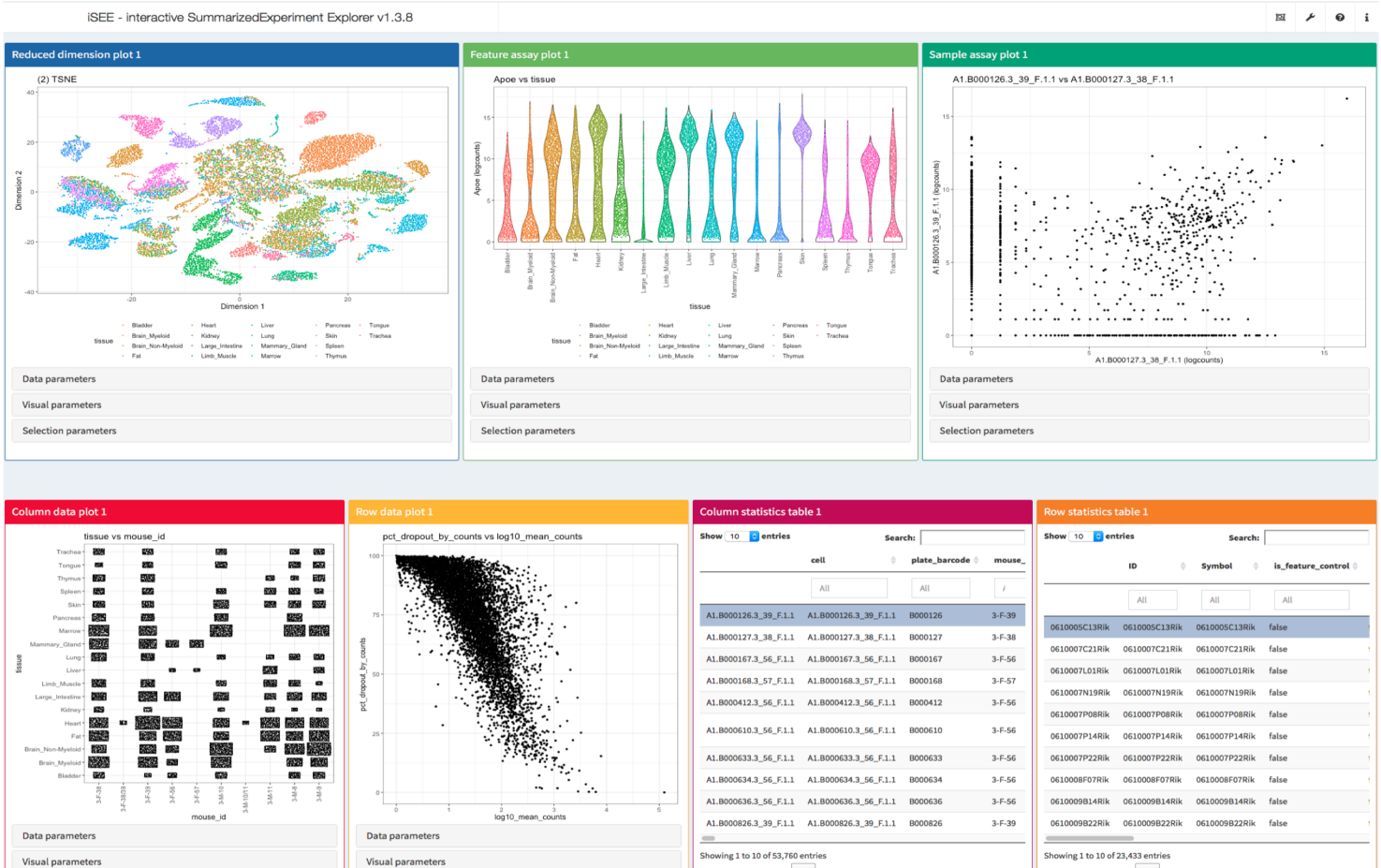
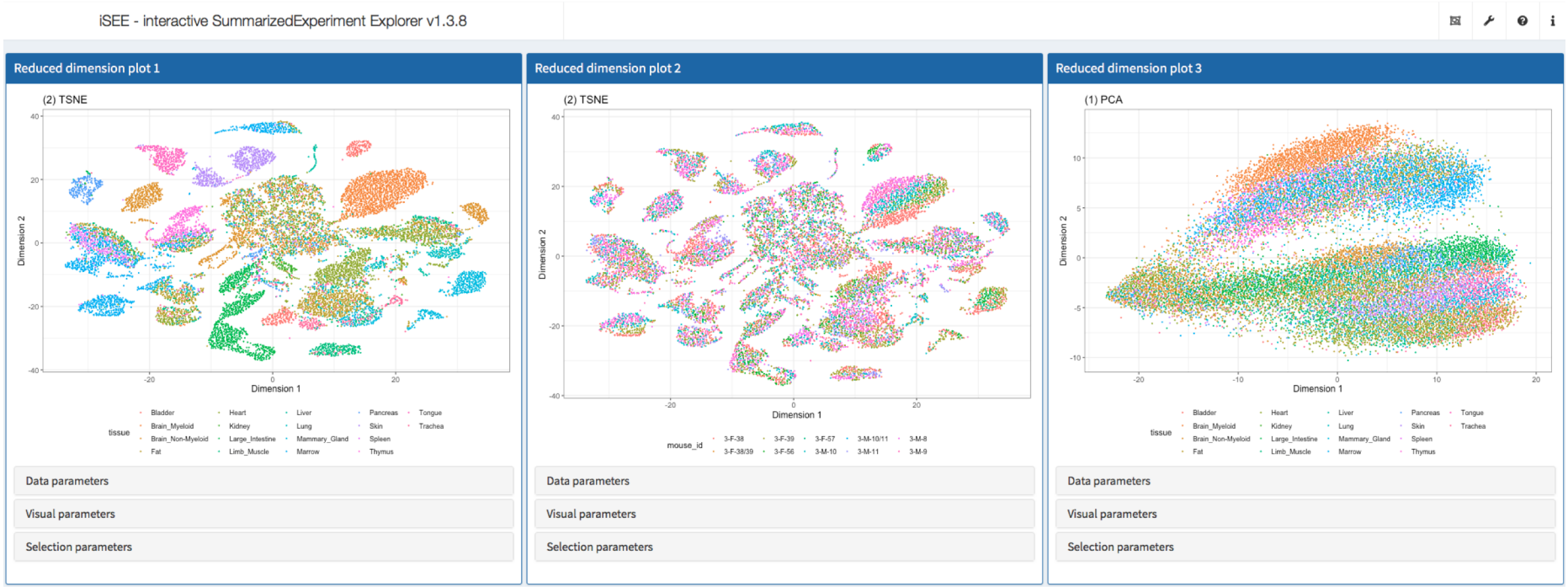
iSEEu -
modes and custom panels for iSEE

Bioc Dev Forum, Dec 2019

> iSEE(sce)


iSEE - interactive SummarizedExperiment Explorer v1.3.8
Reduced dimension plot 1
(2) TSNE
Dimension 1
Dimension 2
tissue
Bladder
Brain_Myeloid
Brain_Non-Myeloid
Fat
Heart
Kidney
Large_Intestine
Limb_Muscle
Liver
Lung
Mammary_Gland
Marrow
Pancreas
Skin
Spleen
Thymus
Tongue
Trachea
Data parameters
Visual parameters
Selection parameters
Feature assay plot 1
Apoe vs tissue
Apoe (logcounts)
Sample assay plot 1
A1.B000126.3_39_F.1.1 vs A1.B000127.3_38_F.1.1
A1.B000126.3_39_F.1.1 (logcounts)
A1.B000127.3_38_F.1.1 (logcounts)
Column data plot 1
tissue vs mouse_id
mouse_id
Row data plot 1
pct_dropout_by_counts vs log10_mean_counts
pct_dropout_by_counts
log10_mean_counts
Column statistics table 1
Show 10 entries
Search:
cell
plate_barcode
mouse_
A1.B000126.3_39_F.1.1 A1.B000126.3_39_F.1.1 B000126 3-F-39
A1.B000127.3_38_F.1.1 A1.B000127.3_38_F.1.1 B000127 3-F-38
A1.B000167.3_56_F.1.1 A1.B000167.3_56_F.1.1 B000167 3-F-56
A1.B000168.3_57_F.1.1 A1.B000168.3_57_F.1.1 B000168 3-F-57
A1.B000412.3_56_F.1.1 A1.B000412.3_56_F.1.1 B000412 3-F-56
A1.B000610.3_56_F.1.1 A1.B000610.3_56_F.1.1 B000610 3-F-56
A1.B000633.3_56_F.1.1 A1.B000633.3_56_F.1.1 B000633 3-F-56
A1.B000634.3_56_F.1.1 A1.B000634.3_56_F.1.1 B000634 3-F-56
A1.B000636.3_56_F.1.1 A1.B000636.3_56_F.1.1 B000636 3-F-56
A1.B000826.3_39_F.1.1 A1.B000826.3_39_F.1.1 B000826 3-F-39
Showing 1 to 10 of 53,760 entries
Row statistics table 1
Show 10 entries
Search:
ID
Symbol
is_feature_control
0610005C13Rik 0610005C13Rik 0610005C13Rik false
0610007C21Rik 0610007C21Rik 0610007C21Rik false
0610007L01Rik 0610007L01Rik 0610007L01Rik false
0610007N19Rik 0610007N19Rik 0610007N19Rik false
0610007P08Rik 0610007P08Rik 0610007P08Rik false
0610007P14Rik 0610007P14Rik 0610007P14Rik false
0610007P22Rik 0610007P22Rik 0610007P22Rik false
0610008F07Rik 0610008F07Rik 0610008F07Rik false
0610009B14Rik 0610009B14Rik 0610009B14Rik false
0610009B22Rik 0610009B22Rik 0610009B22Rik false
Showing 1 to 10 of 23,433 entries

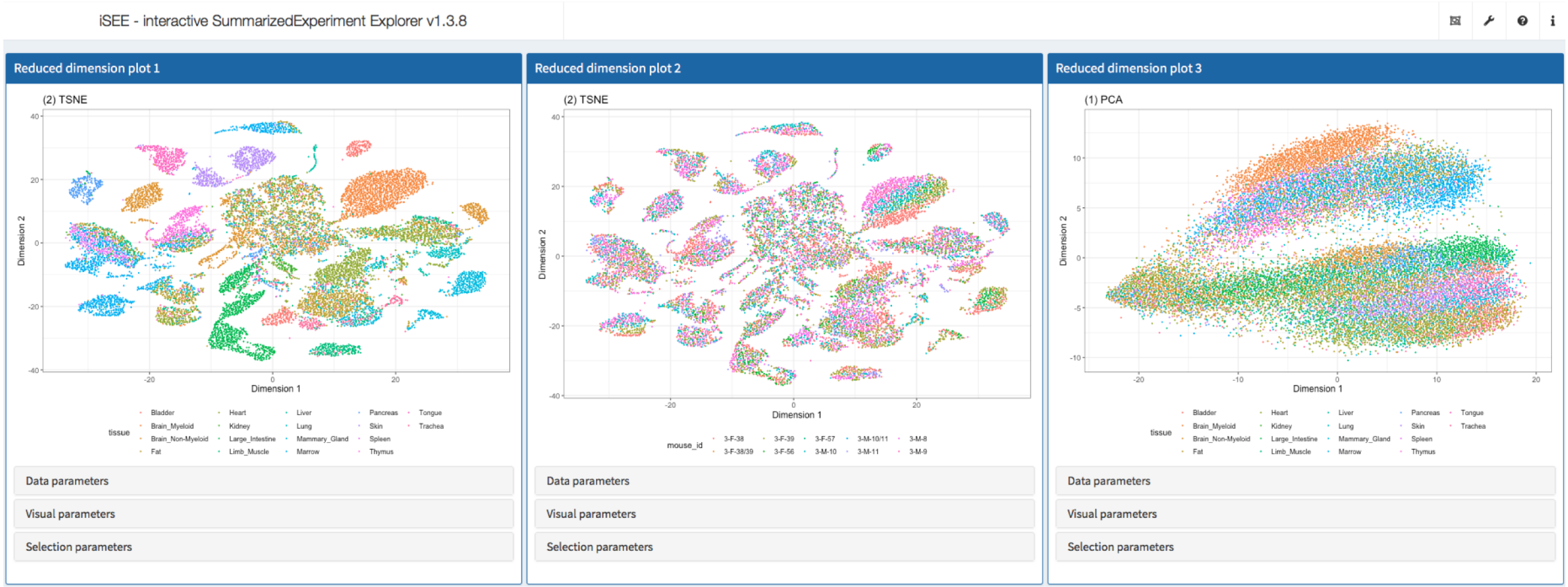
What if we want this?



Panel settings

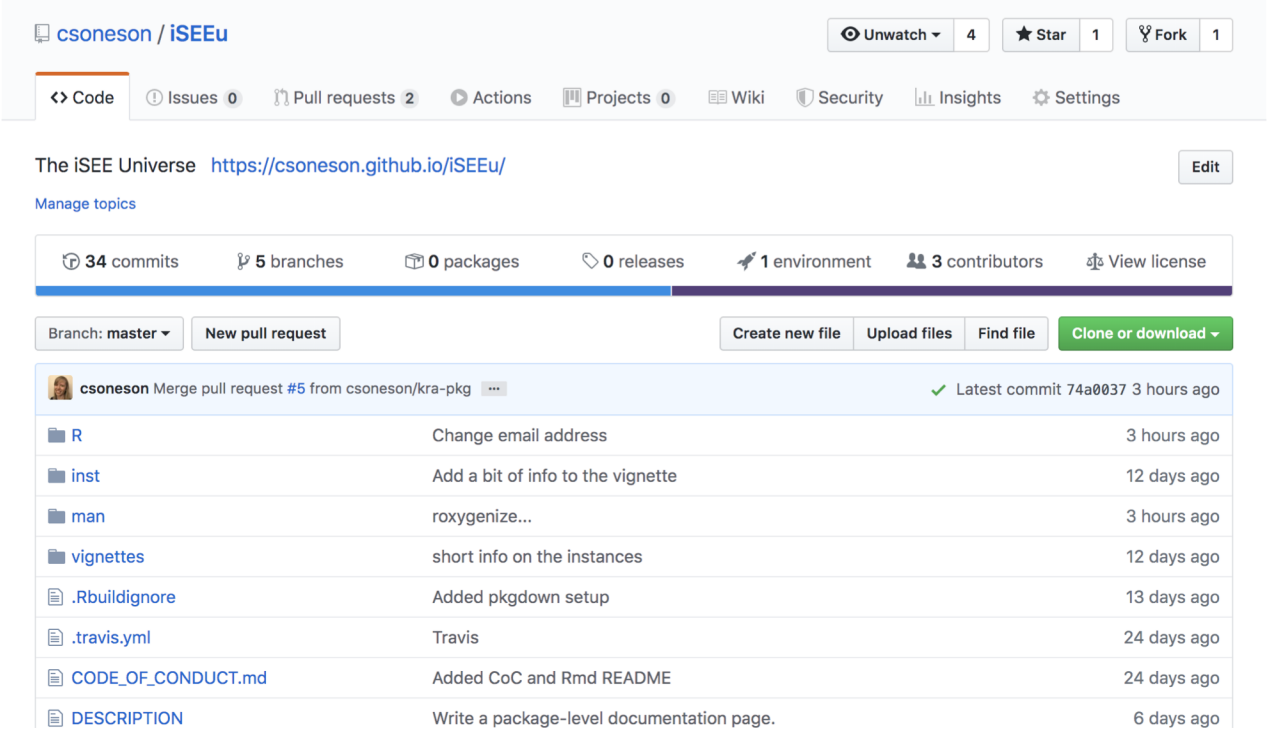
```
redDimPlotArgs[['SelectAlpha']] <- c(0.1, 0.1, 0.1, 0.1, 0.1)
redDimPlotArgs[['SelectColor']] <- c("#FF0000", "red", "red", "red", "red")

tmp <- vector('list', 5)
redDimPlotArgs[['BrushData']] <- tmp

tmp <- vector('list', 5)
redDimPlotArgs[['MultiSelectHistory']] <- tmp
redDimPlotArgs[['SelectMultiType']] <- c("Active", "Active", "Active", "Active", "Active")
redDimPlotArgs[['SelectMultiSaved']] <- c(0L, 0L, 0L, 0L, 0L)

tmp <- vector('list', 5)
tmp[[1]] <- "Color"
tmp[[2]] <- "Color"
tmp[[3]] <- "Color"
tmp[[4]] <- "Color"
tmp[[5]] <- "Color"
redDimPlotArgs[['VisualChoices']] <- tmp
redDimPlotArgs[['PointSize']] <- c(1, 1, 1, 1, 1)
redDimPlotArgs[['PointAlpha']] <- c(1, 1, 1, 1, 1)
redDimPlotArgs[['Downsample']] <- c(FALSE, FALSE, FALSE, FALSE, FALSE)
redDimPlotArgs[['SampleRes']] <- c(200, 200, 200, 200, 200)
redDimPlotArgs[['FontSize']] <- c(1, 1, 1, 1, 1)
redDimPlotArgs[['LegendPosition']] <- c("Bottom", "Bottom", "Bottom", "Bottom", "Bottom")

tmp <- vector('list', 5)
redDimPlotArgs[['ZoomData']] <- tmp

tmp <- vector('list', 5)
redDimPlotArgs[['LassoData']] <- tmp
redDimPlotArgs[['ContourAdd']] <- c(FALSE, FALSE, FALSE, FALSE, FALSE)
redDimPlotArgs[['ContourColor']] <- c("#0000FF", "blue", "blue", "blue", "blue")
redDimPlotArgs[['ColorBy']] <- c("None", "None", "None", "None", "None")
redDimPlotArgs[['ColorByDefaultColor']] <- c("#000000", "black", "black", "black", "black")
redDimPlotArgs[['ColorByColData']] <- c("NREADS", "NREADS", "NREADS", "NREADS", "NREADS")
redDimPlotArgs[['ShapeBy']] <- c("None", "None", "None", "None", "None")
redDimPlotArgs[['ShapeByColData']] <- c("driver_1_s", "driver_1_s", "driver_1_s", "driver_1_s", "driver_1_s")
redDimPlotArgs[['SizeBy']] <- c("None", "None", "None", "None", "None")
```

> modeRedDim(sce)

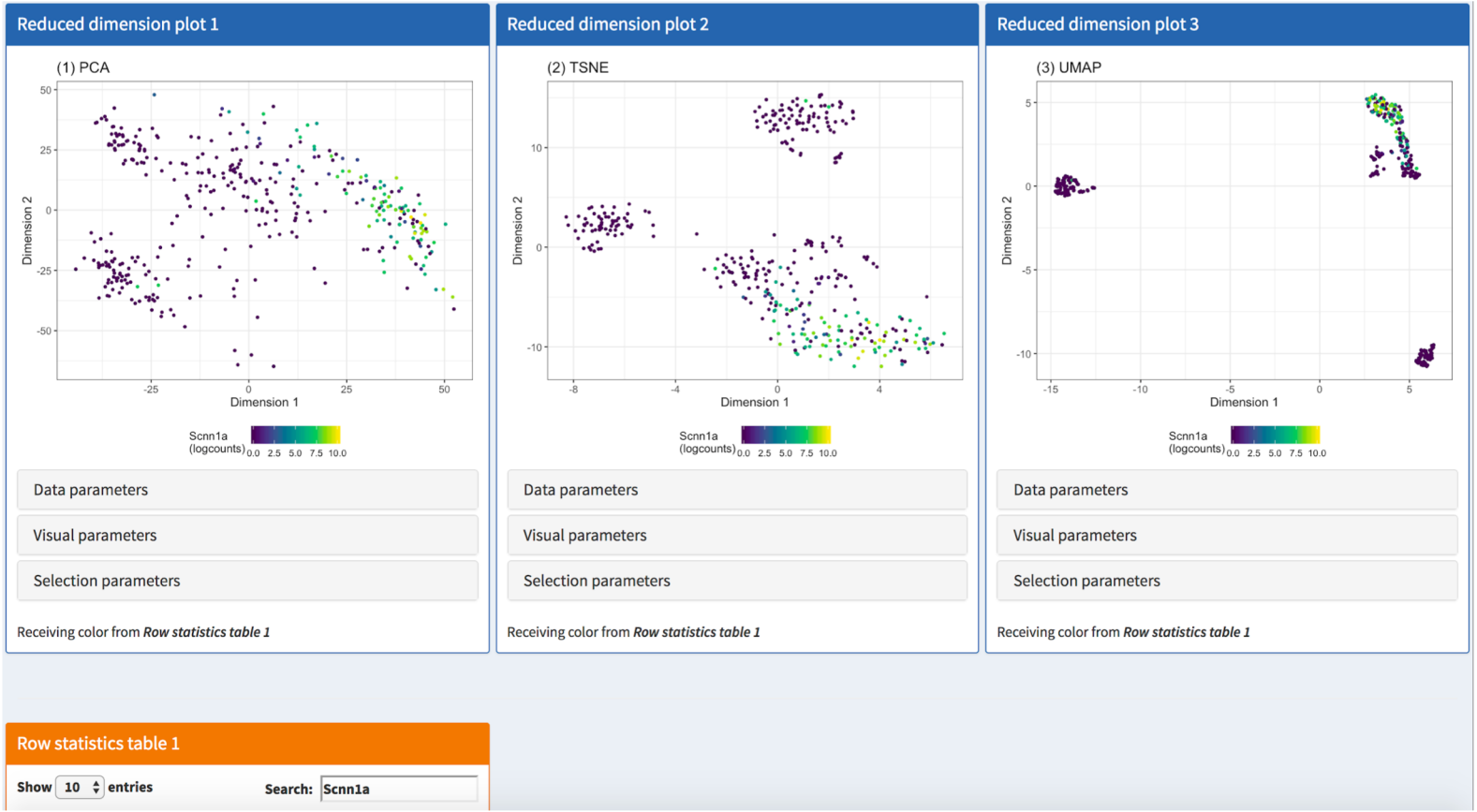


The iSEE universe (iSEEu)

https://github.com/csoneson/iSEEu

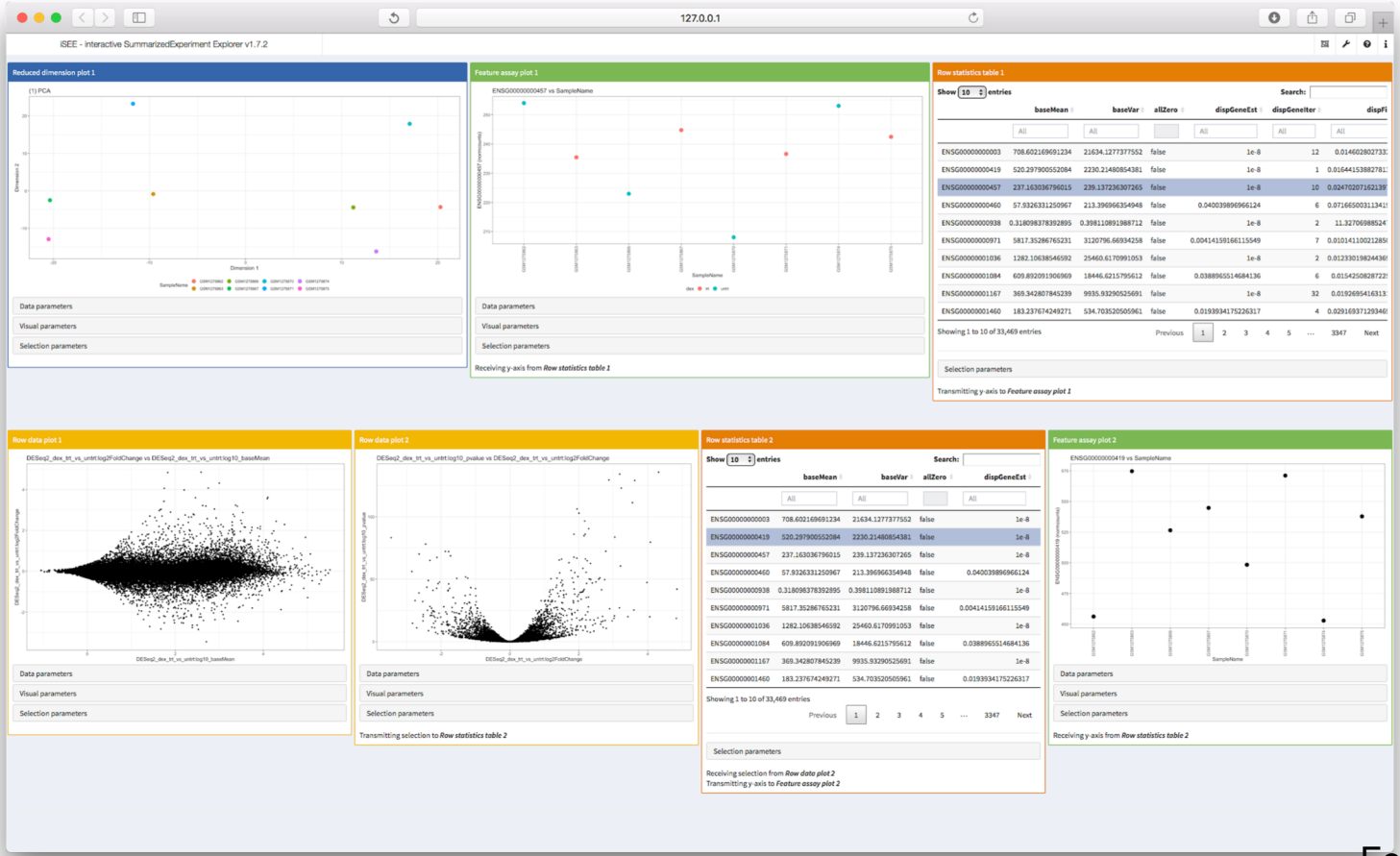


> modeReducedDim(sce, colorBy = "Scnn1a")



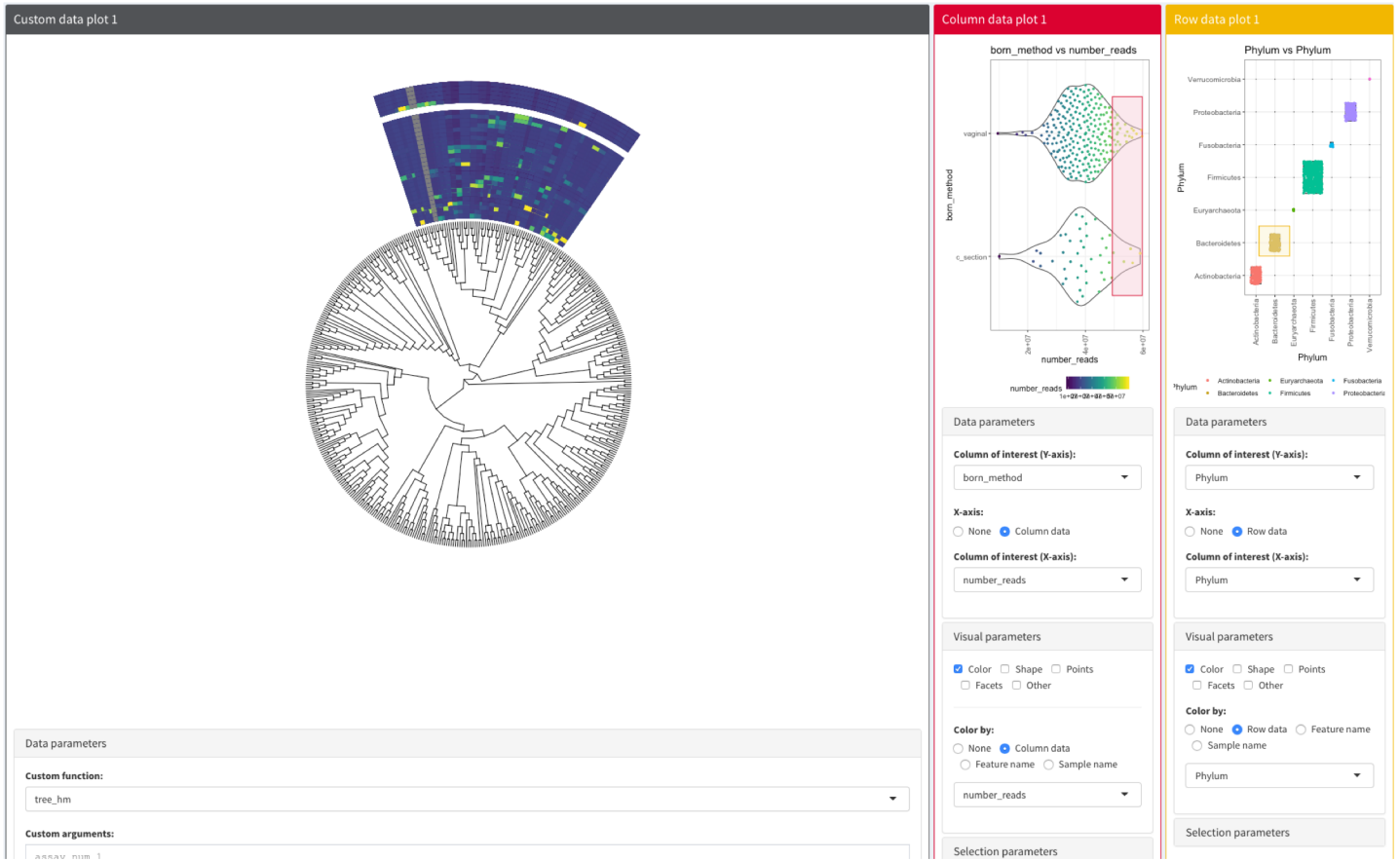
Michael Stadler

> modeDEbulk(sce)



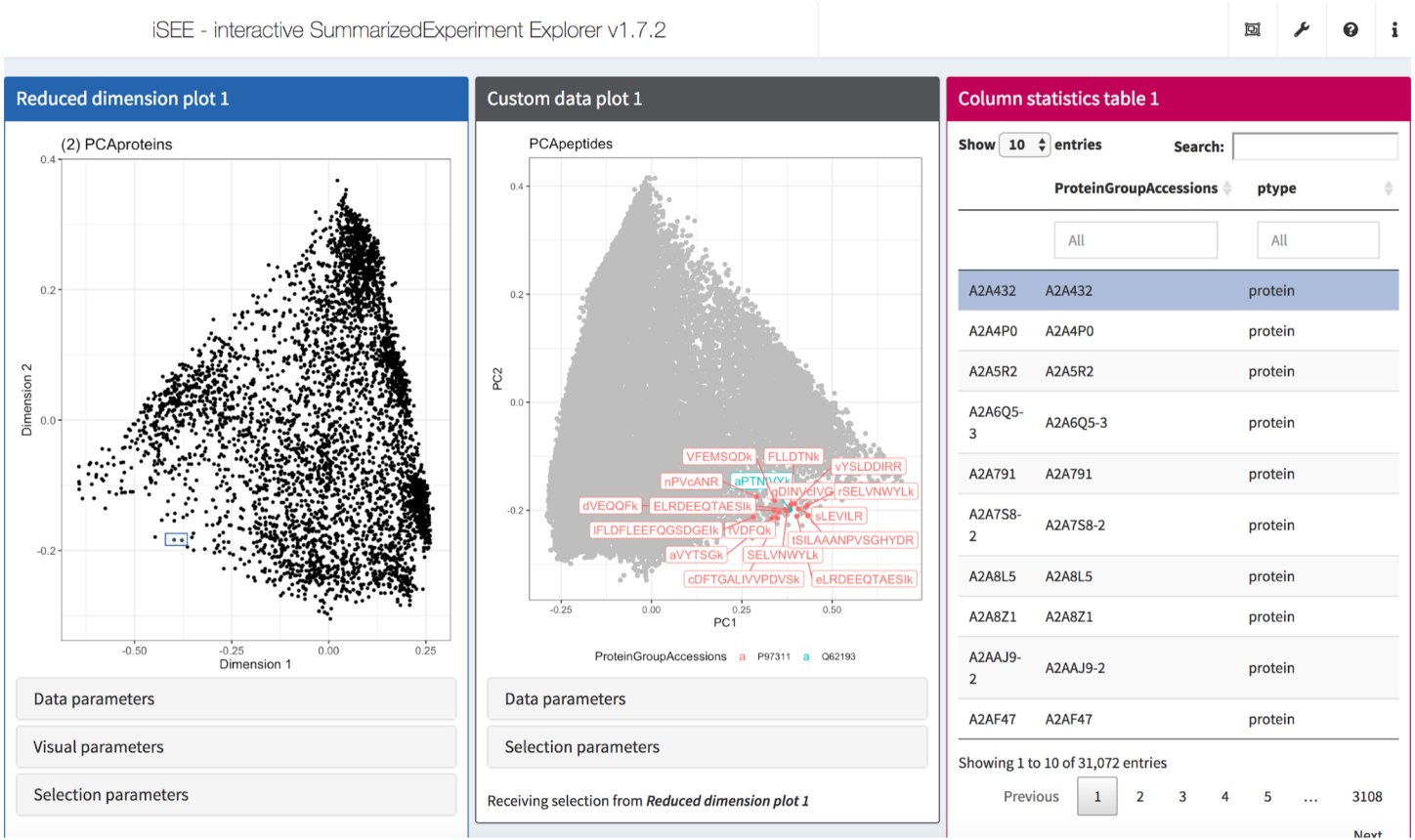
Federico Marini

> modeTree(tse)



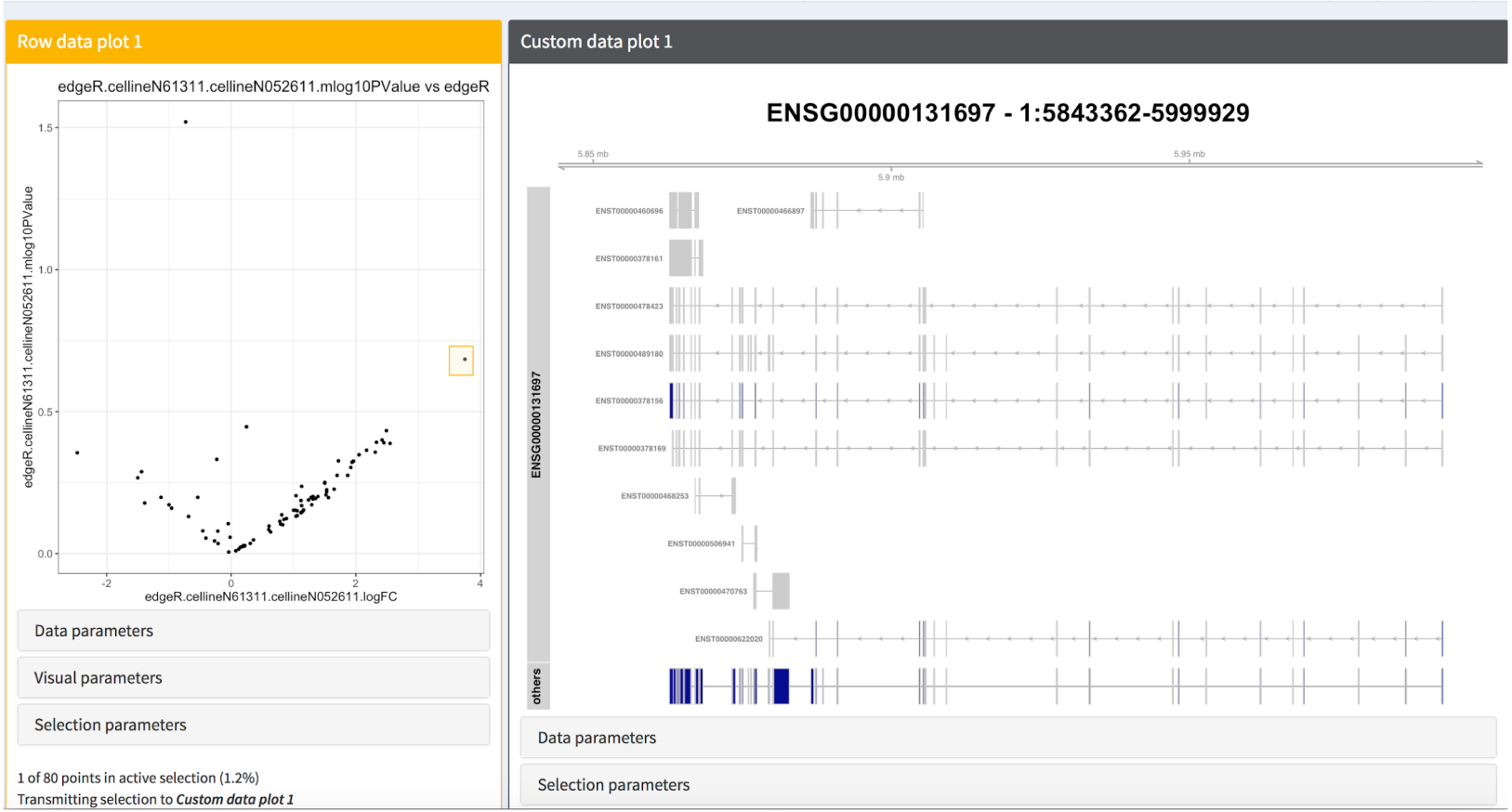
Fiona Huang

> modeProteomicsPCA(proteins, peptides)



Charlotte Soneson

> modeGviz(se)

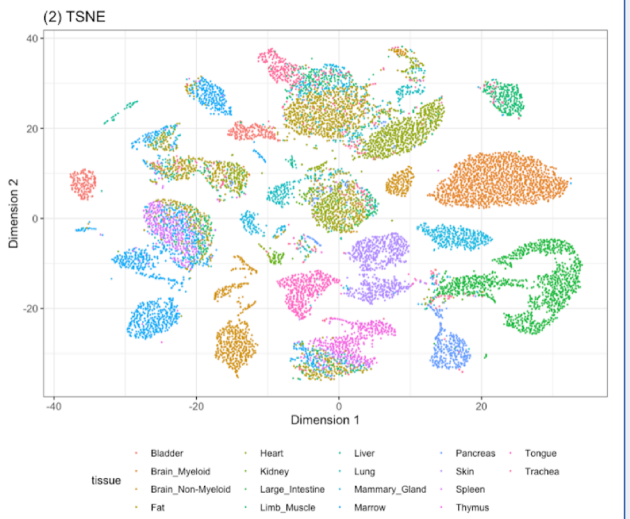


Pierre-Luc Germain

> modeSneakPeek(sce)

iSEE v1.3.8 - Tabula Muris smartseq data

Reduced dimension plot 1



Data parameters

Visual parameters

Selection parameters

Row statistics table 1

Show 10 entries Search:

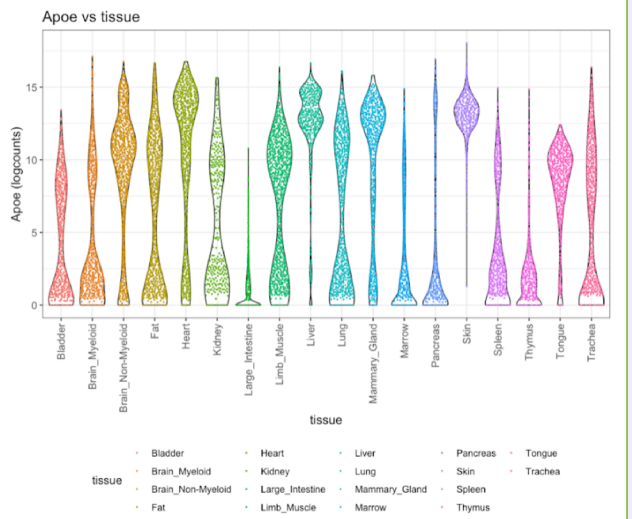
	ID	Symbol	ENSEMBL
	All	All	All
0610005C13Rik	0610005C13Rik	0610005C13Rik	ENSMUSG00
0610007C21Rik	0610007C21Rik	0610007C21Rik	
0610007L01Rik	0610007L01Rik	0610007L01Rik	
0610007N19Rik	0610007N19Rik	0610007N19Rik	
0610007P08Rik	0610007P08Rik	0610007P08Rik	
0610007P14Rik	0610007P14Rik	0610007P14Rik	
0610007P22Rik	0610007P22Rik	0610007P22Rik	
0610008F07Rik	0610008F07Rik	0610008F07Rik	
0610009B14Rik	0610009B14Rik	0610009B14Rik	
0610009B22Rik	0610009B22Rik	0610009B22Rik	ENSMUSG00

Showing 1 to 10 of 23,036 entries

Previous 1 2 3 4 5 … 2304 Next

Selection parameters

Feature assay plot 1



Data parameters

Visual parameters

Selection parameters

Pablo Rodriguez

Want to contribute?

#iSEE slack channel

https://github.com/csoneson/iSEEu

iSEE 2.0 is coming

iSEE version 2.0

A & K

New architecture

Each panel type is now an S4 class:

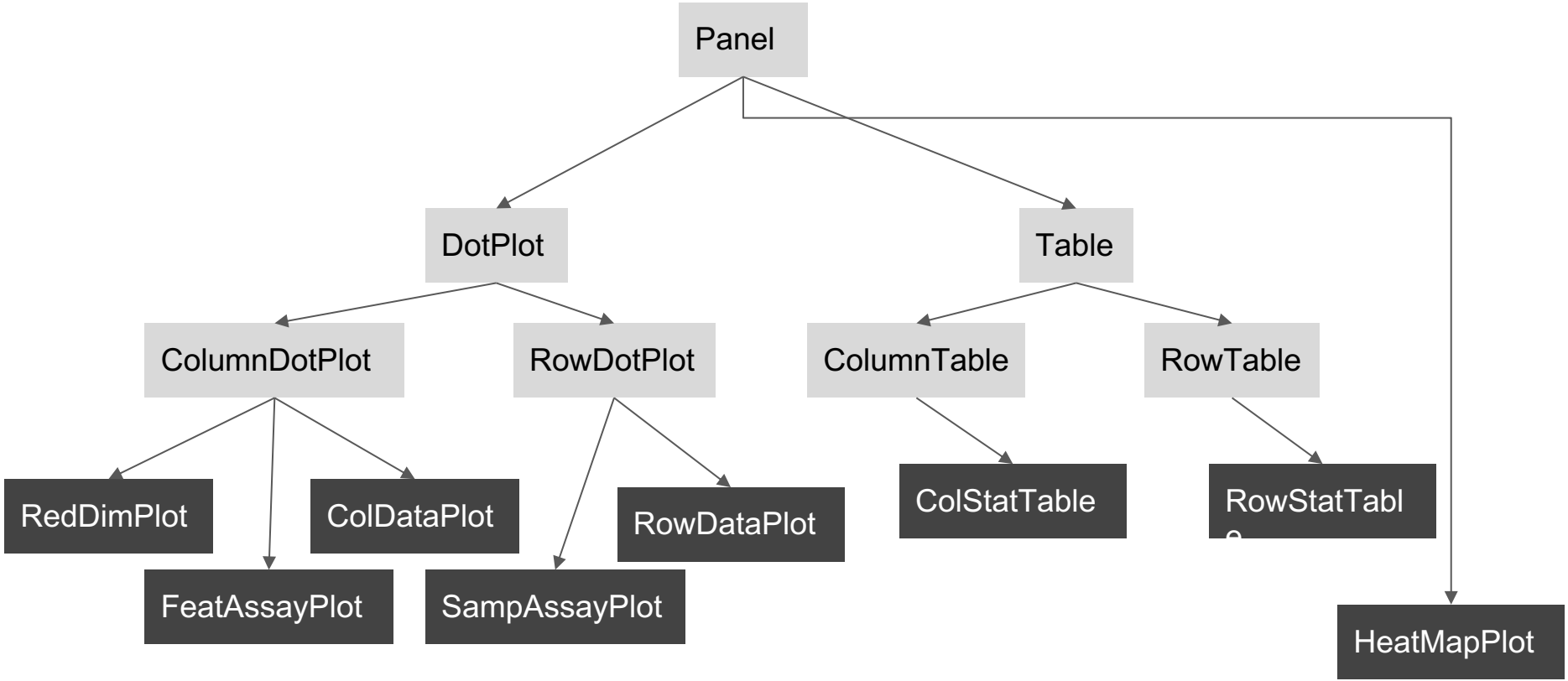
- Natural validity checks on input arguments
- Improved internal organization of UI, observers
- Improved efficiency during app initialization
- Easier extensibility

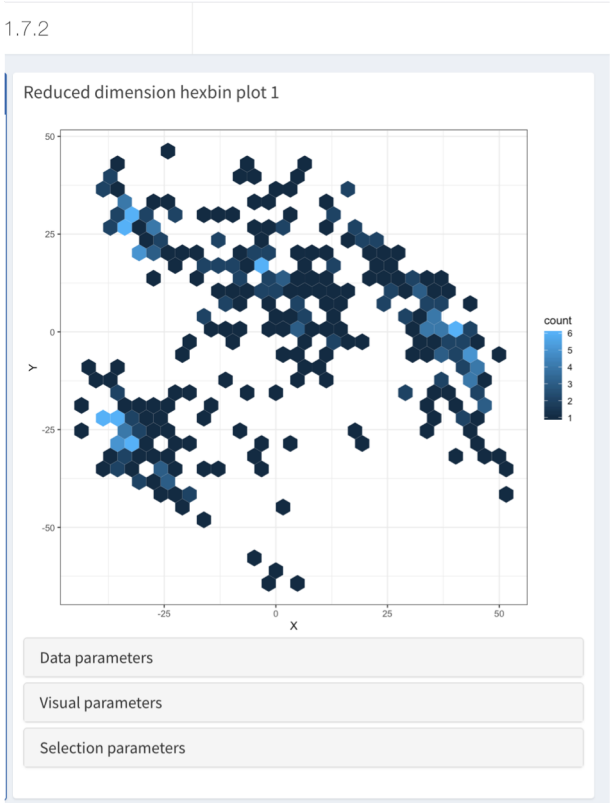
Tables can now transmit selections (based on search) to plots.

Plots can now transmit single choices to other plots (e.g., color by selected point).

Fun loading spinner.

Current S4 class hierarchy



Flexible extensibility

- Inherit from existing concrete class and specialize specific methods (if desired).
- Inherit from virtual class and write methods from scratch.
- Add/overwrite UI elements, observers for native integration into shiny.