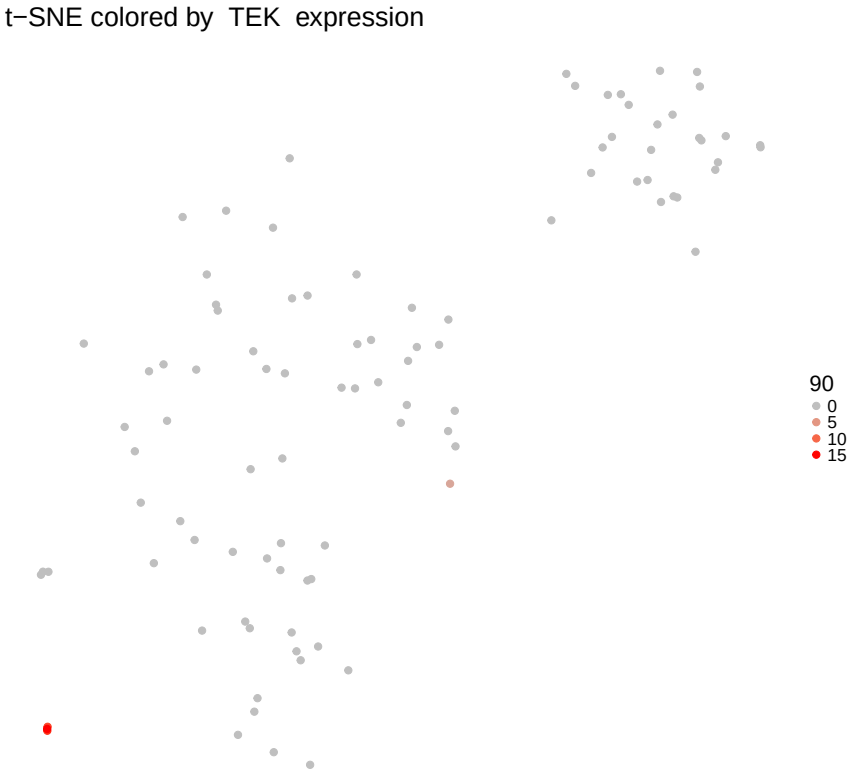
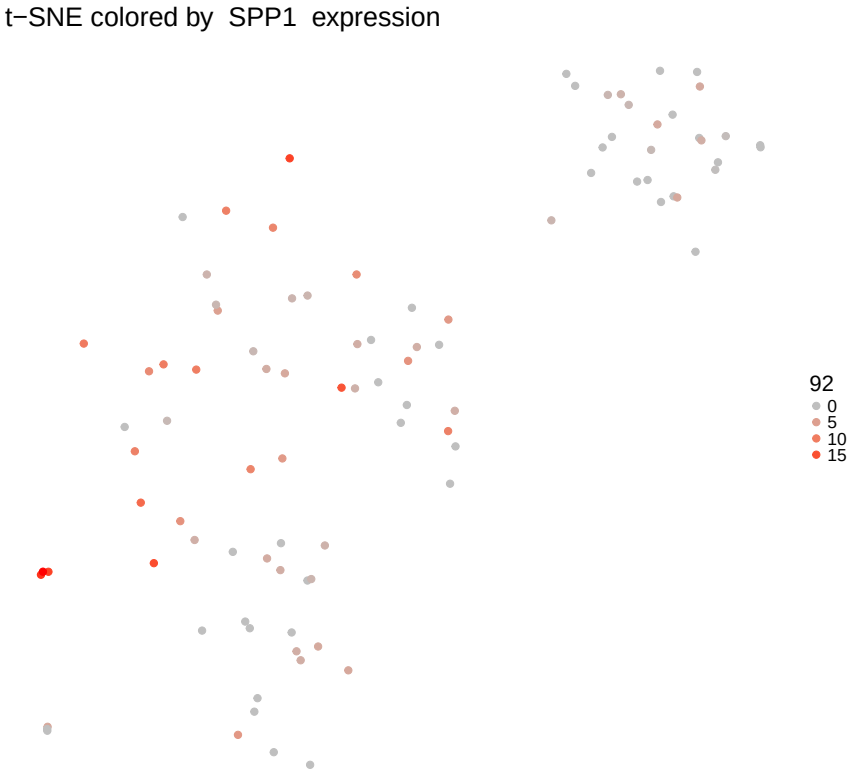
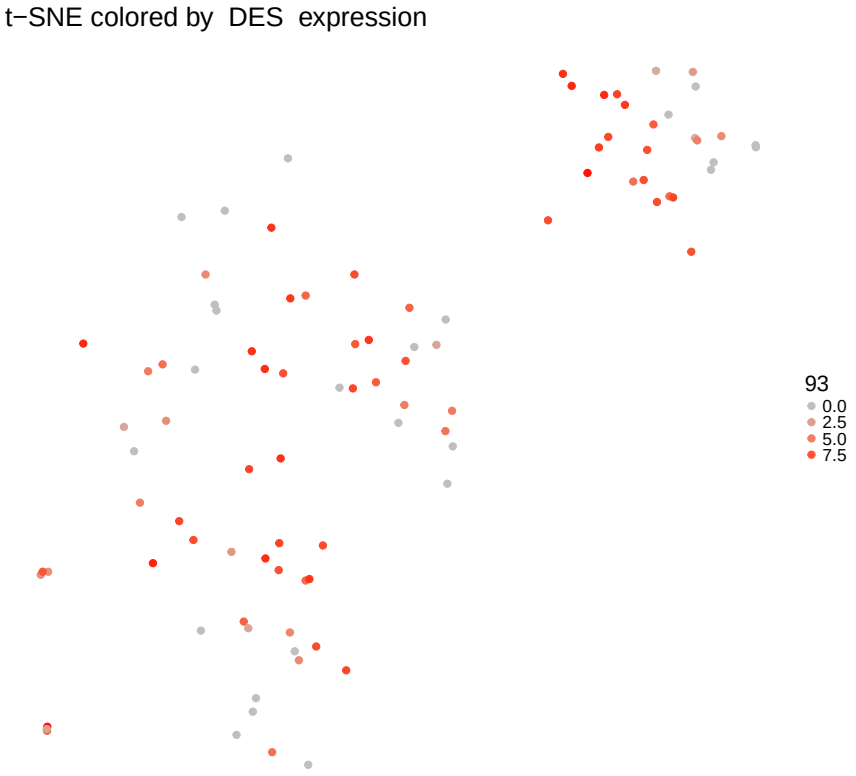
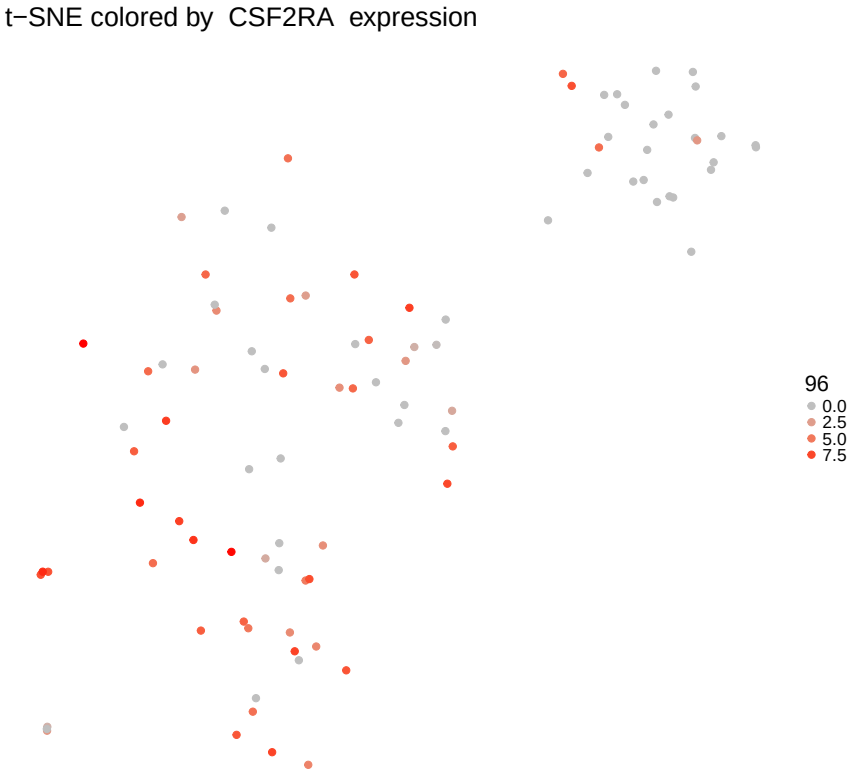
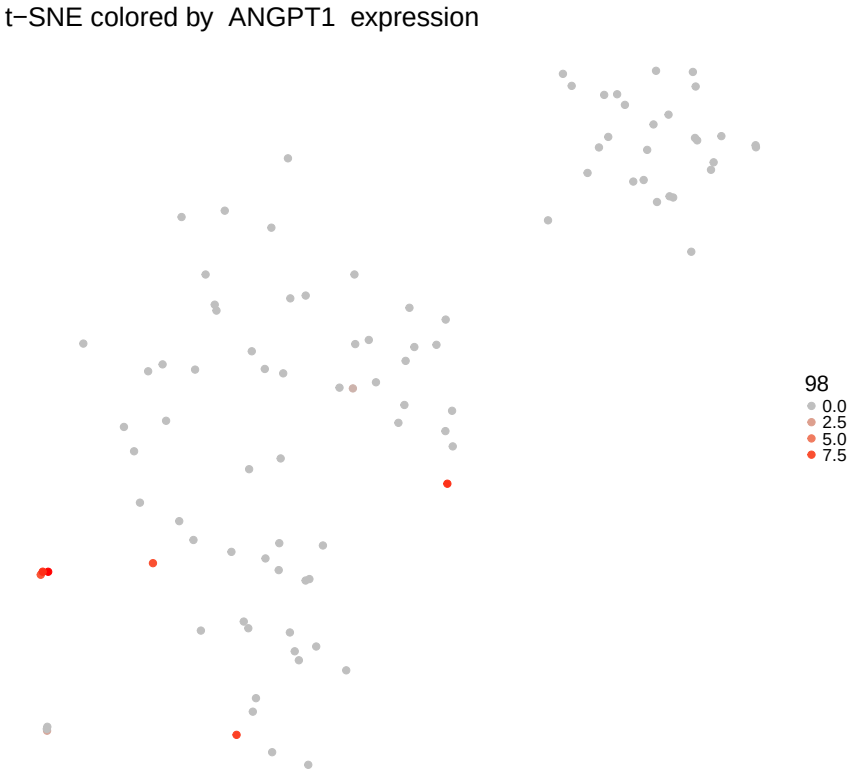
7.5

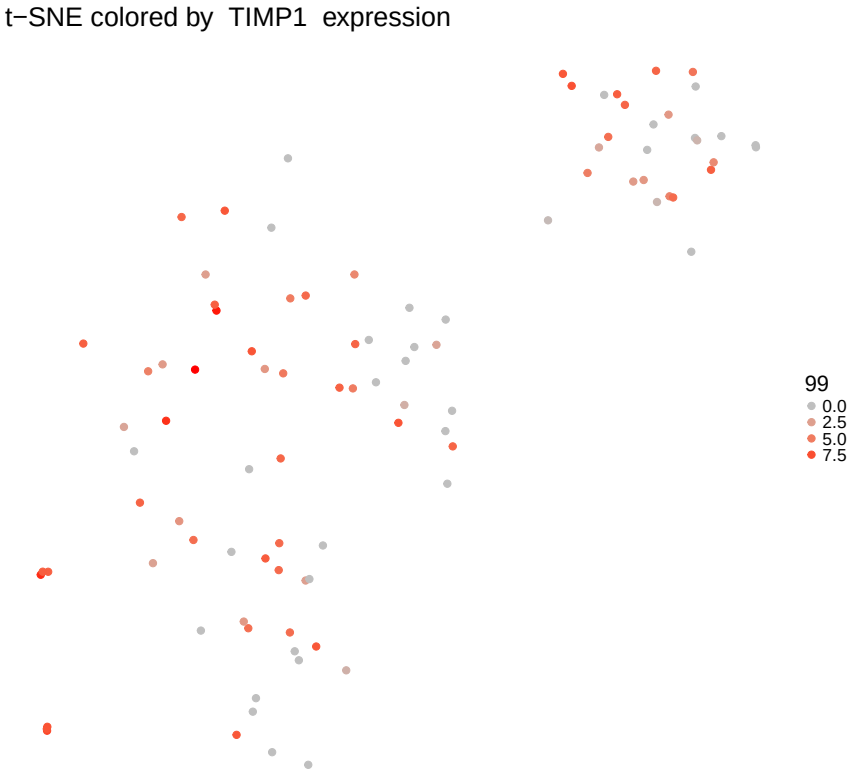

t−SNE colored by TEK expression
90
0
5
10
15


t−SNE colored by SPP1 expression
92
0
5
10
15


t−SNE colored by DES expression
93
0.0
2.5
5.0
7.5


t−SNE colored by CSF2RA expression
96
0.0
2.5
5.0
7.5


t−SNE colored by ANGPT1 expression
98
0.0
2.5
5.0
7.5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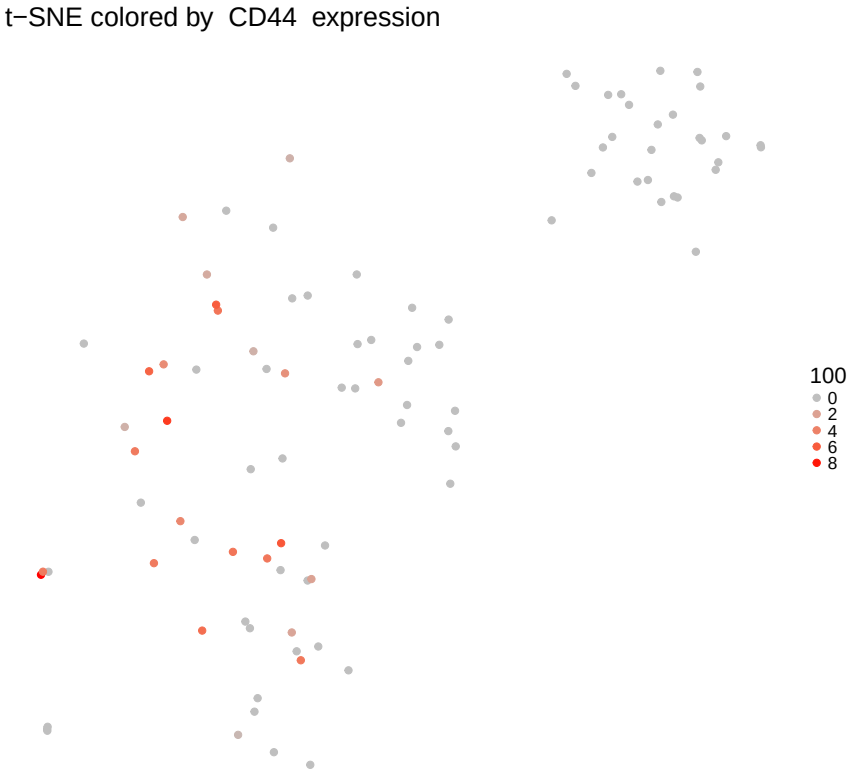
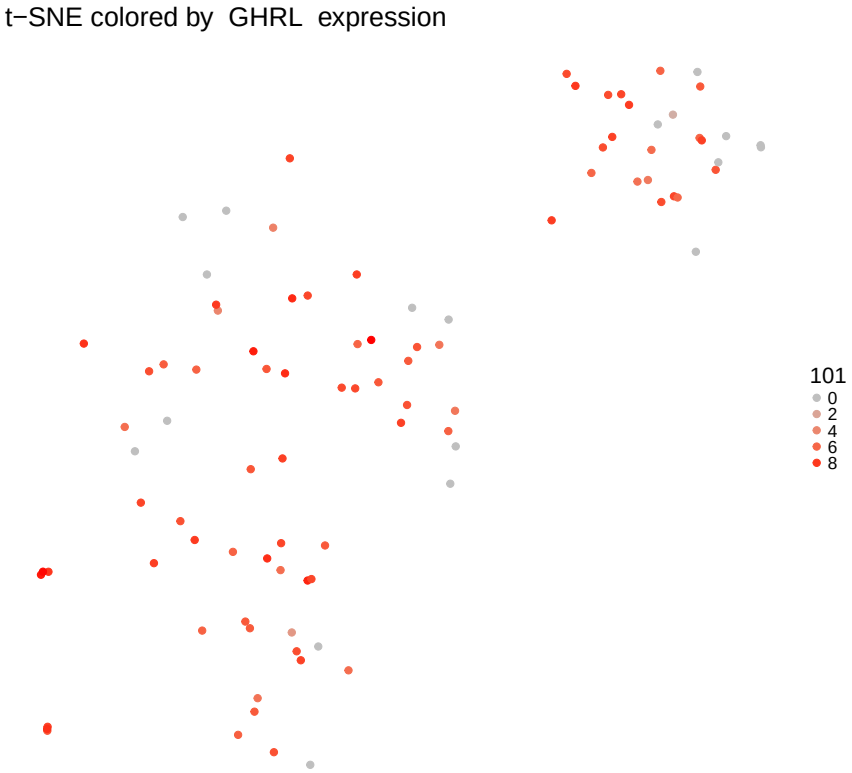
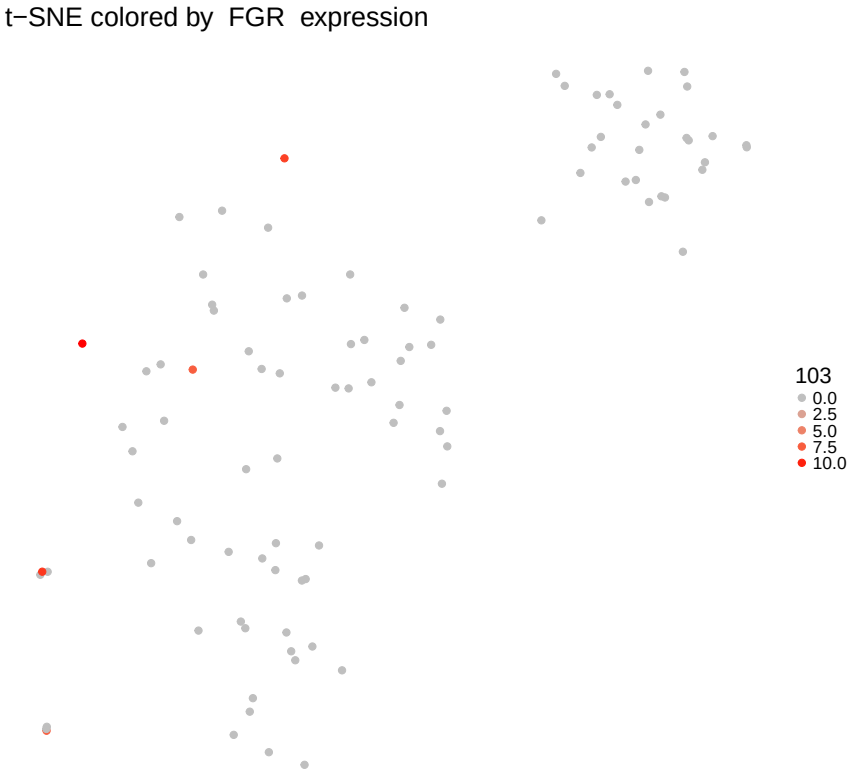
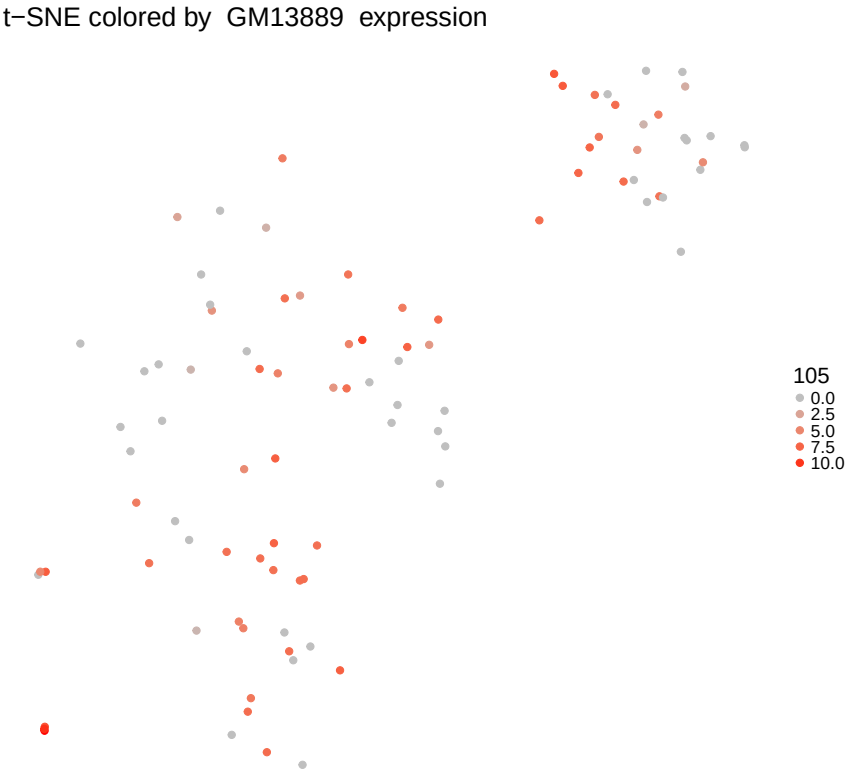
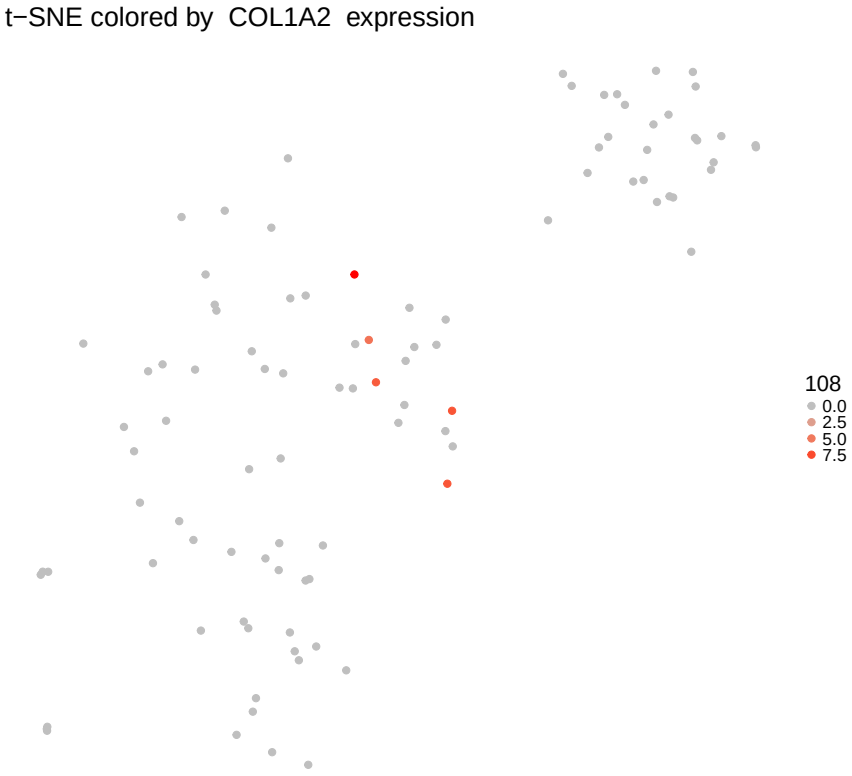
99
0.0
2.5
5.0
7.5

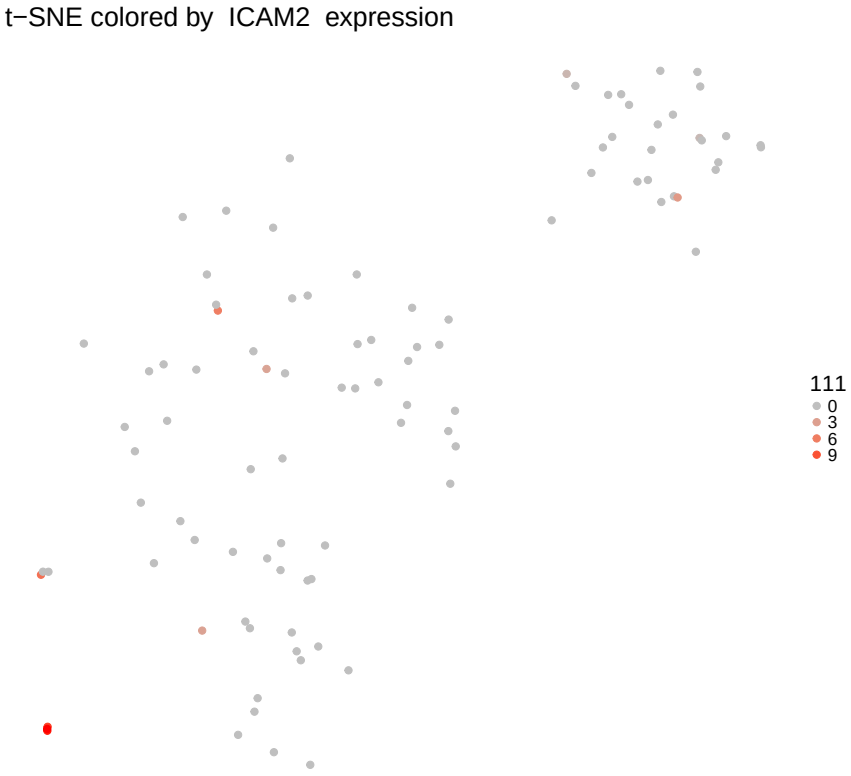

t−SNE colored by CD44 expression
100
0
2
4
6
8

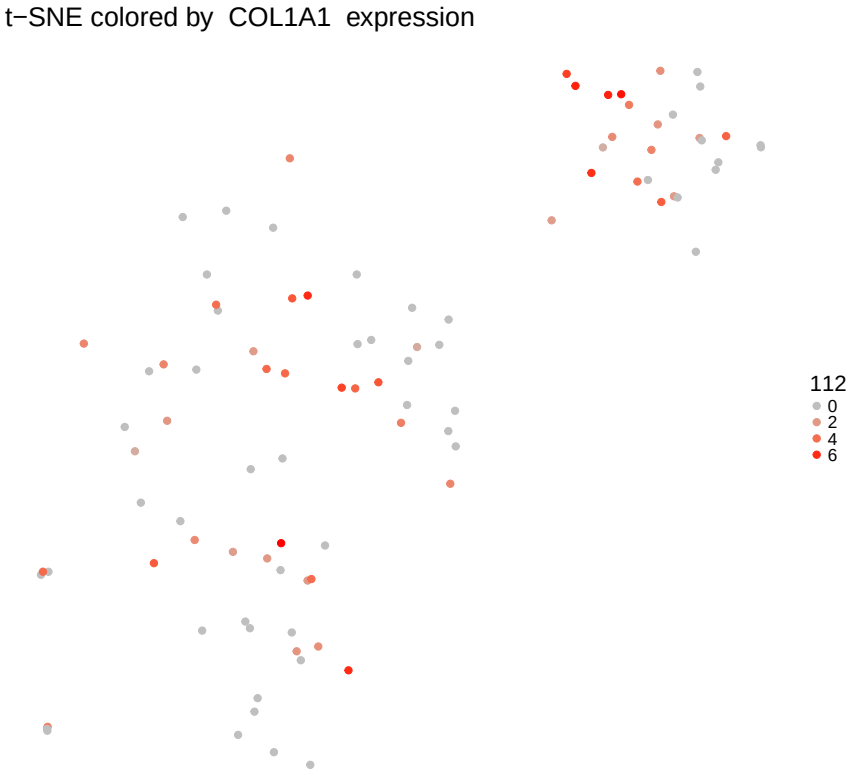

t−SNE colored by GHRL expression
101
0
2
4
6
8


t−SNE colored by FGR expression
103
0.0
2.5
5.0
7.5
10.0

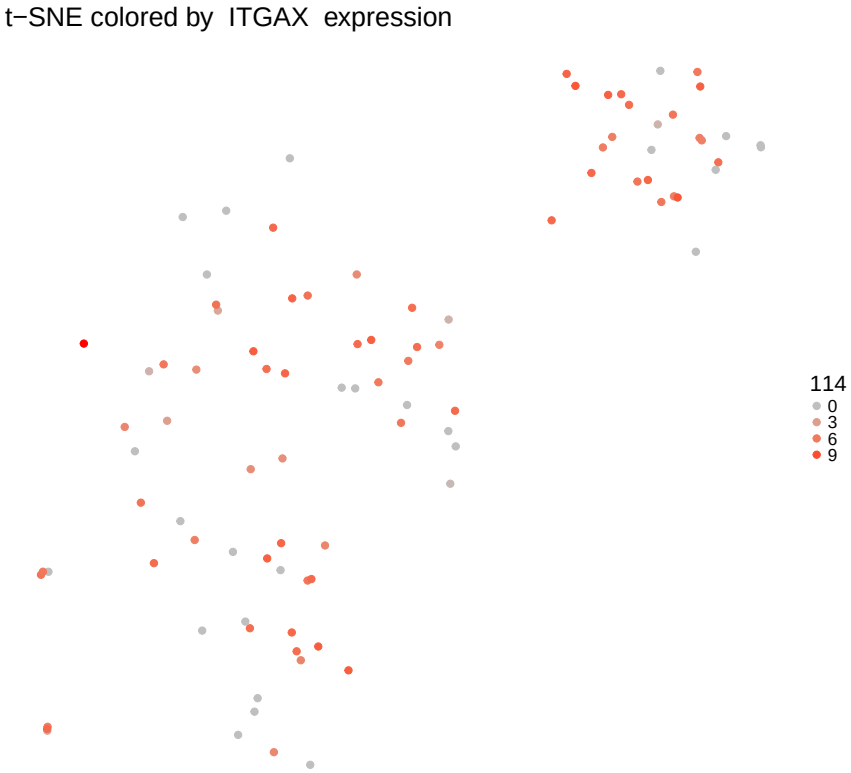

t−SNE colored by GM13889 expression
105
0.0
2.5
5.0
7.5
10.0


t−SNE colored by COL1A2 expression
108
0.0
2.5
5.0
7.5


t−SNE colored by ICAM2 expression
111
0
3
6
9


t−SNE colored by COL1A1 expression
112
0
2
4
6


t−SNE colored by PDPN expression
113
0.0
2.5
5.0
7.5
10.0
12.5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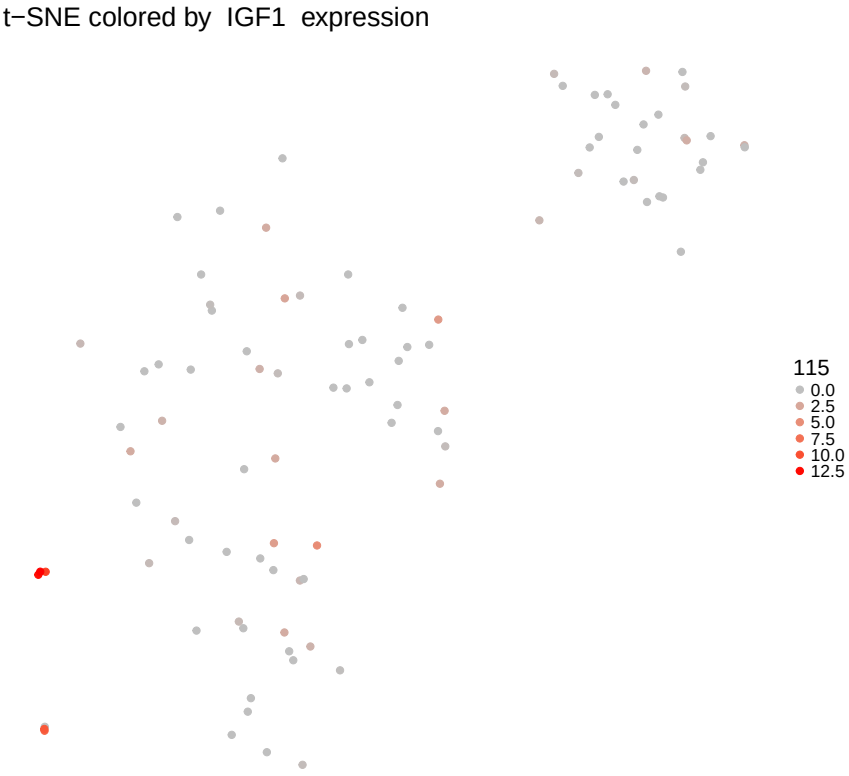
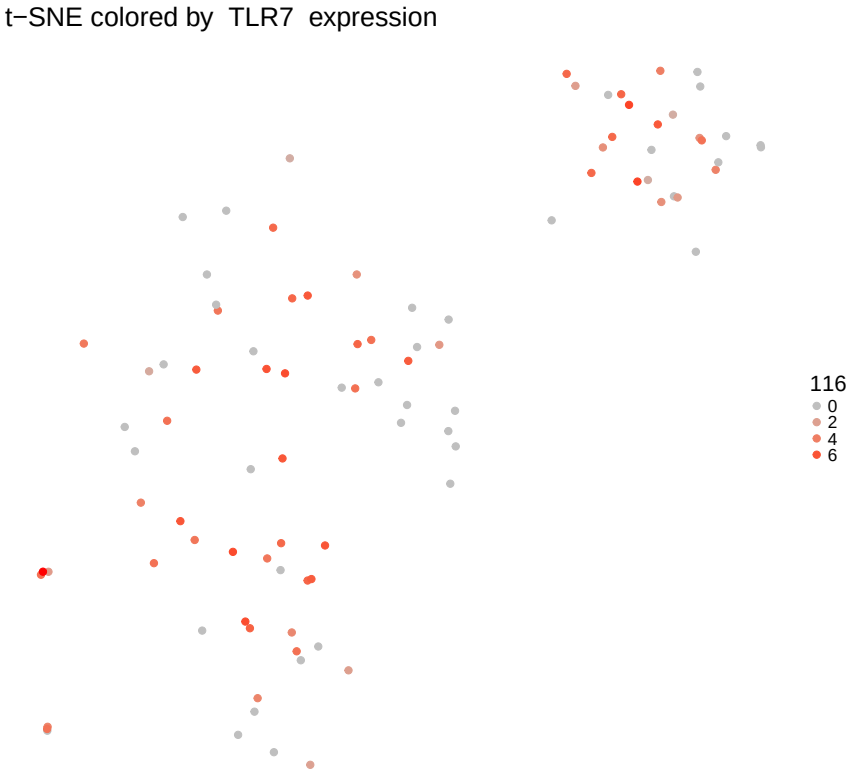
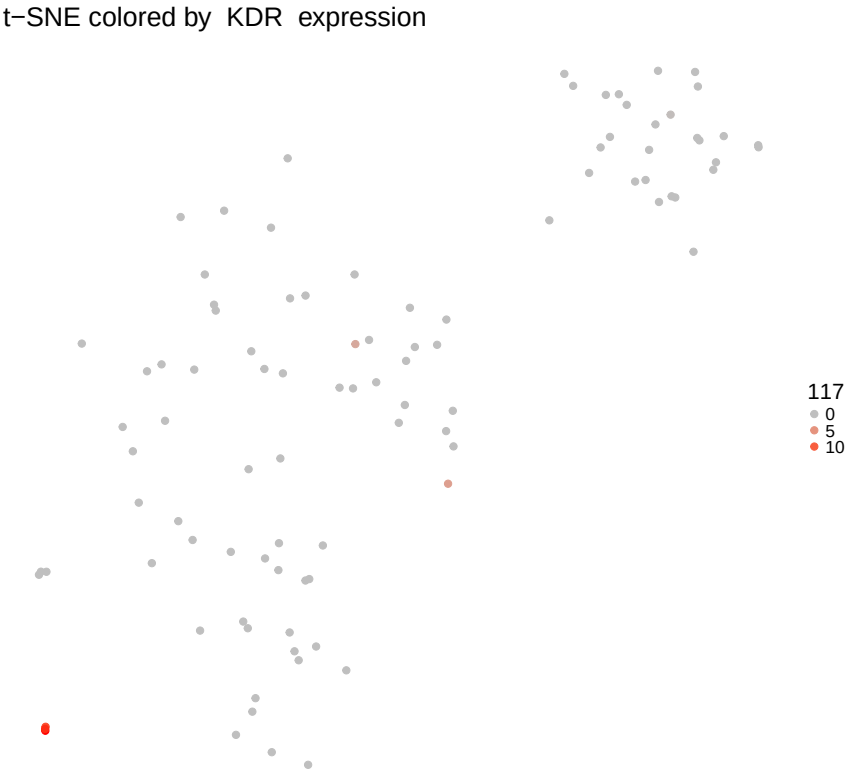
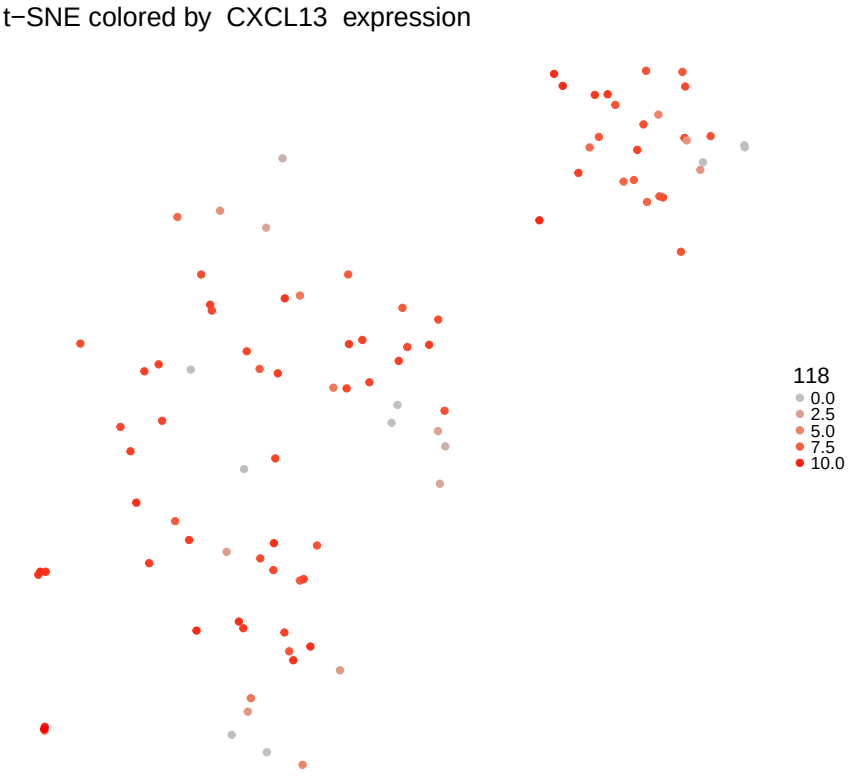
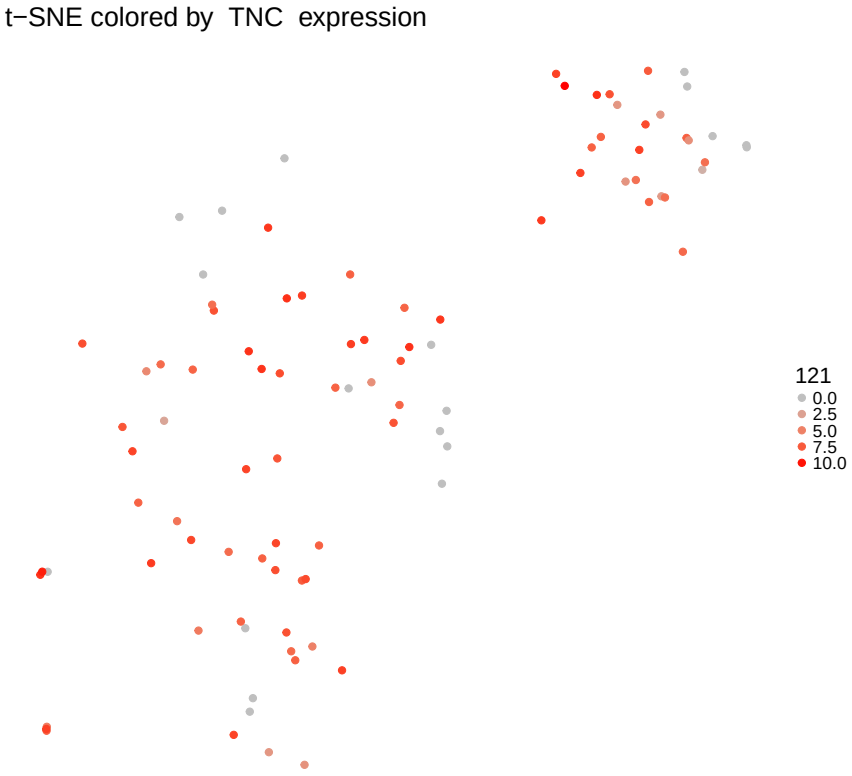
114
0
3
6
9

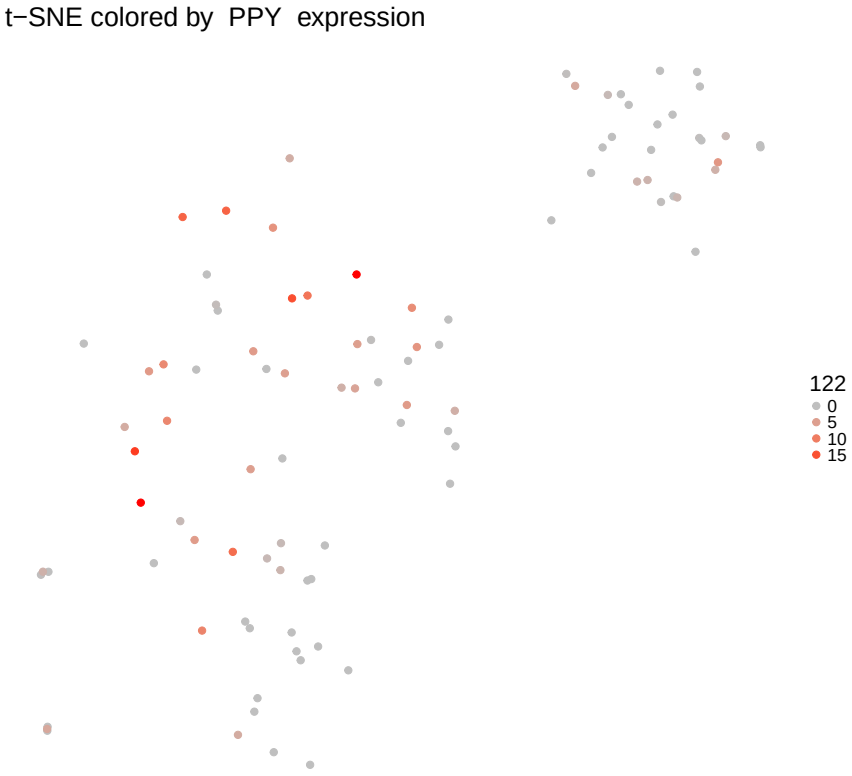

t−SNE colored by IGF1 expression
115
0.0
2.5
5.0
7.5
10.0
12.5


t−SNE colored by TLR7 expression
116
0
2
4
6


t−SNE colored by KDR expression
117
0
5
10


t−SNE colored by CXCL13 expression
118
0.0
2.5
5.0
7.5
10.0


t−SNE colored by TNC expression
121
0.0
2.5
5.0
7.5
10.0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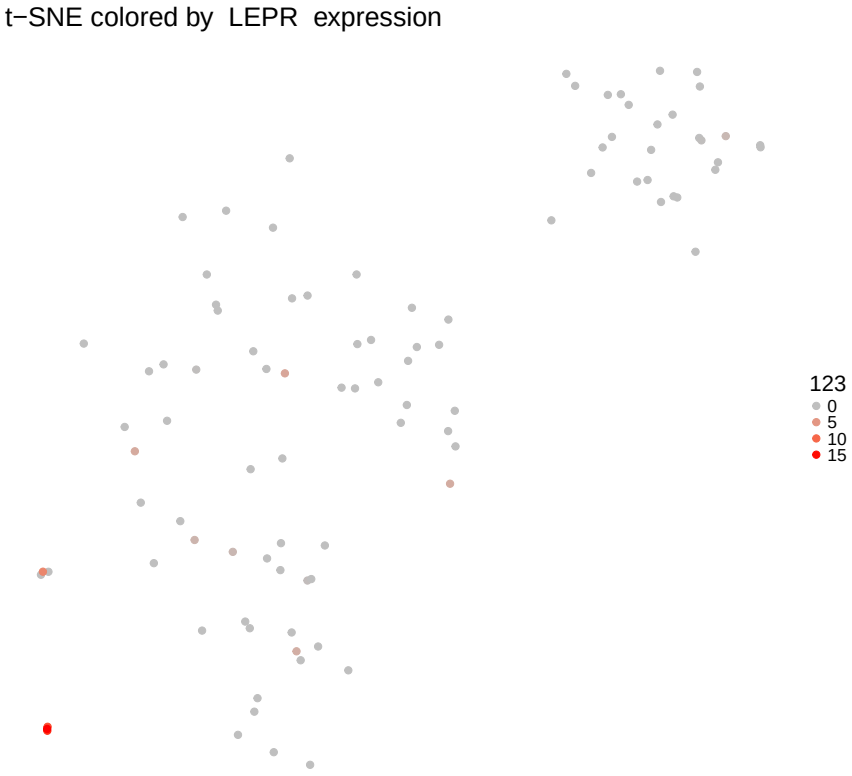
122
0
5
10
15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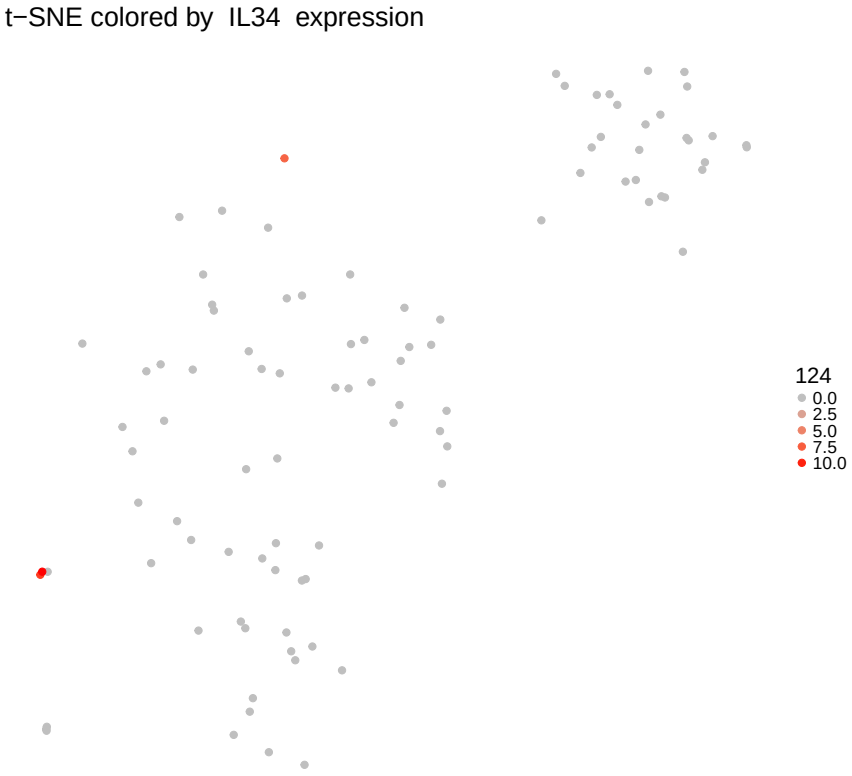
123
0
5
10
15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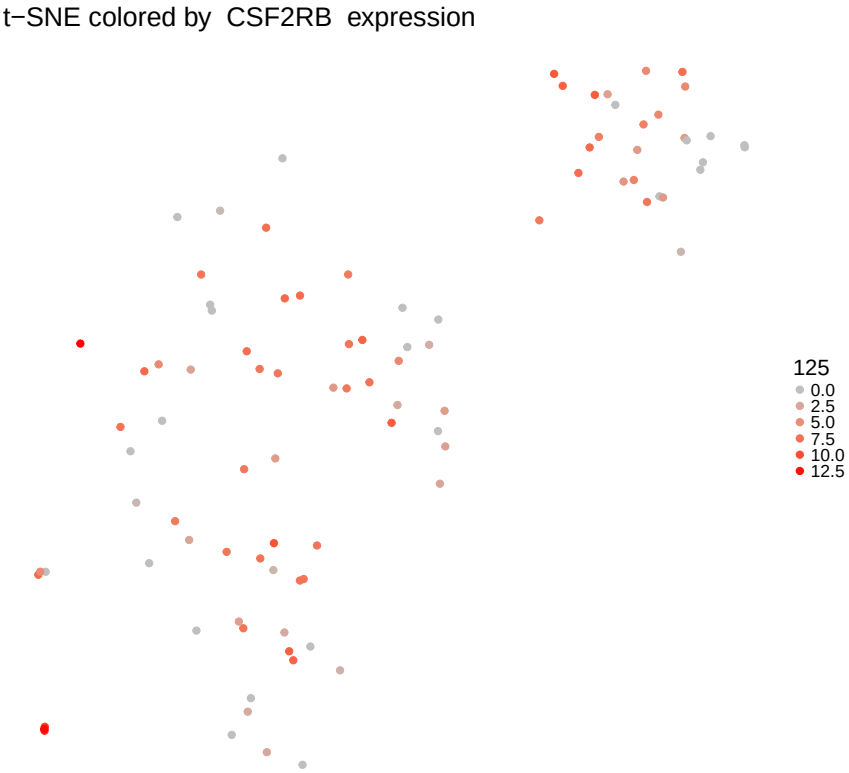
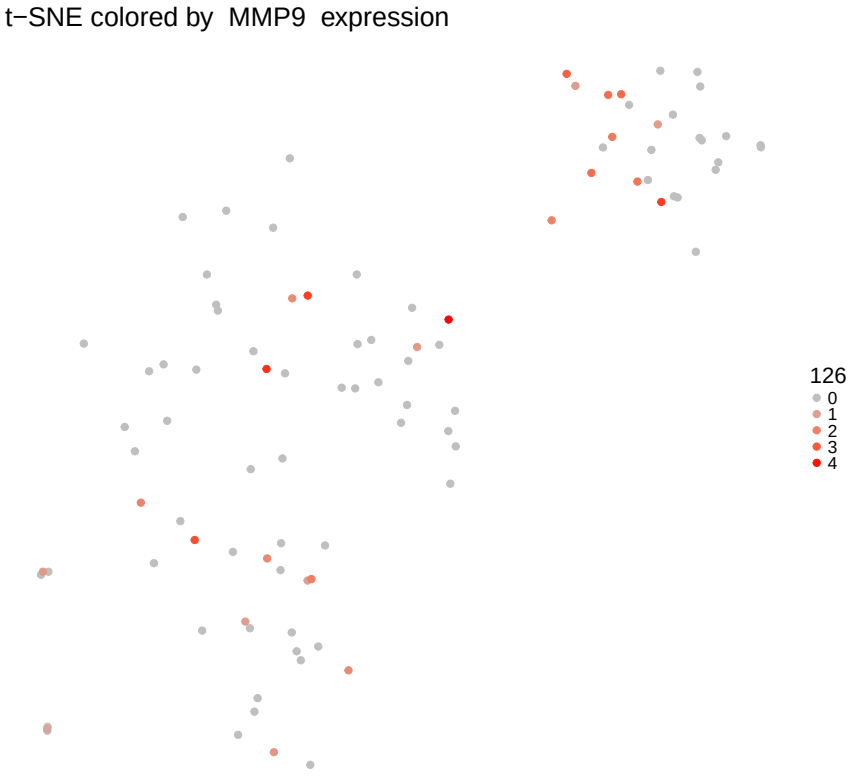
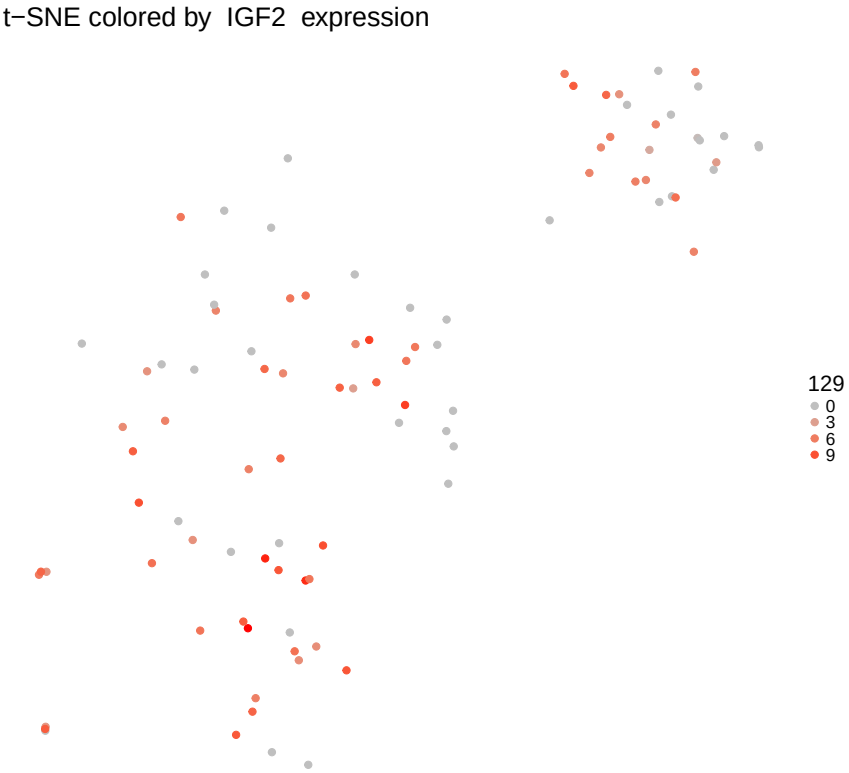
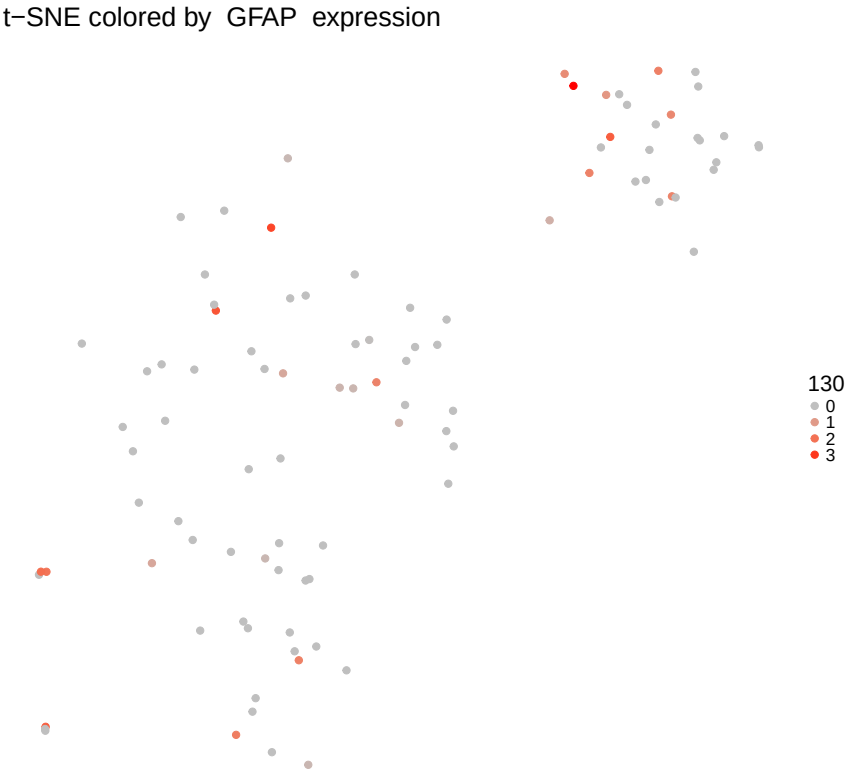
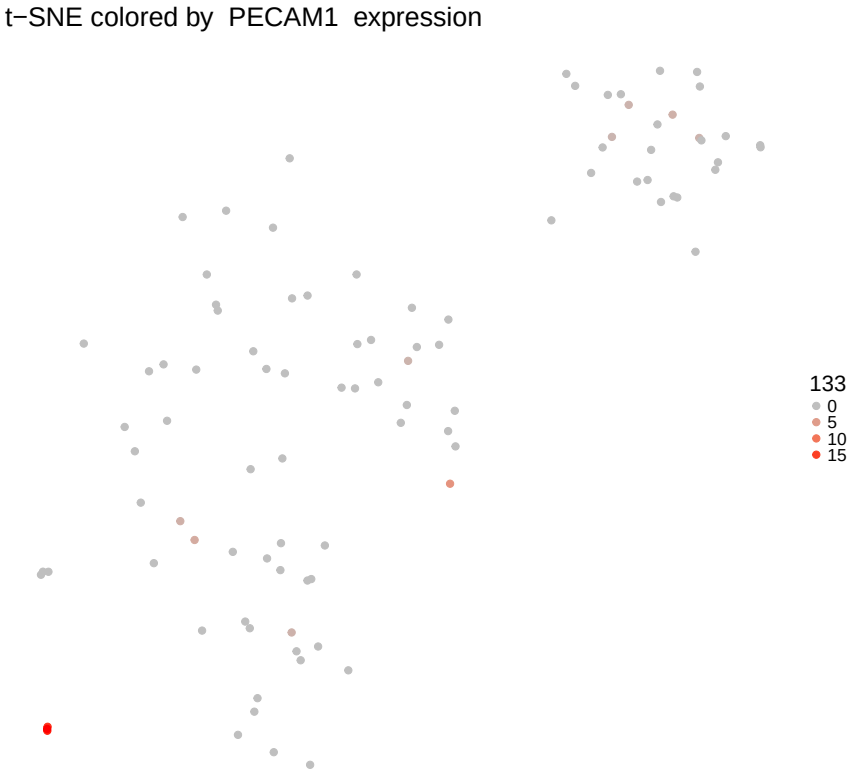
124
0.0
2.5
5.0
7.5
10.0


t−SNE colored by CSF2RB expression
125
0.0
2.5
5.0
7.5
10.0
12.5


t−SNE colored by MMP9 expression
126
0
1
2
3
4


t−SNE colored by IGF2 expression
129
0
3
6
9


t−SNE colored by GFAP expression
130
0
1
2
3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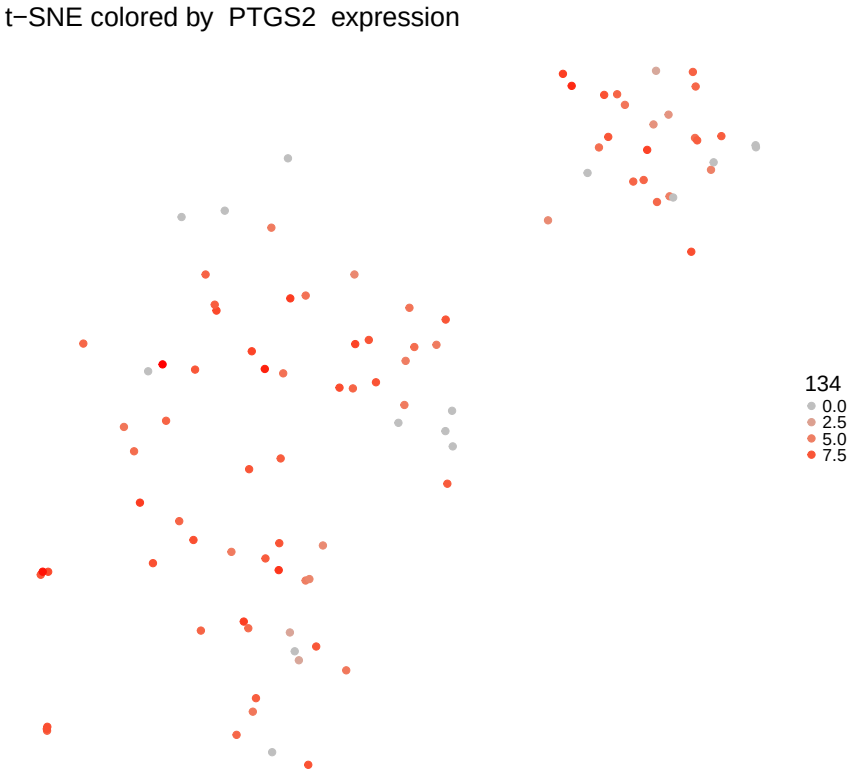
133
0
5
10
15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134
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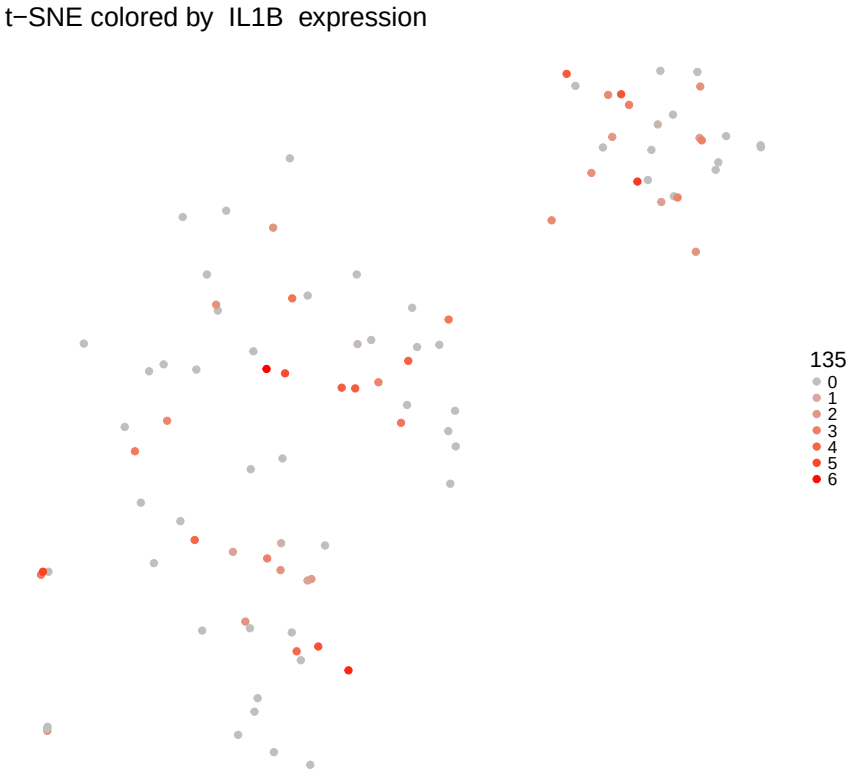
2.5
5.0
7.5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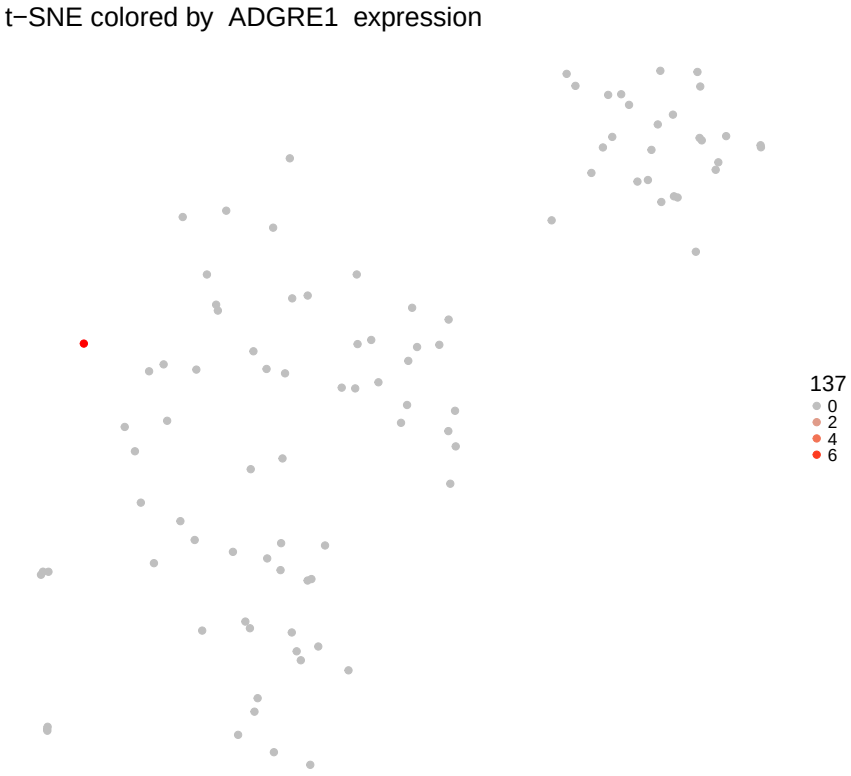
135
0
1
2
3
4
5
6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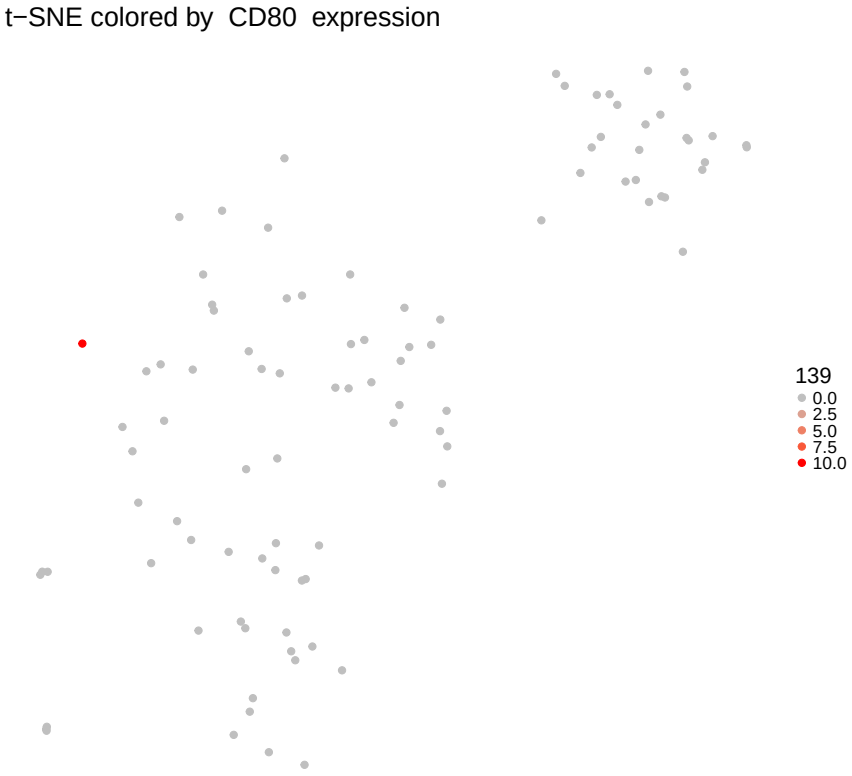
137
0
2
4
6


t−SNE colored by CD80 expression
139
0.0
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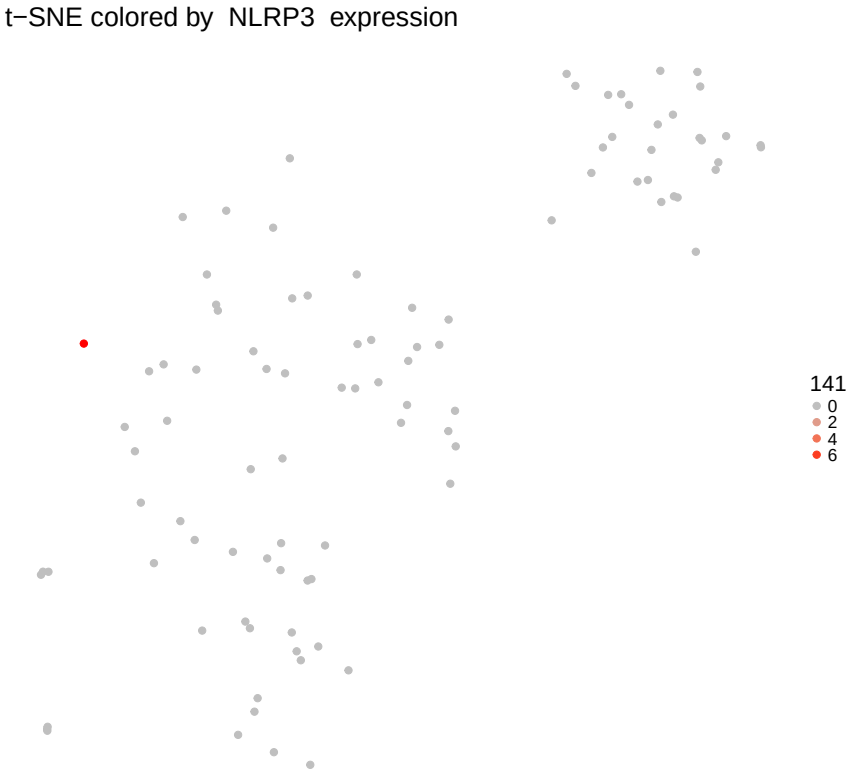
5.0
7.5
10.0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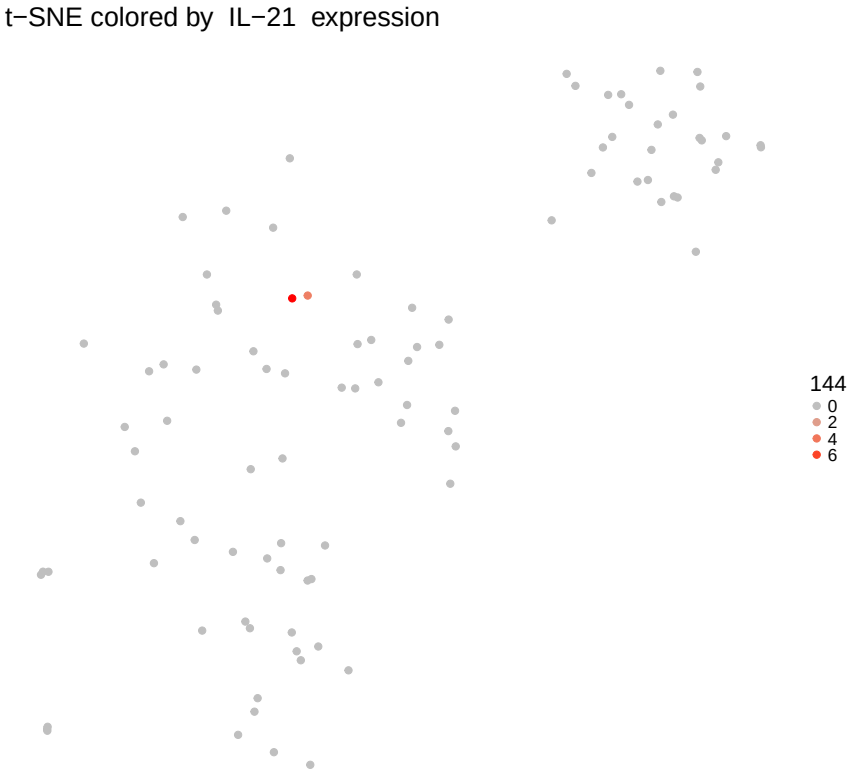
141
0
2
4
6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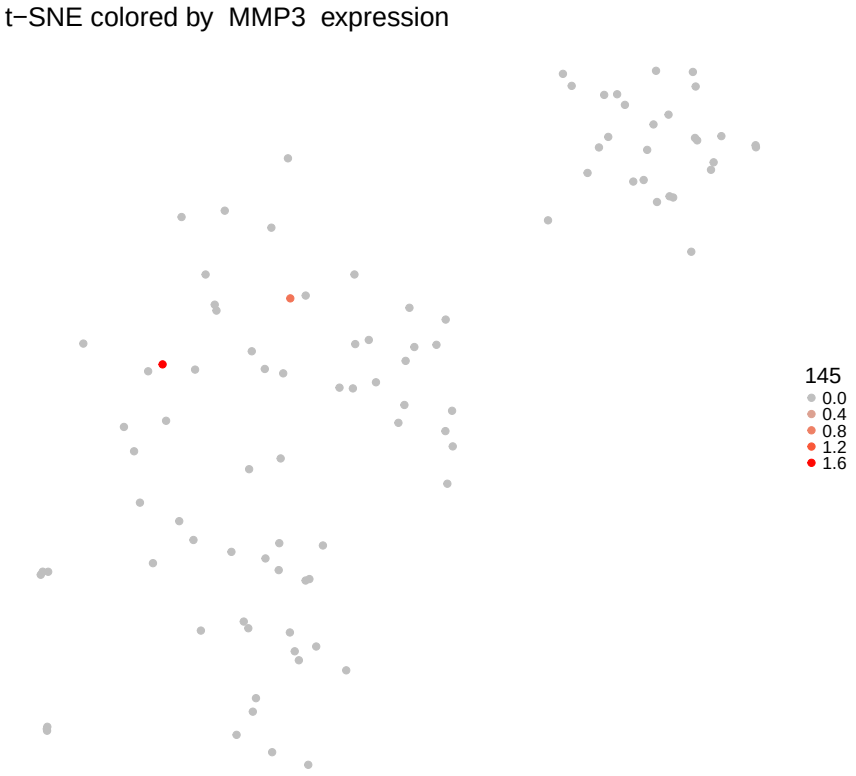
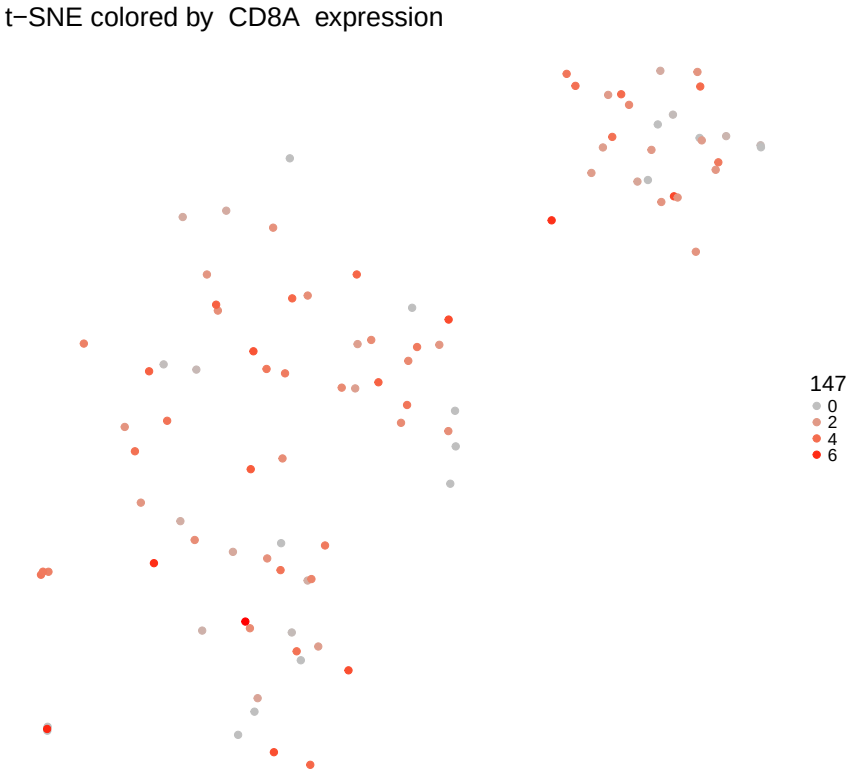
144
0
2
4
6


t−SNE colored by MMP3 expression
145
0.0
0.4
0.8
1.2
1.6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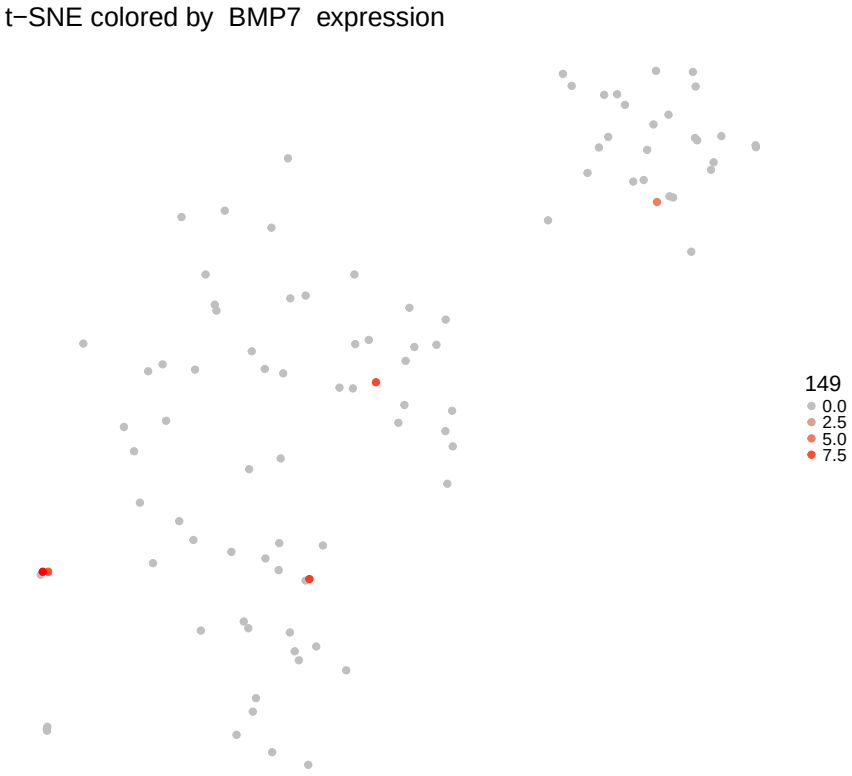
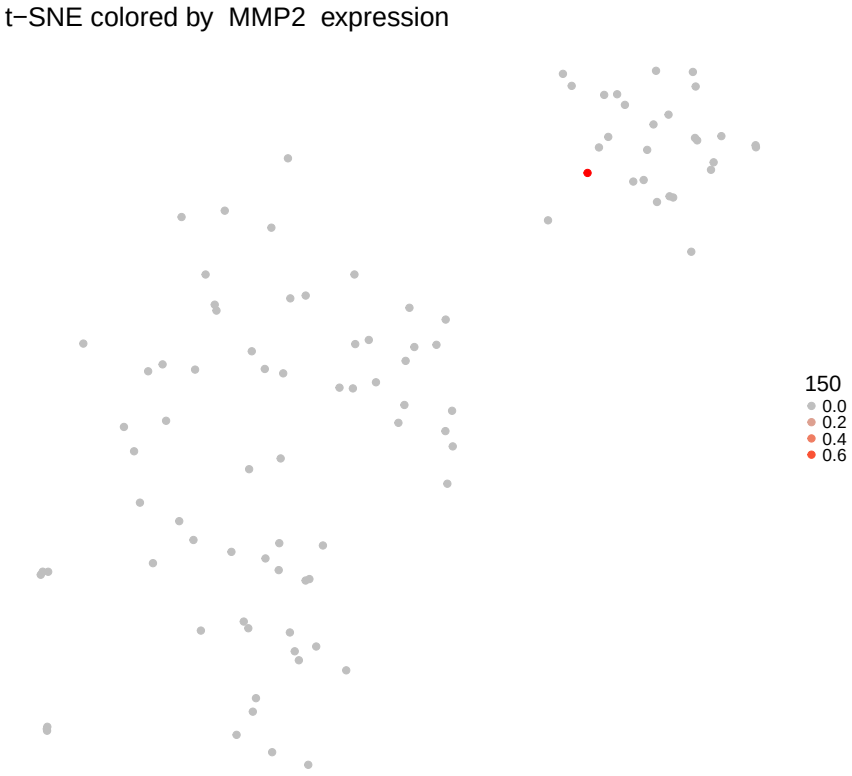
147
0
2
4
6


t−SNE colored by BMP7 expression
149
0.0
2.5
5.0
7.5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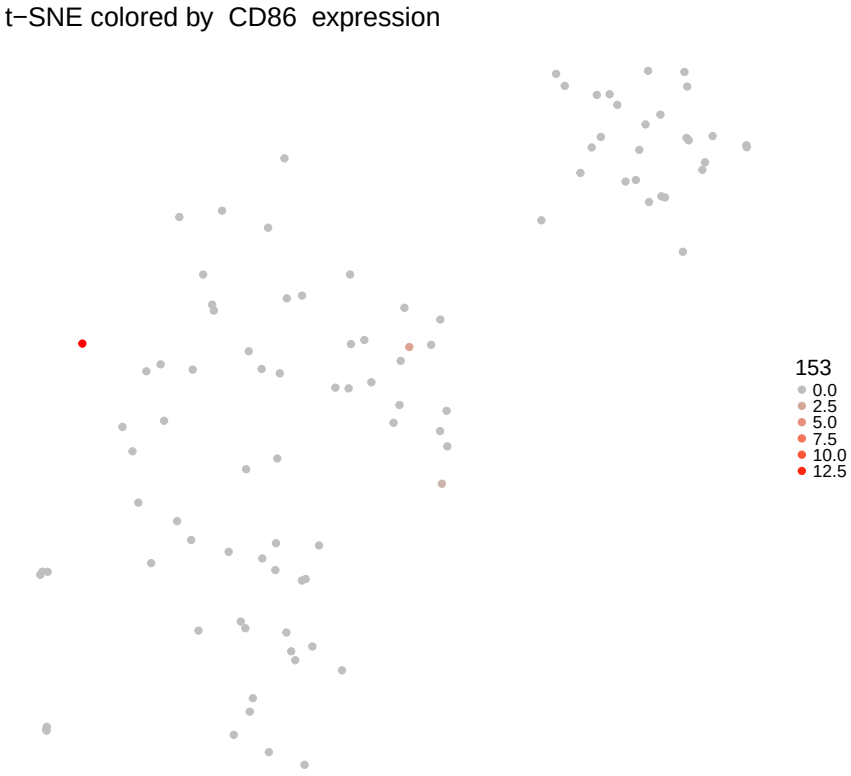
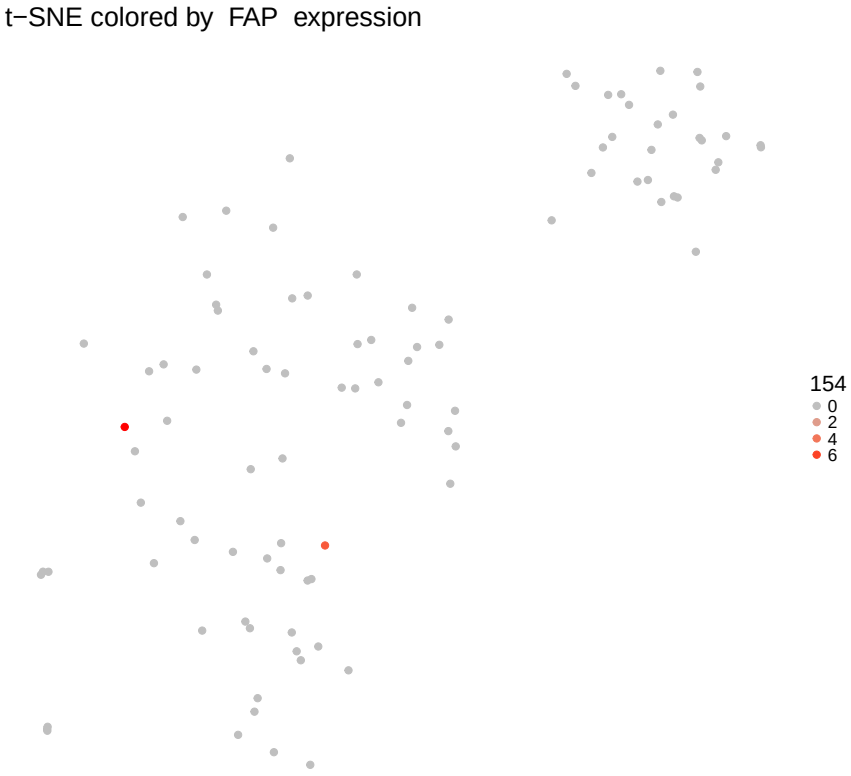
150
0.0
0.2
0.4
0.6


t−SNE colored by CD86 expression
153
0.0
2.5
5.0
7.5
10.0
12.5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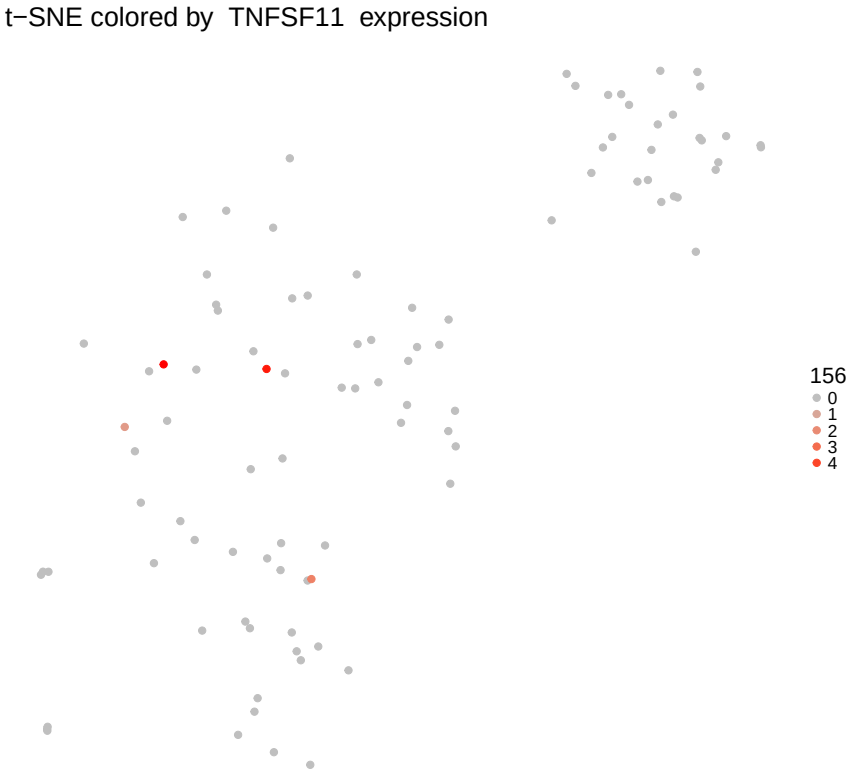
154
0
2
4
6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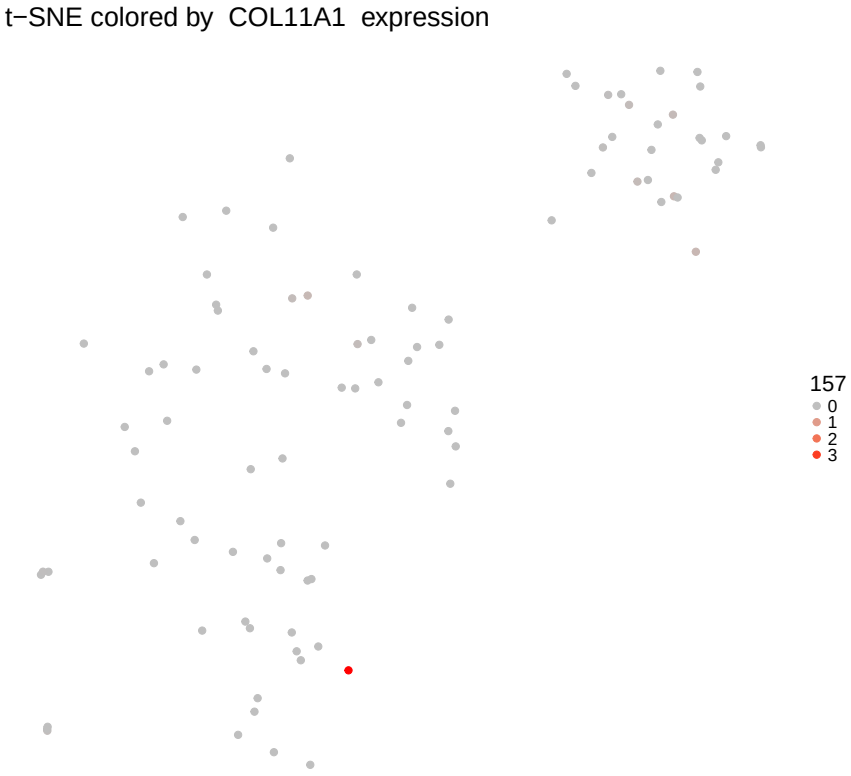
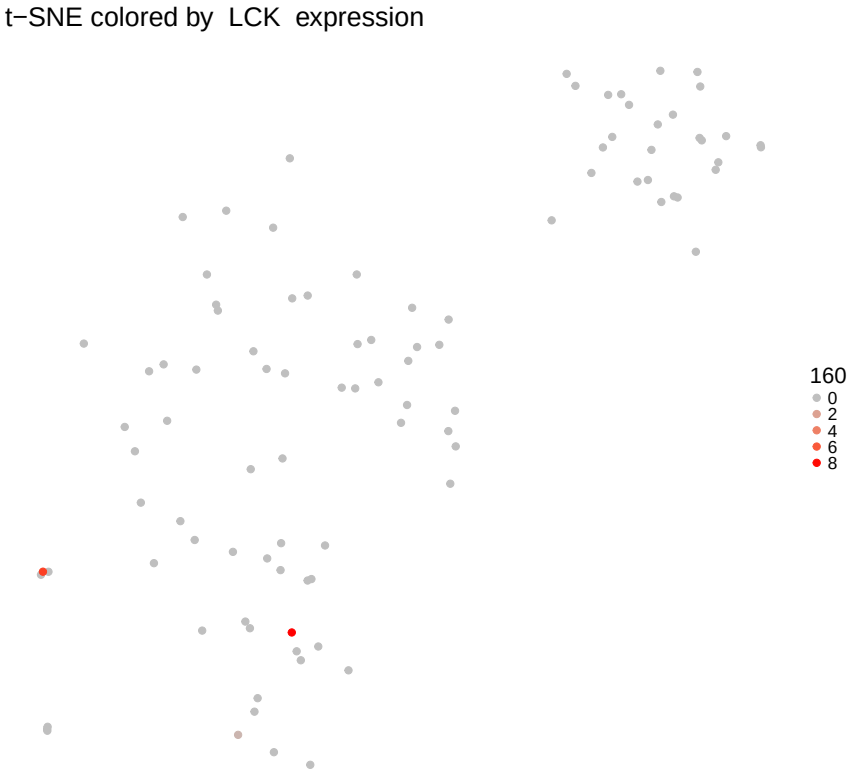
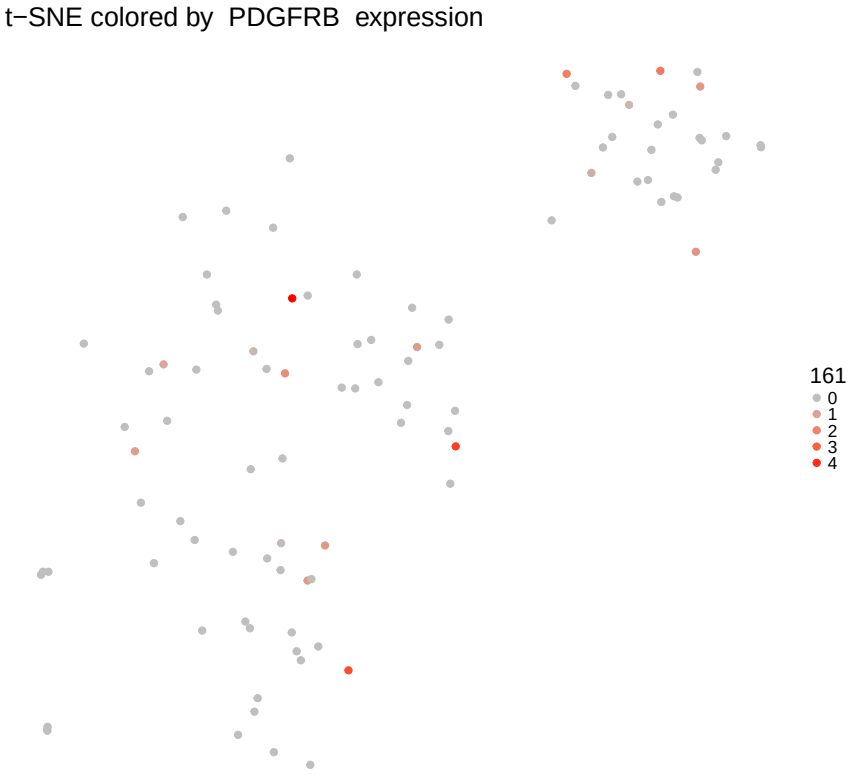
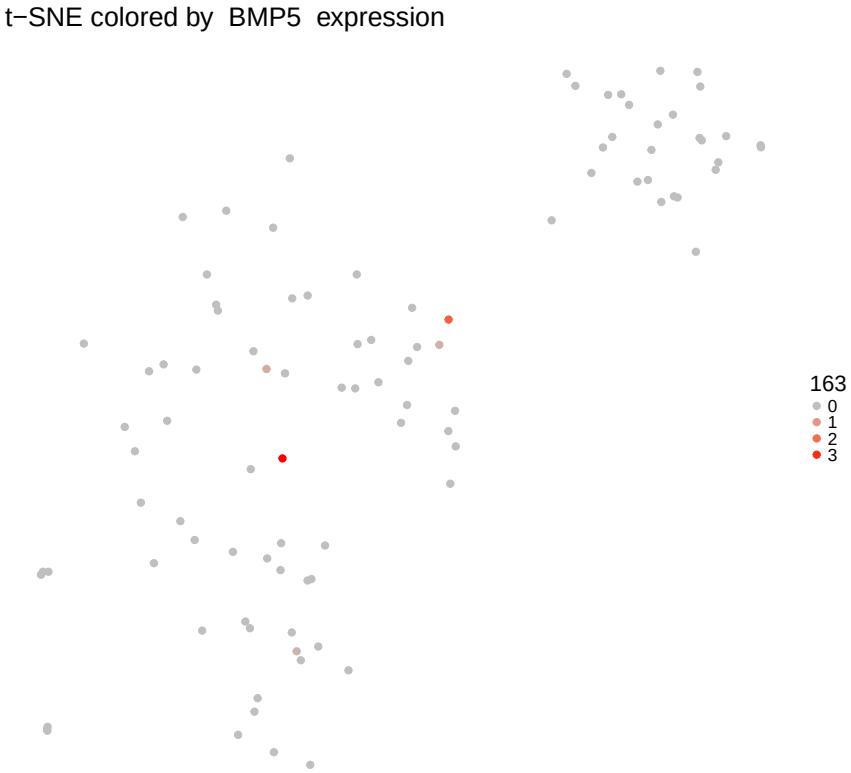
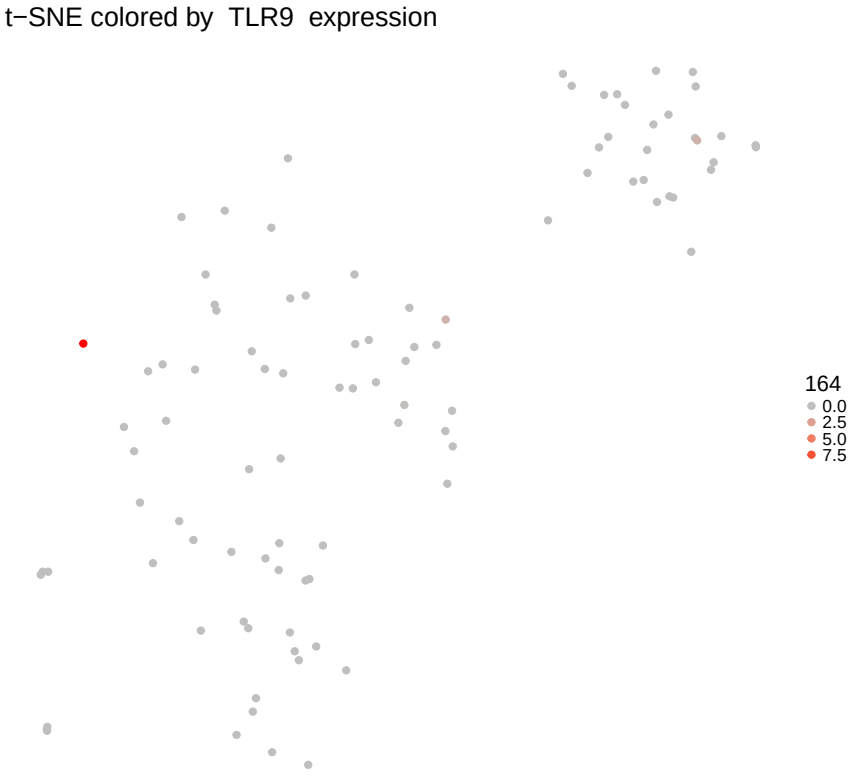
156
0
1
2
3
4

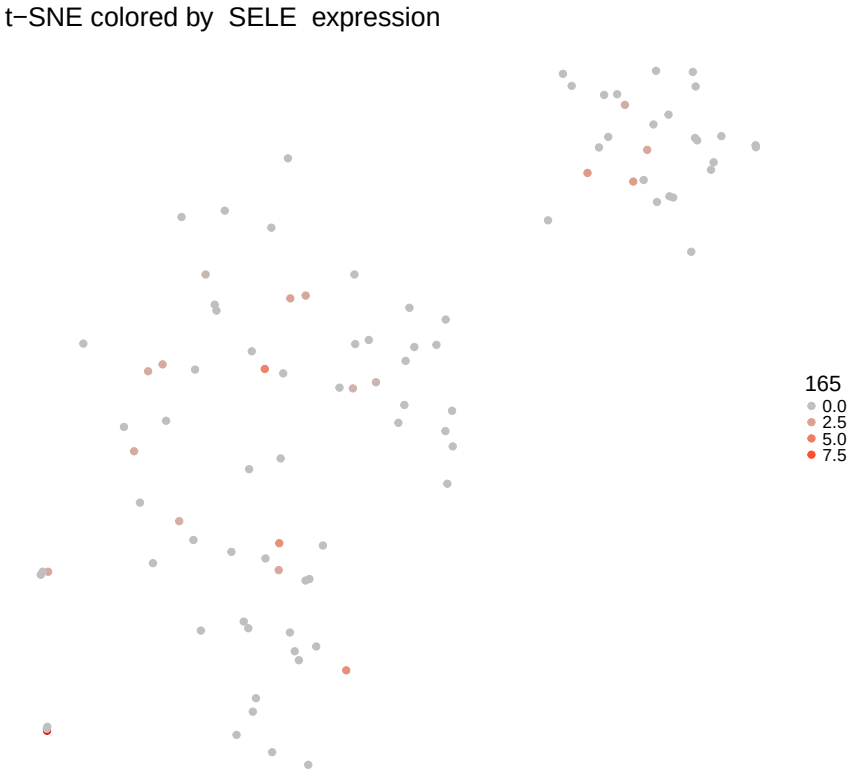

t−SNE colored by COL11A1 expression
157
0
1
2
3

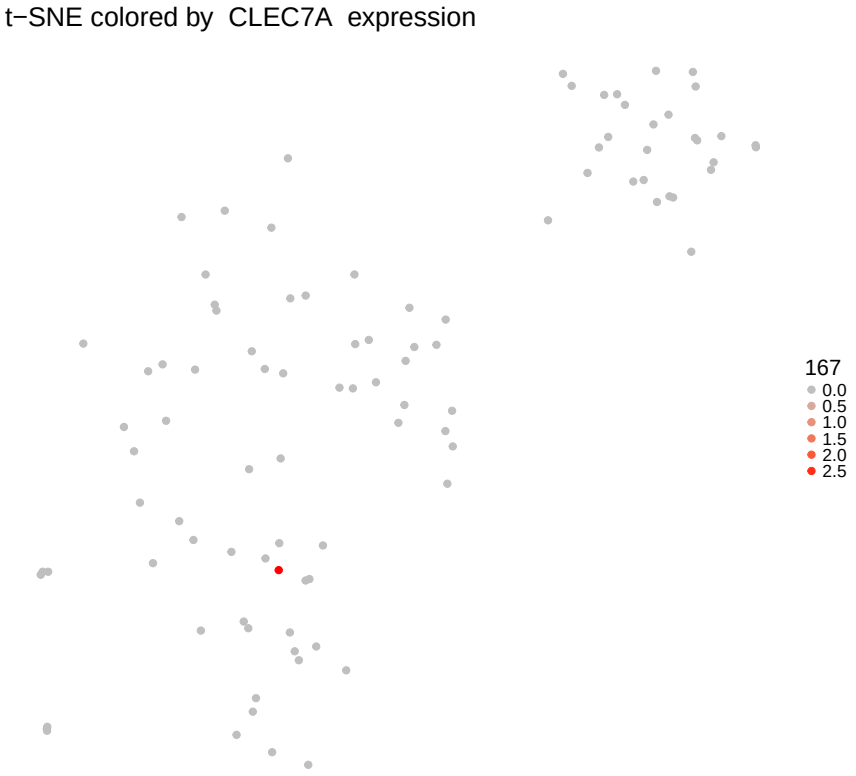

t−SNE colored by LCK expression
160
0
2
4
6
8

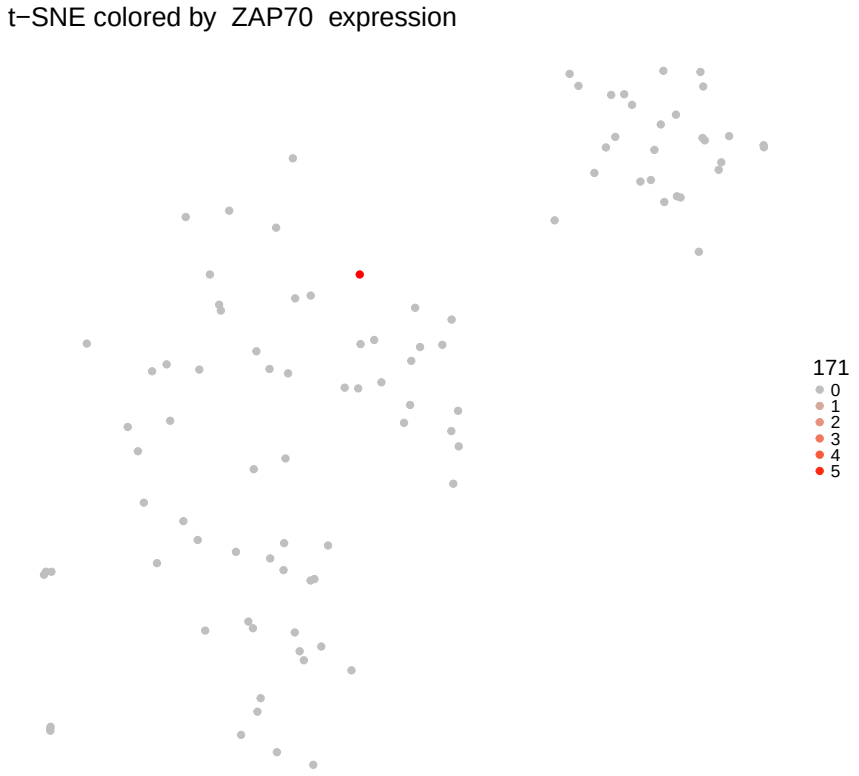

t−SNE colored by PDGFRB expression
161
0
1
2
3
4


t−SNE colored by BMP5 expression
163
0
1
2
3


t−SNE colored by TLR9 expression
164
0.0
2.5
5.0
7.5


t−SNE colored by SELE expression
165
0.0
2.5
5.0
7.5

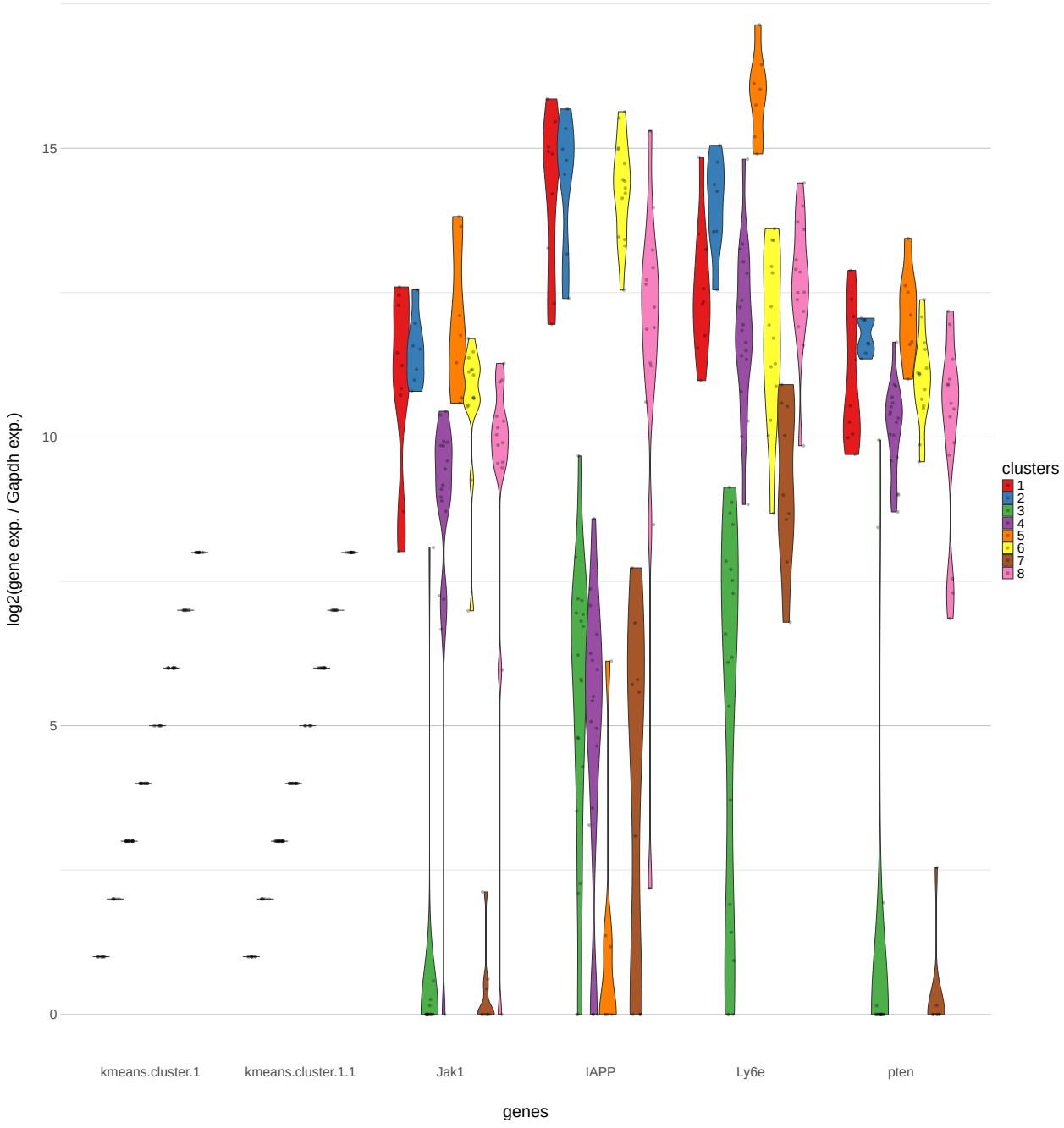

t−SNE colored by CLEC7A expression
167
0.0
0.5
1.0
1.5
2.0
2.5



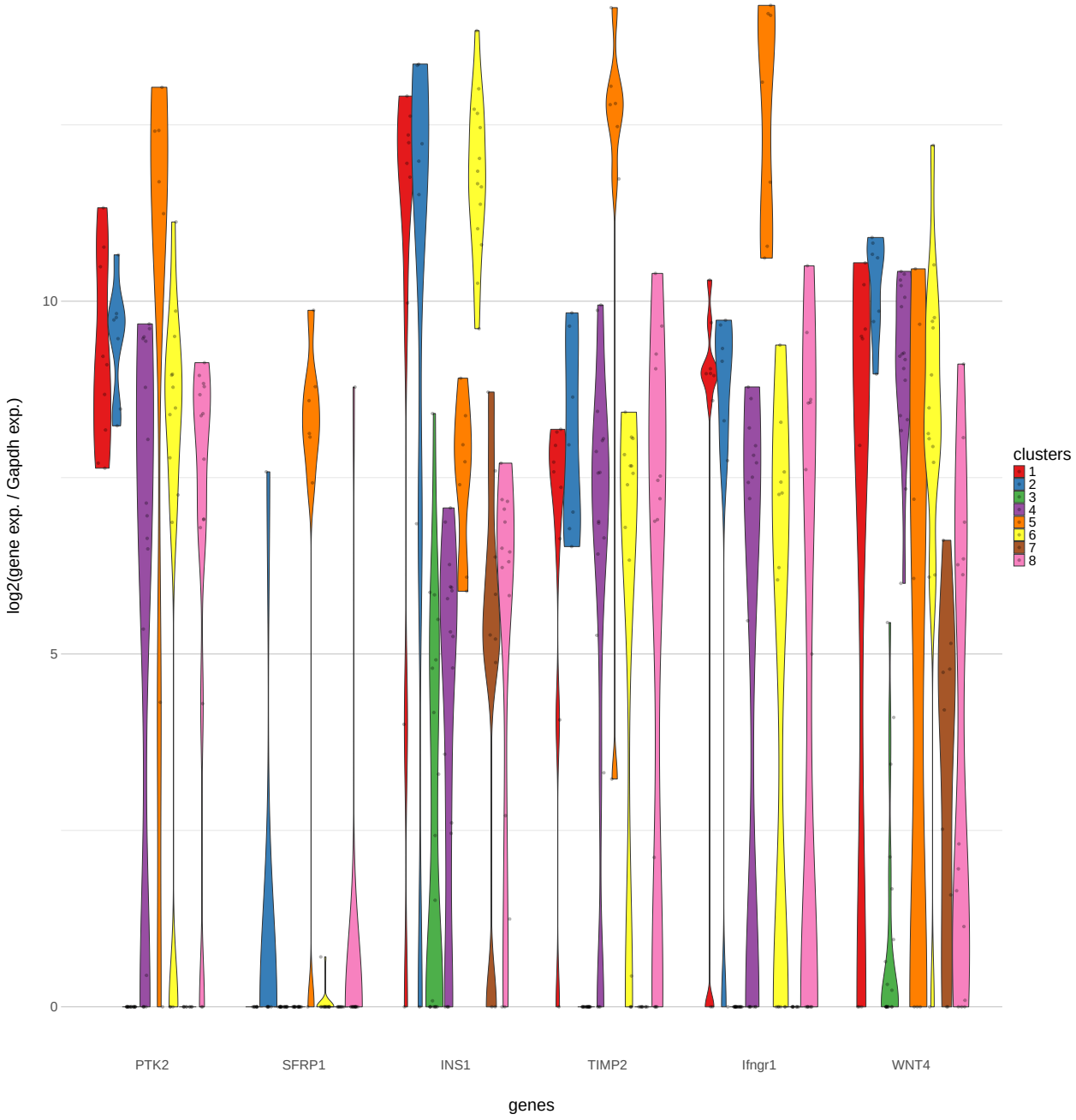

```
Differentially expressed genes between clusters  :
  [1] kmeans.cluster.1: 9.273e-16   kmeans.cluster.1.1: 9.273e-16
  [3] Jak1: 1.165e-11               IAPP: 1.165e-11
  [5] Ly6e: 1.338e-11               pten: 2.605e-11
  [7] TGFB1: 3.896e-11              ITGB1: 5.532e-11
  [9] Irf2: 5.532e-11               HIF1A: 5.532e-11
 [11] Stat3: 5.532e-11              Hprt: 6.961e-11
 [13] gsk3b: 9.279e-11              gsk3a: 9.623e-11
```

```
 [15] VEGFA: 1.301e-10             gapdh: 1.584e-10
 [17] ICOSL: 5.344e-10             CSF1: 9.148e-10
 [19] INS2: 9.602e-10              Stat1: 1.416e-09
 [21] Tgfbr2: 1.565e-09            PDGFA: 2.794e-09
 [23] FLT4: 3.563e-09              Irf1: 5.883e-09
 [25] PTK2: 7.643e-09              SFRP1: 1.05e-08
 [27] INS1: 1.367e-08              TIMP2: 1.781e-08
 [29] Ifngr1: 1.931e-08            WNT4: 2.357e-08
 [31] Aim2: 2.417e-08              KLF5: 3.275e-08
 [33] TLR4: 3.664e-08              TLR3: 4.717e-08
 [35] Pdl-1: 5.161e-08             nfkb1: 5.161e-08
 [37] Jak2: 5.441e-08              Traf2: 6.174e-08
 [39] FGFR1: 6.384e-08             CD24A: 7.92e-08
 [41] GCG: 8.42e-08                tnfrsf1a: 1.507e-07
 [43] Tnfaip3: 1.878e-07           EGFR: 1.888e-07
 [45] SST: 1.984e-07               ACVR1: 1.984e-07
 [47] VEGFB: 2.001e-07             PDGFB: 2.409e-07
 [49] ANPEP: 2.447e-07             CD14: 4.053e-07
 [51] il4ra: 4.251e-07             Socs3: 5.192e-07
 [53] NFATC1: 9.318e-07            Il27r: 1.243e-06
 [55] Oas1b: 1.7e-06               ICAM1: 2.142e-06
 [57] CSF1R: 2.142e-06             Irf7: 2.605e-06
 [59] icam1: 4.743e-06             Il18r1: 5.324e-06
 [61] VCAM1: 5.566e-06             Map2k6: 9.822e-06
 [63] Isg15: 1.209e-05             LY75: 1.657e-05
 [65] FGFR3: 1.688e-05             Ifit3: 1.705e-05
 [67] CD74: 1.909e-05              Cd44: 3.474e-05
 [69] pparg: 6.388e-05             tnfrsf1b: 7.141e-05
 [71] Rsad2: 7.759e-05             Ifi44: 0.0001104
 [73] H2.AA: 0.0001362             Fyn: 0.0001398
 [75] Ifit1: 0.0001404             CD36: 0.0001688
 [77] CD83: 0.0001703              TEK: 0.0002163
 [79] Vav1: 0.0002215              SPP1: 0.000263
 [81] DES: 0.0002973               Oas2: 0.0003269
 [83] ccr2: 0.0003417              CSF2RA: 0.0004109
 [85] Stat5: 0.0004548             ANGPT1: 0.0004579
 [87] TIMP1: 0.0004867             CD44: 0.0005604
 [89] GHRL: 0.0006638              H2.DMA: 0.0006827
 [91] FGR: 0.0007224               Bcl6: 0.0008245
 [93] GM13889: 0.0008948           Nur77: 0.001443
 [95] Bcl2: 0.001484               COL1A2: 0.001727
 [97] Ceacam1: 0.001802            Cxcl10: 0.00235
 [99] ICAM2: 0.002488              COL1A1: 0.003071
[101] PDPN: 0.003379               ITGAX: 0.003544
[103] IGF1: 0.003805               TLR7: 0.004337
[105] KDR: 0.005027                CXCL13: 0.005603
[107] tnf: 0.006565                Mx1: 0.00708
[109] TNC: 0.007386                PPY: 0.007839
[111] LEPR: 0.01254                IL34: 0.01563
[113] CSF2RB: 0.01719              MMP9: 0.01866
[115] ccr6: 0.01866                il7: 0.02614
[117] IGF2: 0.03353
```

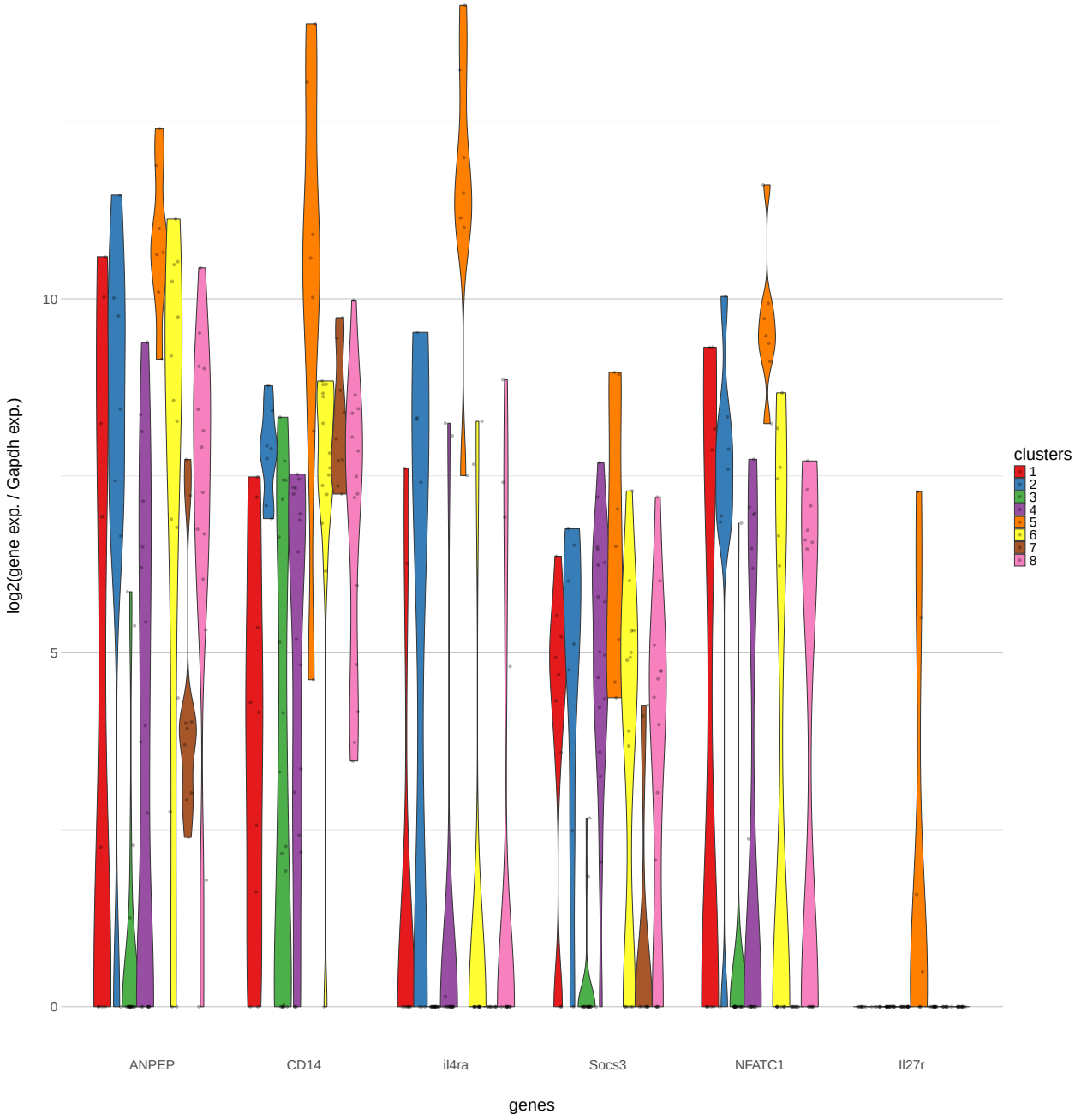
most significant expression differences between clusters (plot #1)

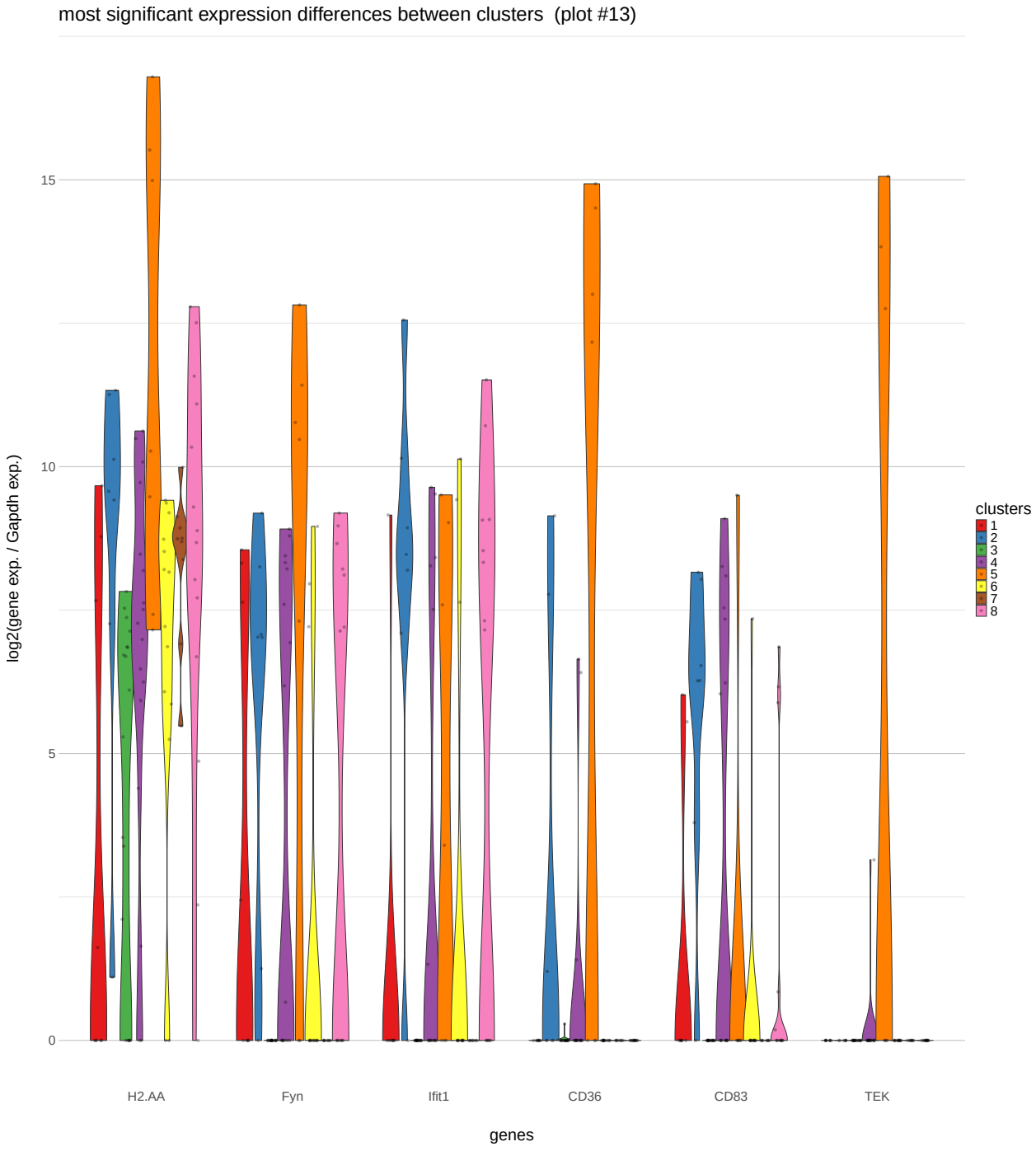


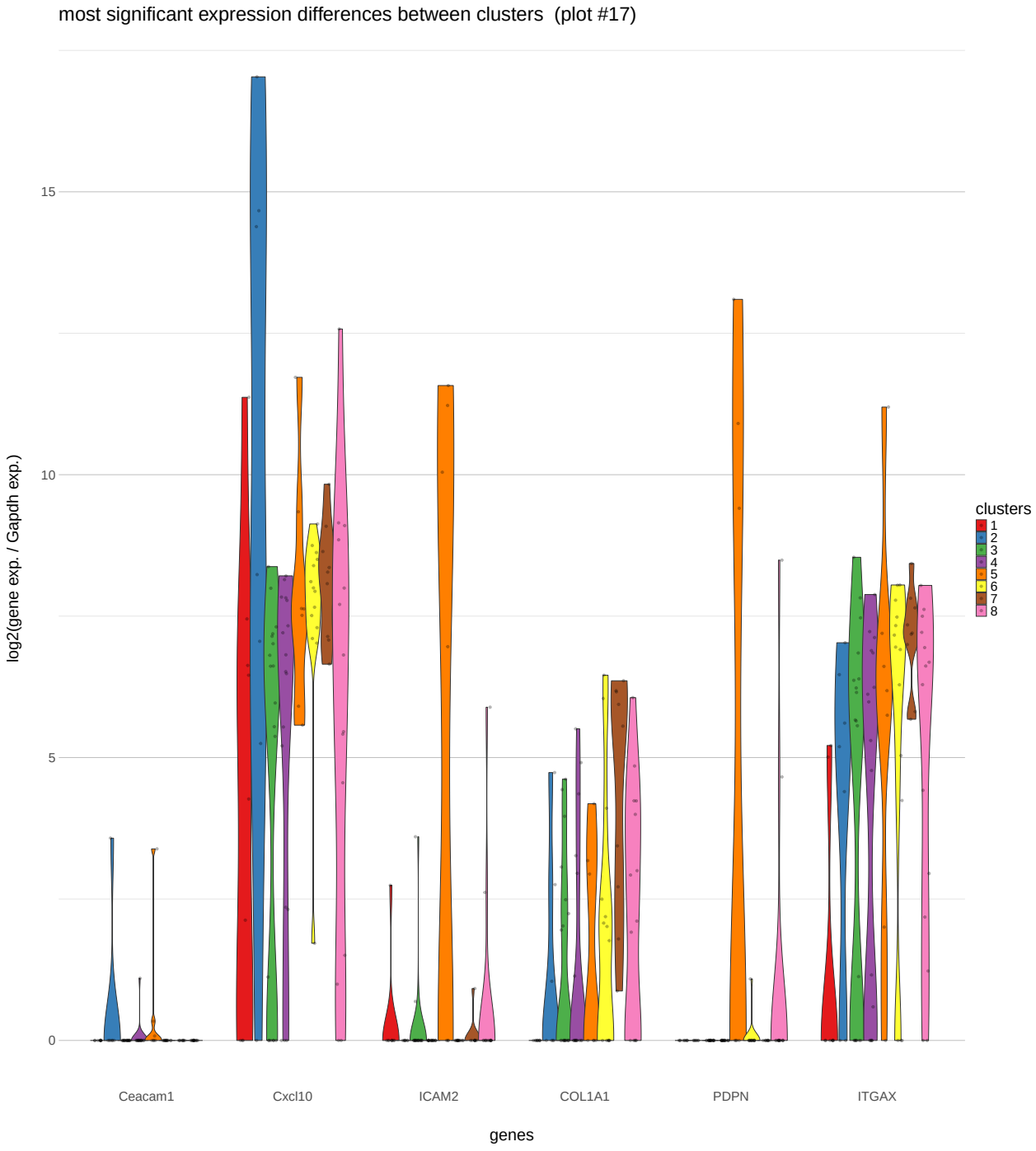
most significant expression differences between clusters (plot #5)



most significant expression differences between clusters (plot #9)




most significant expression differences between clusters (plot #13)
log2(gene exp. / Gapdh exp.)
15
10
5
0
H2.AA
Fyn
Ifit1
CD36
CD83
TEK
genes
clusters
1
2
3
4
5
6
7
8


most significant expression differences between clusters (plot #17)
log2(gene exp. / Gapdh exp.)
15
10
5
0
Ceacam1
Cxcl10
ICAM2
COL1A1
PDPN
ITGAX
genes
clusters
1
2
3
4
5
6
7
8

most significant expression differences between clusters (plot #21)