

Test

```
[1] "CD3E"   "CD4"    "CD44"   "CD80"   "CD86"   "ICAM1"  "IFNG"   "ZAP70"
[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 analysis"
[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] "Rows that contain data for CD3E:"
[1] "Number of rows AFTER duplicate genes have been removed: 18336"
[1] "Rows that contain data for CD4:"
[1] "Number of rows AFTER duplicate genes have been removed: 18240"
[1] "Rows that contain data for CD44:"
[1] "Number of rows AFTER duplicate genes have been removed: 18144"
[1] "Rows that contain data for CD80:"
[1] "Number of rows AFTER duplicate genes have been removed: 18048"
[1] "Rows that contain data for CD86:"
[1] "Number of rows AFTER duplicate genes have been removed: 17952"
[1] "Rows that contain data for CD8A:"
[1] "Number of rows AFTER duplicate genes have been removed: 17856"
[1] "Rows that contain data for ICAM1:"
[1] "Number of rows AFTER duplicate genes have been removed: 17760"
[1] "Rows that contain data for IFNG:"
[1] "Number of rows AFTER duplicate genes have been removed: 17664"
[1] "Rows that contain data for ZAP70:"
[1] "Number of rows AFTER duplicate genes have been removed: 17568"
[1] "Predicted number of rows after removing duplicate genes, per cell: 17568"
[1] "The predicted number of rows DOES match the number of rows, post duplicate gene removal"
[1] "Are blood samples in this table? FALSE"
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No expression detected in 0/96 cells

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[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"
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[31] "CD4"          "CD40"          "CD44"          "CD74"          "CD80"
[36] "CD83"          "CD86"          "CD8A"          "CEACAM1"        "CLEC7A"
[41] "COL11A1"        "COL1A1"        "COL1A2"        "CSF1"           "CSF1R"
[46] "CSF2RA"         "CSF2RB"        "CTLA4"          "CXCL10"        "CXCL13"
[51] "CXCR3"          "CXCR4"          "DES"            "EGFR"           "FAP"
[56] "FCGR1"          "FGFR1"          "FGFR3"          "FGR"            "FLT4"
[61] "FOXP3"          "FYN"            "GAPDH"          "GATA4"          "GCG"
[66] "GFAP"           "GHRL"           "GM13889"       "GSK3A"          "GSK3B"
[71] "H2-AA"           "H2-DMA"        "HIF1A"          "HPRT"           "IAPP"
[76] "ICAM1"           "ICAM2"          "ICOS"           "ICOSL"          "IFI44"
[81] "IFI44L"          "IFIT1"          "IFIT3"          "IFNG"           "IFNGR1"
[86] "IGF1"            "IGF2"           "IL-21"          "IL10"           "IL12B"
[91] "IL12RB"          "IL17A"          "IL18R1"        "IL1A"           "IL1B"
[96] "IL1R2"           "IL2"             "IL25"           "IL27"           "IL27R"
[101] "IL2RA"           "IL3"             "IL34"           "IL4"            "IL4RA"
[106] "IL5"             "IL5RA"          "IL6"            "IL7"            "IL7R"
[111] "INS1"            "INS2"           "IRF1"           "IRF2"           "IRF4"
[116] "IRF7"            "ISG15"          "ITGAX"          "ITGB1"          "JAK1"
[121] "JAK2"            "KDR"            "KLF5"           "LCK"            "LEPR"
[126] "LY6E"            "LY75"           "MAP2K6"         "MAPK8"          "MMP1A"
[131] "MMP2"            "MMP3"           "MMP9"           "MX1"            "NFATC1"
[136] "NFKB1"           "NLRP3"          "NUR77"          "OAS1B"          "OAS2"
[141] "OASL1"           "PD1"            "PDGFA"          "PDGFB"          "PDGFRB"
[146] "PDL-1"           "PDPN"           "PECAM1"         "PPARA"          "PPARG"
[151] "PPARGC1A"        "PPY"            "PTEN"           "PTGS2"          "PTK2"
[156] "RSAD2"           "RSP01"          "SELE"           "SFRP1"          "SOCS3"
[161] "SPP1"            "SST"            "STAT1"          "STAT3"          "STAT4"
[166] "STAT5"           "TBX21"          "TEK"            "TGFB1"          "TGFBR2"
[171] "TIMP1"           "TIMP2"          "TLR3"           "TLR4"           "TLR7"
[176] "TLR9"            "TNC"            "TNF"            "TNFAIP3"        "TNFRSF1A"
[181] "TNFRSF1B"        "TNFSF11"        "TRAF2"          "VAV1"           "VCAM1"
[186] "VEGFA"           "VEGFB"          "WNT2B"          "WNT4"           "ZAP70"
[191] "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] "Test3and2 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] "CD4"          "CD40"        "CD44"           "CD74"           "CD80"
[36] "CD83"        "CD86"        "CD8A"           "CEACAM1"        "CLEC7A"
[41] "COL11A1"     "COL1A1"      "COL1A2"        "CSF1"           "CSF1R"
[46] "CSF2RA"      "CSF2RB"      "CTLA4"          "CXCL10"        "CXCL13"

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[51] "CXCR3"      "CXCR4"      "DES"        "EGFR"       "FAP"
[56] "FCGR1"       "FGFR1"       "FGFR3"      "FGR"        "FLT4"
[61] "FOXP3"       "FYNN"        "GAPDH"      "GATA4"      "GCG"
[66] "GFAP"        "GHRL"        "GM13889"    "GSK3A"      "GSK3B"
[71] "H2-AA"        "H2-DMA"      "HIF1A"      "HPRT"       "IAPP"
[76] "ICAM1"        "ICAM2"       "ICOS"       "ICOSL"      "IFI44"
[81] "IFI44L"       "IFIT1"       "IFIT3"      "IFNG"       "IFNLR1"
[86] "IGF1"         "IGF2"        "IL-21"      "IL10"       "IL12B"
[91] "IL12RB"       "IL17A"       "IL18R1"     "IL1A"       "IL1B"
[96] "IL1R2"        "IL2"         "IL25"       "IL27"       "IL27R"
[101] "IL2RA"       "IL3"         "IL34"       "IL4"        "IL4RA"
[106] "IL5"          "IL5RA"      "IL6"        "IL7"        "IL7R"
[111] "INS1"         "INS2"       "IRF1"       "IRF2"       "IRF4"
[116] "IRF7"         "ISG15"      "ITGAX"      "ITGB1"      "JAK1"
[121] "JAK2"         "KDR"        "KLF5"       "LCK"        "LEPR"
[126] "LY6E"         "LY75"       "MAP2K6"     "MAPK8"      "MMP1A"
[131] "MMP2"         "MMP3"       "MMP9"       "MX1"        "NFATC1"
[136] "NFKB1"       "NLRP3"      "NUR77"      "OAS1B"      "OAS2"
[141] "OASL1"        "PD1"        "PDGFA"     "PDGFB"      "PDGFRB"
[146] "PDL-1"        "PDPN"       "PECAM1"    "PPARA"      "PPARG"
[151] "PPARGC1A"    "PPY"        "PTEN"       "PTGS2"      "PTK2"
[156] "RSAD2"        "RSP01"      "SELE"       "SFRP1"      "SOCS3"
[161] "SPP1"         "SST"        "STAT1"      "STAT3"      "STAT4"
[166] "STAT5"        "TBX21"      "TEK"        "TGFB1"      "TGFBR2"
[171] "TIMP1"        "TIMP2"      "TLR3"       "TLR4"       "TLR7"
[176] "TLR9"         "TNC"        "TNF"        "TNFAIP3"    "TNFRSF1A"
[181] "TNFRSF1B"    "TNFSF11"    "TRAF2"      "VAV1"       "VCAM1"
[186] "VEGFA"        "VEGFB"      "WNT2B"      "WNT4"       "ZAP70"
[191] "ZEB2"

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[1] "The first column you'll pull is: 9"

[1] "The last column you'll pull is: 191"

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[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"       "CD4"        "CD40"
[25] "CD44"         "CD74"        "CD80"       "CD83"       "CD86"       "CD8A"
[31] "CEACAM1"      "CLEC7A"      "COL11A1"    "COL1A1"    "COL1A2"    "CSF1"
[37] "CSF1R"        "CSF2RA"      "CSF2RB"     "CTLA4"      "CXCL10"    "CXCL13"
[43] "CXCR3"        "CXCR4"      "DES"        "EGFR"       "FAP"        "FCGR1"
[49] "FGFR1"        "FGFR3"      "FGR"        "FLT4"       "FOXP3"      "FYNN"
[55] "GAPDH"        "GATA4"      "GCG"        "GFAP"       "GHRL"       "GM13889"
[61] "GSK3A"        "GSK3B"      "H2-AA"      "H2-DMA"     "HIF1A"      "HPRT"
[67] "IAPP"         "ICAM1"      "ICAM2"      "ICOS"       "ICOSL"      "IFI44"
[73] "IFI44L"       "IFIT1"      "IFIT3"      "IFNG"       "IFNLR1"    "IGF1"
[79] "IGF2"         "IL-21"      "IL10"       "IL12B"      "IL12RB"    "IL17A"
[85] "IL18R1"       "IL1A"        "IL1B"       "IL1R2"      "IL2"        "IL25"
[91] "IL27"         "IL27R"      "IL2RA"      "IL3"        "IL34"      "IL4"
[97] "IL4RA"        "IL5"        "IL5RA"      "IL6"        "IL7"        "IL7R"
[103] "INS1"         "INS2"       "IRF1"       "IRF2"       "IRF4"       "IRF7"
[109] "ISG15"        "ITGAX"      "ITGB1"      "JAK1"       "JAK2"       "KDR"
[115] "KLF5"         "LCK"        "LEPR"       "LY6E"      "LY75"       "MAP2K6"
[121] "MAPK8"        "MMP1A"      "MMP2"       "MMP3"      "MMP9"       "MX1"
[127] "NFATC1"      "NFKB1"      "NLRP3"      "NUR77"     "OAS1B"      "OAS2"
[133] "OASL1"        "PD1"        "PDGFA"     "PDGFB"     "PDGFRB"    "PDL-1"

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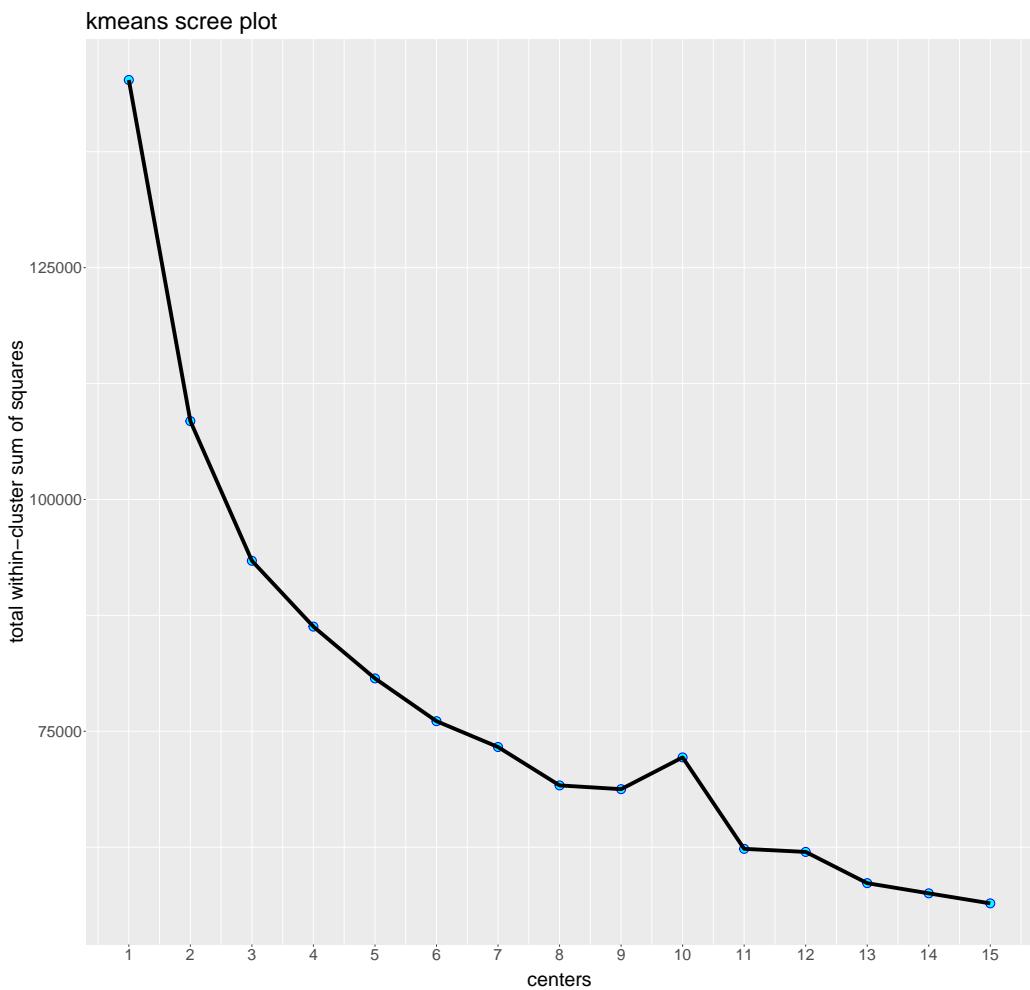
[139] "PDPN"      "PECAM1"    "PPARA"     "PPARG"     "PPARGC1A"   "PPY"
[145] "PTEN"       "PTGS2"     "PTK2"      "RSAD2"     "RSP01"      "SELE"
[151] "SFRP1"      "SOCS3"     "SPP1"      "SST"       "STAT1"      "STAT3"
[157] "STAT4"       "STAT5"     "TBX21"     "TEK"       "TGFB1"      "TGFBR2"
[163] "TIMP1"      "TIMP2"     "TLR3"      "TLR4"      "TLR7"       "TLR9"
[169] "TNC"        "TNF"       "TNFAIP3"   "TNFRSF1A"  "TNFRSF1B"   "TNFSF11"
[175] "TRAF2"      "VAV1"      "VCAM1"     "VEGFA"     "VEGFB"      "WNT2B"
[181] "WNT4"       "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"      "CD4"        "CD40"
[25] "CD44"       "CD74"      "CD80"      "CD83"      "CD86"      "CD8A"
[31] "CEACAM1"    "CLEC7A"    "COL11A1"   "COL1A1"   "COL1A2"    "CSF1"
[37] "CSF1R"      "CSF2RA"    "CSF2RB"    "CTLA4"    "CXCL10"    "CXCL13"
[43] "CXCR3"      "CXCR4"    "DES"       "EGFR"     "FAP"        "FCGR1"
[49] "FGFR1"      "FGFR3"    "FGR"       "FLT4"     "FOXP3"     "FYN"
[55] "GAPDH"      "GATA4"    "GCG"       "GFAP"     "GHRL"      "GM13889"
[61] "GSK3A"      "GSK3B"    "H2-AA"     "H2-DMA"   "HIF1A"     "HPRT"
[67] "IAPP"       "ICAM1"    "ICAM2"     "ICOS"     "ICOSL"     "IFI44"
[73] "IFI44L"     "IFIT1"    "IFIT3"     "IFNG"     "IFNGR1"   "IGF1"
[79] "IGF2"       "IL-21"     "IL10"      "IL12B"    "IL12RB"   "IL17A"
[85] "IL18R1"     "IL1A"      "IL1B"      "IL1R2"    "IL2"       "IL25"
[91] "IL27"       "IL27R"    "IL2RA"     "IL3"      "IL34"      "IL4"
[97] "IL4RA"      "IL5"      "IL5RA"     "IL6"      "IL7"       "IL7R"
[103] "INS1"      "INS2"     "IRF1"      "IRF2"     "IRF4"      "IRF7"
[109] "ISG15"      "ITGAX"    "ITGB1"     "JAK1"     "JAK2"      "KDR"
[115] "KLF5"       "LCK"      "LEPR"      "LY6E"     "LY75"      "MAP2K6"
[121] "MAPK8"      "MMP1A"    "MMP2"      "MMP3"     "MMP9"      "MX1"
[127] "NFATC1"    "NFKB1"    "NLRP3"    "NUR77"   "OAS1B"    "OAS2"
[133] "OASL1"      "PD1"      "PDGFA"    "PDGFB"   "PDGFRB"   "PDL-1"
[139] "PDPN"       "PECAM1"   "PPARA"    "PPARG"   "PPARGC1A"  "PPY"
[145] "PTEN"       "PTGS2"    "PTK2"     "RSAD2"   "RSP01"    "SELE"
[151] "SFRP1"      "SOCS3"    "SPP1"     "SST"     "STAT1"    "STAT3"
[157] "STAT4"      "STAT5"    "TBX21"    "TEK"     "TGFB1"    "TGFBR2"
[163] "TIMP1"      "TIMP2"    "TLR3"     "TLR4"    "TLR7"     "TLR9"
[169] "TNC"        "TNF"      "TNFAIP3"  "TNFRSF1A" "TNFRSF1B"  "TNFSF11"
[175] "TRAF2"      "VAV1"     "VCAM1"    "VEGFA"   "VEGFB"    "WNT2B"
[181] "WNT4"       "ZAP70"    "ZEB2"     ""

[1] "Column names after searching for the column pattern and after selecting the right columns. The fol
[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"      "CD4"        "CD40"
[25] "CD44"       "CD74"      "CD80"      "CD83"      "CD86"      "CD8A"
[31] "CEACAM1"    "CLEC7A"    "COL11A1"   "COL1A1"   "COL1A2"    "CSF1"
[37] "CSF1R"      "CSF2RA"    "CSF2RB"    "CTLA4"    "CXCL10"    "CXCL13"
[43] "CXCR3"      "CXCR4"    "DES"       "EGFR"     "FAP"        "FCGR1"
[49] "FGFR1"      "FGFR3"    "FGR"       "FLT4"     "FOXP3"     "FYN"
[55] "GAPDH"      "GATA4"    "GCG"       "GFAP"     "GHRL"      "GM13889"
[61] "GSK3A"      "GSK3B"    "H2-AA"     "H2-DMA"   "HIF1A"     "HPRT"
[67] "IAPP"       "ICAM1"    "ICAM2"     "ICOS"     "ICOSL"     "IFI44"
[73] "IFI44L"     "IFIT1"    "IFIT3"     "IFNG"     "IFNGR1"   "IGF1"

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| | | | | | | |
|-------|----------|----------|-----------|------------|------------|-----------|
| [79] | "IGF2" | "IL-21" | "IL10" | "IL12B" | "IL12RB" | "IL17A" |
| [85] | "IL18R1" | "IL1A" | "IL1B" | "IL1R2" | "IL2" | "IL25" |
| [91] | "IL27" | "IL27R" | "IL2RA" | "IL3" | "IL34" | "IL4" |
| [97] | "IL4RA" | "IL5" | "IL5RA" | "IL6" | "IL7" | "IL7R" |
| [103] | "INS1" | "INS2" | "IRF1" | "IRF2" | "IRF4" | "IRF7" |
| [109] | "ISG15" | "ITGAX" | "ITGB1" | "JAK1" | "JAK2" | "KDR" |
| [115] | "KLF5" | "LCK" | "LEPR" | "LY6E" | "LY75" | "MAP2K6" |
| [121] | "MAPK8" | "MMP1A" | "MMP2" | "MMP3" | "MMP9" | "MX1" |
| [127] | "NFATC1" | "NFKB1" | "NLRP3" | "NUR77" | "OAS1B" | "OAS2" |
| [133] | "OASL1" | "PD1" | "PDGFA" | "PDGFB" | "PDGFRB" | "PDL-1" |
| [139] | "PDPN" | "PECAM1" | "PPARA" | "PPARG" | "PPARGC1A" | "PPY" |
| [145] | "PTEN" | "PTGS2" | "PTK2" | "RSAD2" | "RSP01" | "SELE" |
| [151] | "SFRP1" | "SOCS3" | "SPP1" | "SST" | "STAT1" | "STAT3" |
| [157] | "STAT4" | "STAT5" | "TBX21" | "TEK" | "TGFB1" | "TGFBR2" |
| [163] | "TIMP1" | "TIMP2" | "TLR3" | "TLR4" | "TLR7" | "TLR9" |
| [169] | "TNC" | "TNF" | "TNFAIP3" | "TNFRSF1A" | "TNFRSF1B" | "TNFSF11" |
| [175] | "TRAF2" | "VAV1" | "VCAM1" | "VEGFA" | "VEGFB" | "WNT2B" |
| [181] | "WNT4" | "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"
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[29] "CD36"           "CD3E"           "CD4"             "CD40"
[33] "CD44"           "CD74"           "CD80"           "CD83"
[37] "CD86"           "CD8A"           "CEACAM1"        "CLEC7A"
[41] "COL11A1"        "COL1A1"        "COL1A2"        "CSF1"
[45] "CSF1R"          "CSF2RA"        "CSF2RB"        "CTLA4"
[49] "CXCL10"         "CXCL13"        "CXCR3"         "CXCR4"
[53] "DES"            "EGFR"          "FAP"            "FCGR1"
[57] "FGFR1"          "FGFR3"          "FGR"            "FLT4"
[61] "FOXP3"          "FYN"            "GAPDH"         "GATA4"
[65] "GCG"            "GFAP"          "GHRL"          "GM13889"
[69] "GSK3A"          "GSK3B"          "H2.AA"          "H2.DMA"
[73] "HIF1A"          "HPRT"          "IAPP"          "ICAM1"
[77] "ICAM2"          "ICOS"          "ICOSL"         "IFI44"
[81] "IFI44L"         "IFIT1"          "IFIT3"         "IFNG"
[85] "IFNGR1"         "IGF1"           "IGF2"          "IL.21"
[89] "IL10"            "IL12B"          "IL12RB"        "IL17A"
[93] "IL18R1"         "IL1A"           "IL1B"          "IL1R2"
[97] "IL2"             "IL25"           "IL27"          "IL27R"
[101] "IL2RA"          "IL3"            "IL34"          "IL4"
[105] "IL4RA"          "IL5"            "IL5RA"         "IL6"
[109] "IL7"            "IL7R"           "INS1"          "INS2"
[113] "IRF1"           "IRF2"           "IRF4"          "IRF7"
[117] "ISG15"          "ITGAX"          "ITGB1"         "JAK1"
[121] "JAK2"           "KDR"            "KLF5"          "LCK"
[125] "LEPR"           "LY6E"           "LY75"          "MAP2K6"
[129] "MAPK8"          "MMP1A"          "MMP2"          "MMP3"
[133] "MMP9"           "MX1"            "NFATC1"        "NFKB1"
[137] "NLRP3"          "NUR77"          "OAS1B"         "OAS2"
[141] "OASL1"          "PD1"            "PDGFA"         "PDGFB"
[145] "PDGFRB"         "PDL.1"          "PPDPN"         "PECAM1"
[149] "PPARA"          "PPARG"          "PPARGC1A"      "PPY"
[153] "PTEN"           "PTGS2"          "PTK2"          "RSAD2"
[157] "RSP01"          "SELE"           "SFRP1"         "SOCS3"
[161] "SPP1"           "SST"            "STAT1"         "STAT3"
[165] "STAT4"          "STAT5"          "TBX21"         "TEK"
[169] "TGFB1"          "TGFBR2"        "TIMP1"         "TIMP2"
[173] "TLR3"           "TLR4"           "TLR7"          "TLR9"
[177] "TNC"            "TNF"            "TNFAIP3"       "TNFRSF1A"
[181] "TNFRSF1B"       "TNFSF11"        "TRAF2"         "VAV1"
[185] "VCAM1"          "VEGFA"          "VEGFB"         "WNT2B"
[189] "WNT4"           "ZAP70"          "ZEB2"          "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"          "CD4"
[33] "CD40"           "CD44"           "CD74"          "CD80"
[37] "CD83"           "CD86"           "CD8A"          "CEACAM1"
[41] "CLEC7A"         "COL11A1"        "COL1A1"        "COL1A2"
[45] "CSF1"           "CSF1R"          "CSF2RA"        "CSF2RB"

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[49] "CTLA4"           "CXCL10"          "CXCL13"          "CXCR3"
[53] "CXCR4"           "DES"              "EGFR"            "FAP"
[57] "FCGR1"           "FGFR1"            "FGFR3"           "FGR"
[61] "FLT4"             "FOXP3"            "FYN"              "GAPDH"
[65] "GATA4"           "GCG"              "GFAP"            "GHRL"
[69] "GM13889"         "GSK3A"            "GSK3B"           "H2.AA"
[73] "H2.DMA"          "HIF1A"            "HPRT"            "IAPP"
[77] "ICAM1"           "ICAM2"            "ICOS"            "ICOSL"
[81] "IFI44"            "IFI44L"           "IFIT1"            "IFIT3"
[85] "IFNG"             "IFNGR1"           "IGF1"             "IGF2"
[89] "IL.21"            "IL10"              "IL12B"            "IL12RB"
[93] "IL17A"            "IL18R1"           "IL1A"             "IL1B"
[97] "IL1R2"            "IL2"               "IL25"             "IL27"
[101] "IL27R"           "IL2RA"            "IL3"              "IL34"
[105] "IL4"              "IL4RA"            "IL5"              "IL5RA"
[109] "IL6"              "IL7"               "IL7R"            "INS1"
[113] "INS2"             "IRF1"              "IRF2"            "IRF4"
[117] "IRF7"             "ISG15"            "ITGAX"           "ITGB1"
[121] "JAK1"             "JAK2"              "KDR"              "KLF5"
[125] "LCK"              "LEPR"              "LY6E"            "LY75"
[129] "MAP2K6"           "MAPK8"            "MMP1A"            "MMP2"
[133] "MMP3"             "MMP9"              "MX1"              "NFATC1"
[137] "NFKB1"            "NLRP3"            "NUR77"           "OAS1B"
[141] "OAS2"             "OASL1"            "PD1"              "PDGFA"
[145] "PDGFB"            "PDGFRB"           "PDL.1"            "PDPN"
[149] "PECAM1"           "PPARA"            "PPARG"            "PPARGC1A"
[153] "PPY"              "PTEN"              "PTGS2"            "PTK2"
[157] "RSAD2"            "RSP01"            "SELE"             "SFRP1"
[161] "SOCS3"            "SPP1"              "SST"              "STAT1"
[165] "STAT3"             "STAT4"            "STAT5"            "TBX21"
[169] "TEK"              "TGFB1"            "TGFBR2"           "TIMP1"
[173] "TIMP2"            "TLR3"              "TLR4"             "TLR7"
[177] "TLR9"             "TNC"               "TNF"              "TNFAIP3"
[181] "TNFRSF1A"         "TNFRSF1B"          "TNFSF11"          "TRAF2"
[185] "VAV1"              "VCAM1"            "VEGFA"            "VEGFB"
[189] "WNT2B"             "WNT4"              "ZAP70"            "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 :
[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"             "CD4"
[33] "CD40"              "CD44"              "CD74"             "CD80"
[37] "CD83"              "CD86"              "CD8A"             "CEACAM1"
[41] "CLEC7A"            "COL11A1"          "COL1A1"           "COL1A2"
[45] "CSF1"              "CSF1R"            "CSF2RA"           "CSF2RB"
[49] "CTLA4"             "CXCL10"           "CXCL13"           "CXCR3"
[53] "CXCR4"             "DES"              "EGFR"            "FAP"

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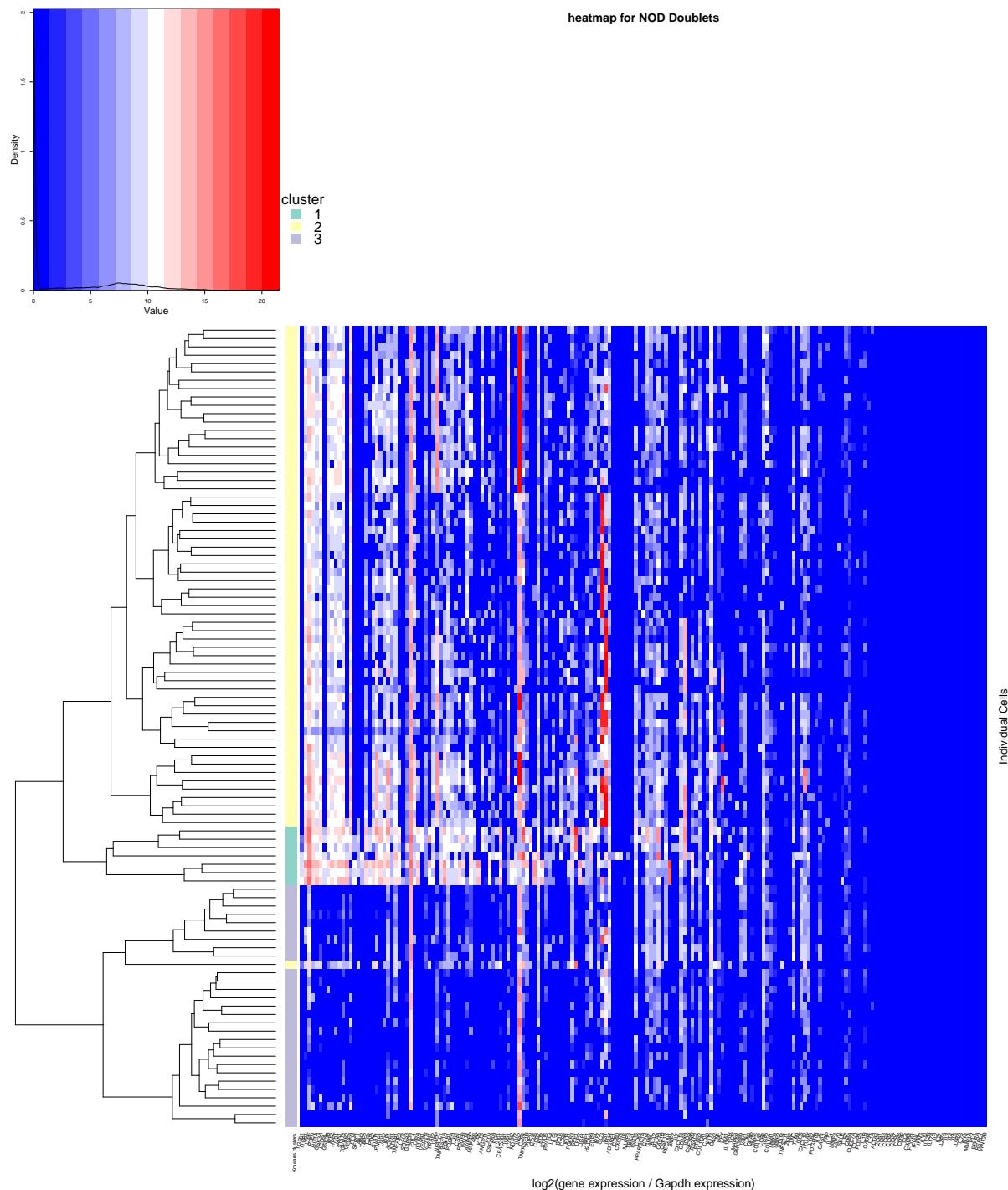
[57] "FCGR1"           "FGFR1"           "FGFR3"           "FGR"
[61] "FLT4"             "FOXP3"            "FYN"              "GAPDH"
[65] "GATA4"            "GCG"              "GFAP"             "GHRL"
[69] "GM13889"          "GSK3A"            "GSK3B"            "H2.AA"
[73] "H2.DMA"           "HIF1A"            "HPRT"             "IAPP"
[77] "ICAM1"             "ICAM2"            "ICOS"             "ICOSL"
[81] "IFI44"             "IFI44L"            "IFIT1"            "IFIT3"
[85] "IFNG"              "IFNGR1"            "IGF1"              "IGF2"
[89] "IL.21"              "IL10"              "IL12B"            "IL12RB"
[93] "IL17A"              "IL18R1"            "IL1A"              "IL1B"
[97] "IL1R2"              "IL2"                "IL25"              "IL27"
[101] "IL27R"             "IL2RA"             "IL3"               "IL34"
[105] "IL4"                "IL4RA"             "IL5"               "IL5RA"
[109] "IL6"                "IL7"                "IL7R"              "INS1"
[113] "INS2"              "IRF1"              "IRF2"              "IRF4"
[117] "IRF7"              "ISG15"             "ITGAX"             "ITGB1"
[121] "JAK1"              "JAK2"              "KDR"               "KLF5"
[125] "LCK"                "LEPR"              "LY6E"              "LY75"
[129] "MAP2K6"             "MAPK8"             "MMP1A"             "MMP2"
[133] "MMP3"              "MMP9"              "MX1"               "NFATC1"
[137] "NFKB1"              "NLRP3"             "NUR77"             "OAS1B"
[141] "OAS2"              "OASL1"             "PD1"               "PDGFA"
[145] "PDGFB"             "PDGFRB"            "PDL.1"             "PDPN"
[149] "PECAM1"             "PPARA"             "PPARG"             "PPARGC1A"
[153] "PPY"                "PTEN"              "PTGS2"             "PTK2"
[157] "RSAD2"              "RSP01"             "SELE"              "SFRP1"
[161] "SOCS3"              "SPP1"              "SST"               "STAT1"
[165] "STAT3"              "STAT4"             "STAT5"             "TBX21"
[169] "TEK"                 "TGFB1"             "TGFBR2"            "TIMP1"
[173] "TIMP2"              "TLR3"              "TLR4"              "TLR7"
[177] "TLR9"              "TNC"                "TNF"               "TNFAIP3"
[181] "TNFRSF1A"           "TNFRSF1B"            "TNFSF11"            "TRAF2"
[185] "VAV1"              "VCAM1"             "VEGFA"             "VEGFB"
[189] "WNT2B"              "WNT4"              "ZAP70"              "ZEB2"
[1] 161 111 118 145 65 61 71 62 106 66 112 156 162 178 52 151 4 164
[19] 166 147 155 77 113 105 2 128 171 92 152 55 138 97 85 179 177 175
[37] 67 127 172 49 135 165 36 136 181 6 120 160 115 5 54 38 51 68
[55] 31 103 69 130 104 26 173 139 21 12 114 158 142 119 95 8 25 74
[73] 50 153 117 78 163 64 46 108 57 154 72 3 27 43 100 129 159 109
[91] 28 143 18 59 7 63 131 37 140 10 101 42 19 70 39 148 146 33
[109] 24 75 132 170 144 126 83 116 121 60 176 29 58 9 35 16 79 34
[127] 125 123 157 174 183 169 168 45 41 110 88 137 90 133 47 80 124 182
[145] 150 167 30 32 40 53 87 56 86 1 11 13 14 15 17 20 22 23
[163] 44 48 73 76 81 82 84 89 91 93 94 96 98 99 102 107 122 134
[181] 141 149 180
[1] "Length of pvals is 183"
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 TGFB1. The last gene is: WNT2B"

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```

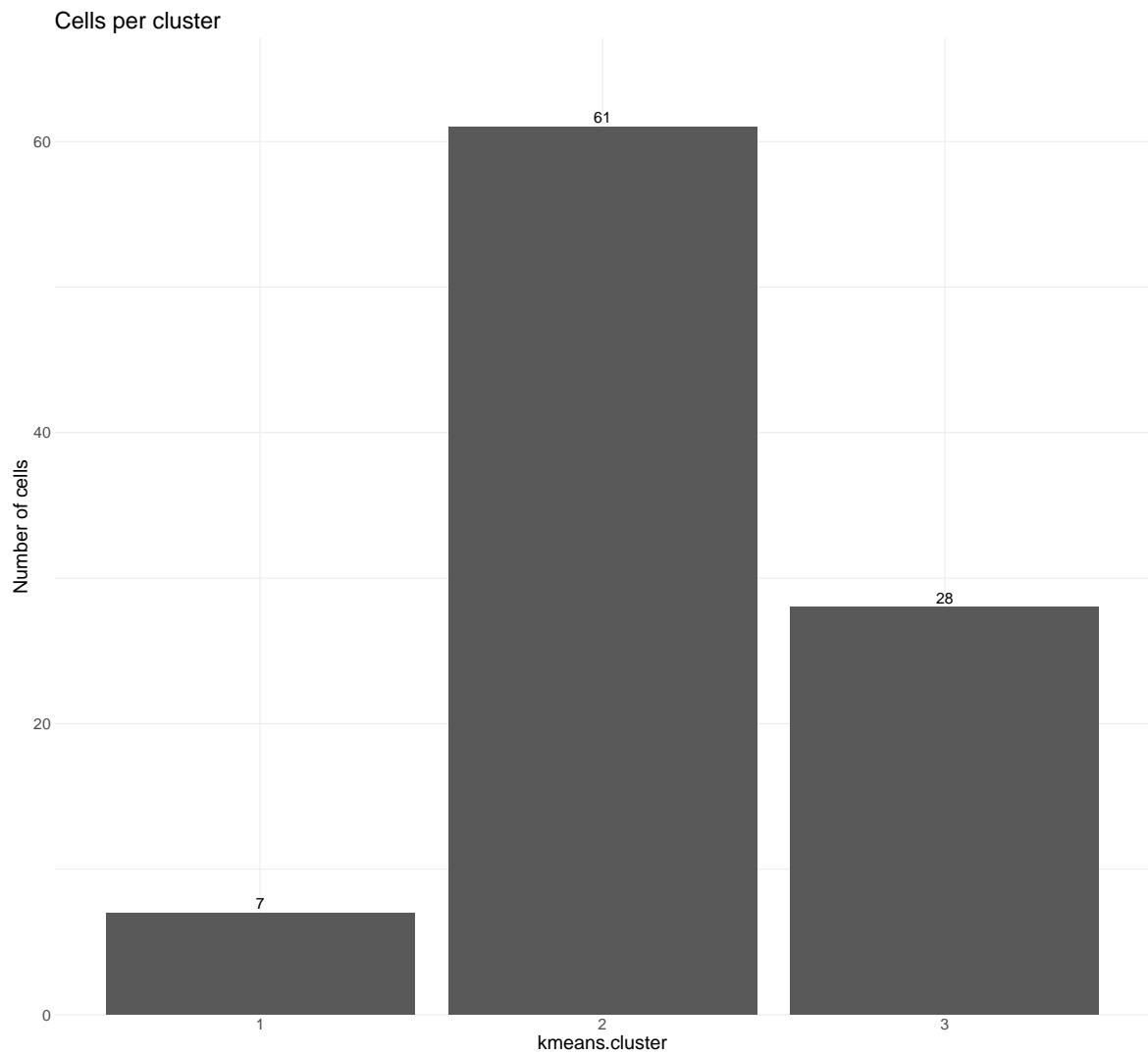
chr [1:96, 1] "#BEBADA" "#BEBADA" "#BEBADA" "#BEBADA" "#BEBADA" "#BEBADA" "#BEBADA" ...
- attr(*, "dimnames")=List of 2
..$ : NULL
..$ : chr "Kmeans.clusters"

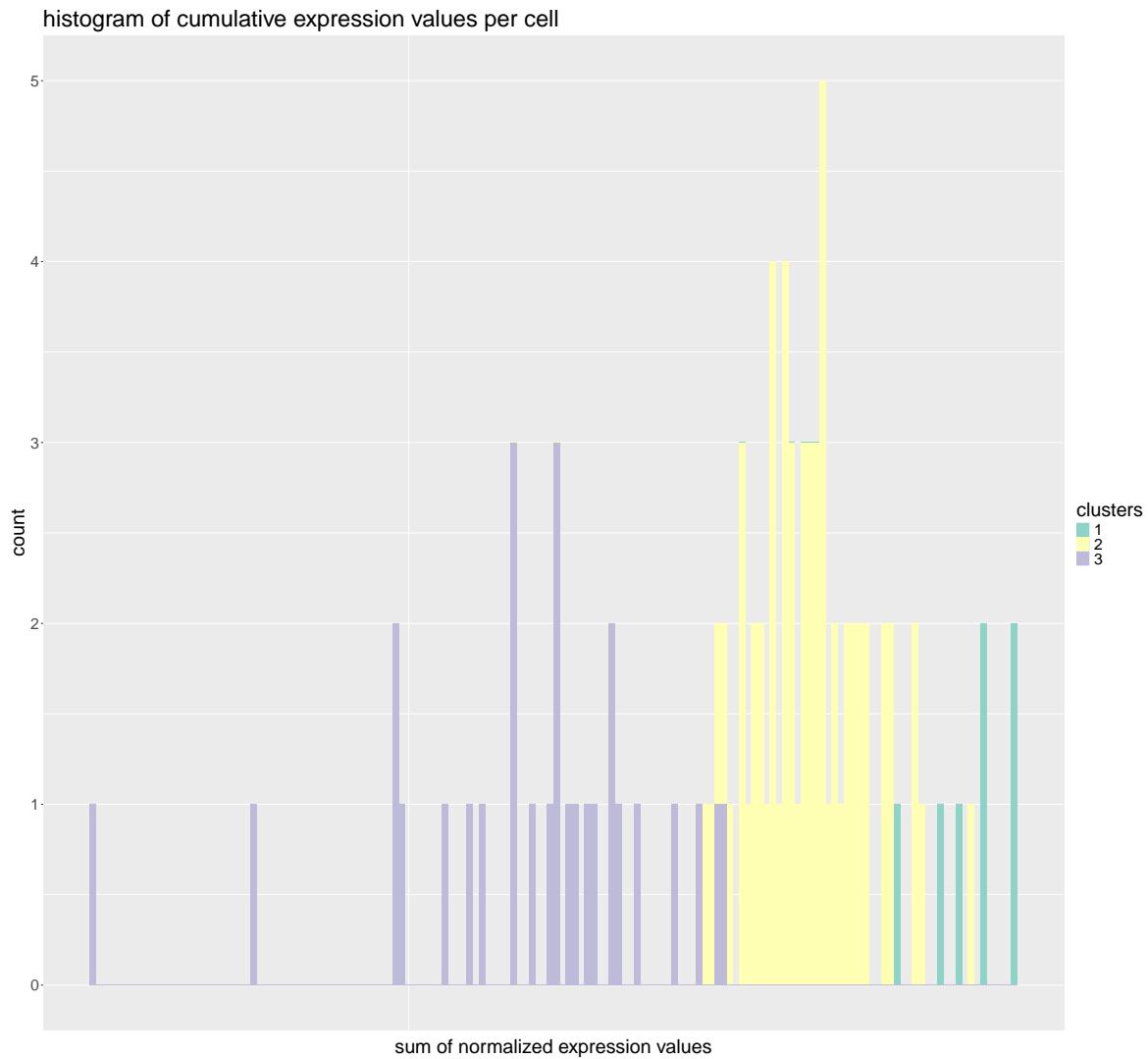
```



Cells per Cluster

| | n_cells |
|-----------|---------|
| cluster_1 | 7 |
| cluster_2 | 61 |
| cluster_3 | 28 |





```
[1] "Column Names are: "
[1] "cellSource"      "probe"          "age"           "patient"
[5] "SPA"            "SPAM"           "SPAMcell"       "cellType"
[9] "kmeans.cluster" "TGFB1"          "ITGB1"          "LY6E"
[13] "PTEN"           "HIF1A"          "GSK3A"          "ICOSL"
[17] "GSK3B"          "IRF2"           "HPRT"          "JAK1"
[21] "STAT3"          "TGFBR2"         "VEGFA"         "FLT4"
[25] "SFRP1"          "AIM2"           "TIMP2"          "TLR4"
```

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[29] "PTK2"           "STAT1"           "IFNGR1"          "JAK2"
[33] "IRF1"           "ACVR1"           "NFKB1"           "TNFAIP3"
[37] "IL27R"          "SOCS3"           "GAPDH"           "PDL.1"
[41] "IL4RA"          "IL18R1"          "VEGFB"           "VCAM1"
[45] "TRAF2"          "IAPP"            "NFATC1"          "TNFRSF1A"
[49] "FGFR1"          "PDGFA"           "TLR3"             "CSF1"
[53] "PDGFB"          "WNT4"            "ANPEP"           "MAP2K6"
[57] "TEK"             "KLF5"            "ANGPT1"          "FYNN"
[61] "CSF2RA"          "FGR"              "ICAM1"           "CEACAM1"
[65] "INS1"            "ICAM2"           "NUR77"           "INS2"
[69] "CD74"            "TNFRSF1B"        "PDPN"            "CD36"
[73] "CCR2"            "KDR"              "STAT5"            "PPARG"
[77] "LY75"            "IL34"             "BCL6"             "CD44"
[81] "IFIT1"           "FGFR3"           "SPP1"             "LEPR"
[85] "IGF1"             "TIMP1"           "H2.DMA"          "EGFR"
[89] "IRF7"             "GCG"              "SST"              "IFI44"
[93] "ADGRE1"          "CD80"             "CXCR3"           "IL6"
[97] "NLRP3"           "TBX21"           "ISG15"           "CD83"
[101] "PPARGC1A"        "CD14"             "GHLR"            "BCL2"
[105] "H2.AA"           "OAS1B"            "CSF1R"            "PECAM1"
[109] "BMP7"             "IL7"              "CXCL13"          "CD24A"
[113] "ICOS"            "CSF2RB"          "RSAD2"            "PTGS2"
[117] "COL11A1"         "CD40"             "IFIT3"            "OAS2"
[121] "TNF"              "PPY"              "MX1"              "IL12RB"
[125] "LCK"              "MAPK8"            "GM13889"         "VAV1"
[129] "CD86"             "GFAP"             "BMP5"             "COL1A2"
[133] "CCR6"             "IGF2"             "COL1A1"           "MMP9"
[137] "MMP2"             "STAT4"            "TNFSF11"          "ZEB2"
[141] "TNC"              "TLR9"              "DES"              "CXCL10"
[145] "ITGAX"            "IL1R2"            "PDGFRB"          "IL25"
[149] "OASL1"            "FAP"              "IL.21"            "MMP3"
[153] "ZAP70"            "SELE"             "TLR7"             "CD8A"
[157] "CLEC7A"           "CTLA4"            "FOXP3"            "IL1B"
[161] "GATA4"            "IL1A"              "ACTA2"            "CCR1"
[165] "CCR3"             "CCR4"             "CCR5"             "CCR7"
[169] "CD28"              "CD3E"             "CD4"              "CXCR4"
[173] "FCGR1"            "IFI44L"           "IFNG"             "IL10"
[177] "IL12B"            "IL17A"            "IL2"              "IL27"
[181] "IL2RA"            "IL3"              "IL4"              "IL5"
[185] "IL5RA"            "IL7R"              "IRF4"             "MMP1A"
[189] "PD1"              "PPARA"            "RSP01"            "WNT2B"

[1] TRUE
[1] TRUE
[1] TRUE
[1] TRUE

```

```

[1] "The panel determined 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] "cellSource"      "probe"           "age"              "patient"
[5] "SPA"              "SPAM"            "SPAMcell"         "cellType"
[9] "kmeans.cluster"  "TGFB1"           "ITGB1"            "LY6E"
[13] "PTEN"             "HIF1A"           "GSK3A"            "ICOSL"
[17] "GSK3B"            "IRF2"             "HPRT"             "JAK1"
[21] "STAT3"            "TGFBR2"          "VEGFA"            "FLT4"

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[25] "SFRP1"           "AIM2"            "TIMP2"          "TLR4"
[29] "PTK2"             "STAT1"           "IFNKR1"         "JAK2"
[33] "IRF1"              "ACVR1"           "NFKB1"          "TNFAIP3"
[37] "IL27R"             "SOCS3"           "GAPDH"          "PDL.1"
[41] "IL4RA"             "IL18R1"          "VEGFB"          "VCAM1"
[45] "TRAF2"             "IAPP"            "NFATC1"         "TNFRSF1A"
[49] "FGFR1"             "PDGFA"           "TLR3"           "CSF1"
[53] "PDGFB"             "WNT4"            "ANPEP"          "MAP2K6"
[57] "TEK"               "KLF5"            "ANGPT1"         "FYN"
[61] "CSF2RA"             "FGR"             "ICAM1"          "CEACAM1"
[65] "INS1"              "ICAM2"           "NUR77"          "INS2"
[69] "CD74"              "TNFRSF1B"        "PDPN"           "CD36"
[73] "CCR2"              "KDR"             "STAT5"          "PPARG"
[77] "LY75"              "IL34"            "BCL6"           "CD44"
[81] "IFIT1"              "FGFR3"           "SPP1"           "LEPR"
[85] "IGF1"               "TIMP1"           "H2.DMA"         "EGFR"
[89] "IRF7"               "GCG"             "SST"            "IFI44"
[93] "ADGRE1"             "CD80"            "CXCR3"          "IL6"
[97] "NLRP3"              "TBX21"           "ISG15"          "CD83"
[101] "PPARGC1A"           "CD14"            "GHRL"           "BCL2"
[105] "H2.AA"              "OAS1B"           "CSF1R"          "PECAM1"
[109] "BMP7"               "IL7"             "CXCL13"         "CD24A"
[113] "ICOS"               "CSF2RB"          "RSAD2"          "PTGS2"
[117] "COL11A1"             "CD40"            "IFIT3"          "OAS2"
[121] "TNF"                 "PPY"             "MX1"            "IL12RB"
[125] "LCK"                 "MAPK8"           "GM13889"        "VAV1"
[129] "CD86"               "GFAP"            "BMP5"           "COL1A2"
[133] "CCR6"               "IGF2"            "COL1A1"         "MMP9"
[137] "MMP2"               "STAT4"           "TNFSF11"        "ZEB2"
[141] "TNC"                 "TLR9"            "DES"            "CXCL10"
[145] "ITGAX"              "IL1R2"           "PDGFRB"         "IL25"
[149] "OASL1"              "FAP"             "IL.21"          "MMP3"
[153] "ZAP70"              "SELE"            "TLR7"           "CD8A"
[157] "CLEC7A"              "CTLA4"           "FOXP3"          "IL1B"
[161] "GATA4"              "IL1A"            "ACTA2"          "CCR1"
[165] "CCR3"               "CCR4"            "CCR5"           "CCR7"
[169] "CD28"               "CD3E"            "CD4"            "CXCR4"
[173] "FCGR1"              "IFI44L"          "IFNG"           "IL10"
[177] "IL12B"              "IL17A"           "IL2"            "IL27"
[181] "IL2RA"              "IL3"             "IL4"            "IL5"
[185] "IL5RA"              "IL7R"            "IRF4"           "MMP1A"
[189] "PD1"                 "PPARA"           "RSPO1"          "WNT2B"

[1] "Which genes are dashed in the panel? H2-AA H2-DMA IL-21 PDL-1"
[1] "Test 1 is FALSE"
[1] "Test 2 is FALSE"
[1] "Test1and2 is TRUE"
[1] "Test3 is FALSE"
[1] "The first column you'll pull is: TGFB1"
[1] "The last column you'll pull is: WNT2B"
[1] "TGFB1"           "ITGB1"           "LY6E"            "PTEN"          "HIF1A"          "GSK3A"
[7] "ICOSL"            "GSK3B"           "IRF2"            "HPRT"          "JAK1"           "STAT3"
[13] "TGFBR2"           "VEGFA"           "FLT4"            "SFRP1"          "AIM2"           "TIMP2"
[19] "TLR4"              "PTK2"             "STAT1"           "IFNKR1"         "JAK2"           "IRF1"
[25] "ACVR1"             "NFKB1"           "TNFAIP3"         "IL27R"          "SOCS3"          "GAPDH"

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[31] "PDL-1"      "IL4RA"       "IL18R1"      "VEGFB"       "VCAM1"       "TRAF2"
[37] "IAPP"        "NFATC1"      "TNFRSF1A"    "FGFR1"       "PDGFA"       "TLR3"
[43] "CSF1"        "PDGFB"       "WNT4"        "ANPEP"       "MAP2K6"       "TEK"
[49] "KLF5"        "ANGPT1"      "FYN"         "CSF2RA"      "FGR"         "ICAM1"
[55] "CEACAM1"     "INS1"        "ICAM2"       "NUR77"       "INS2"        "CD74"
[61] "TNFRSF1B"    "PDPN"        "CD36"        "CCR2"        "KDR"         "STAT5"
[67] "PPARG"       "LY75"        "IL34"        "BCL6"        "CD44"       "IFIT1"
[73] "FGFR3"       "SPP1"        "LEPR"        "IGF1"        "TIMP1"       "H2-DMA"
[79] "EGFR"        "IRF7"        "GCG"         "SST"         "IFI44"       "ADGRE1"
[85] "CD80"        "CXCR3"      "IL6"         "NLRP3"       "TBX21"       "ISG15"
[91] "CD83"        "PPARGC1A"    "CD14"       "GHRL"        "BCL2"       "H2-AA"
[97] "OAS1B"       "CSF1R"       "PECAM1"     "BMP7"        "IL7"        "CXCL13"
[103] "CD24A"      "ICOS"        "CSF2RB"     "RSAD2"      "PTGS2"      "COL11A1"
[109] "CD40"        "IFIT3"      "OAS2"        "TNF"        "PPY"        "MX1"
[115] "IL12RB"     "LCK"        "MAPK8"       "GM13889"    "VAV1"       "CD86"
[121] "GFAP"        "BMP5"        "COL1A2"     "CCR6"        "IGF2"       "COL1A1"
[127] "MMP9"        "MMP2"        "STAT4"       "TNFSF11"    "ZEB2"       "TNC"
[133] "TLR9"        "DES"        "CXCL10"     "ITGAX"      "IL1R2"      "PDGFRB"
[139] "IL25"        "OASL1"      "FAP"         "IL-21"       "MMP3"       "ZAP70"
[145] "SELE"        "TLR7"        "CD8A"        "CLEC7A"     "CTLA4"      "FOXP3"
[151] "IL1B"        "GATA4"      "IL1A"        "ACTA2"      "CCR1"       "CCR3"
[157] "CCR4"        "CCR5"        "CCR7"        "CD28"       "CD3E"       "CD4"
[163] "CXCR4"      "FCGR1"      "IFI44L"     "IFNG"       "IL10"       "IL12B"
[169] "IL17A"       "IL2"        "IL27"        "IL2RA"      "IL3"        "IL4"
[175] "IL5"         "IL5RA"      "IL7R"        "IRF4"       "MMP1A"      "PD1"
[181] "PPARA"       "RSP01"      "WNT2B"      "WNT2B"      "WNT2B"      "WNT2B"

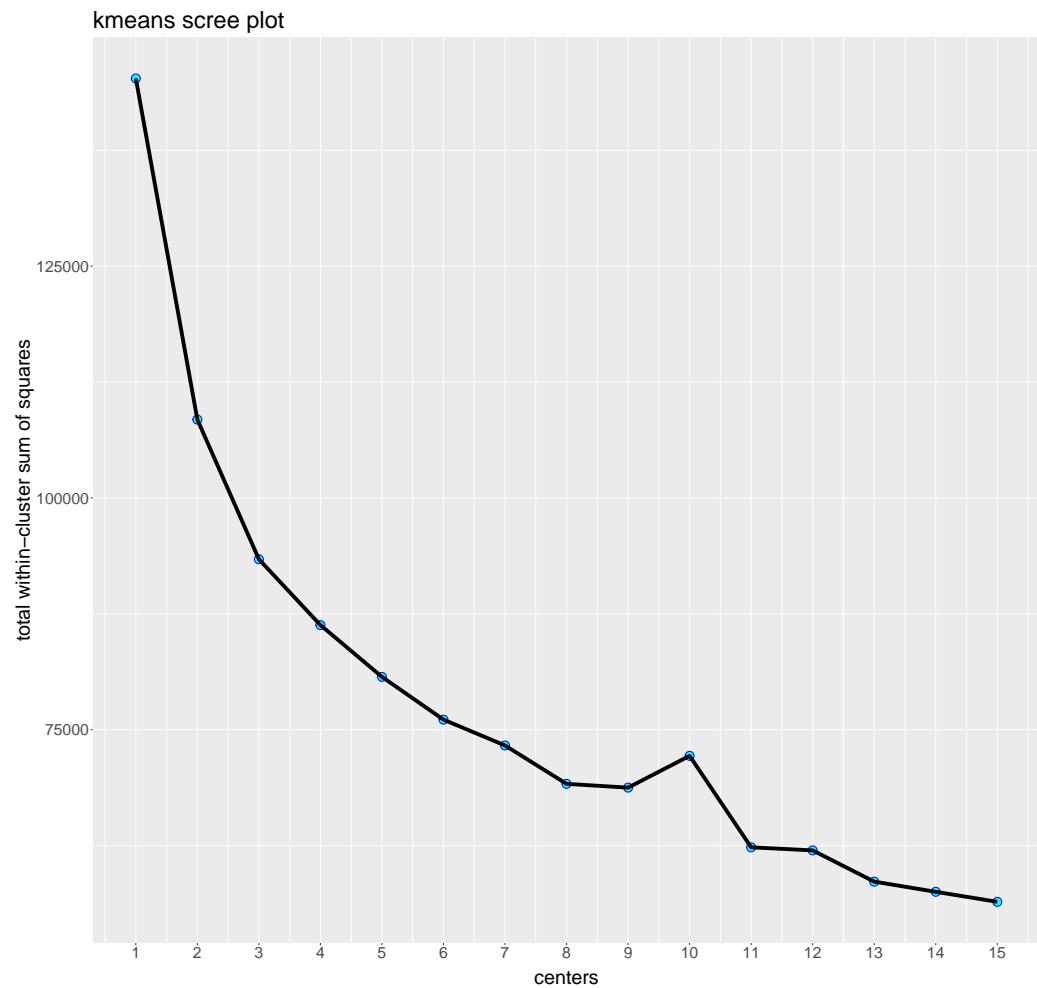
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[1] "PanelNumber equals: 1 and 3 . Columns to be sent for kmeans testing: TGFB1 and WNT2B"
[1] "Column names after searching for the column pattern and after selecting the right columns. The fol
[1] "TGFB1"      "ITGB1"      "LY6E"        "PTEN"       "HIF1A"       "GSK3A"
[7] "ICOSL"       "GSK3B"      "IRF2"        "HPRT"      "JAK1"        "STAT3"
[13] "TGFB2"      "VEGFA"      "FLT4"        "SFRP1"     "AIM2"        "TIMP2"
[19] "TLR4"        "PTK2"       "STAT1"      "IFNGR1"    "JAK2"        "IRF1"
[25] "ACVR1"      "NFKB1"      "TNFAIP3"    "IL27R"     "SOCS3"      "GAPDH"
[31] "PDL-1"      "IL4RA"      "IL18R1"     "VEGFB"     "VCAM1"      "TRAF2"
[37] "IAPP"        "NFATC1"    "TNFRSF1A"   "FGFR1"     "PDGFA"      "TLR3"
[43] "CSF1"        "PDGFB"      "WNT4"       "ANPEP"     "MAP2K6"      "TEK"
[49] "KLF5"        "ANGPT1"    "FYN"        "CSF2RA"    "FGR"        "ICAM1"
[55] "CEACAM1"    "INS1"       "ICAM2"      "NUR77"     "INS2"       "CD74"
[61] "TNFRSF1B"   "PDPN"       "CD36"       "CCR2"      "KDR"        "STAT5"
[67] "PPARG"       "LY75"       "IL34"       "BCL6"      "CD44"       "IFIT1"
[73] "FGFR3"       "SPP1"       "LEPR"      "IGF1"      "TIMP1"       "H2-DMA"
[79] "EGFR"        "IRF7"       "GCG"        "SST"       "IFI44"       "ADGRE1"
[85] "CD80"        "CXCR3"    "IL6"        "NLRP3"     "TBX21"       "ISG15"
[91] "CD83"        "PPARGC1A"  "CD14"      "GHRL"      "BCL2"       "H2-AA"
[97] "OAS1B"       "CSF1R"      "PECAM1"    "BMP7"      "IL7"        "CXCL13"
[103] "CD24A"      "ICOS"       "CSF2RB"    "RSAD2"     "PTGS2"      "COL11A1"
[109] "CD40"        "IFIT3"     "OAS2"      "TNF"       "PPY"        "MX1"
[115] "IL12RB"     "LCK"        "MAPK8"     "GM13889"   "VAV1"       "CD86"
[121] "GFAP"        "BMP5"       "COL1A2"     "CCR6"      "IGF2"       "COL1A1"
[127] "MMP9"        "MMP2"       "STAT4"     "TNFSF11"   "ZEB2"       "TNC"
[133] "TLR9"        "DES"        "CXCL10"    "ITGAX"     "IL1R2"      "PDGFRB"
[139] "IL25"        "OASL1"     "FAP"        "IL-21"     "MMP3"       "ZAP70"
[145] "SELE"        "TLR7"       "CD8A"      "CLEC7A"    "CTLA4"      "FOXP3"
[151] "IL1B"        "GATA4"     "IL1A"      "ACTA2"     "CCR1"       "CCR3"

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[157] "CCR4"      "CCR5"       "CCR7"       "CD28"       "CD3E"       "CD4"        "  
[163] "CXCR4"     "FCGR1"      "IFI44L"      "IFNG"       "IL10"       "IL12B"      "  
[169] "IL17A"      "IL2"        "IL27"        "IL2RA"      "IL3"        "IL4"        "  
[175] "IL5"        "IL5RA"      "IL7R"        "IRF4"       "MMP1A"      "PD1"        "  
[181] "PPARA"      "RSP01"      "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" "TGFB1"          "ITGB1"           "LY6E"
[13] "PTEN"          "HIF1A"          "GSK3A"           "ICOSL"
[17] "GSK3B"          "IRF2"           "HPRT"            "JAK1"
[21] "STAT3"          "TGFBR2"         "VEGFA"           "FLT4"
[25] "SFRP1"          "AIM2"           "TIMP2"           "TLR4"
[29] "PTK2"           "STAT1"          "IFNGR1"          "JAK2"
[33] "IRF1"           "ACVR1"          "NFKB1"           "TNFAIP3"
[37] "IL27R"          "SOCS3"          "GAPDH"           "PDL-1"
[41] "IL4RA"          "IL18R1"         "VEGFB"           "VCAM1"
[45] "TRAF2"          "IAPP"           "NFATC1"          "TNFRSF1A"
[49] "FGFR1"          "PDGFA"          "TLR3"             "CSF1"
[53] "PDGFB"          "WNT4"           "ANPEP"           "MAP2K6"
[57] "TEK"             "KLF5"           "ANGPT1"          "FYN"
[61] "CSF2RA"         "FGR"            "ICAM1"           "CEACAM1"
[65] "INS1"           "ICAM2"          "NUR77"           "INS2"
[69] "CD74"           "TNFRSF1B"        "PDPN"            "CD36"
[73] "CCR2"           "KDR"            "STAT5"           "PPARG"
[77] "LY75"           "IL34"           "BCL6"            "CD44"
[81] "IFIT1"          "FGFR3"          "SPP1"            "LEPR"
[85] "IGF1"            "TIMP1"          "H2-DMA"          "EGFR"
[89] "IRF7"           "GCG"            "SST"              "IFI44"
[93] "ADGRE1"         "CD80"           "CXCR3"           "IL6"
[97] "NLRP3"          "TBX21"          "ISG15"           "CD83"
[101] "PPARGC1A"       "CD14"           "GHRL"            "BCL2"
[105] "H2-AA"          "OAS1B"          "CSF1R"           "PECAM1"
[109] "BMP7"           "IL7"            "CXCL13"          "CD24A"
[113] "ICOS"           "CSF2RB"         "RSAD2"           "PTGS2"
[117] "COL11A1"        "CD40"           "IFIT3"           "OAS2"
[121] "TNF"             "PPY"            "MX1"             "IL12RB"
[125] "LCK"             "MAPK8"          "GM13889"         "VAV1"
[129] "CD86"           "GFAP"           "BMP5"            "COL1A2"
[133] "CCR6"           "IGF2"           "COL1A1"          "MMP9"
[137] "MMP2"            "STAT4"          "TNFSF11"         "ZEB2"
[141] "TNC"             "TLR9"            "DES"              "CXCL10"
[145] "ITGAX"          "IL1R2"          "PDGFRB"          "IL25"
[149] "OASL1"          "FAP"            "IL-21"            "MMP3"
[153] "ZAP70"          "SELE"           "TLR7"             "CD8A"
[157] "CLEC7A"         "CTLA4"          "FOXP3"           "IL1B"
[161] "GATA4"          "IL1A"            "ACTA2"           "CCR1"
[165] "CCR3"           "CCR4"           "CCR5"            "CCR7"
[169] "CD28"           "CD3E"            "CD4"              "CXCR4"
[173] "FCGR1"          "IFI44L"         "IFNG"            "IL10"
[177] "IL12B"          "IL17A"           "IL2"              "IL27"
[181] "IL2RA"          "IL3"            "IL4"              "IL5"
[185] "IL5RA"          "IL7R"           "IRF4"            "MMP1A"
[189] "PD1"             "PPARA"          "RSP01"           "WNT2B"
[193] "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" "TGFB1"          "ITGB1"           "LY6E"
[13] "PTEN"           "HIF1A"          "GSK3A"           "ICOSL"
[17] "GSK3B"          "IRF2"           "HPRT"            "JAK1"

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[21] "STAT3"           "TGFB2"           "VEGFA"           "FLT4"
[25] "SFRP1"           "AIM2"             "TIMP2"            "TLR4"
[29] "PTK2"             "STAT1"            "IFNGR1"          "JAK2"
[33] "IRF1"              "ACVR1"            "NFKB1"            "TNFAIP3"
[37] "IL27R"            "SOCS3"            "GAPDH"            "PDL-1"
[41] "IL4RA"             "IL18R1"            "VEGFB"            "VCAM1"
[45] "TRAF2"             "IAPP"              "NFATC1"          "TNFRSF1A"
[49] "FGFR1"             "PDGFA"            "TLR3"              "CSF1"
[53] "PDGFB"             "WNT4"              "ANPEP"            "MAP2K6"
[57] "TEK"                "KLF5"              "ANGPT1"          "FYN"
[61] "CSF2RA"            "FGR"              "ICAM1"            "CEACAM1"
[65] "INS1"              "ICAM2"            "NUR77"            "INS2"
[69] "CD74"              "TNFRSF1B"          "PDPN"              "CD36"
[73] "CCR2"              "KDR"              "STAT5"            "PPARG"
[77] "LY75"              "IL34"              "BCL6"              "CD44"
[81] "IFIT1"              "FGFR3"            "SPP1"              "LEPR"
[85] "IGF1"              "TIMP1"            "H2-DMA"          "EGFR"
[89] "IRF7"              "GCG"              "SST"              "IFI44"
[93] "ADGRE1"            "CD80"              "CXCR3"            "IL6"
[97] "NLRP3"              "TBX21"            "ISG15"            "CD83"
[101] "PPARGC1A"          "CD14"              "GHRL"              "BCL2"
[105] "H2-AA"              "OAS1B"            "CSF1R"            "PECAM1"
[109] "BMP7"              "IL7"              "CXCL13"          "CD24A"
[113] "ICOS"              "CSF2RB"            "RSAD2"            "PTGS2"
[117] "COL11A1"            "CD40"              "IFIT3"            "OAS2"
[121] "TNF"              "PPY"              "MX1"              "IL12RB"
[125] "LCK"              "MAPK8"            "GM13889"          "VAV1"
[129] "CD86"              "GFAP"              "BMP5"              "COL1A2"
[133] "CCR6"              "IGF2"              "COL1A1"            "MMP9"
[137] "MMP2"              "STAT4"            "TNFSF11"          "ZEB2"
[141] "TNC"              "TLR9"              "DES"              "CXCL10"
[145] "ITGAX"              "IL1R2"            "PDGFRB"          "IL25"
[149] "OASL1"              "FAP"              "IL-21"              "MMP3"
[153] "ZAP70"              "SELE"              "TLR7"              "CD8A"
[157] "CLEC7A"            "CTLA4"            "FOXP3"            "IL1B"
[161] "GATA4"              "IL1A"              "ACTA2"            "CCR1"
[165] "CCR3"              "CCR4"              "CCR5"              "CCR7"
[169] "CD28"              "CD3E"              "CD4"              "CXCR4"
[173] "FCGR1"              "IFI44L"            "IFNG"              "IL10"
[177] "IL12B"              "IL17A"              "IL2"              "IL27"
[181] "IL2RA"              "IL3"              "IL4"              "IL5"
[185] "IL5RA"              "IL7R"              "IRF4"              "MMP1A"
[189] "PD1"              "PPARA"            "RSP01"            "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"      "TGFB1"            "ITGB1"            "LY6E"
[13] "PTEN"                "HIF1A"            "GSK3A"            "ICOSL"
[17] "GSK3B"              "IRF2"              "HPRT"              "JAK1"
[21] "STAT3"              "TGFB2"            "VEGFA"            "FLT4"
[25] "SFRP1"              "AIM2"              "TIMP2"            "TLR4"

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[29] "PTK2"           "STAT1"           "IFNGR1"          "JAK2"
[33] "IRF1"           "ACVR1"           "NFKB1"           "TNFAIP3"
[37] "IL27R"           "SOCS3"           "GAPDH"           "PDL-1"
[41] "IL4RA"           "IL18R1"           "VEGFB"           "VCAM1"
[45] "TRAF2"           "IAPP"             "NFATC1"          "TNFRSF1A"
[49] "FGFR1"           "PDGFA"            "TLR3"             "CSF1"
[53] "PDGFB"           "WNT4"             "ANPEP"            "MAP2K6"
[57] "TEK"              "KLF5"             "ANGPT1"          "FYNN"
[61] "CSF2RA"           "FGR"              "ICAM1"            "CEACAM1"
[65] "INS1"             "ICAM2"            "NUR77"            "INS2"
[69] "CD74"             "TNFRSF1B"         "PDPN"             "CD36"
[73] "CCR2"             "KDR"              "STAT5"            "PPARG"
[77] "LY75"             "IL34"              "BCL6"             "CD44"
[81] "IFIT1"             "FGFR3"            "SPP1"             "LEPR"
[85] "IGF1"              "TIMP1"            "H2-DMA"          "EGFR"
[89] "IRF7"              "GCG"              "SST"              "IFI44"
[93] "ADGRE1"           "CD80"             "CXCR3"            "IL6"
[97] "NLRP3"             "TBX21"            "ISG15"            "CD83"
[101] "PPARGC1A"         "CD14"             "GHLR"             "BCL2"
[105] "H2-AA"             "OAS1B"            "CSF1R"            "PECAM1"
[109] "BMP7"              "IL7"              "CXCL13"          "CD24A"
[113] "ICOS"              "CSF2RB"           "RSAD2"            "PTGS2"
[117] "COL11A1"           "CD40"             "IFIT3"            "OAS2"
[121] "TNF"               "PPY"              "MX1"              "IL12RB"
[125] "LCK"               "MAPK8"            "GM13889"          "VAV1"
[129] "CD86"              "GFAP"             "BMP5"             "COL1A2"
[133] "CCR6"              "IGF2"              "COL1A1"           "MMP9"
[137] "MMP2"              "STAT4"            "TNFSF11"          "ZEB2"
[141] "TNC"               "TLR9"              "DES"              "CXCL10"
[145] "ITGAX"             "IL1R2"            "PDGFRB"           "IL25"
[149] "OASL1"              "FAP"              "IL-21"             "MMP3"
[153] "ZAP70"              "SELE"             "TLR7"              "CD8A"
[157] "CLEC7A"             "CTLA4"            "FOXP3"            "IL1B"
[161] "GATA4"              "IL1A"              "ACTA2"            "CCR1"
[165] "CCR3"              "CCR4"              "CCR5"             "CCR7"
[169] "CD28"              "CD3E"              "CD4"              "CXCR4"
[173] "FCGR1"              "IFI44L"            "IFNG"             "IL10"
[177] "IL12B"              "IL17A"             "IL2"              "IL27"
[181] "IL2RA"              "IL3"              "IL4"              "IL5"
[185] "IL5RA"              "IL7R"              "IRF4"             "MMP1A"
[189] "PD1"               "PPARA"            "RSP01"            "WNT2B"
[1]   2    8   10   6   4    5    9   12   3   11   14   20   18   25   21   31   24   34
[19]  23   29   26   41   30   22   45   36   43   40   49   39   52   56   46   38   51   37
[37]  42   70   66   71   72   79   74   32   91   60   58   97   68   44   27   47   80   81
[55]  82   61  109  111   96   92   78  106  103   95   19  108   54   67   59  110   16   35
[73] 114   83    7   50  113   64    1   13  125  126   63   15   62  101  127  128   93   76
[91] 131   53   55  122  123   75   94   17   48  120  129  130  107  140  139   33   69  115
[109] 116  117  137  136  124   73  119  134   77  135  141  142  143  144  121  132  145   90
[127] 102   65   84   85   86   87   88   89  148  149  150  151  104  152  138  147  118   28
[145] 100  146  105   98  133  153   99  112   57  154  155  156  157  158  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

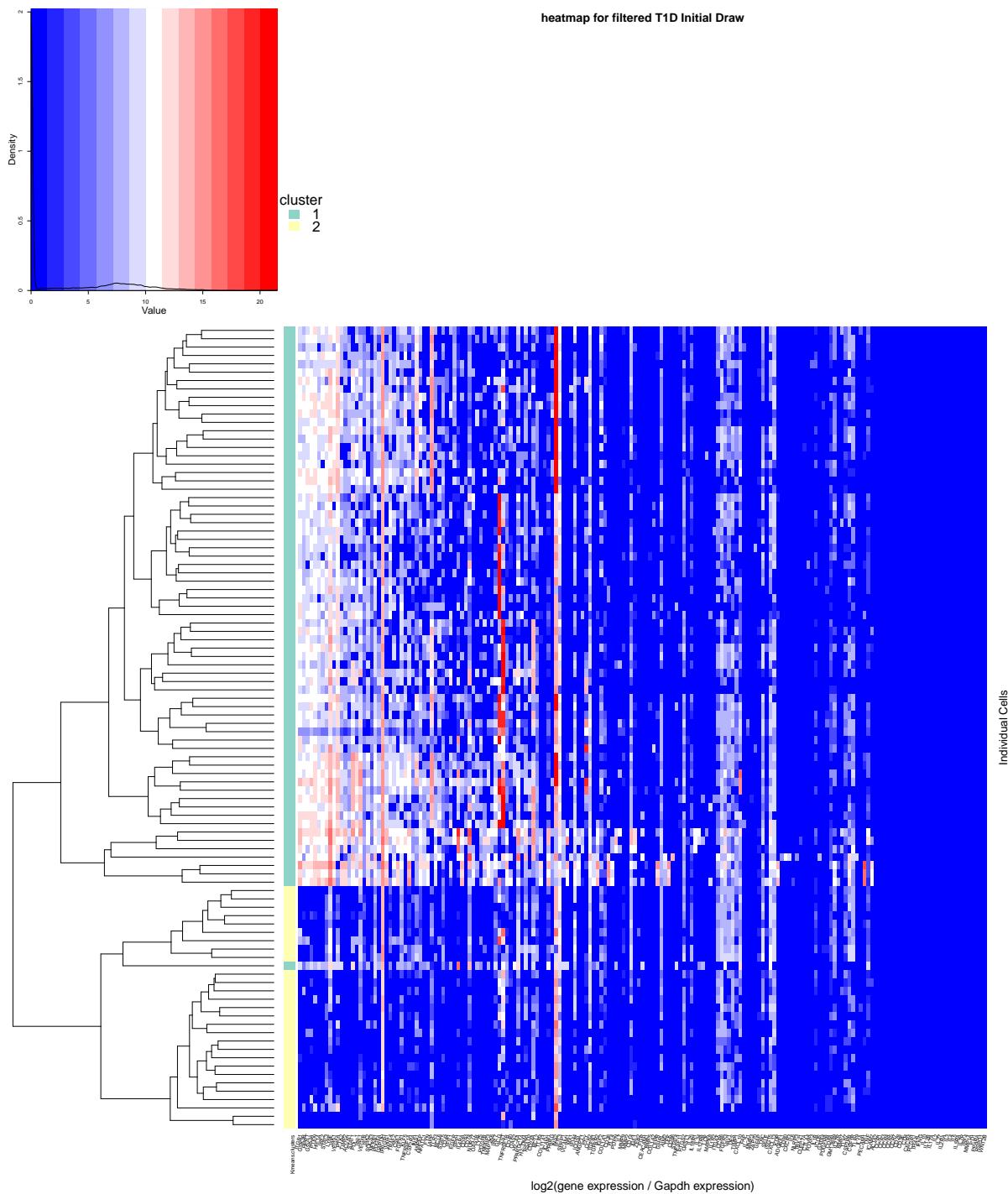
[1] "Length of pvals is 183"
uniqueAges      colorsList

```

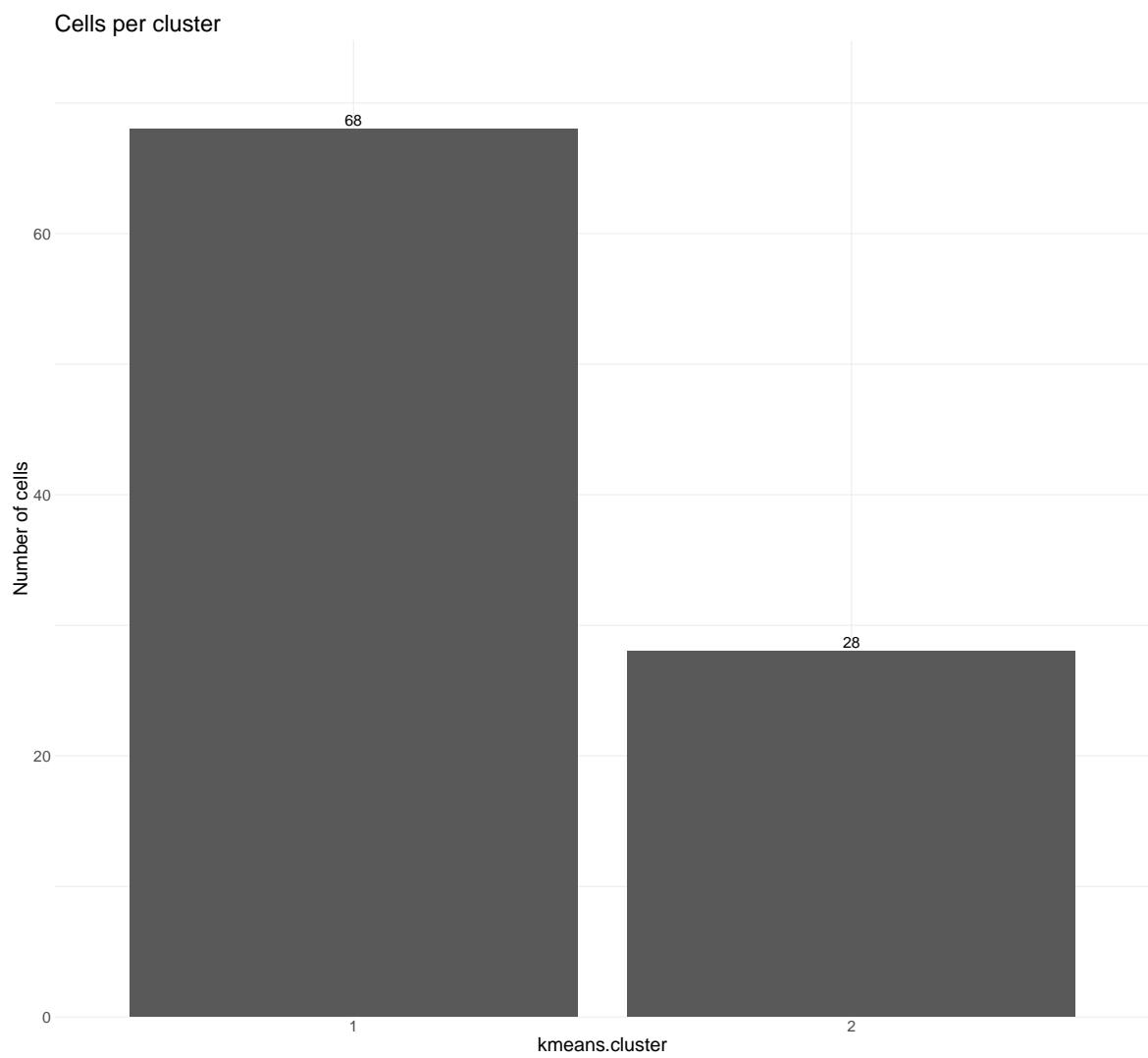
```

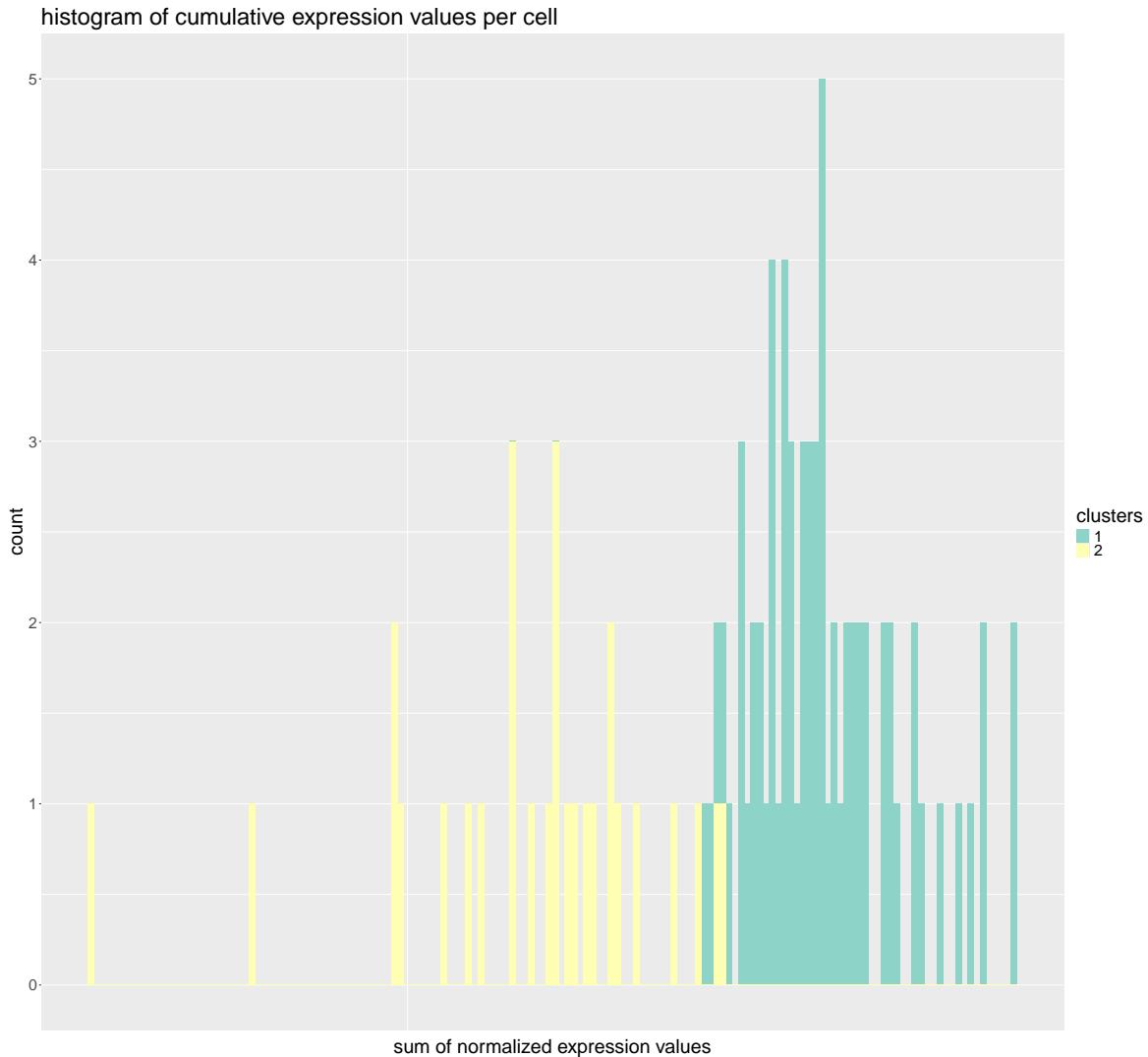
  "islets" "deepskyblue2"
 [,1]      [,2]
[1,] "islets" "deepskyblue2"
uniqueSources    colorsList
  "tissue"          NA
 [1] "cellSource"     "probe"      "age"        "patient"
 [5] "SPA"           "SPAM"       "SPAMcell"   "cellType"
 [9] "kmeans.cluster" "ITGB1"     "GSK3B"      "HPRT"
[13] "GSK3A"         "PTEN"       "HIF1A"      "IRF2"
[17] "STAT3"         "LY6E"       "JAK1"       "VEGFA"
[21] "PTK2"          "TIMP2"      "ACVR1"      "STAT1"
[25] "PDL-1"         "IRF1"       "VEGFB"      "JAK2"
[29] "SOCS3"         "NFKB1"      "PDGFA"      "GAPDH"
[33] "IFNKR1"        "WNT4"       "TRAF2"      "CSF1"
[37] "FGFR1"         "KLF5"       "TNFRSF1A"   "CSF2RA"
[41] "INS1"          "ANPEP"      "NFATC1"     "FYN"
[45] "IAPP"          "TLR3"       "BCL6"       "STAT5"
[49] "CD44"          "IFIT1"      "EGFR"       "SPP1"
[53] "IL4RA"         "CD83"       "CD74"       "NUR77"
[57] "OAS1B"         "LY75"       "PDGFB"      "TNFAIP3"
[61] "MAP2K6"         "IRF7"       "GCG"        "SST"
[65] "TNFRSF1B"      "CD40"       "OAS2"       "H2-AA"
[69] "PPARGC1A"      "H2-DMA"     "RSAD2"      "CD24A"
[73] "BCL2"          "TLR4"       "COL11A1"    "ICAM1"
[77] "PPARG"         "INS2"       "IFIT3"      "SFRP1"
[81] "VCAM1"         "MX1"        "IFI44"      "ICOSL"
[85] "ANGPT1"        "PPY"        "CCR2"       "TGFB1"
[89] "TGFBR2"        "IGF2"       "COL1A1"     "CD36"
[93] "FLT4"          "PDPN"       "IL7"        "MMP9"
[97] "MMP2"          "CD14"       "IGF1"       "ZEB2"
[101] "FGR"          "CEACAM1"    "BMP5"       "COL1A2"
[105] "LEPR"          "GHRL"       "AIM2"       "TEK"
[109] "CD86"          "STAT4"      "TNFSF11"    "PTGS2"
[113] "OASL1"         "IL25"       "IL18R1"     "IL34"
[117] "IL12RB"        "LCK"        "MAPK8"      "IL1R2"
[121] "ITGAX"         "CCR6"       "FGFR3"      "VAV1"
[125] "DES"           "TIMP1"      "CXCL10"     "FAP"
[129] "IL-21"          "MMP3"       "ZAP70"      "GFAP"
[133] "TNC"           "SELE"       "ISG15"      "CXCL13"
[137] "KDR"           "ADGRE1"    "CD80"       "CXCR3"
[141] "IL6"            "NLRP3"      "TBX21"      "CLEC7A"
[145] "CTLA4"         "FOXP3"      "IL1B"       "ICOS"
[149] "GATA4"         "PDGFRB"    "CD8A"       "GM13889"
[153] "IL27R"          "BMP7"       "TLR7"       "CSF2RB"
[157] "CSF1R"          "TLR9"       "IL1A"       "PECAM1"
[161] "TNF"            "ICAM2"      "ACTA2"      "CCR1"
[165] "CCR3"          "CCR4"       "CCR5"       "CCR7"
[169] "CD28"          "CD3E"       "CD4"        "CXCR4"
[173] "FCGR1"         "IFI44L"     "IFNG"       "IL10"
[177] "IL12B"          "IL17A"      "IL2"        "IL27"
[181] "IL2RA"          "IL3"        "IL4"        "IL5"
[185] "IL5RA"          "IL7R"       "IRF4"       "MMP1A"
[189] "PD1"           "PPARA"     "RSP01"      "WNT2B"
[1] "The value in idCols is 9 and the first column for the heatmap is kmeans.cluster while the last col

```



```
Cells per Cluster
    n_cells
cluster_1      68
cluster_2      28
```





```
#### 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", "AD
##"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", "FYNN",
```

```

#"GAPDH", "GATA4", "GCG", "GFAP", "GHRL", "GM13889", "GSK3A", "GSK3B", "H2-AA", "H2-DMA",
#"HIF1A", "HPRT", "IAPP", "ICAM1", "ICAM2", "ICOS", "ICOSL", "IFIT1", "IFIT3", "IFI44",
#"IFI44L", "IFNG", "IFNCR1", "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", "RSP01",
#"SELE", "SFRP1", "SOCS3", "SPP1", "SST", "STAT1", "STAT3", "STAT4", "STAT5", "TBX21",
#"TEK", "TGFB1", "TGFB2", "TIMP1", "TIMP2", "TLR3", "TLR4", "TLR7", "TLR9", "TNC",
#"TNF", "TNFAIP3", "TNFRSF1A", "TNFRSF1B", "TNFSF11", "TRAF2", "VAV1", "VCAM1", "VEGFA",
#"VEGFB", "WNT2B", "WNT4", "ZAP70", "ZEB2"))

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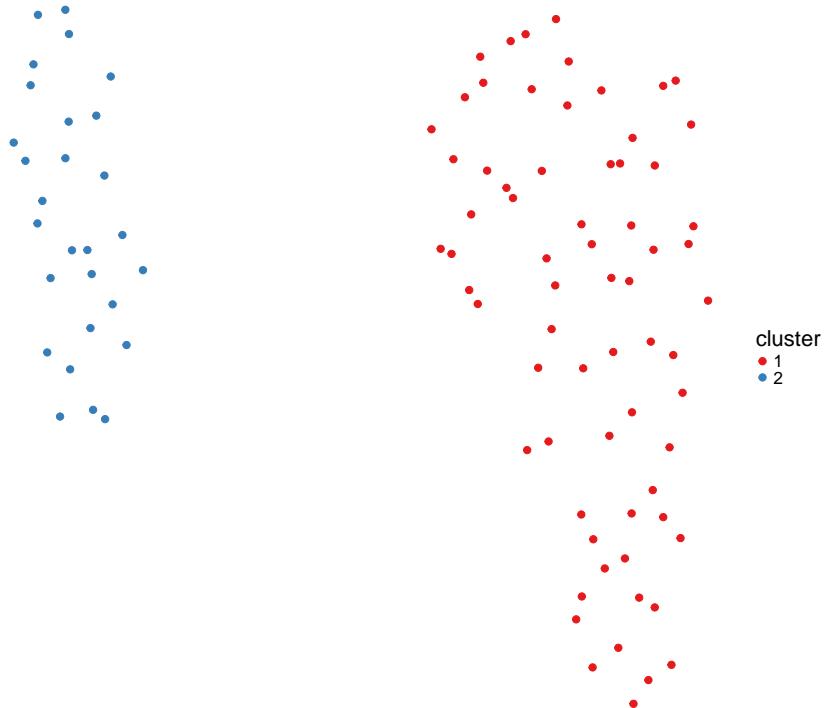
#Z0 edit: Now using UMAP

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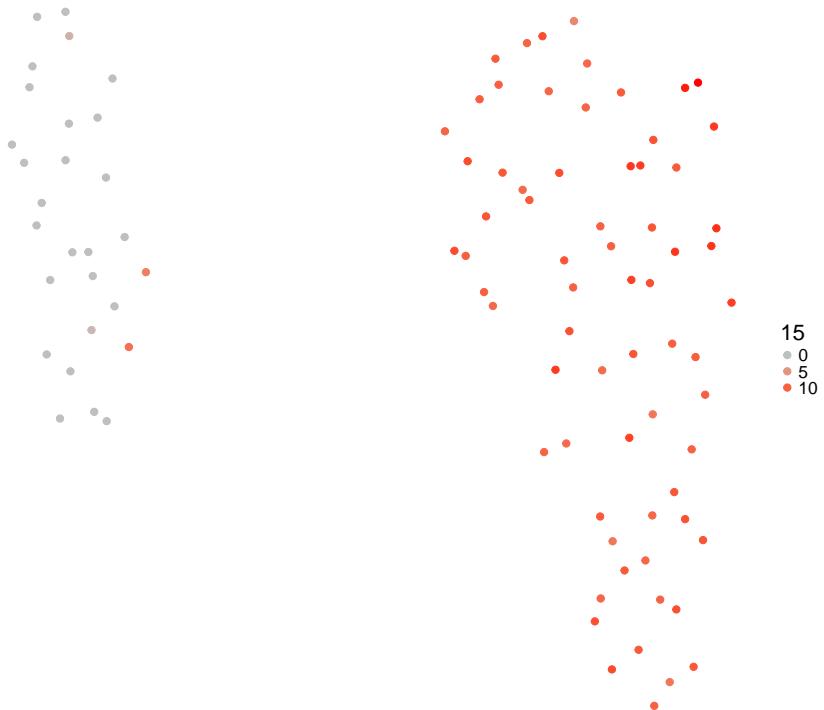
ctClust <- plotUMAP(ctClust, colorby = c("kmeans.cluster", "Gene_List"), Genes = c("AIM2", "ACTA2", "ACVR",
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"CLEC7A", "COL11A1", "COL1A1", "COL1A2", "CSF1", "CSF1R", "CSF2RA", "CSF2RB",
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"ZAP70", "ZEB2"))

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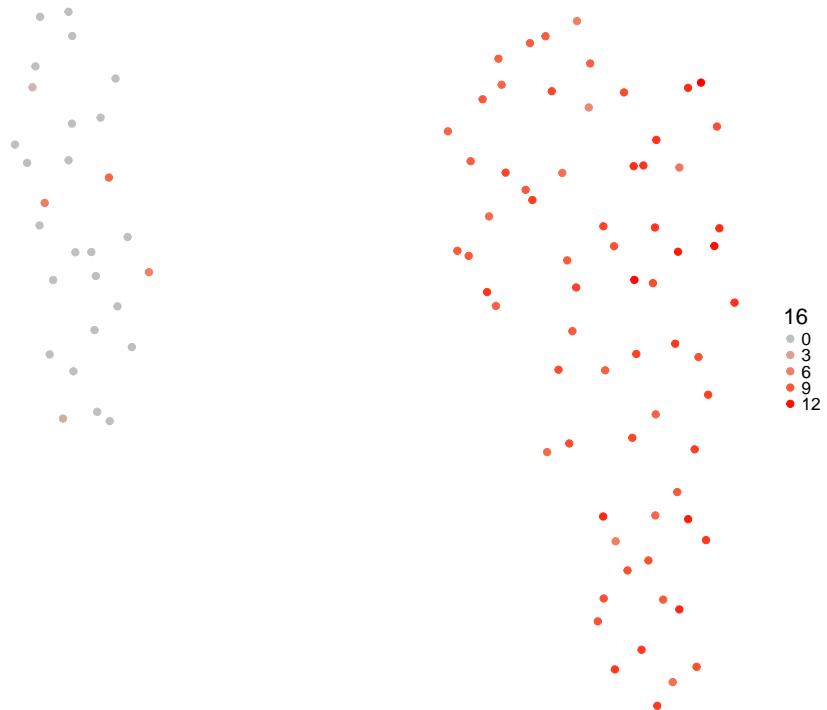
UMAP between tissues (colored by kmeans.cluster)



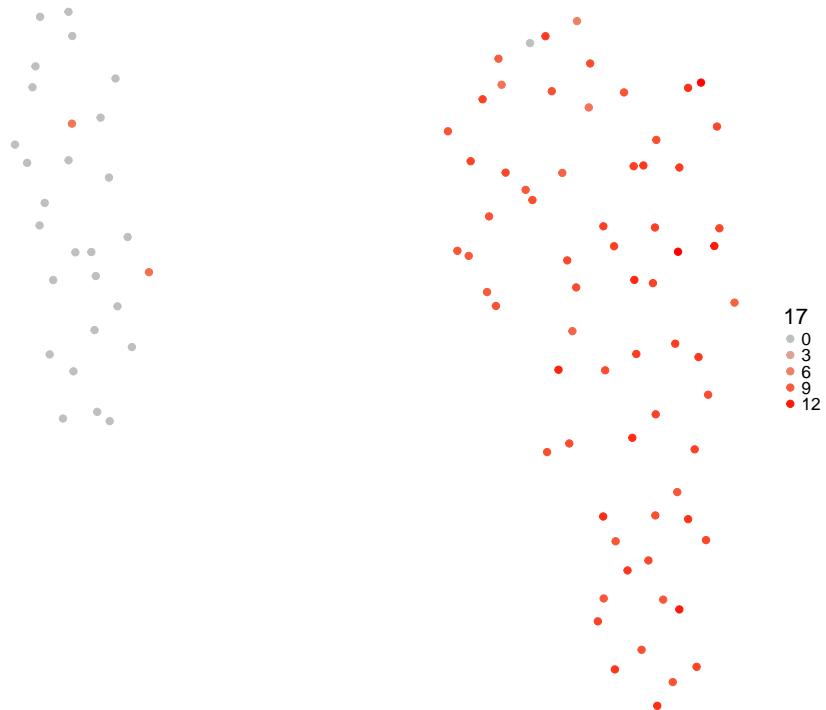
UMAP colored by ITGB1 expression



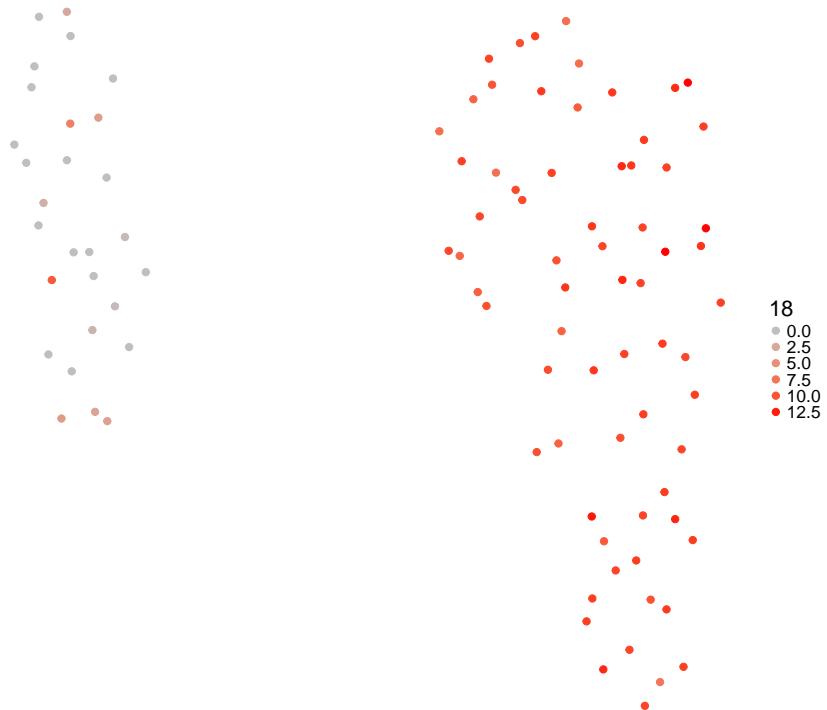
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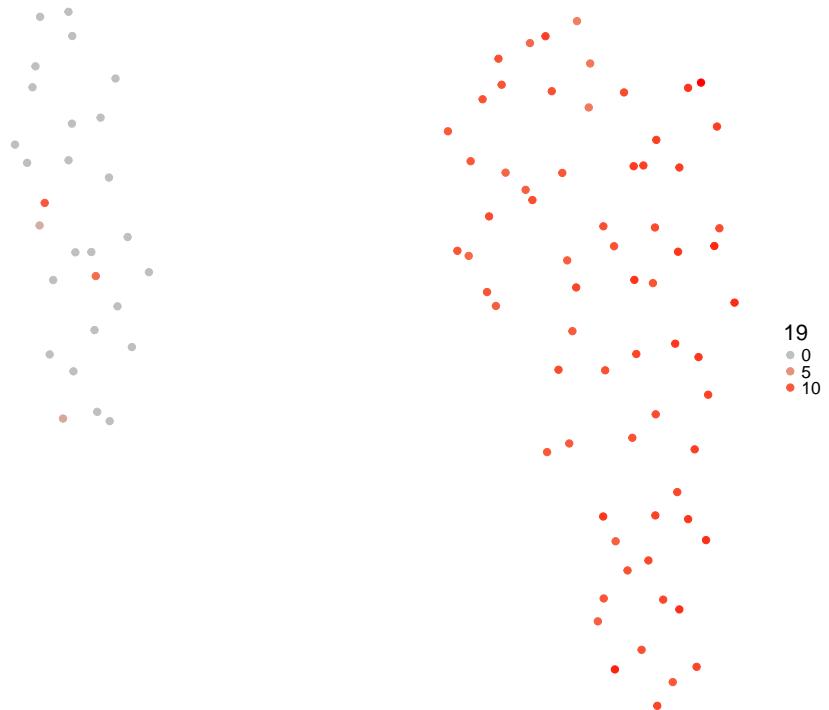
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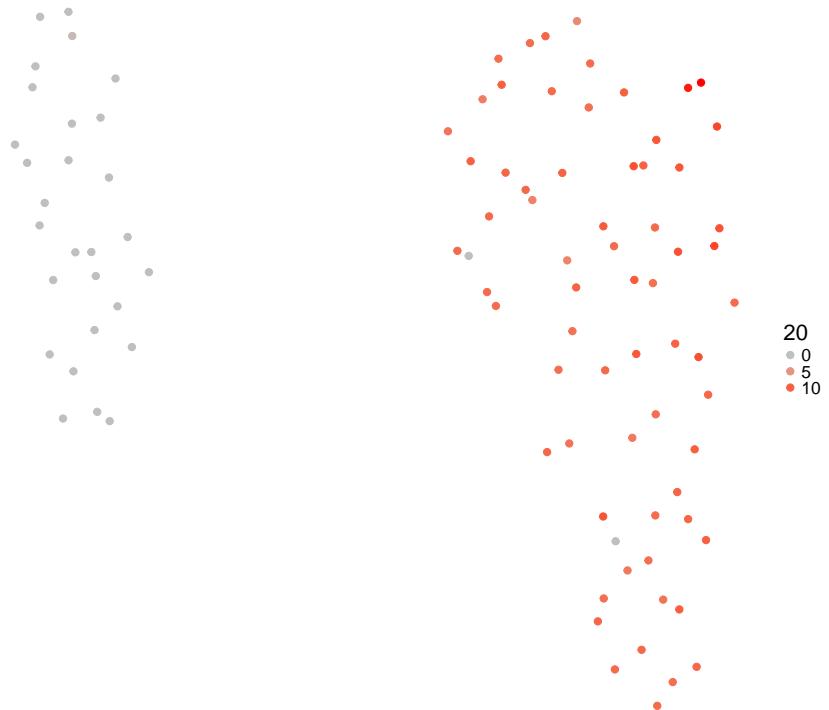
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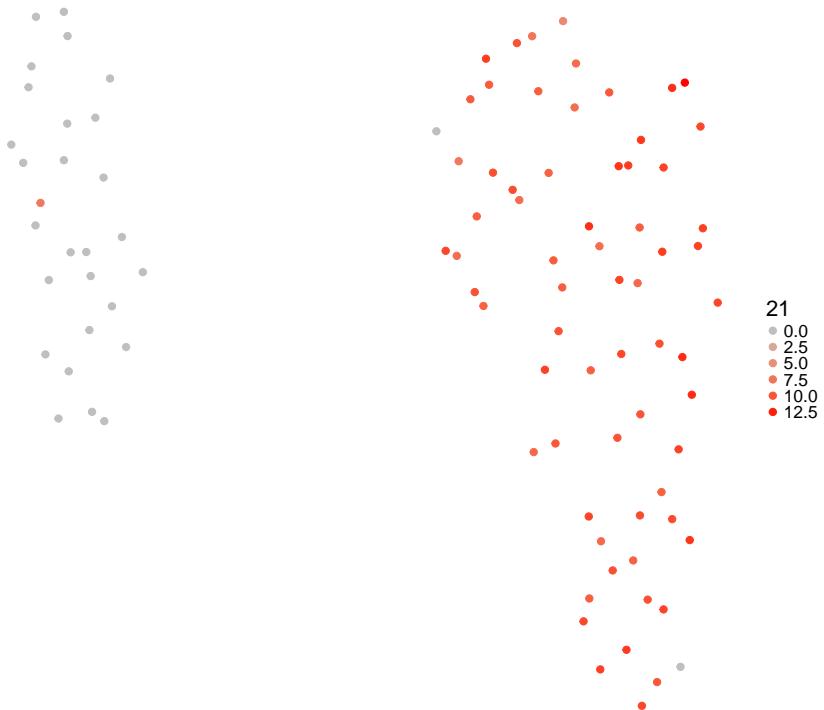
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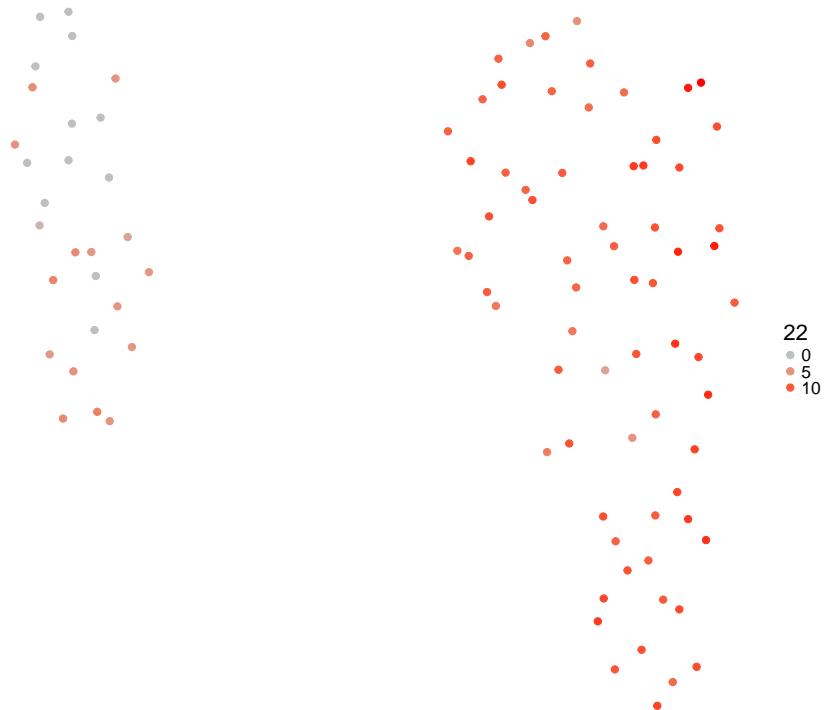
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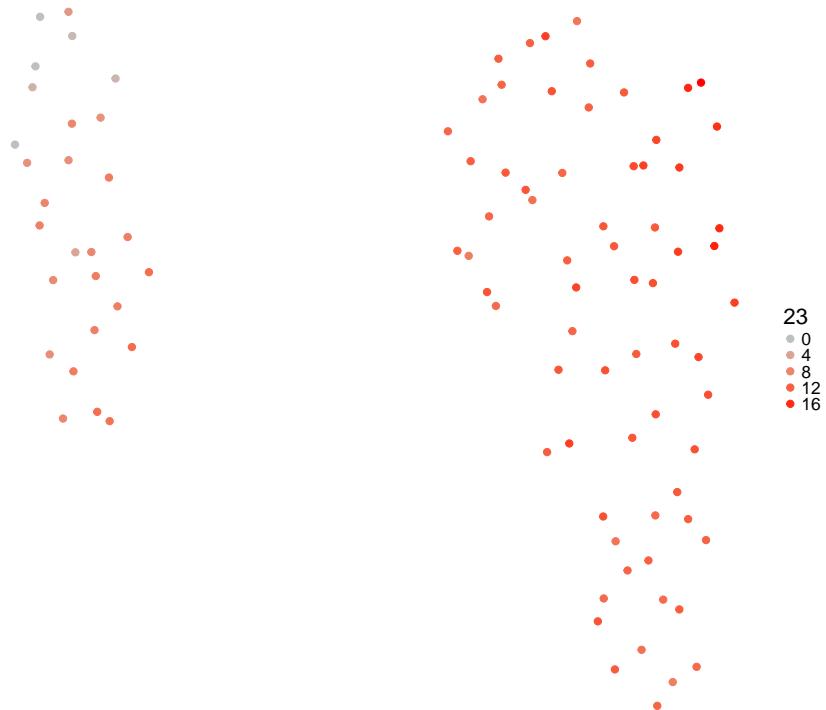
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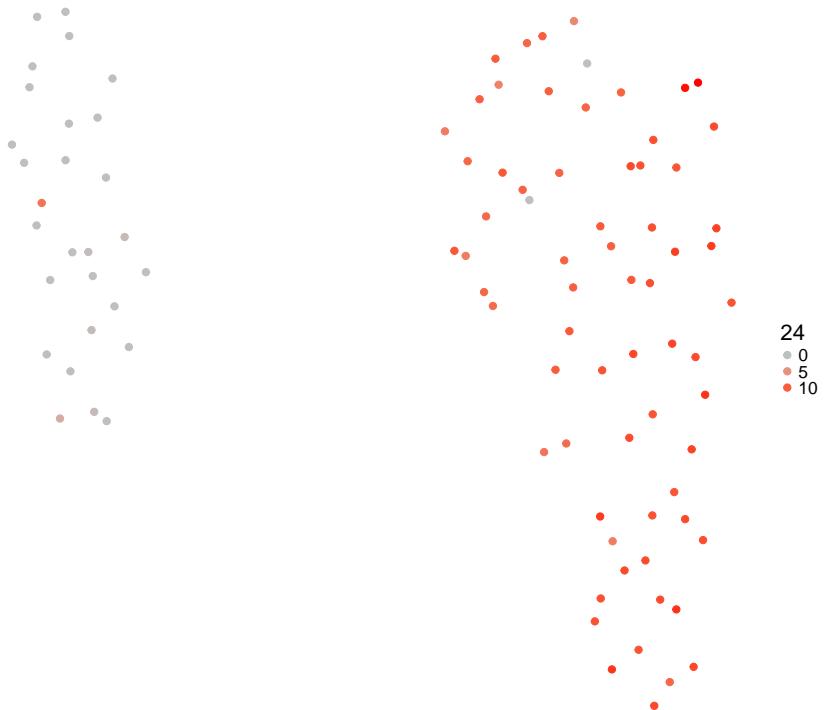
UMAP colored by STAT3 expression



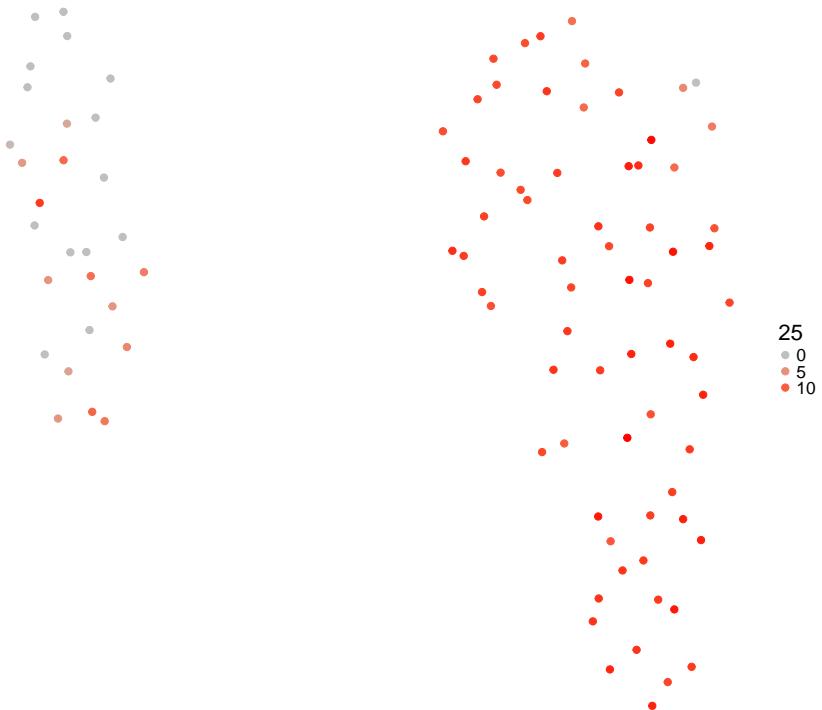
UMAP colored by LY6E expression



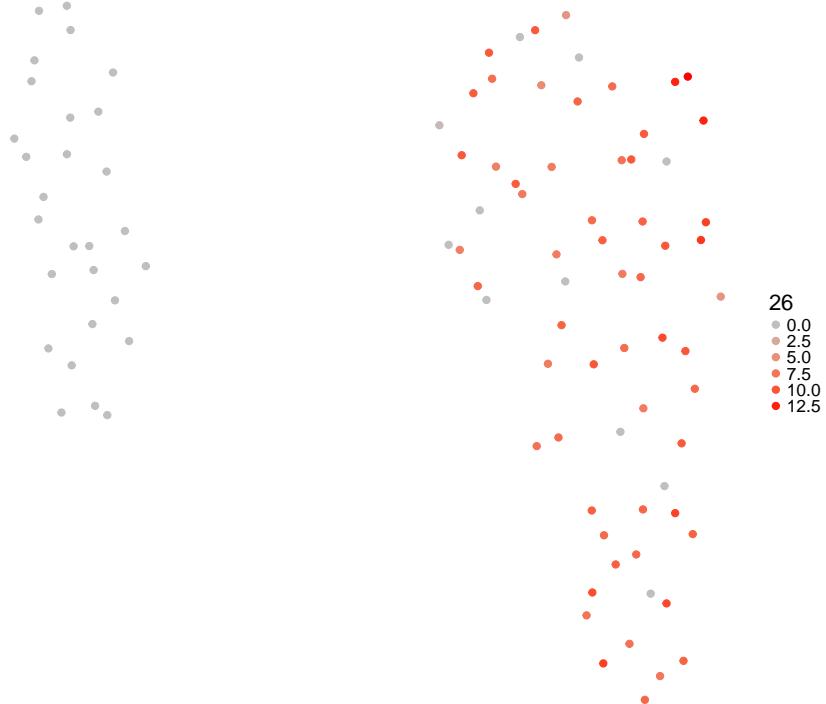
UMAP colored by JAK1 expression



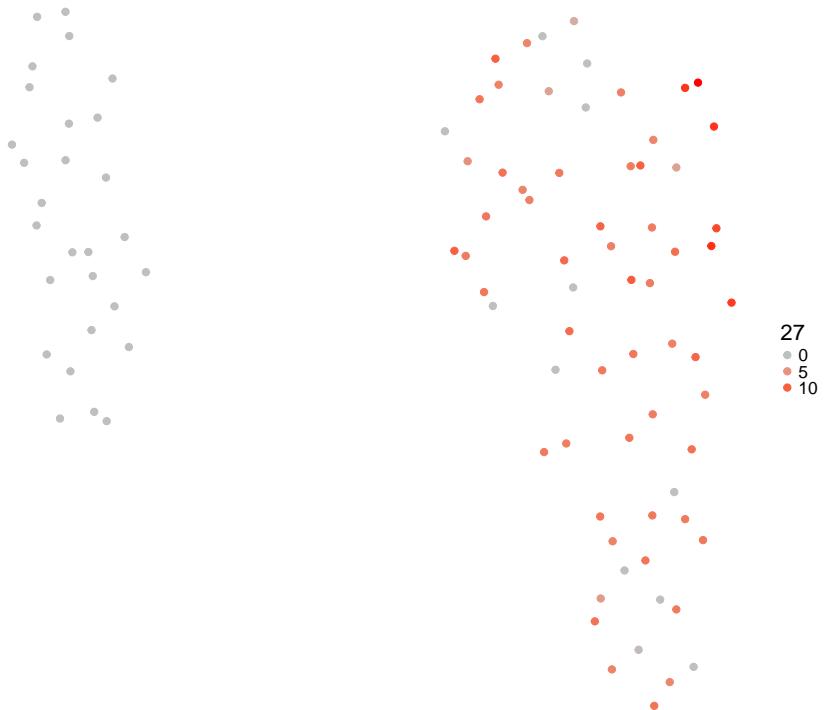
UMAP colored by VEGFA expression



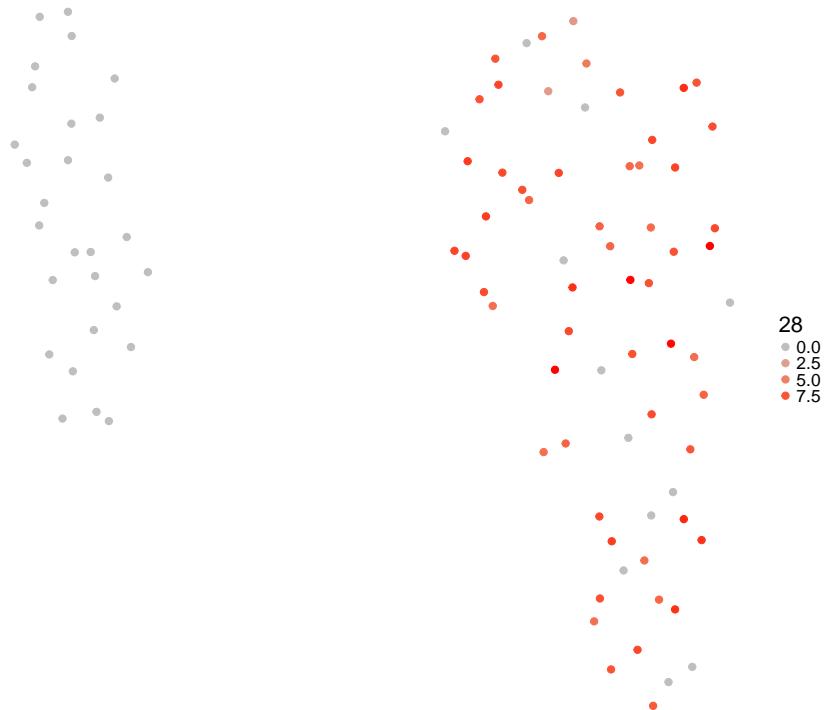
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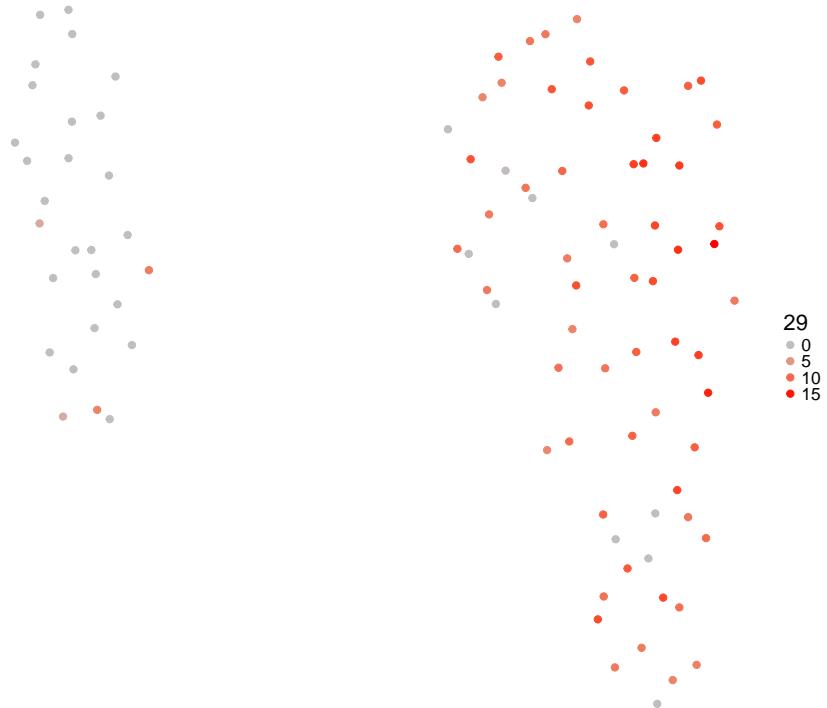
UMAP colored by TIMP2 expression



UMAP colored by ACVR1 expression



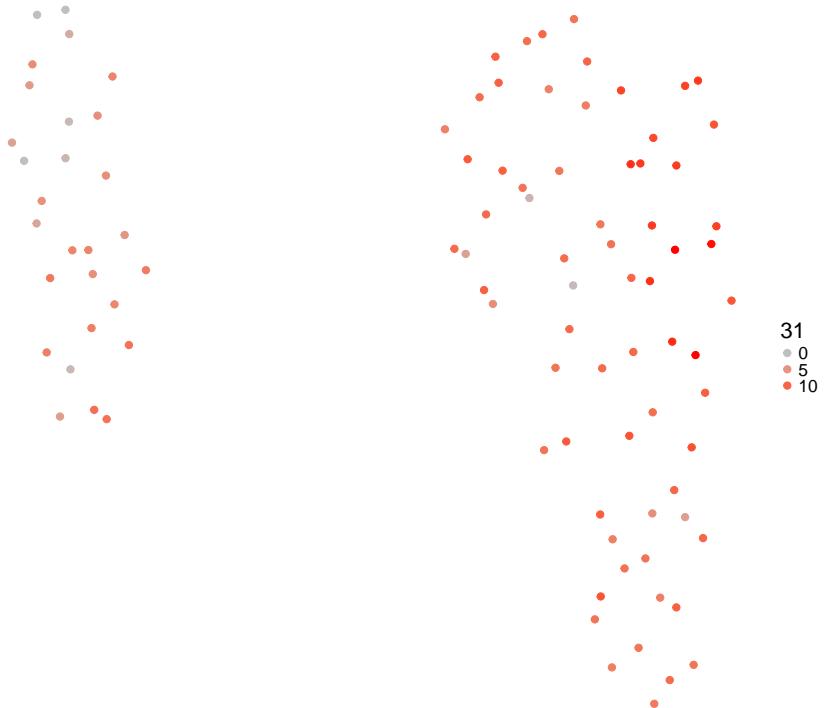
UMAP colored by STAT1 expression



UMAP colored by PDL-1 expression



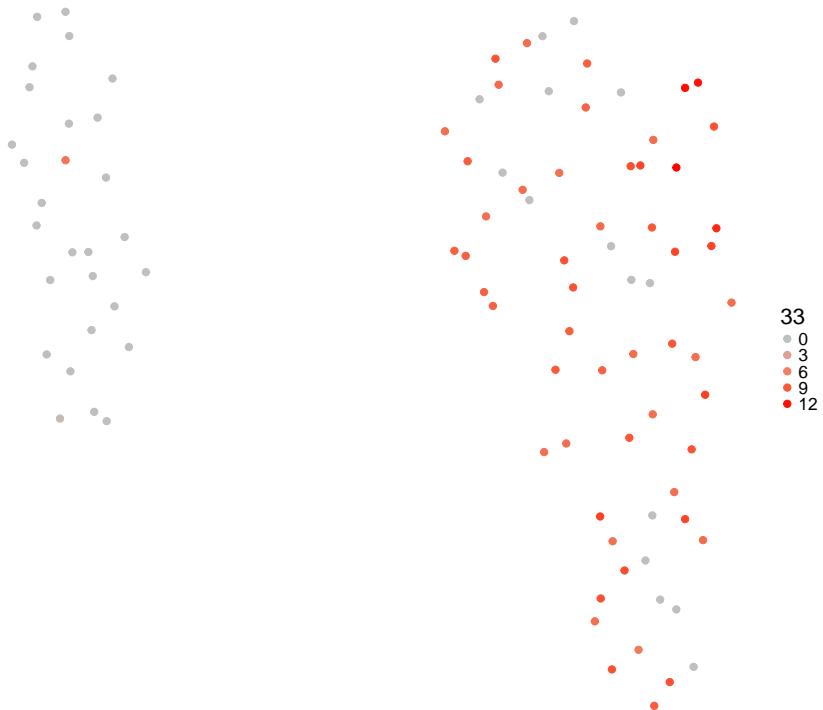
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UMAP colored by VEGFB expression



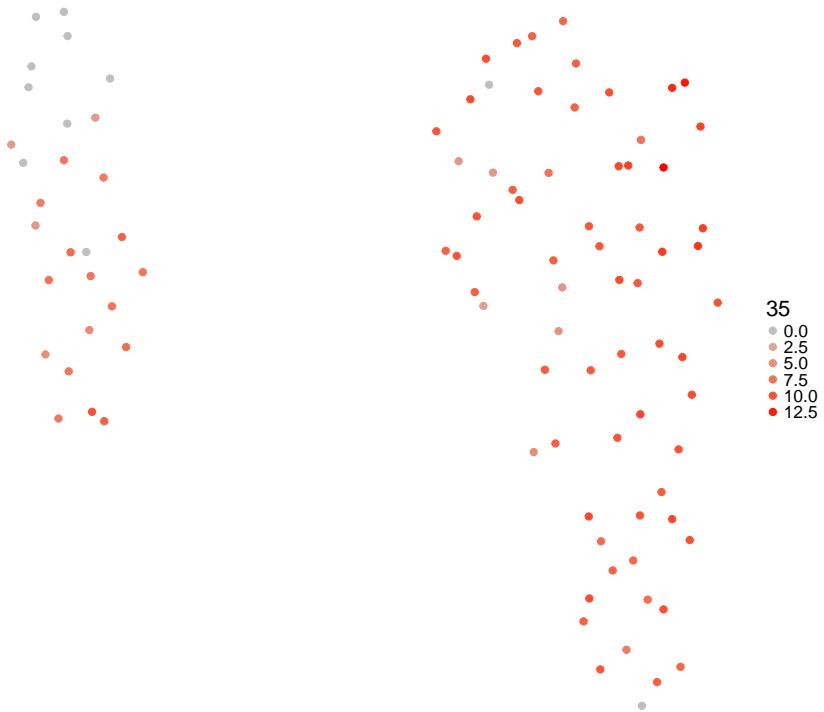
UMAP colored by JAK2 expression



UMAP colored by SOCS3 expression



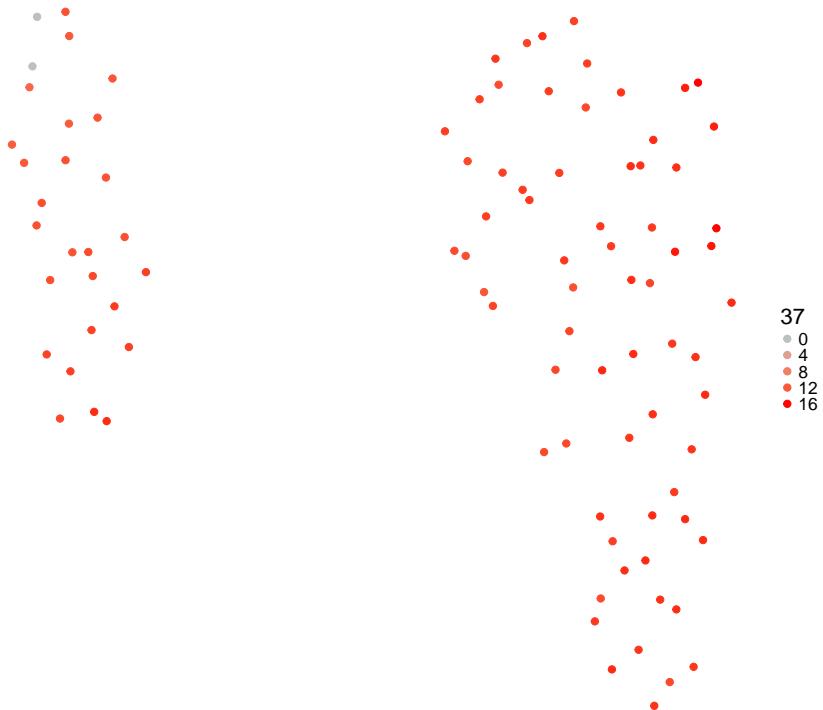
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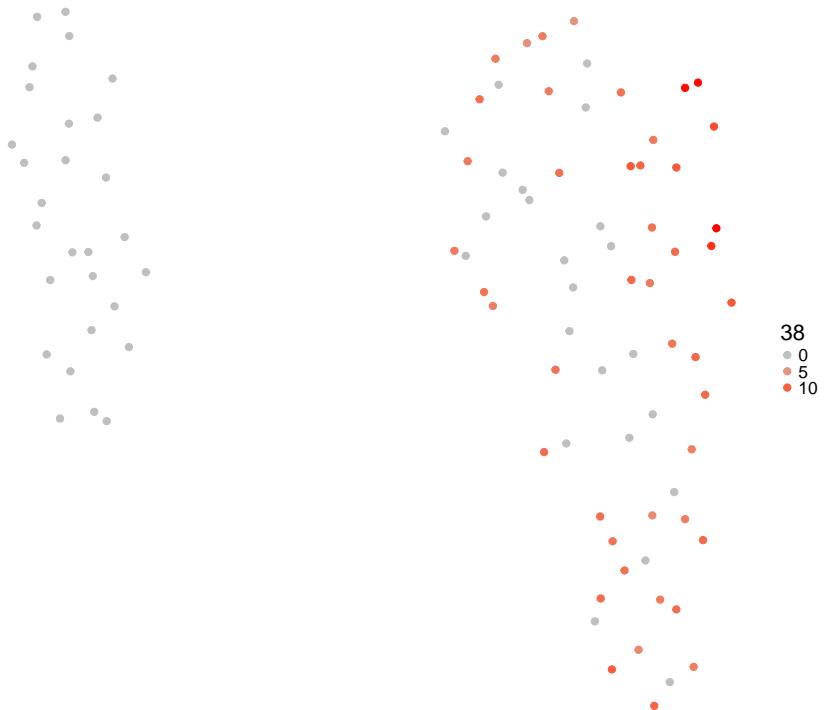
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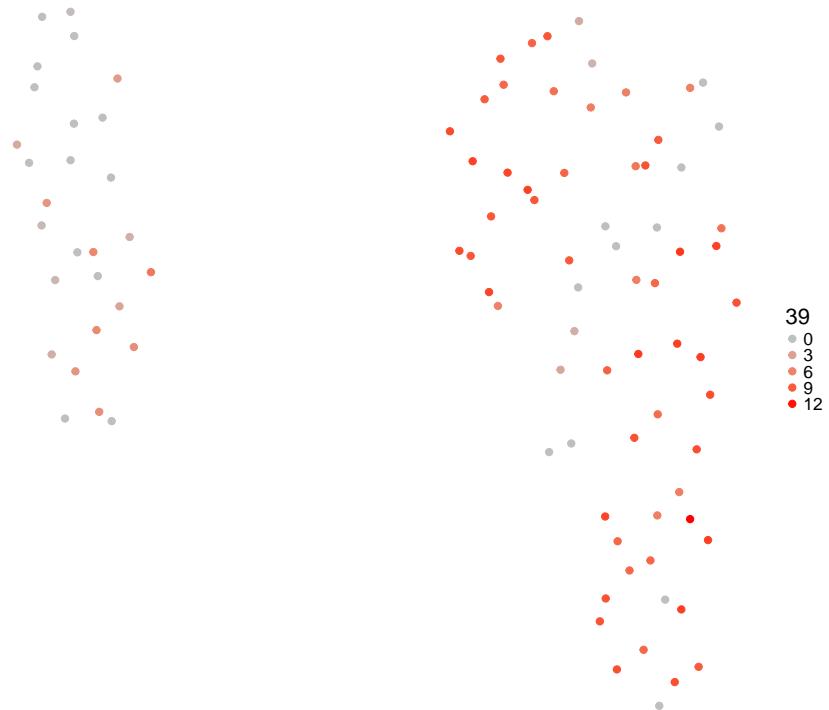
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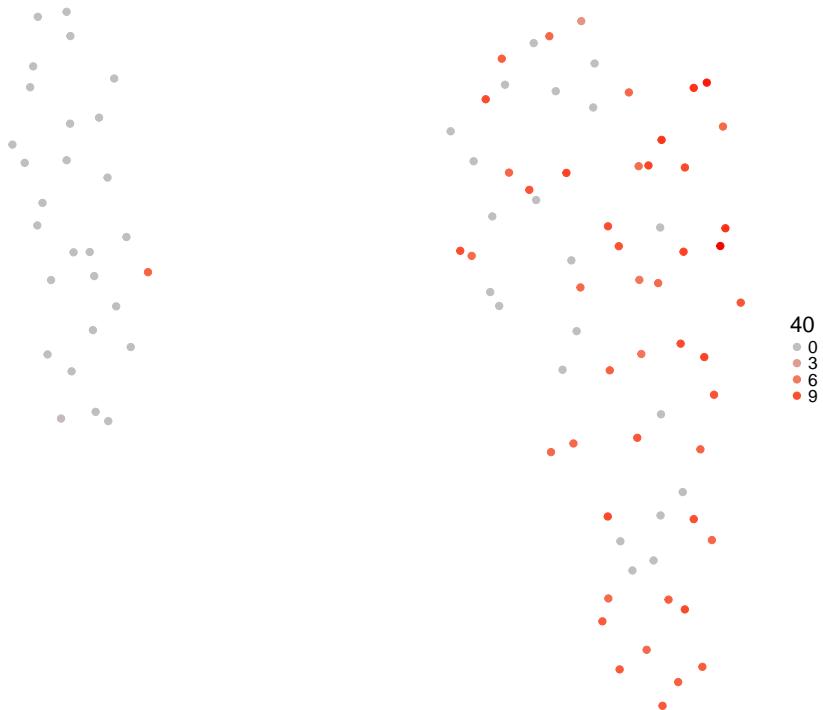
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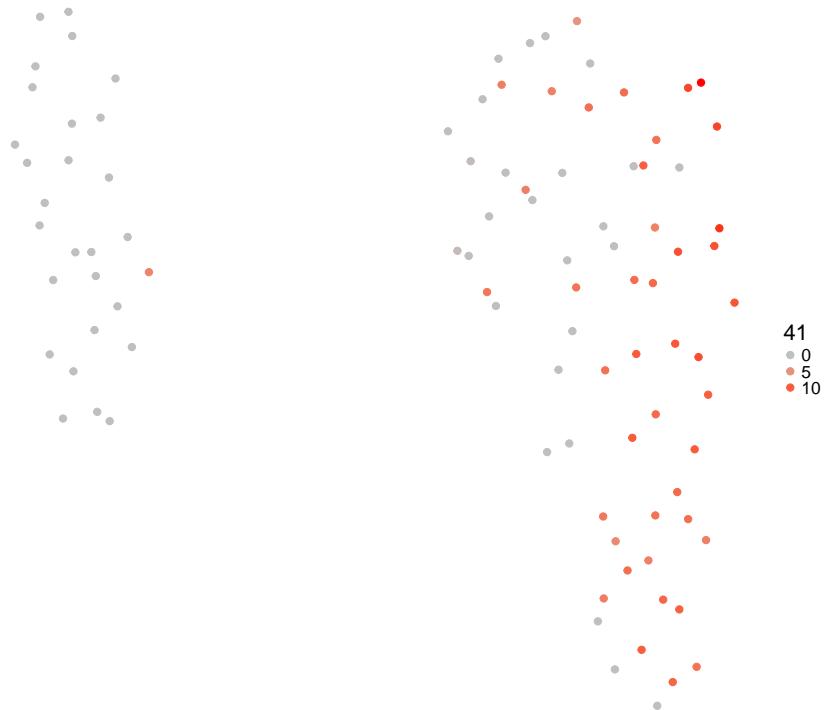
UMAP colored by WNT4 expression



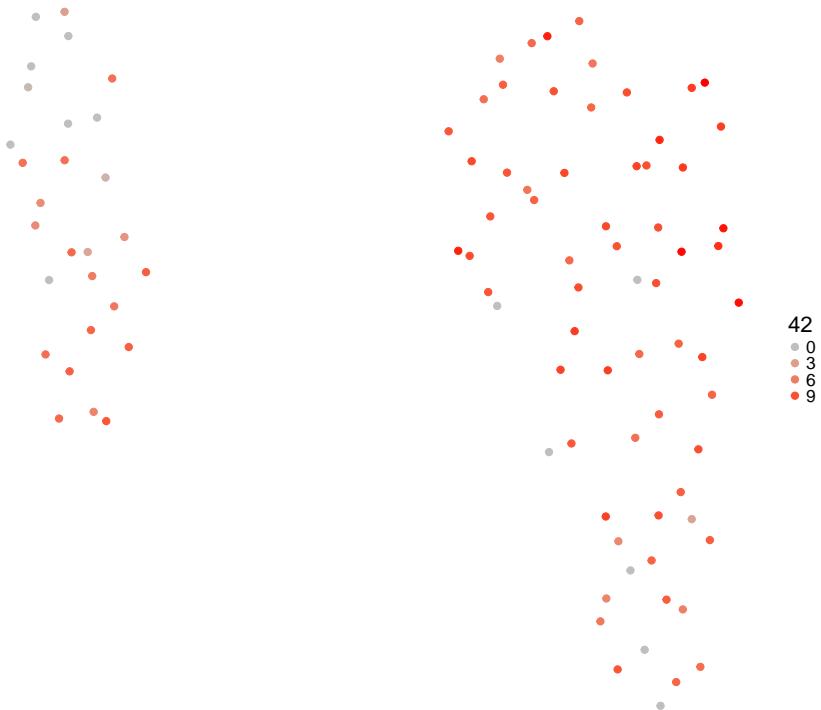
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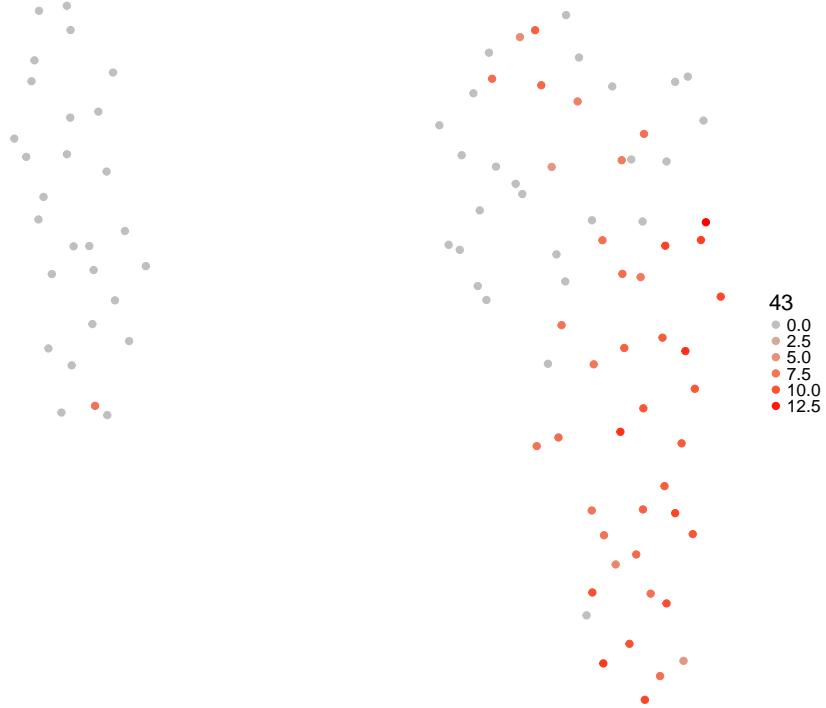
UMAP colored by CSF1 expression



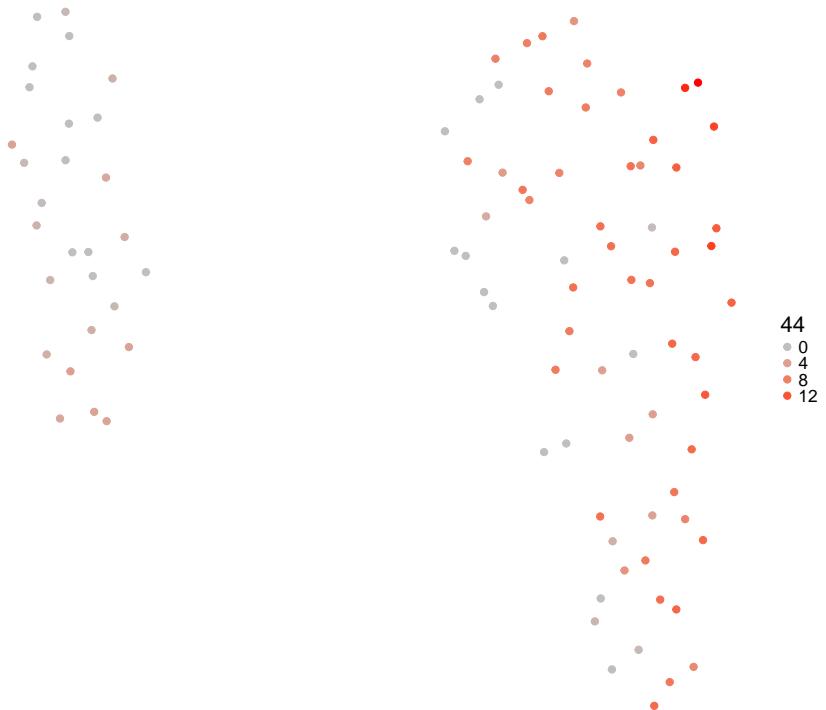
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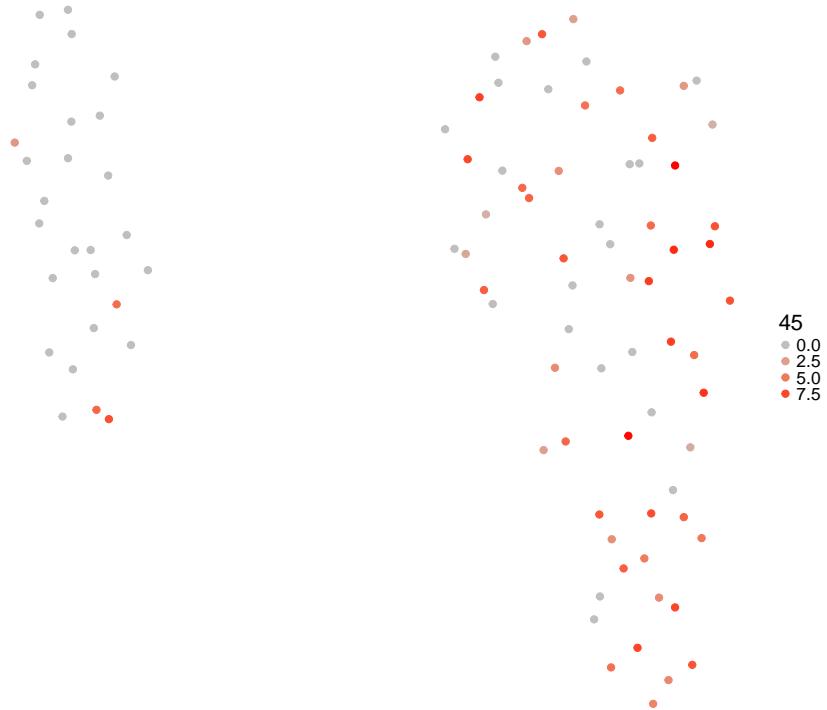
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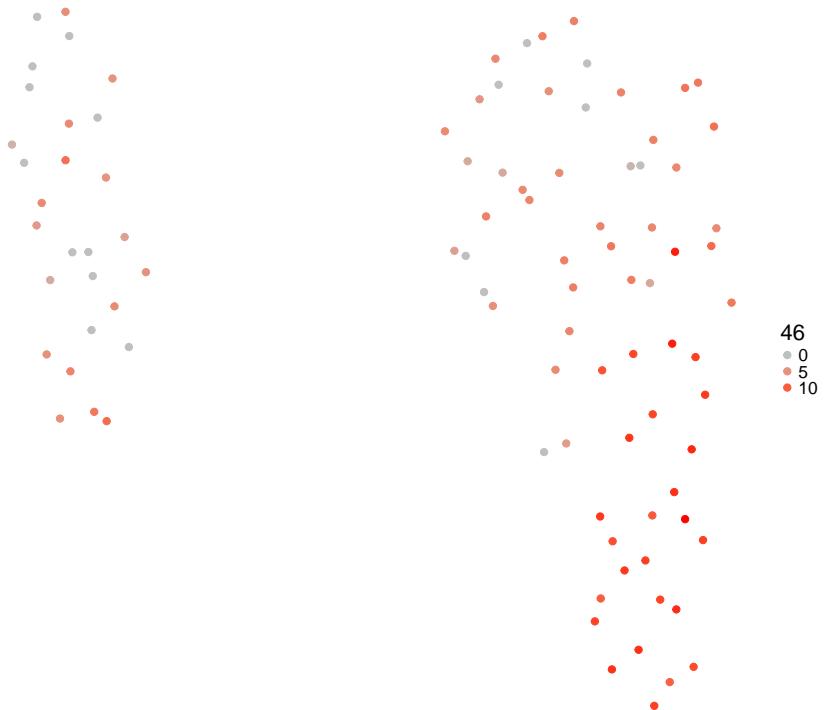
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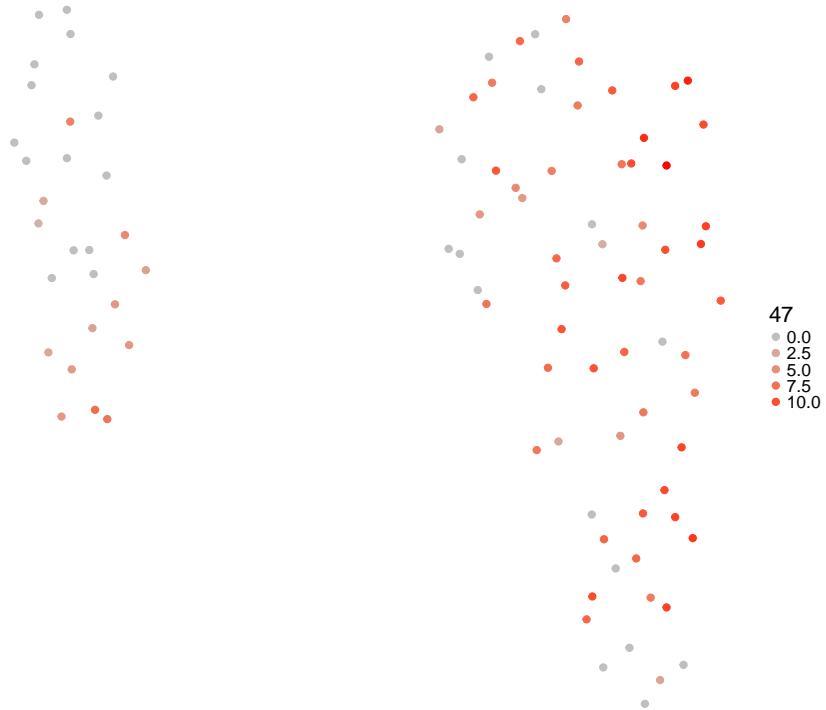
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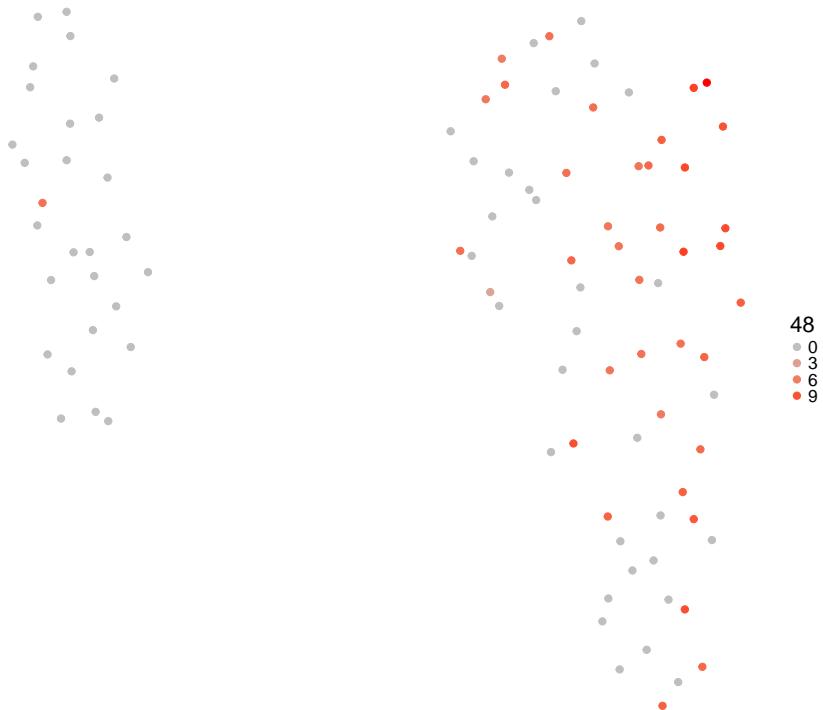
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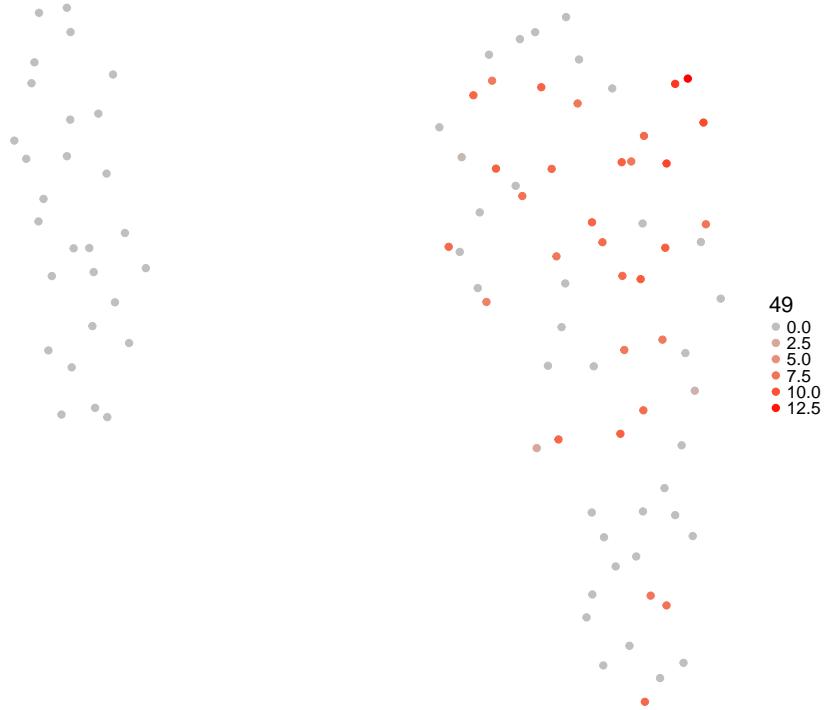
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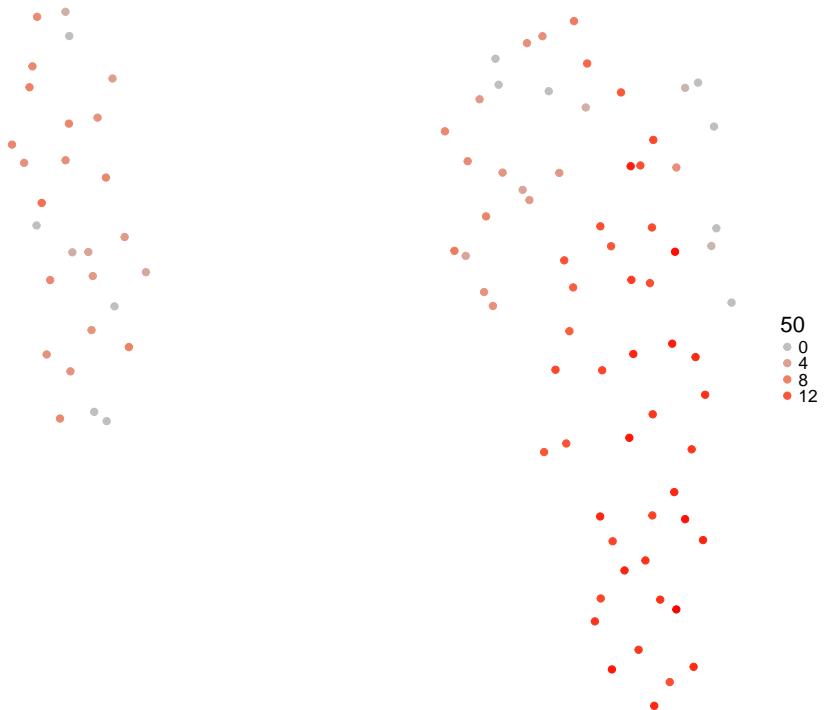
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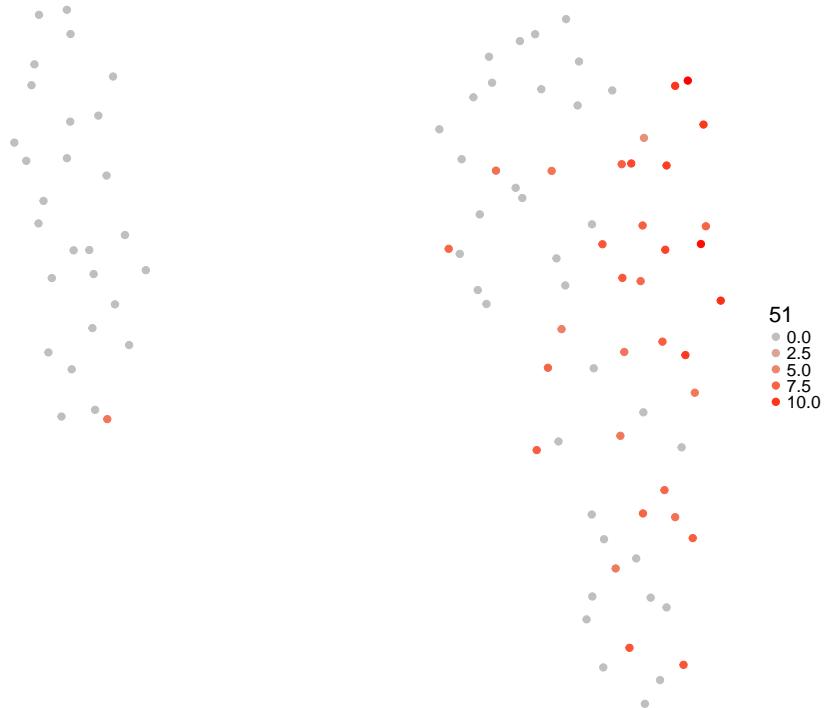
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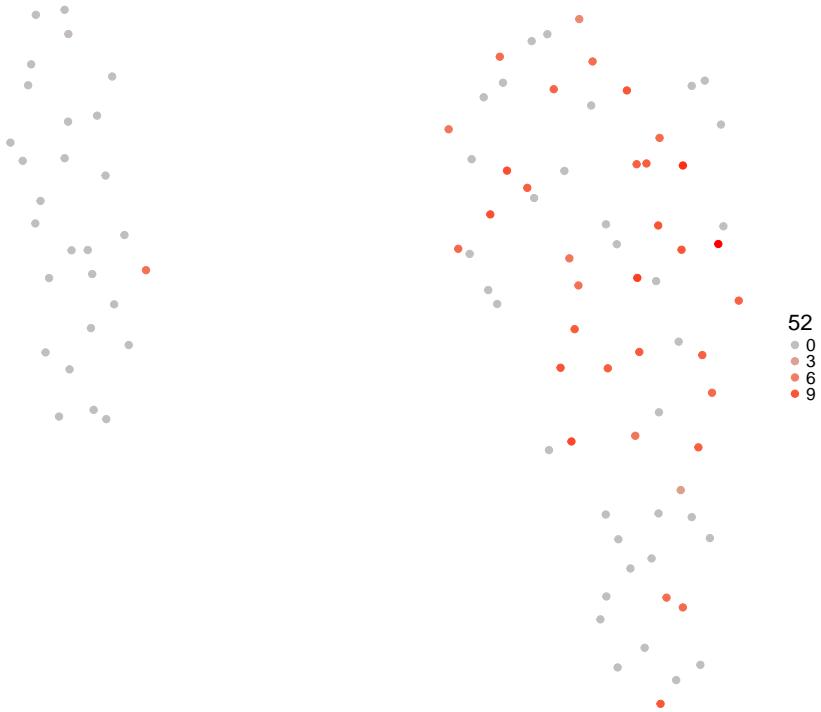
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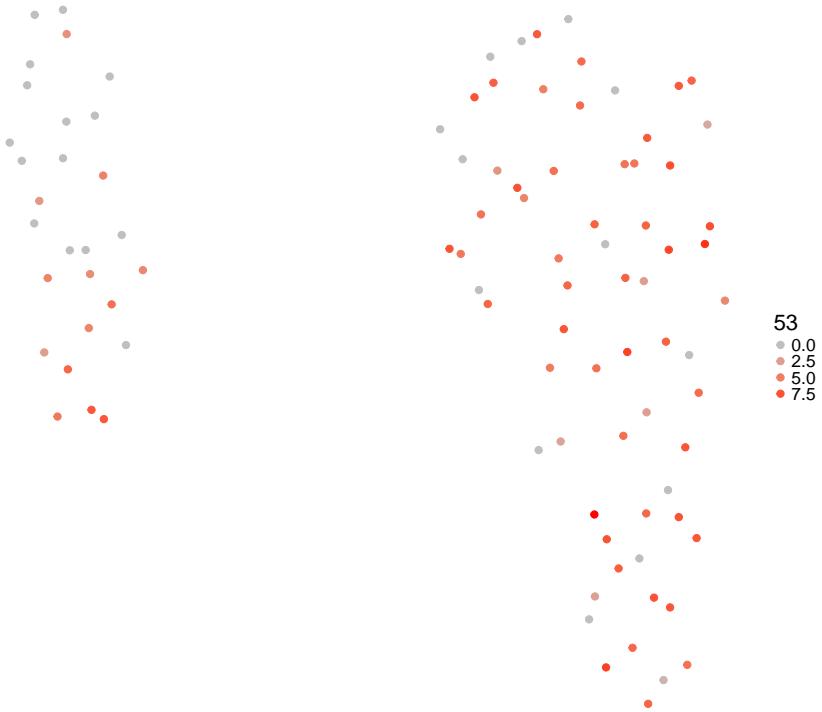
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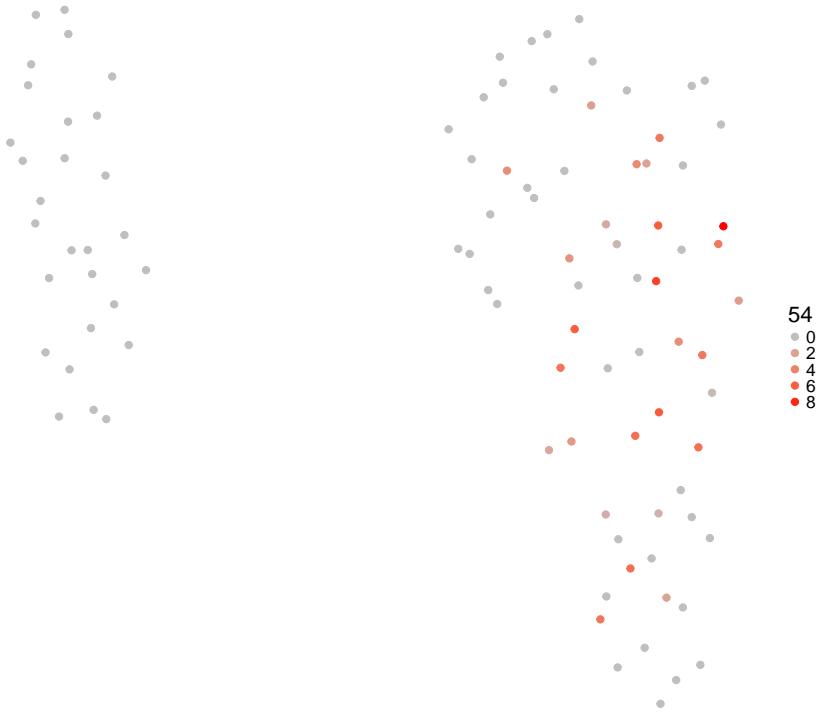
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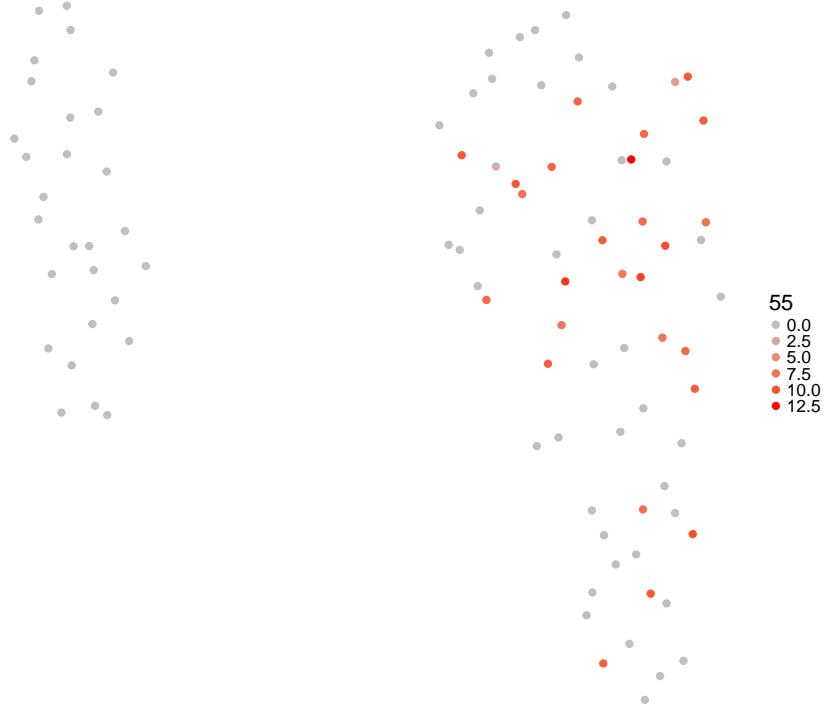
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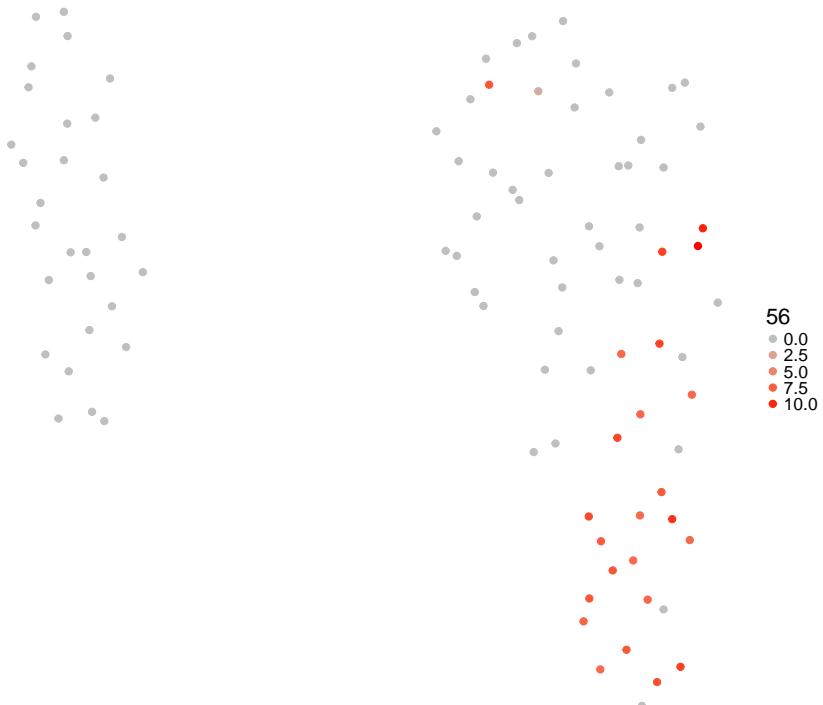
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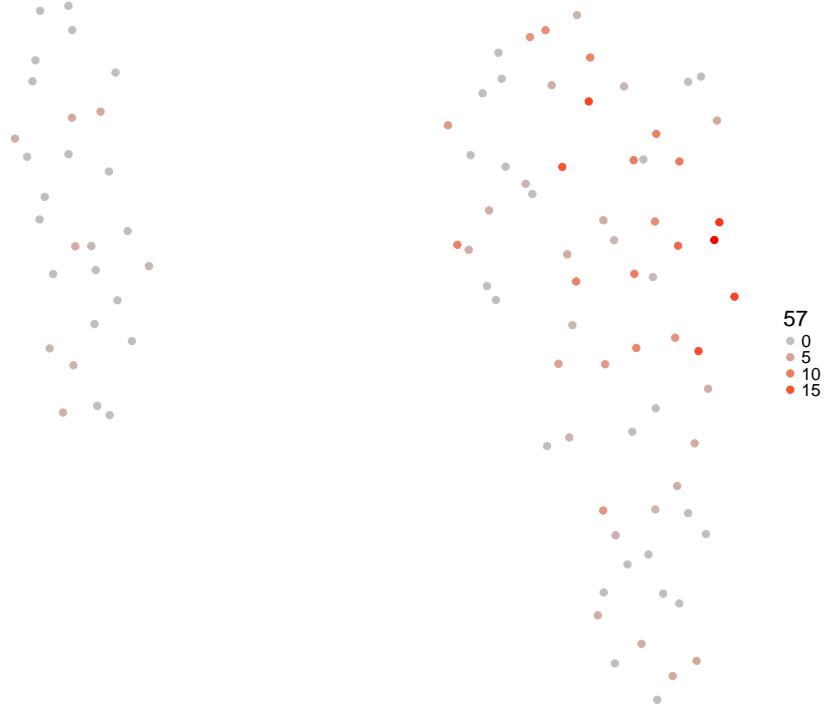
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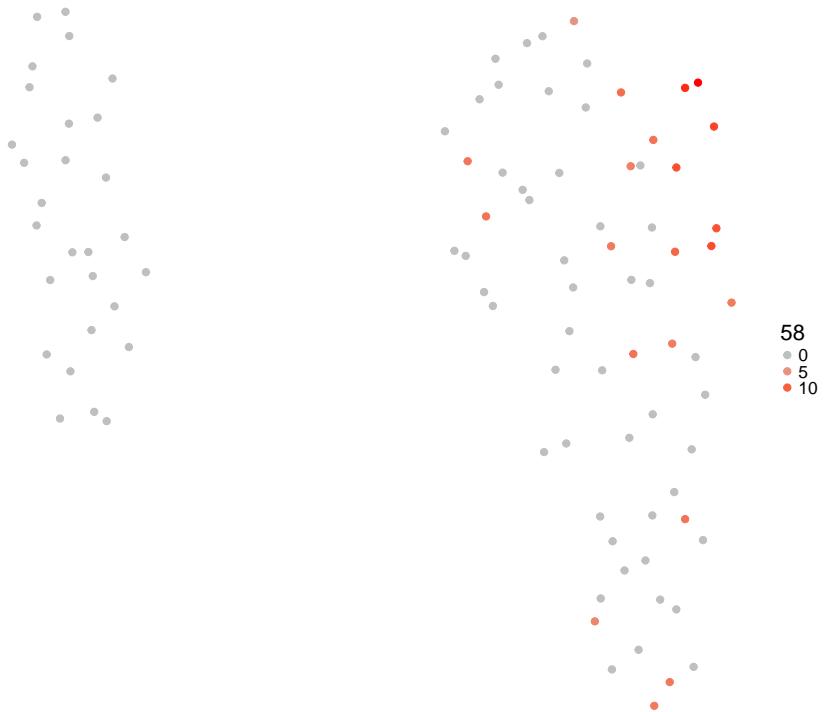
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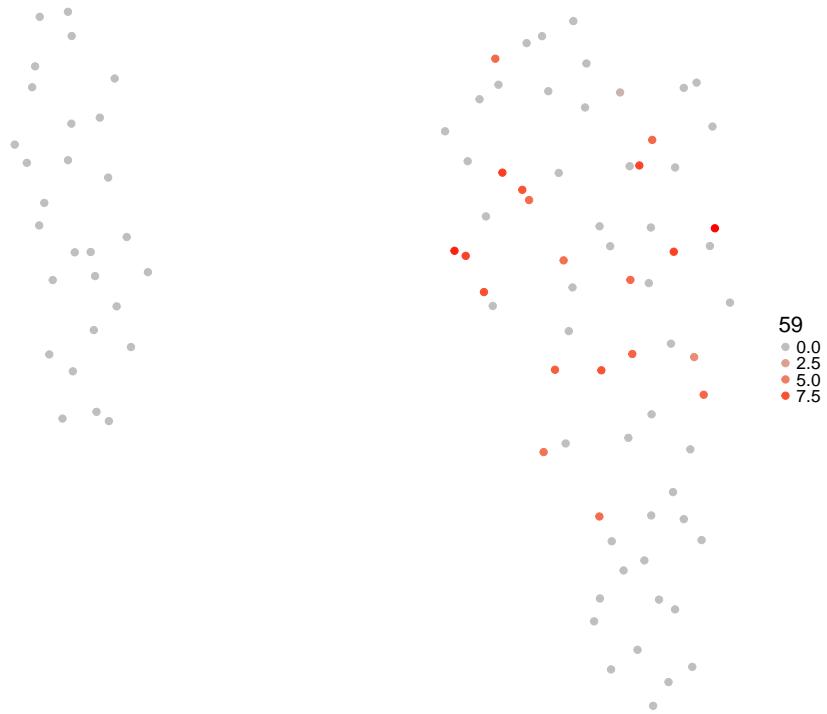
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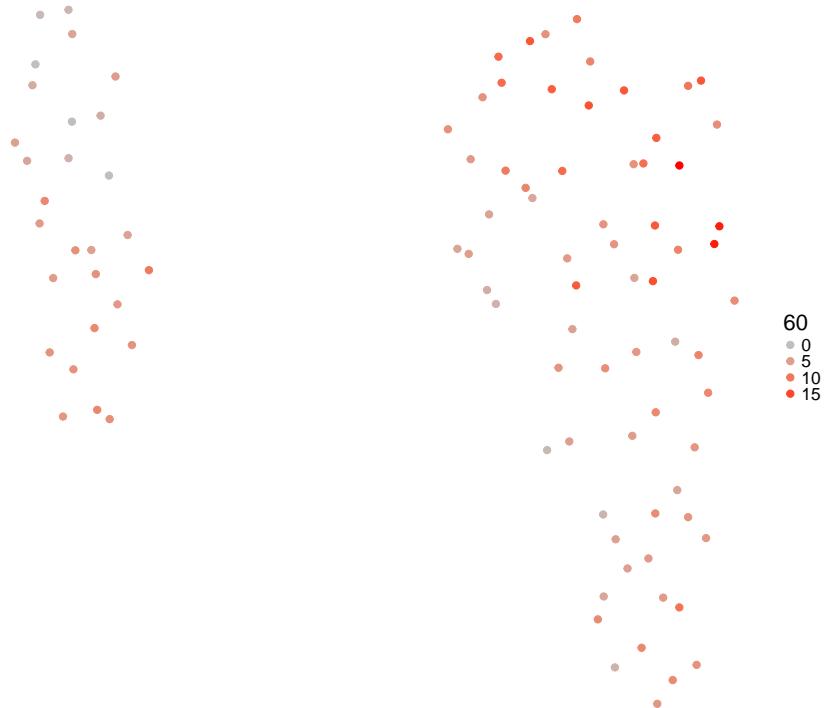
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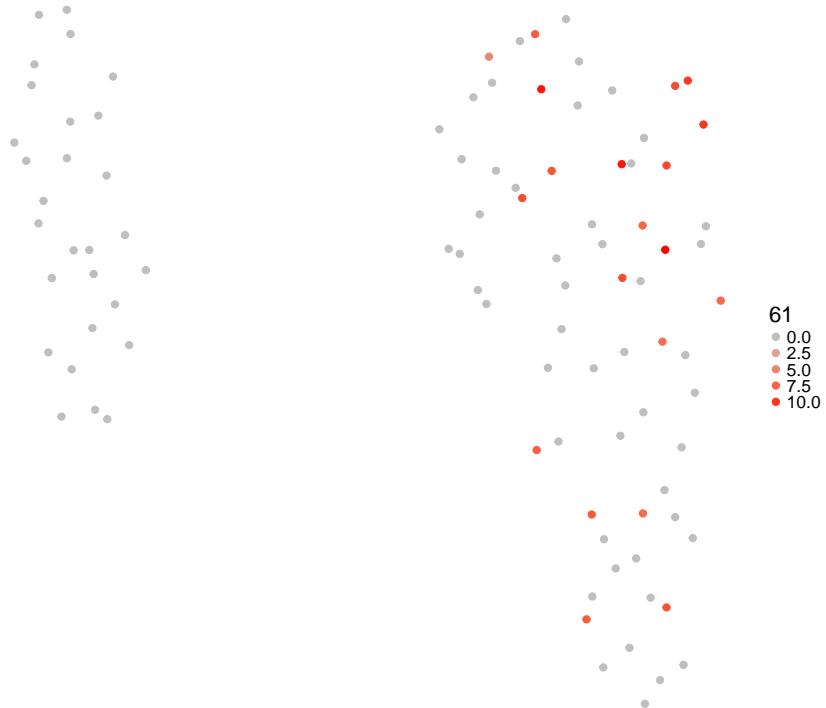
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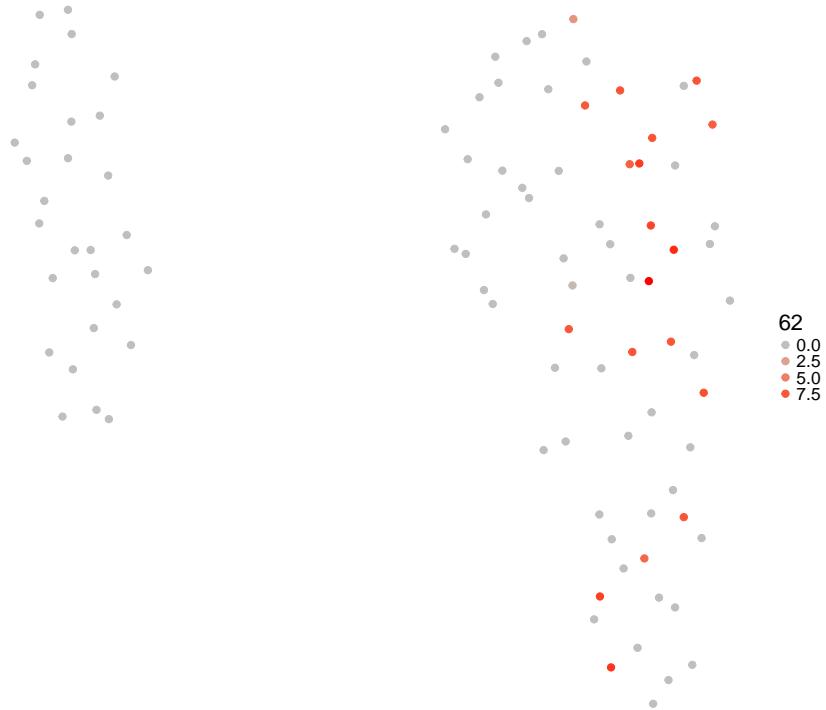
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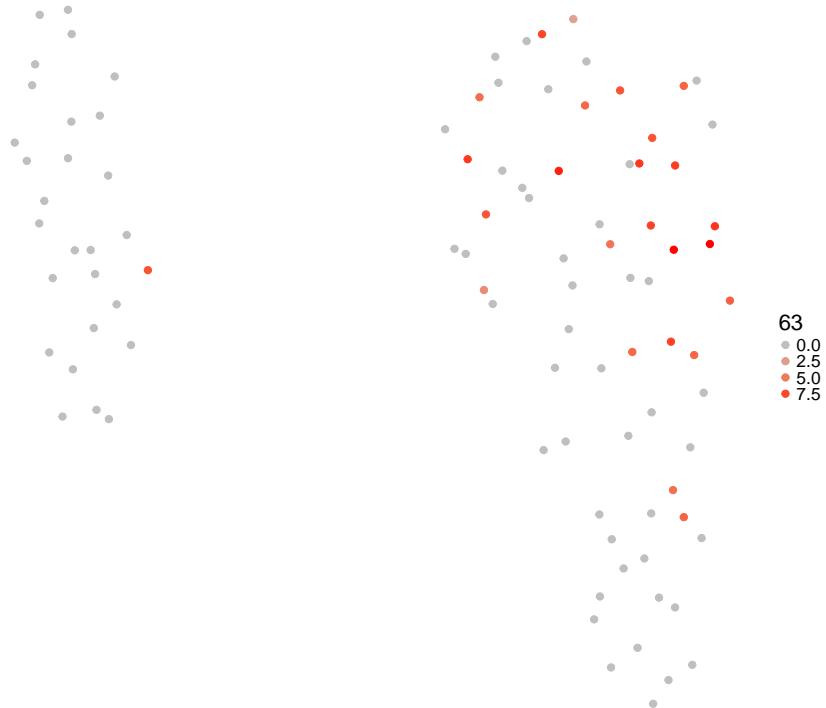
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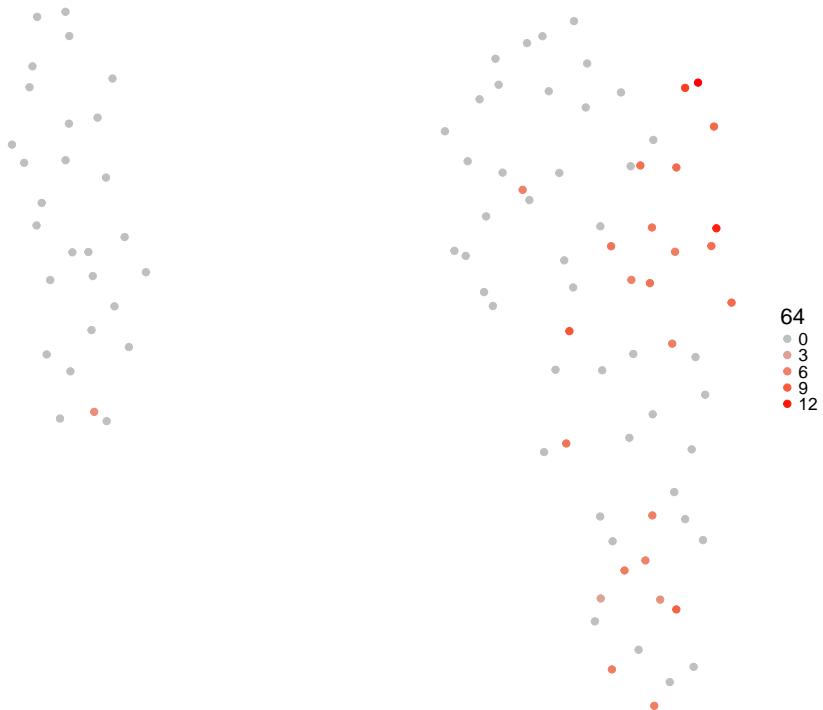
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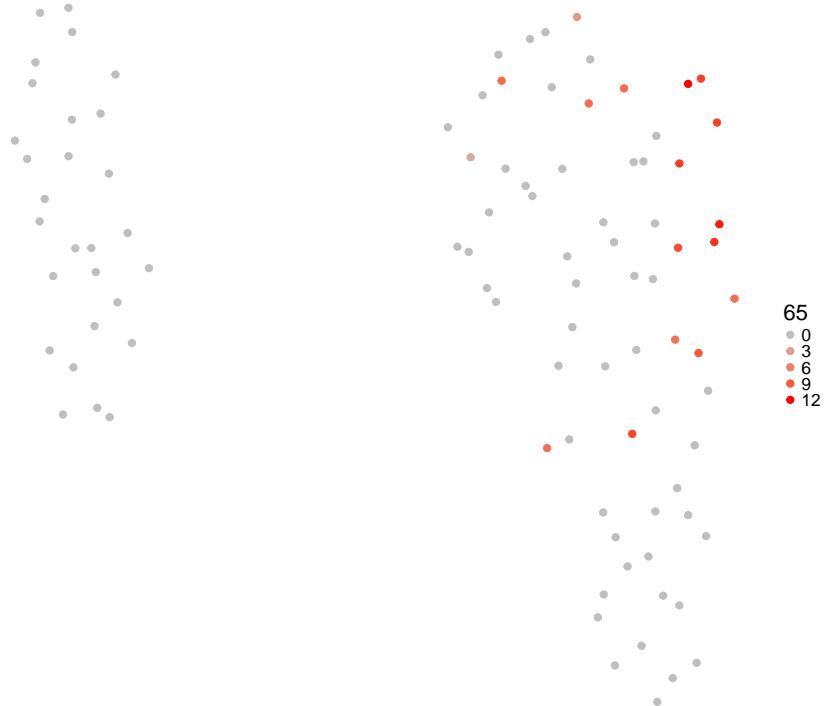
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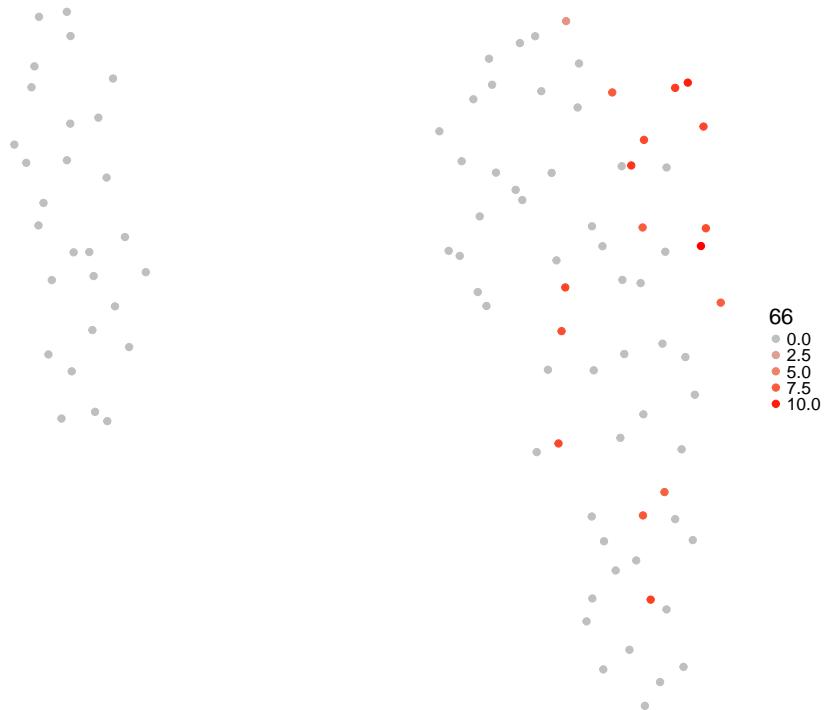
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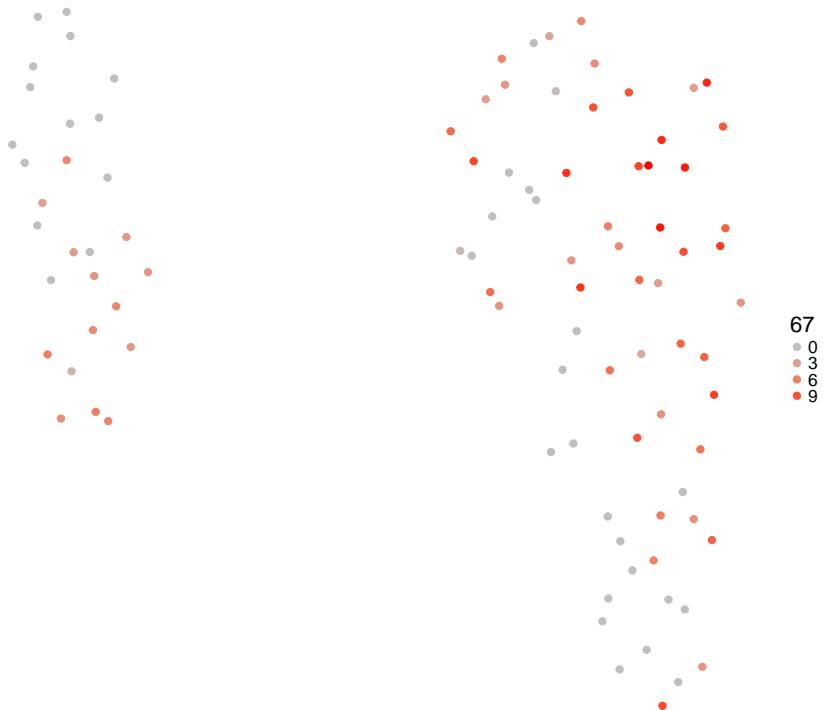
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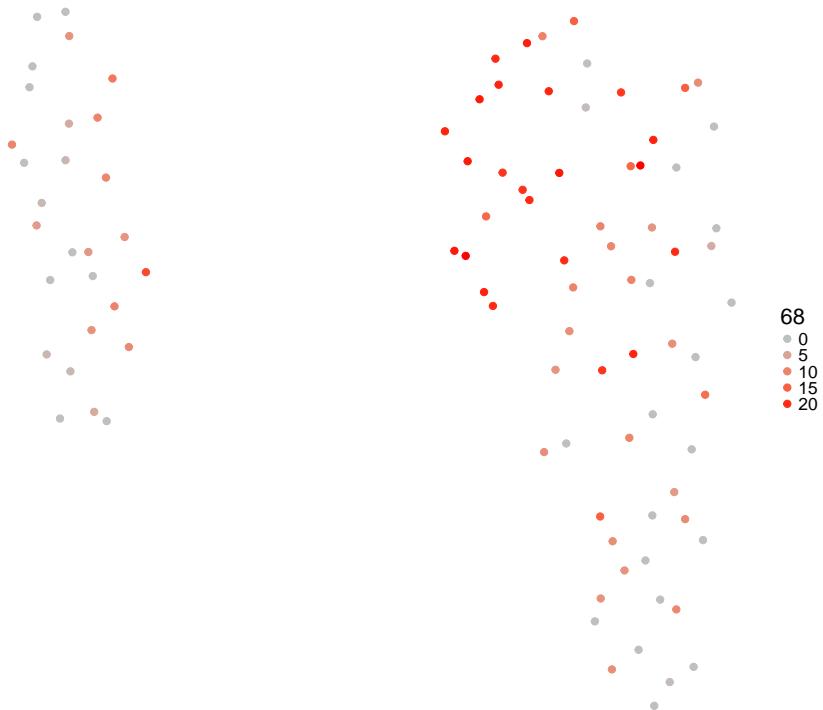
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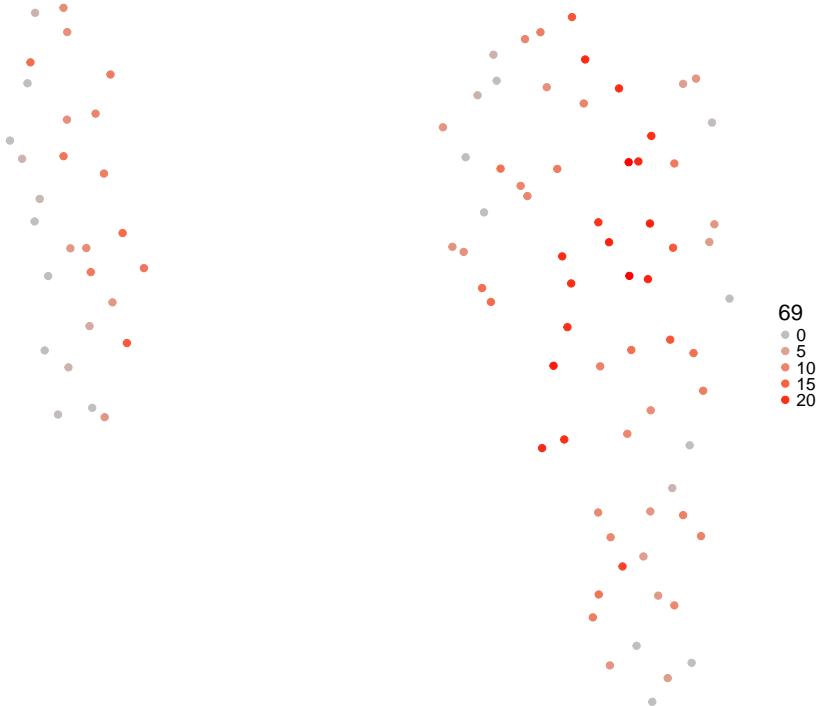
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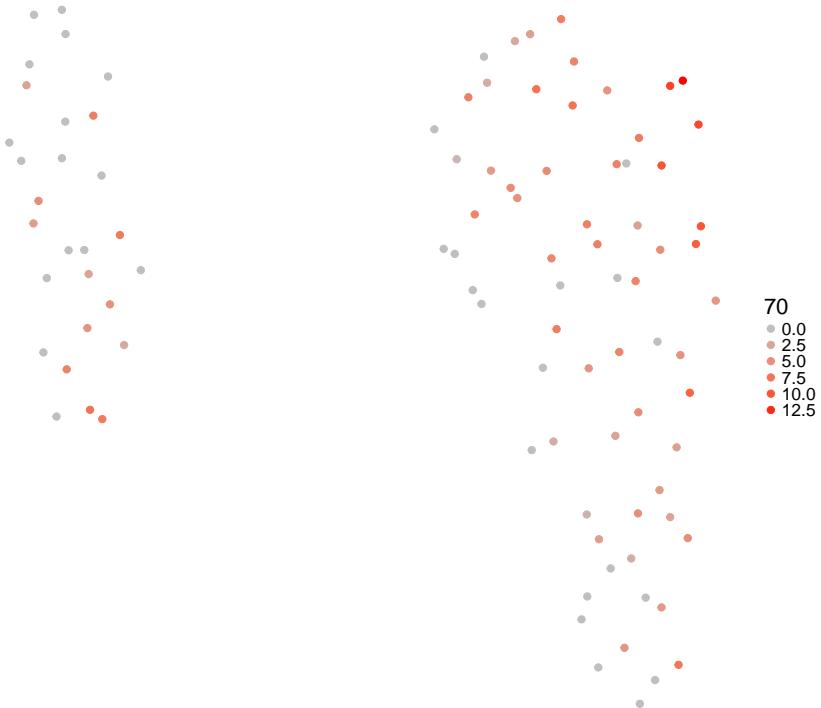
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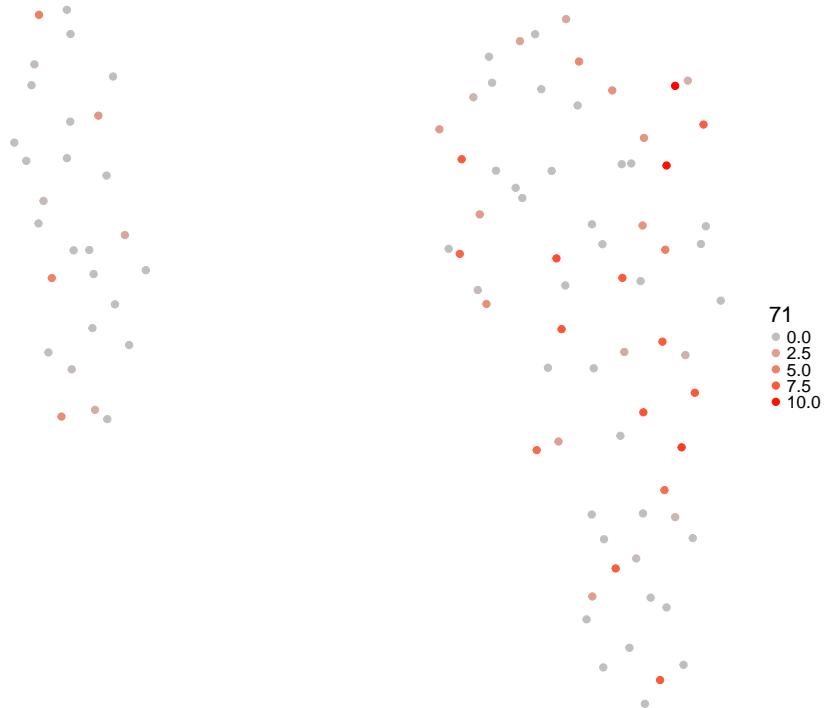
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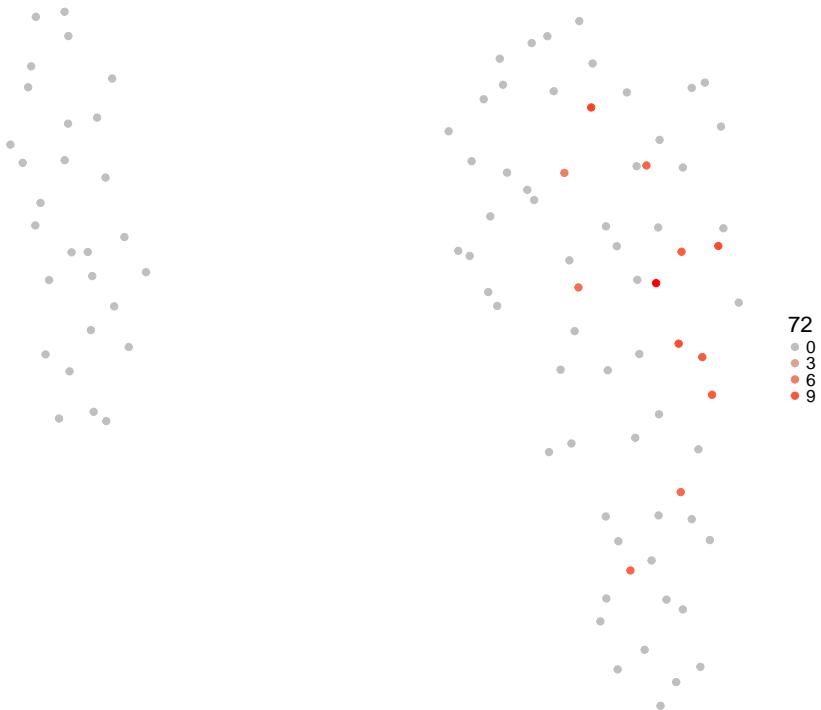
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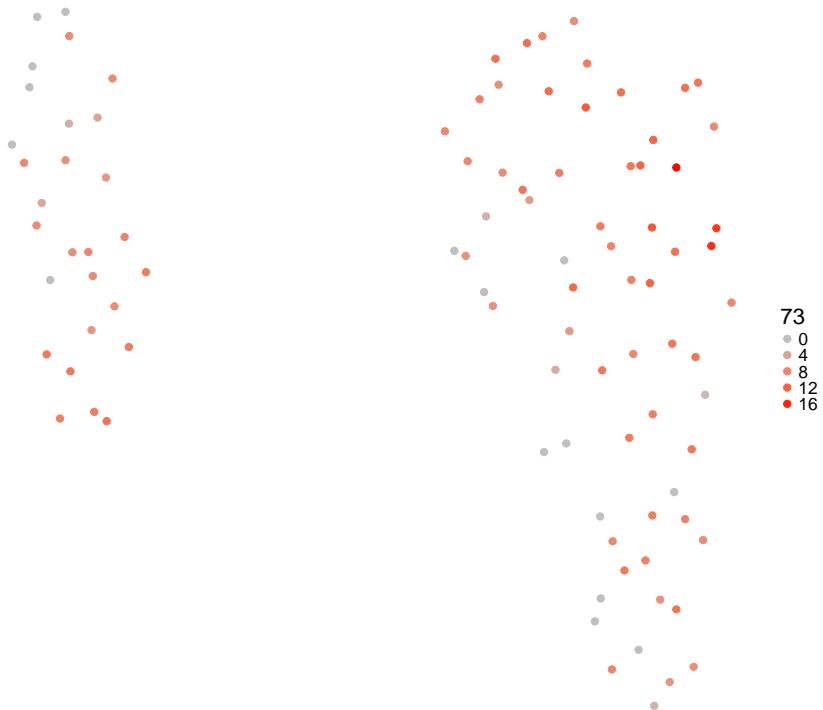
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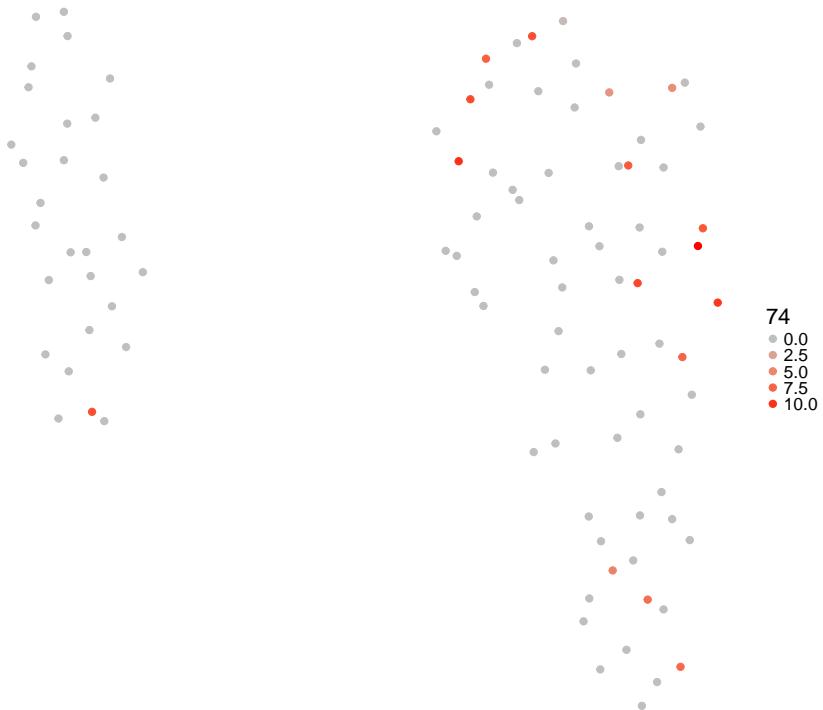
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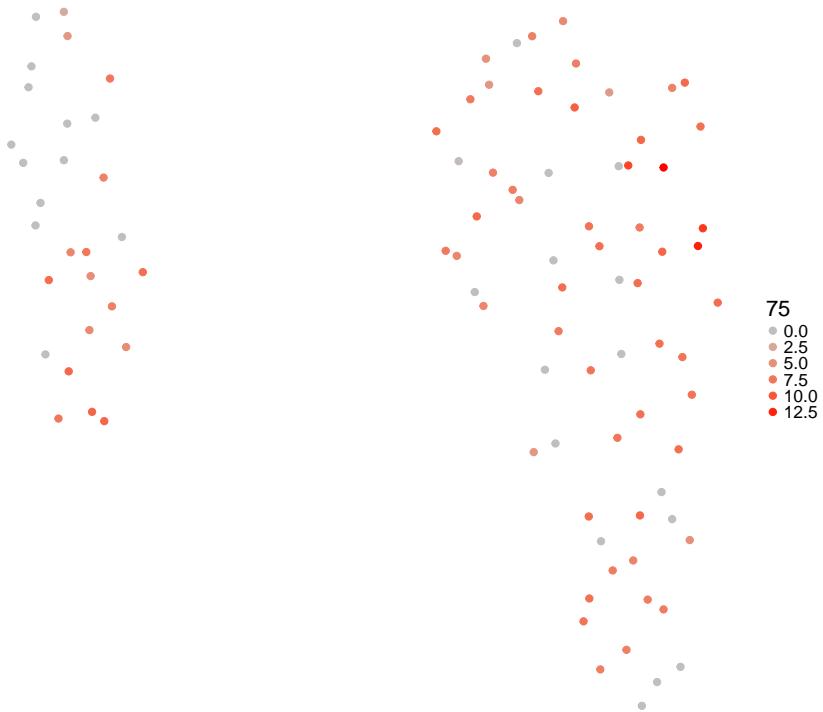
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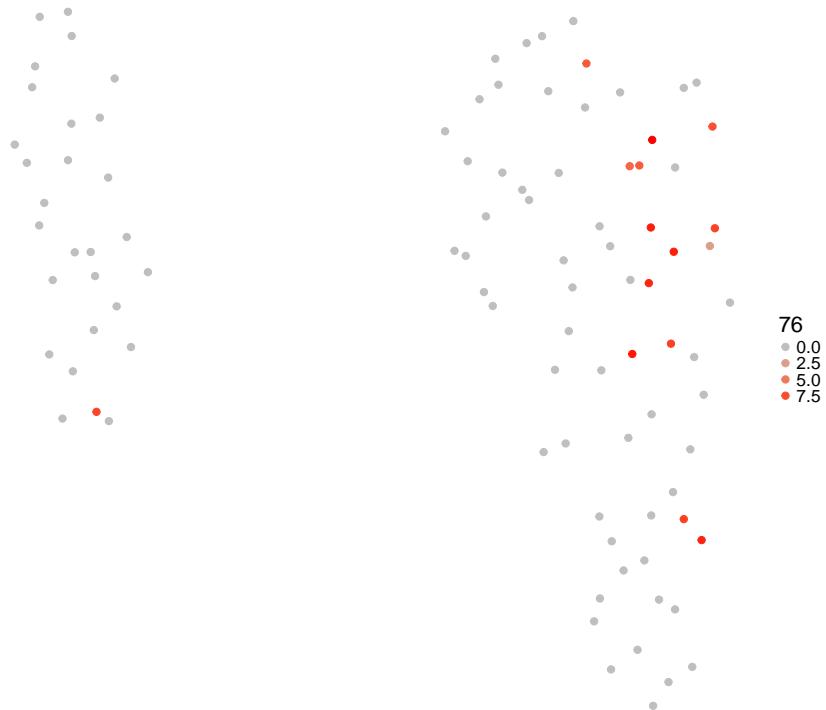
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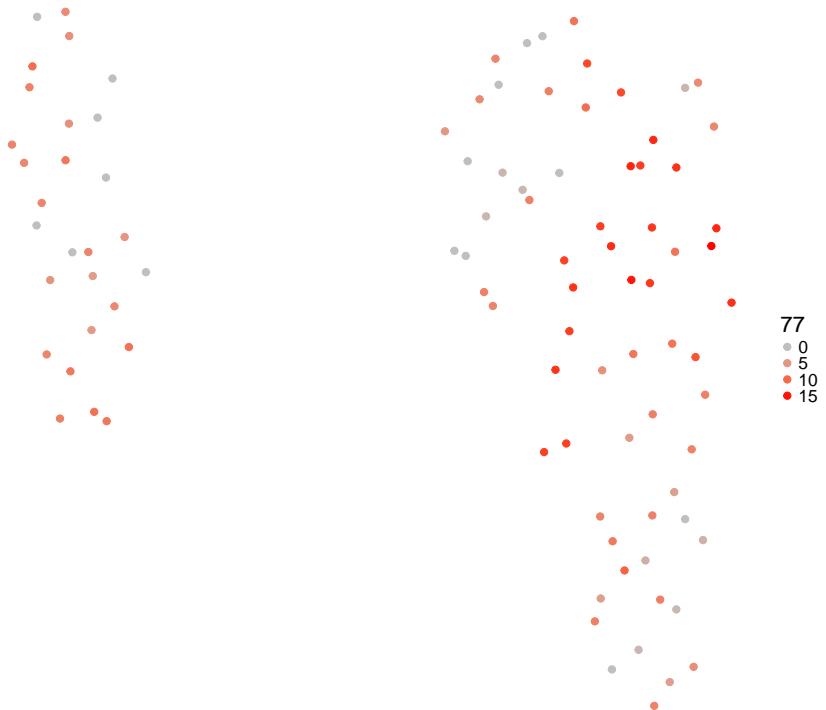
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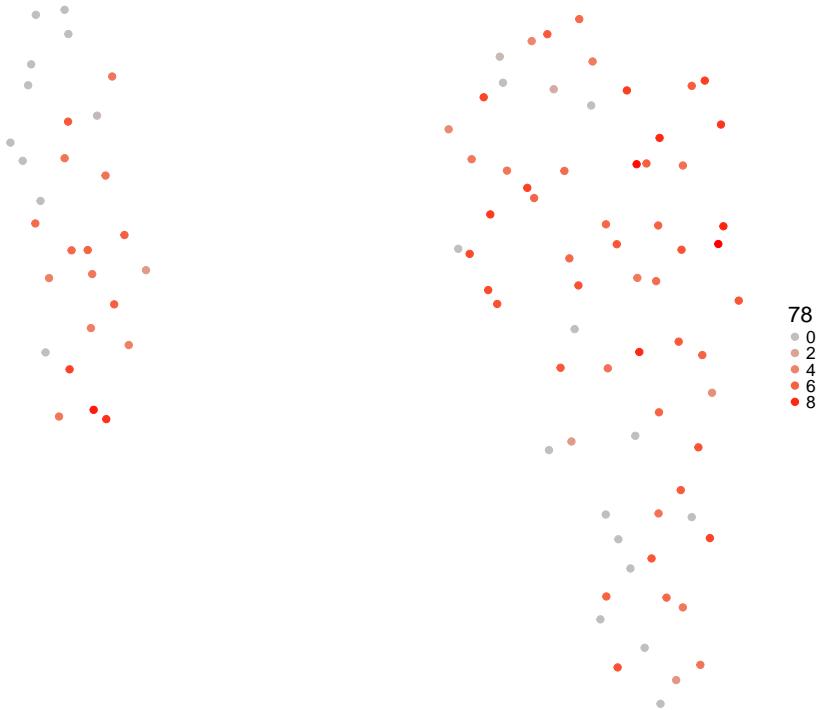
UMAP colored by RSAD2 expression



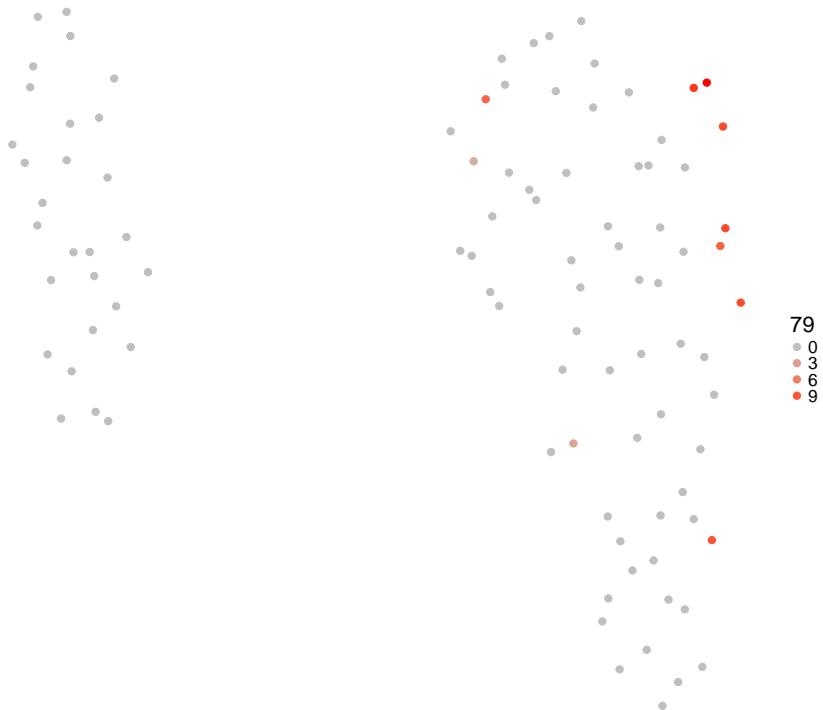
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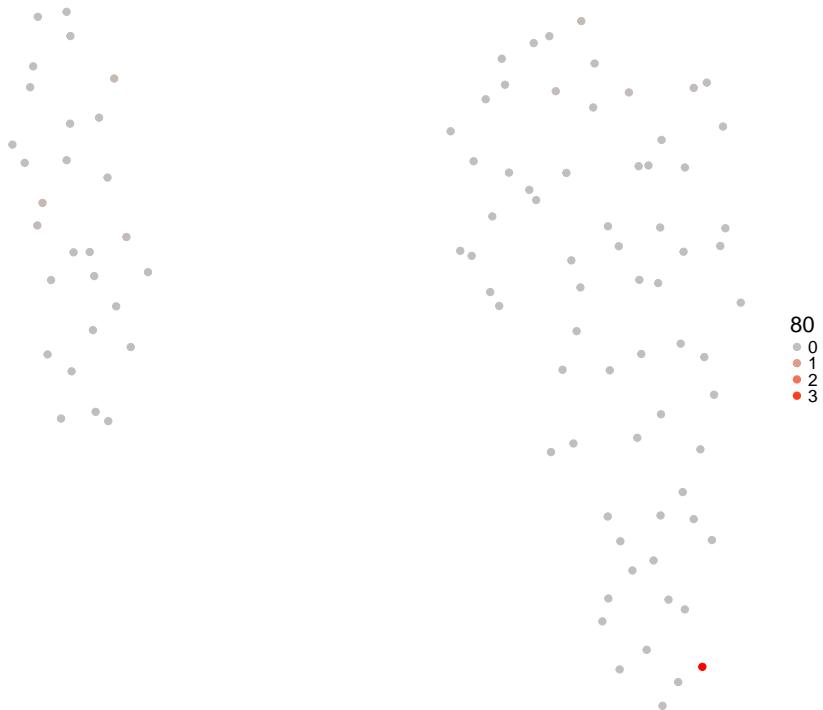
UMAP colored by BCL2 expression



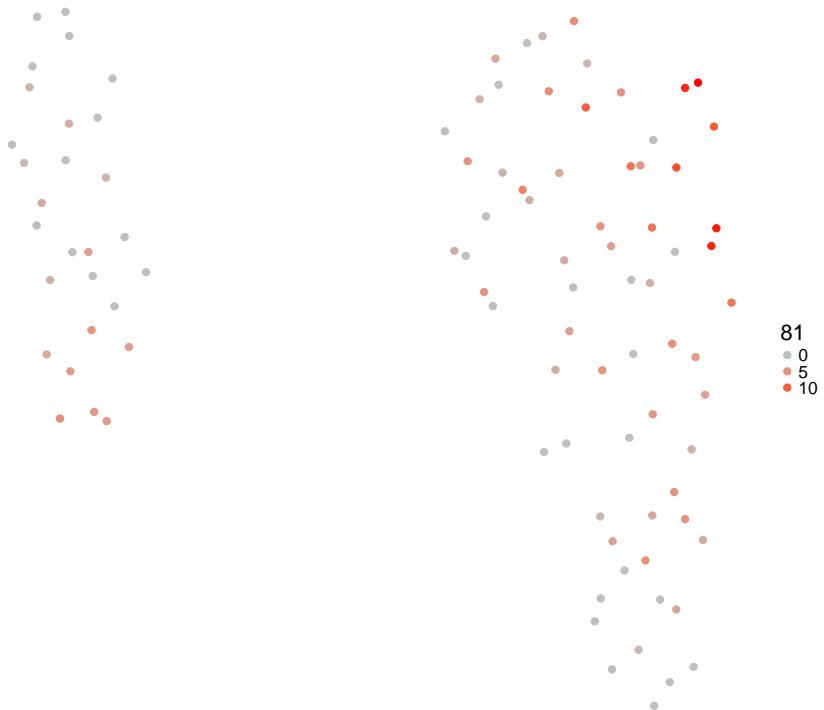
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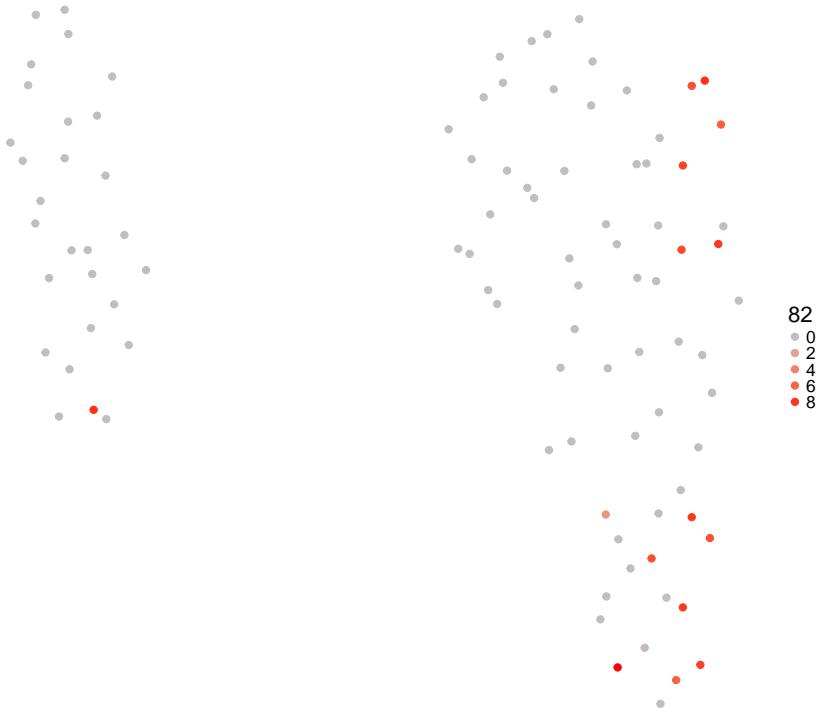
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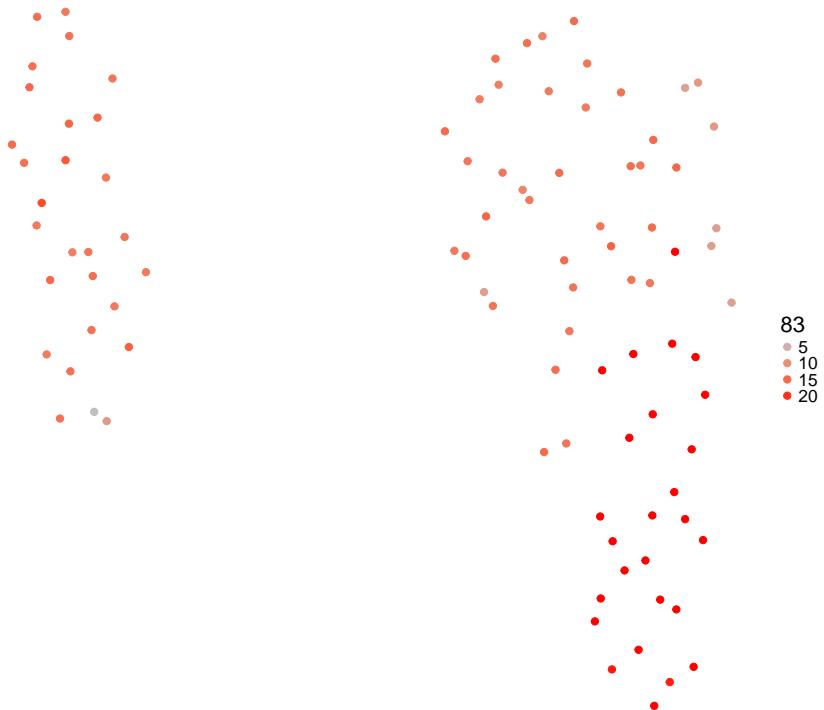
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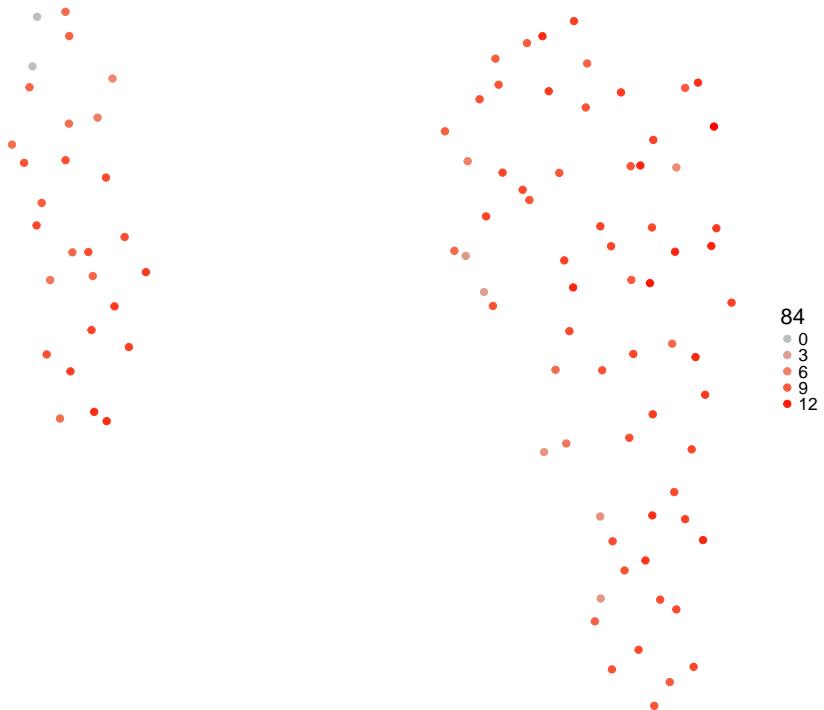
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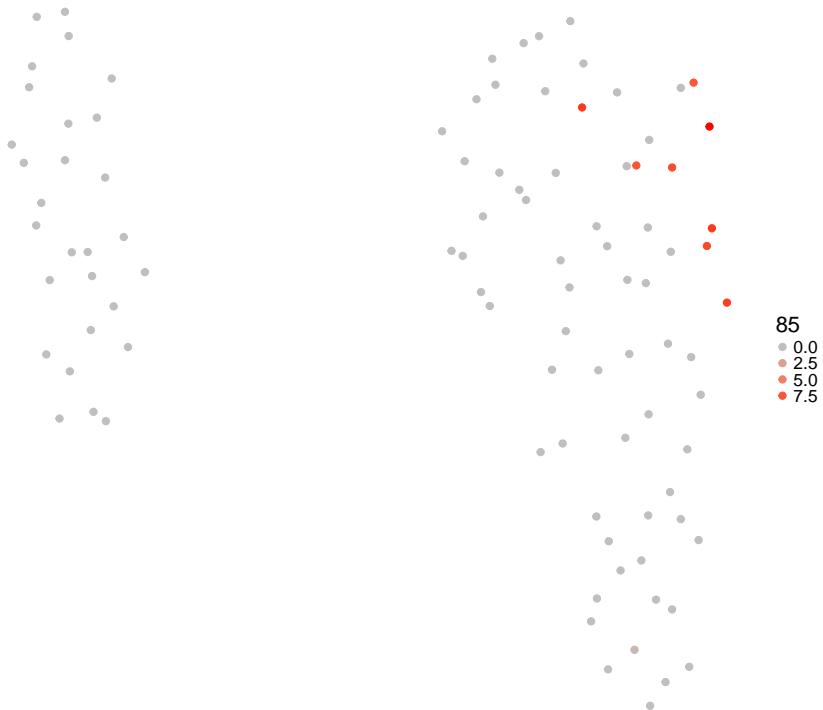
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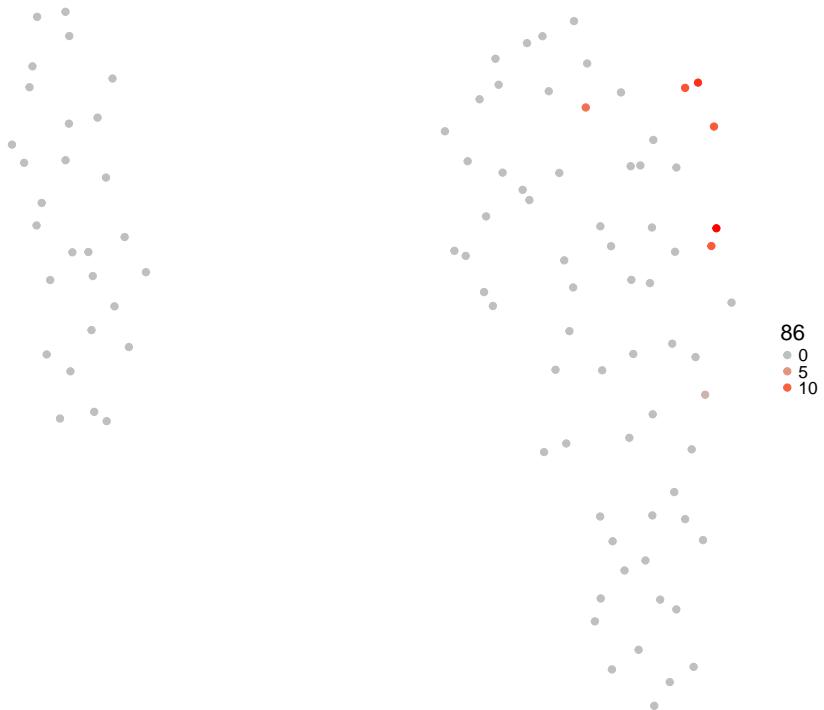
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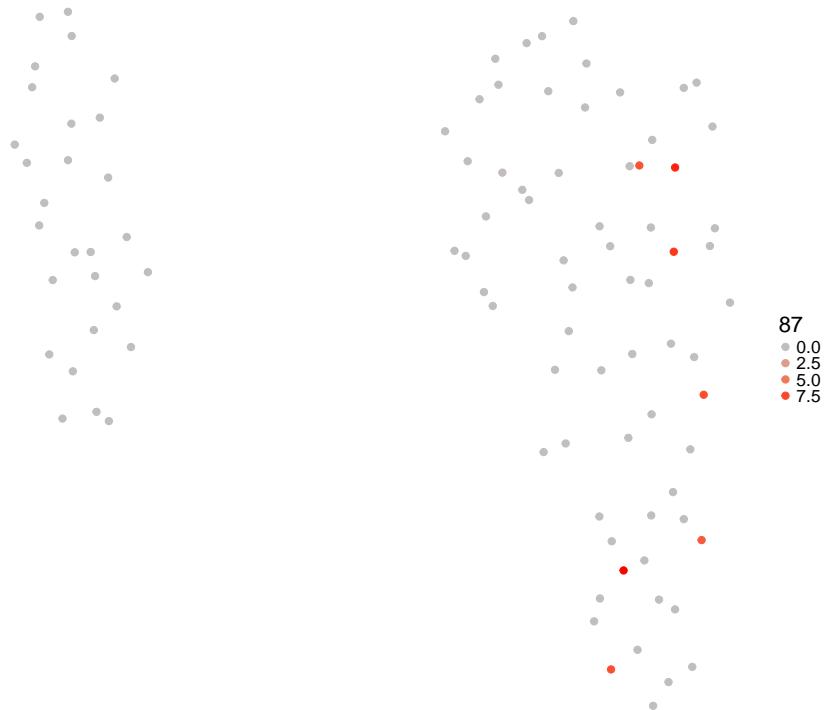
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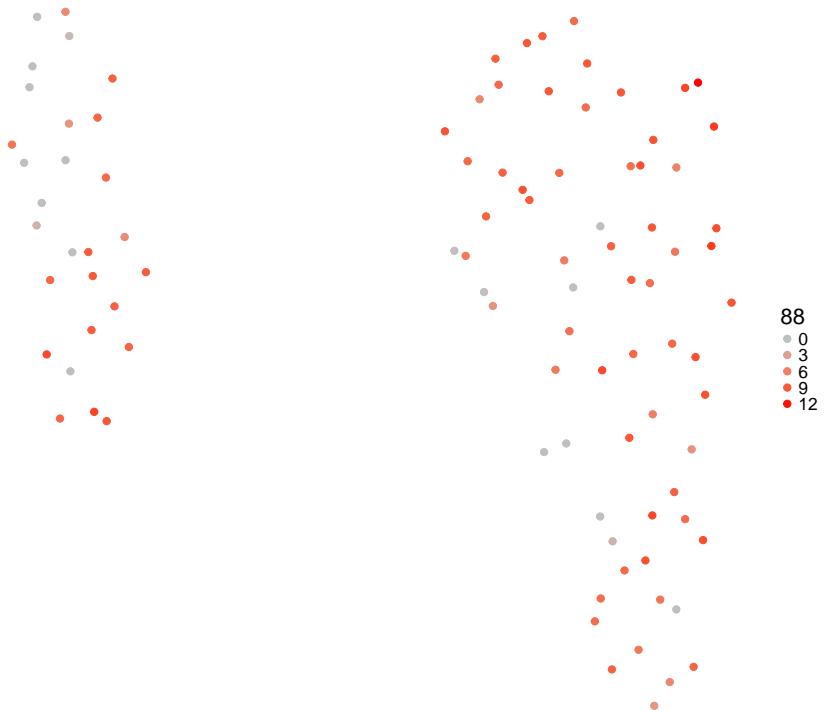
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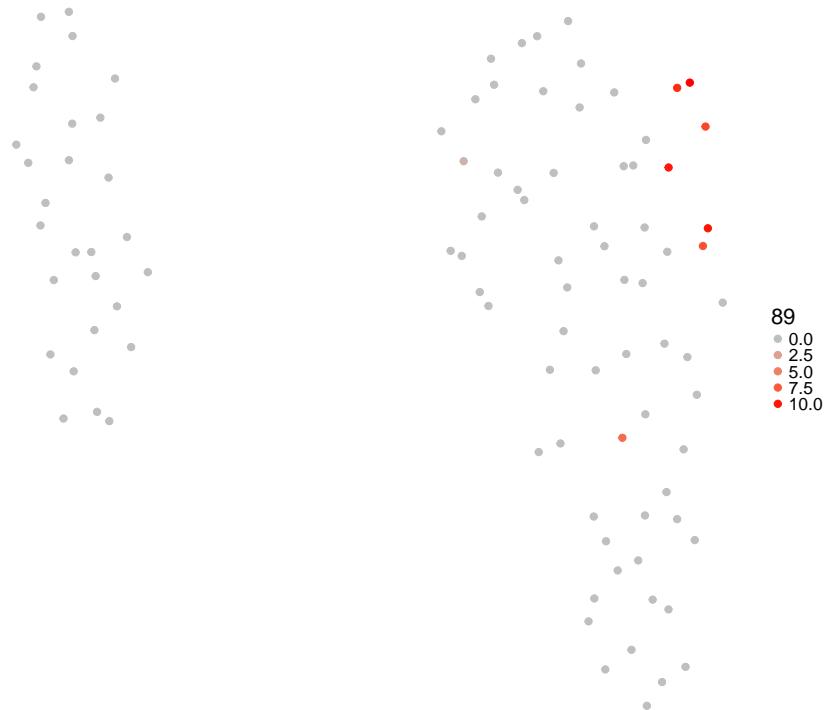
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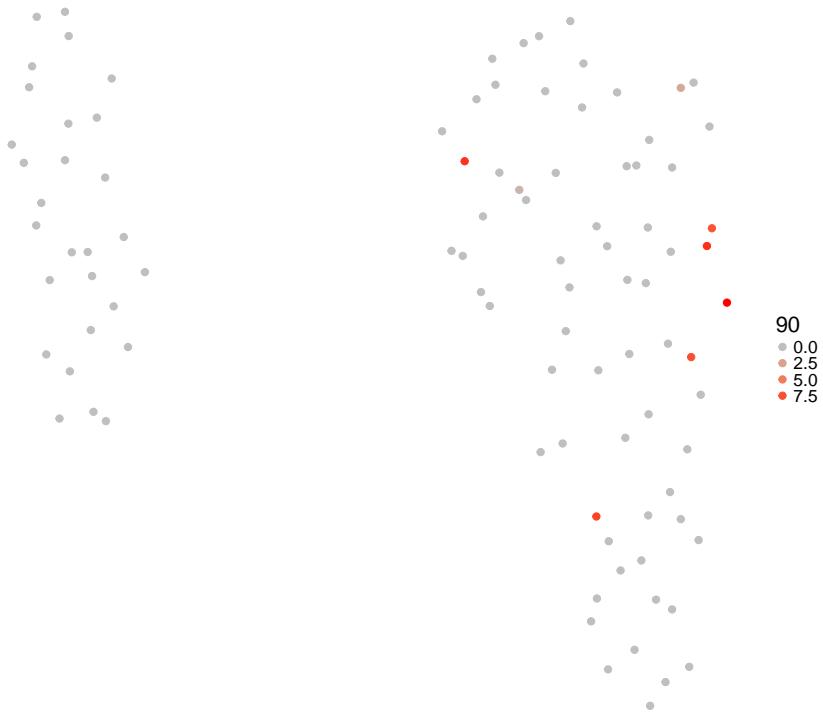
UMAP colored by IFI44 expression



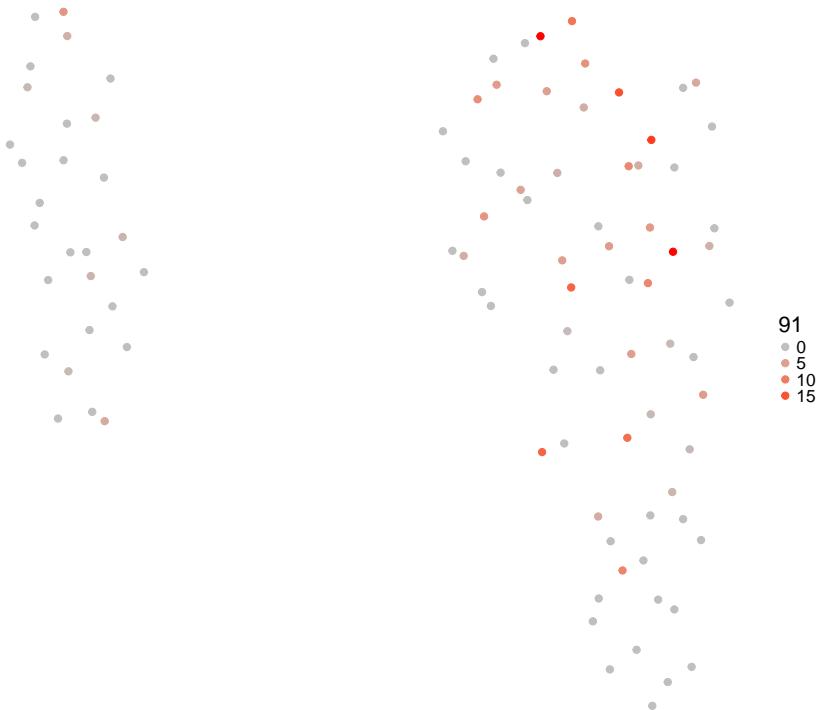
UMAP colored by ICOSL expression



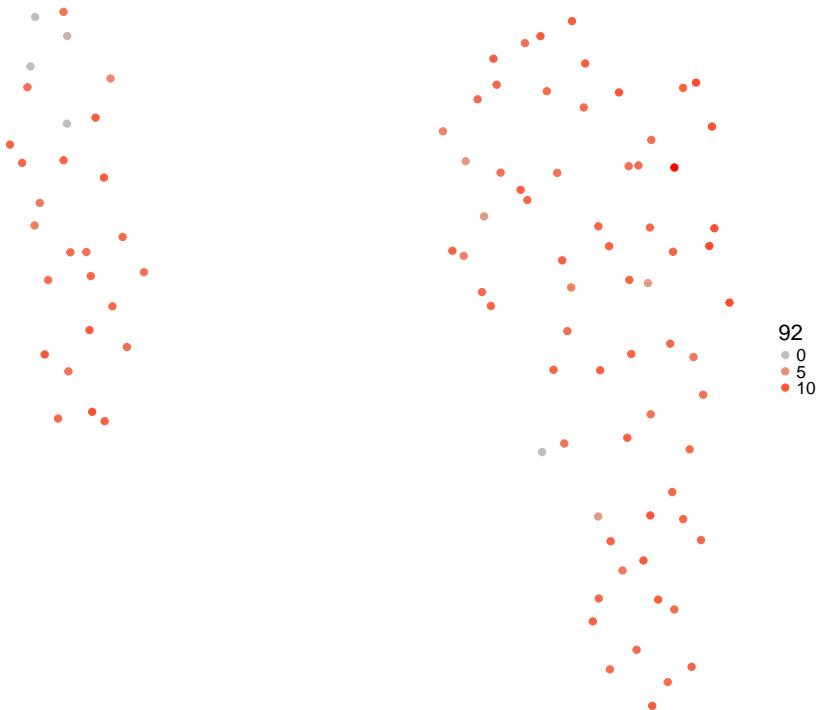
UMAP colored by ANGPT1 expression



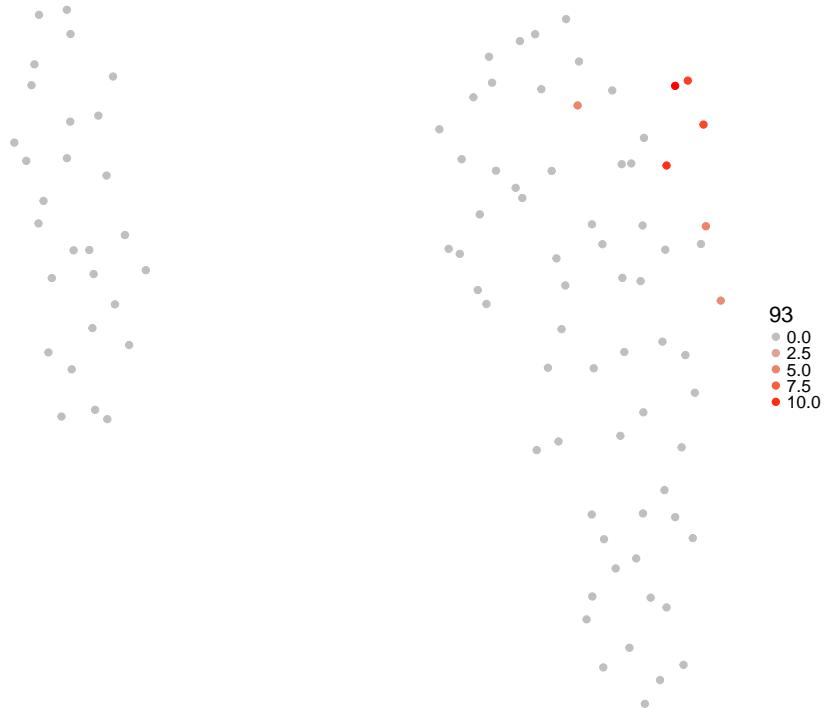
UMAP colored by PPY expression



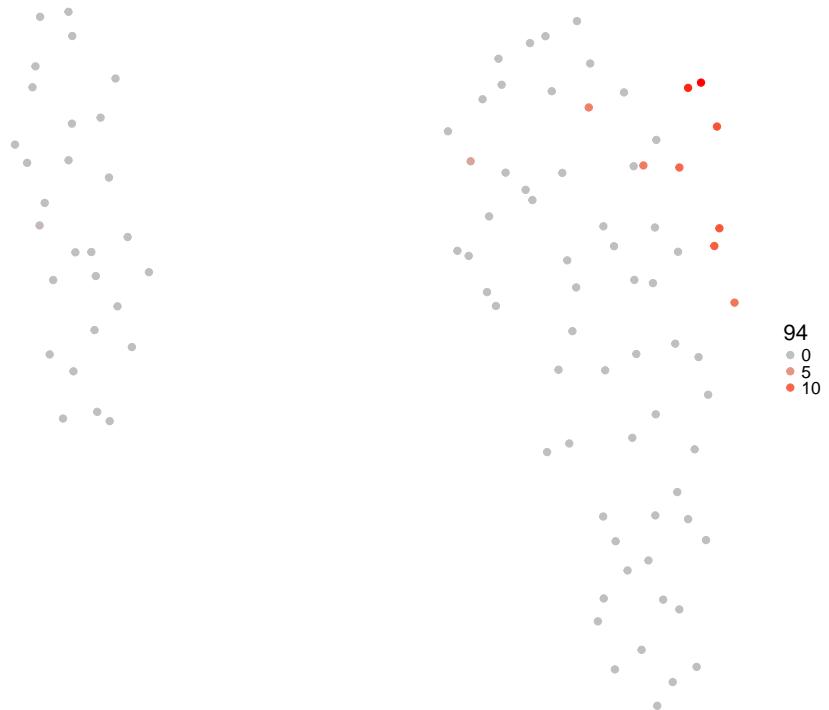
UMAP colored by CCR2 expression



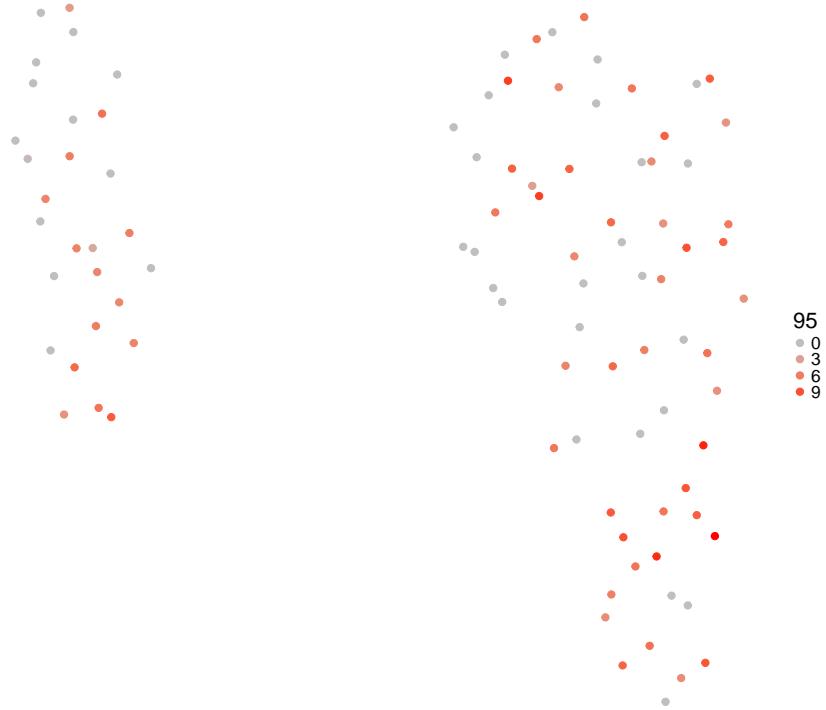
UMAP colored by TGFB1 expression



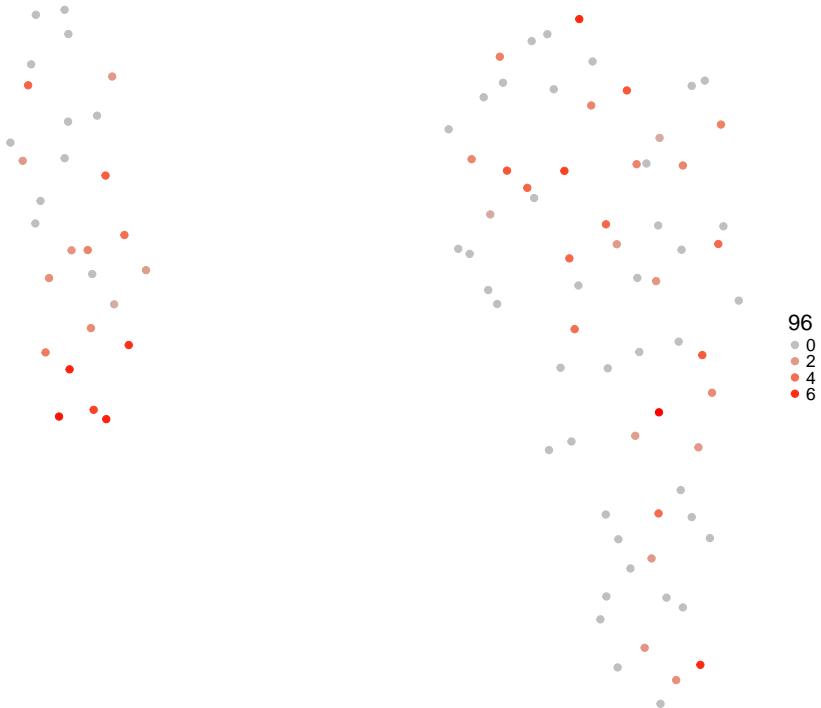
UMAP colored by TGFBR2 expression



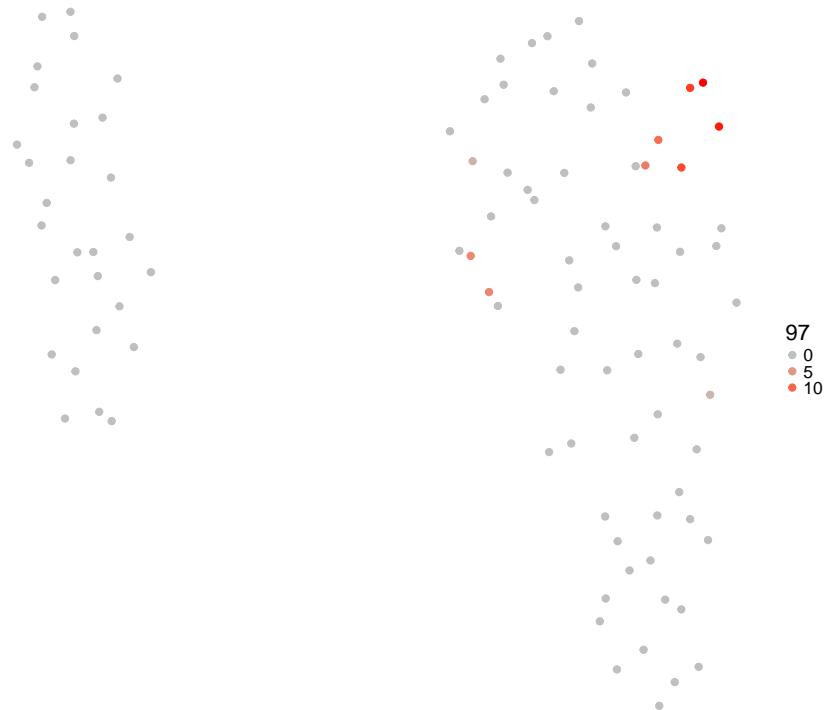
UMAP colored by IGF2 expression



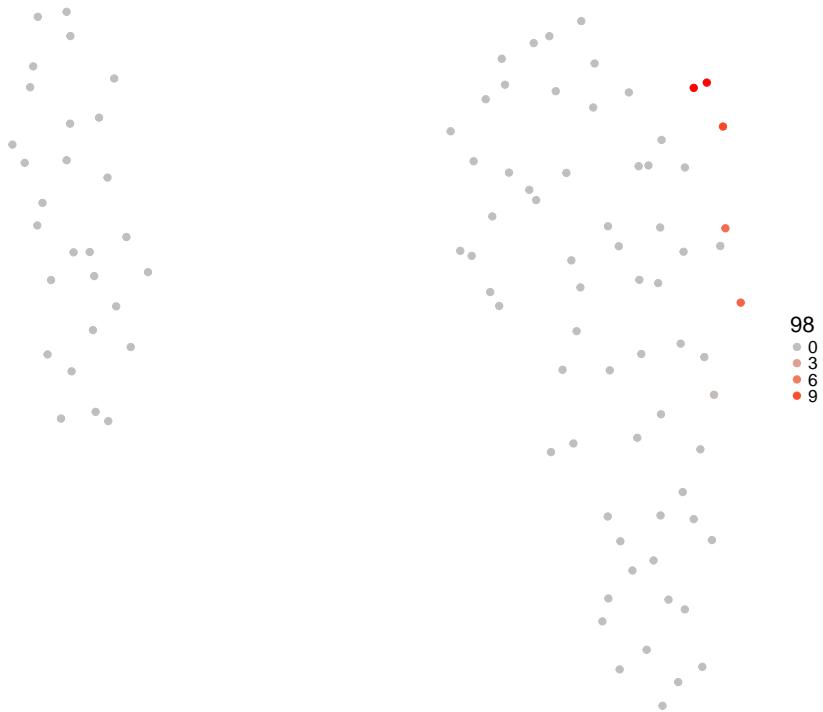
UMAP colored by COL1A1 expression



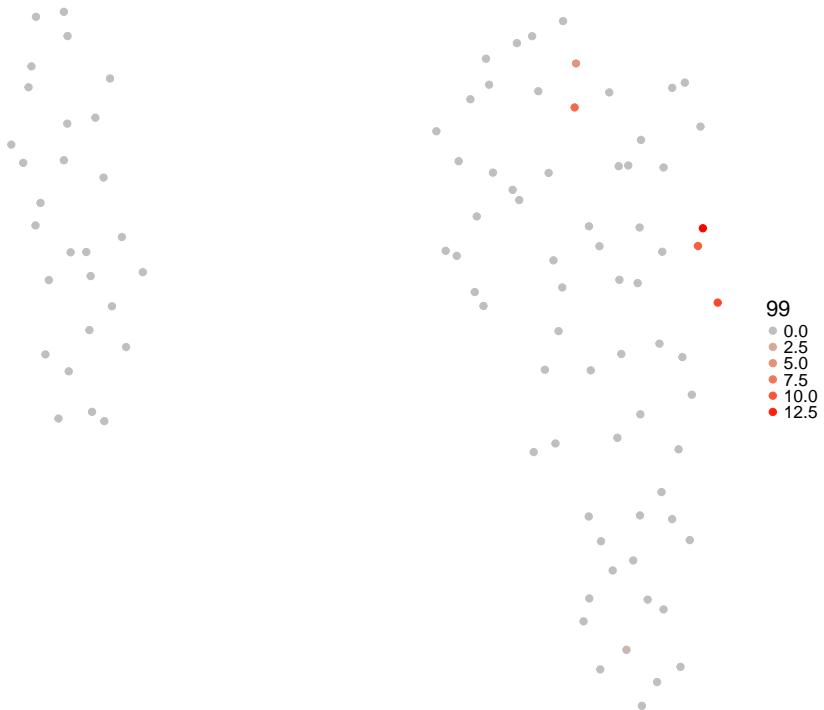
UMAP colored by CD36 expression



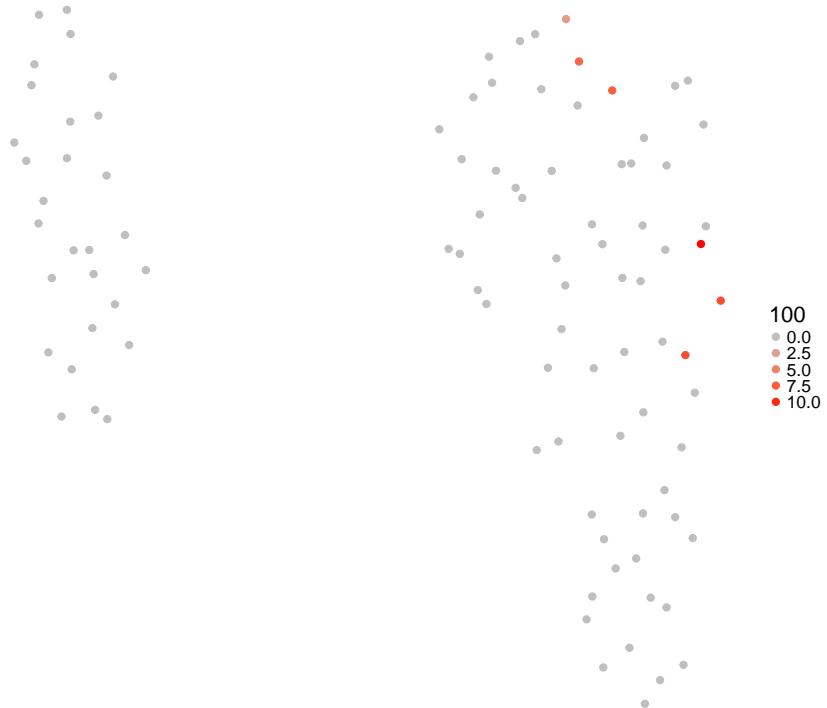
UMAP colored by FLT4 expression



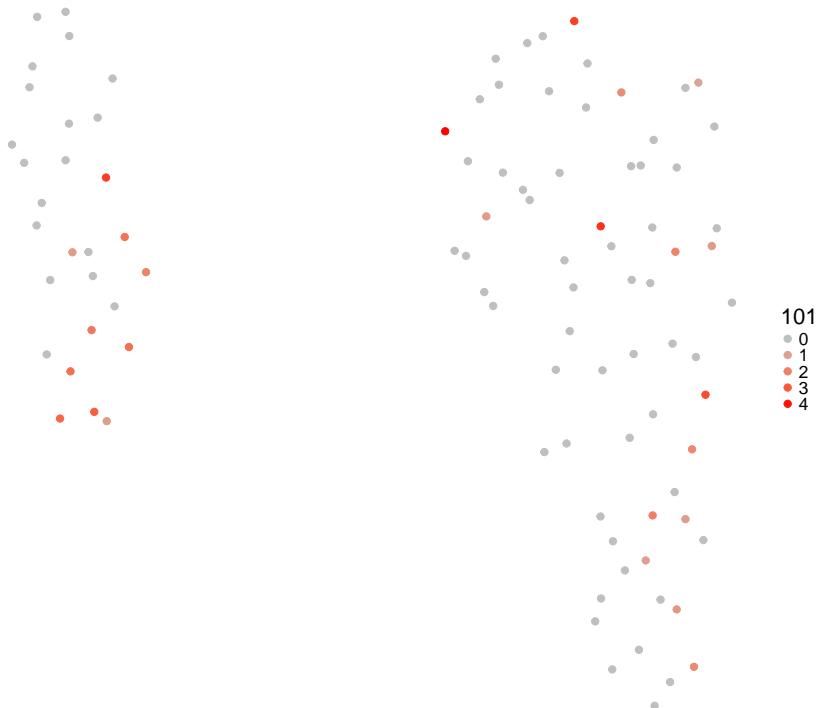
UMAP colored by PDPN expression



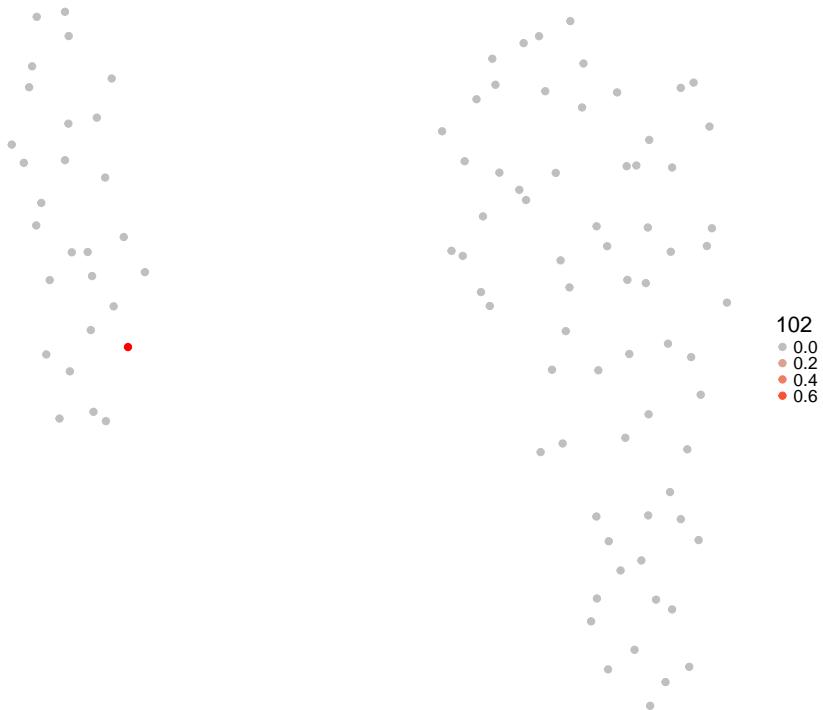
UMAP colored by IL7 expression



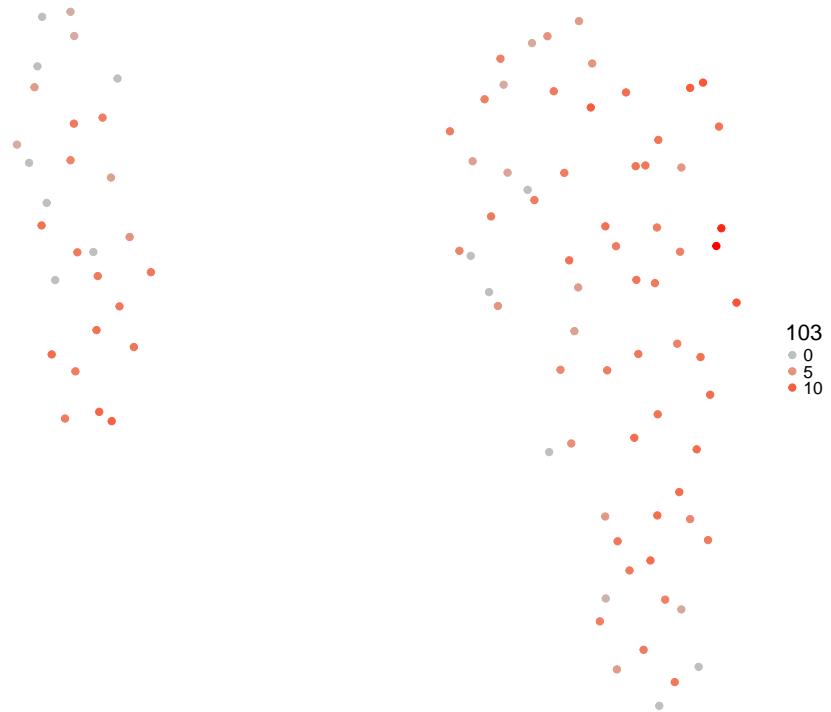
UMAP colored by MMP9 expression



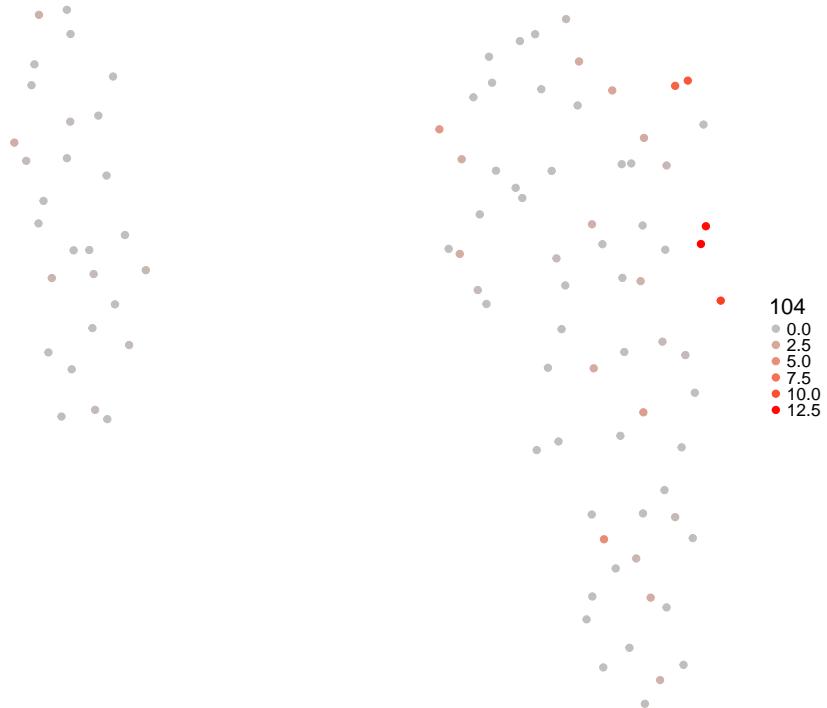
UMAP colored by MMP2 expression



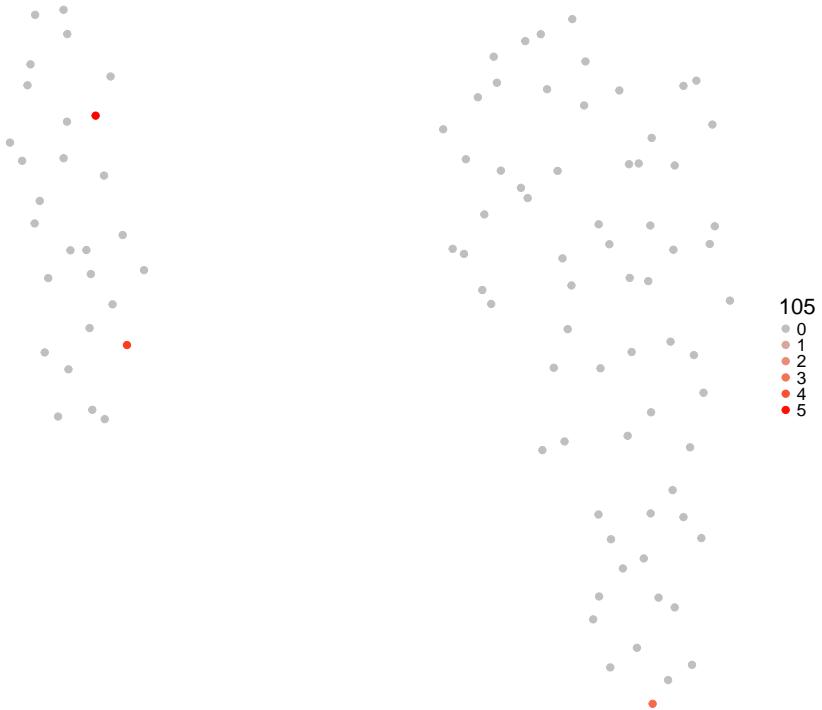
UMAP colored by CD14 expression



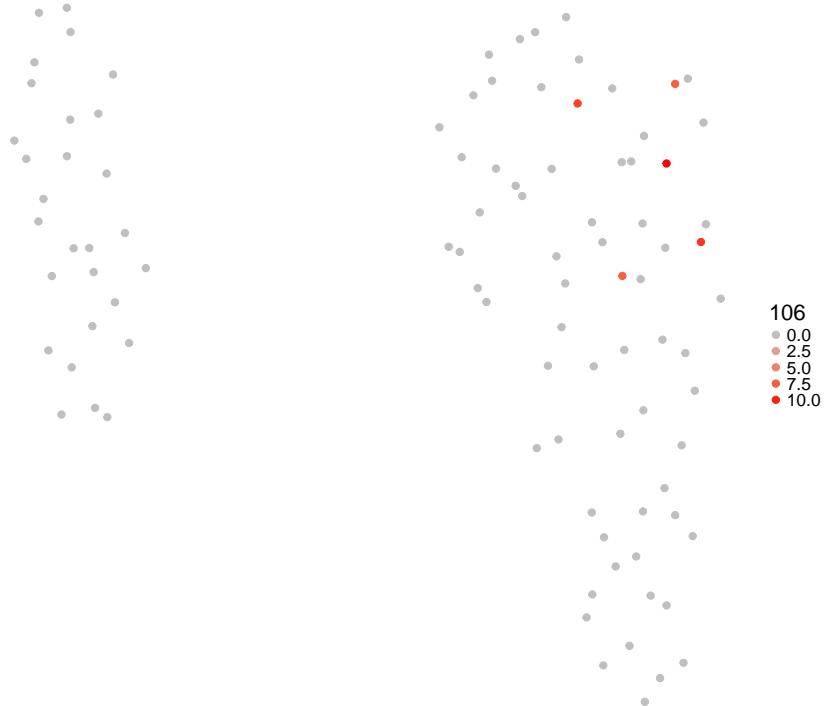
UMAP colored by IGF1 expression



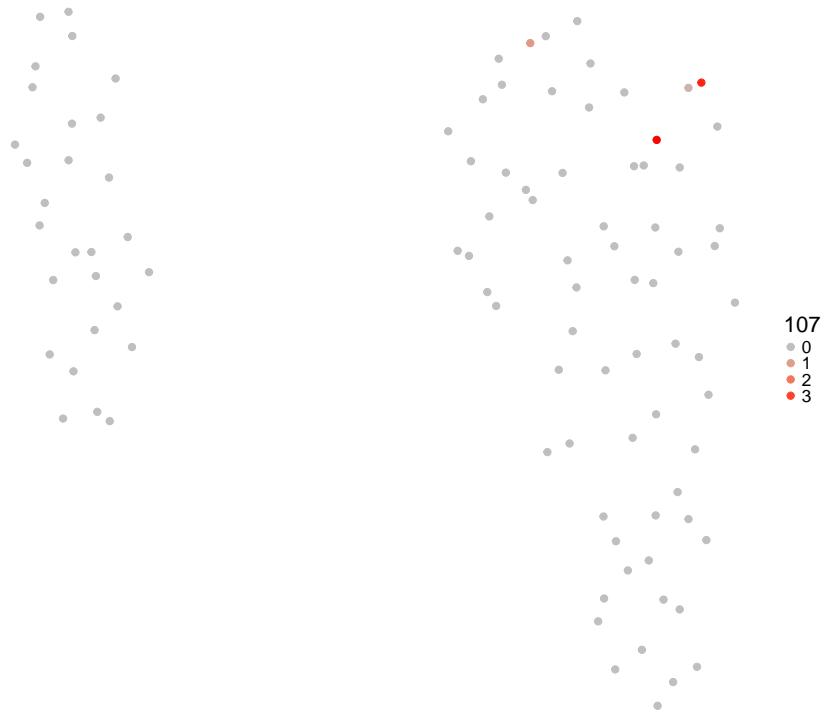
UMAP colored by ZEB2 expression



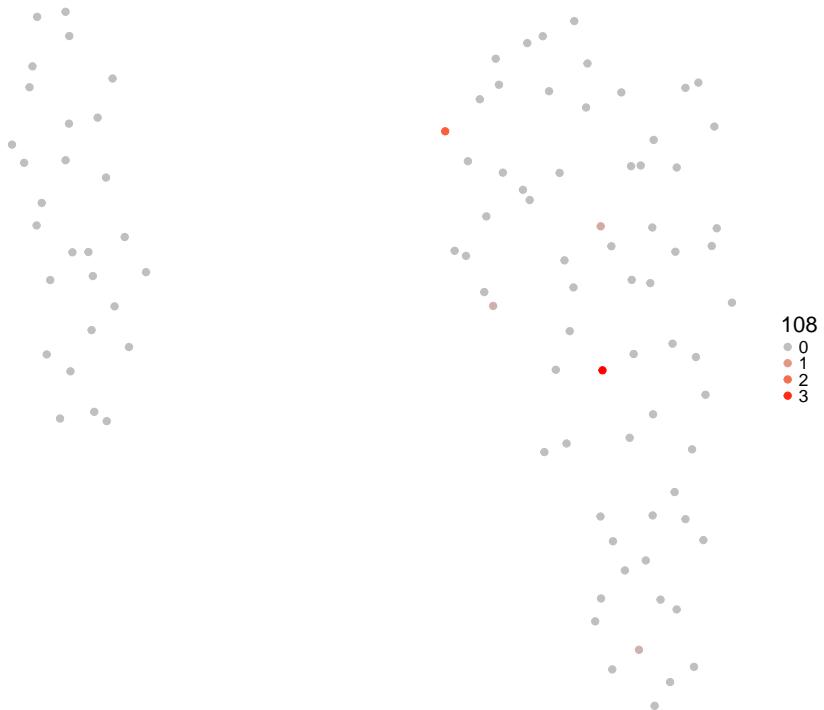
UMAP colored by FGR expression



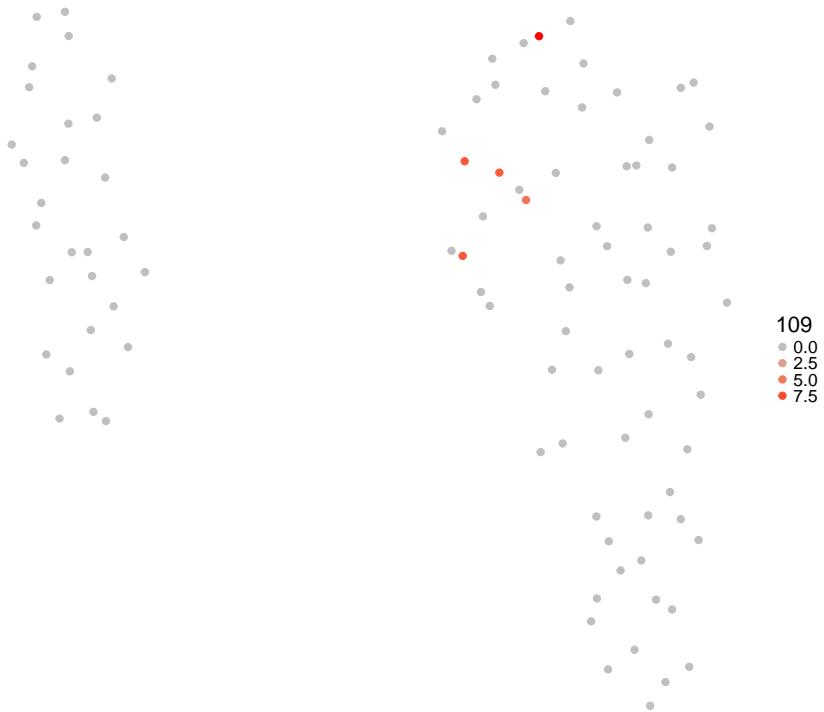
UMAP colored by CEACAM1 expression



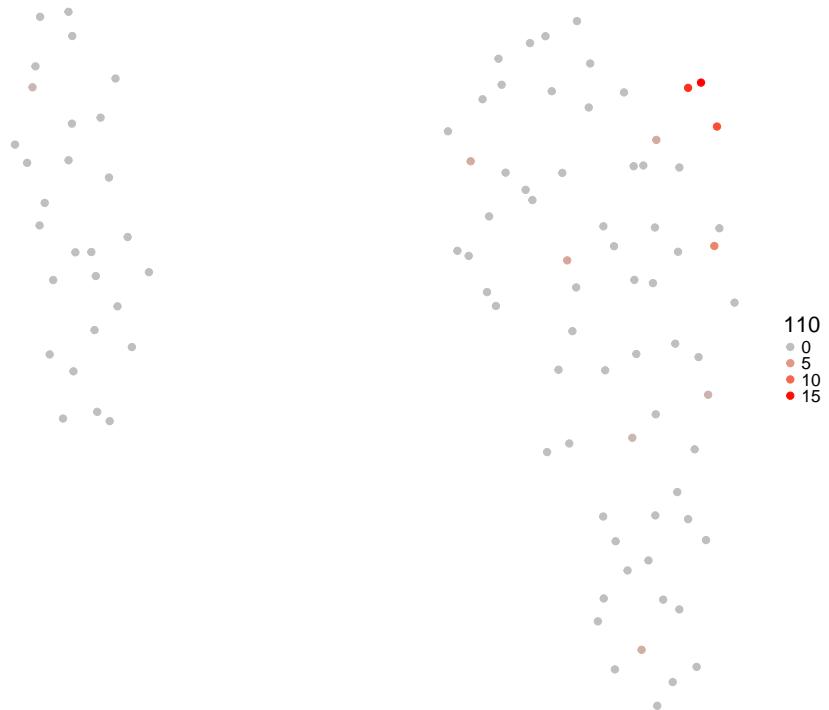
UMAP colored by BMP5 expression



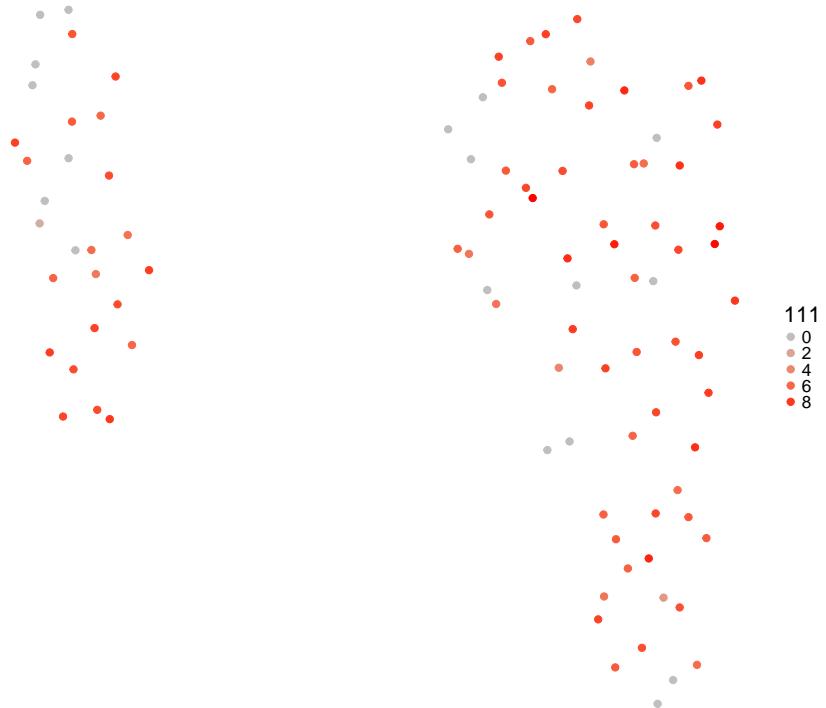
UMAP colored by COL1A2 expression



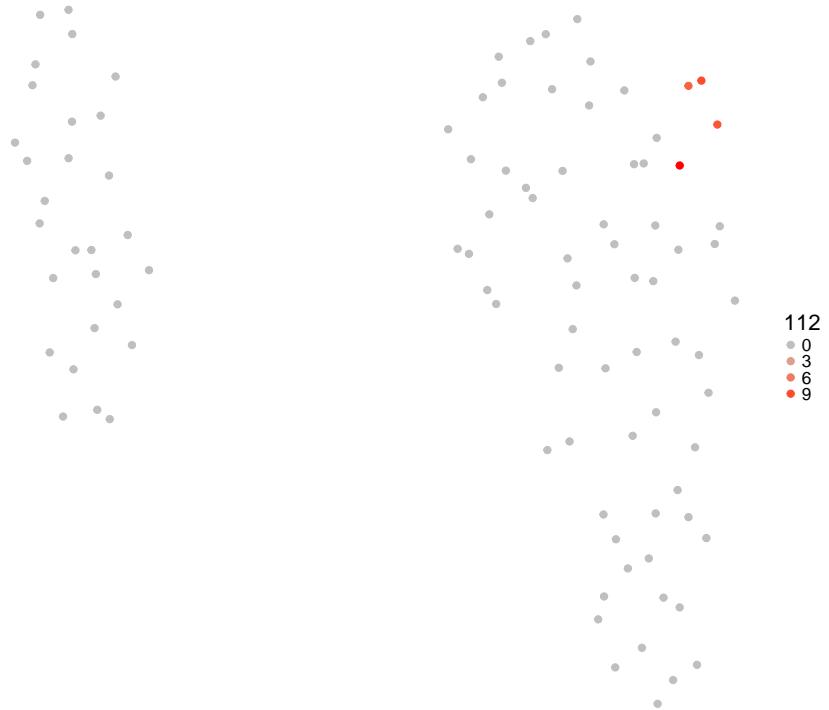
UMAP colored by LEPR expression



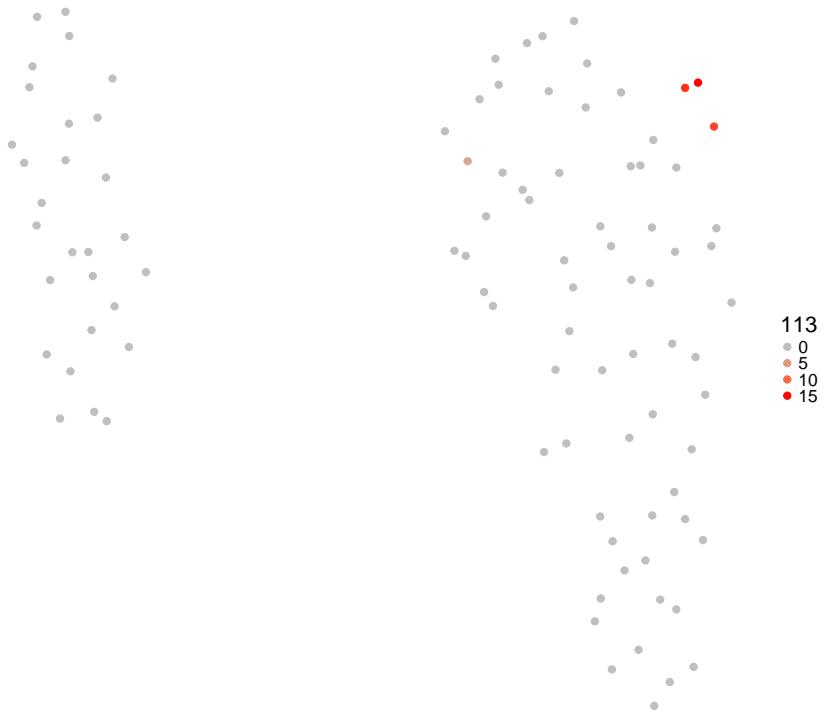
UMAP colored by GHRL expression



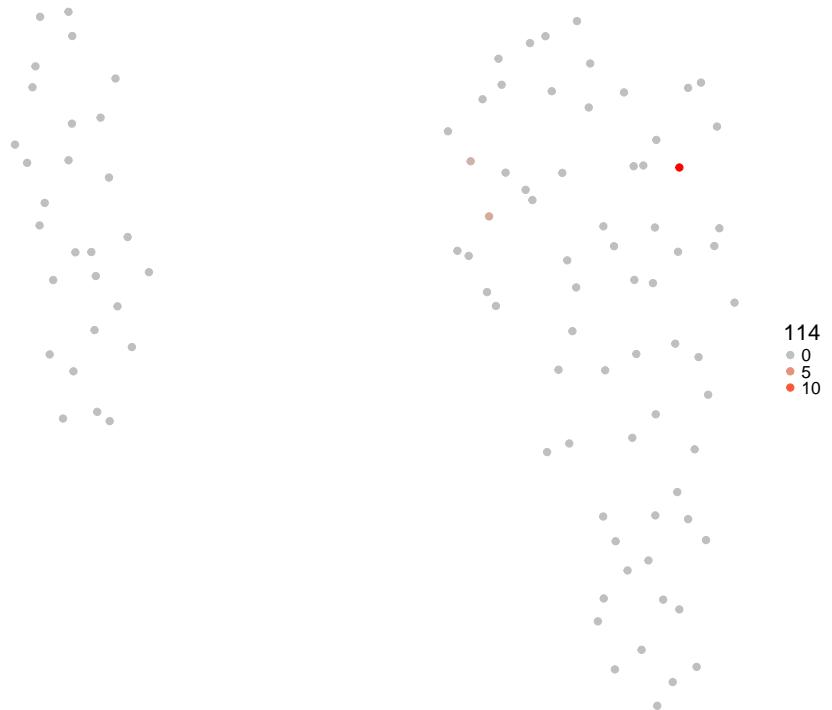
UMAP colored by AIM2 expression



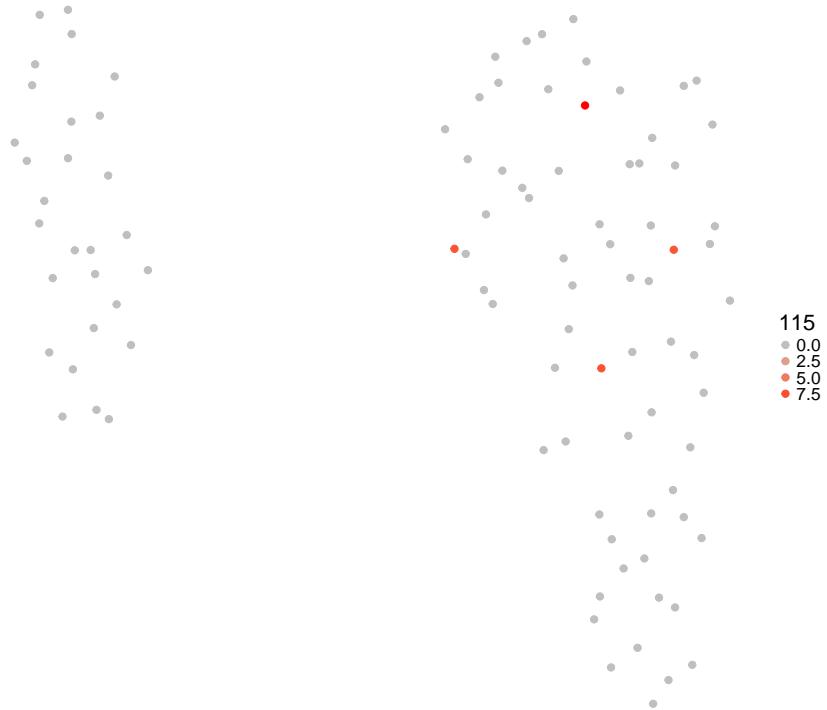
UMAP colored by TEK expression



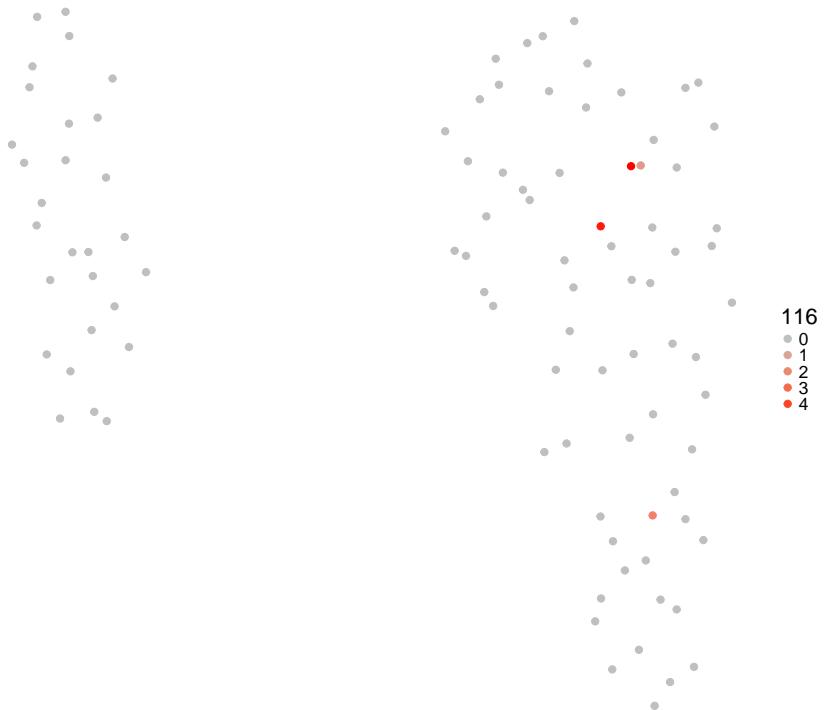
UMAP colored by CD86 expression



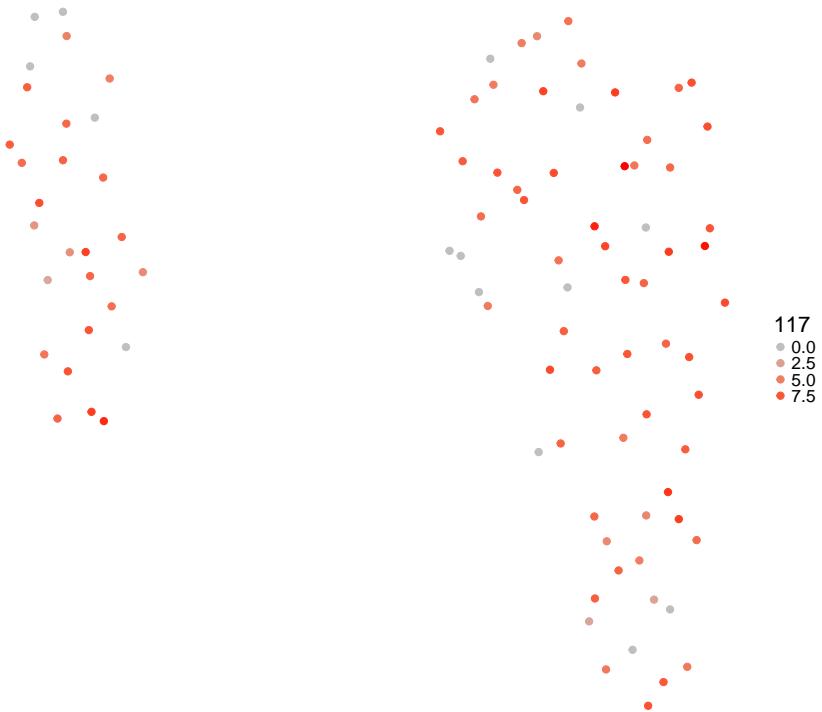
UMAP colored by STAT4 expression



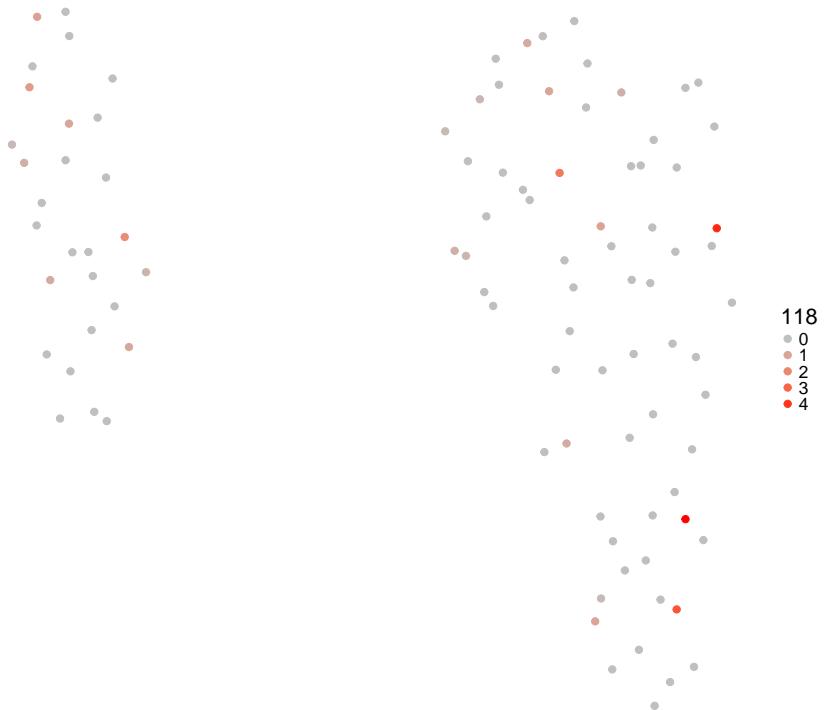
UMAP colored by TNFSF11 expression



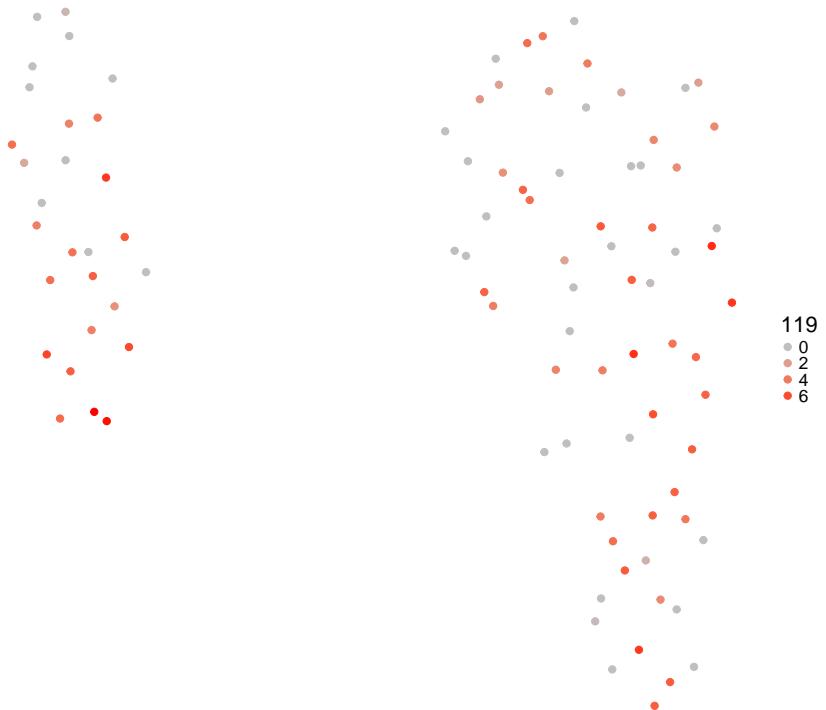
UMAP colored by PTGS2 expression



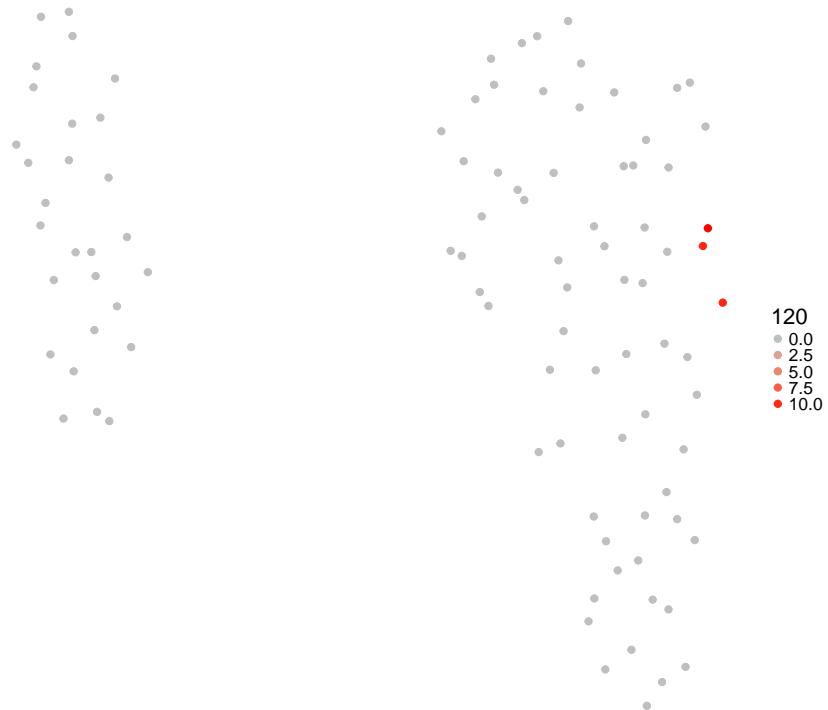
UMAP colored by OASL1 expression



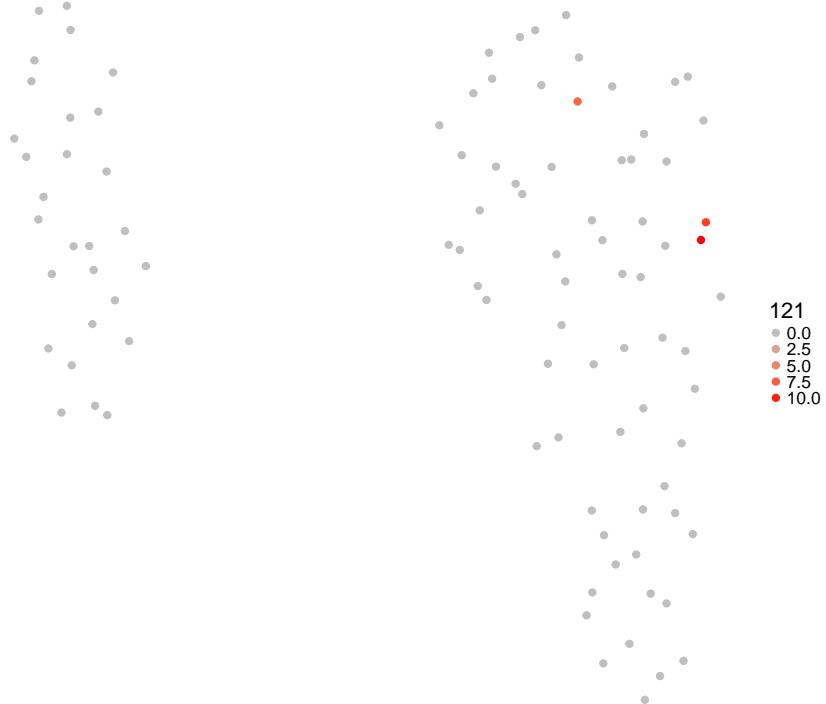
UMAP colored by IL25 expression



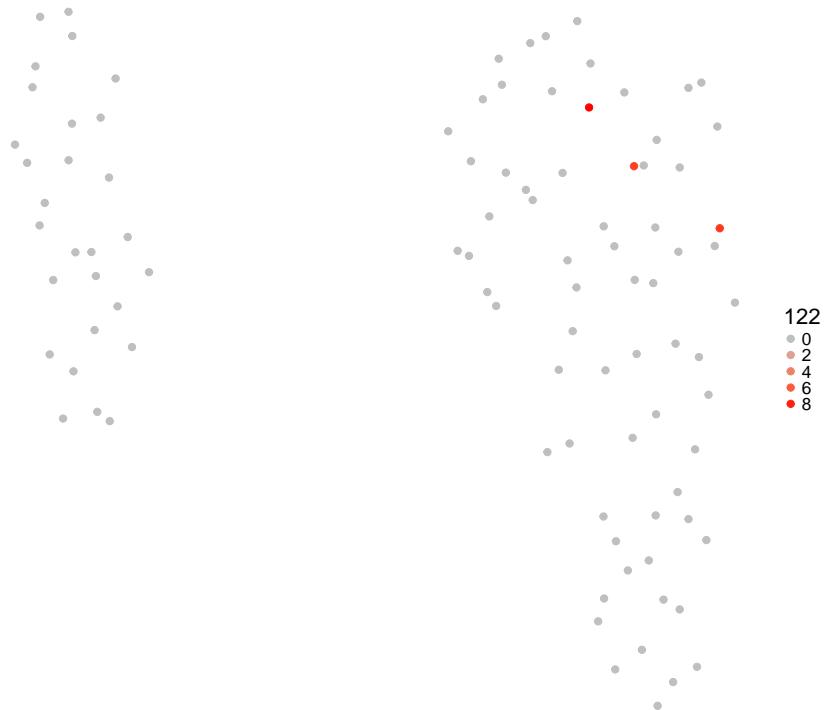
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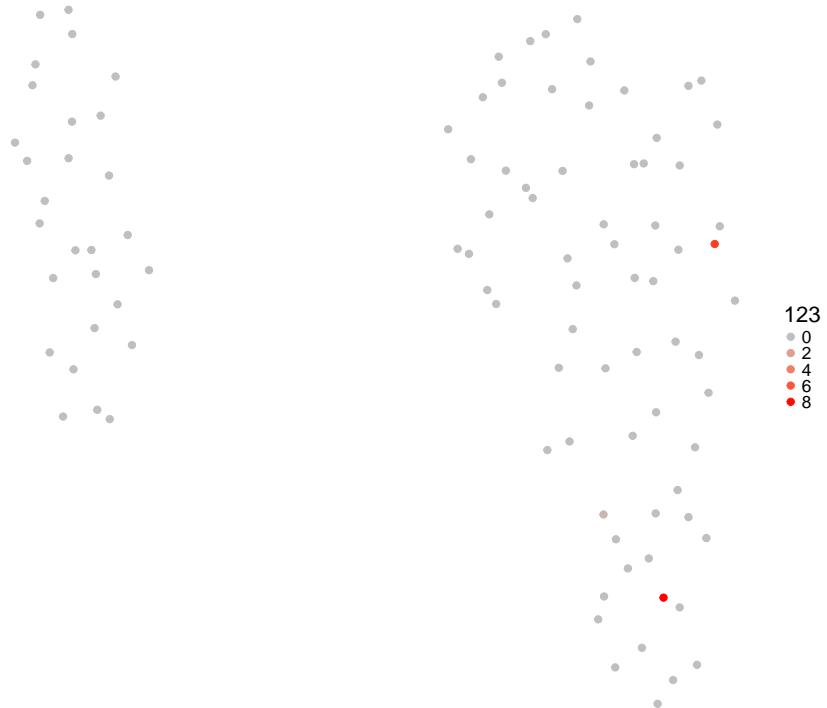
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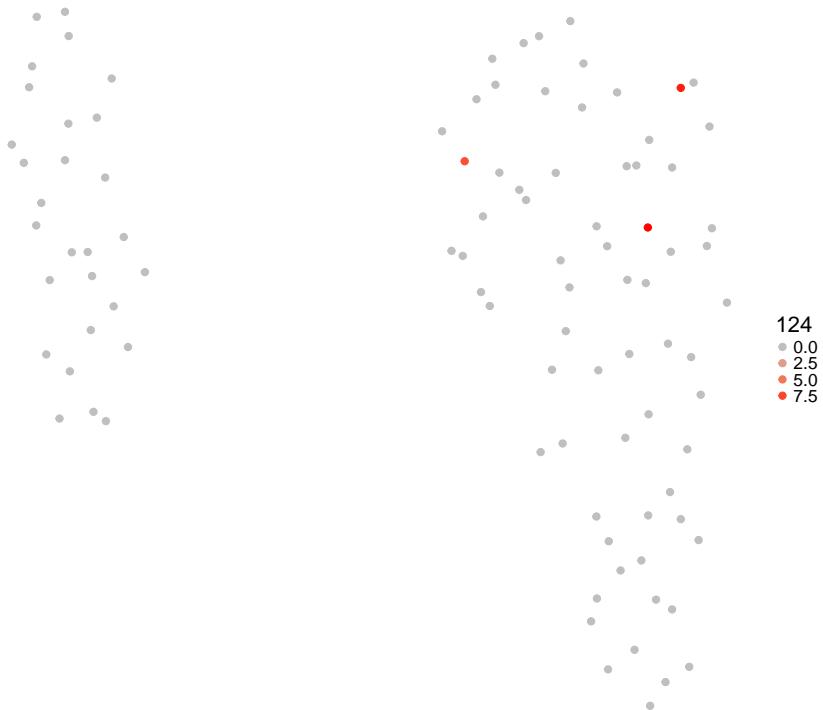
UMAP colored by IL12RB expression



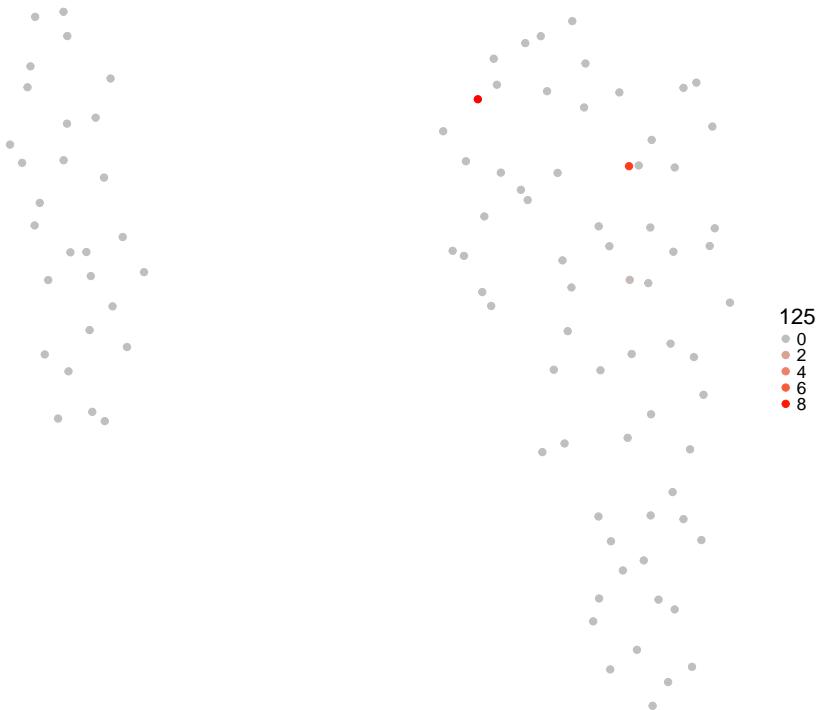
UMAP colored by LCK expression



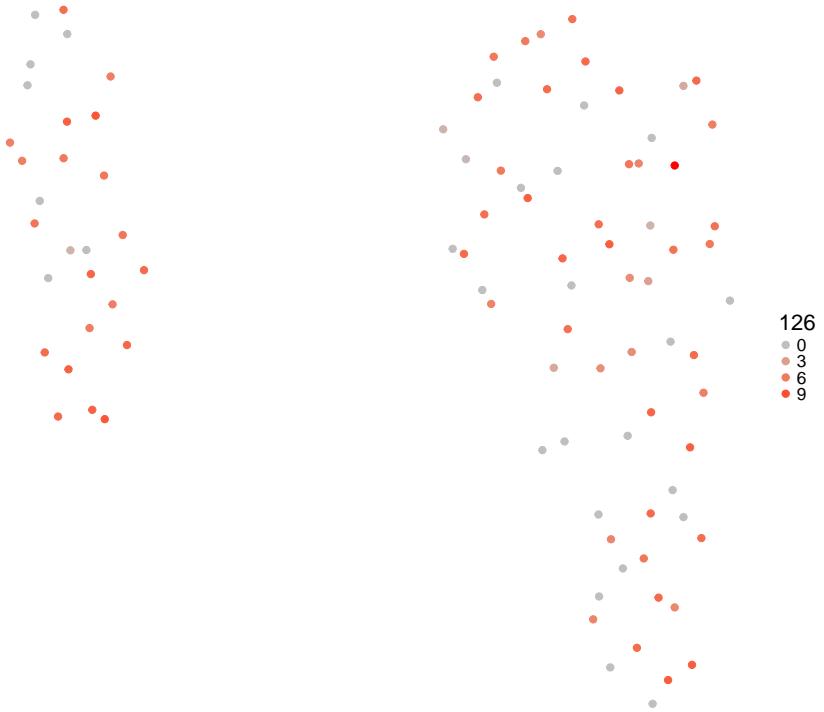
UMAP colored by MAPK8 expression



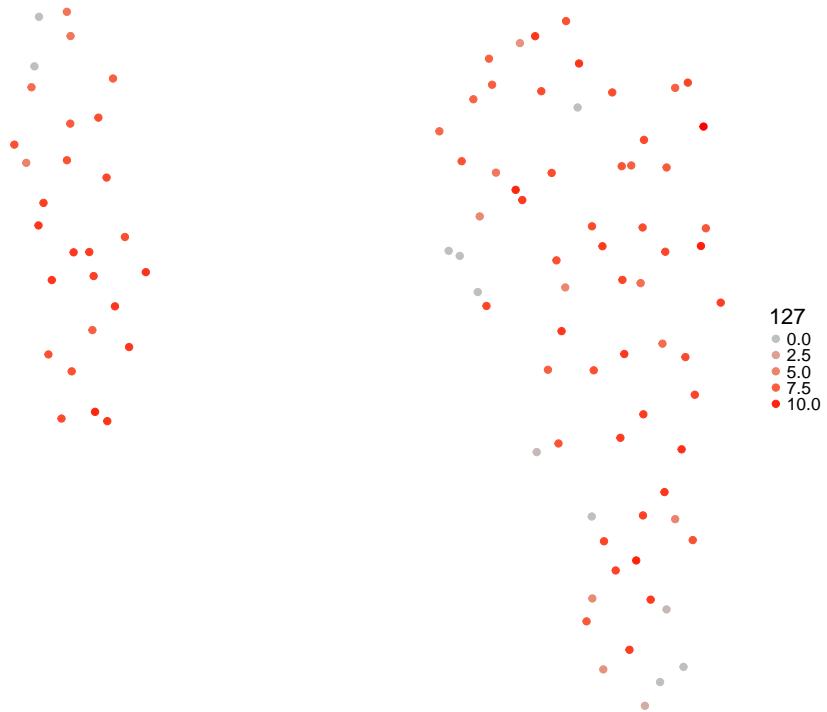
UMAP colored by IL1R2 expression



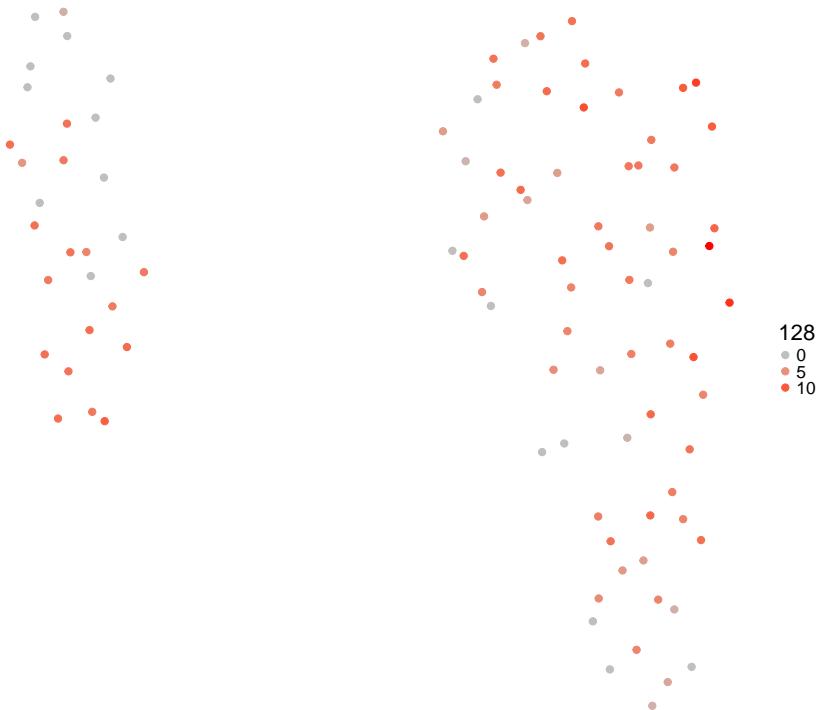
UMAP colored by ITGAX expression



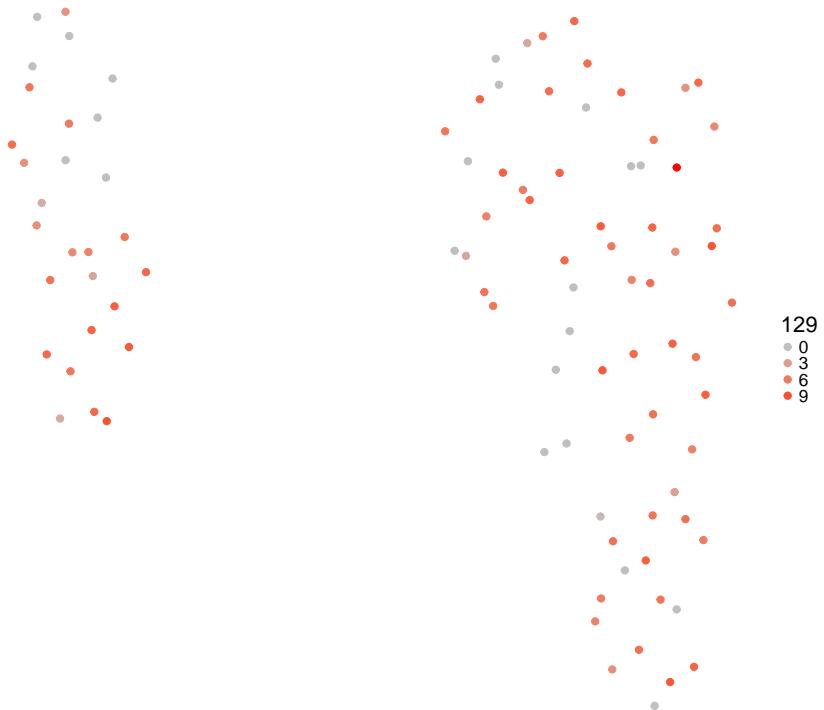
UMAP colored by CCR6 expression



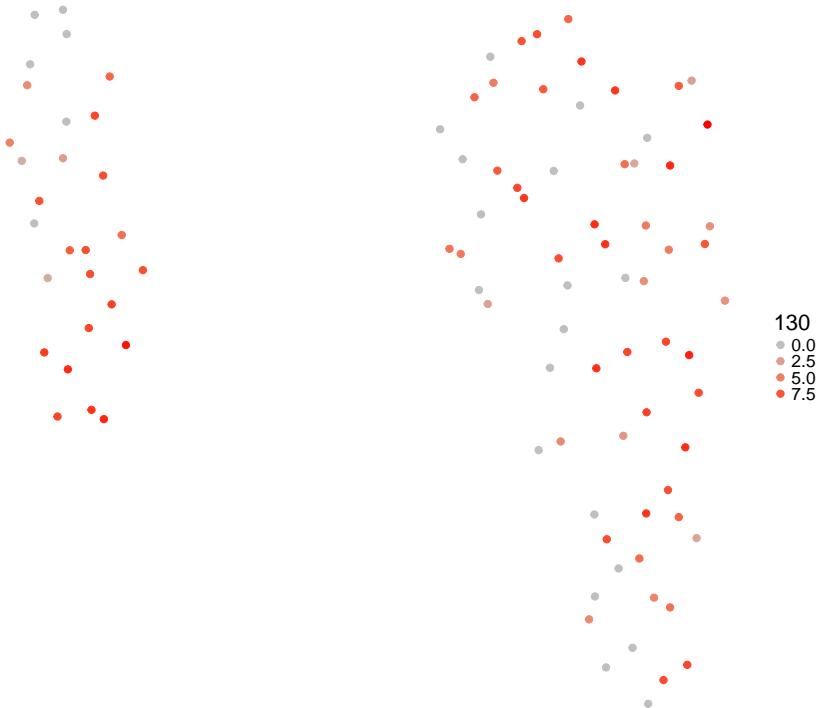
UMAP colored by FGFR3 expression



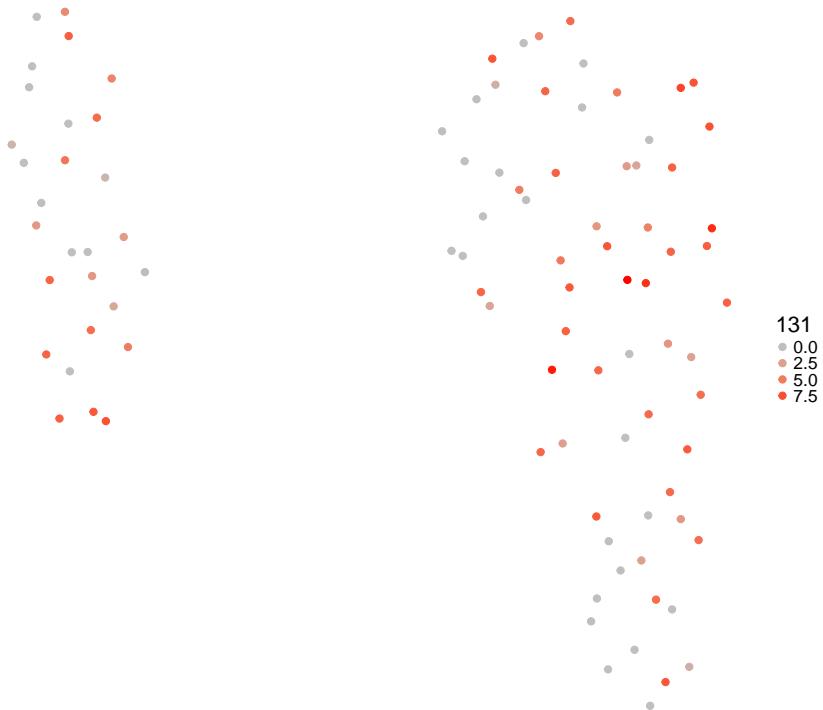
UMAP colored by VAV1 expression



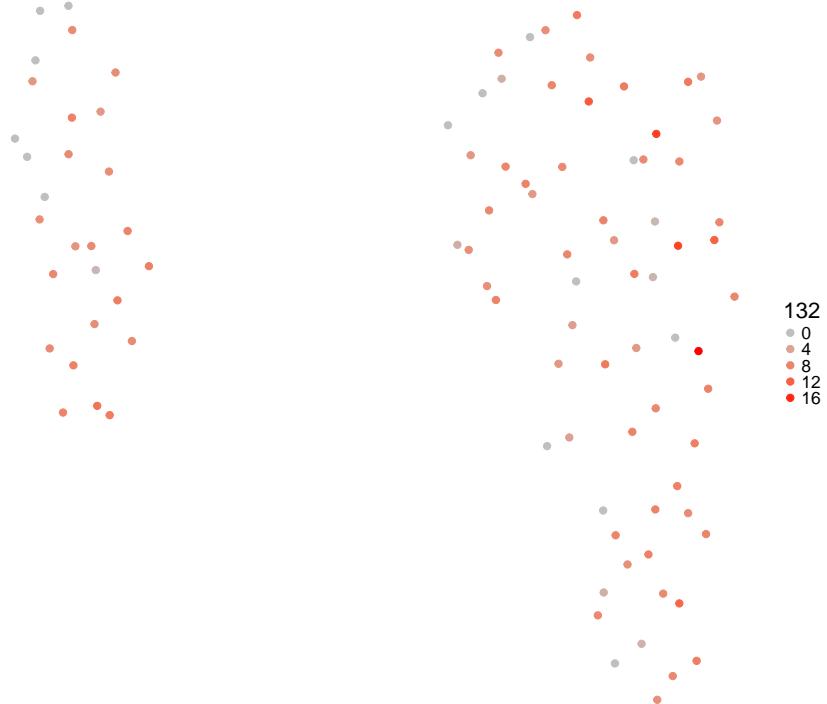
UMAP colored by DES expression



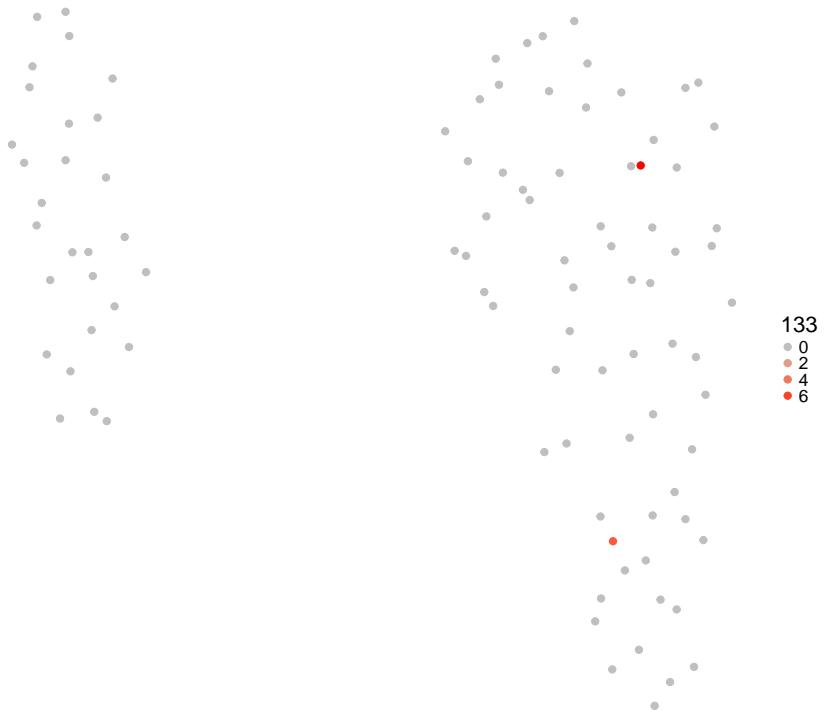
UMAP colored by TIMP1 expression



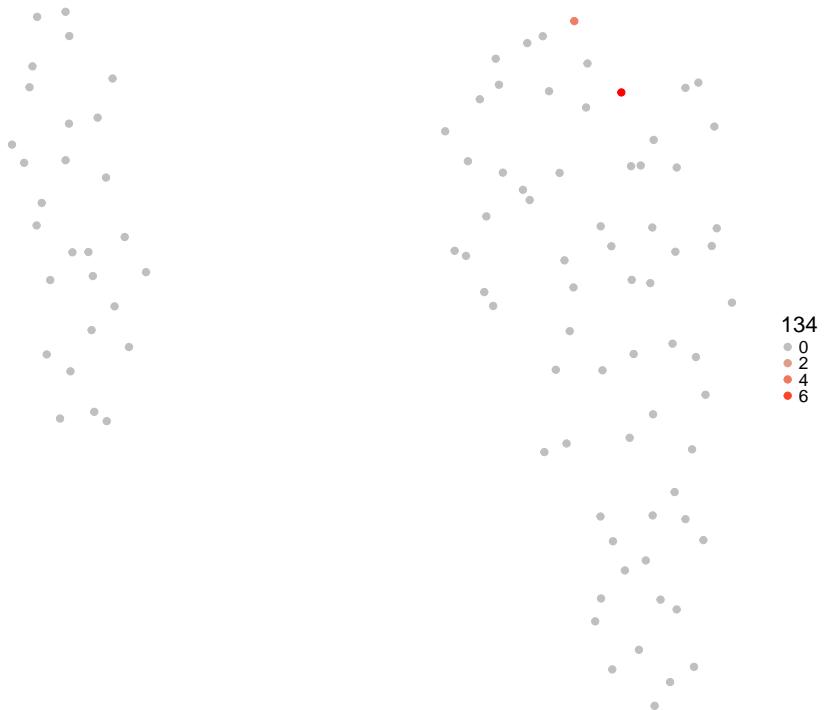
UMAP colored by CXCL10 expression



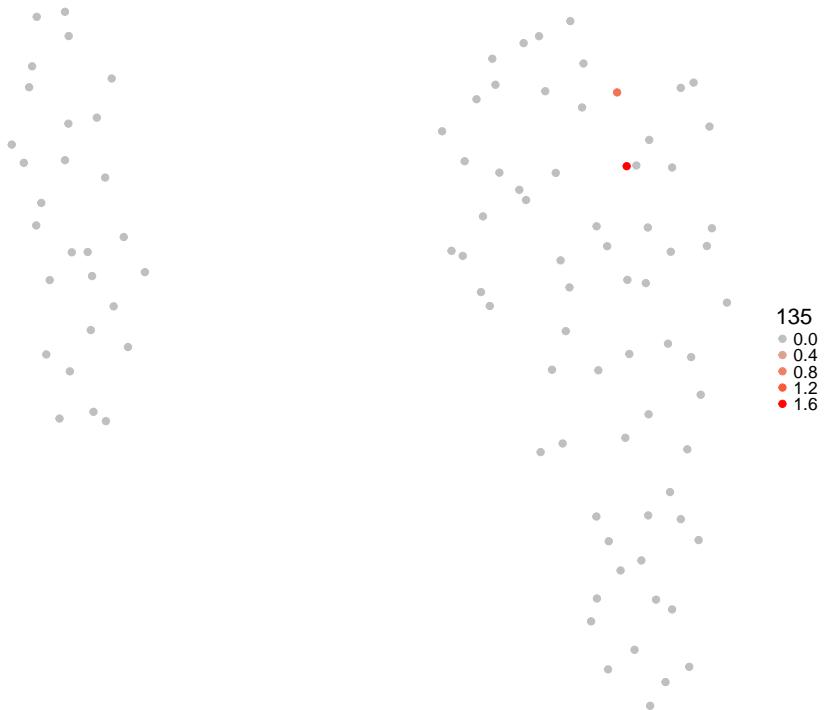
UMAP colored by FAP expression



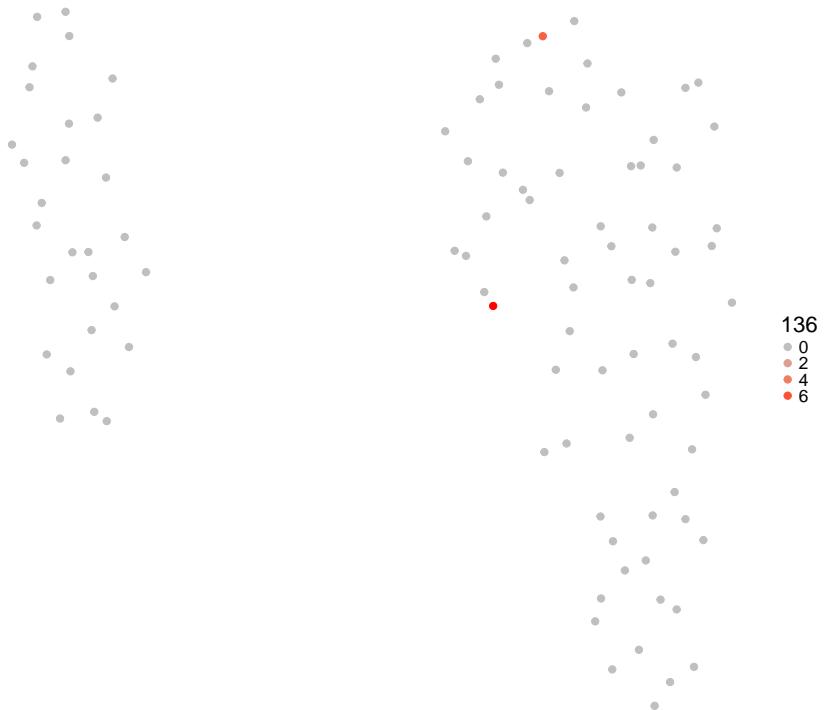
UMAP colored by IL-21 expression



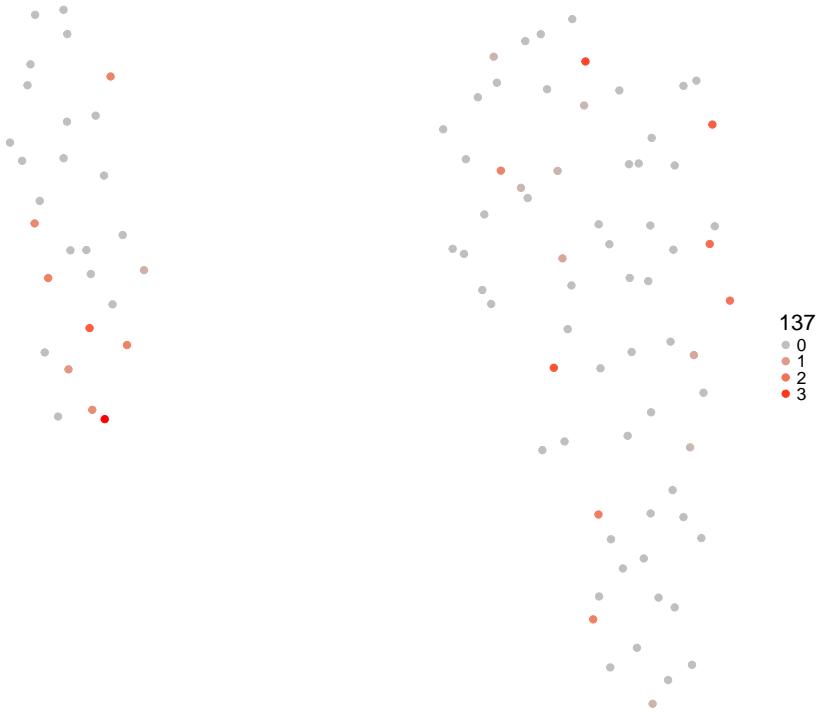
UMAP colored by MMP3 expression



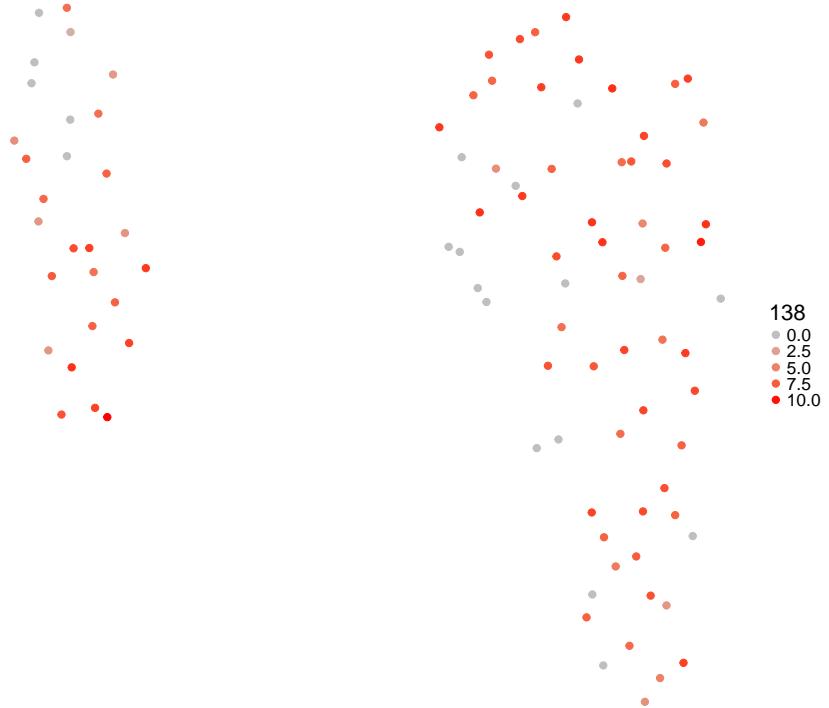
UMAP colored by ZAP70 expression



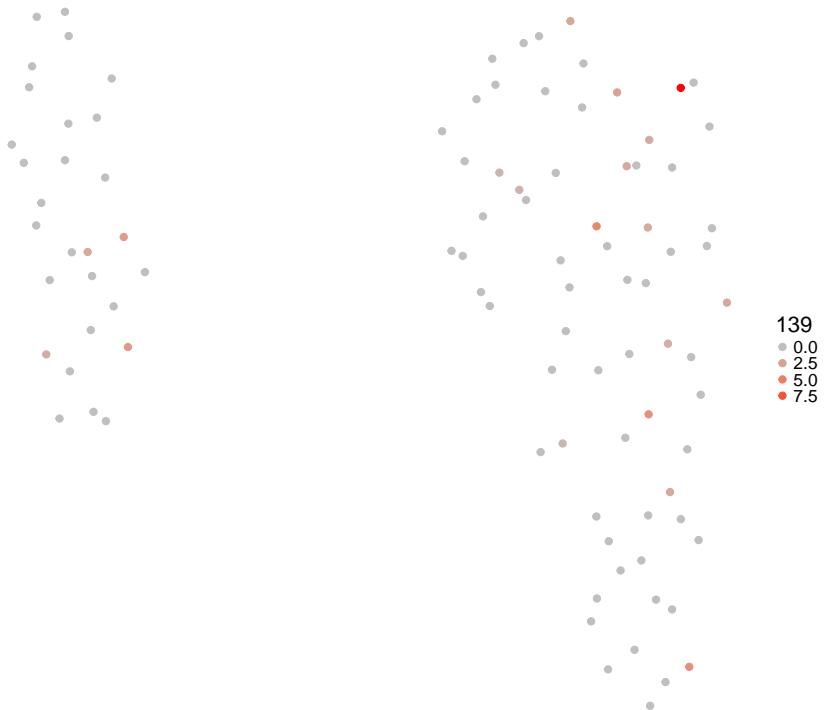
UMAP colored by GFAP expression



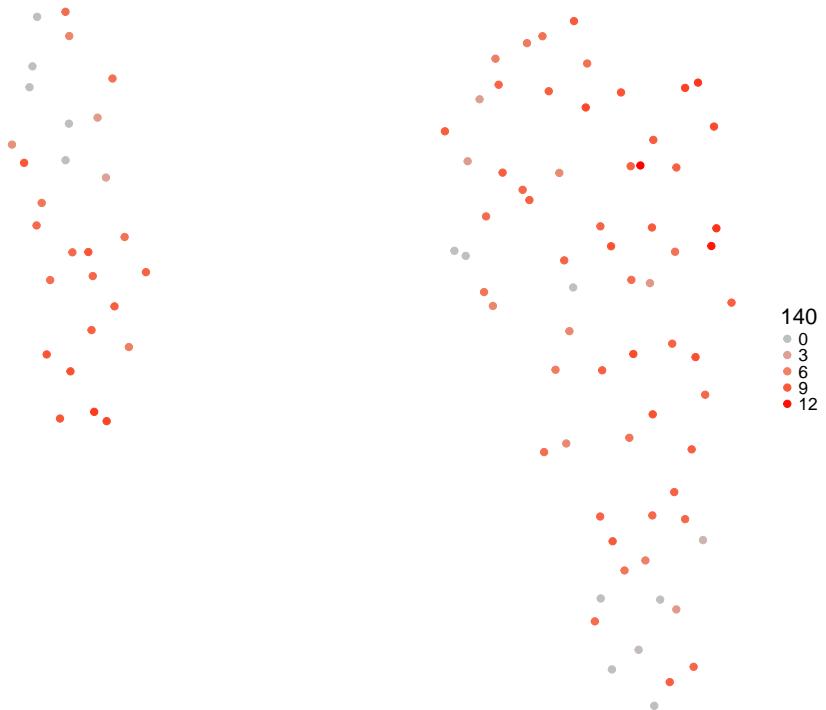
UMAP colored by TNC expression



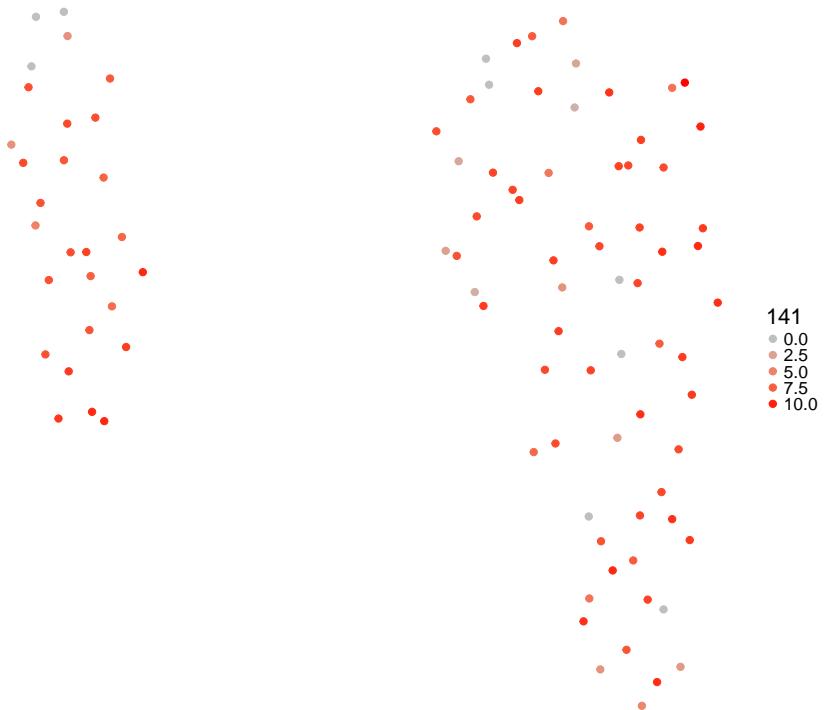
UMAP colored by SELE expression



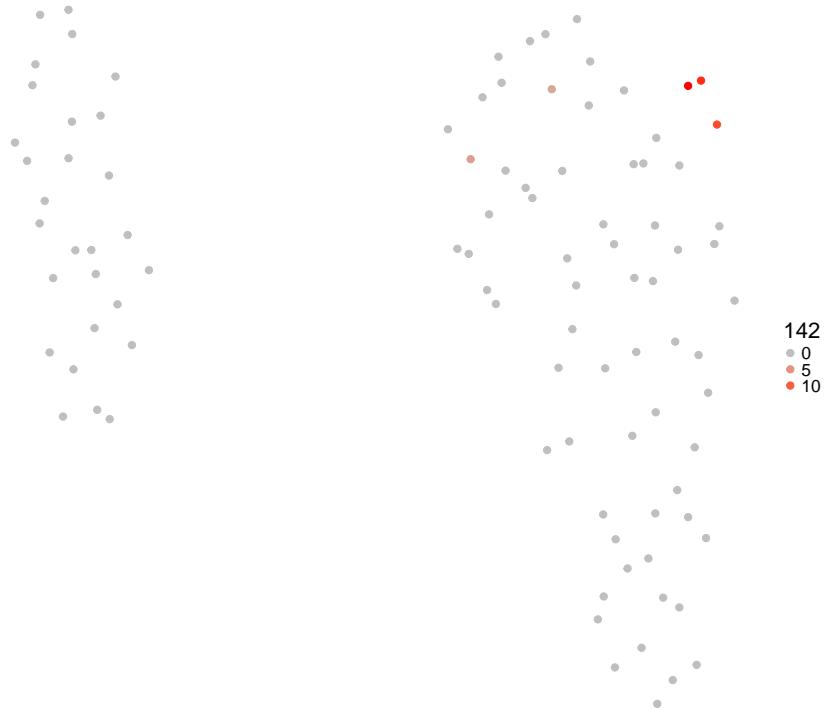
UMAP colored by ISG15 expression



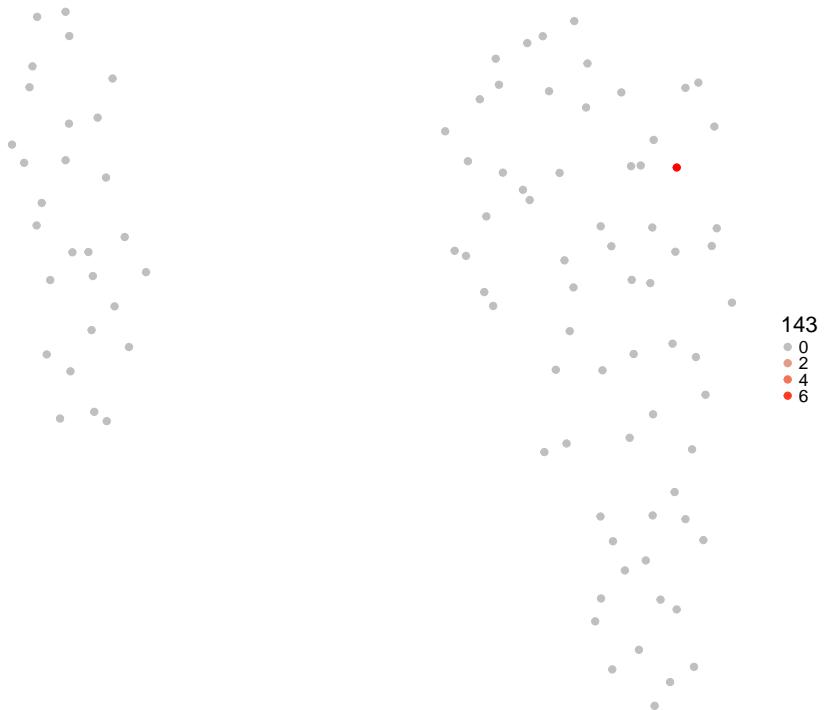
UMAP colored by CXCL13 expression



UMAP colored by KDR expression



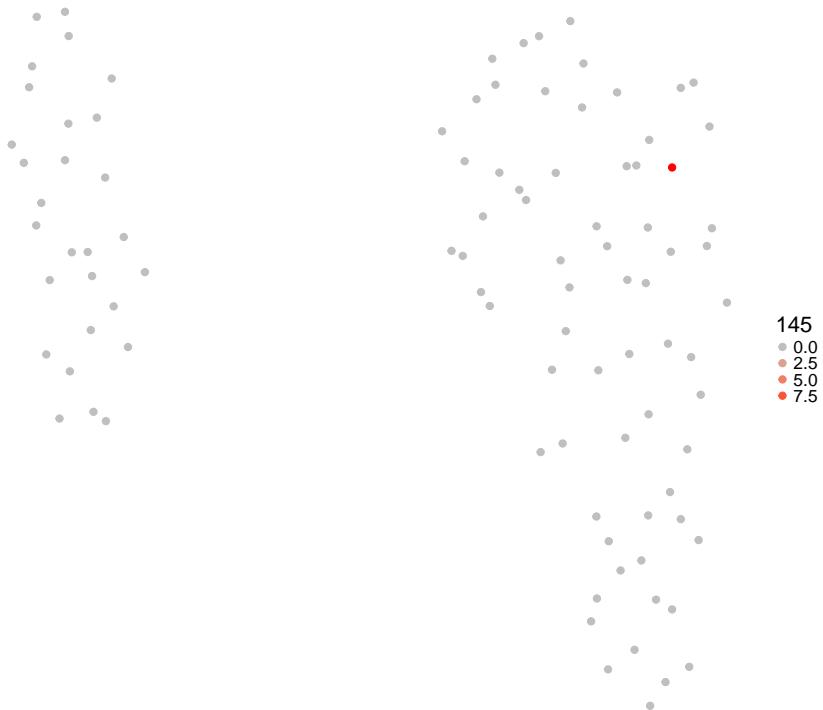
UMAP colored by ADGRE1 expression



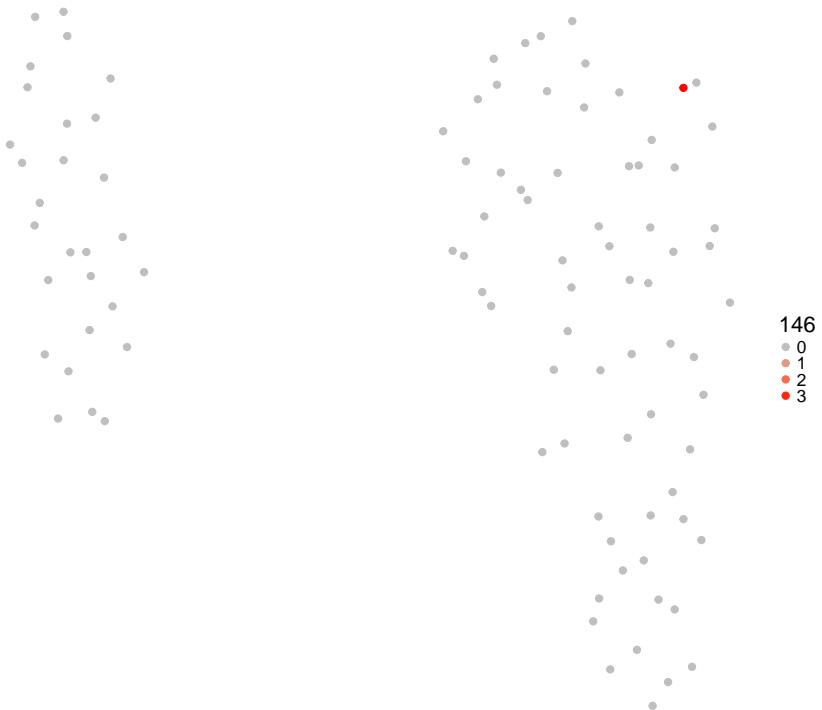
UMAP colored by CD80 expression



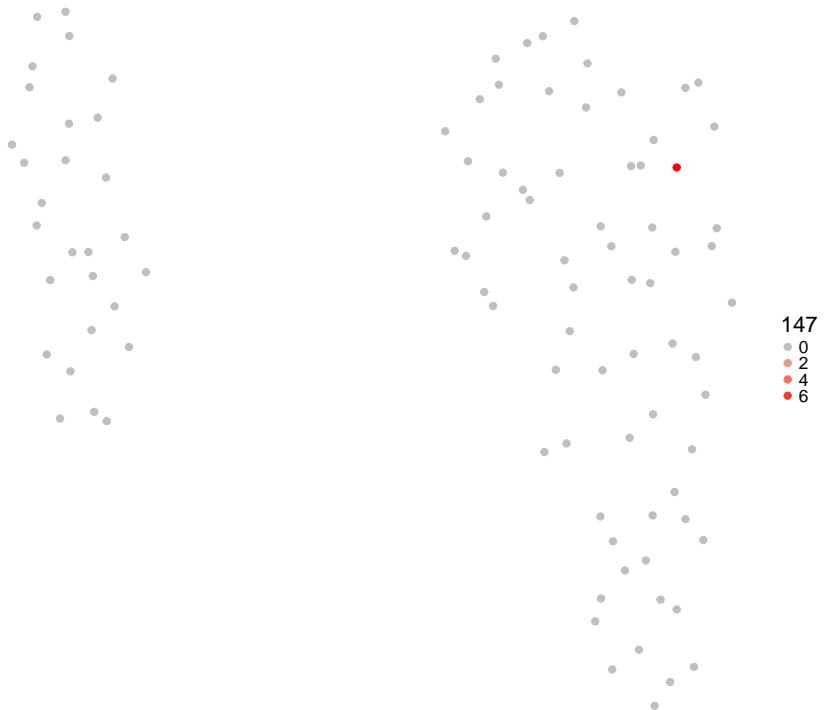
UMAP colored by CXCR3 expression



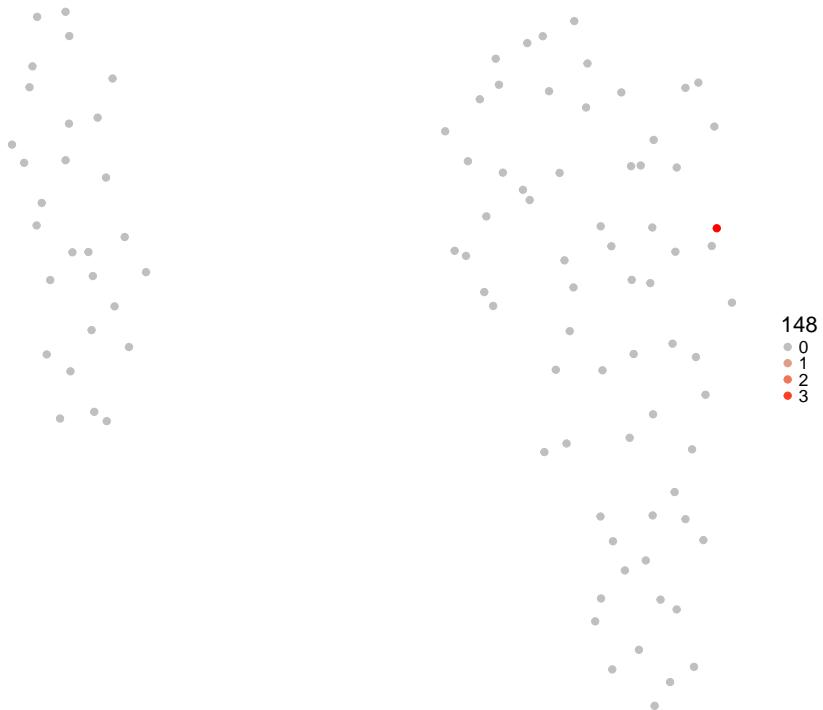
UMAP colored by IL6 expression



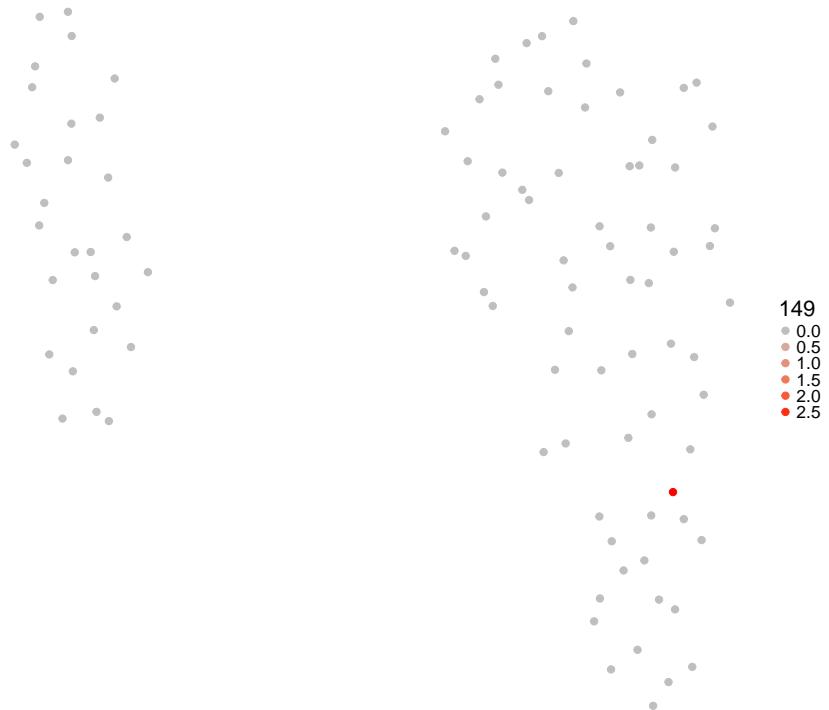
UMAP colored by NLRP3 expression



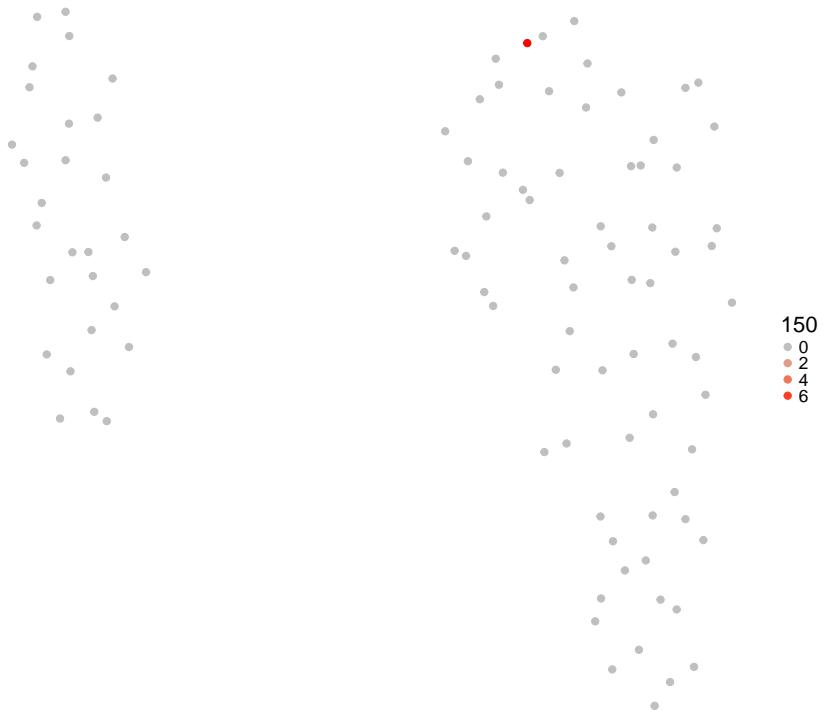
UMAP colored by TBX21 expression



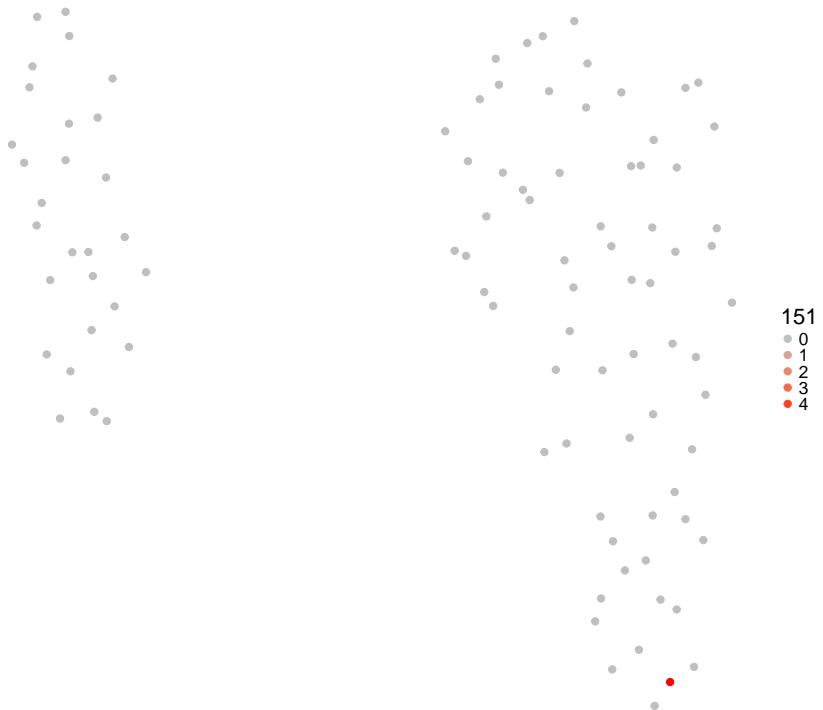
UMAP colored by CLEC7A expression



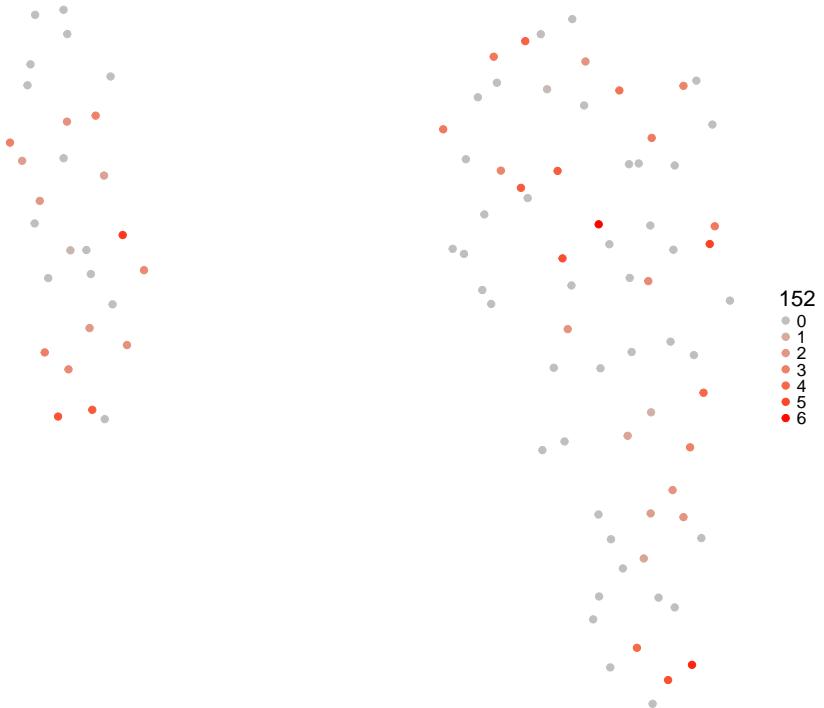
UMAP colored by CTLA4 expression



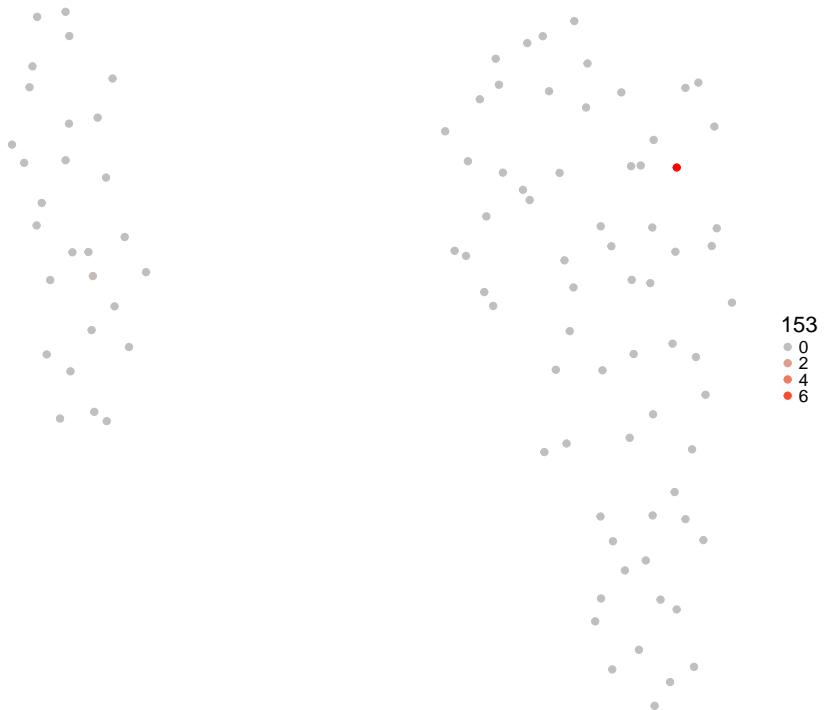
UMAP colored by FOXP3 expression



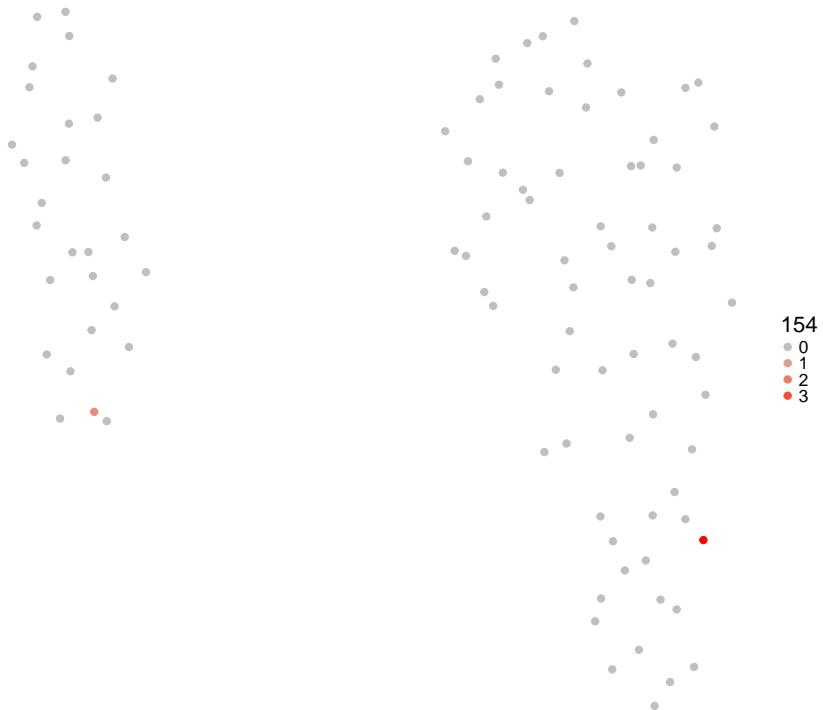
UMAP colored by IL1B expression



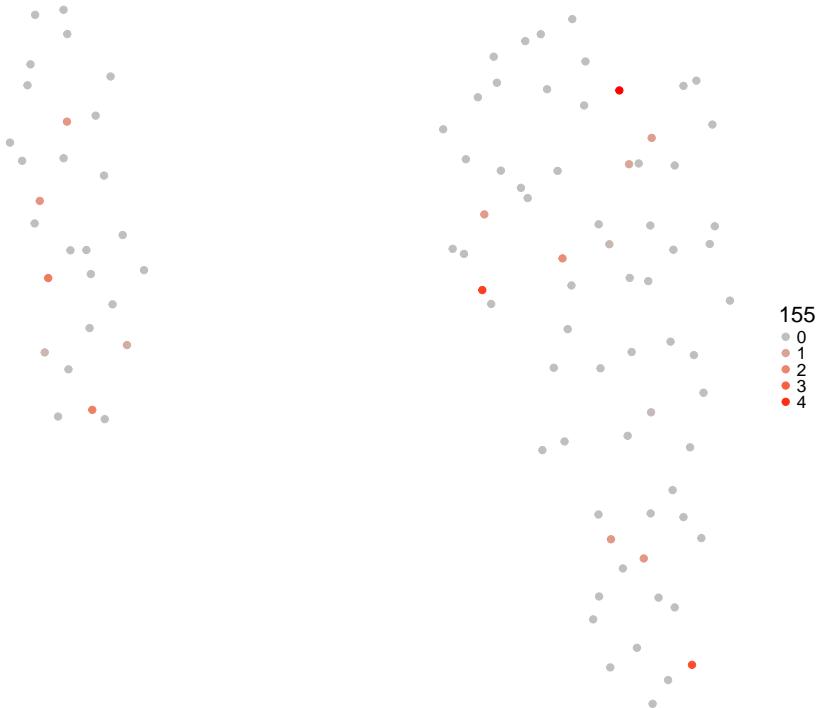
UMAP colored by ICOS expression



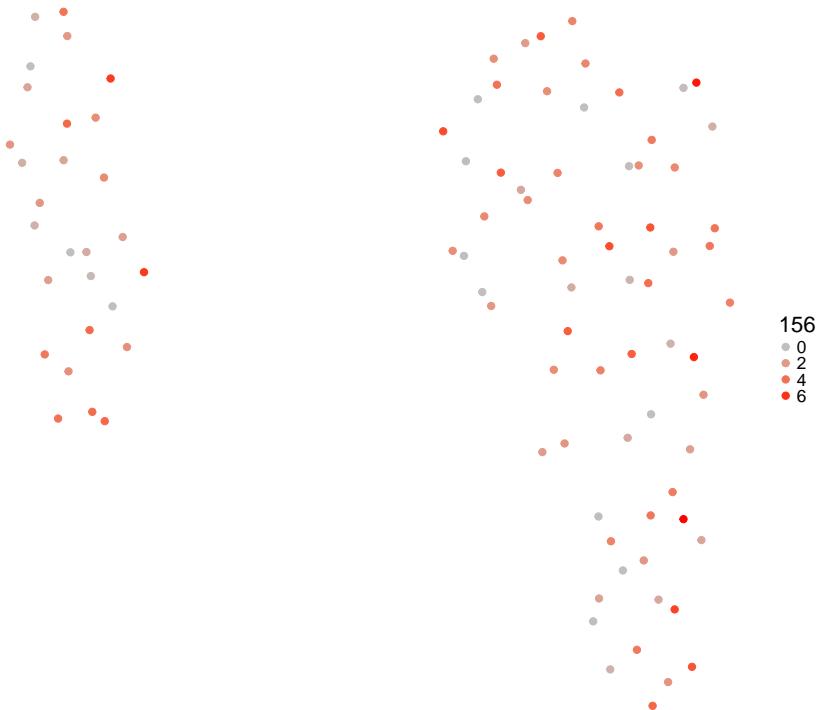
UMAP colored by GATA4 expression



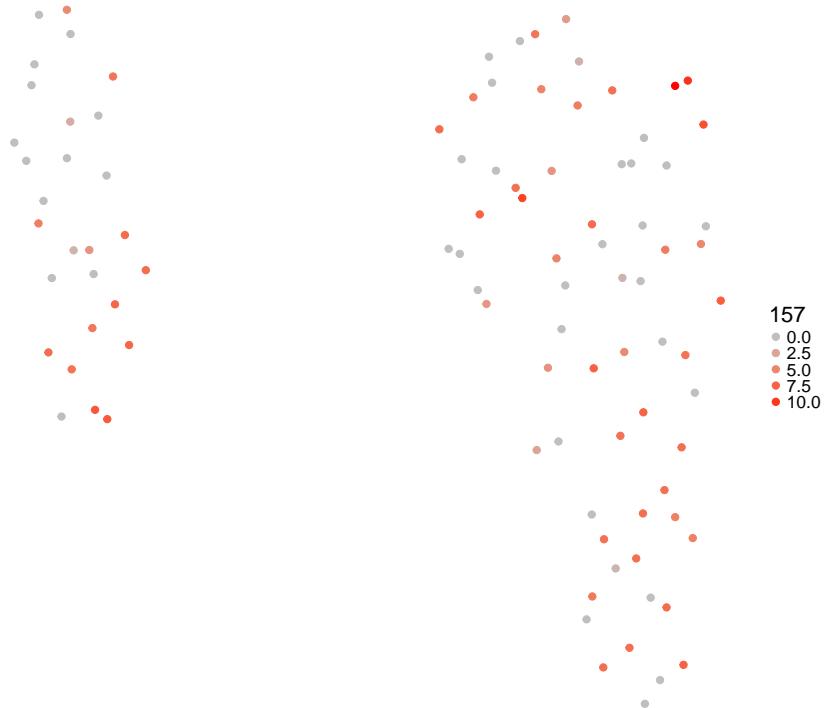
UMAP colored by PDGFRB expression



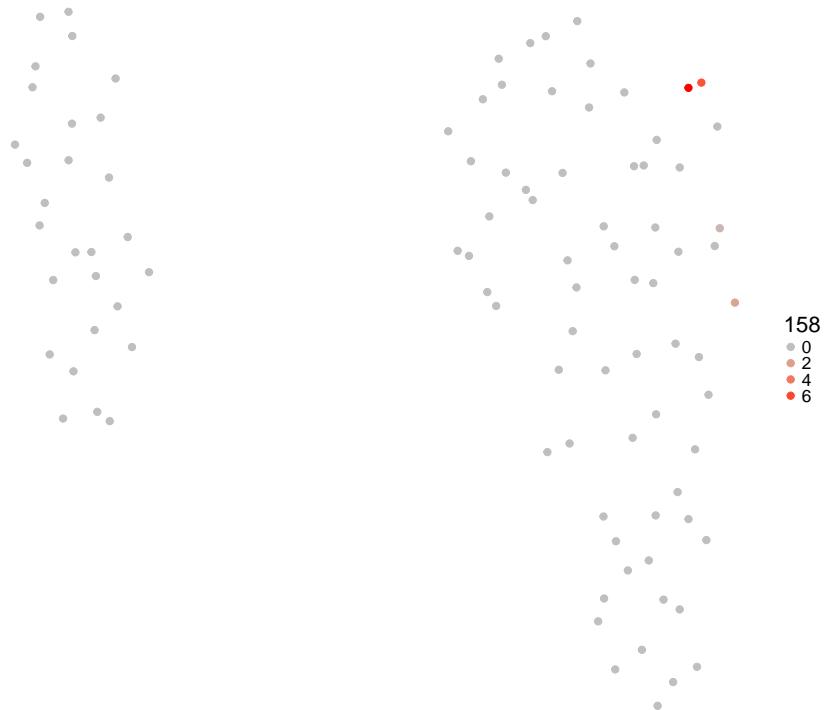
UMAP colored by CD8A expression



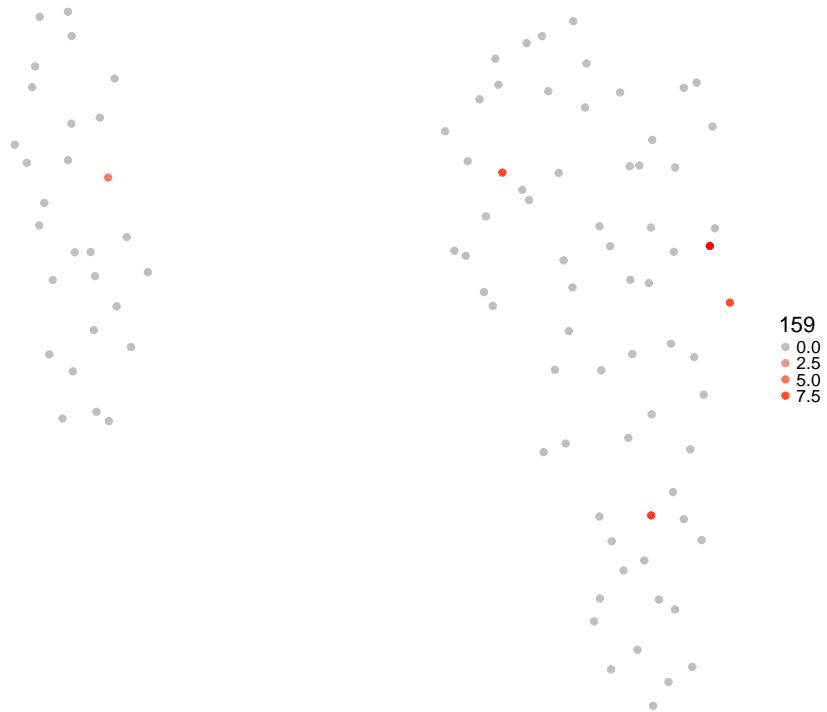
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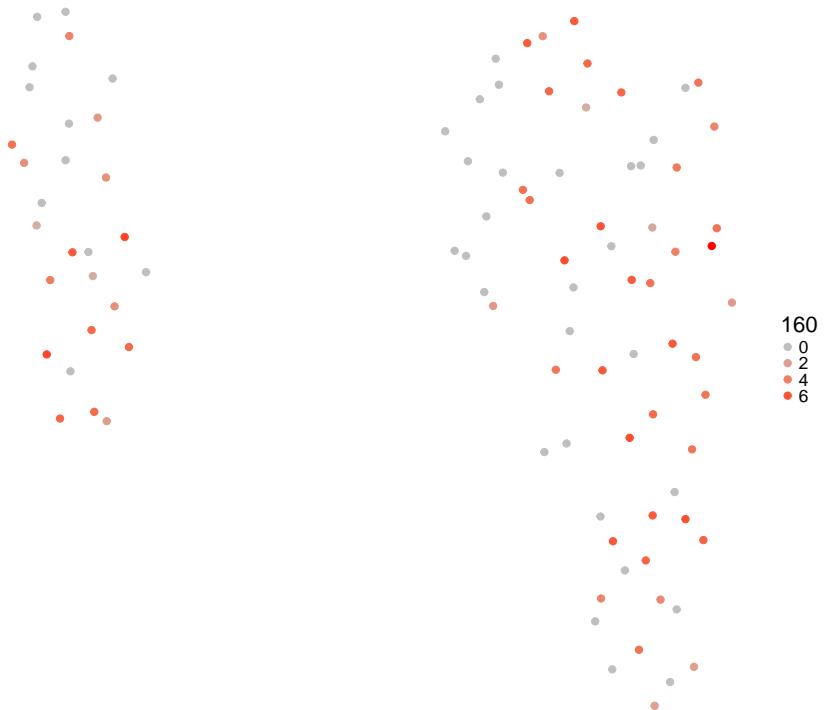
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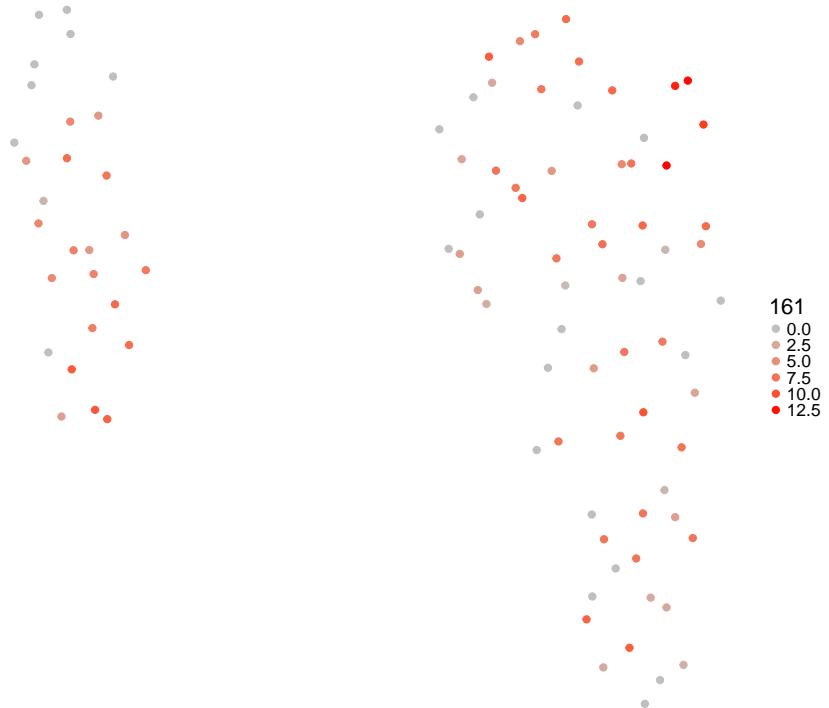
UMAP colored by BMP7 expression



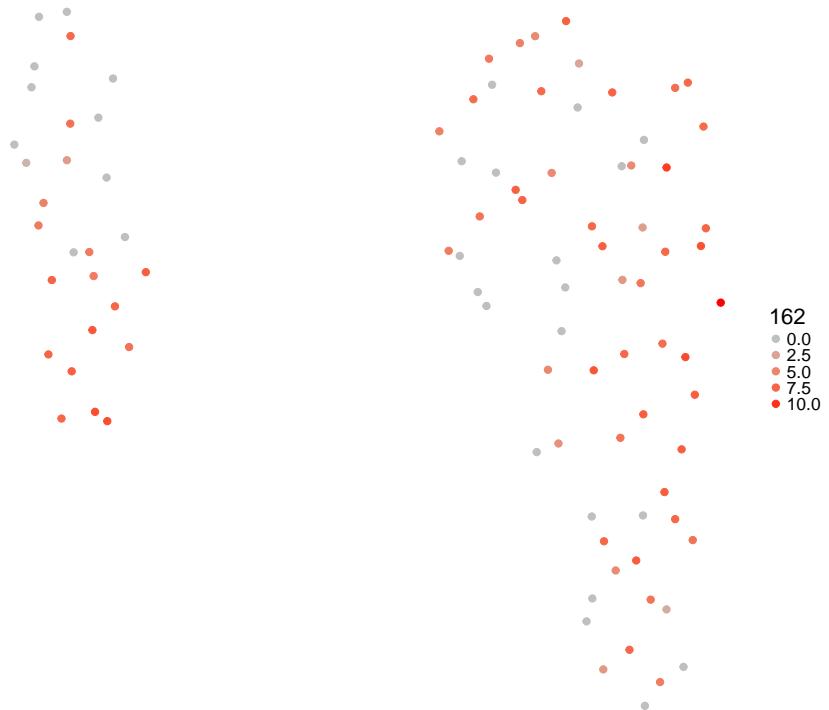
UMAP colored by TLR7 expression



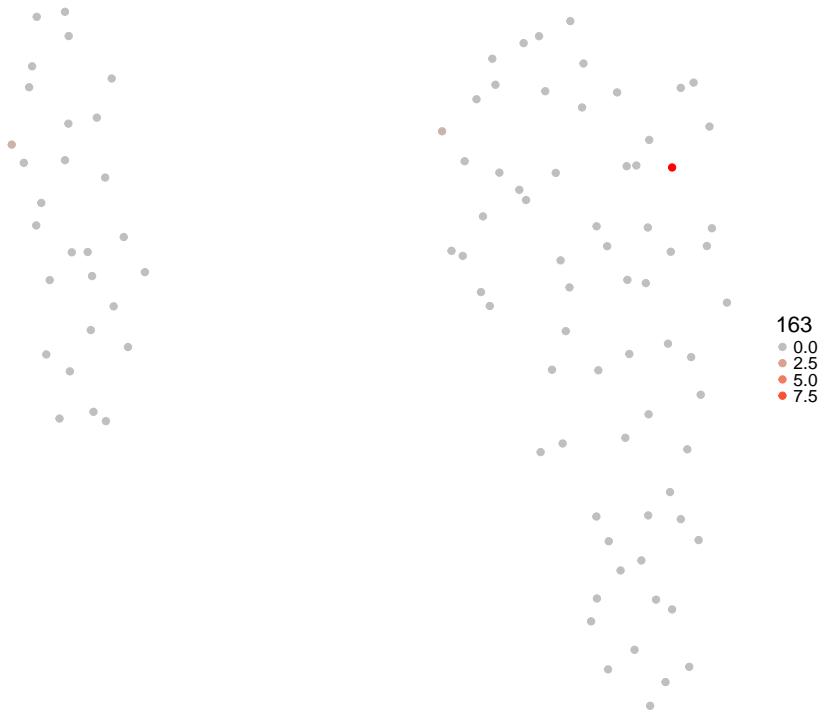
UMAP colored by CSF2RB expression



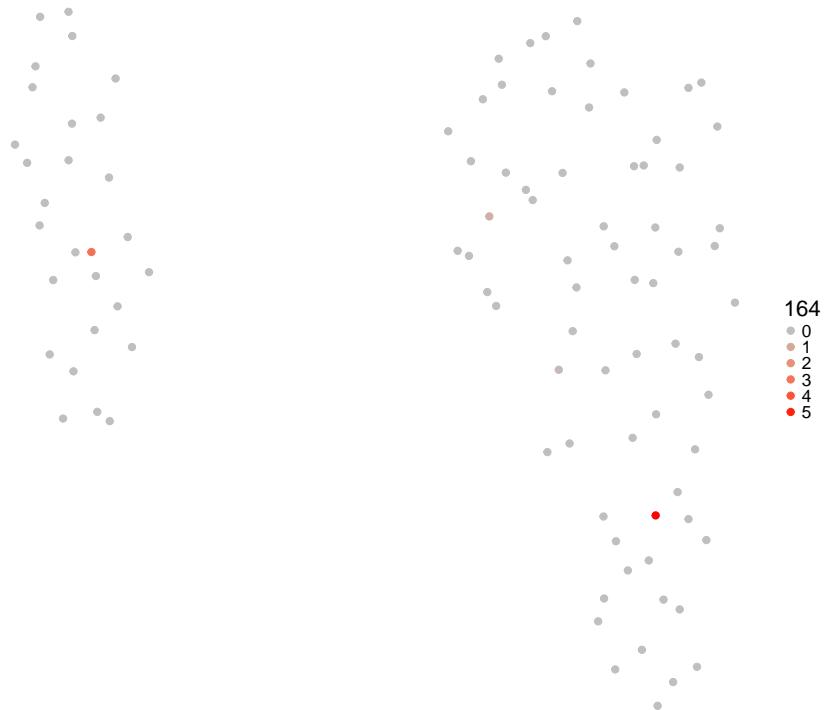
UMAP colored by CSF1R expression



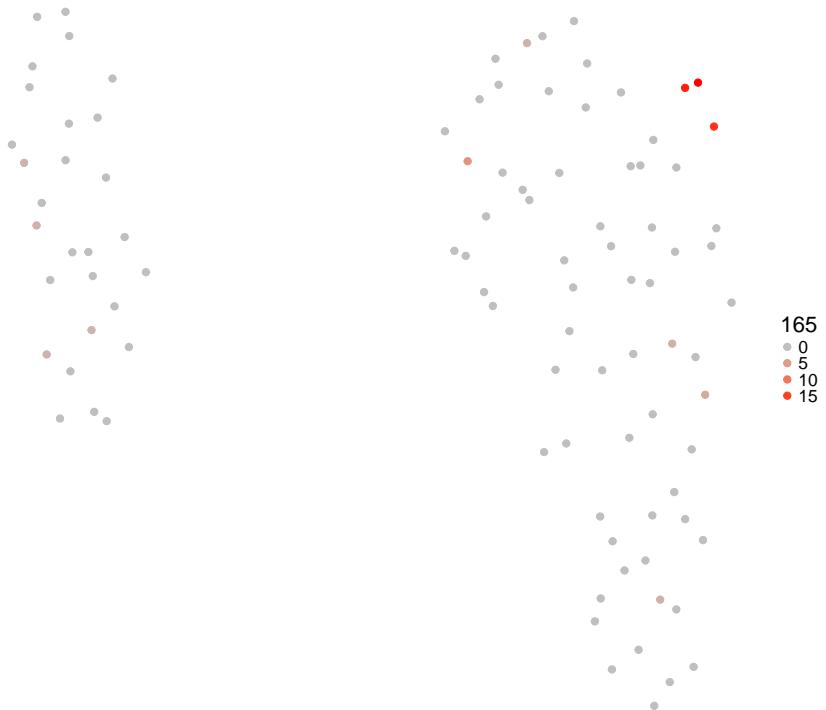
UMAP colored by TLR9 expression



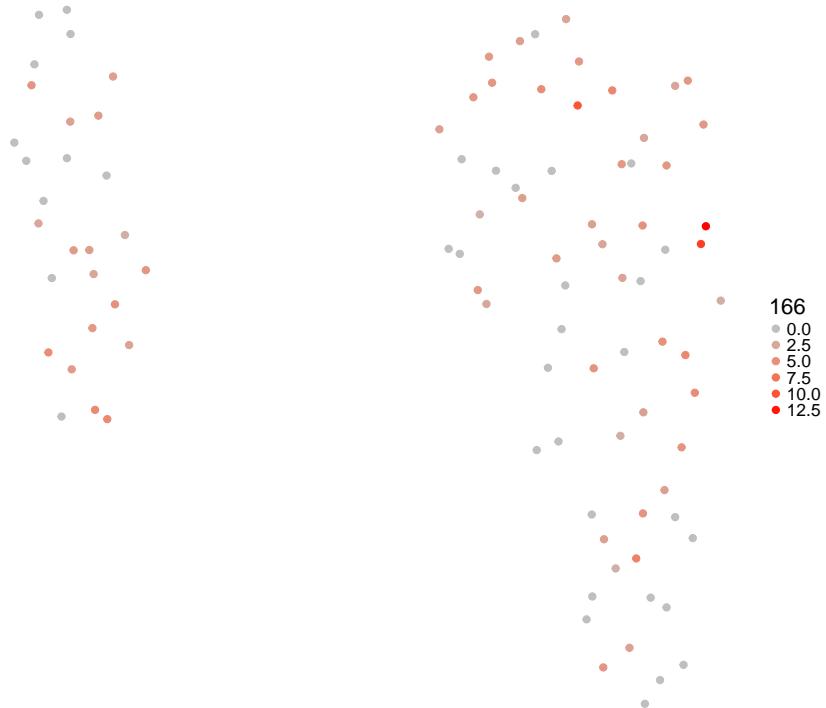
UMAP colored by IL1A expression



UMAP colored by PECAM1 expression



UMAP colored by TNF expression

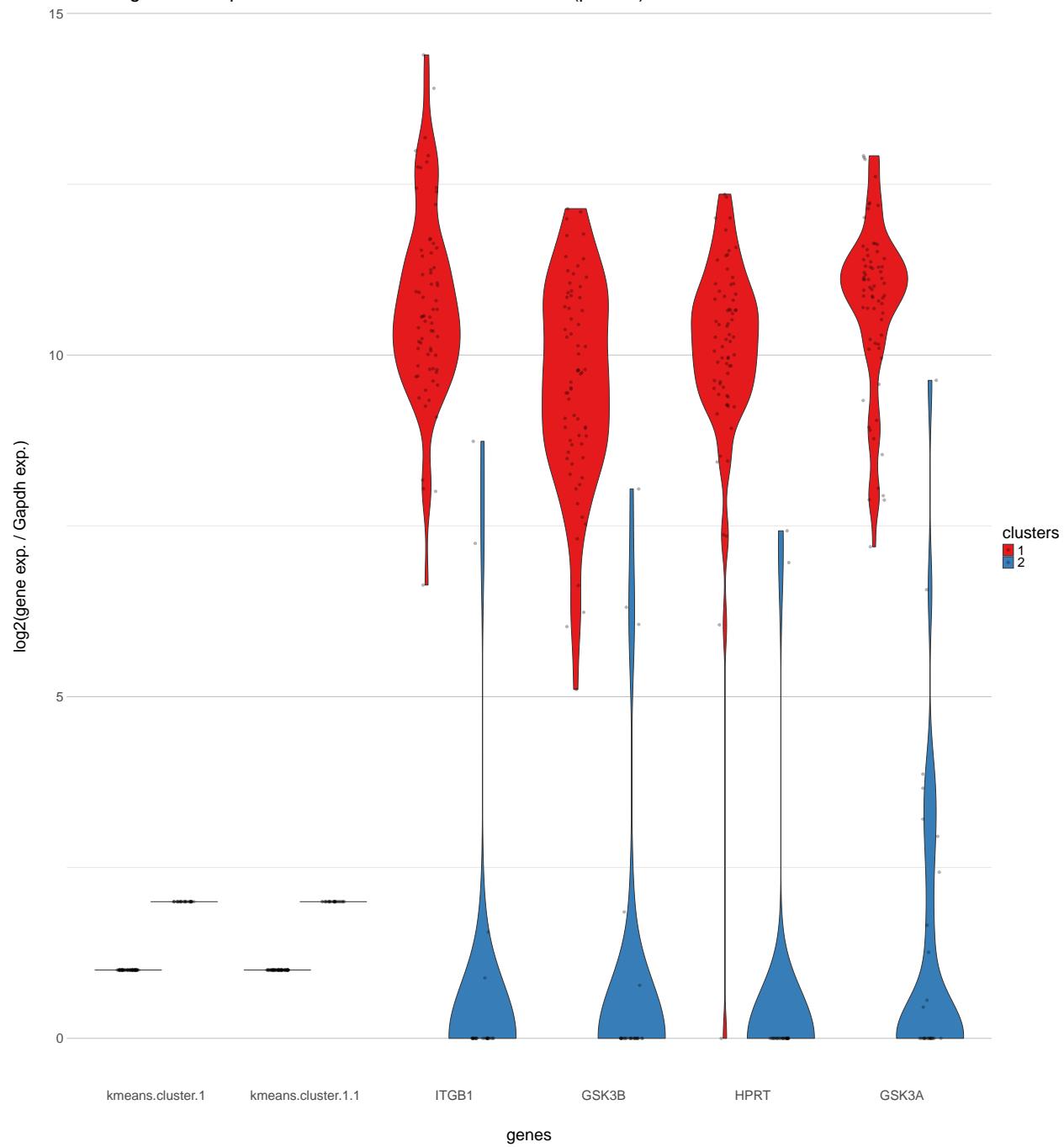


Differentially expressed genes between clusters :

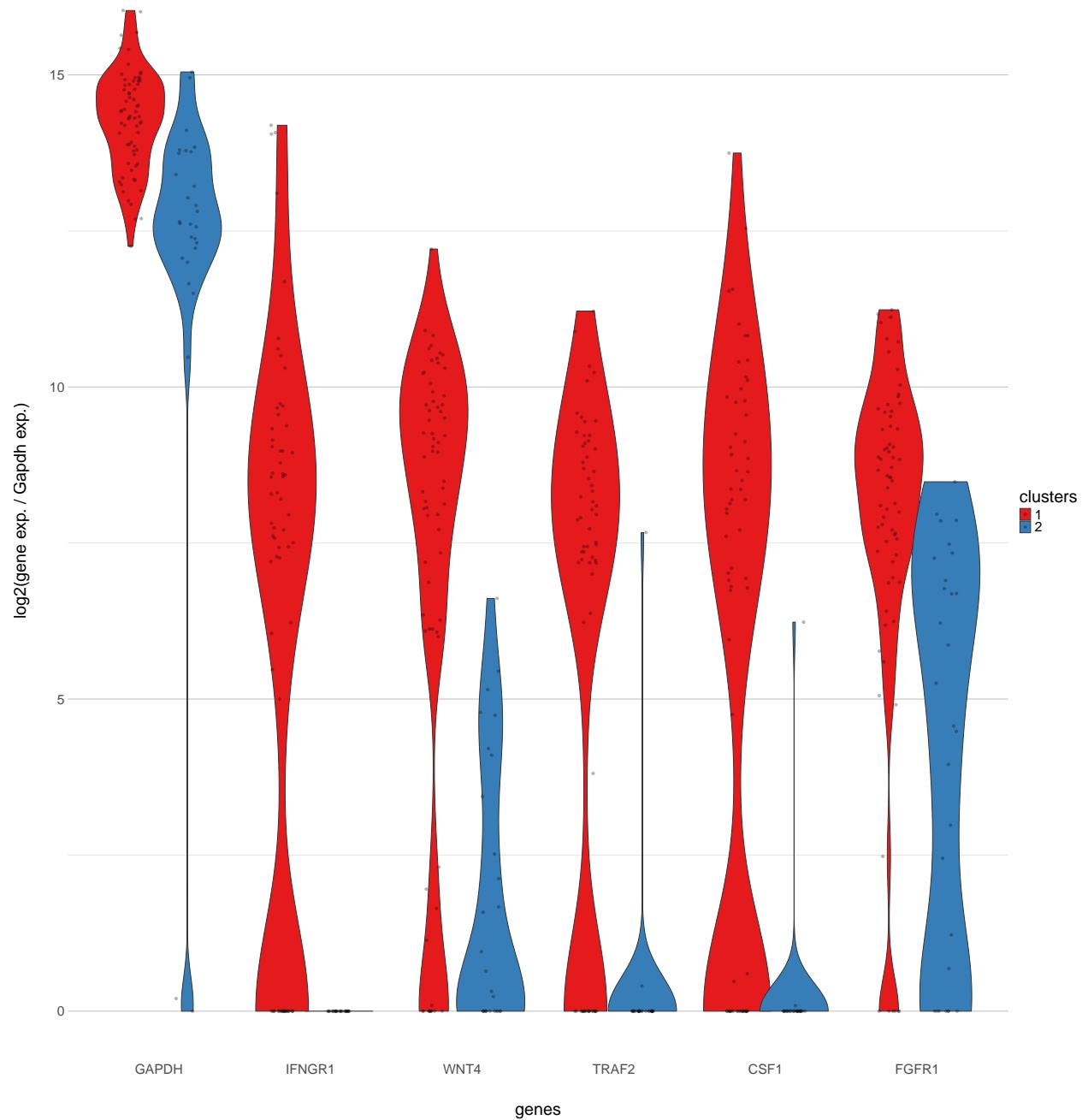
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[1] kmeans.cluster.1: 1.466e-20  kmeans.cluster.1.1: 1.466e-20
[3] ITGB1: 7.01e-13          GSK3B: 7.01e-13
[5] HPRT: 7.01e-13          GSK3A: 7.01e-13
[7] PTEN: 7.01e-13          HIF1A: 1.009e-12
[9] IRF2: 1.329e-12          STAT3: 1.56e-12
[11] LY6E: 1.826e-12          JAK1: 1.826e-12
[13] VEGFA: 1.491e-11          PTK2: 1.538e-10
```

| | | | | |
|------|----------|-----------|-----------|-----------|
| [15] | TIMP2: | 2.823e-10 | ACVR1: | 5.137e-10 |
| [17] | STAT1: | 6.123e-10 | PDL-1: | 4.332e-09 |
| [19] | IRF1: | 5.661e-09 | VEGFB: | 6.428e-09 |
| [21] | JAK2: | 8.07e-09 | SOCS3: | 1.589e-08 |
| [23] | NFKB1: | 2.606e-08 | PDGFA: | 4.952e-08 |
| [25] | GAPDH: | 2.153e-07 | IFNGR1: | 2.153e-07 |
| [27] | WNT4: | 3.614e-07 | TRAF2: | 5.464e-07 |
| [29] | CSF1: | 1.669e-06 | FGFR1: | 2.544e-06 |
| [31] | KLF5: | 3.081e-06 | TNFRSF1A: | 5.83e-06 |
| [33] | CSF2RA: | 2.013e-05 | INS1: | 2.216e-05 |
| [35] | ANPEP: | 2.483e-05 | NFATC1: | 2.832e-05 |
| [37] | FYN: | 2.983e-05 | IAPP: | 0.0001045 |
| [39] | TLR3: | 0.0001401 | BCL6: | 0.0001959 |
| [41] | STAT5: | 0.0002062 | CD44: | 0.0002062 |
| [43] | IFIT1: | 0.0002974 | EGFR: | 0.0008968 |
| [45] | SPP1: | 0.001482 | IL4RA: | 0.002443 |
| [47] | CD83: | 0.002443 | CD74: | 0.002638 |
| [49] | NUR77: | 0.004542 | OAS1B: | 0.004542 |
| [51] | LY75: | 0.005213 | PDGFB: | 0.005721 |
| [53] | TNFAIP3: | 0.00829 | MAP2K6: | 0.01123 |
| [55] | IRF7: | 0.0119 | GCG: | 0.01387 |
| [57] | SST: | 0.01722 | TNFRSF1B: | 0.03925 |
| [59] | CD40: | 0.04639 | OAS2: | 0.04729 |

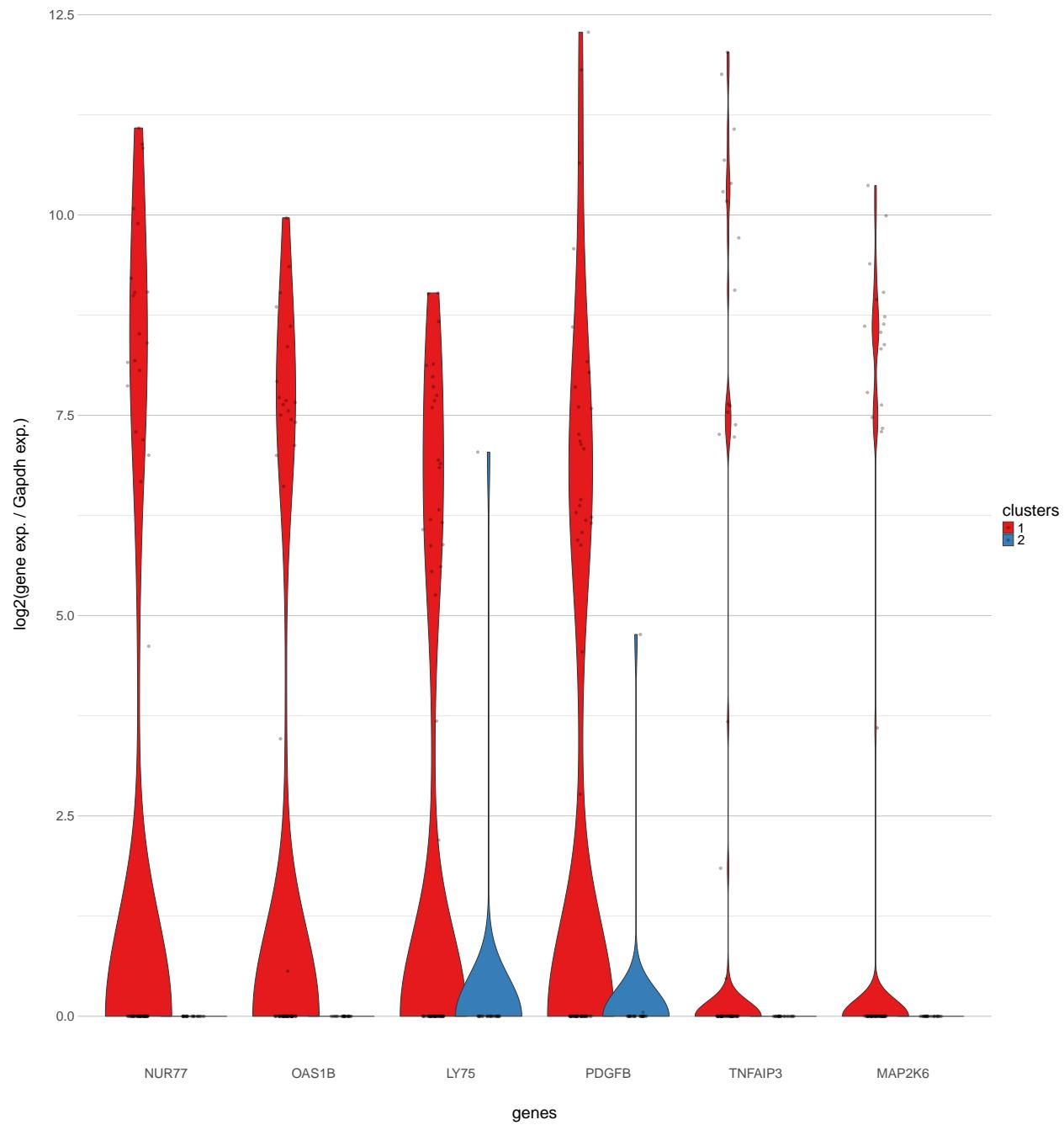
most significant expression differences between clusters (plot #1)



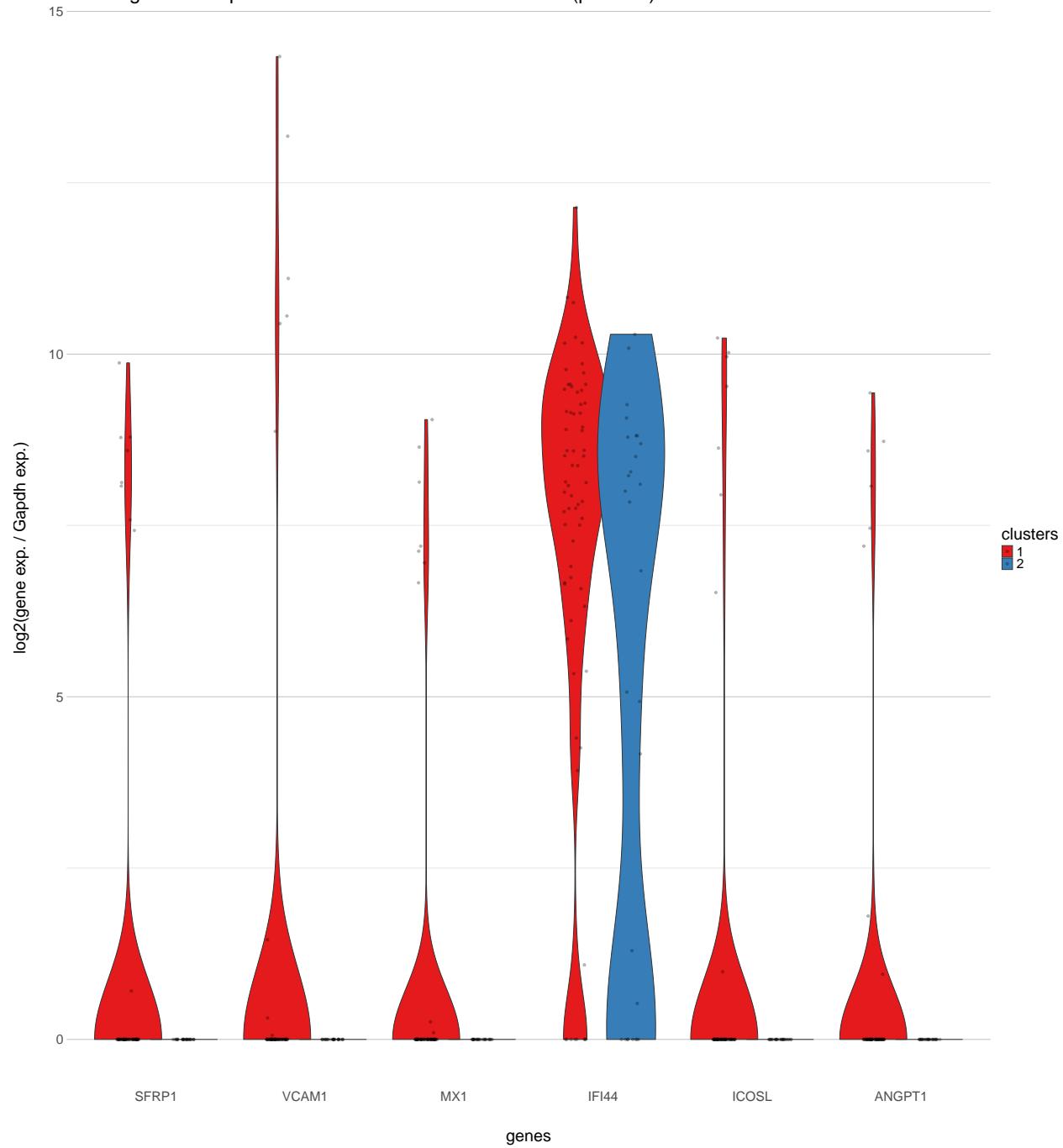
most significant expression differences between clusters (plot #5)



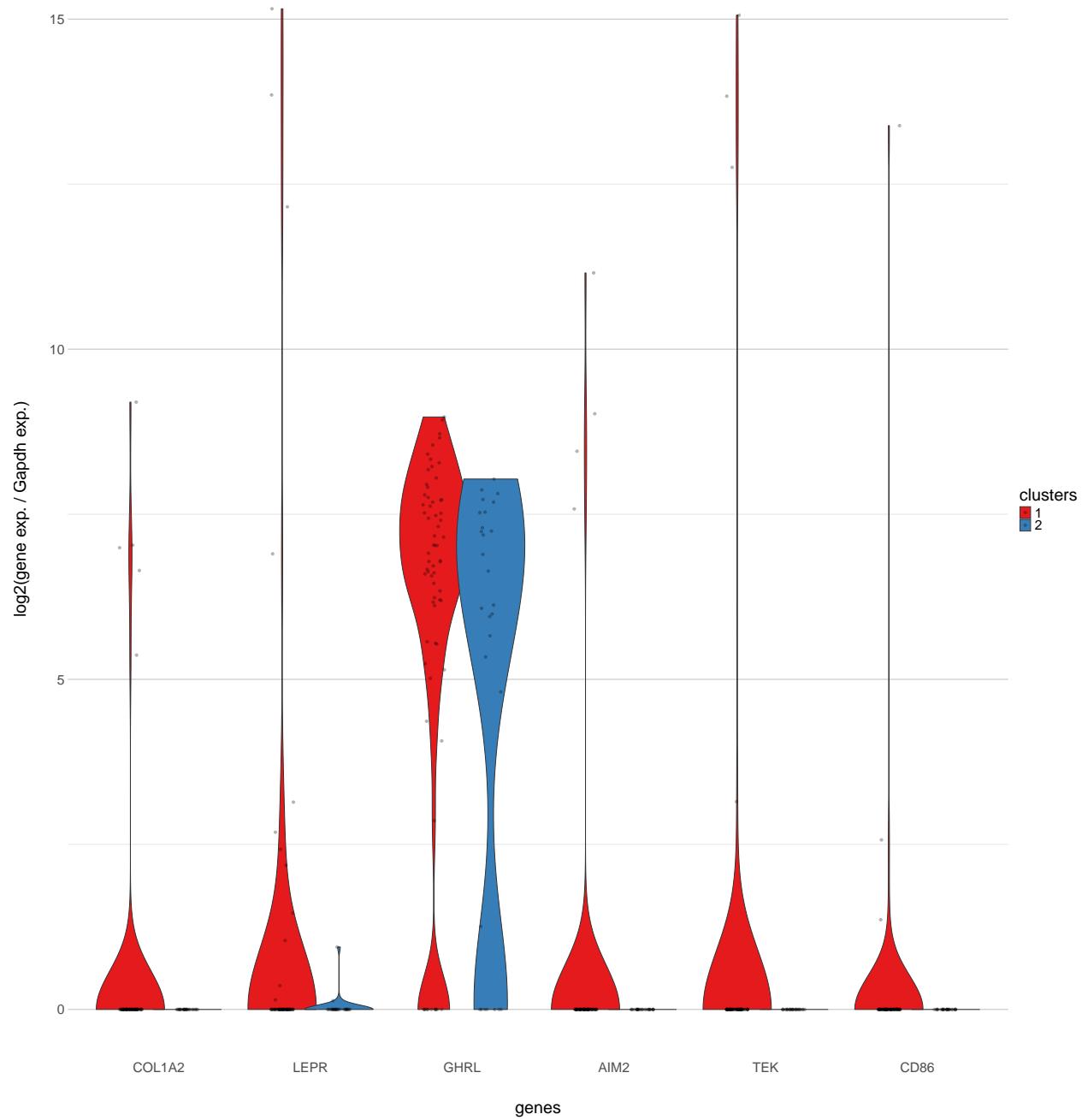
most significant expression differences between clusters (plot #9)



most significant expression differences between clusters (plot #13)



most significant expression differences between clusters (plot #17)



most significant expression differences between clusters (plot #21)

