Introduction

In this tutorial we provide a basic overview of Spectre's graphing and violin plot options, with statistical analysis included.

```
library('Spectre')
package.load()

sum.dat <- Spectre::demo.sum
sum.dat
```

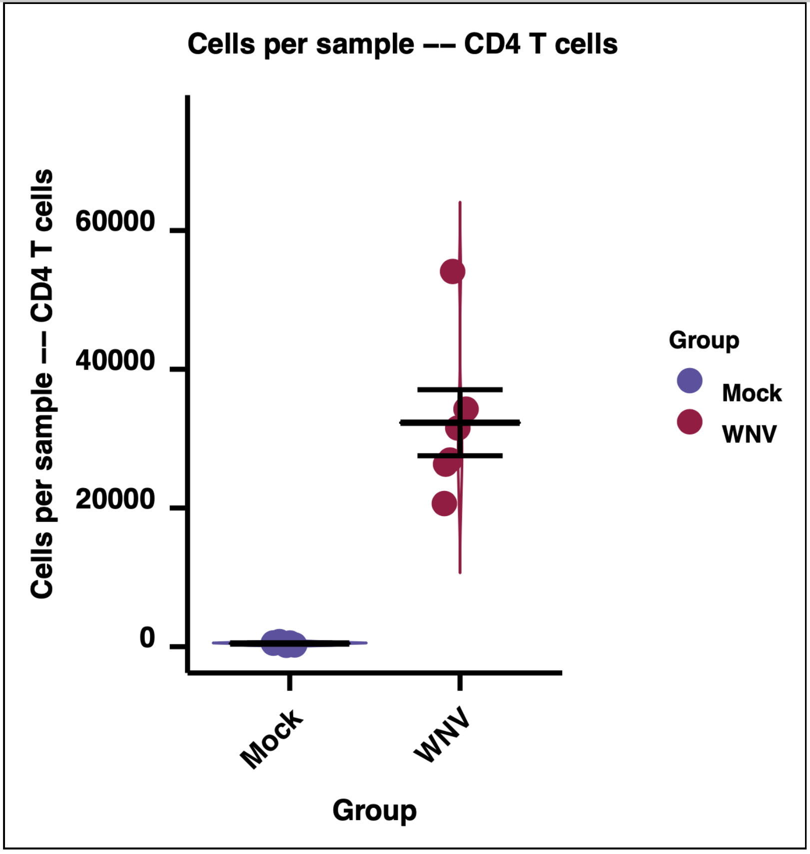
```
        Sample Group Batch Cells per sample -- CD4 T cells Cells per sample -- CD8 T cells Cells per
sample -- Infil Macrophages    ...
 1: 01_Mock_01  Mock     A                        734.6282                       2696.9910
2143.504    ...
 2: 02_Mock_02  Mock     B                        506.0006                       1037.9500
2536.490    ...
 3: 03_Mock_03  Mock     B                        540.5026                       1003.7905
2470.869    ...
 4: 04_Mock_04  Mock     A                        252.2882                        404.8345
1965.501    ...
 5: 05_Mock_05  Mock     A                        201.5021                        549.5512
2198.205    ...
 6: 06_Mock_06  Mock     B                        531.5886                       1308.5259
4722.961    ...
 7:  07_WNV_01   WNV     A                      54094.7075                      50529.2479
605738.162    ...
 8:  08_WNV_02   WNV     B                      20636.9741                      23901.9282
674243.824    ...
 9:  09_WNV_03   WNV     A                      26314.1446                      34814.6759
678792.425    ...
10:  10_WNV_04   WNV     A                      26910.2796                      32397.4082
652559.687    ...
11:  11_WNV_05   WNV     B                      31520.7836                      36292.8545
644041.191    ...
12:  12_WNV_06   WNV     A                      34251.3184                      37500.6658
645714.590    ...
```

```
as.matrix(names(sum.dat))
```

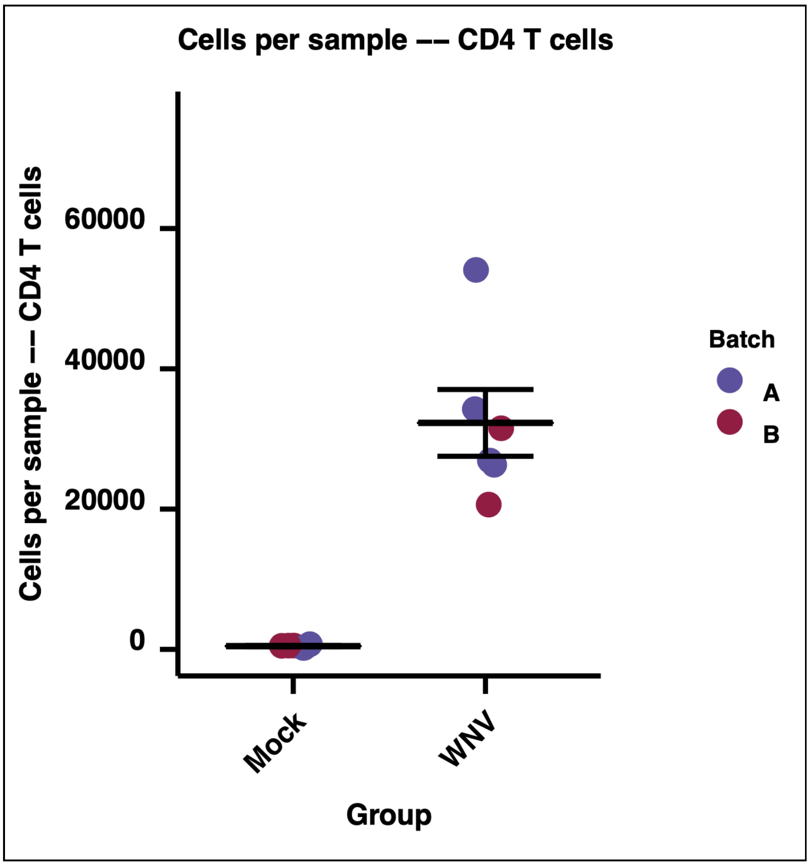
```
      [,1]
 [1,] "Sample"
 [2,] "Group"
 [3,] "Batch"
 [4,] "Cells per sample -- CD4 T cells"
 [5,] "Cells per sample -- CD8 T cells"
 [6,] "Cells per sample -- Infil Macrophages"
 [7,] "Cells per sample -- Microglia"
 [8,] "Cells per sample -- Neutrophils"
 [9,] "Cells per sample -- NK cells"
[10,] "Percent Ly6C_asinh positive -- CD4 T cells"
[11,] "Percent Ly6C_asinh positive -- CD8 T cells"
[12,] "Percent Ly6C_asinh positive -- Infil Macrophages"
[13,] "Percent Ly6C_asinh positive -- Microglia"
[14,] "Percent Ly6C_asinh positive -- Neutrophils"
[15,] "Percent Ly6C_asinh positive -- NK cells"
```

```
getwd()
```

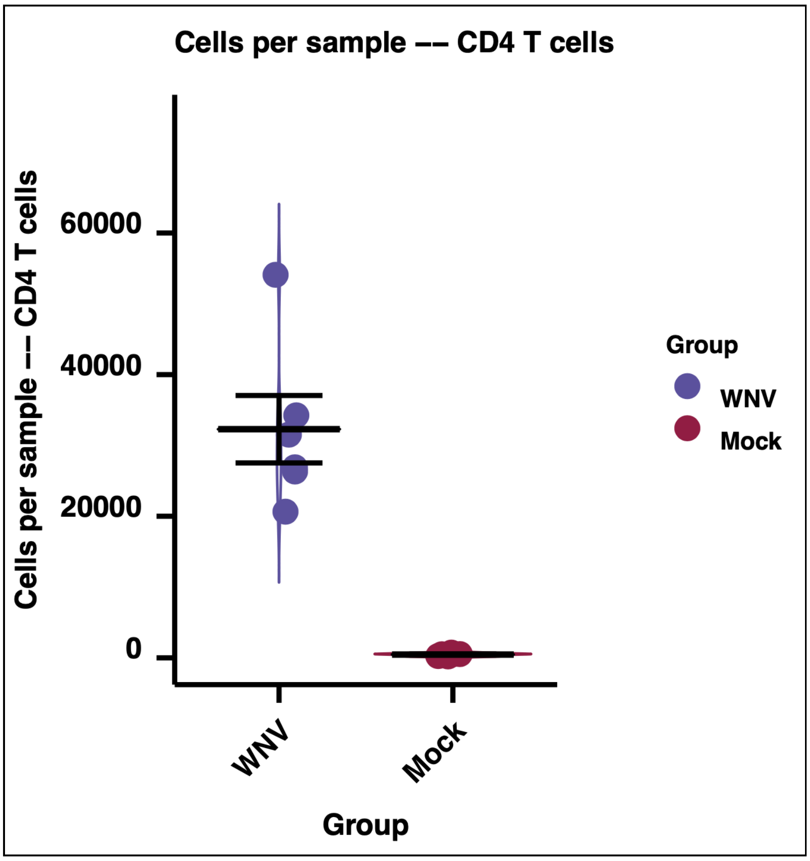
```
make.autograph(dat = sum.dat,
               x.axis = 'Group',
               y.axis = 'Cells per sample -- CD4 T cells')
```



```
make.autograph(dat = sum.dat,
               x.axis = 'Group',
               y.axis = 'Cells per sample -- CD4 T cells',
               colour.by = 'Batch',
               violin = FALSE)
```



```
make.autograph(dat = sum.dat,
               x.axis = 'Group',
               y.axis = 'Cells per sample -- CD4 T cells',
               grp.order = c('WNV', 'Mock'))
```


Cells per sample -- CD4 T cells
Cells per sample -- CD4 T cells
60000
40000
20000
0
WNV
Mock
Group
Group
● WNV
● Mock