Right APOE4 Disaggregated by Sex

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Interpeduncular Nucleus
Red points denoting outliers
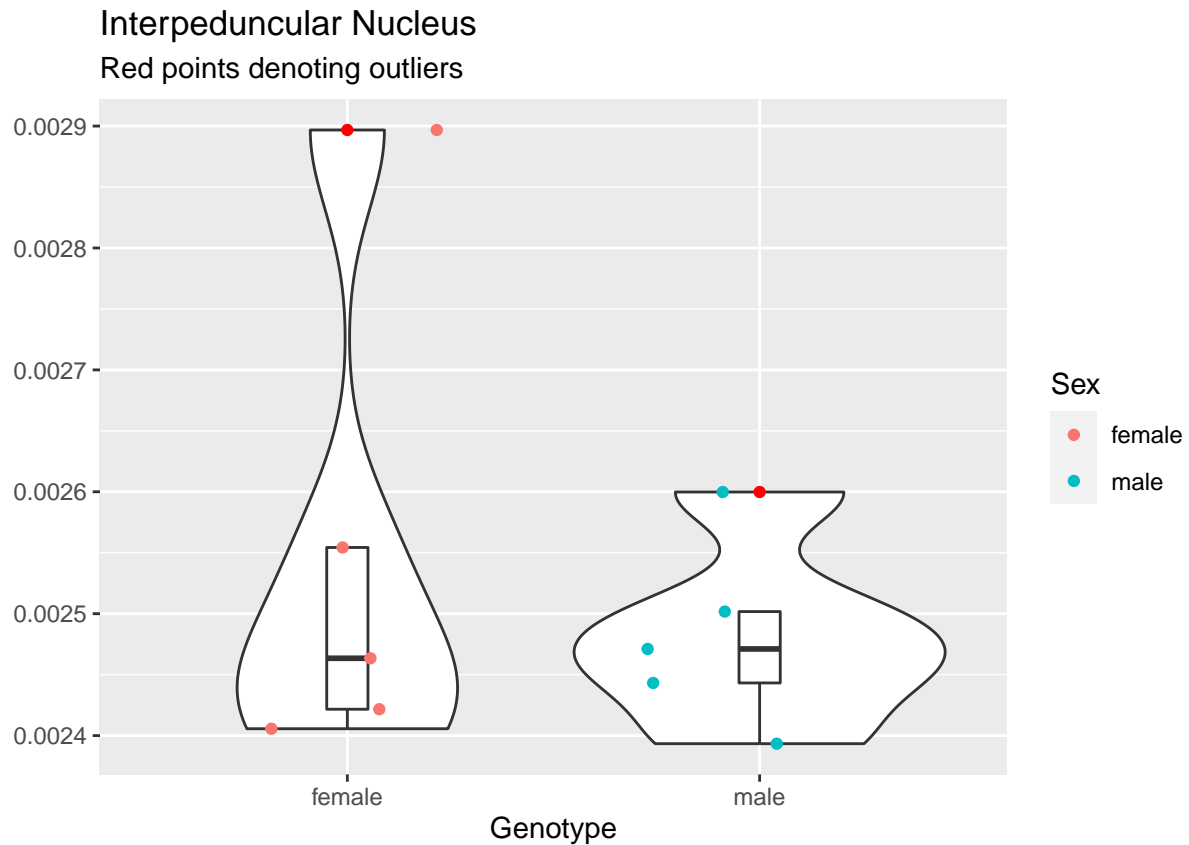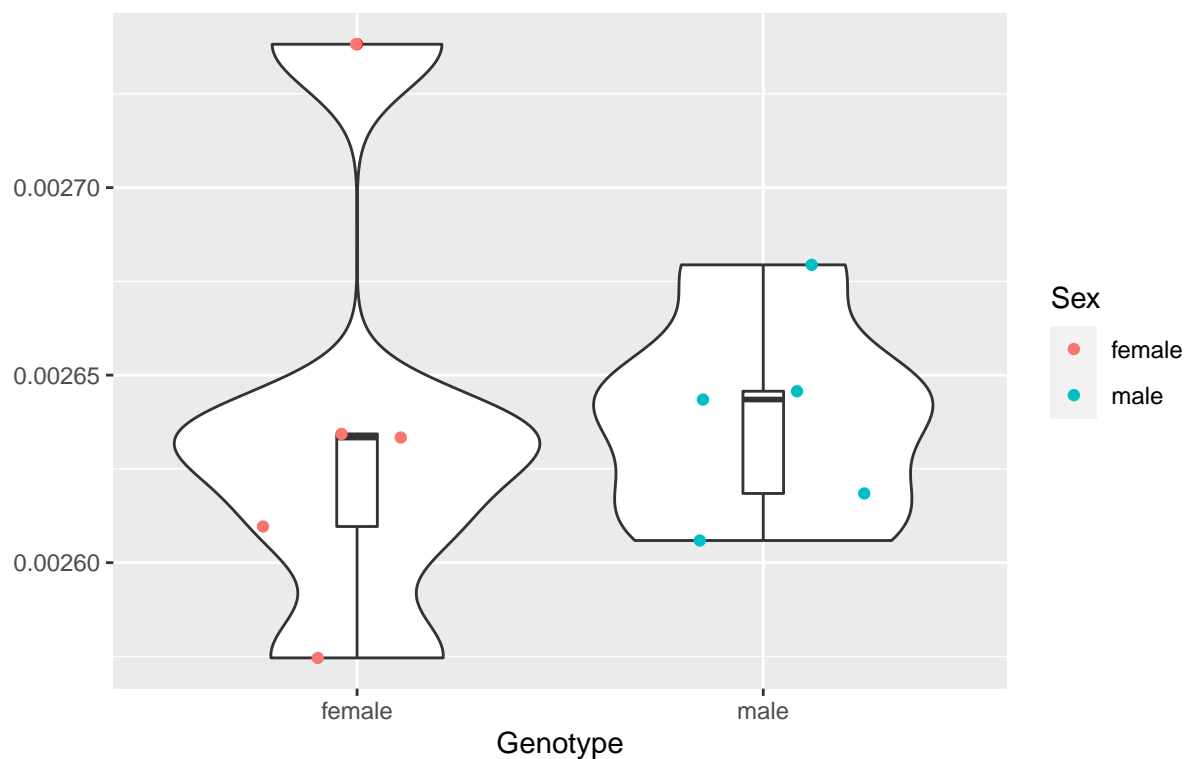


```
##              Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.107e-08 1.107e-08   0.469  0.513
## Residuals     8 1.888e-07 2.360e-08
```

Cerebellar Cortex
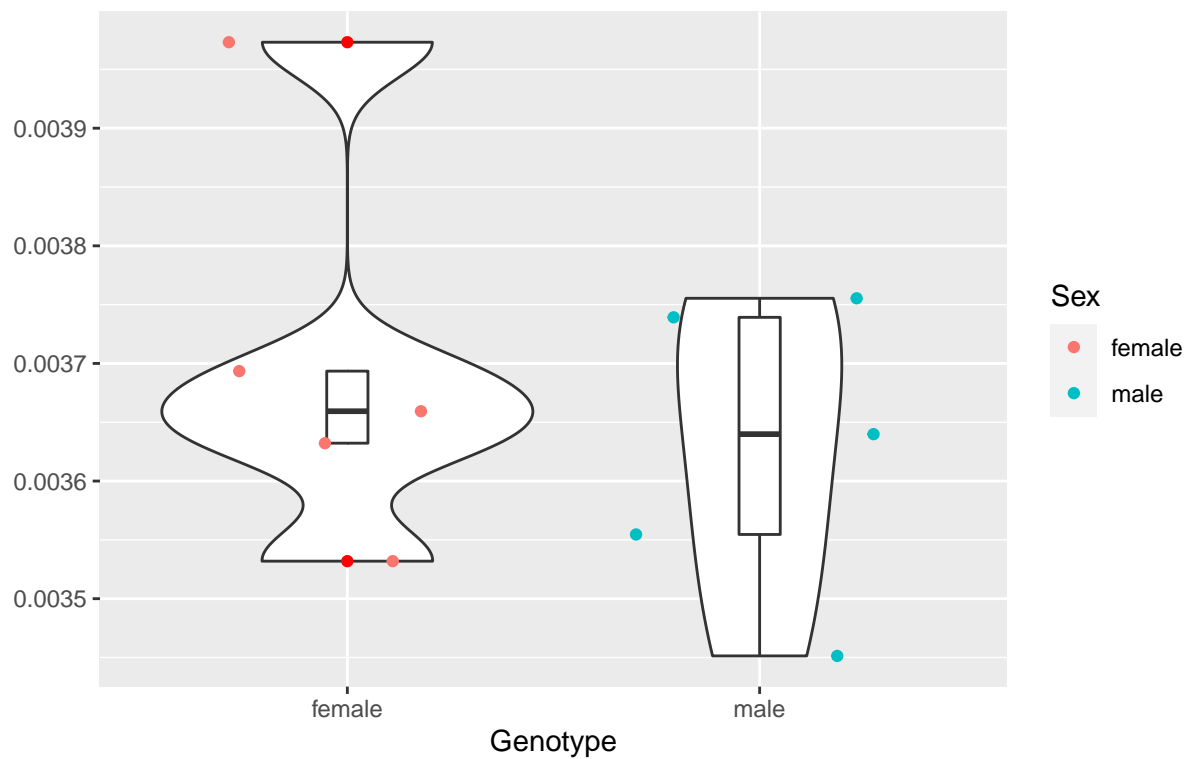Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.000e-12 8.000e-13       0  0.986
## Residuals    8 1.812e-08 2.265e-09
```
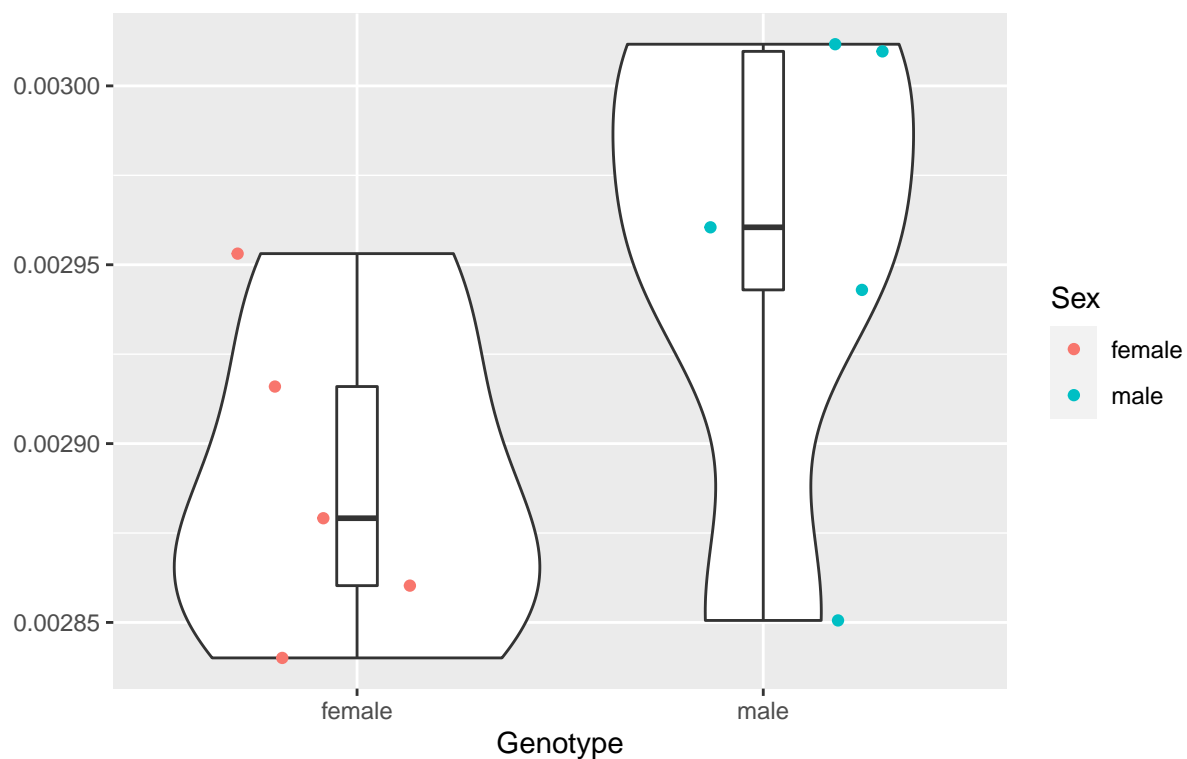
Dentate (Lateral) Nucleus of Cerebellum
Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.223e-08 1.223e-08   0.561  0.475
## Residuals    8 1.745e-07 2.181e-08
```

Interposed Nucleus of Cerebellum
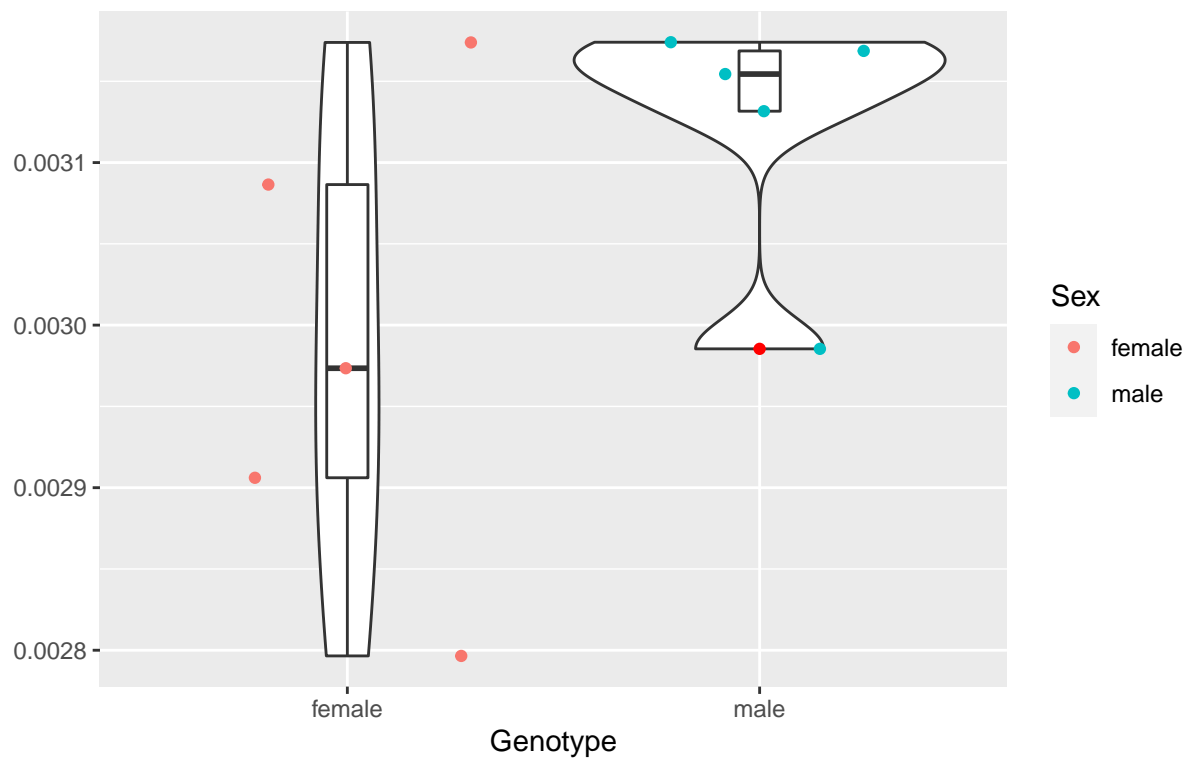Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.067e-08 1.067e-08   3.359  0.104
## Residuals    8 2.542e-08 3.178e-09
```

Fastigial Medial Dorsolateral Nucleus of Cerebellum
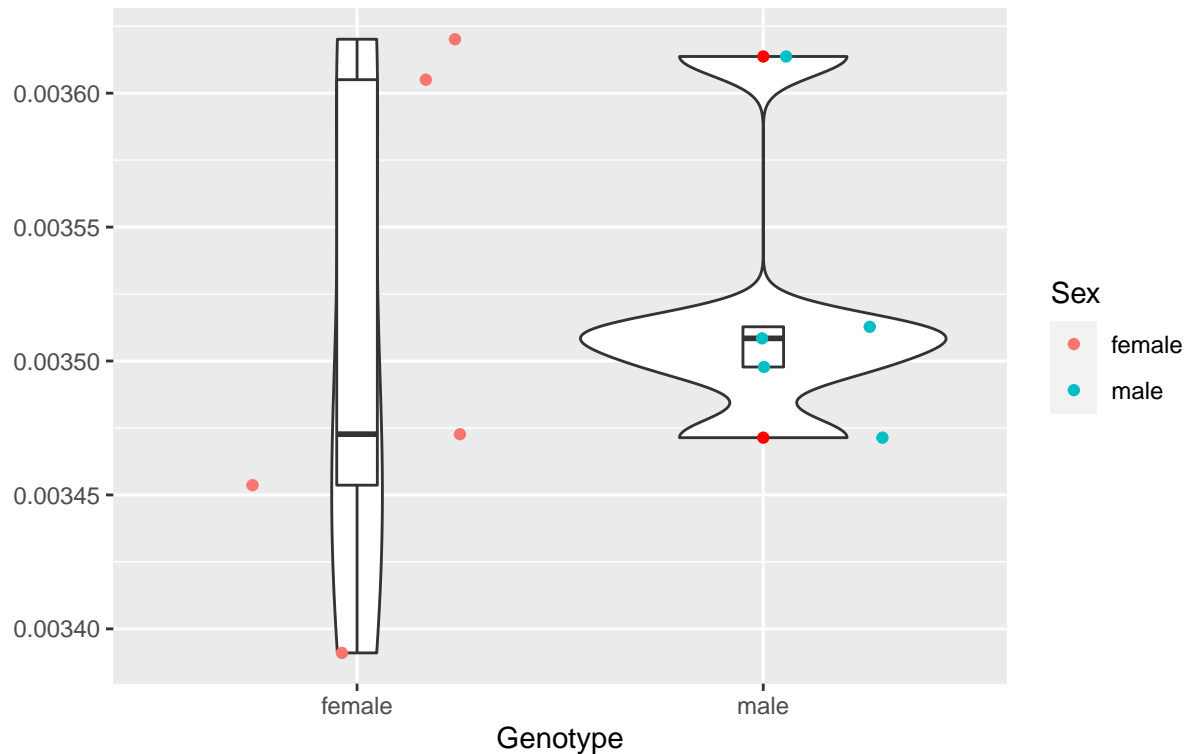Red points denoting outliers


```
##              Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex           1 4.593e-08 4.593e-08   3.266  0.108
## Residuals     8 1.125e-07 1.407e-08
```

Fastigial Medial Nucleus of Cerebellum
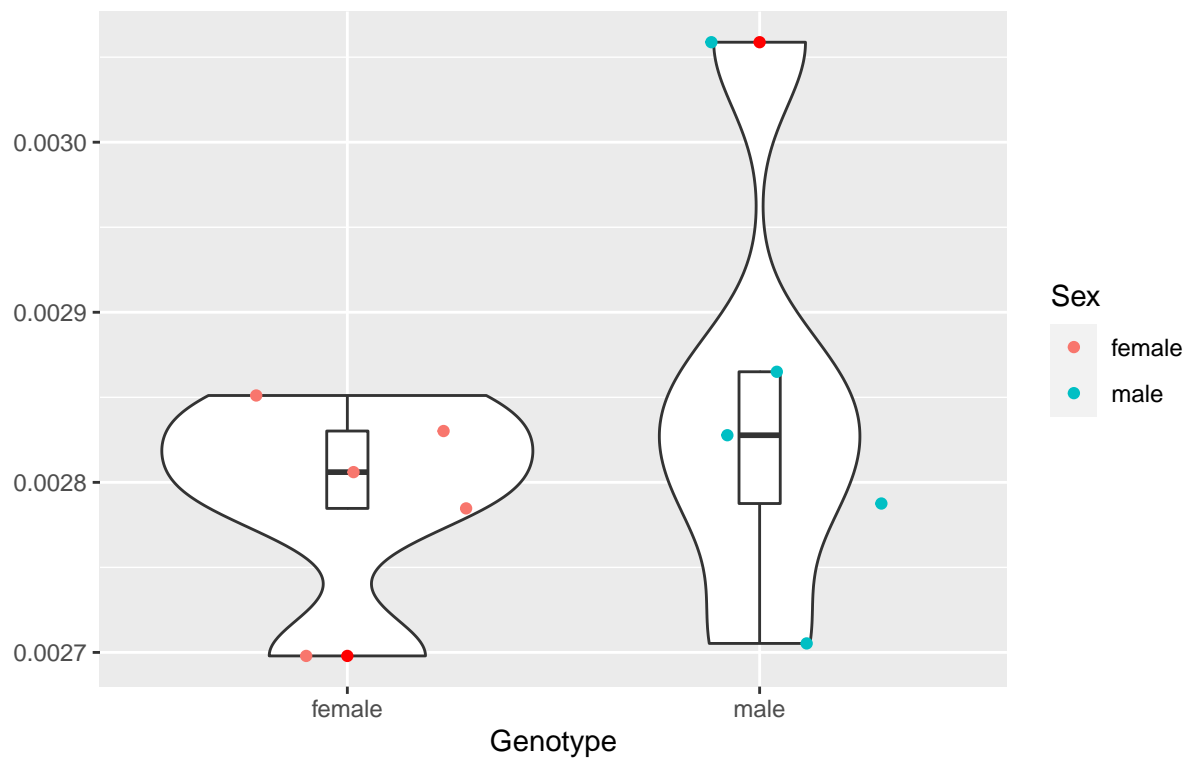Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.80e-10 3.790e-10   0.059  0.815
## Residuals    8 5.17e-08 6.462e-09
```

#"'{r VII, echo = FALSE} #ggplot(data = apoe4, aes(factor(Sex), VII)) + #geom_violin() + #geom_boxplot(width = 0.1, outlier.color = "red") + #geom_jitter(height = 0, width = 0.3) + #labs(x = "Genotype", #y = "", #title ="Ventral Lateral Lemniscus Nucleus", #subtitle ="Red points denoting outliers")

#res.aov <- aov(VII ~ Sex, data = apoe4) #summary(res.aov) #"'
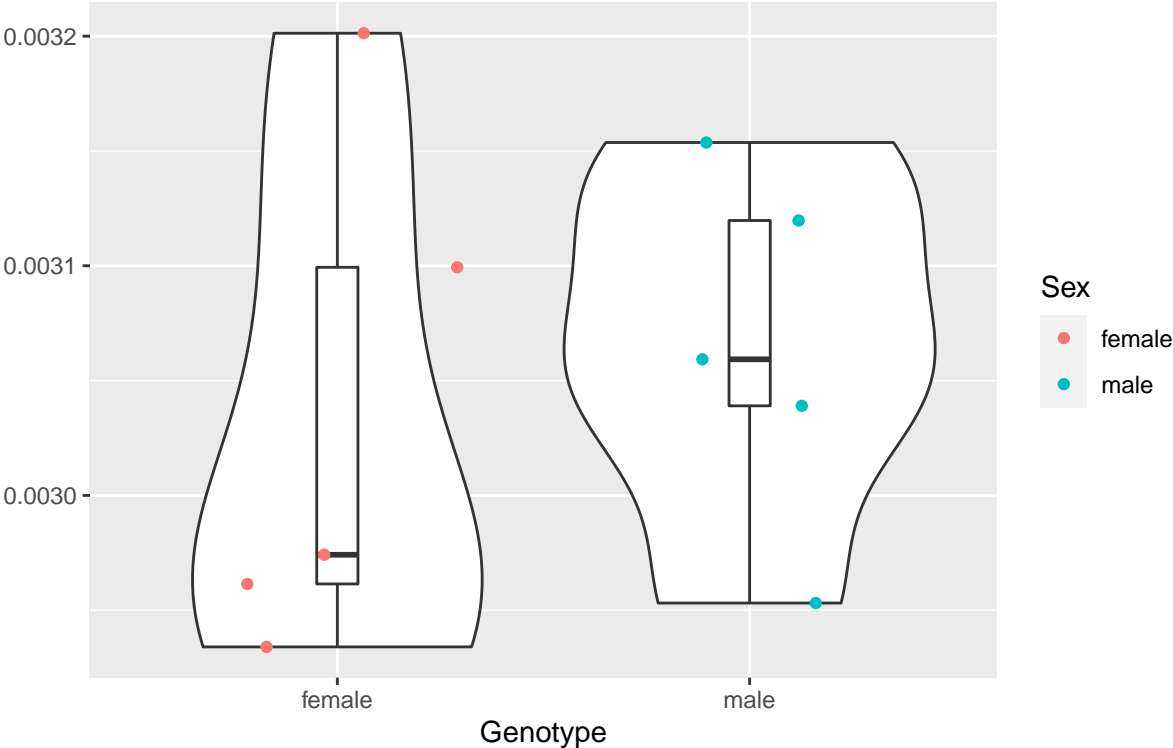
Parabrachial Nucleus
Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.530e-09 7.534e-09   0.725  0.419
## Residuals    8 8.317e-08 1.040e-08
```
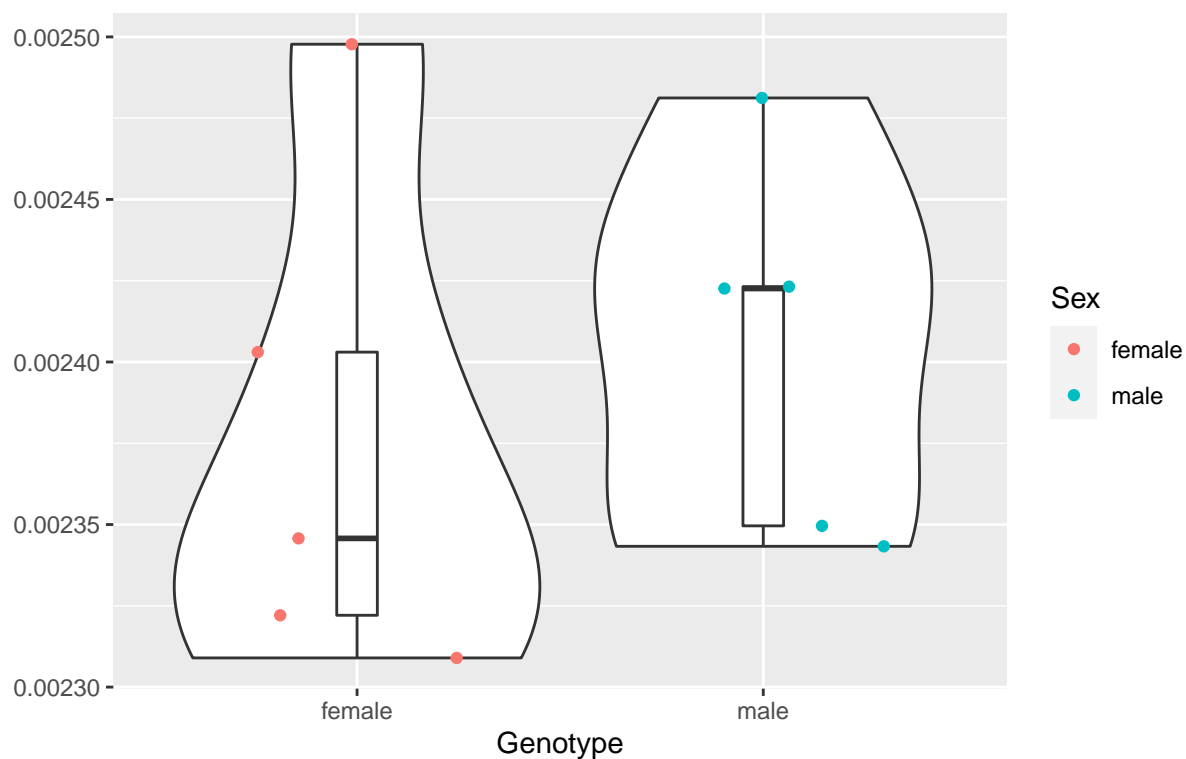
Parabrachial Medial Nucleus and Koelliker Fuse Nucleus

Red points denoting outliers


```
##             Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 2.390e-09 2.390e-09   0.254  0.628
## Residuals    8 7.519e-08 9.399e-09
```

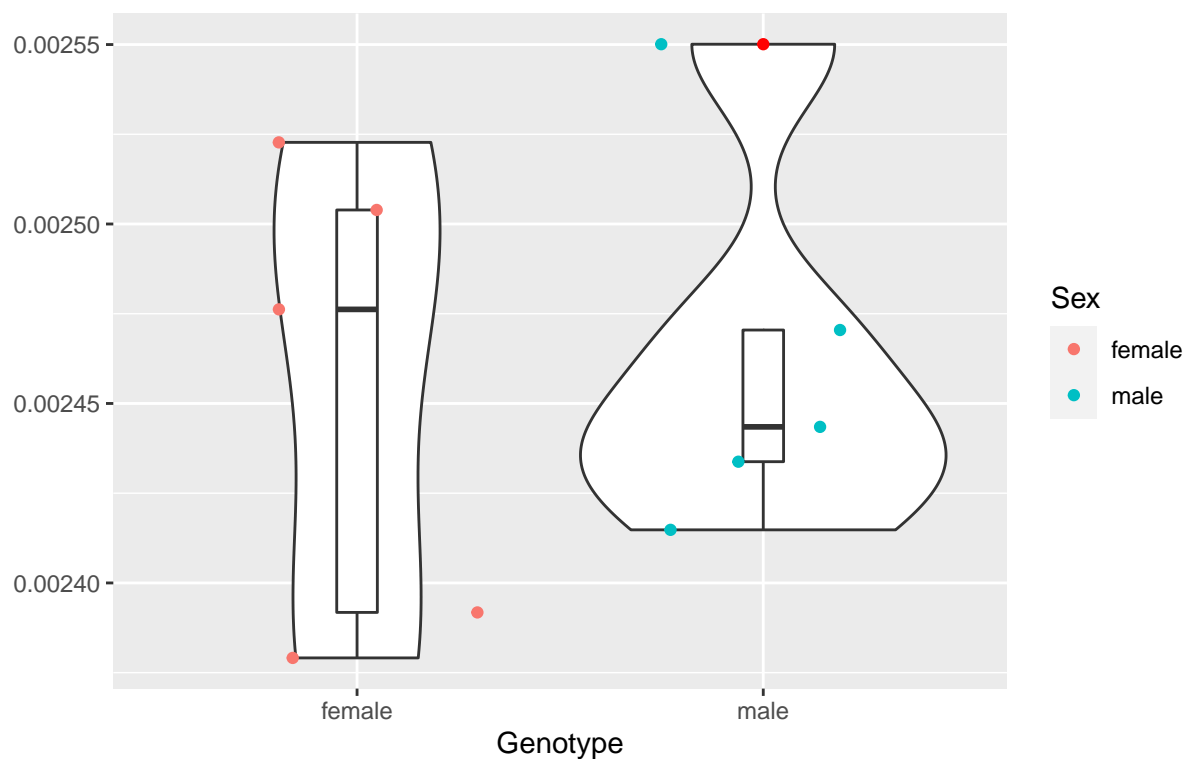# Parvicellular Reticular Nucleus and Principal Sensory Trigeminal Nucleu
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.020e-09 2.025e-09   0.436  0.528
## Residuals    8 3.719e-08 4.648e-09
```
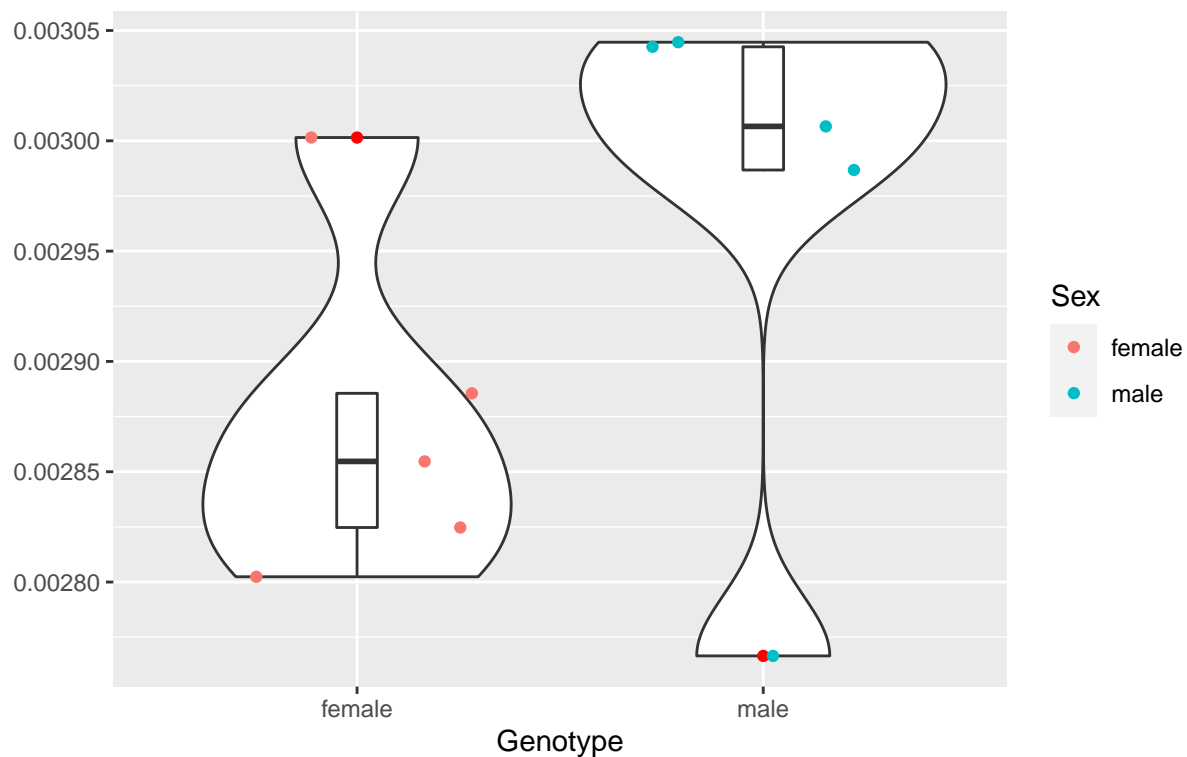
Central Gray
Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.510e-10 1.510e-10   0.043  0.842
## Residuals    8 2.838e-08 3.548e-09
```
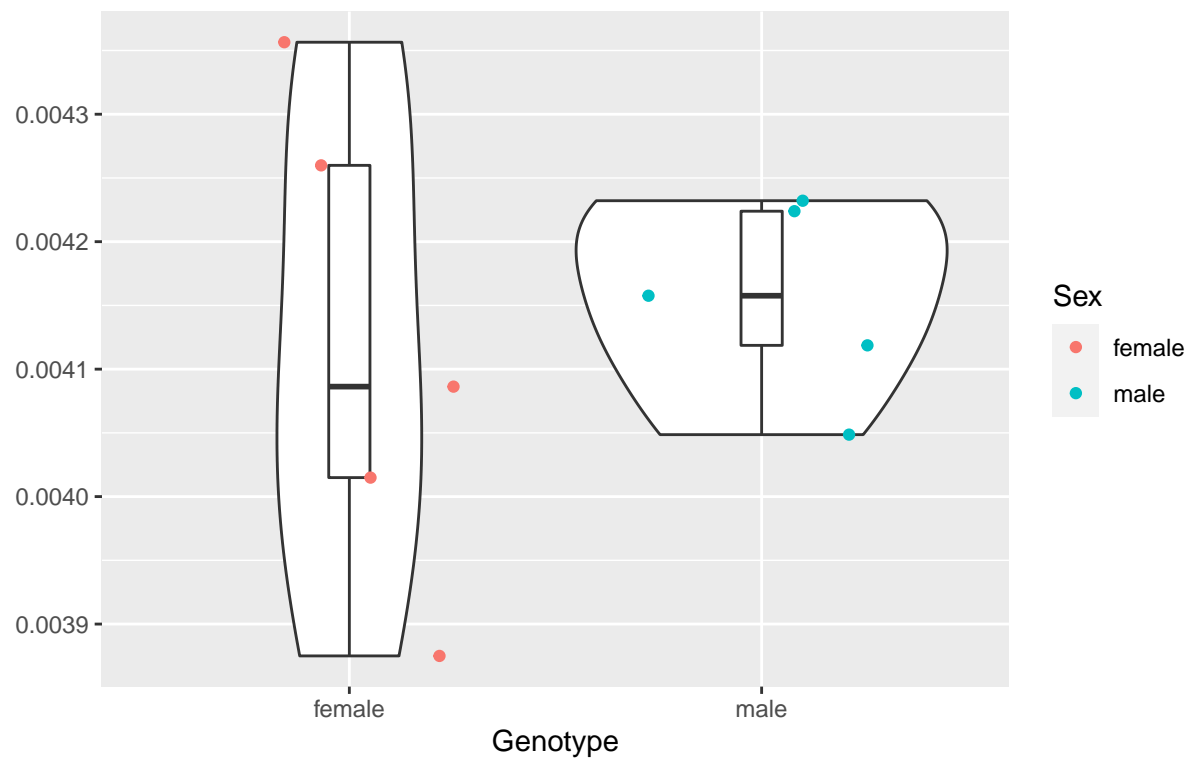
Pedunculotegmental Medial Paralemniscial and Supratrigemnial Nuclei
Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.288e-08 2.288e-08   2.341  0.165
## Residuals    8 7.818e-08 9.772e-09
```
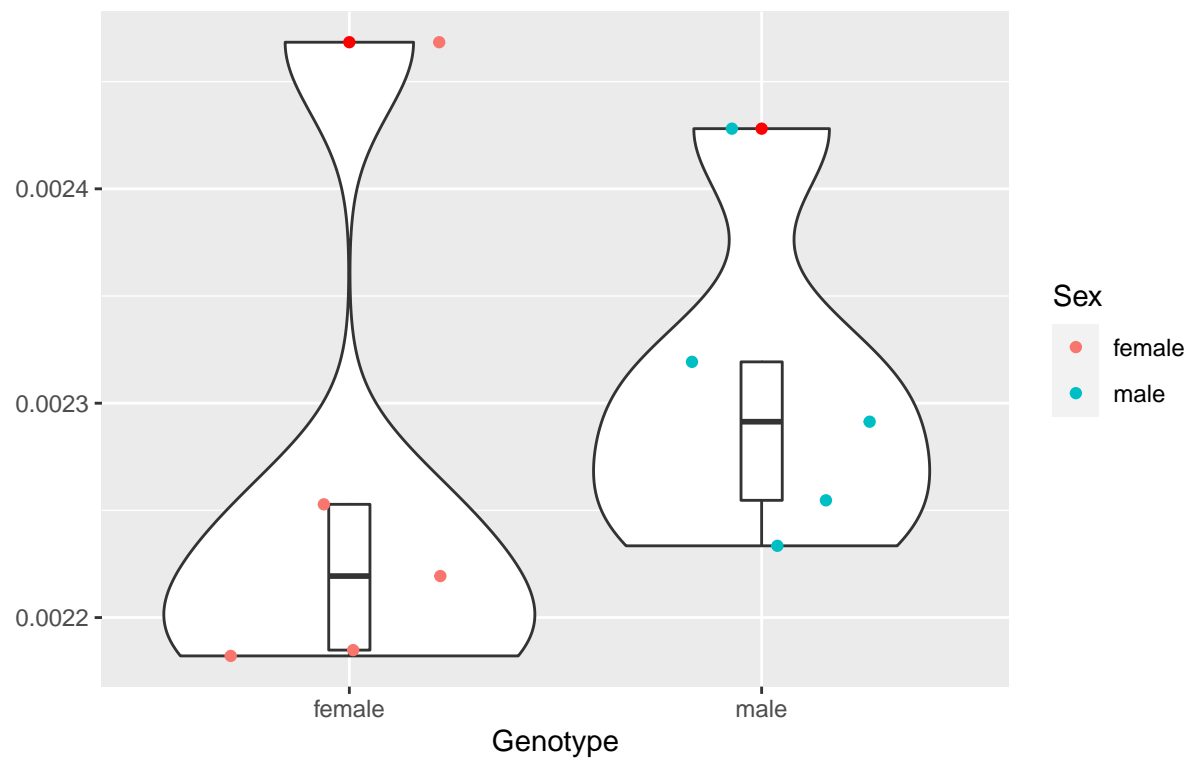
Motor Root of Trigeminal Nerve
Red points denoting outliers
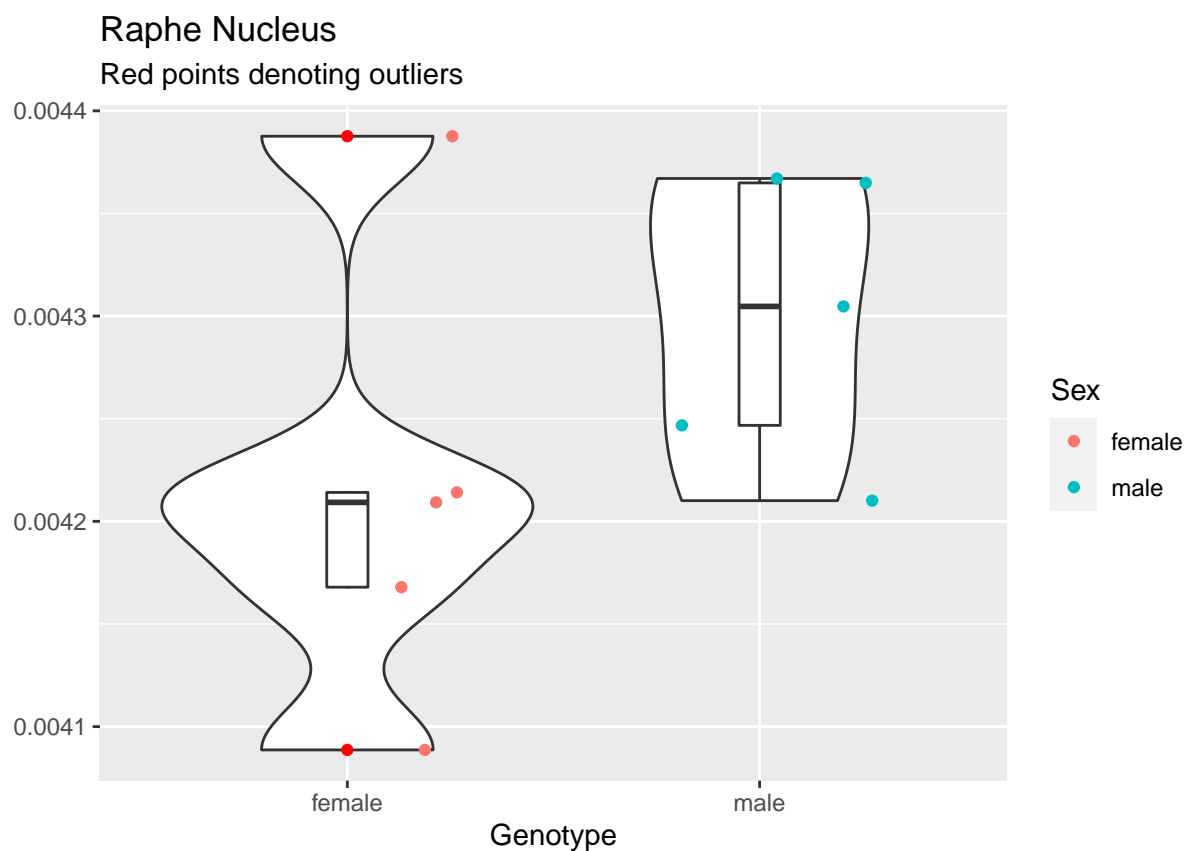


```
##           Df  Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 3.55e-09 3.549e-09   0.166  0.694
## Residuals  8 1.71e-07 2.138e-08
```

Trigeminal Motor Nucleus
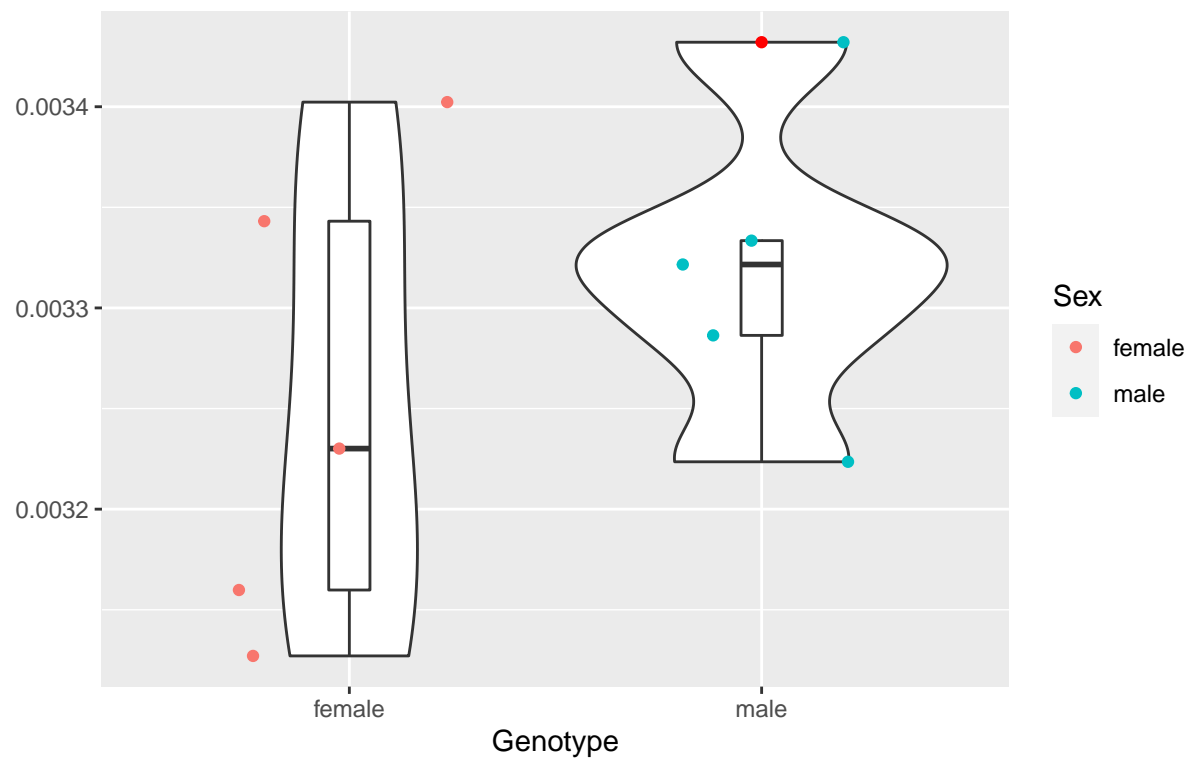Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.810e-09 4.812e-09   0.481  0.508
## Residuals   8 8.001e-08 1.000e-08
```

Pontine Reticular Nucleus
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.857e-08 1.857e-08   3.794 0.0873 .
## Residuals    8 3.916e-08 4.895e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Raphe Nucleus
Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.814e-08 1.814e-08   2.146  0.181
## Residuals   8 6.765e-08 8.456e-09
```
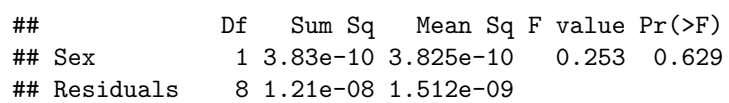
Trigeminal Sensory Nucleus
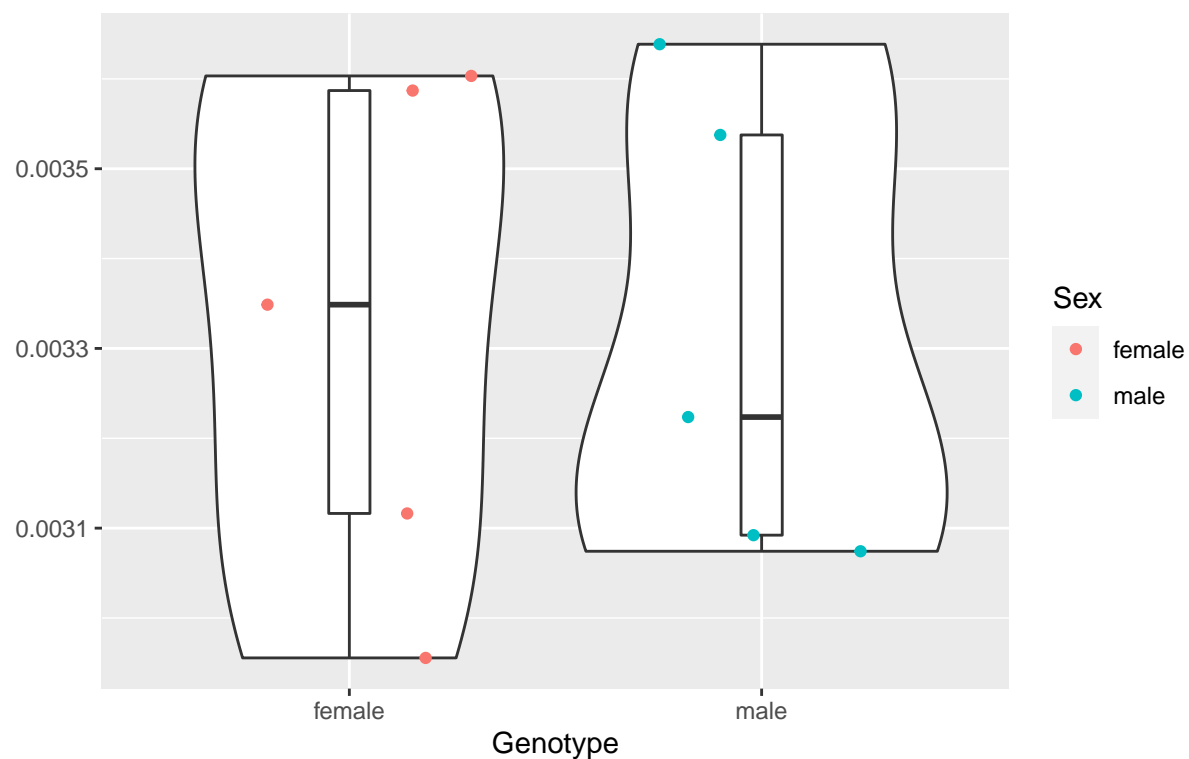Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.120e-08 1.120e-08   1.139  0.317
## Residuals    8 7.865e-08 9.831e-09
```

Dorsal Tegmentum

Red points denoting outliers


```
##              Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.83e-10 3.825e-10   0.253  0.629
## Residuals    8 1.21e-08 1.512e-09
```
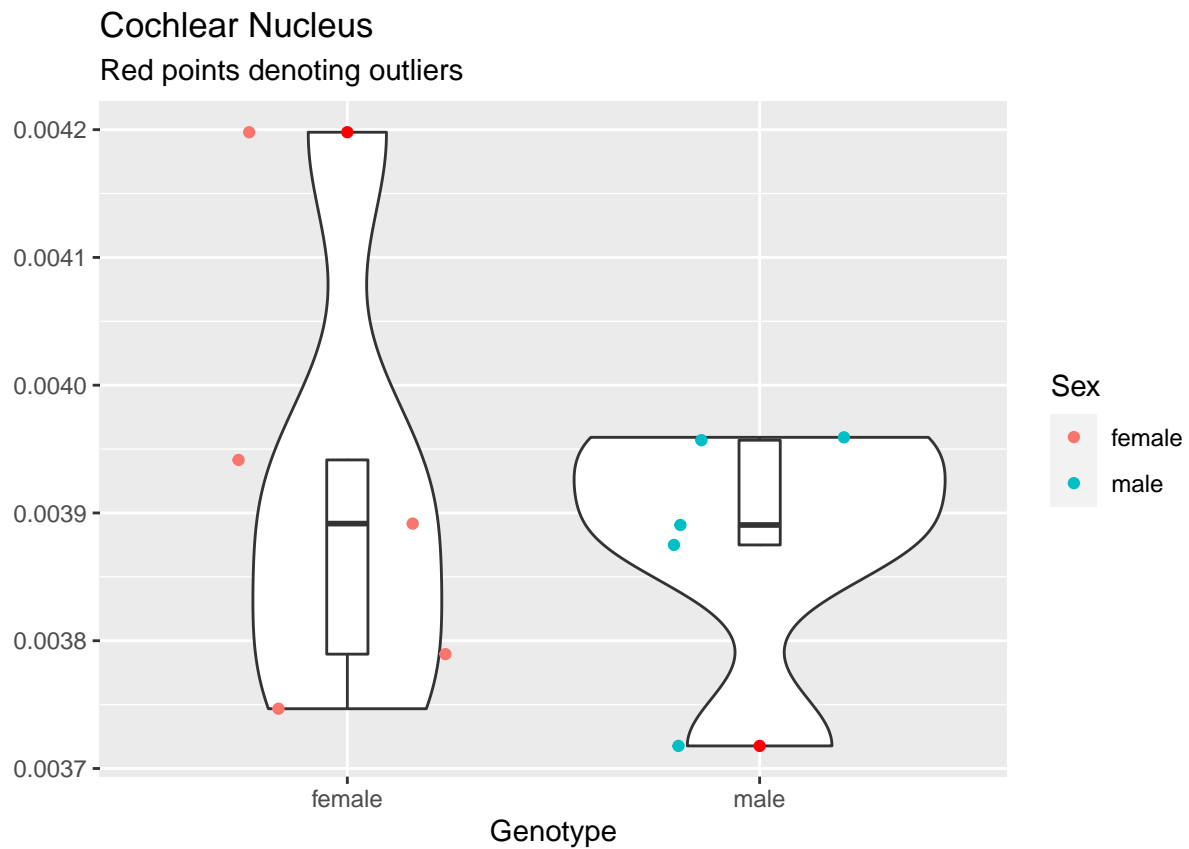
Tegmental Nucleus
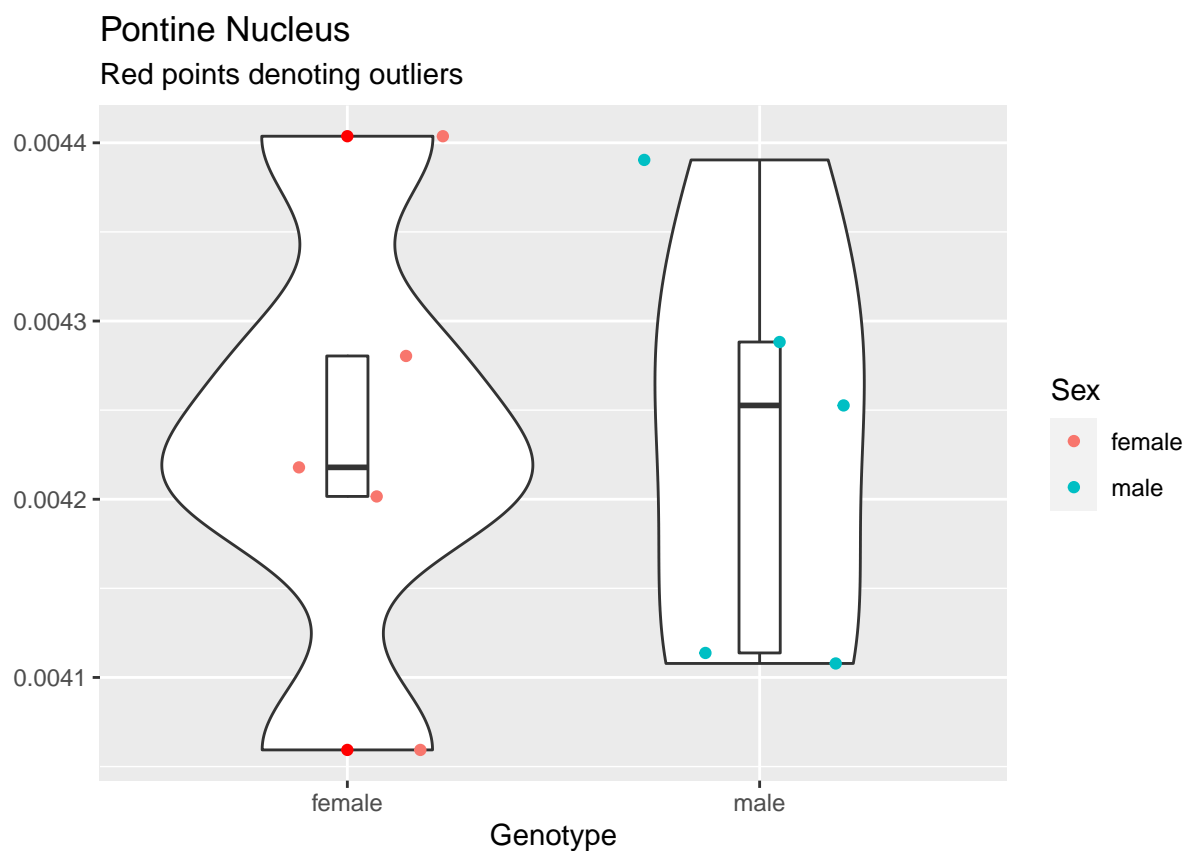Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.000e-10 2.000e-10   0.003   0.96
## Residuals    8 5.969e-07 7.461e-08
```
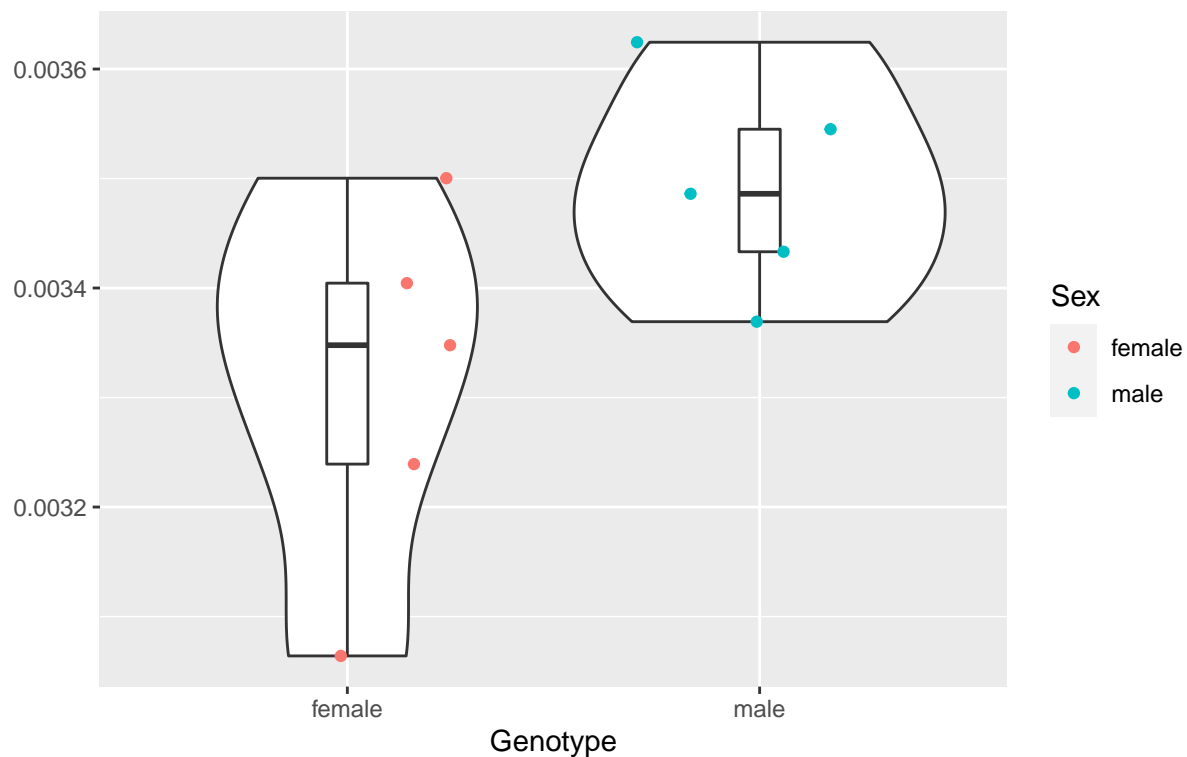
Cochlear Nucleus
Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.830e-09 2.825e-09   0.138   0.72
## Residuals    8 1.641e-07 2.051e-08
```

Pontine Nucleus
Red points denoting outliers


```
##            Df   Sum Sq  Mean Sq F value Pr(>F)
## Sex         1 1.000e-11 1.00e-11   0.001   0.98
## Residuals   8 1.208e-07 1.51e-08
```

Reticulotegmental Nucleus of Pons
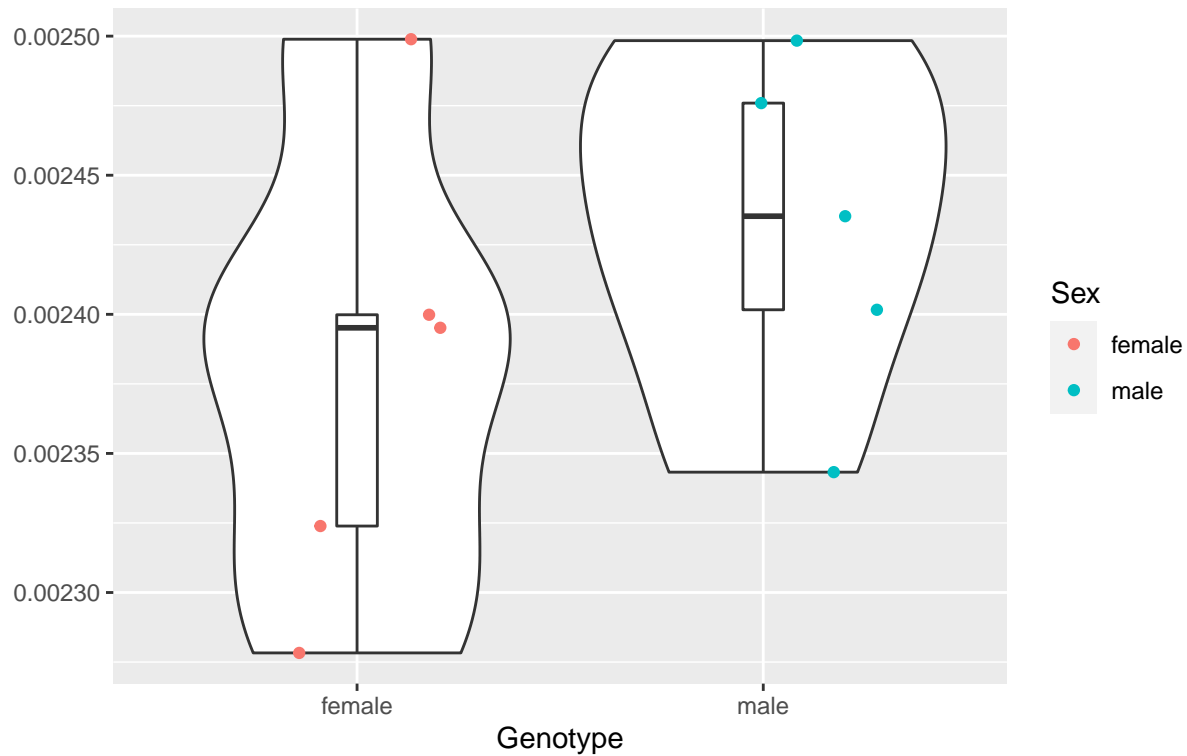Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 8.139e-08 8.139e-08   4.313 0.0715 .
## Residuals    8 1.510e-07 1.887e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Olivary Complex
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.680e-09 6.678e-09   1.231  0.299
## Residuals    8 4.338e-08 5.423e-09
```

#"'{r PnRt, echo = FALSE} #ggplot(data = apoe4, aes(factor(Sex), PnRt)) + # geom_violin() + # geom_boxplot(width = 0.1, outlier.color = "red") + # geom_jitter(height = 0, width = 0.3) + # labs(x = "Genotype", # y = "", # title ="Pontine Reticular Nucleus", # subtitle ="Red points denoting outliers")

#res.aov <- aov(PnRt ~ Sex, data = apoe4) #summary(res.aov) #"'
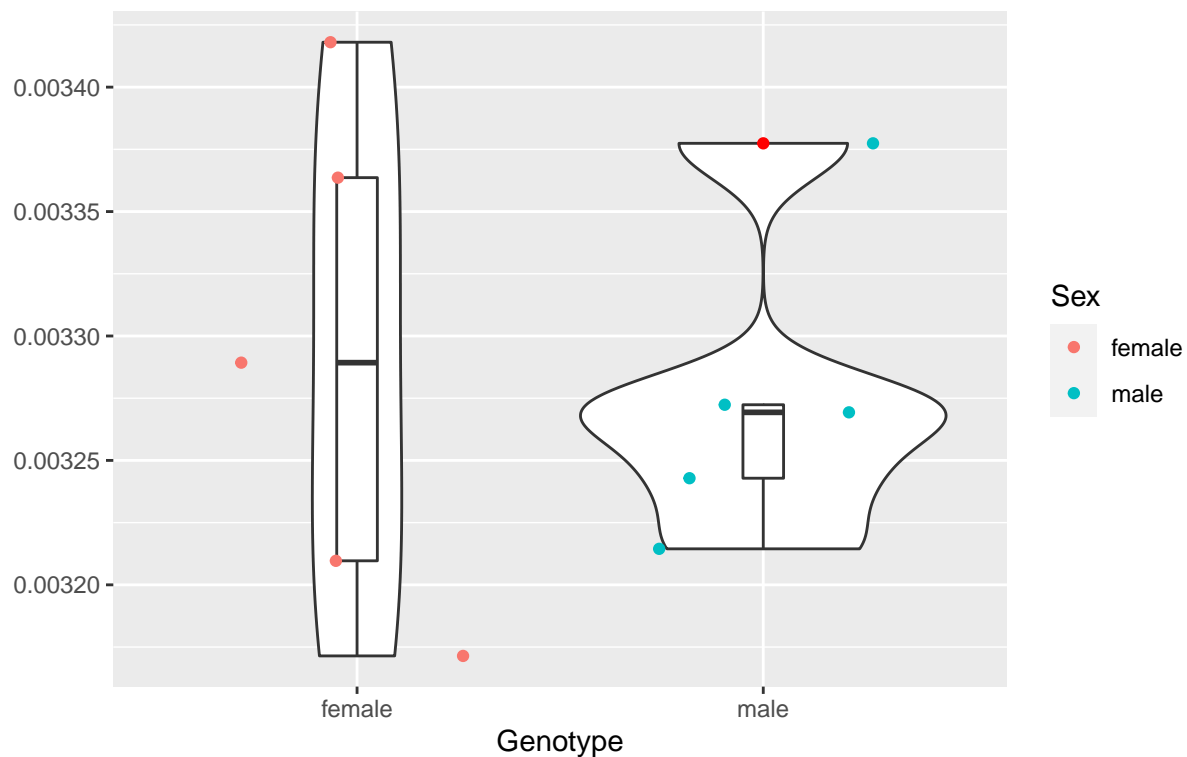
Spinal Trigeminal Nucleus
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 6.800e-09 6.790e-09   0.129  0.729
## Residuals   8 4.227e-07 5.284e-08
```

Vestibular Nuclei
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 5.700e-10 5.720e-10   0.079  0.785
## Residuals   8 5.755e-08 7.194e-09
```

Gigantocellular Reticular Nucleus
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 8.280e-09 8.280e-09   0.493  0.502
## Residuals     8 1.343e-07 1.679e-08
```

Cuneate Nucleus
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.422e-08 5.422e-08   1.763  0.221
## Residuals    8 2.461e-07 3.076e-08
```

Anterior Commisure
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.210e-09 1.207e-09    0.08  0.785
## Residuals    8 1.213e-07 1.516e-08
```
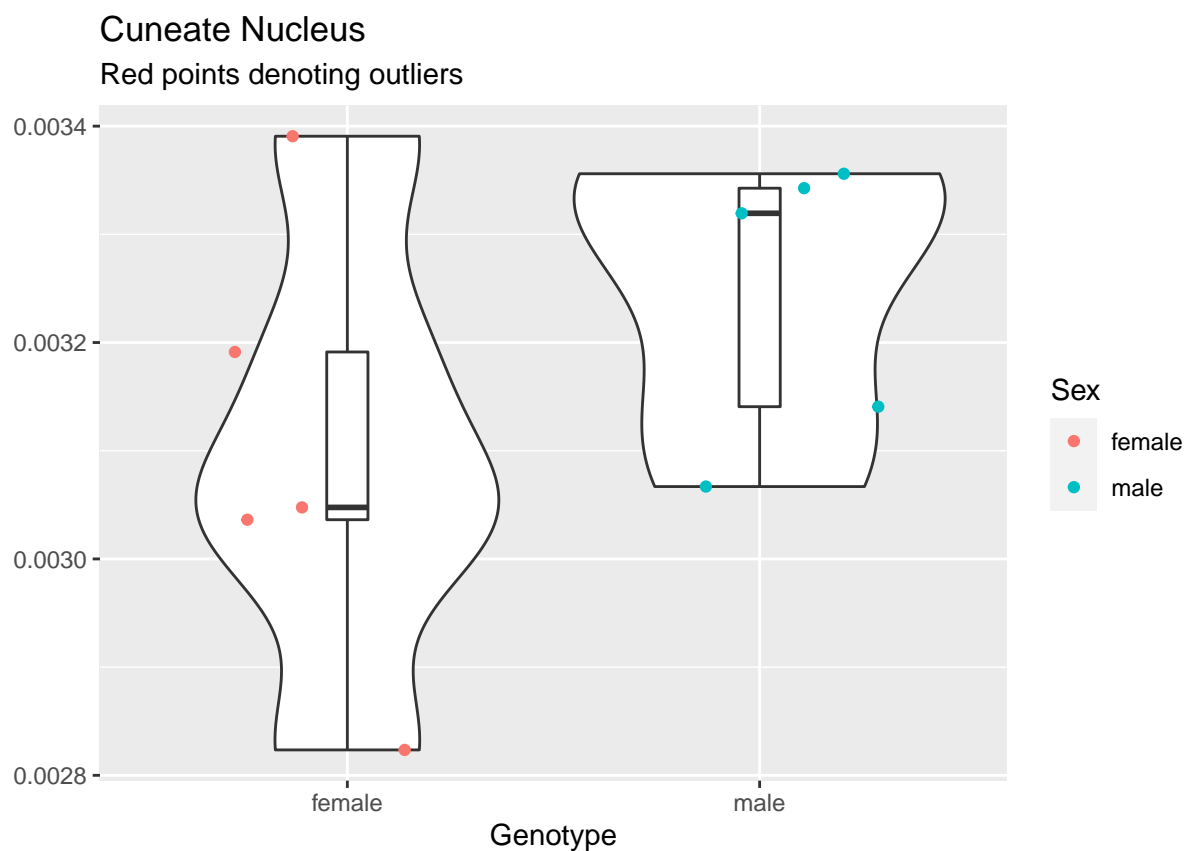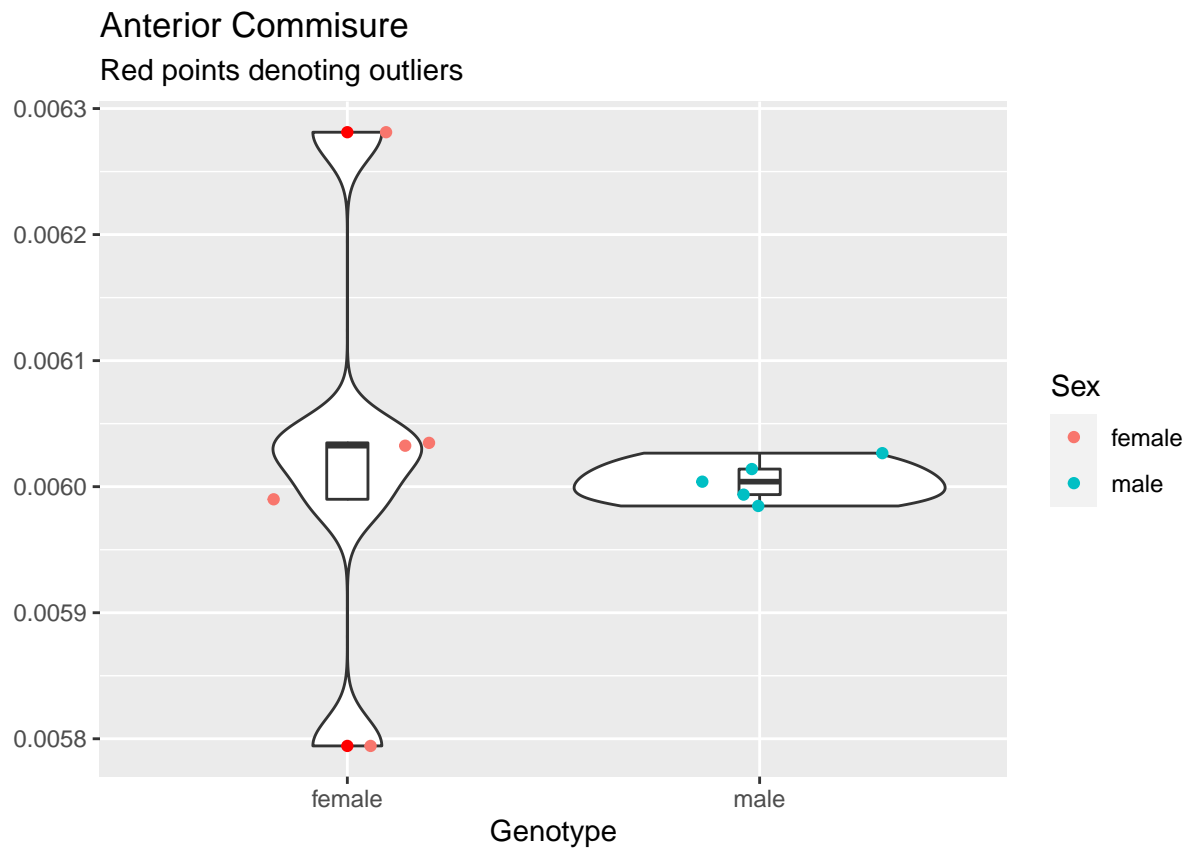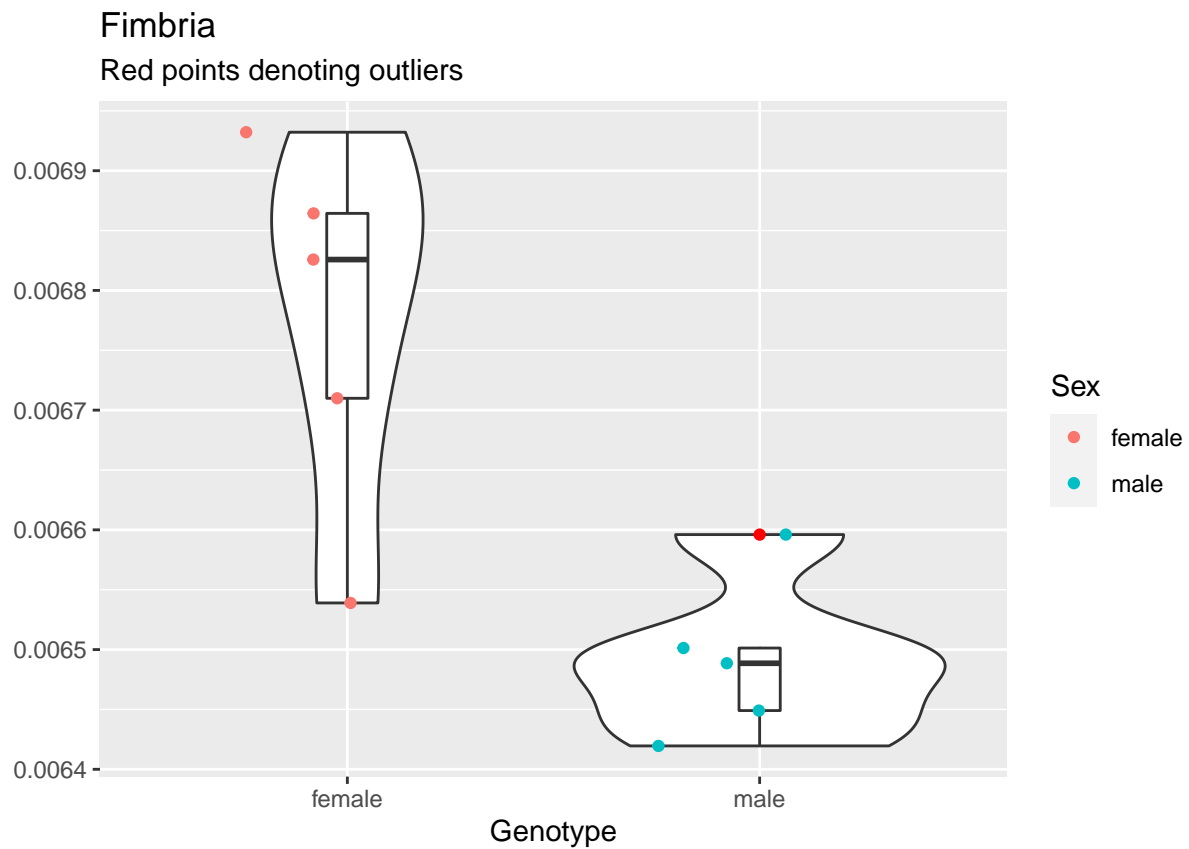
Optic Tracts
Red points denoting outliers
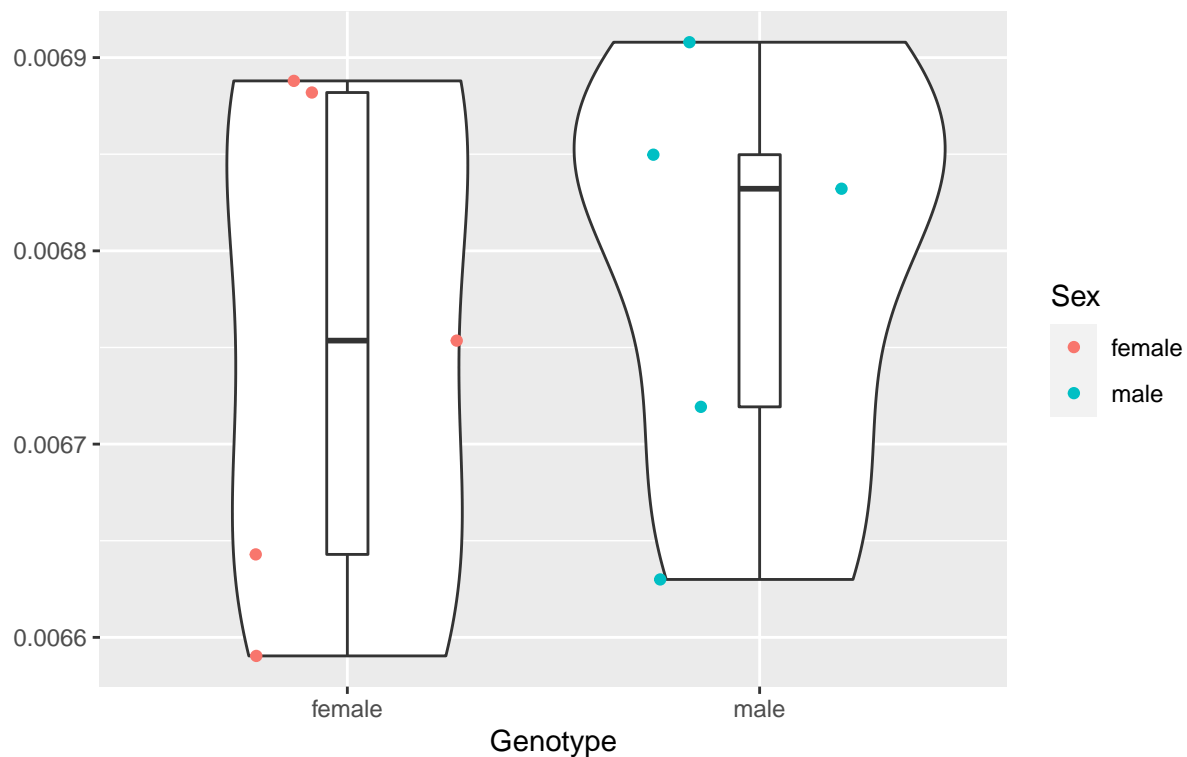

```
##            Df     Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 3.320e-09 3.325e-09   0.216  0.655
## Residuals   8 1.232e-07 1.540e-08
```
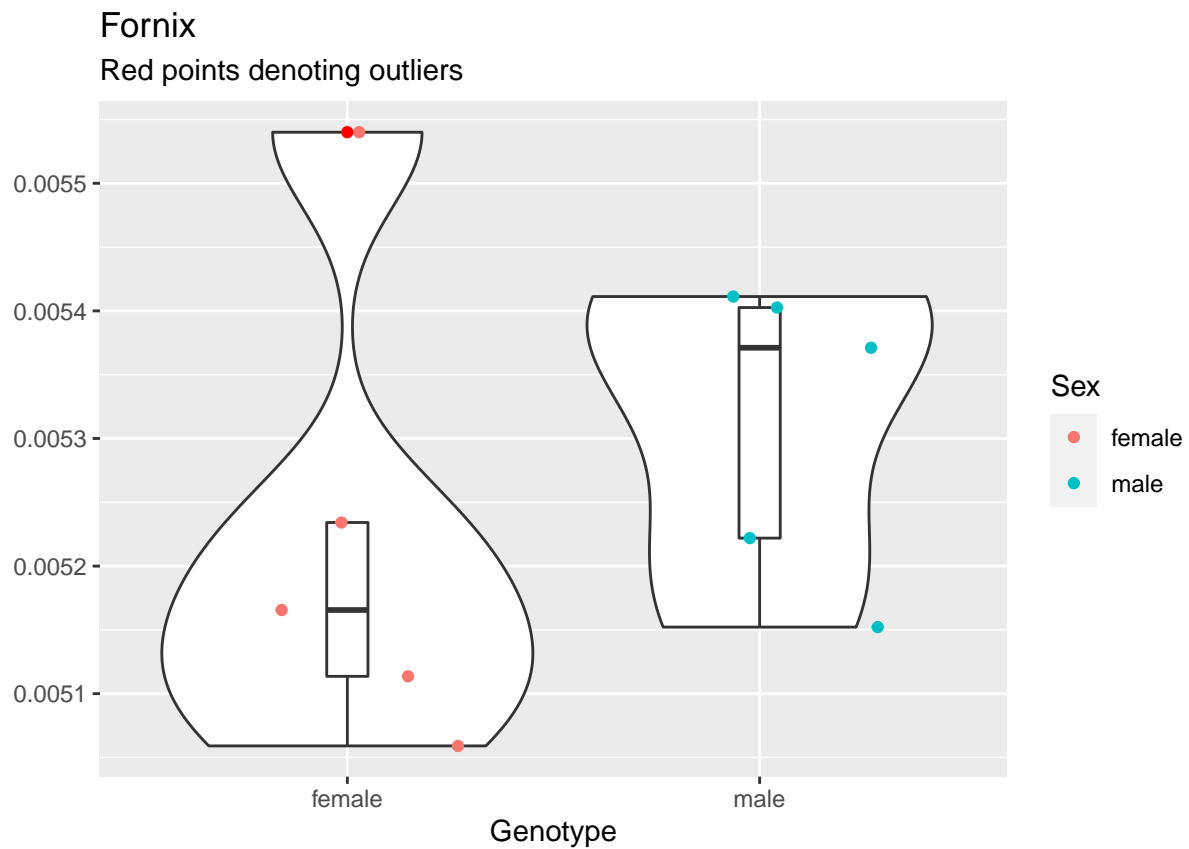
Fimbria
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.007e-07 2.007e-07   14.18 0.0055 **
## Residuals    8 1.132e-07 1.415e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
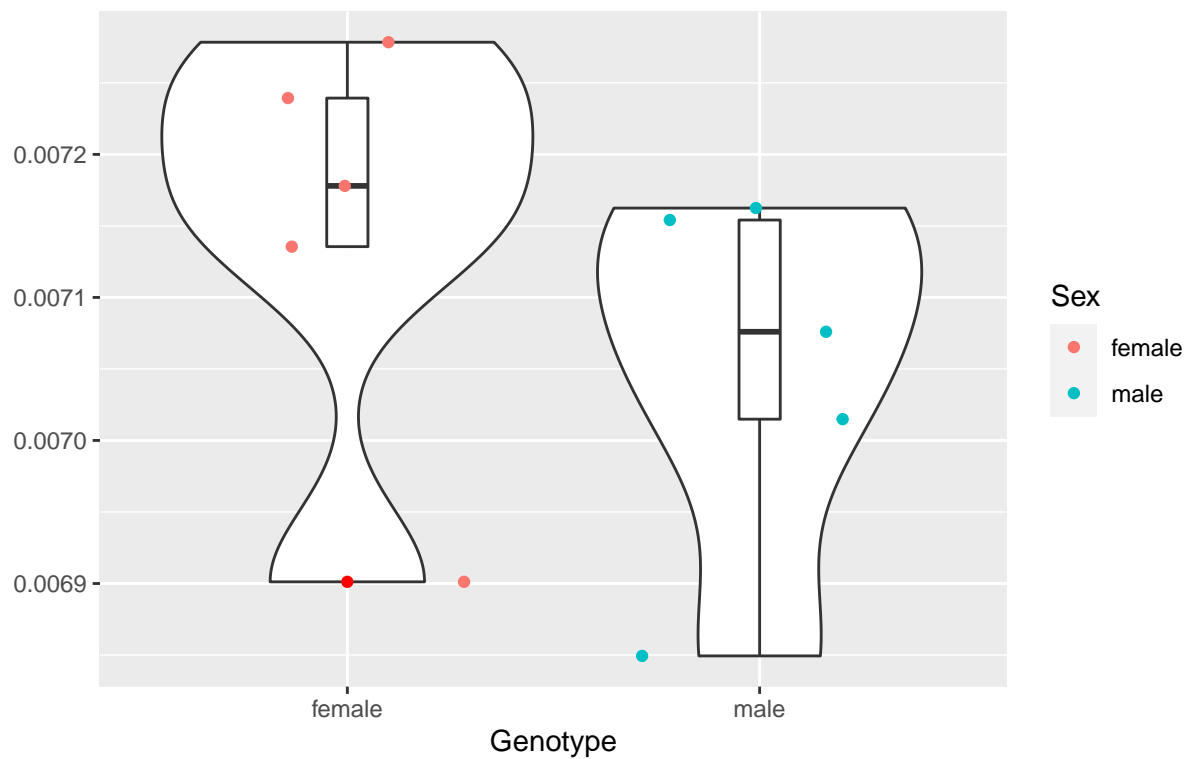
Corpus Callosum
Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.12e-09 1.124e-09     0.1   0.76
## Residuals   8 8.98e-08 1.122e-08
```

Fornix

Red points denoting outliers
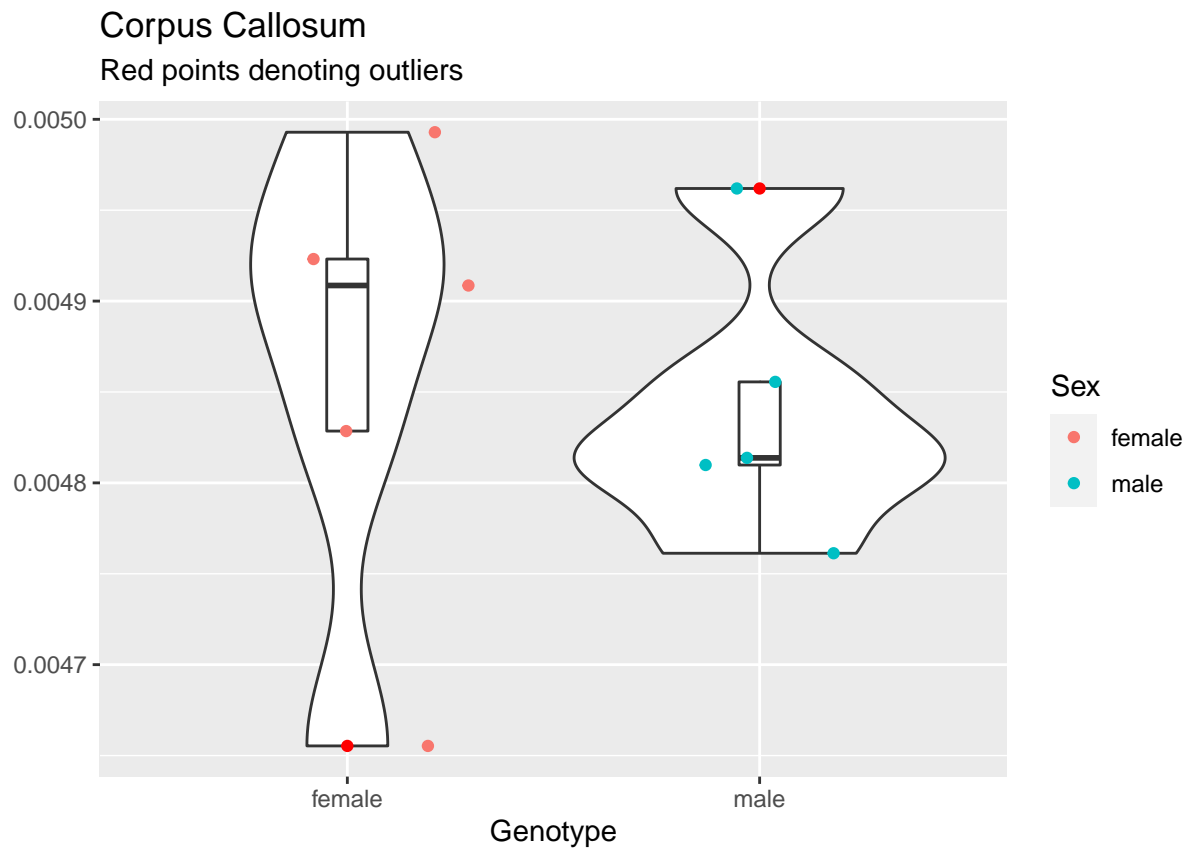

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.995e-08 1.995e-08   0.806  0.395
## Residuals   8 1.980e-07 2.475e-08
```
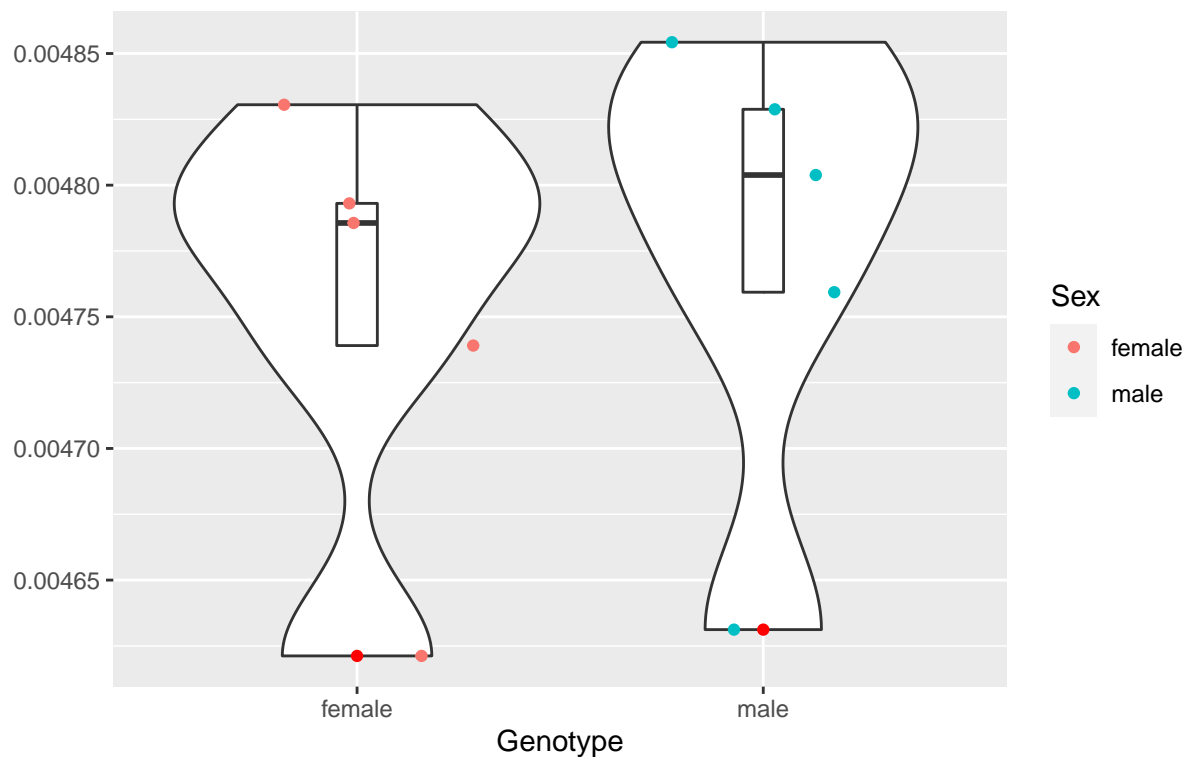
Stria Terminalis
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.262e-08 2.262e-08   1.183  0.308
## Residuals    8 1.530e-07 1.912e-08
```
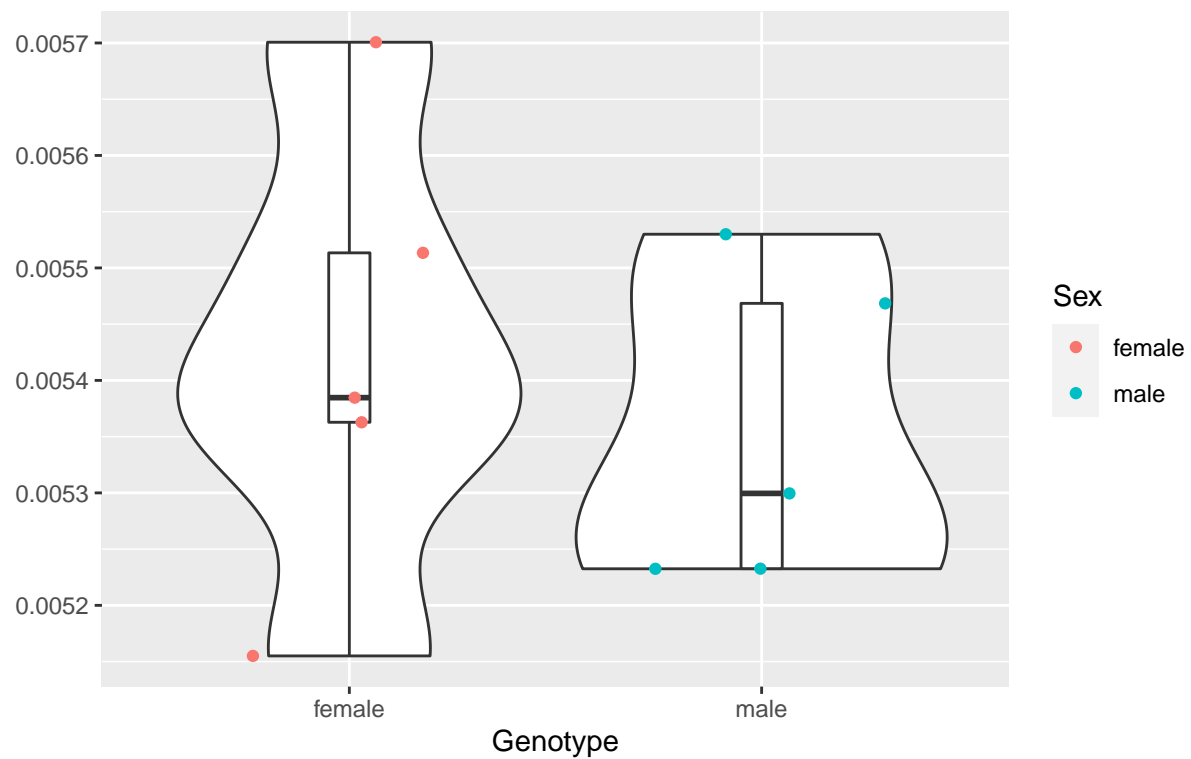
Cingulum

Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 1.170e-09 1.165e-09   0.163  0.697
## Residuals  8 5.719e-08 7.148e-09
```

Lateral Olfactory Tract
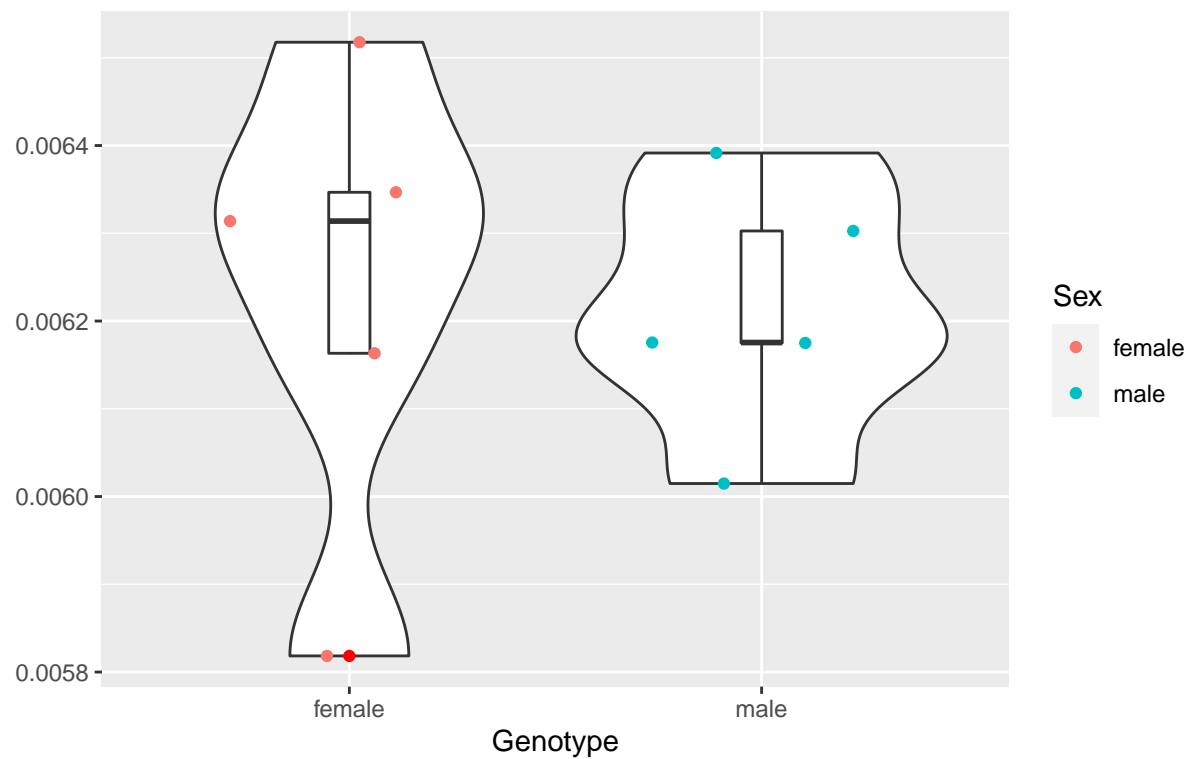
Red points denoting outliers
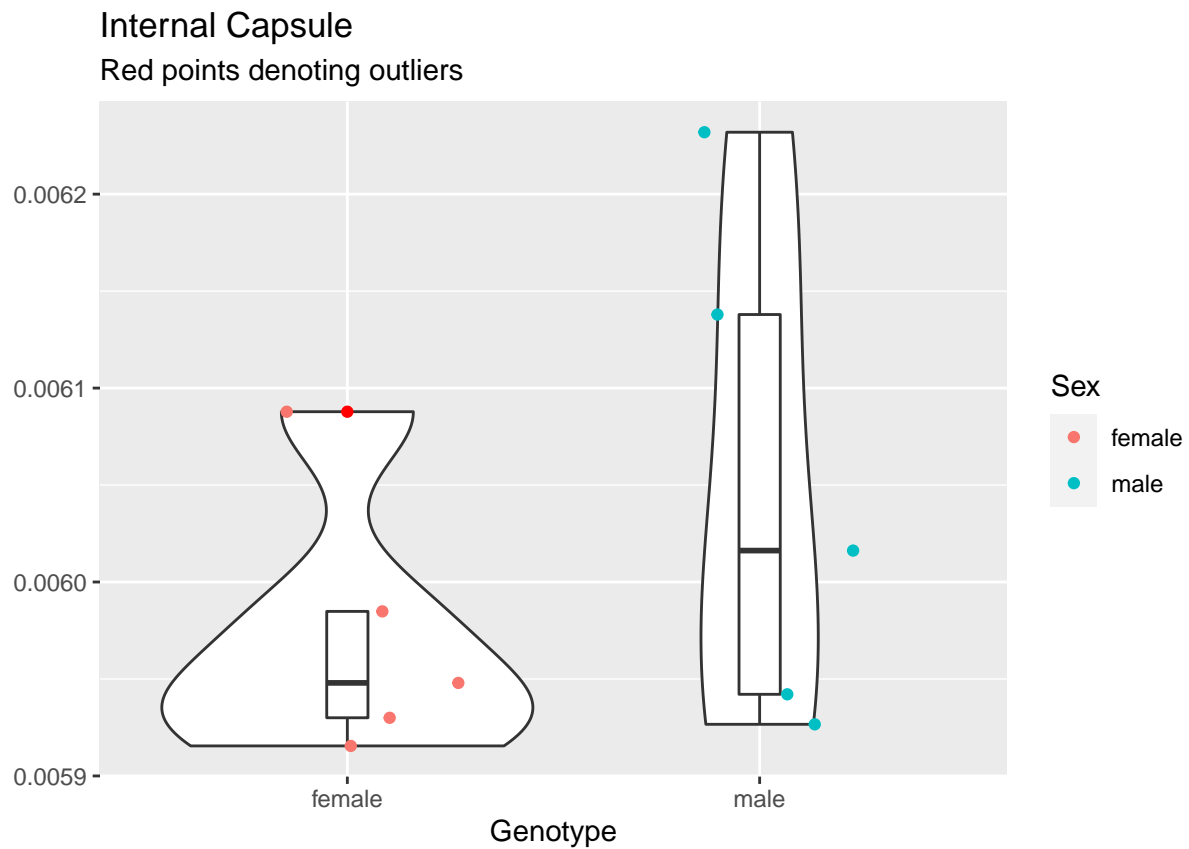


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.249e-08 1.249e-08   0.419  0.536
## Residuals   8 2.387e-07 2.984e-08
```

Ventral Hippocampal Commissure
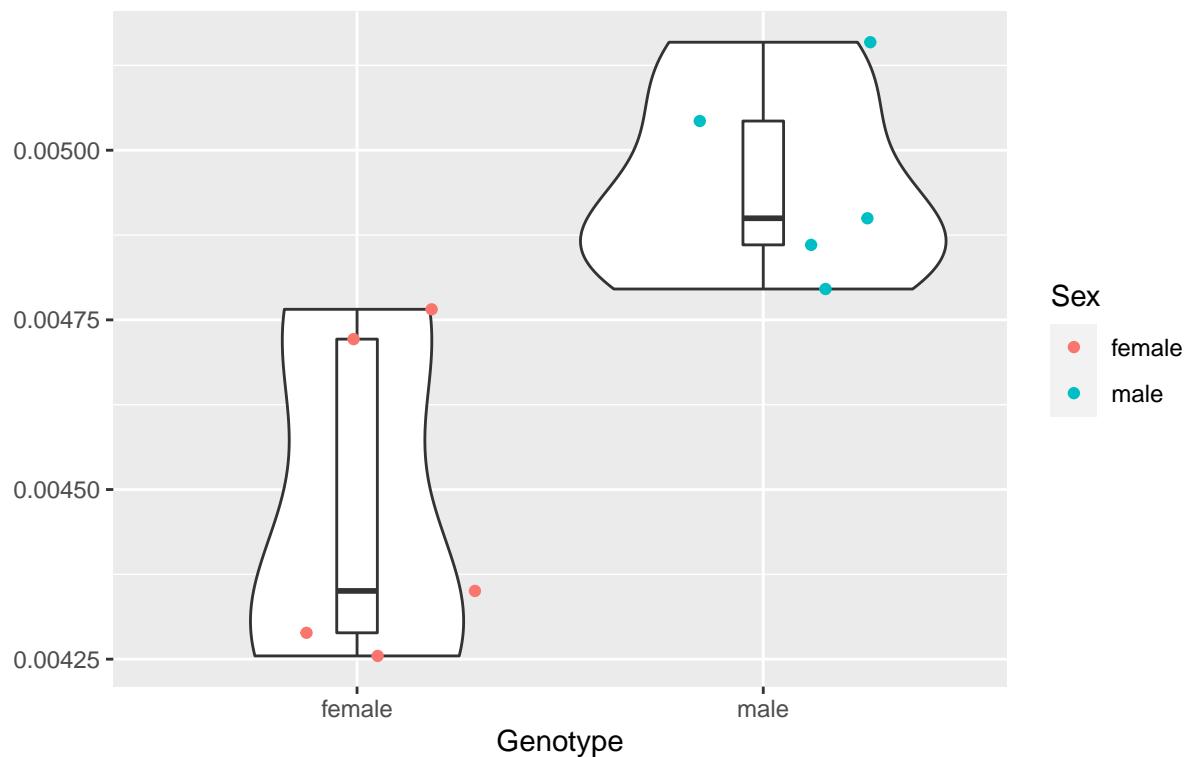
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.000e-09 1.010e-09   0.022  0.885
## Residuals    8 3.593e-07 4.491e-08
```

Internal Capsule
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.511e-08 1.511e-08   1.374  0.275
## Residuals     8 8.794e-08 1.099e-08
```
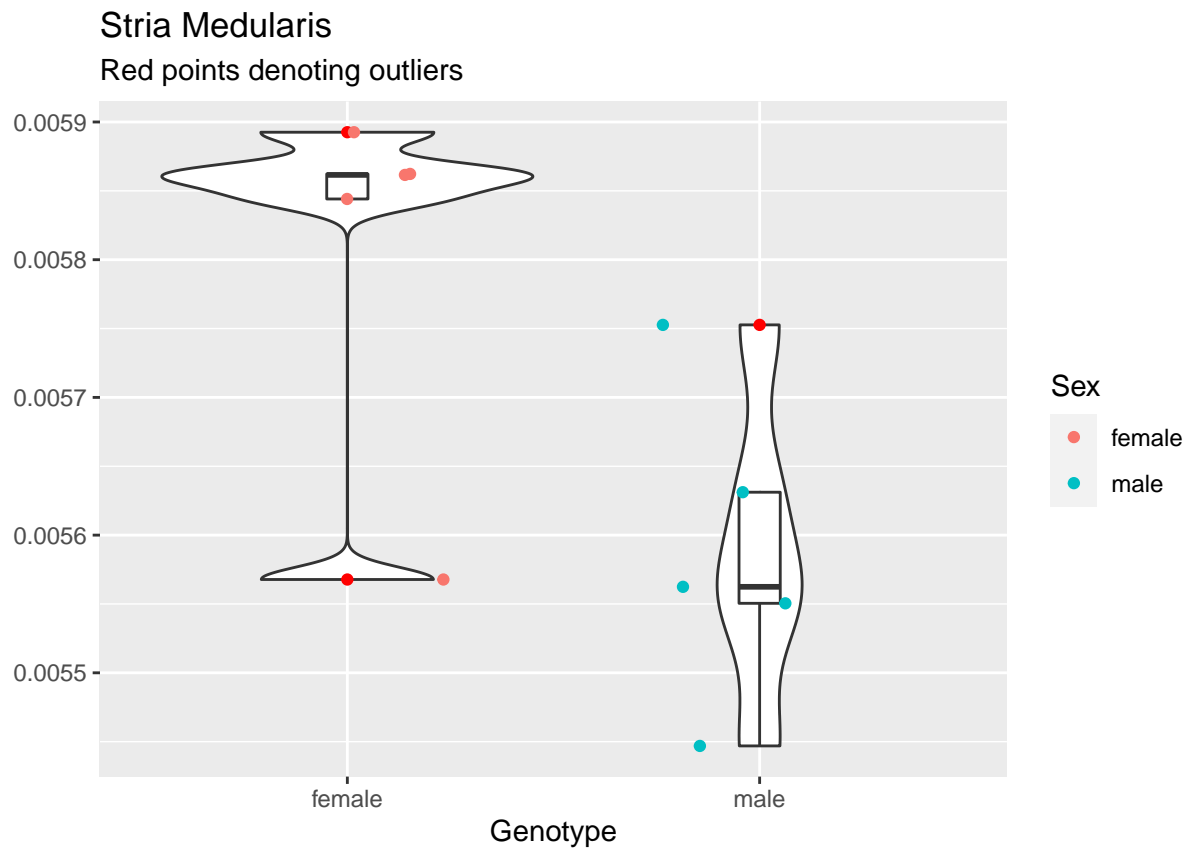
Fasciculus Retroflexus
Red points denoting outliers
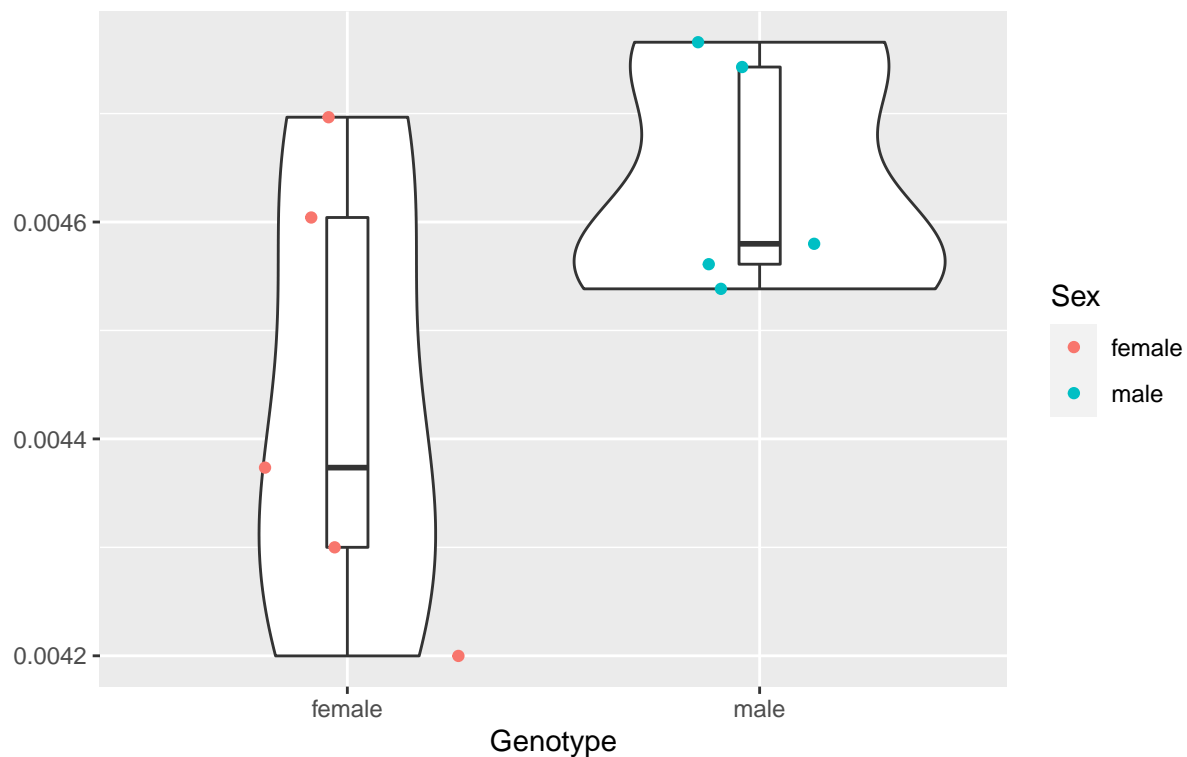
```
##            Df    Sum Sq   Mean Sq F value  Pr(>F)
## Sex        1 5.648e-07 5.648e-07   13.66 0.00607 **
## Residuals  8 3.307e-07 4.130e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Stria Medularis
Red points denoting outliers
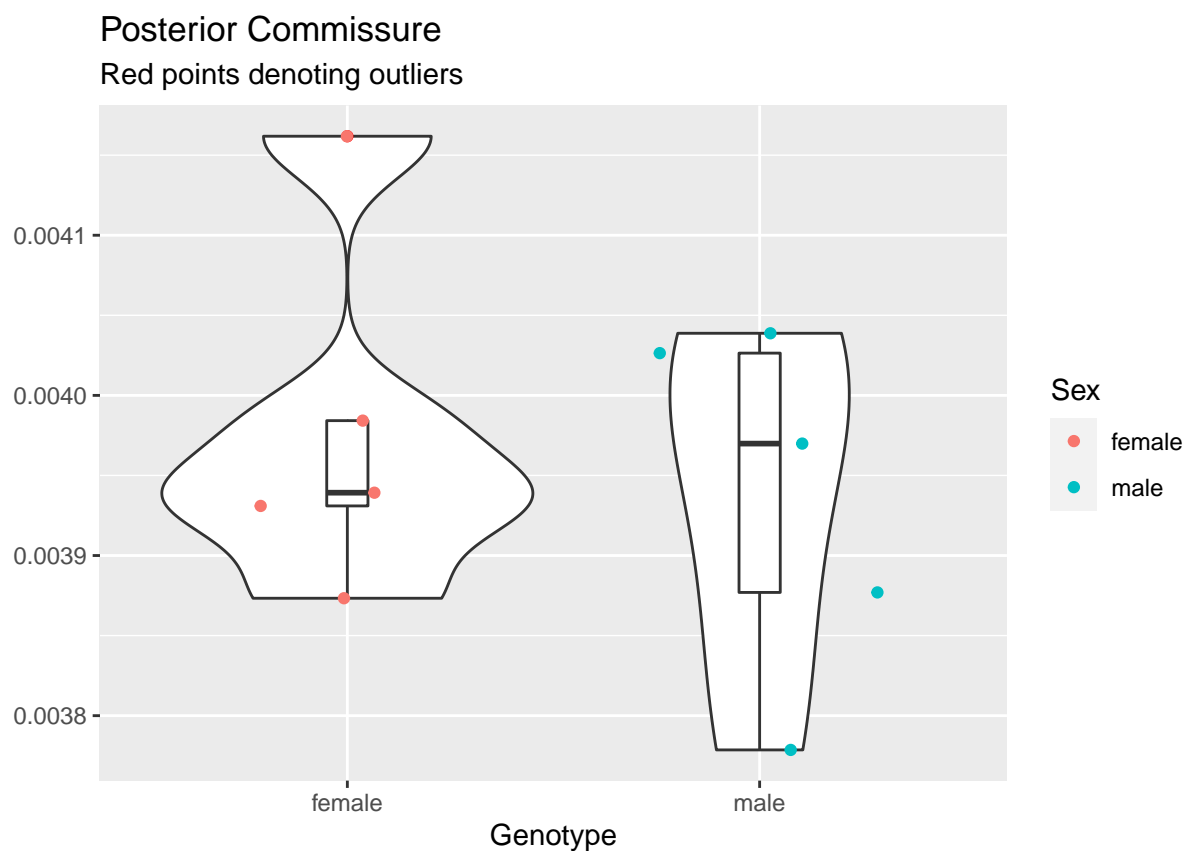


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.176e-07 1.176e-07   7.658 0.0244 *
## Residuals    8 1.229e-07 1.536e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
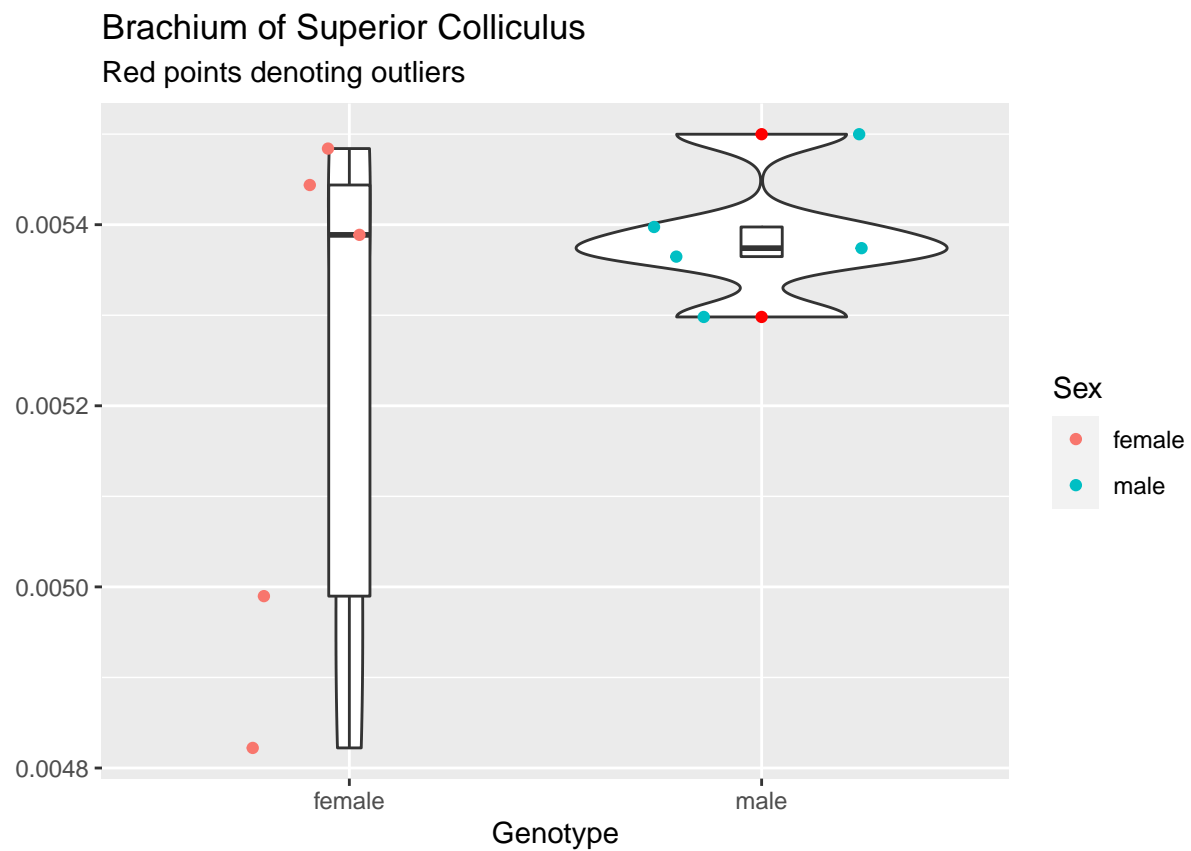
Mammillothalamic Tract
Red points denoting outliers



```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.028e-07 1.028e-07   3.723 0.0898 .
## Residuals   8 2.209e-07 2.761e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
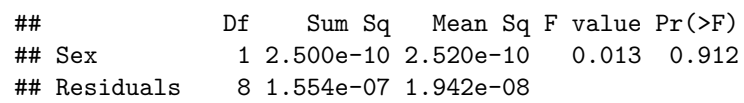
Posterior Commissure
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 3.960e-09 3.959e-09   0.328  0.583
## Residuals     8 9.662e-08 1.208e-08
```

Brachium of Superior Colliculus
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 6.490e-08 6.491e-08   1.364  0.277
## Residuals   8 3.808e-07 4.760e-08
```

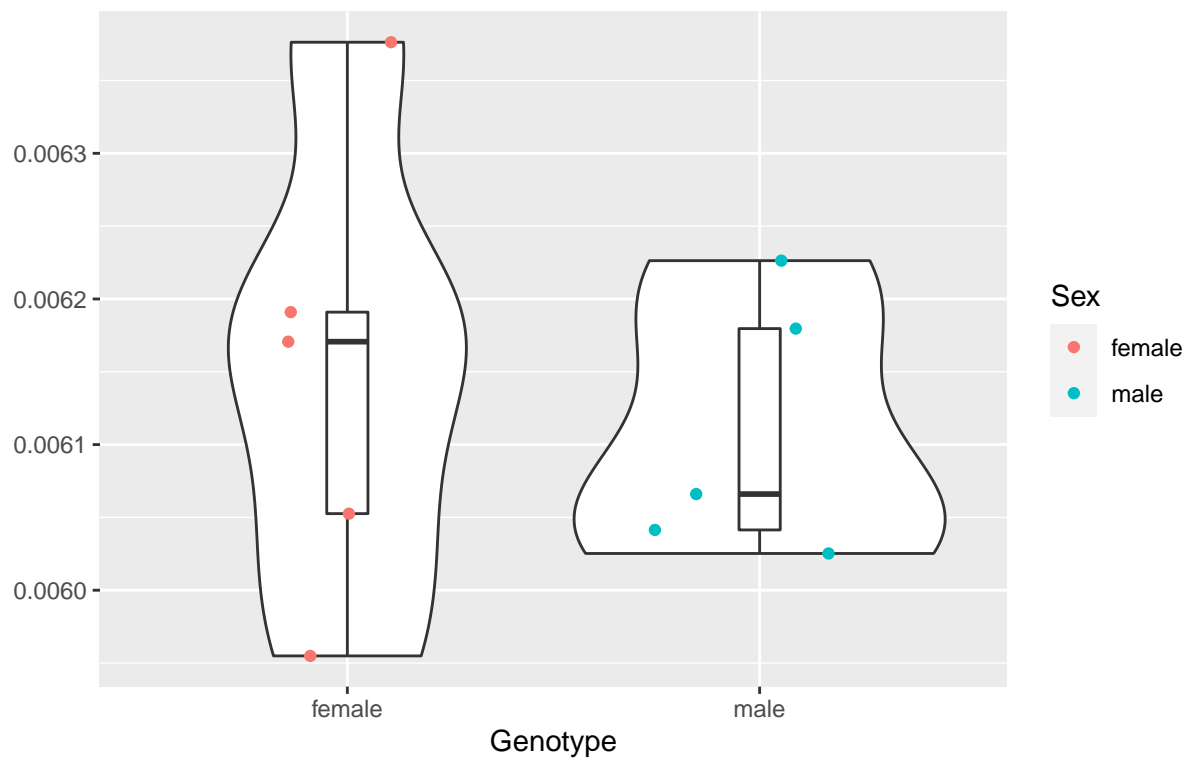## Cerebral Peduncle
Red points denoting outliers
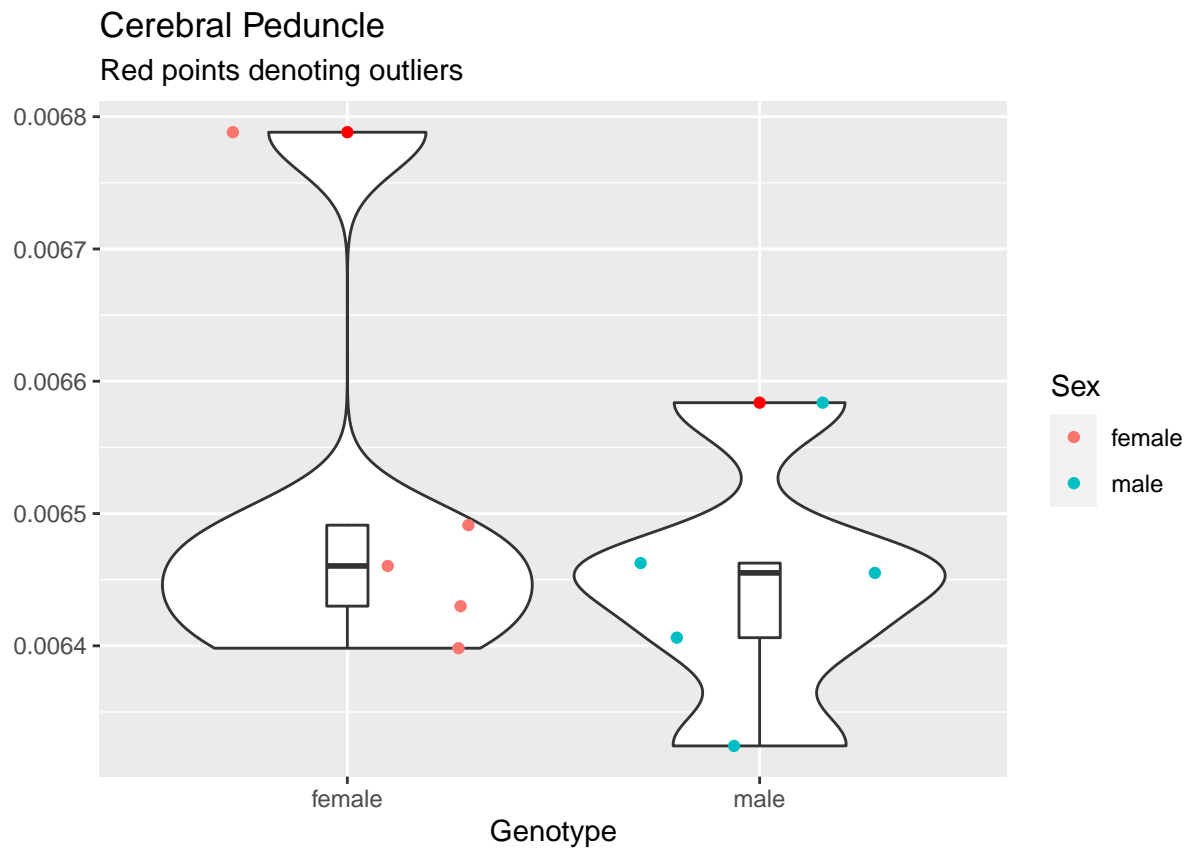

```
##              Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 1.130e-08 1.130e-08    0.67  0.437
## Residuals    8 1.348e-07 1.685e-08
```
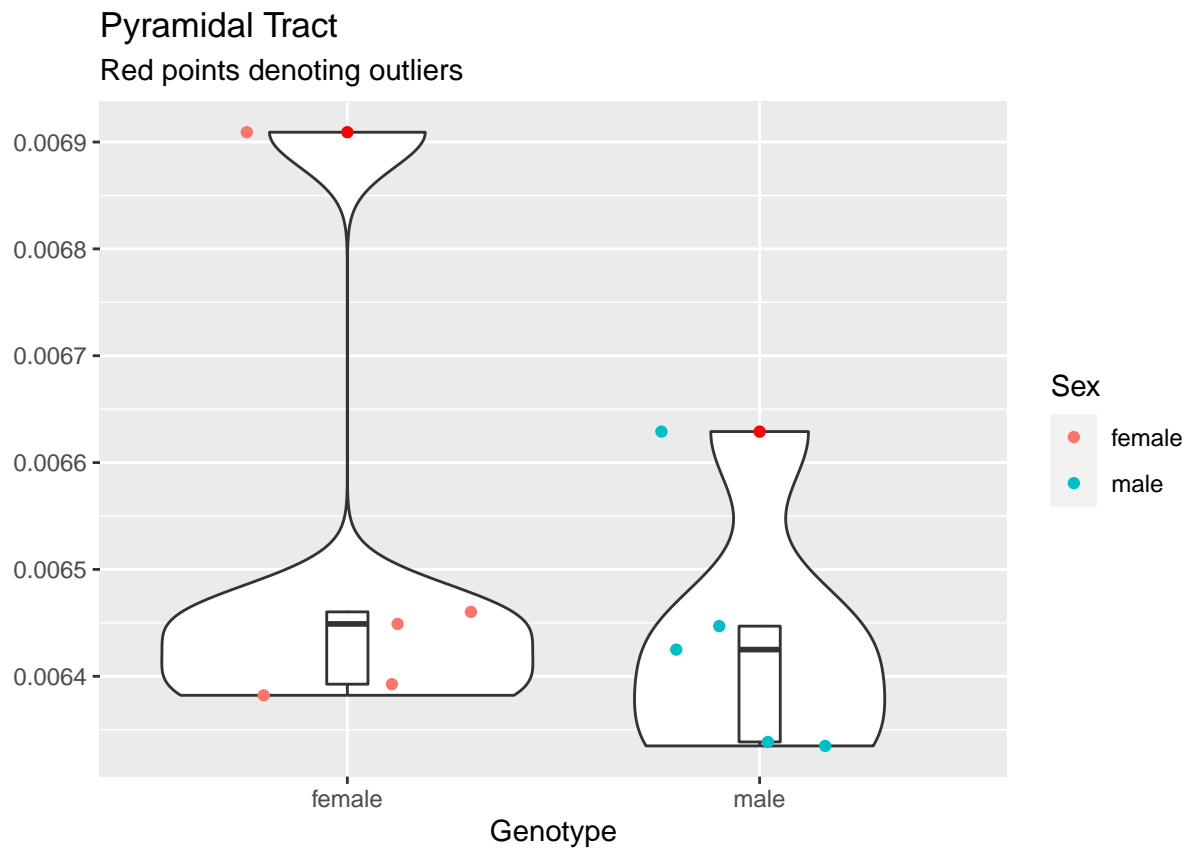
Lateral Lemniscus
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.500e-10 2.520e-10   0.013  0.912
## Residuals    8 1.554e-07 1.942e-08
```

## Spinal Trigeminal Nerve
Red points denoting outliers



```
Df   Sum Sq   Mean Sq F value Pr(>F)
Sex   1 4.28e-09 4.276e-09   0.257 0.626
Residuals   8 1.33e-07 1.663e-08
```
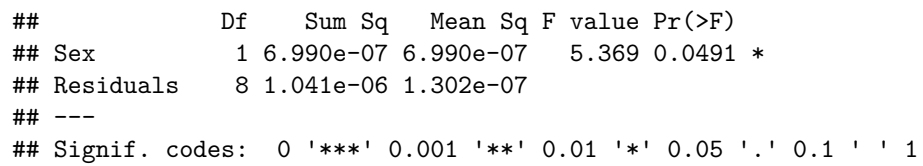
Pyramidal Tract
Red points denoting outliers

```
Df   Sum Sq   Mean Sq F value Pr(>F)
Sex   1 1.755e-08 1.755e-08   0.556 0.477
Residuals   8 2.525e-07 3.156e-08
```

## Vestibulocochlear Nerve
### Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.503e-08 1.503e-08   0.611  0.457
## Residuals    8 1.969e-07 2.462e-08
```

Facial Nerve
Red points denoting outliers
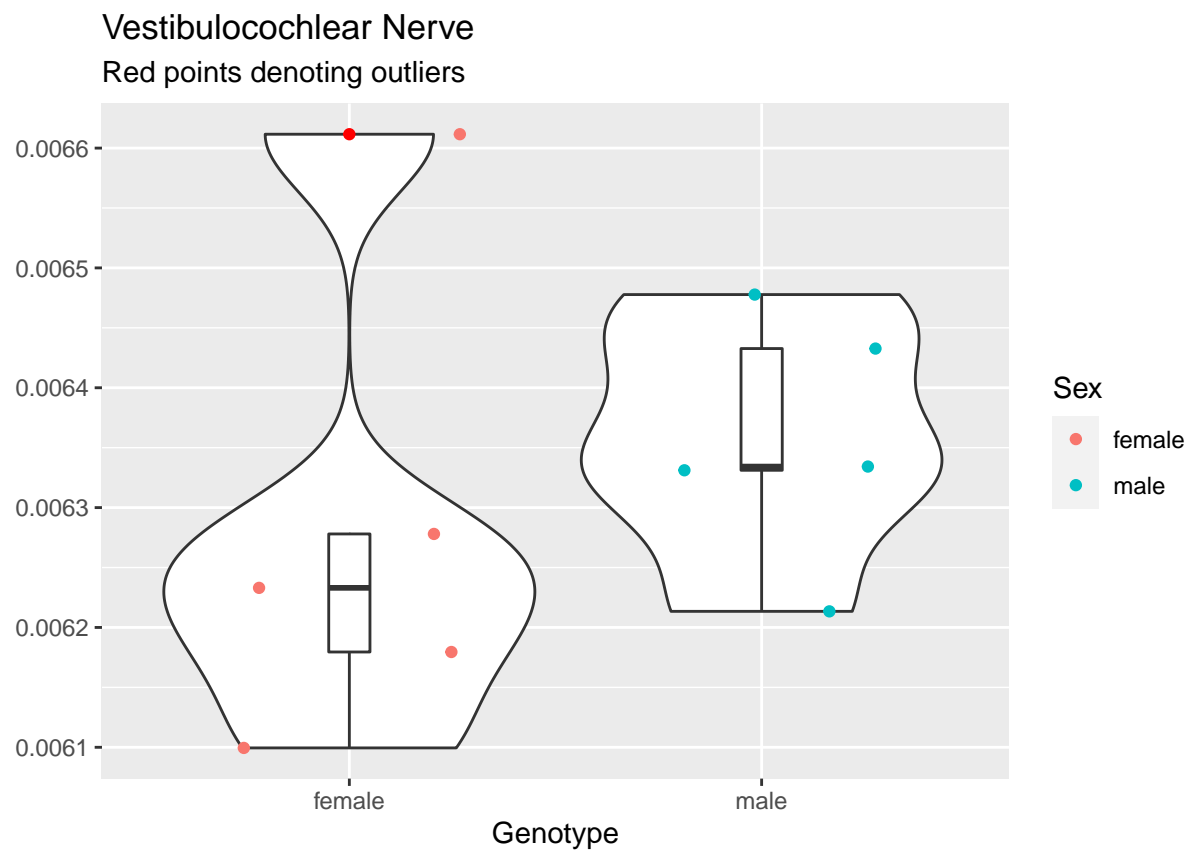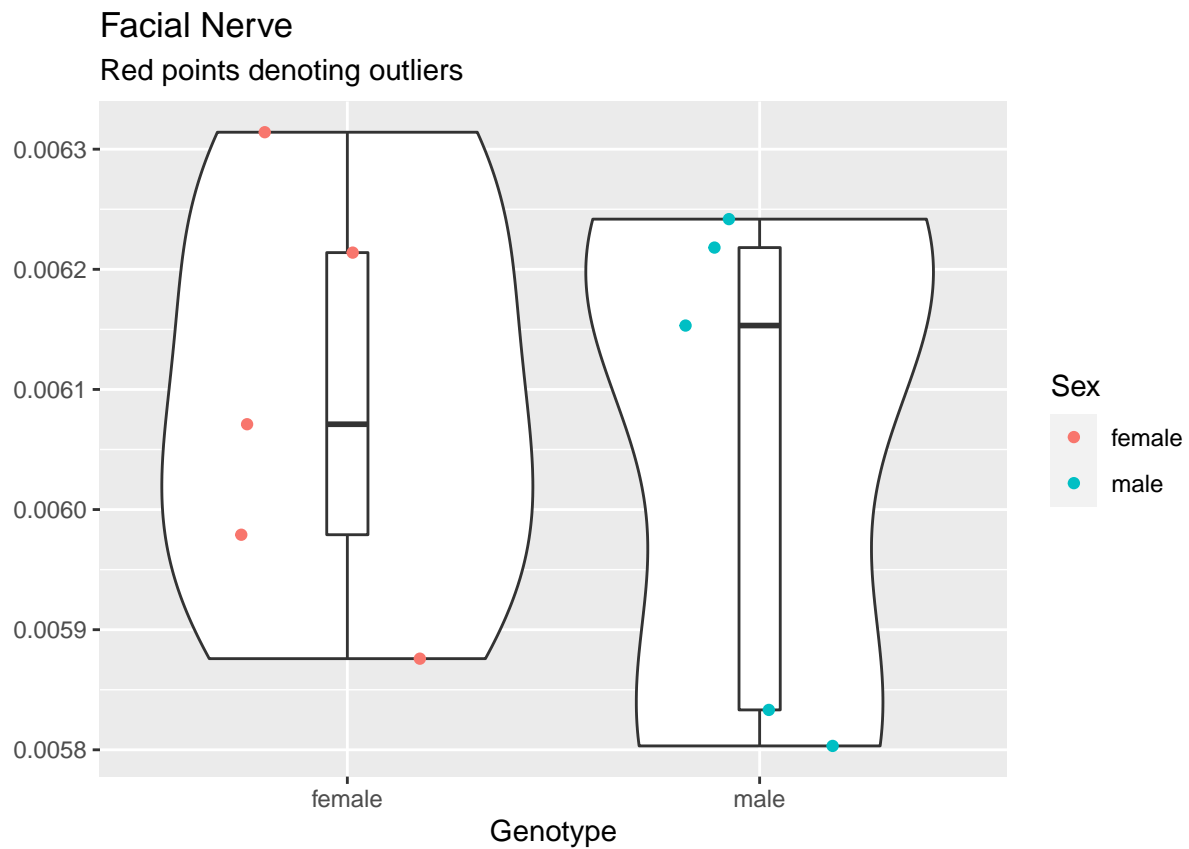

```
##              Df     Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 4.180e-09 4.180e-09   0.109   0.75
## Residuals    8 3.077e-07 3.846e-08
```

Longitudinal Fasciculus of Pons
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.990e-07 6.990e-07   5.369 0.0491 *
## Residuals    8 1.041e-06 1.302e-07
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Medial Longitudinal Fasciculus and Tectospinal Tract
Red points denoting outliers
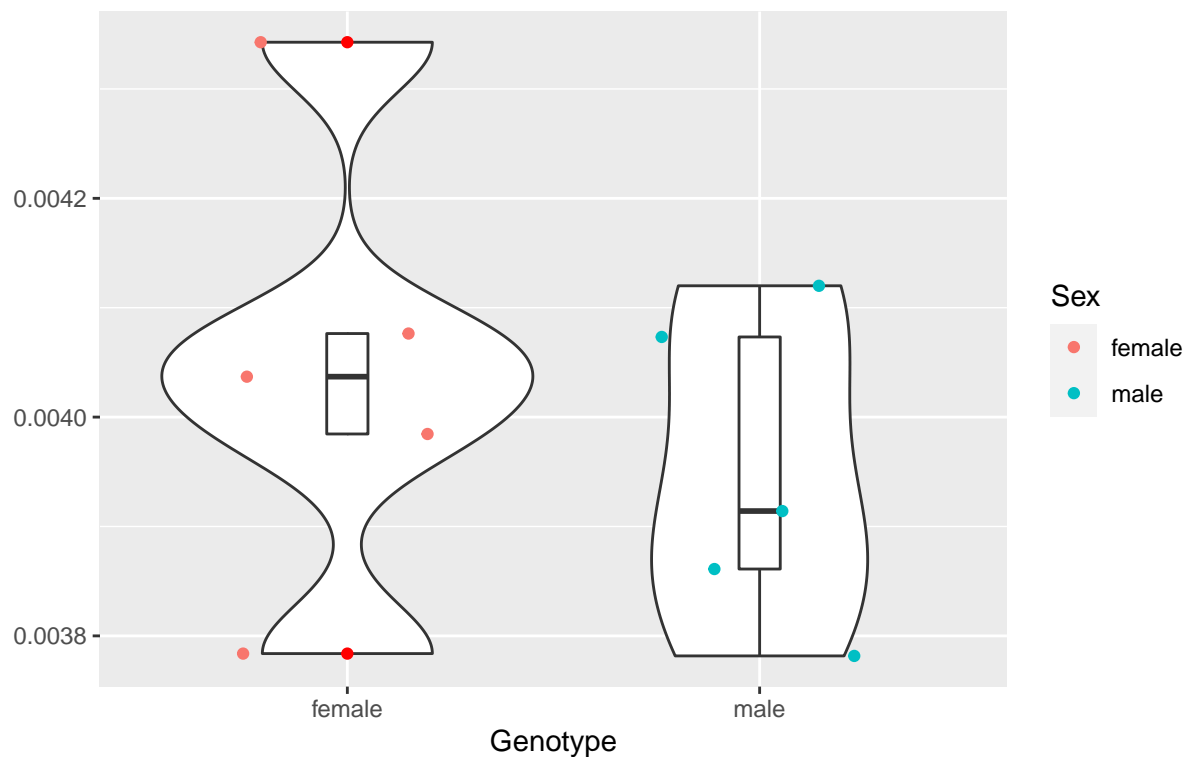

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.249e-08 2.249e-08    0.74  0.415
## Residuals    8 2.432e-07 3.040e-08
```

Spinocerebellar Tract
Red points denoting outliers
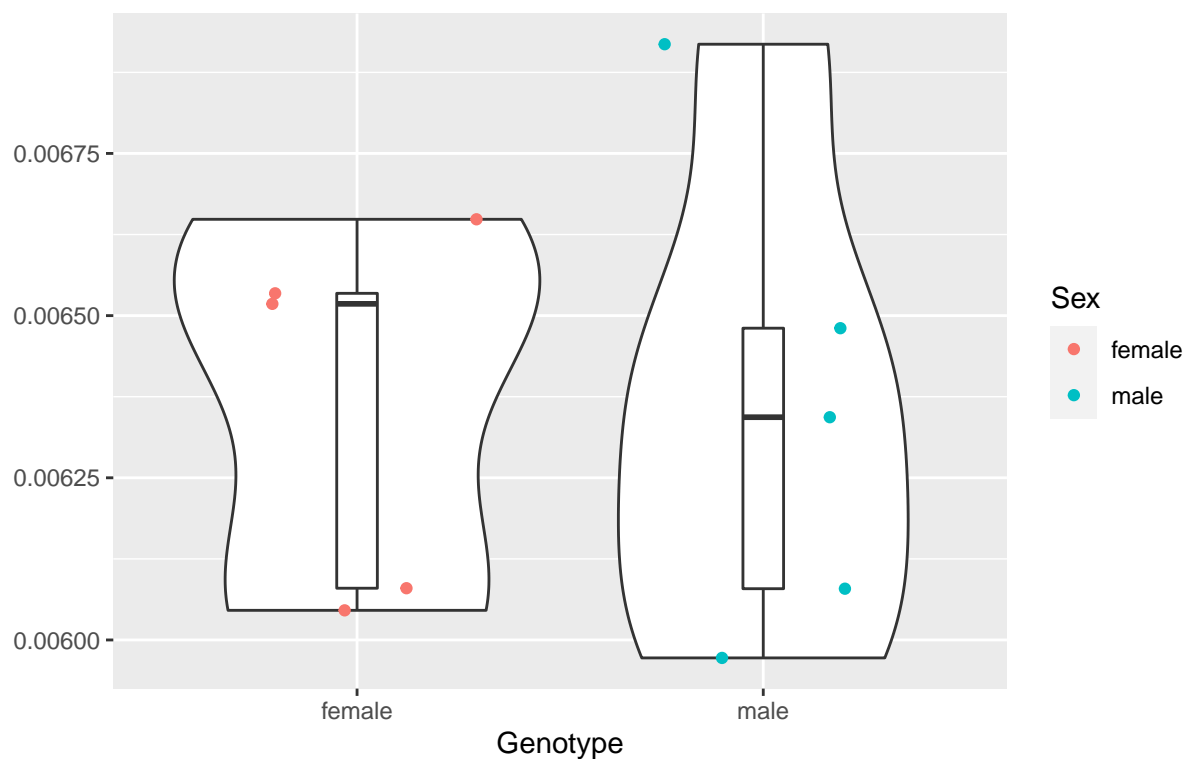

```
##              Df    Sum Sq   Mean Sq  F value  Pr(>F)
## Sex           1 1.000e-10  1.10e-10    0.001   0.976
## Residuals     8 8.716e-07  1.09e-07
```

Medial Lemniscus

Red points denoting outliers
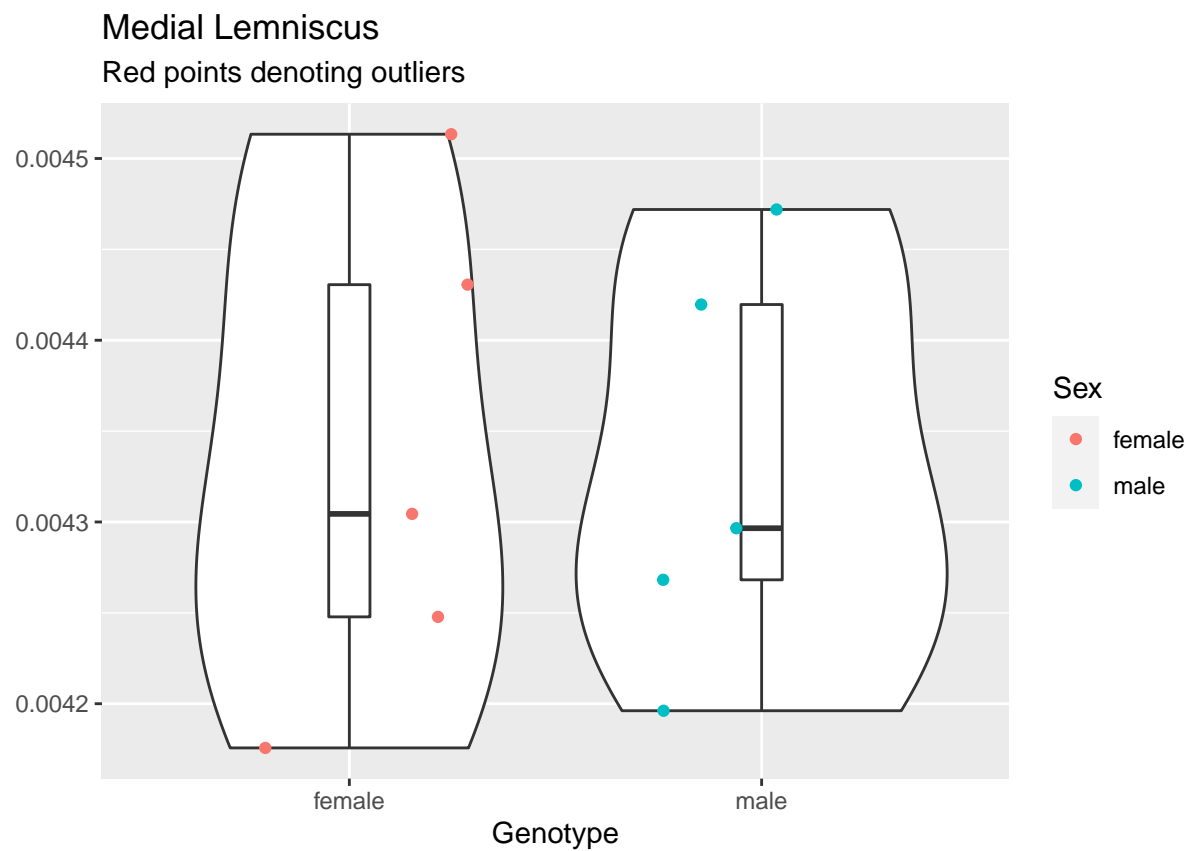

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.000e-11 3.800e-11   0.002  0.962
## Residuals    8 1.259e-07 1.574e-08
```

Ventral Spinocerebellar Tract
Red points denoting outliers
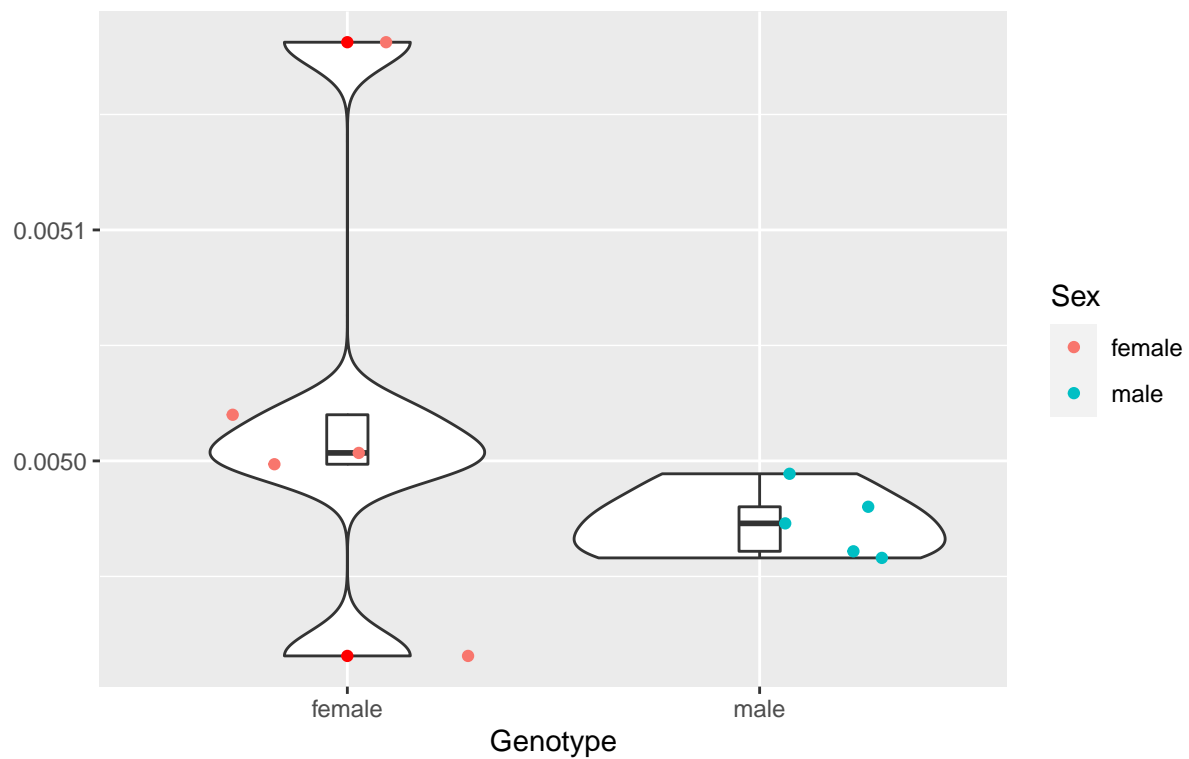

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.370e-09 6.373e-09   1.326  0.283
## Residuals    8 3.846e-08 4.807e-09
```
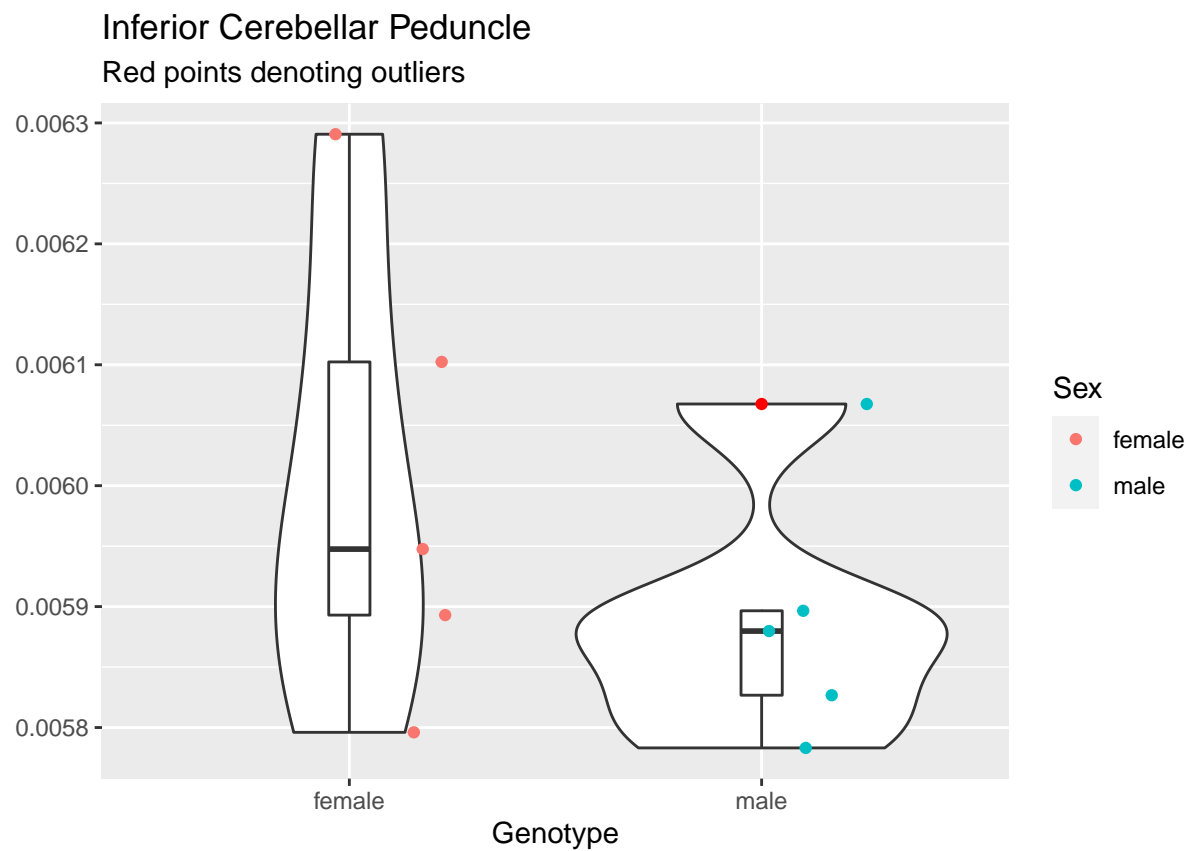
Middle Cerebellar Peduncle
Red points denoting outliers
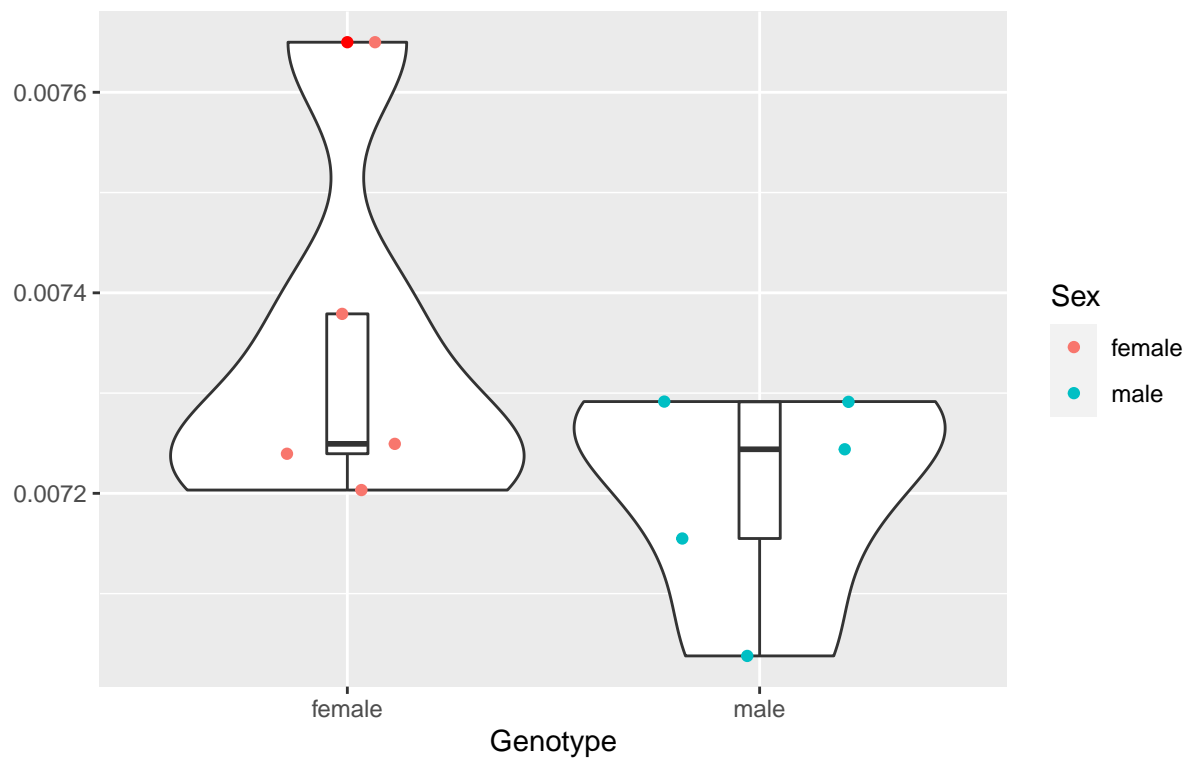

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.921e-08 4.921e-08   2.171  0.179
## Residuals   8 1.814e-07 2.267e-08
```
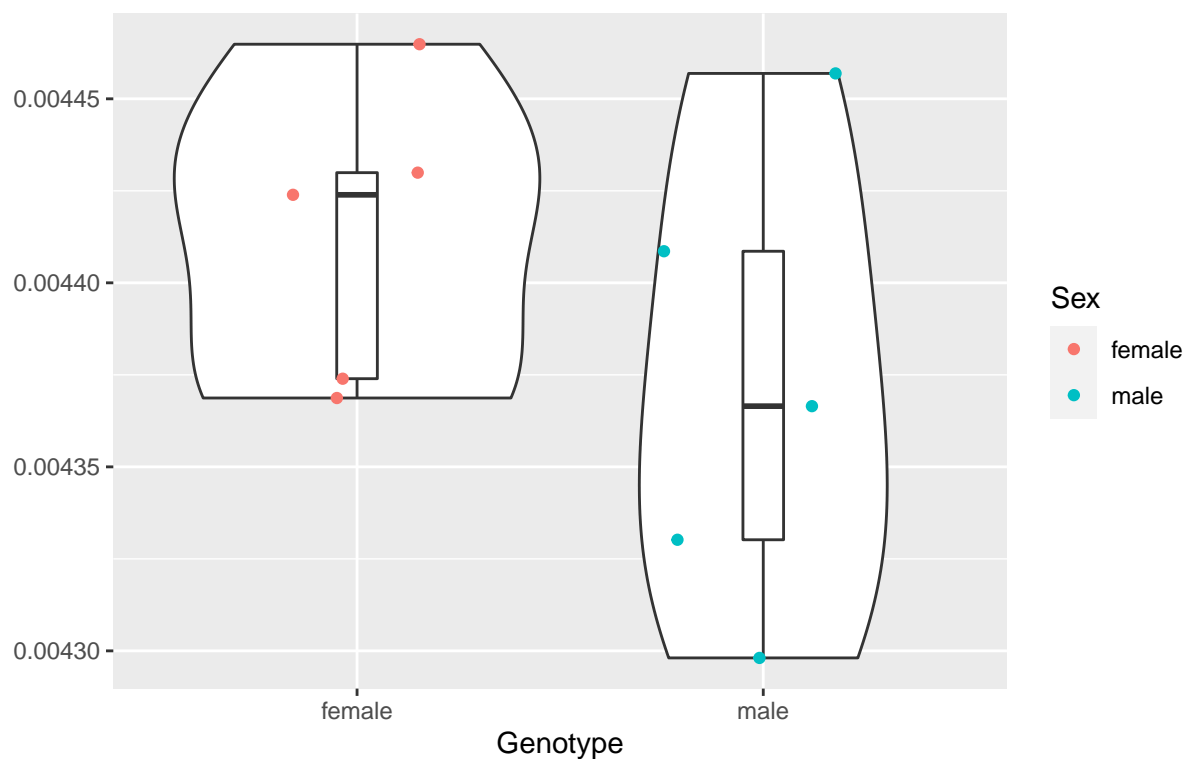
Superior Cerebellar Peduncle

Red points denoting outliers
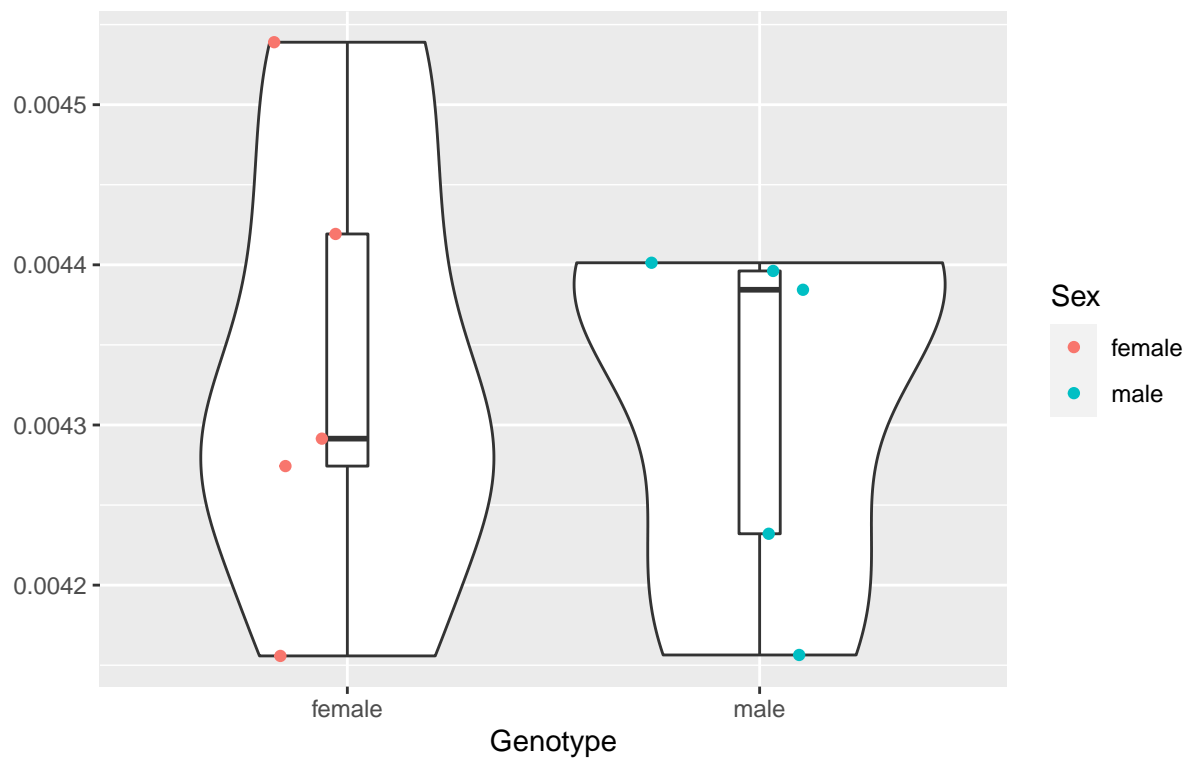

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.200e-09 1.199e-09    0.07  0.798
## Residuals   8 1.373e-07 1.716e-08
```
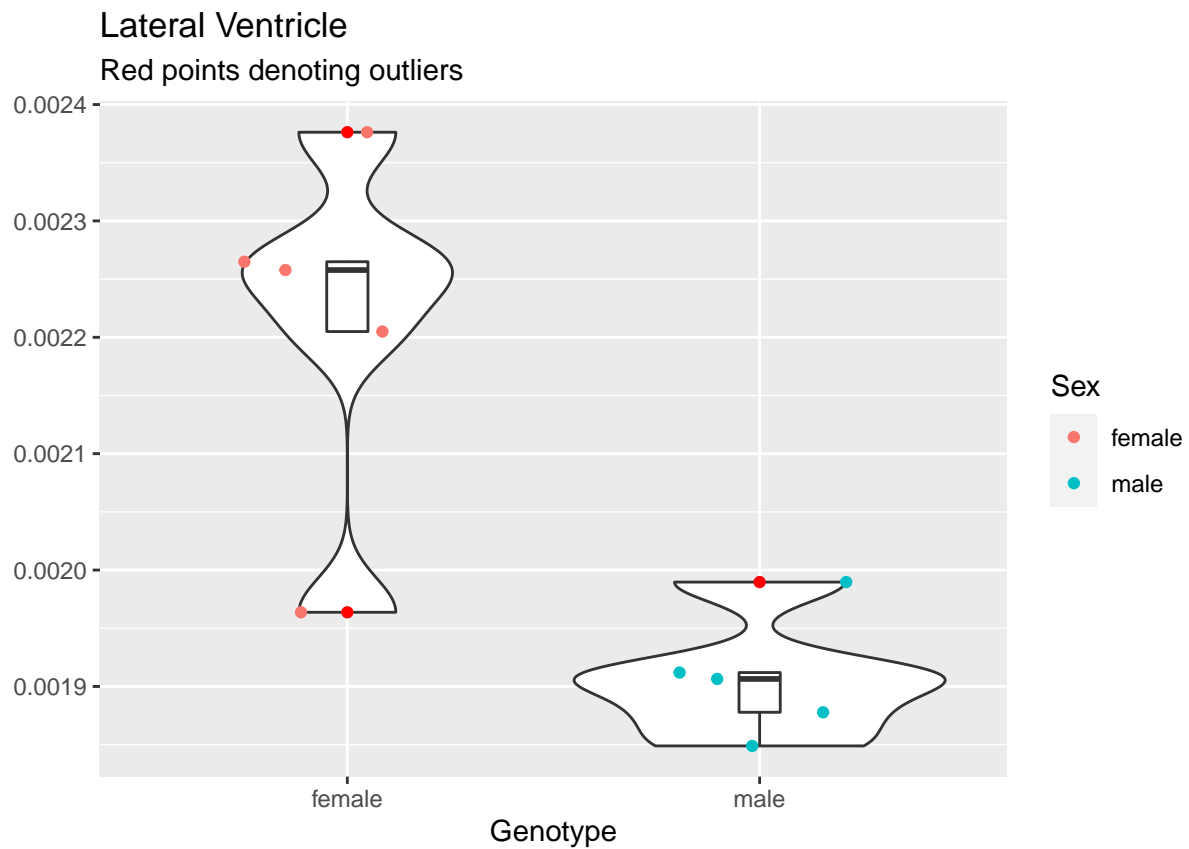
Inferior Cerebellar Peduncle

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.317e-08 3.317e-08   1.342   0.28
## Residuals    8 1.977e-07 2.471e-08
```

Cerebellar White Matter
Red points denoting outliers

```
##              Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 4.044e-09 4.044e-09   1.447  0.263
## Residuals     8 2.237e-08 2.796e-09
```
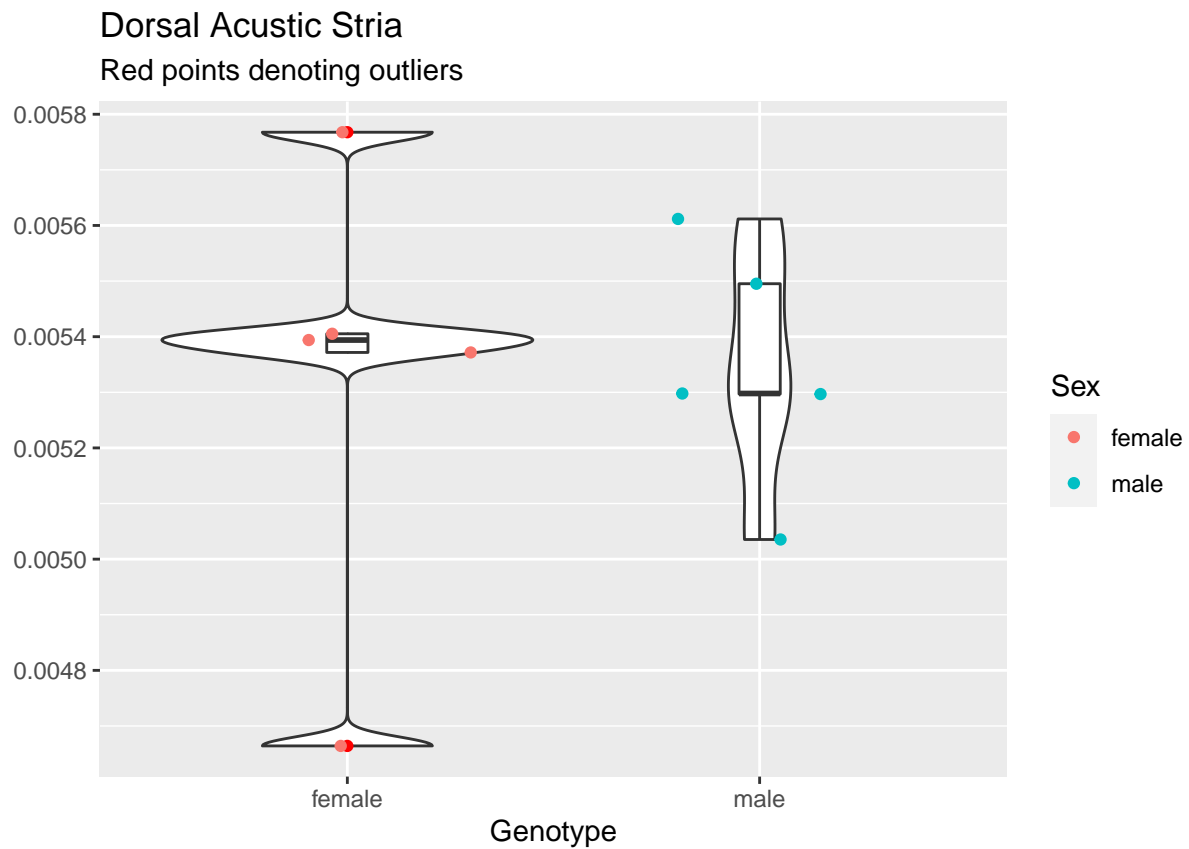
Lateral Ventricle
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value  Pr(>F)
## Sex          1 2.350e-07 2.350e-07   17.97 0.00284 **
## Residuals    8 1.046e-07 1.308e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
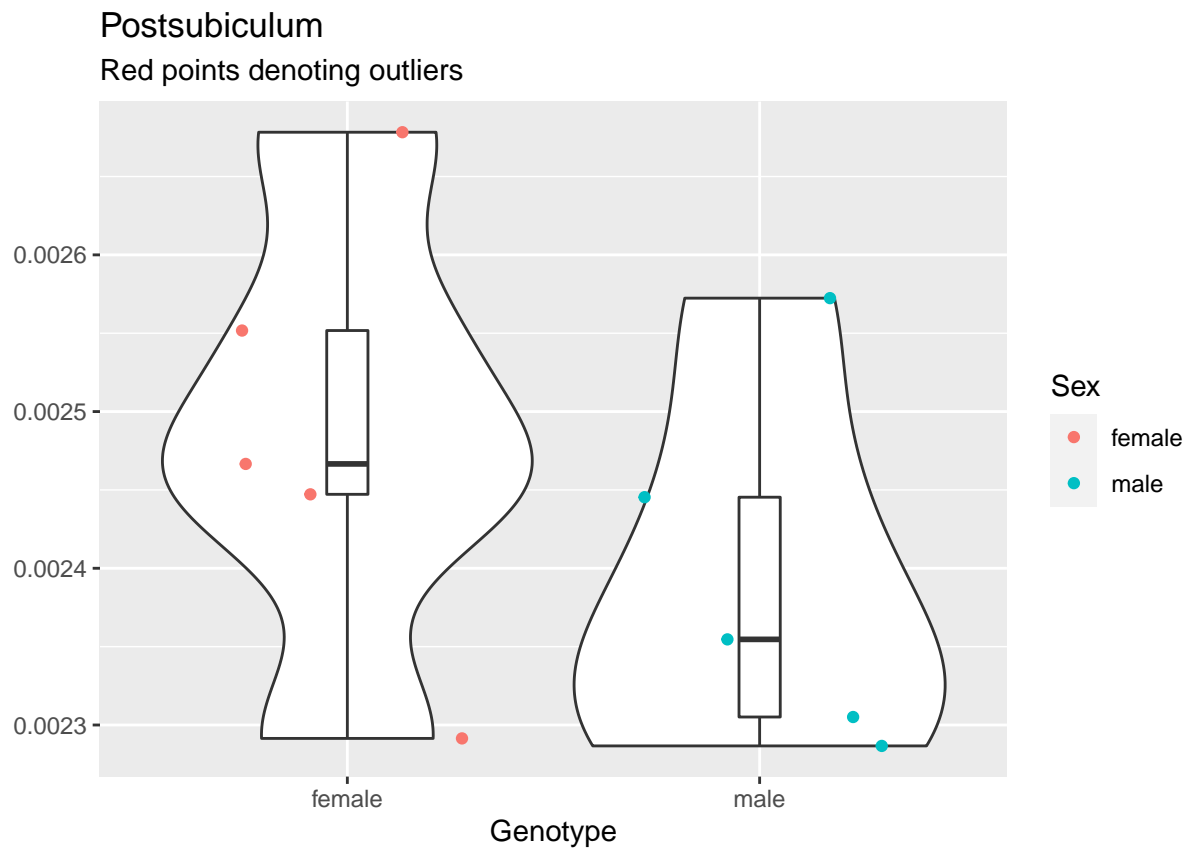
Cingulate Cortex Area 25
Red points denoting outliers
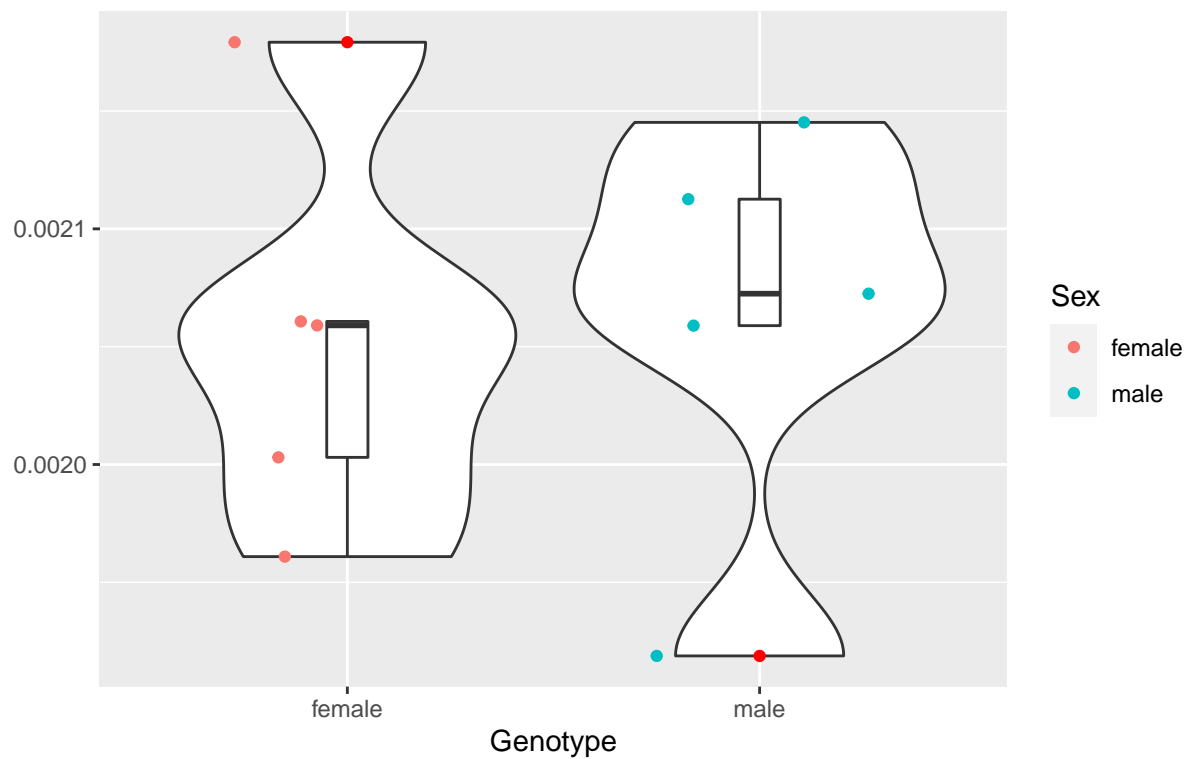
```
##             Df  Sum Sq  Mean Sq F value Pr(>F)
## Sex          1 2.00e-10 2.030e-10   0.028   0.87
## Residuals    8 5.71e-08 7.138e-09
```
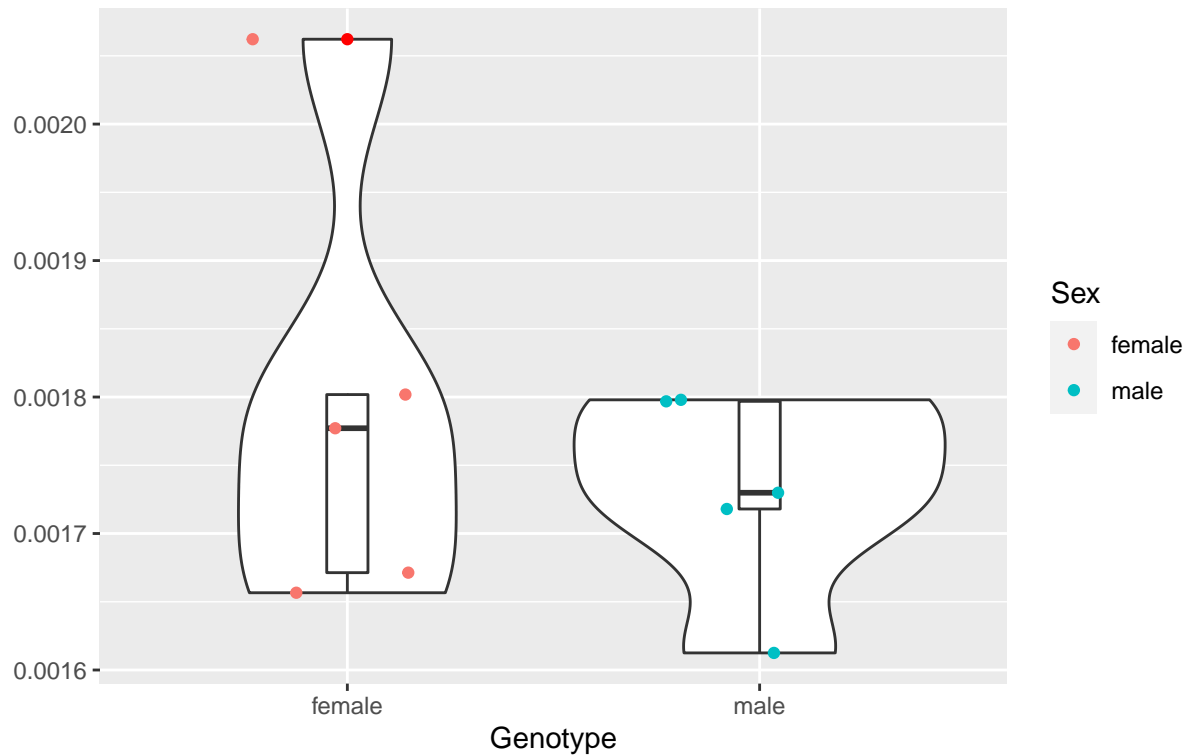
Dorsal Acustic Stria
Red points denoting outliers

```
##            Df   Sum Sq  Mean Sq F value Pr(>F)
## Sex         1 1.800e-09 1.80e-09   0.017  0.899
## Residuals   8 8.401e-07 1.05e-07
```

Postsubiculum
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.219e-08 2.219e-08   1.301  0.287
## Residuals    8 1.365e-07 1.706e-08
```
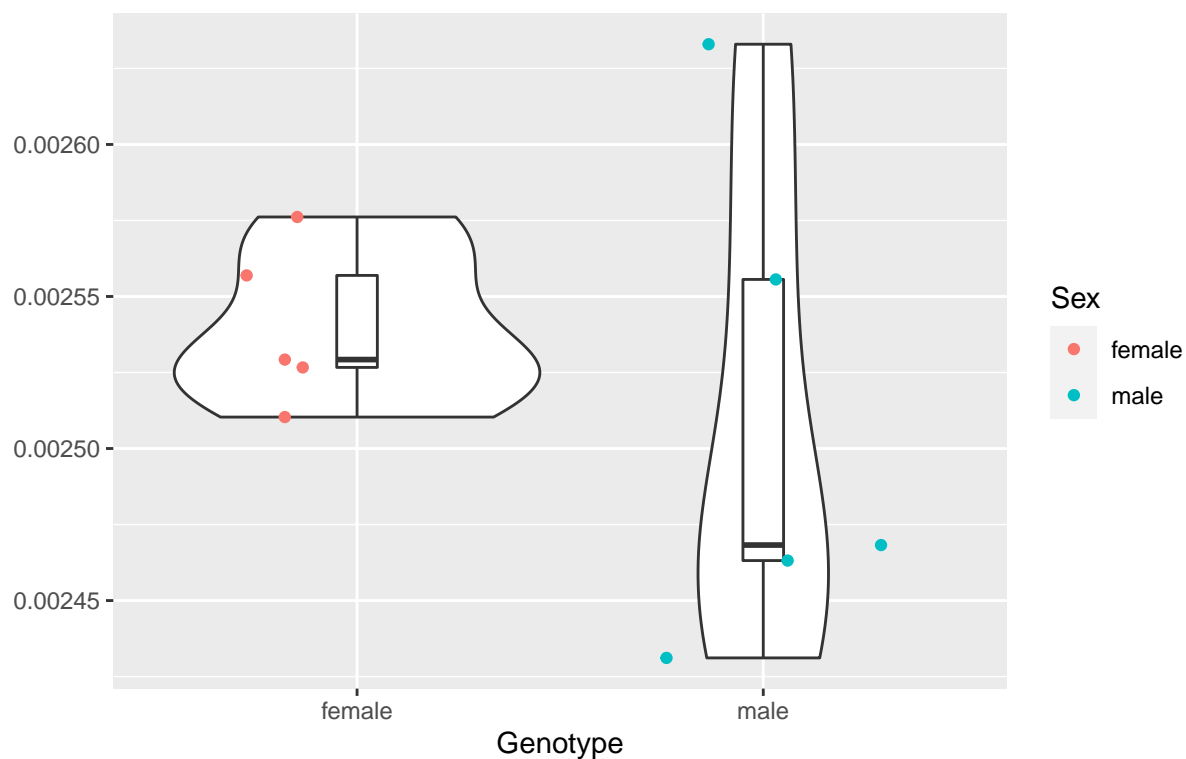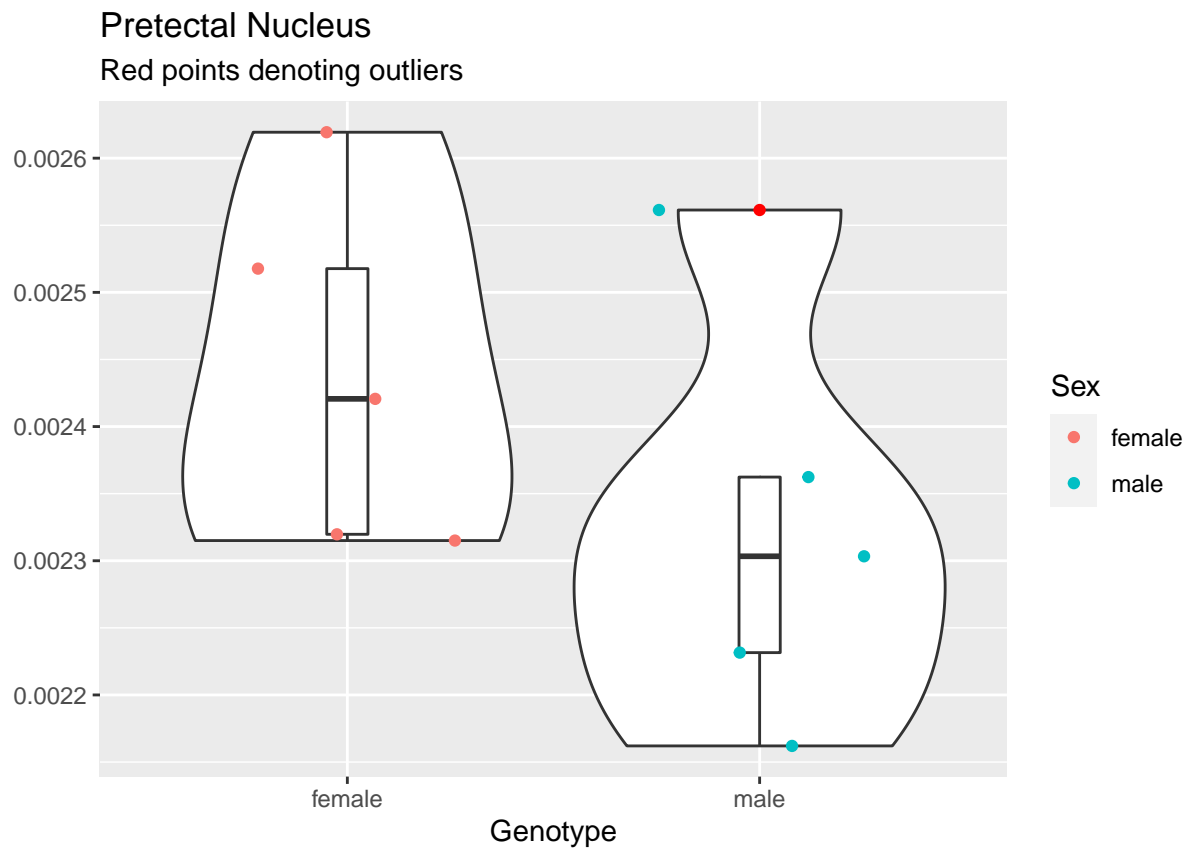
Ventricular System 4th Ventricle
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.850e-09 9.852e-09    0.61  0.457
## Residuals    8 1.292e-07 1.615e-08
```

Microcellular Tegmental Nucleus
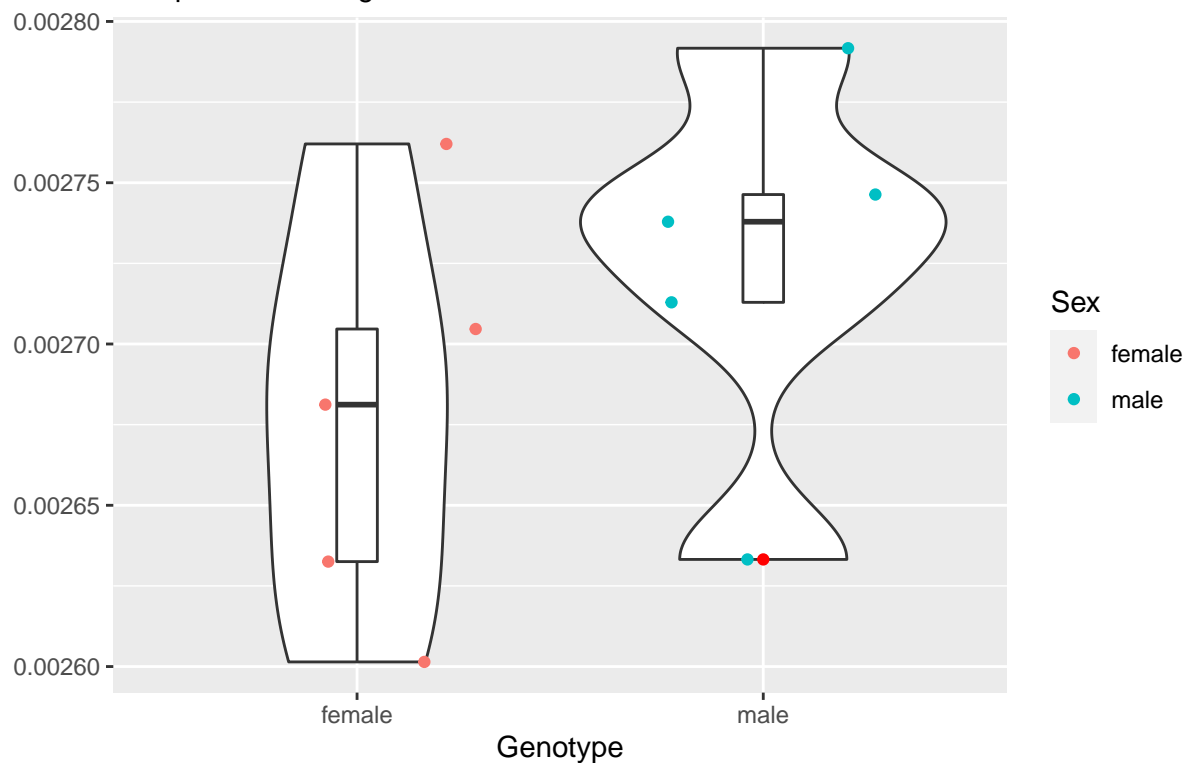Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 2.197e-09 2.197e-09   0.584  0.467
## Residuals     8 3.012e-08 3.765e-09
```

Pretectal Nucleus

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.270e-08 3.270e-08   1.618  0.239
## Residuals    8 1.617e-07 2.021e-08
```
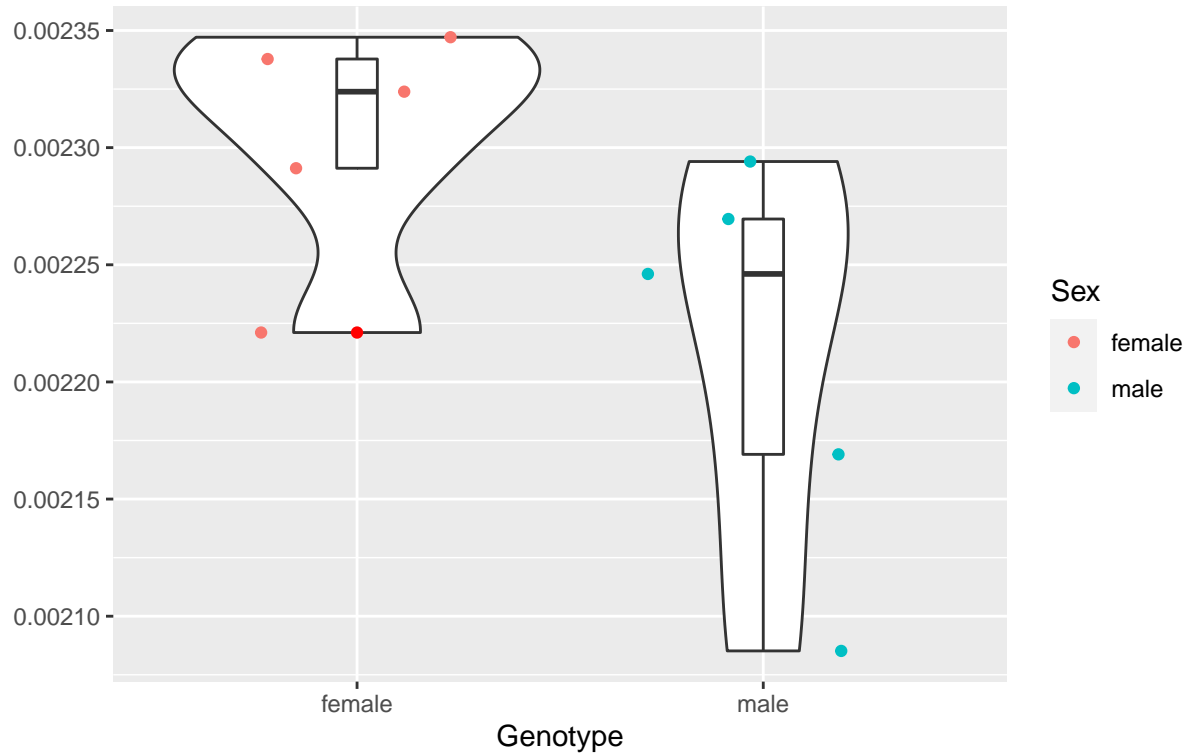
Latero Dorsal Thalamic Nucleus Ventro Lateral
Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.771e-09 5.771e-09   1.574  0.245
## Residuals    8 2.934e-08 3.667e-09
```
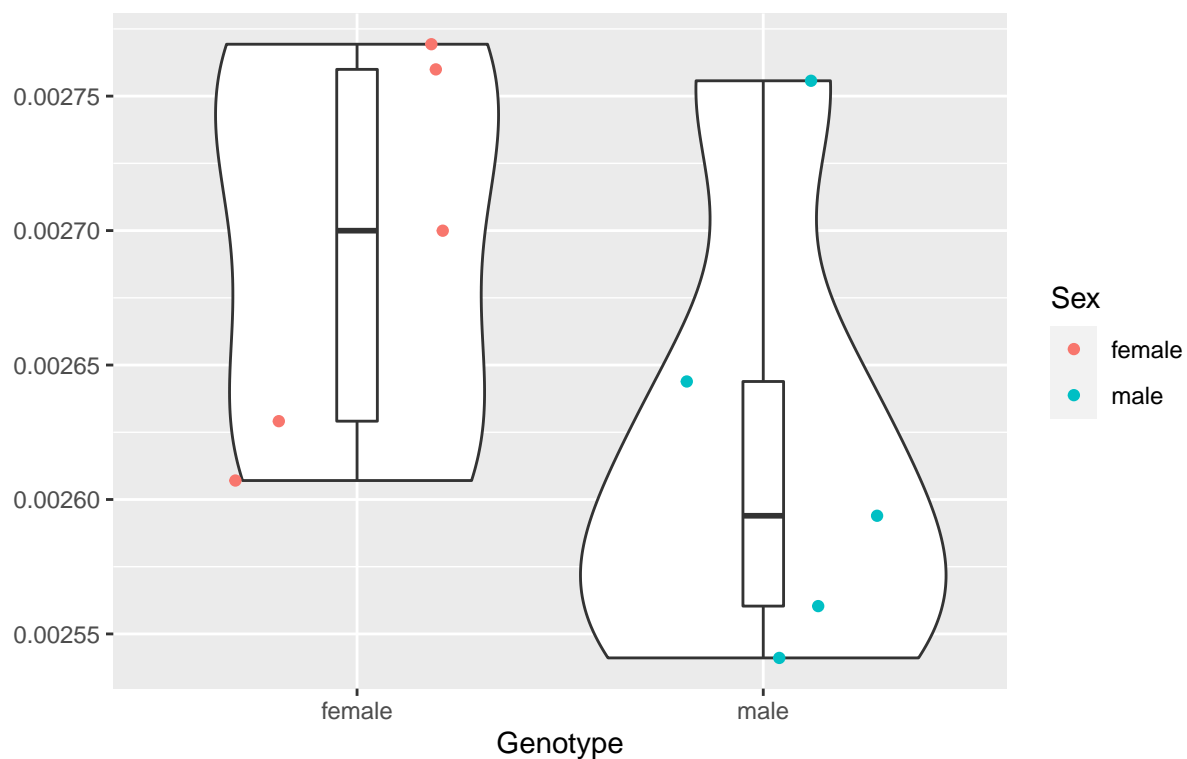
Latero Posterior Nuclei of Thalamus
Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 2.090e-08 2.090e-08   4.226 0.0739 .
## Residuals  8 3.957e-08 4.946e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
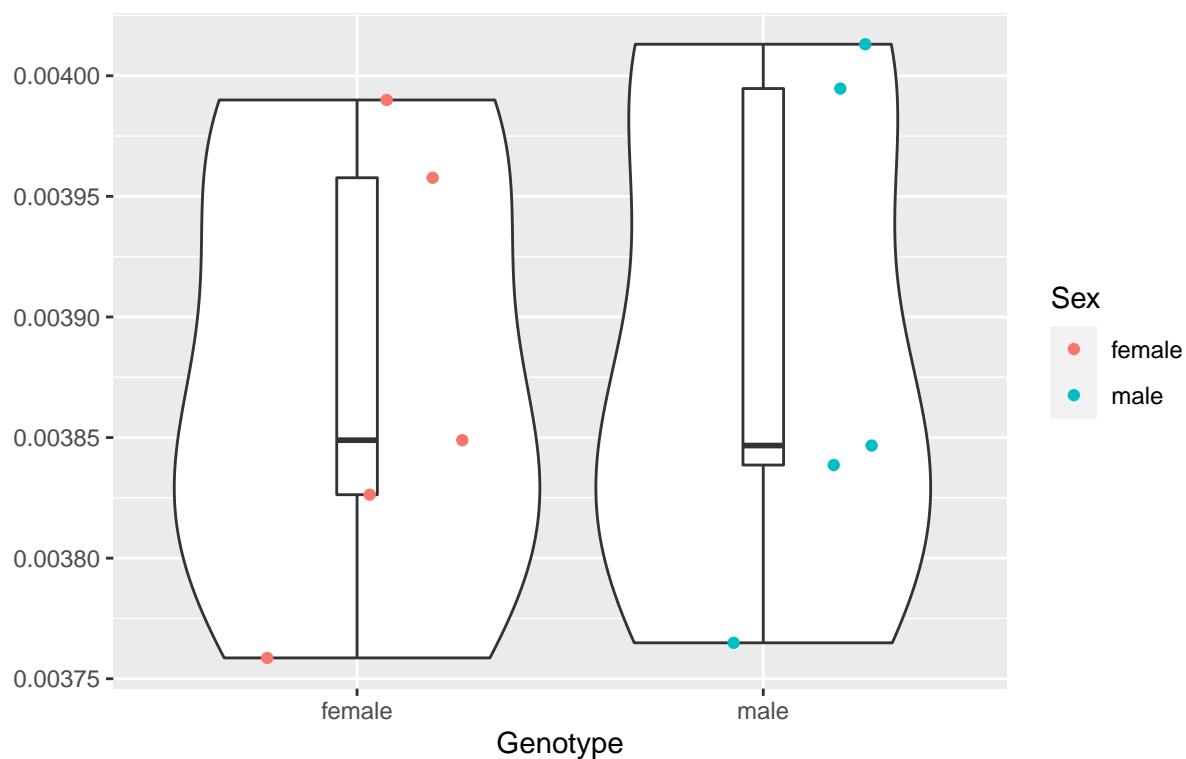
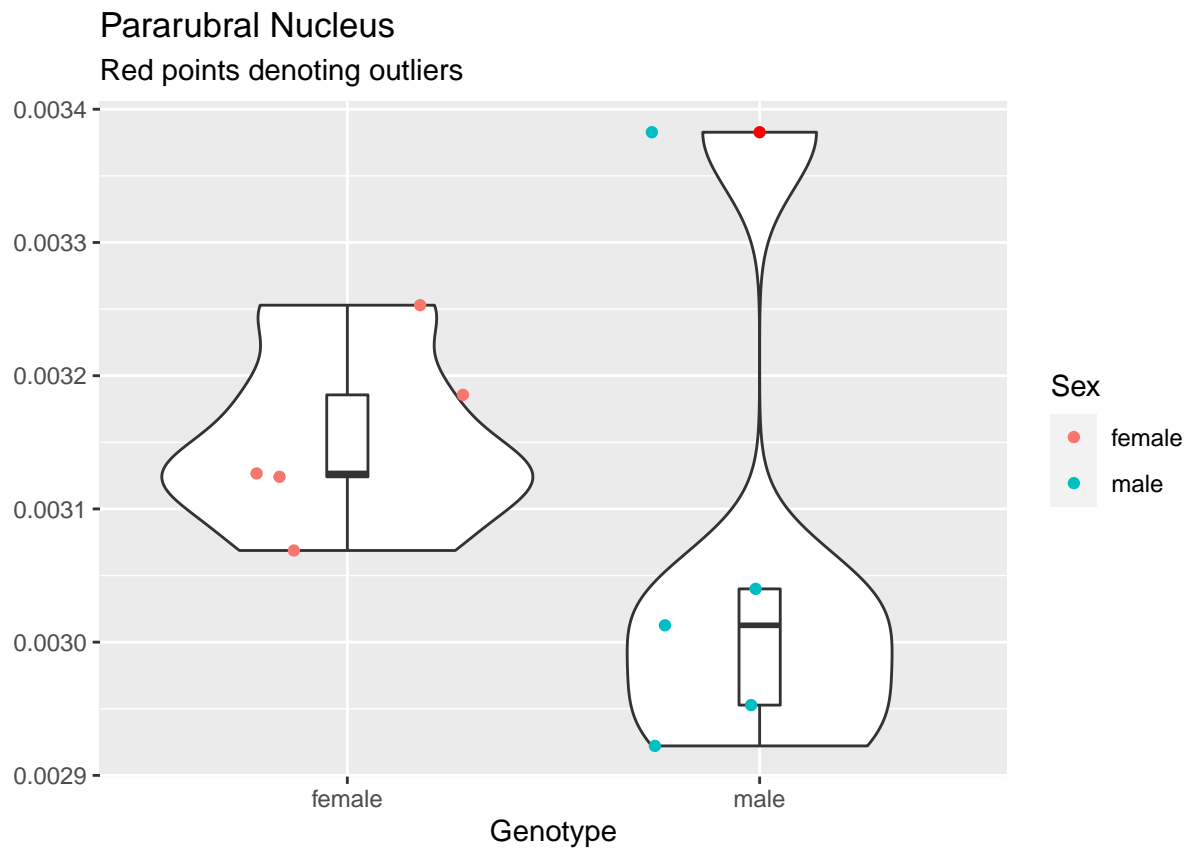## Anterior Thalamic Nuclei
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.372e-08 1.372e-08   2.141  0.182
## Residuals    8 5.127e-08 6.408e-09
```
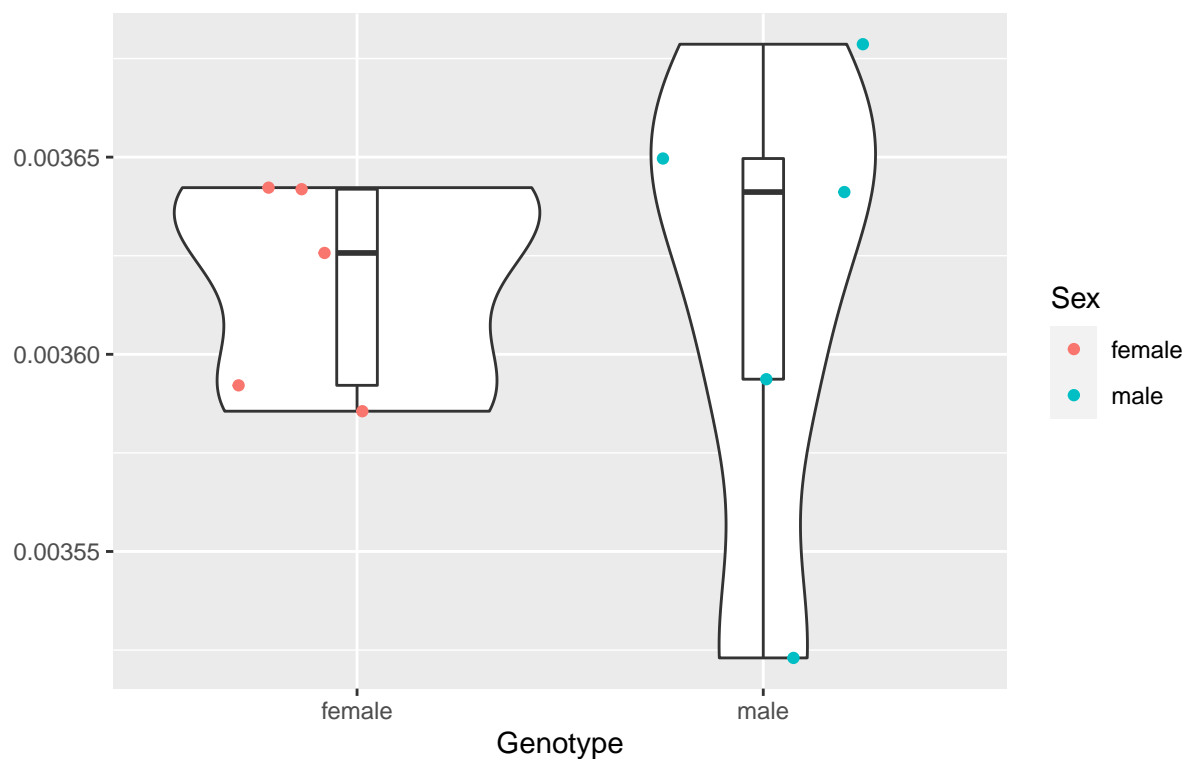
Red Nucleus Magnocellular
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.800e-10 5.840e-10   0.056  0.818
## Residuals    8 8.291e-08 1.036e-08
```
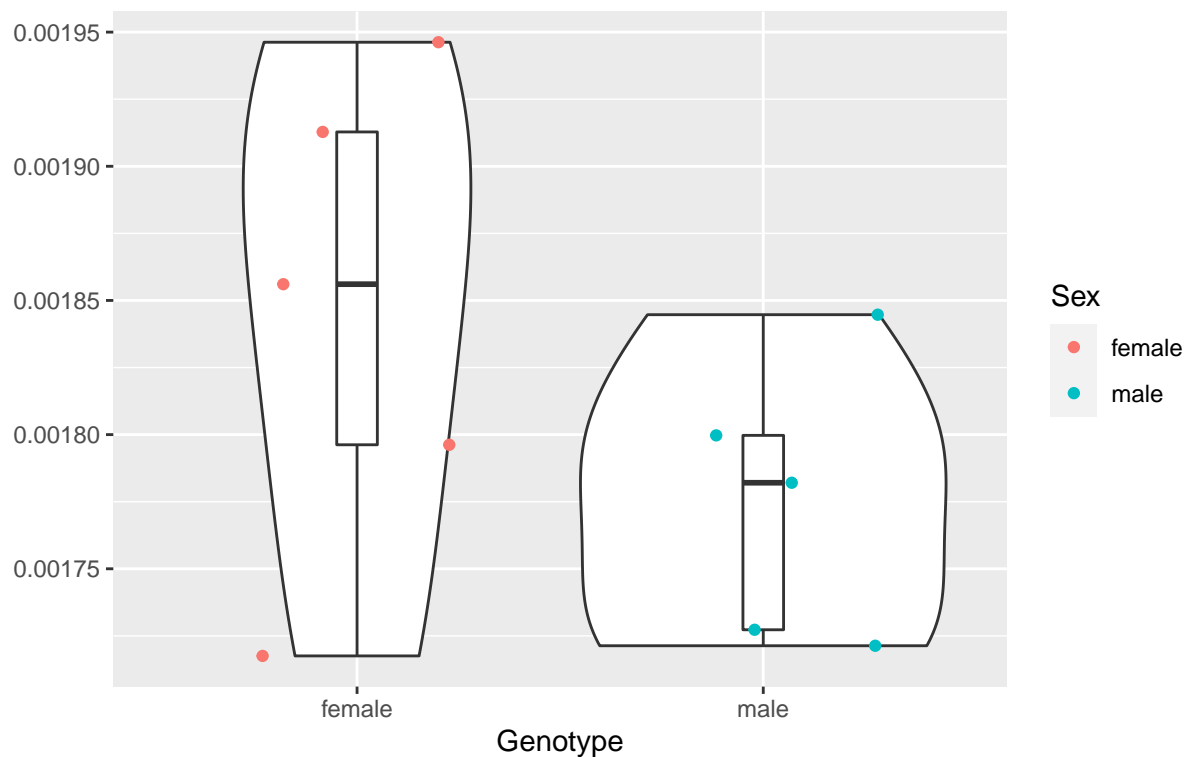
Pararubral Nucleus
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.005e-08 2.005e-08   1.022  0.342
## Residuals    8 1.570e-07 1.962e-08
```

Retro Rubral Fluid
Red points denoting outliers


```
##             Df    Sum Sq  Mean Sq F value Pr(>F)
## Sex          1 0.000e+00 2.00e-13       0  0.993
## Residuals    8 1.776e-08 2.22e-09
```
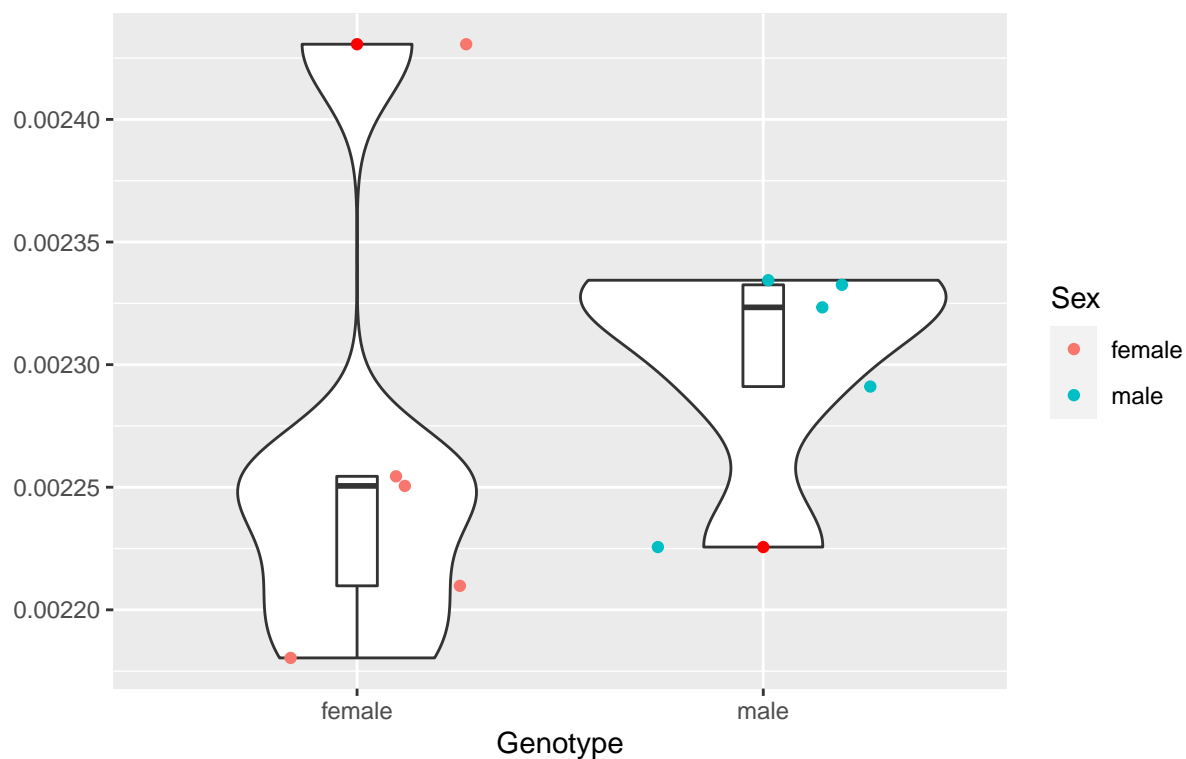
Cerebrospinal Fluid
Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 1.251e-08 1.251e-08   2.262  0.171
## Residuals  8 4.427e-08 5.533e-09
```
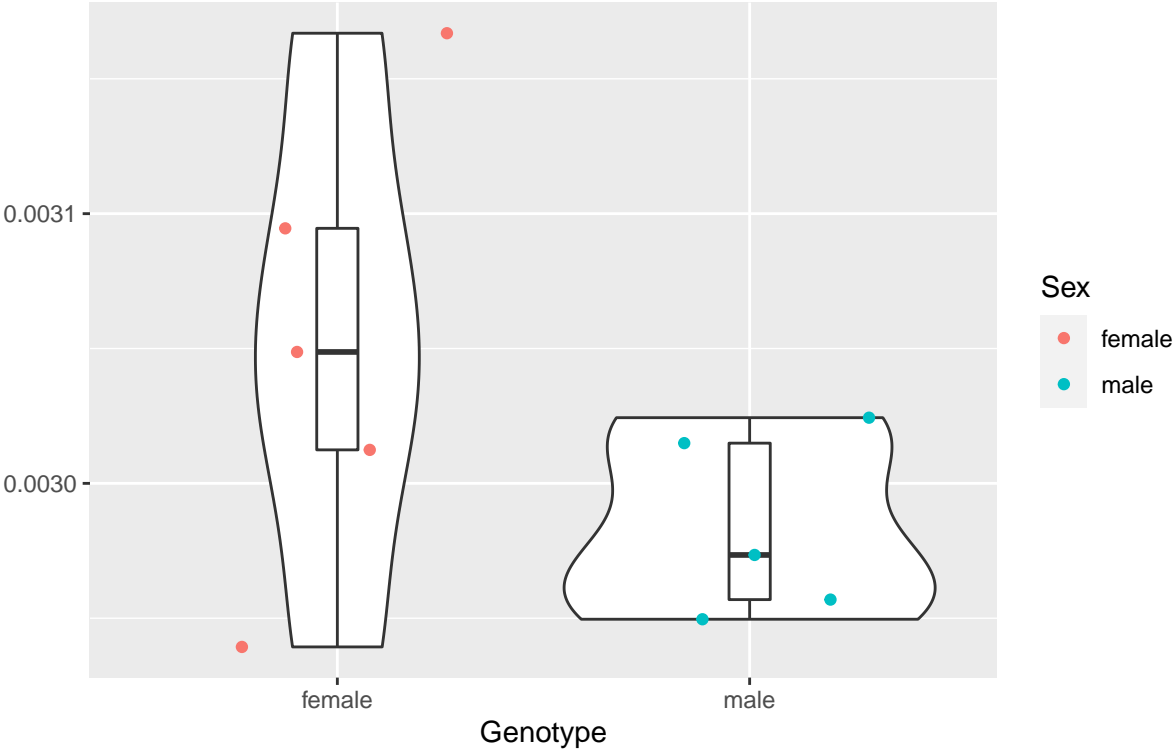
Intermediate Reticular Nucleus

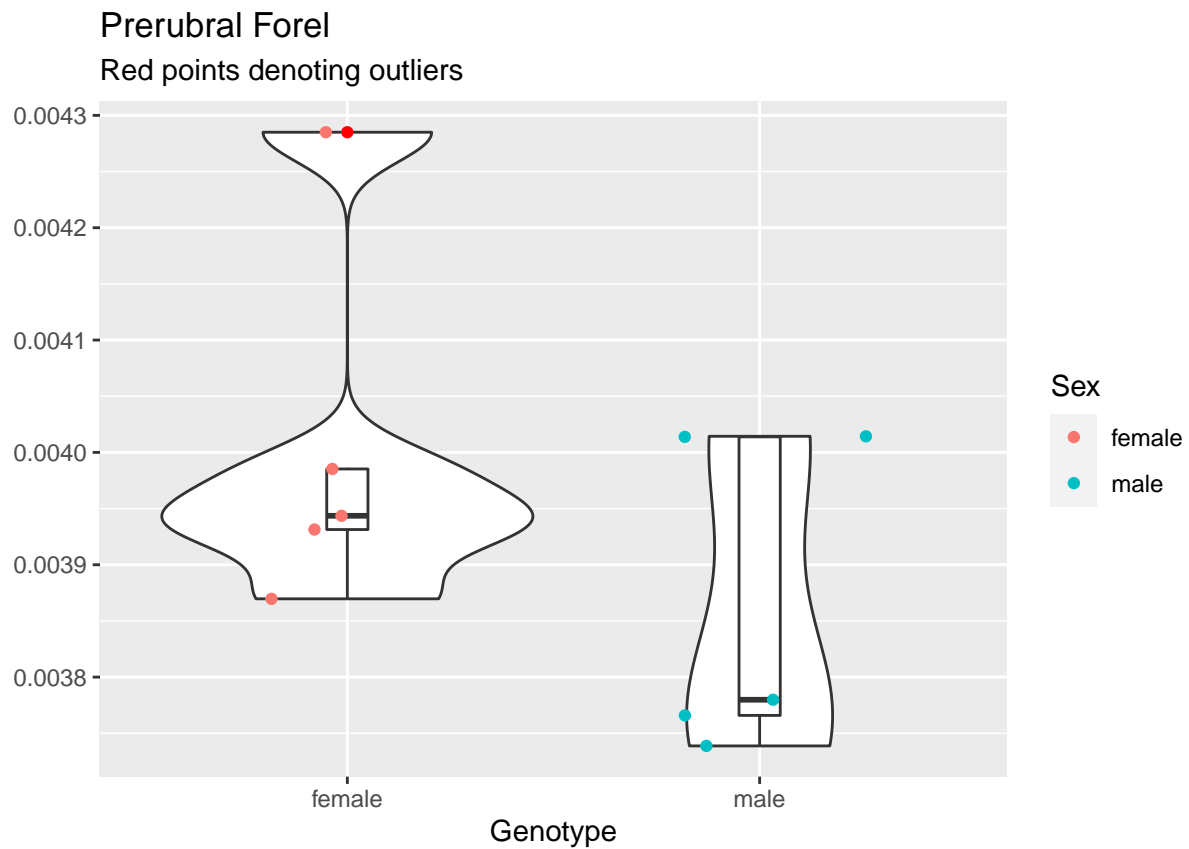Red points denoting outliers
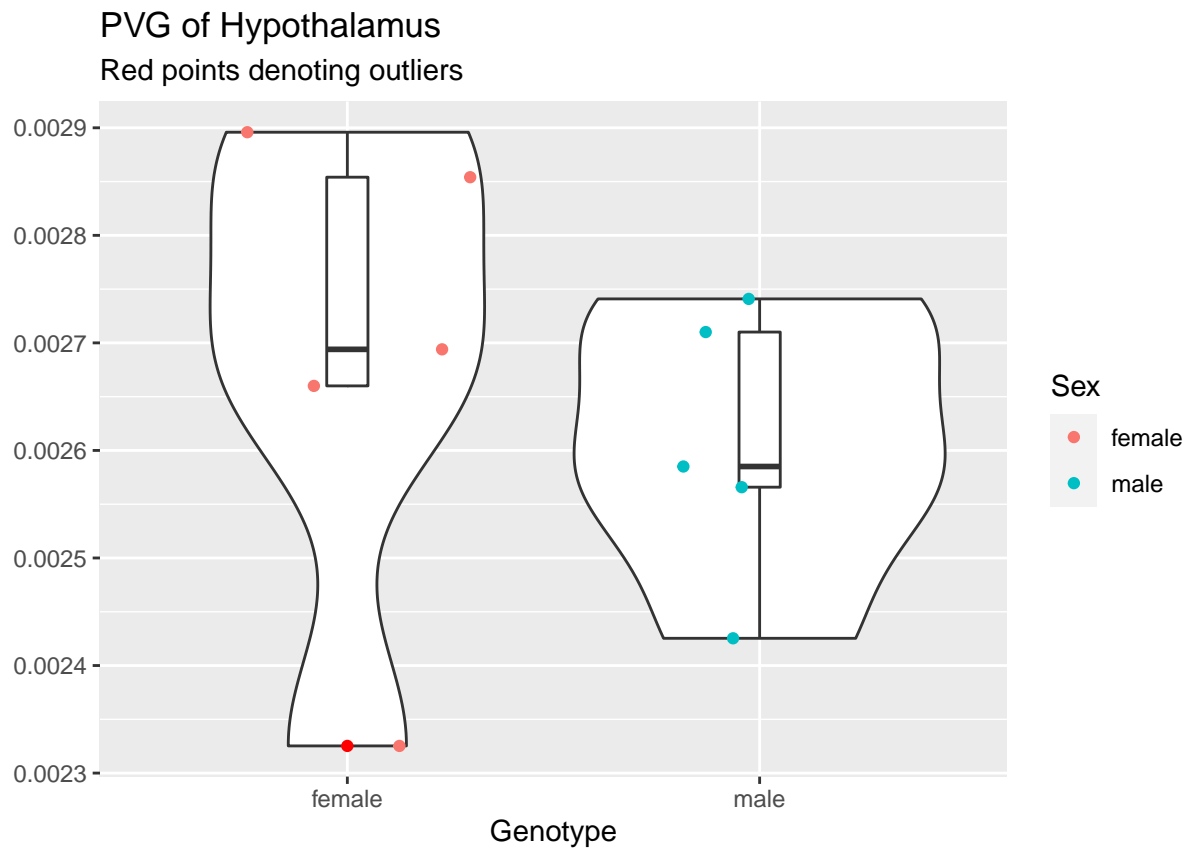


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 3.280e-09 3.281e-09   0.566  0.473
## Residuals     8 4.637e-08 5.796e-09
```
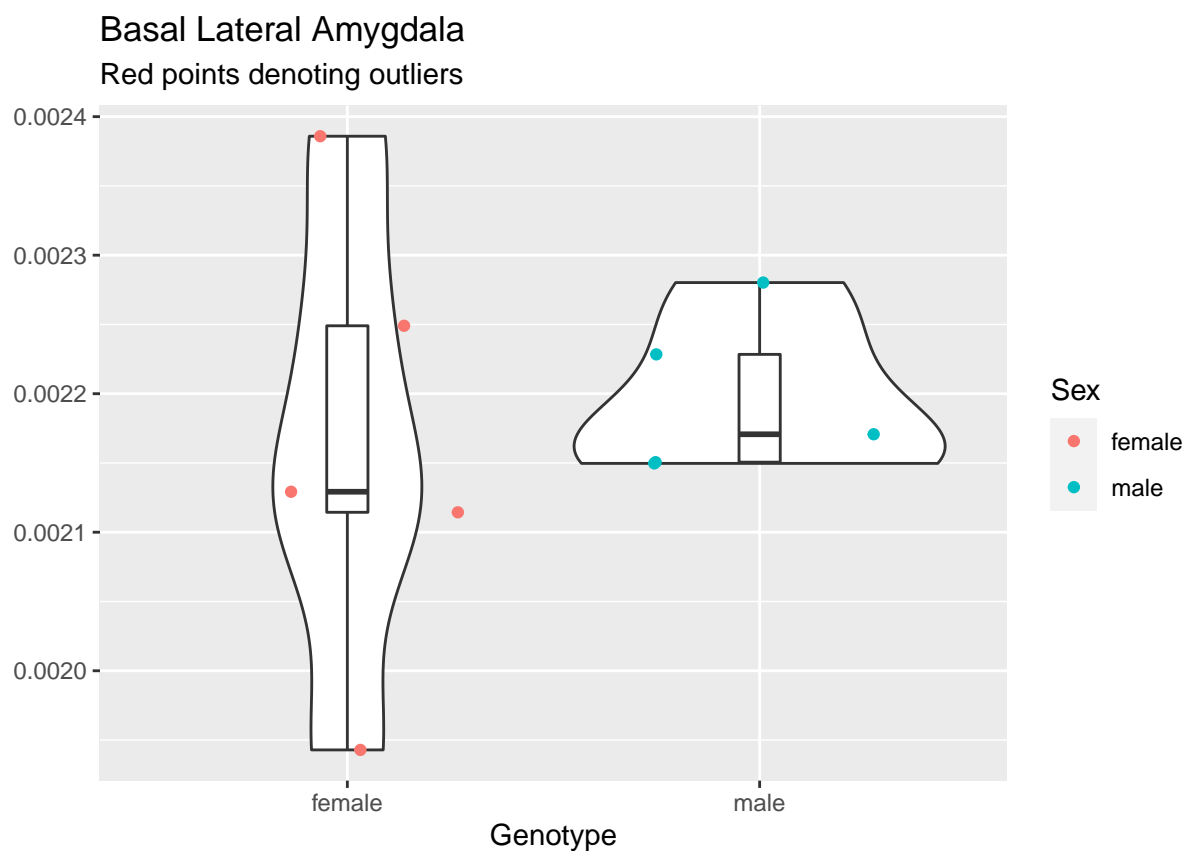
Posterior Dorsal Paraventricular Medial Parvicellular Posterior Lateral Hy

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.174e-08 1.174e-08   2.772  0.134
## Residuals    8 3.389e-08 4.236e-09
```

Prerubral Forel

Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.930e-08 4.930e-08   2.147  0.181
## Residuals    8 1.837e-07 2.297e-08
```

PVG of Hypothalamus
Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.616e-08 1.616e-08   0.484  0.506
## Residuals    8 2.669e-07 3.336e-08
```

Basal Lateral Amygdala
Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq  F value  Pr(>F)
## Sex          1  2.50e-09  2.504e-09   0.164   0.696
## Residuals    8  1.22e-07  1.525e-08
```

Brain Stem Rest

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.478e-08 1.478e-08   2.031  0.192
## Residuals   8 5.825e-08 7.281e-09
```
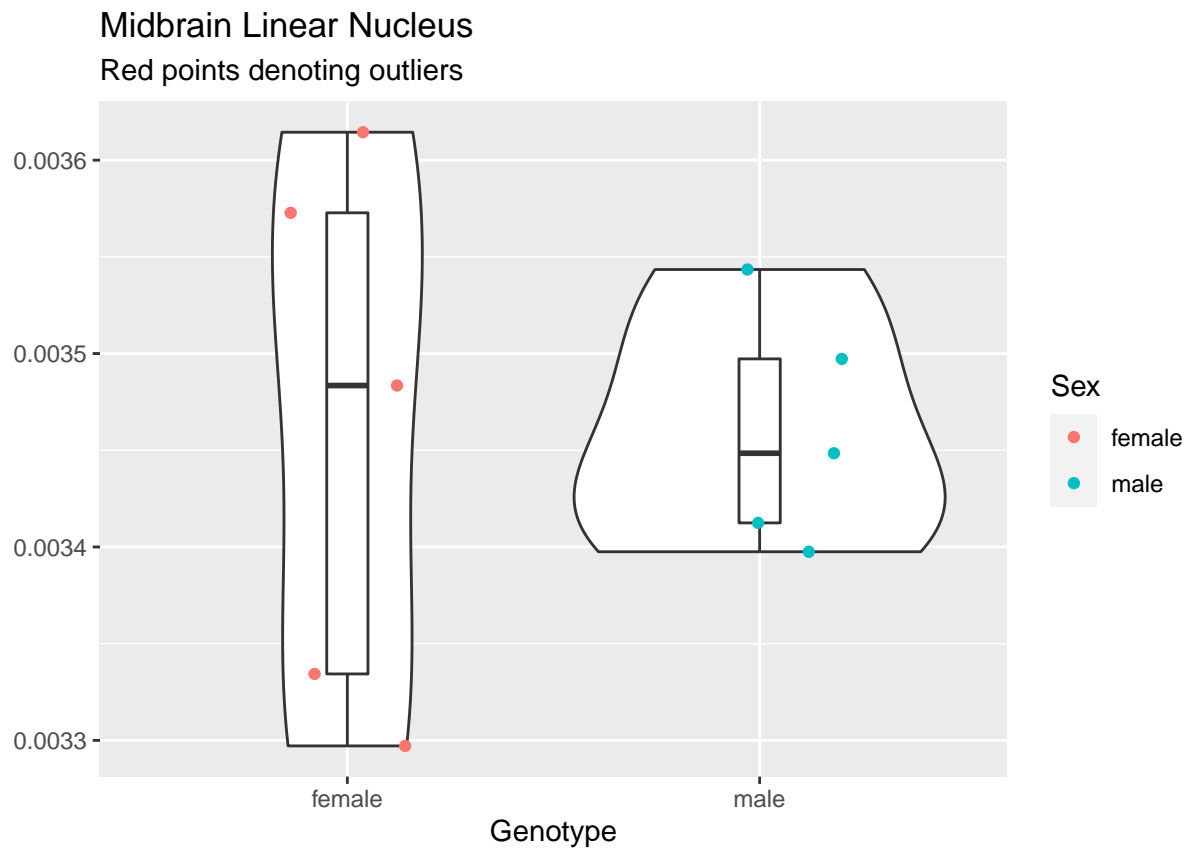
Precuneiform Nucleus
Red points denoting outliers
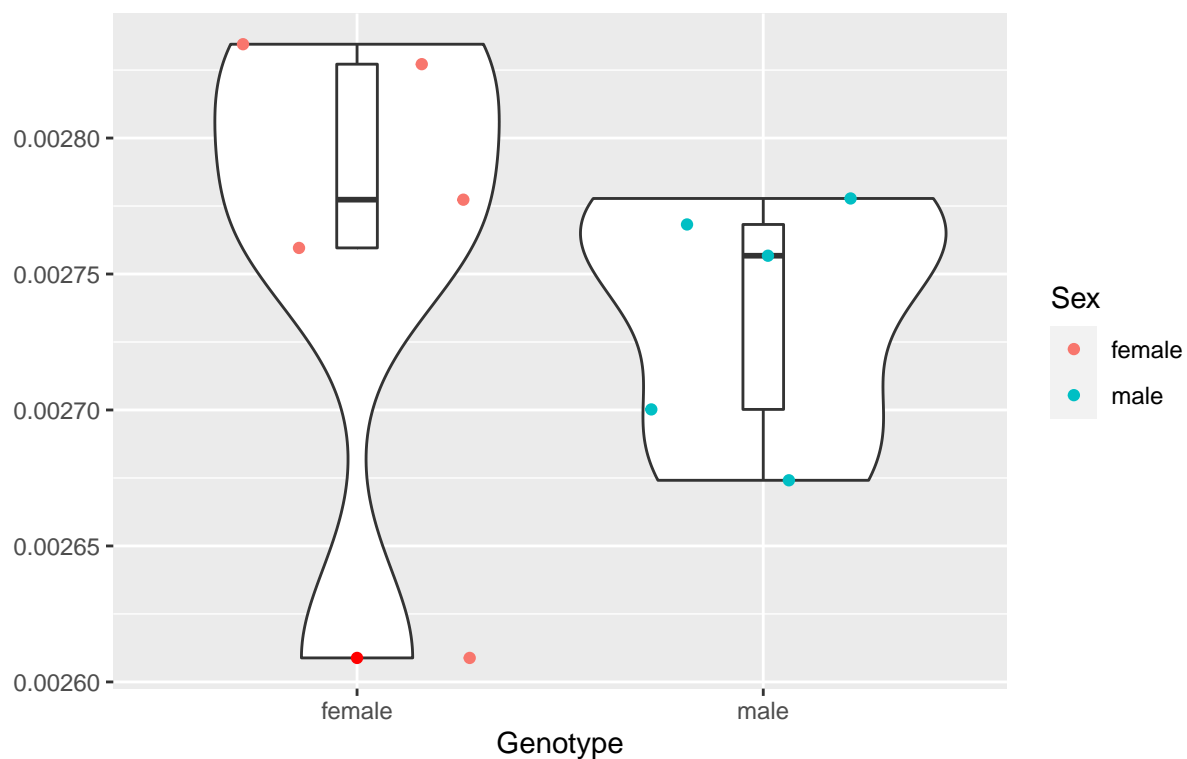

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.700e-09 1.699e-09   0.327  0.583
## Residuals   8 4.152e-08 5.190e-09
```
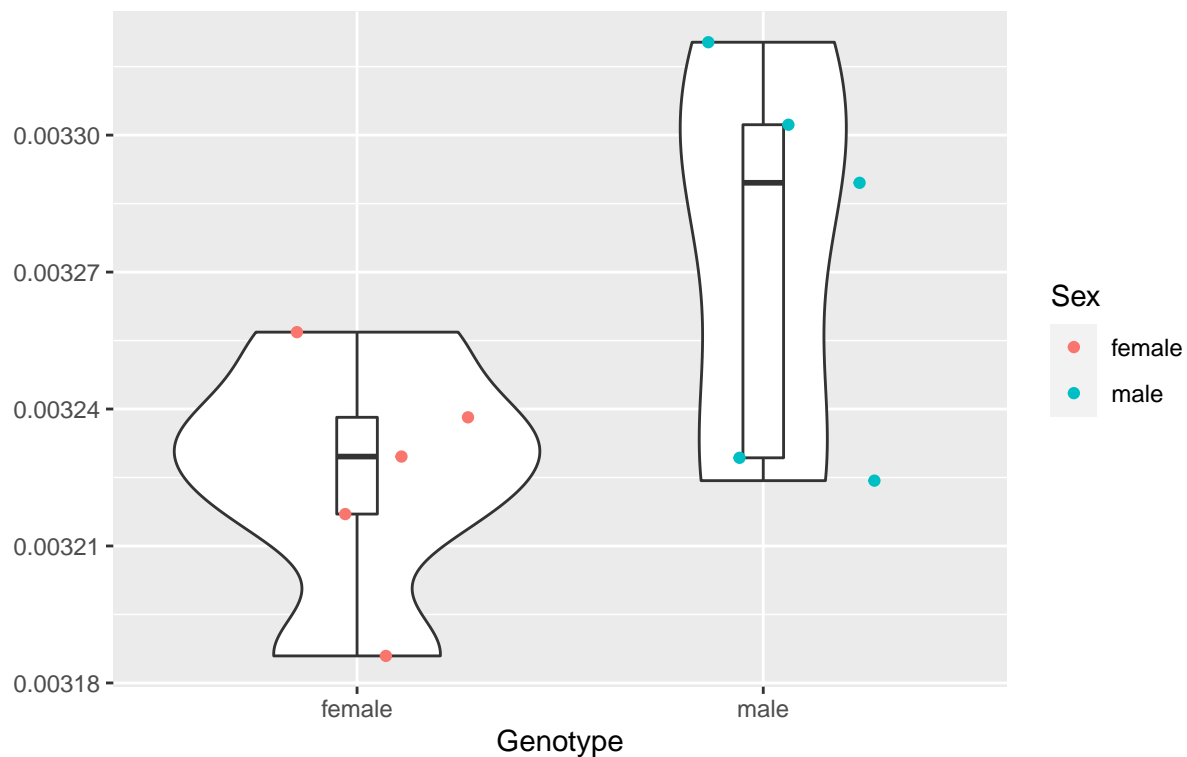
Cuneiform Nucleus
Red points denoting outliers
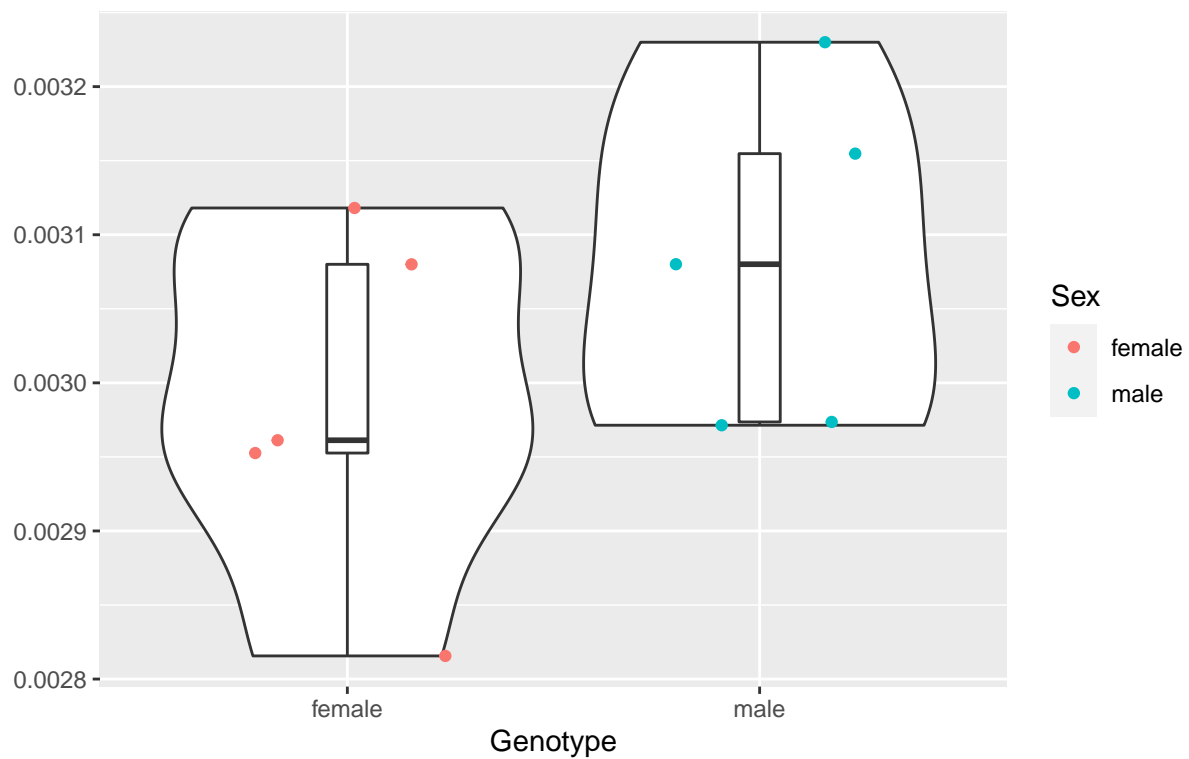

```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.326e-08 2.326e-08   1.719  0.226
## Residuals    8 1.082e-07 1.353e-08
```

Midbrain Linear Nucleus
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 0.000e+00 1.000e-12       0  0.993
## Residuals   8 9.408e-08 1.176e-08
```
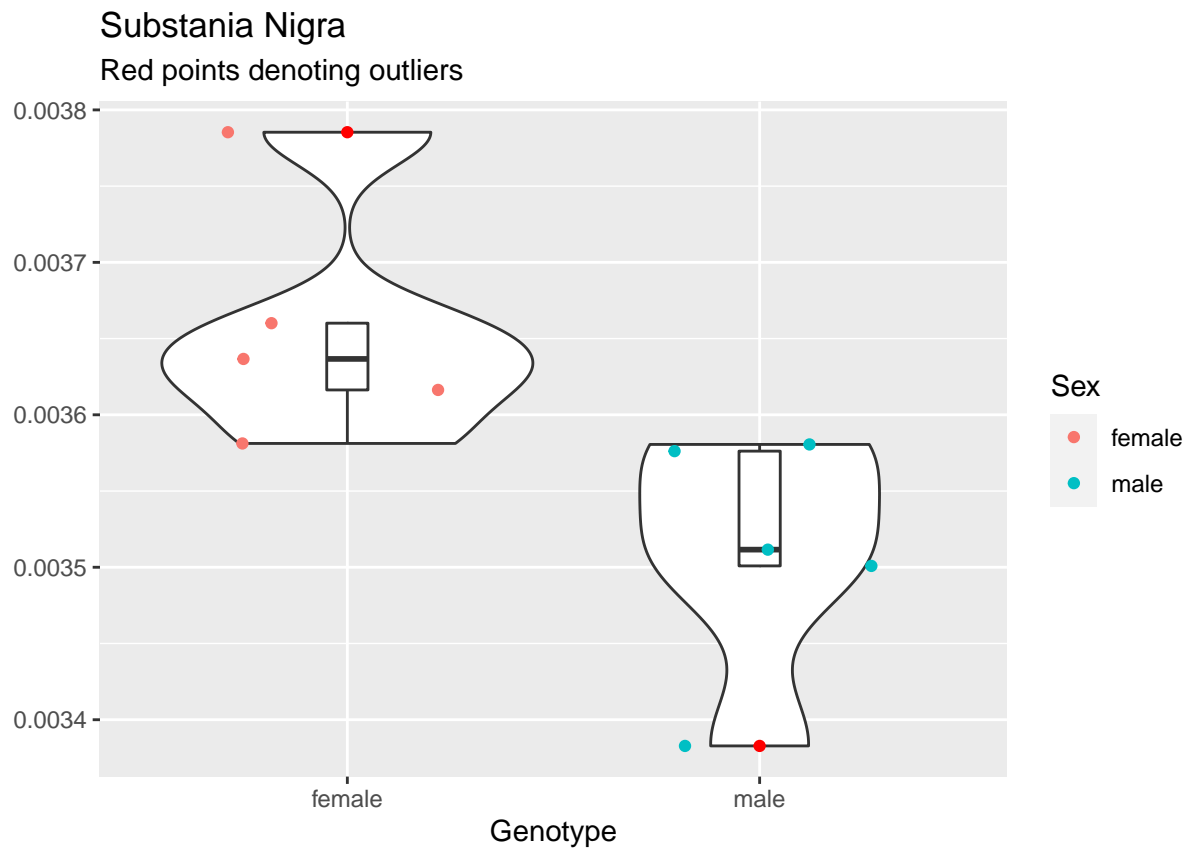
Midbrain Reticular Nucleus
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.678e-09 5.678e-09   4.346 0.0706 .
## Residuals    8 1.045e-08 1.306e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

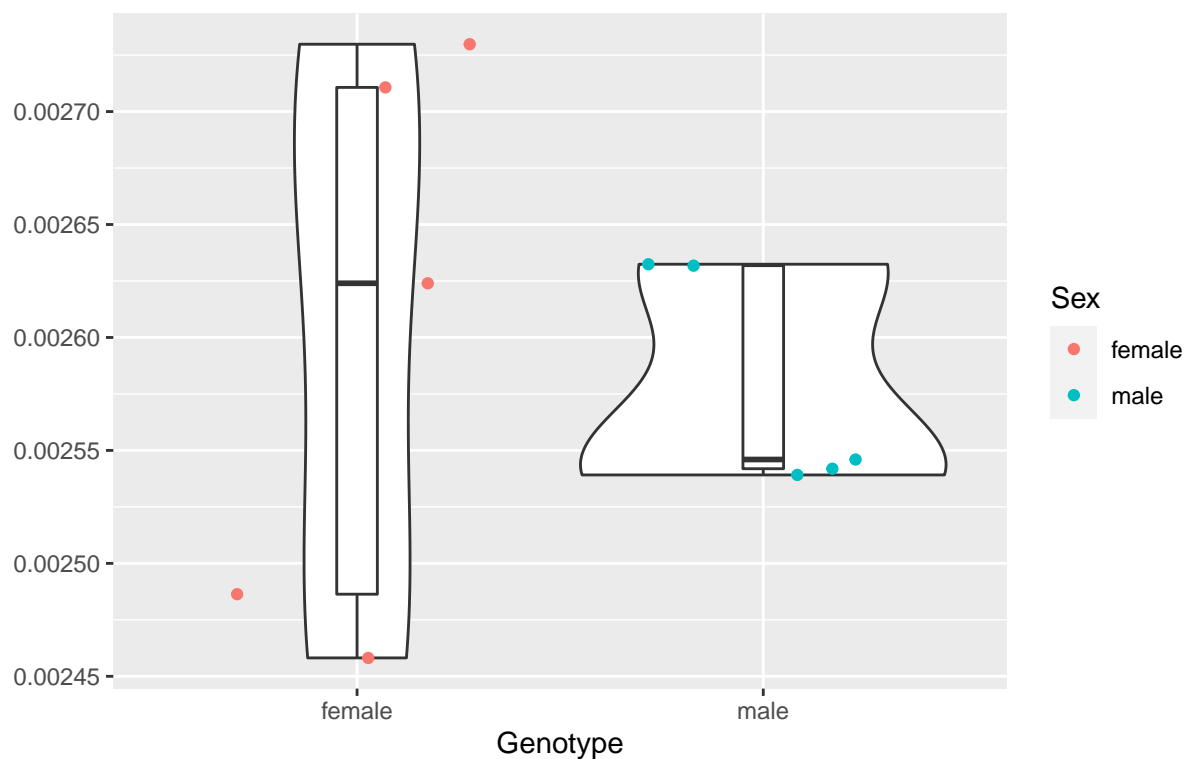Red Nucleus Parvicellular
Red points denoting outliers
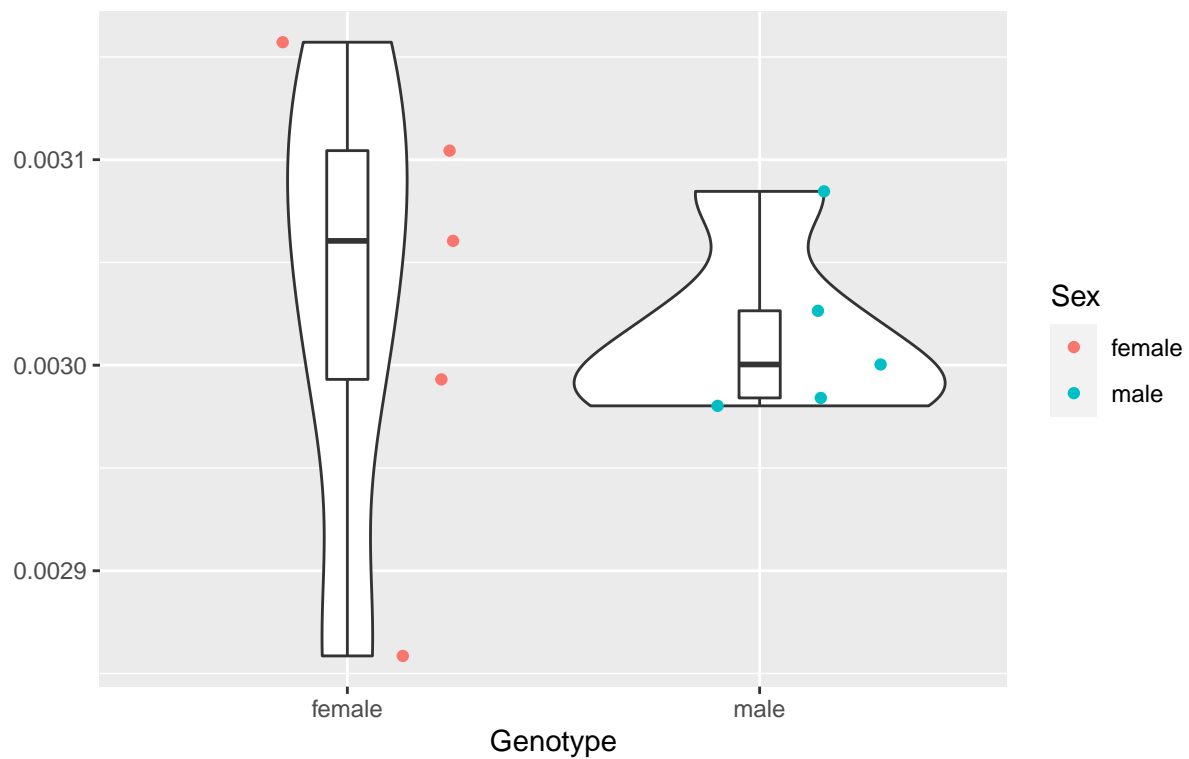
```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.600e-10 9.600e-10   0.127  0.731
## Residuals    8 6.063e-08 7.579e-09
```

Substania Nigra
Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.295e-08 5.295e-08   8.486 0.0195 *
## Residuals    8 4.991e-08 6.240e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Inferior Colliculus
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.390e-09 1.387e-09   0.153  0.706
## Residuals   8 7.239e-08 9.049e-09
```

Superior Colliculus
Red points denoting outliers
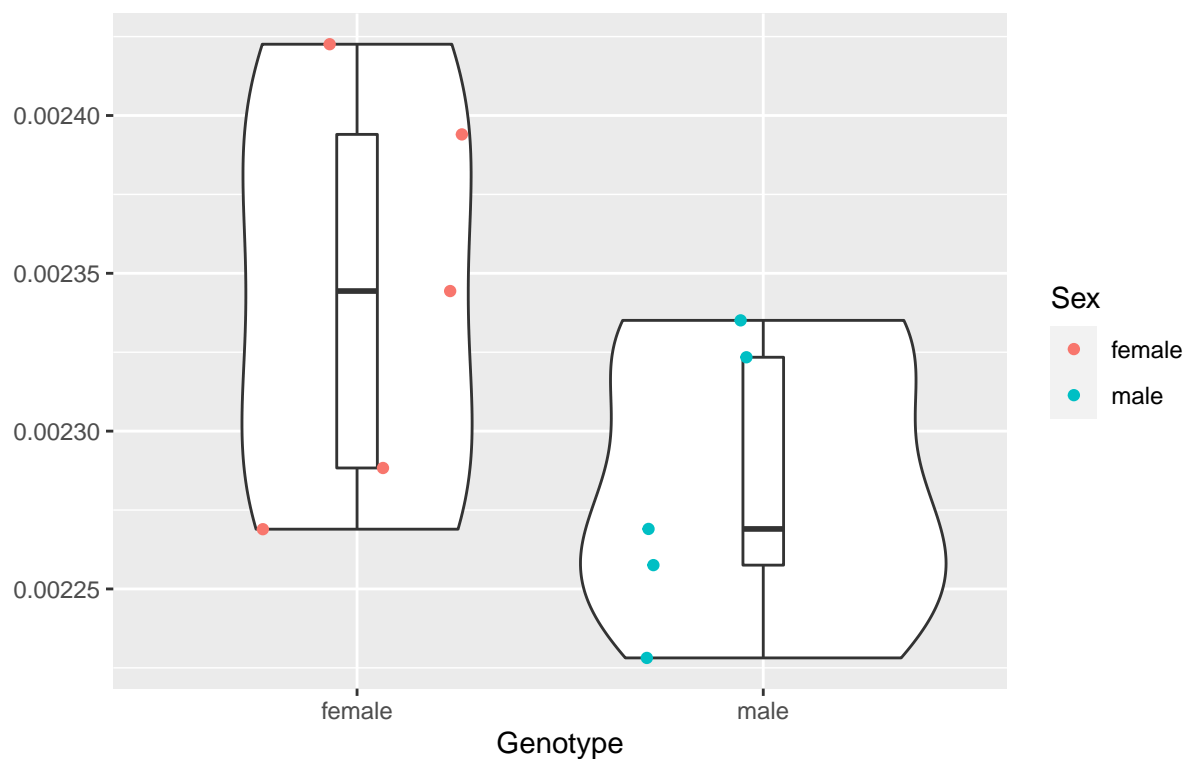

```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 9.304e-09 9.304e-09   2.907  0.127
## Residuals   8 2.561e-08 3.201e-09
```
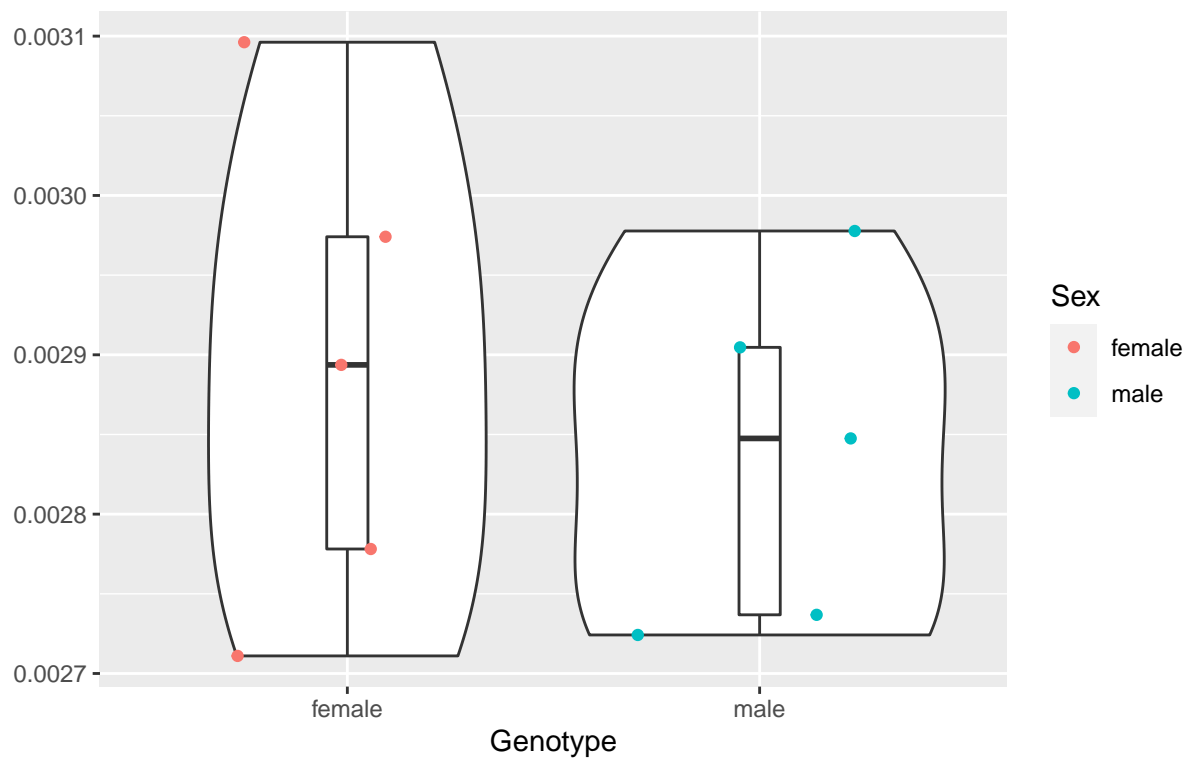
Deep Mesencephalic Nuclei

Red points denoting outliers
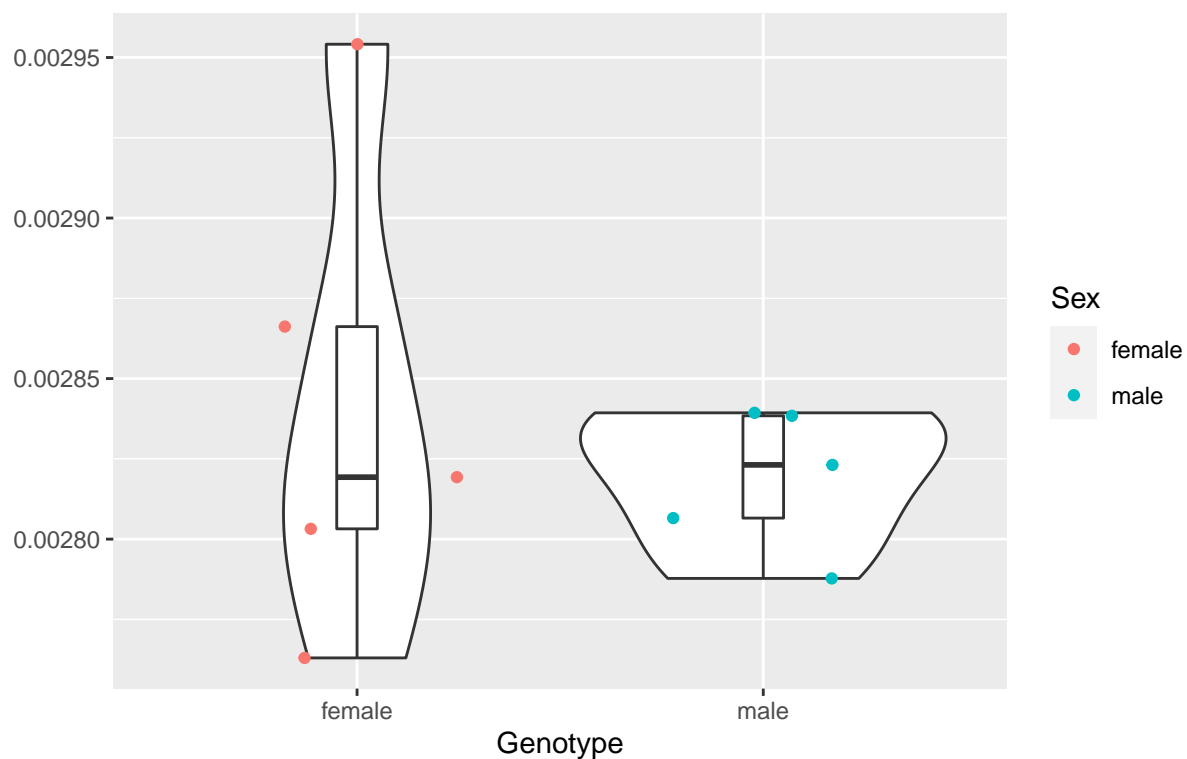

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 1.225e-09 1.225e-09   0.419  0.535
## Residuals  8 2.336e-08 2.920e-09
```
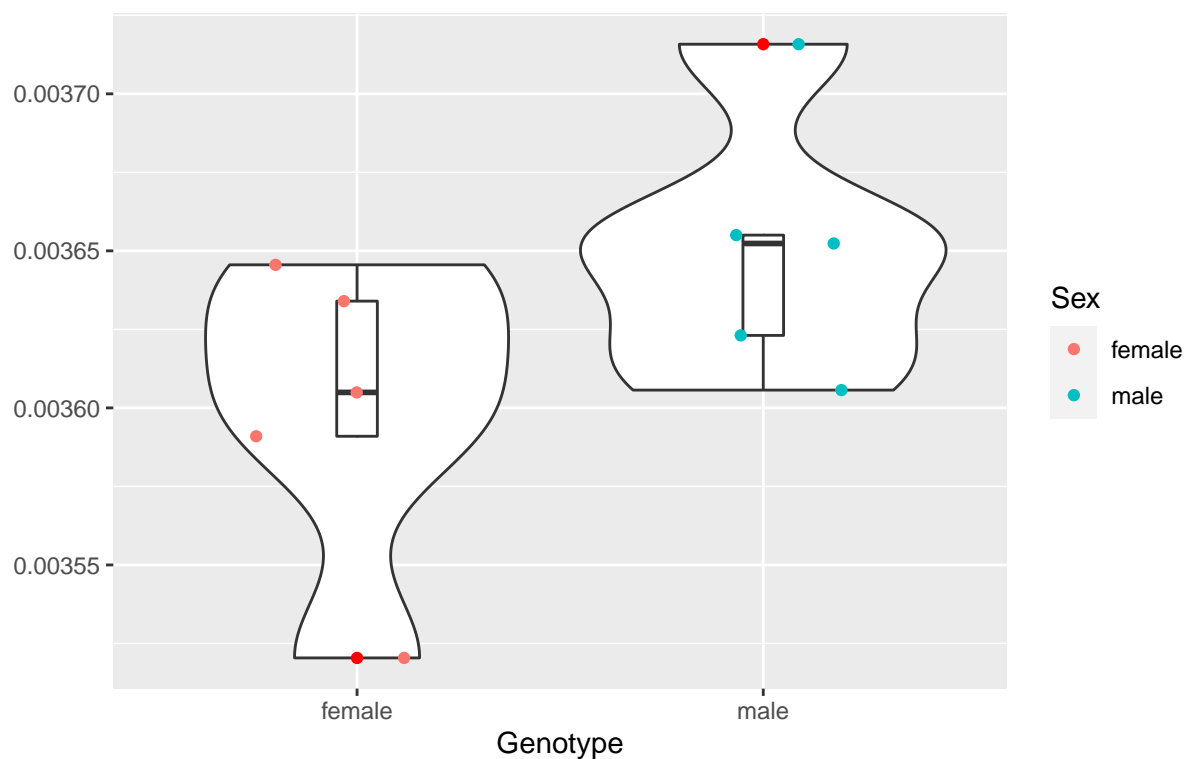
Subbrachial Nucleus and Peripeduncular Nucleus

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.870e-09 6.874e-09   0.389   0.55
## Residuals    8 1.414e-07 1.767e-08
```
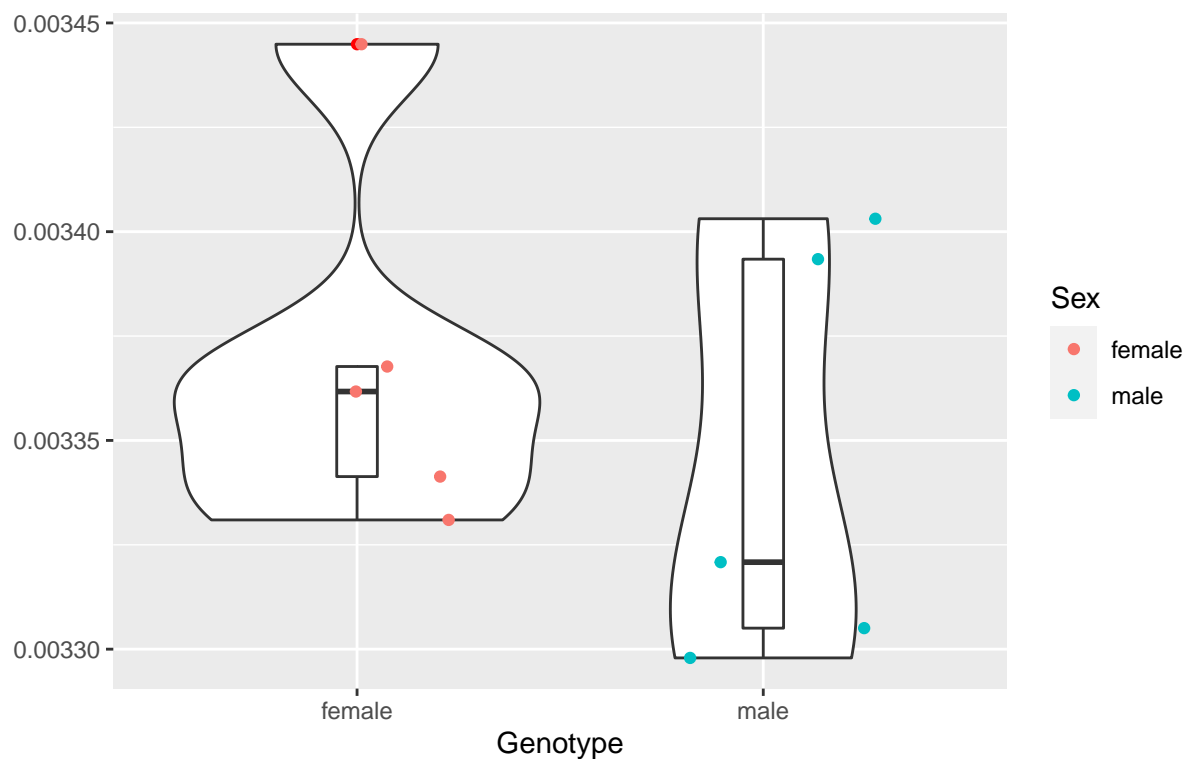
Reticular Nucleus of Thalamus

Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 6.557e-09 6.557e-09   3.138  0.114
## Residuals  8 1.672e-08 2.090e-09
```
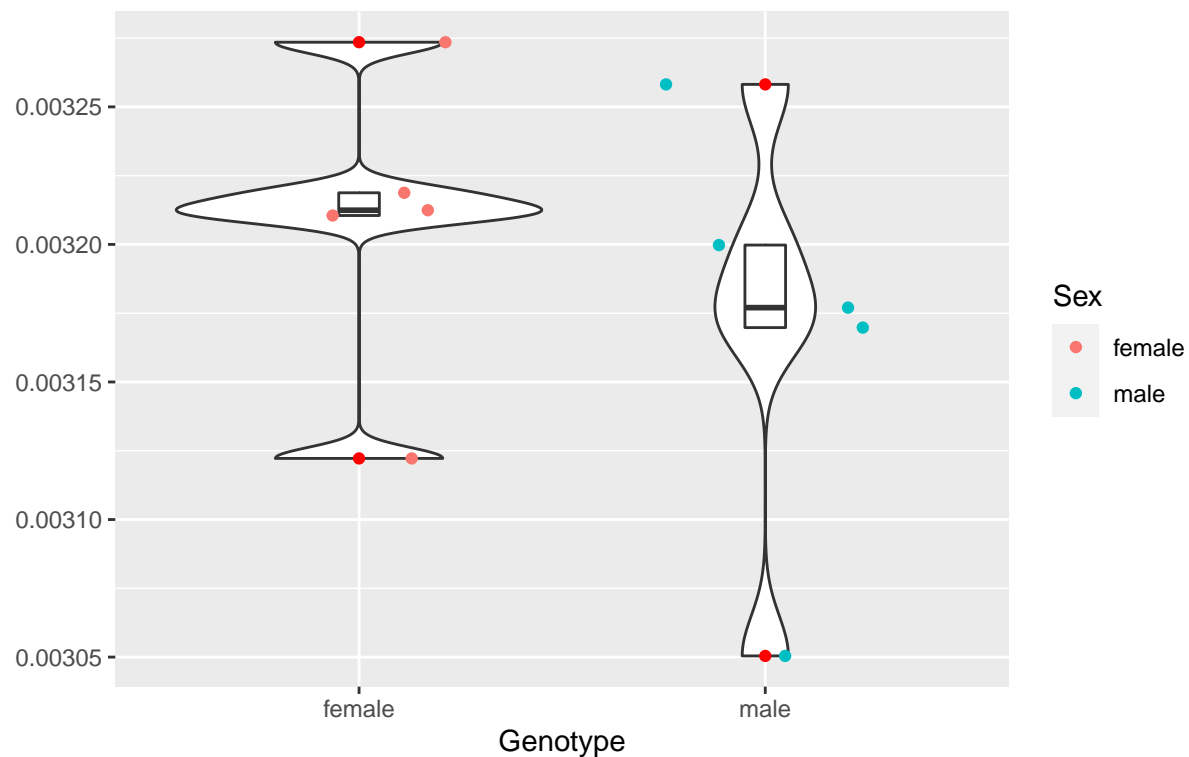
Zona Incerta
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.596e-09 1.596e-09   0.704  0.426
## Residuals     8 1.814e-08 2.268e-09
```
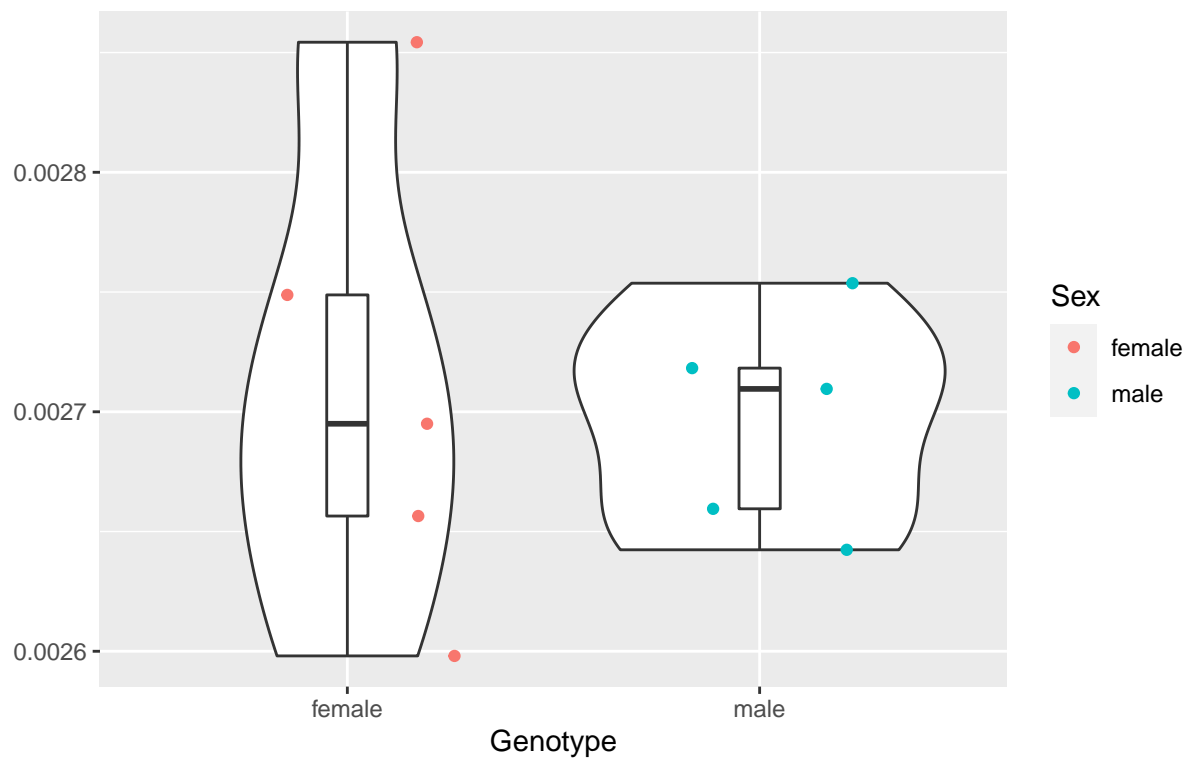
Lateral Geniculate Nucleus
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 3.320e-09 3.323e-09   0.764  0.408
## Residuals     8 3.479e-08 4.349e-09
```

Medial Geniculate Nucleus
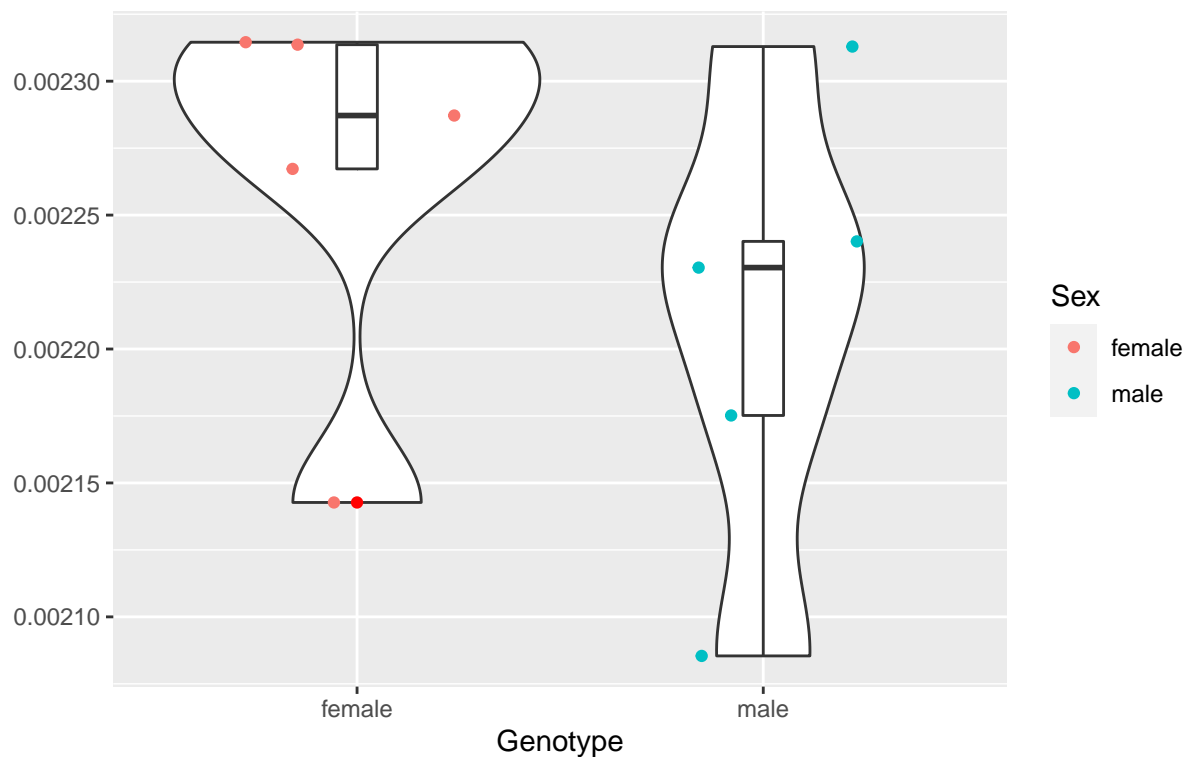Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.800e-10 4.800e-10   0.083   0.78
## Residuals   8 4.617e-08 5.771e-09
```

Latero Dorsal Nucleus of Thalamus
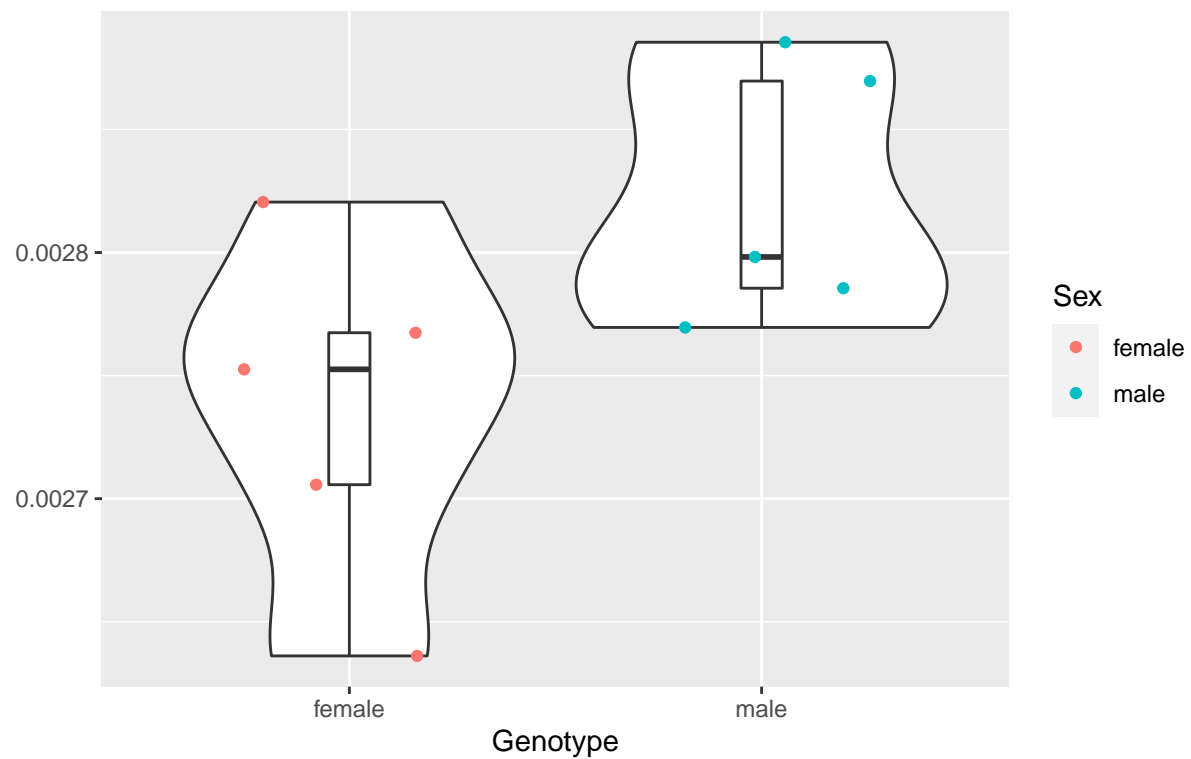Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 7.910e-09 7.907e-09   1.293  0.288
## Residuals   8 4.891e-08 6.114e-09
```

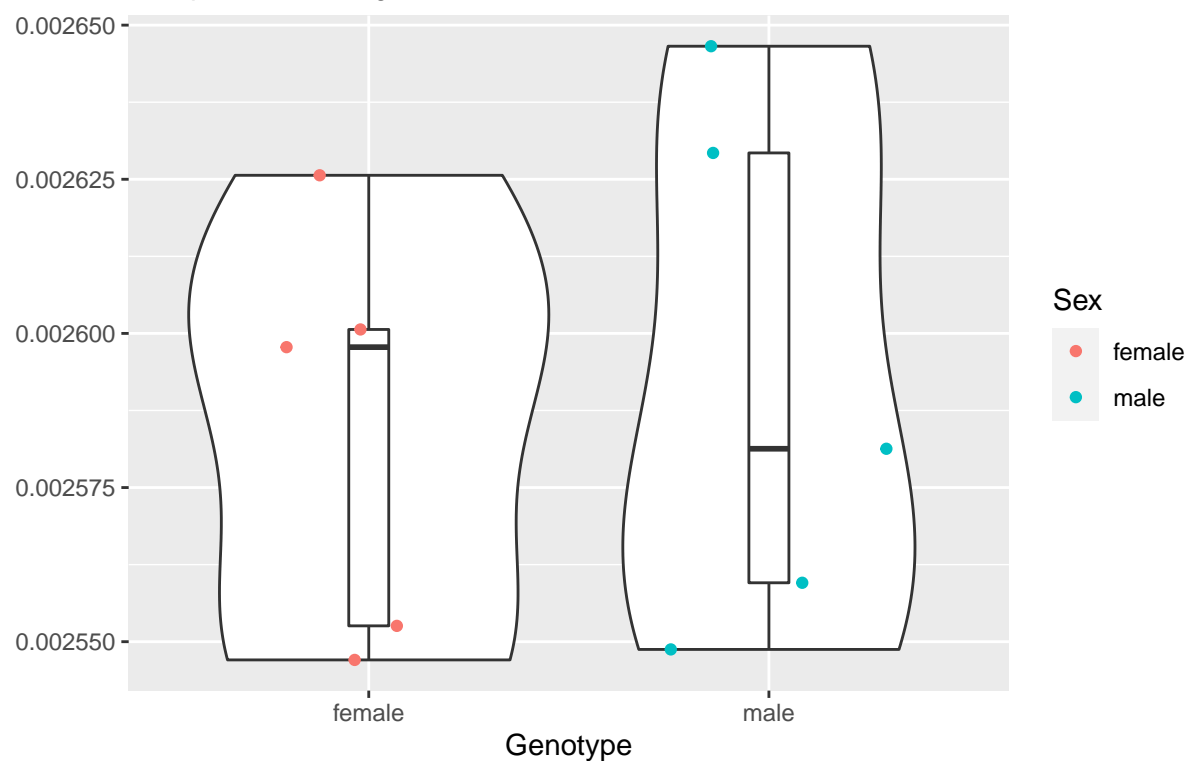## Ventral Thalamic Nuclei
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.816e-08 1.816e-08   4.804 0.0598 .
## Residuals     8 3.024e-08 3.780e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
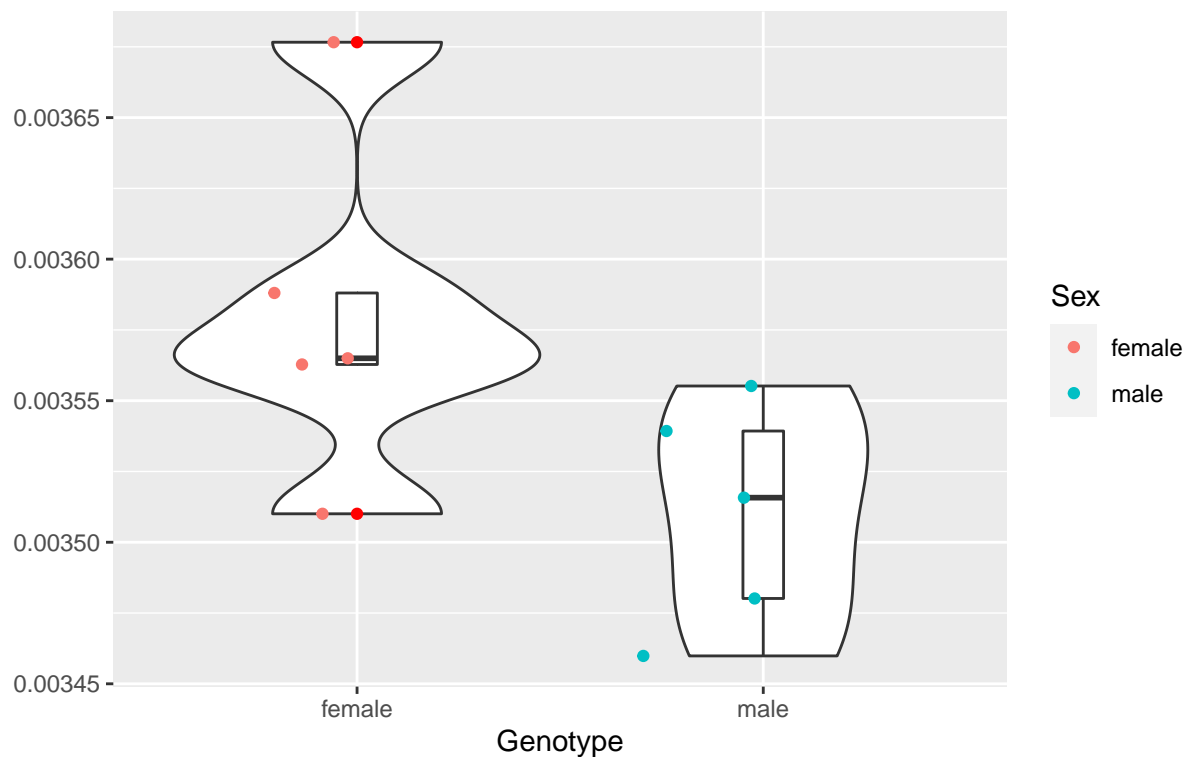
Thalamus Rest
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.750e-10 1.745e-10   0.117  0.741
## Residuals   8 1.195e-08 1.494e-09
```
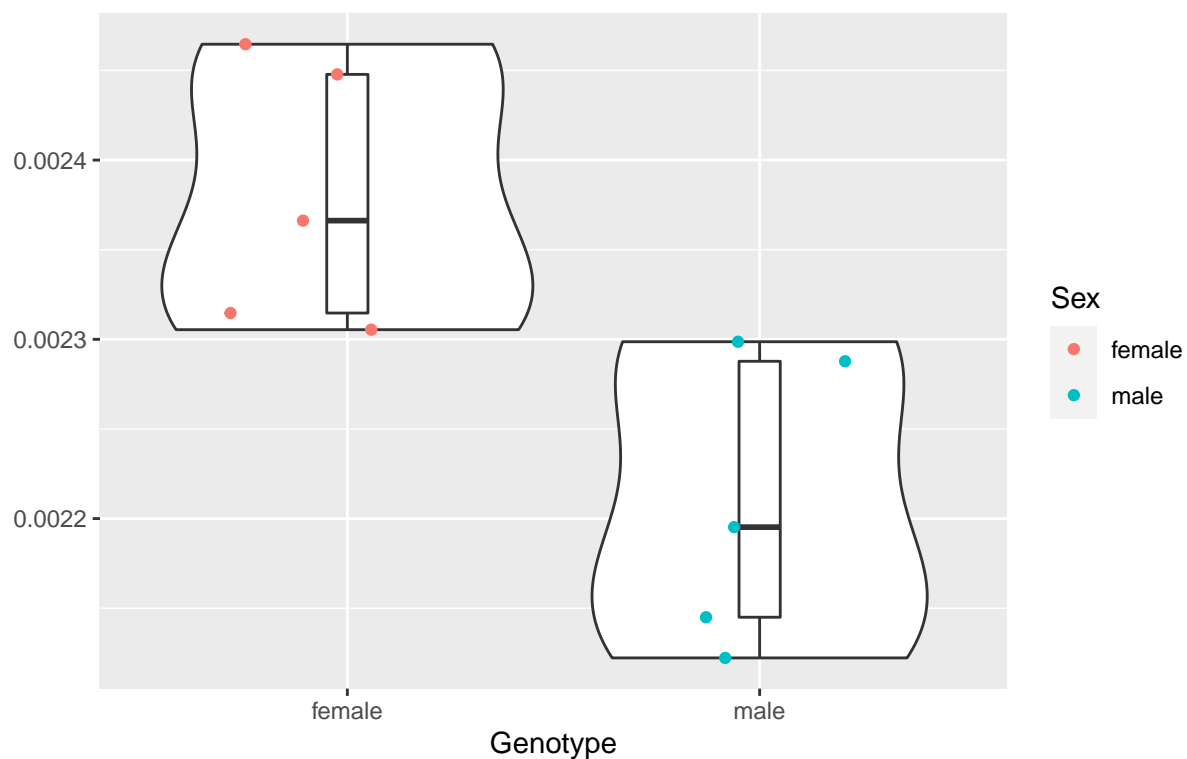
Ventral Tegmental Area
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.241e-08 1.241e-08   4.693 0.0622 .
## Residuals    8 2.116e-08 2.644e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
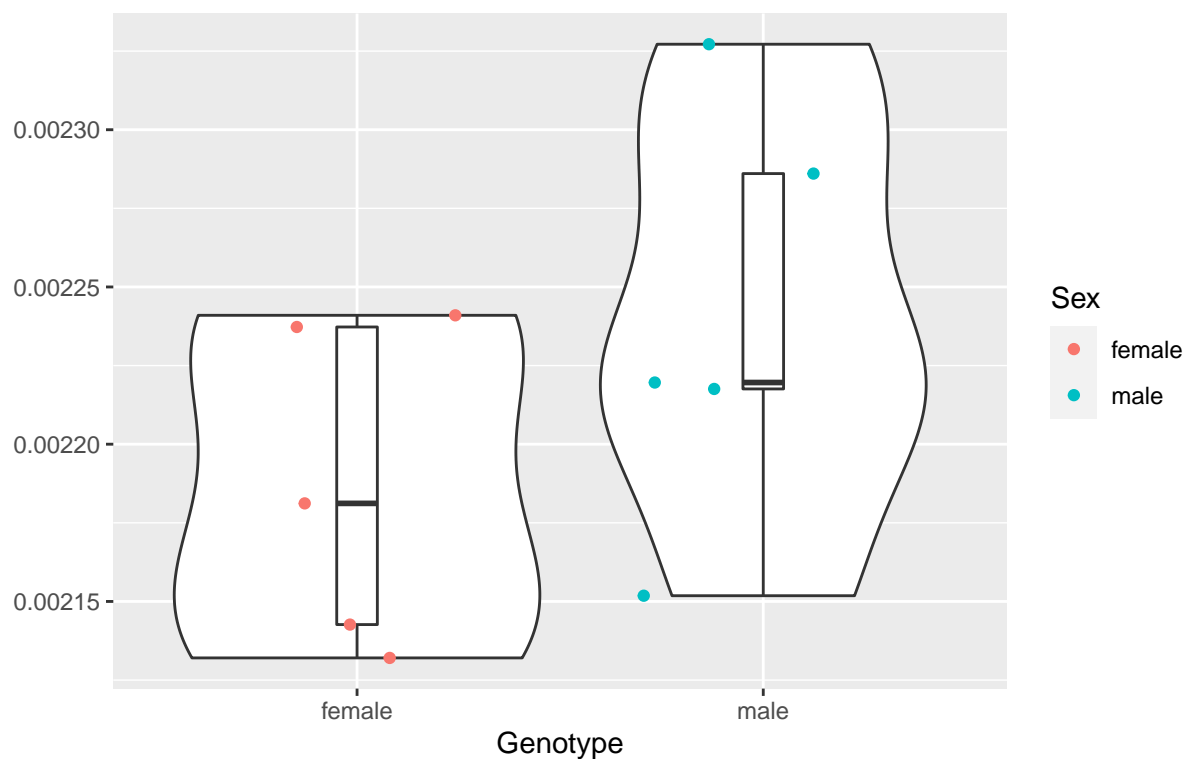
Anterior Pretectal Nucleus
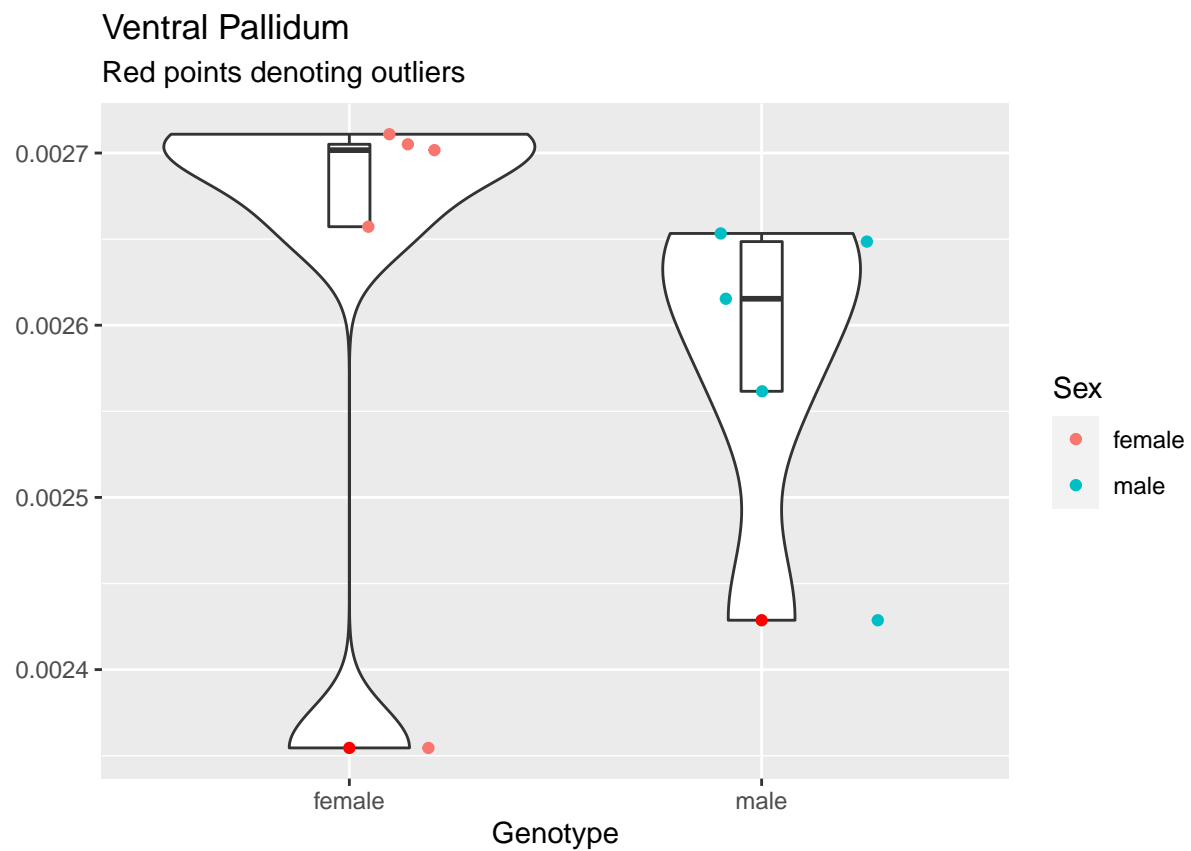Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value  Pr(>F)
## Sex         1 7.222e-08 7.222e-08   12.08 0.00838 **
## Residuals   8 4.784e-08 5.980e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

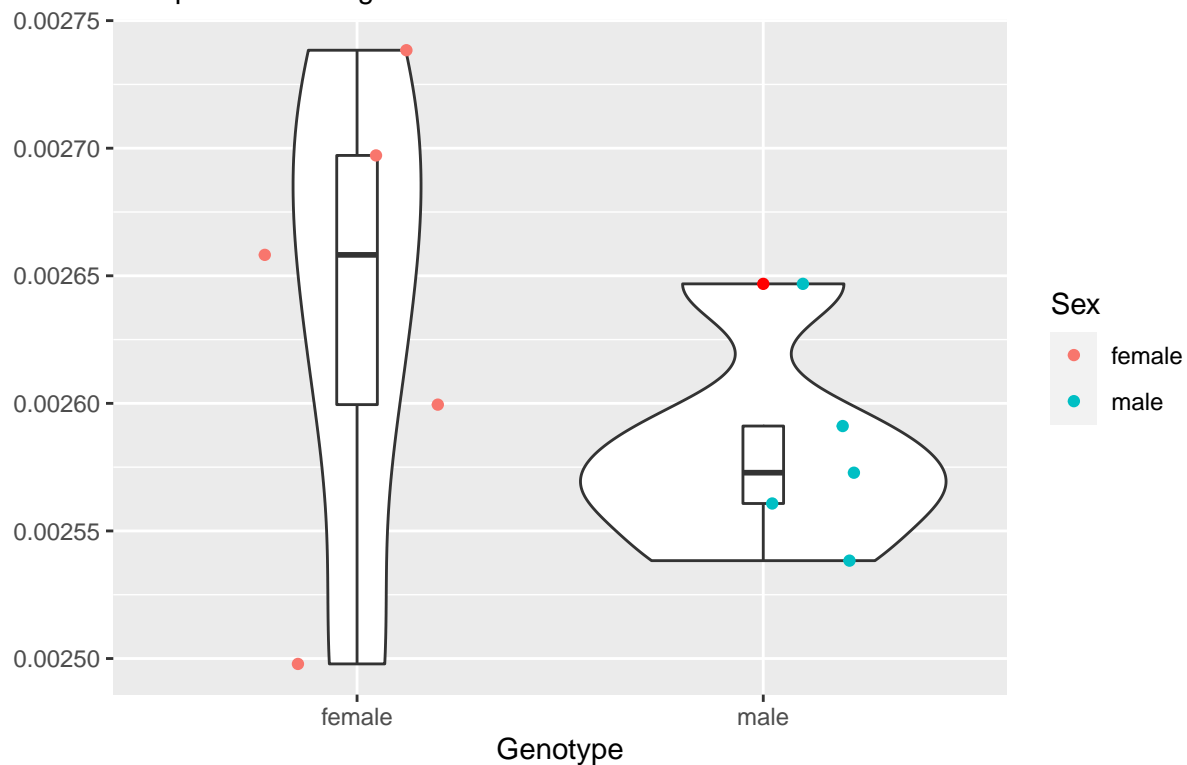Periaquaductal Grey

Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.189e-09 7.189e-09   1.992  0.196
## Residuals    8 2.888e-08 3.610e-09
```

Ventral Pallidum

Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.920e-09 4.923e-09   0.307  0.595
## Residuals   8 1.284e-07 1.605e-08
```

Bed Nucleus of the Stria Terminalis
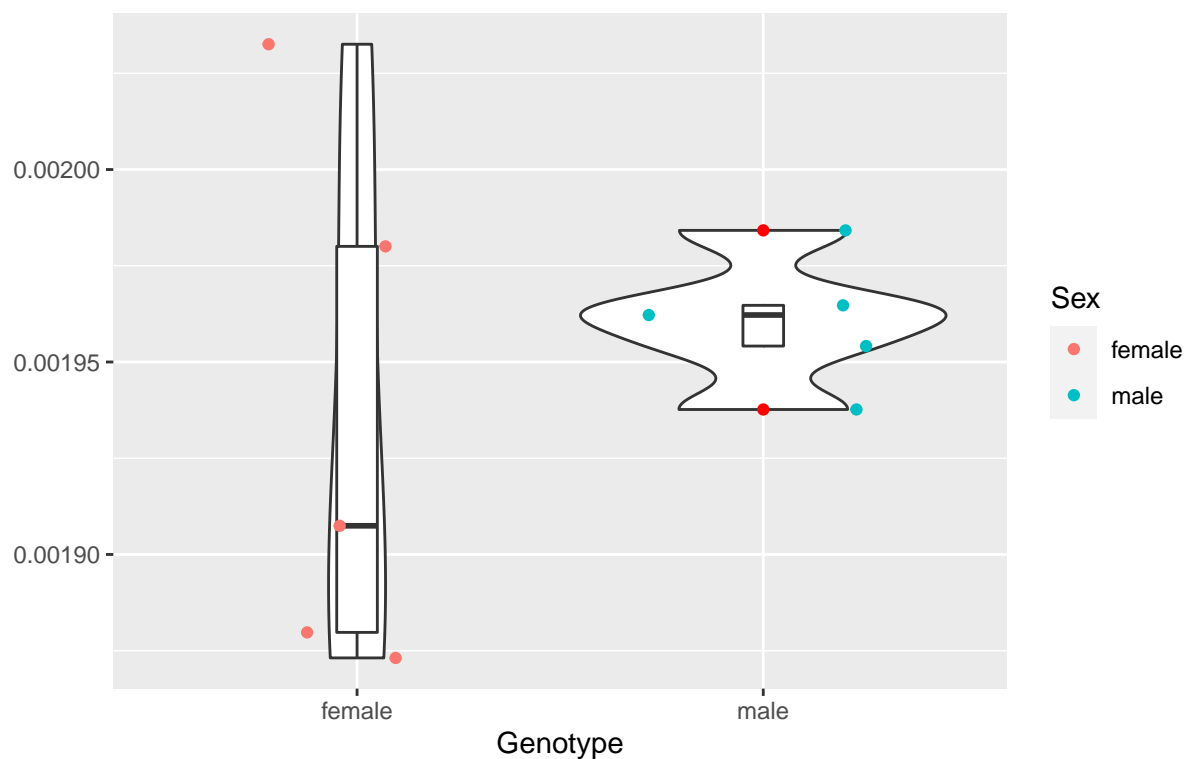
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 7.910e-09 7.912e-09   1.513  0.254
## Residuals   8 4.183e-08 5.229e-09
```

Acumbens
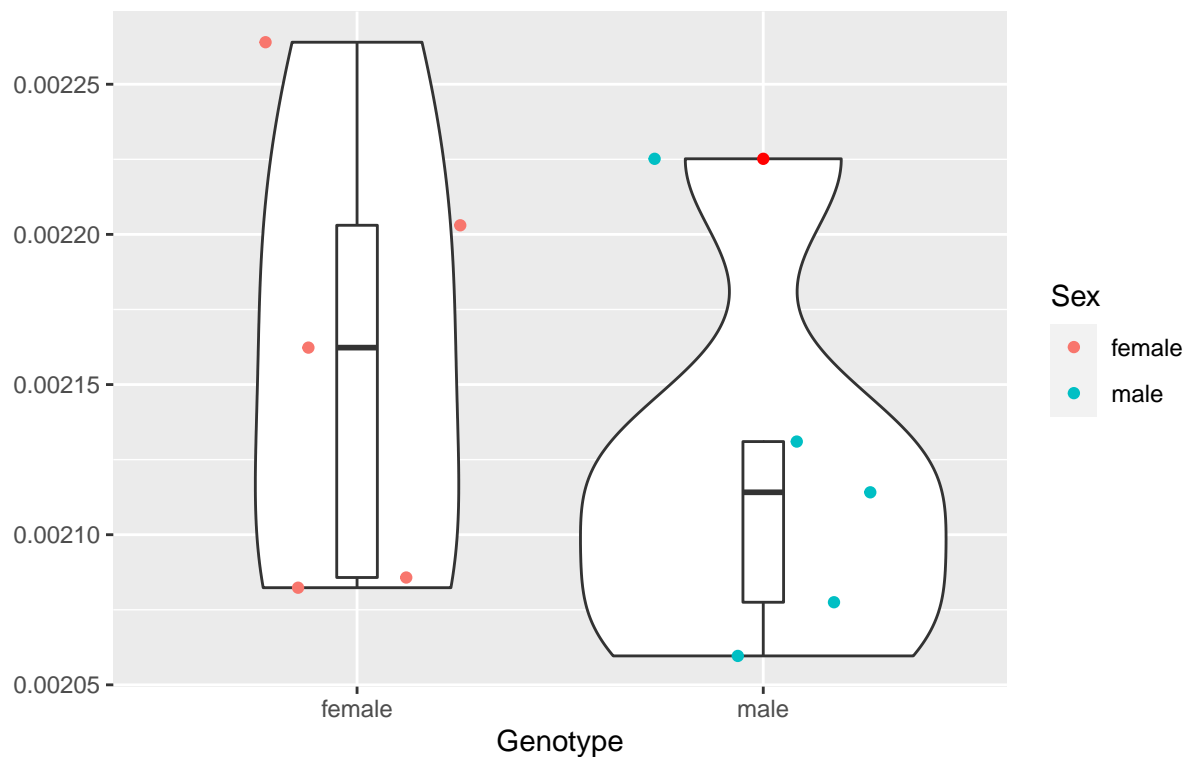
Red points denoting outliers


```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 1.690e-09 1.690e-09   0.665  0.438
## Residuals  8 2.033e-08 2.541e-09
```

Amygdala
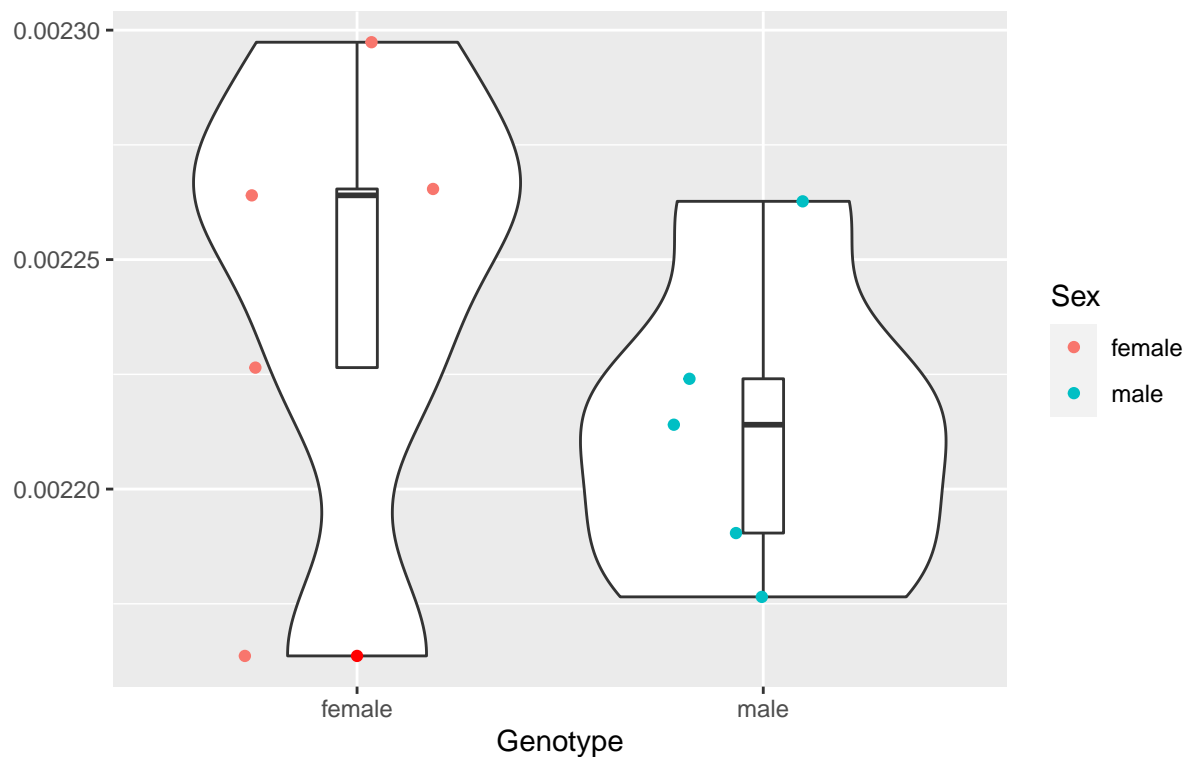
Red points denoting outliers

```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 3.610e-09 3.609e-09   0.706  0.425
## Residuals   8 4.087e-08 5.109e-09
```
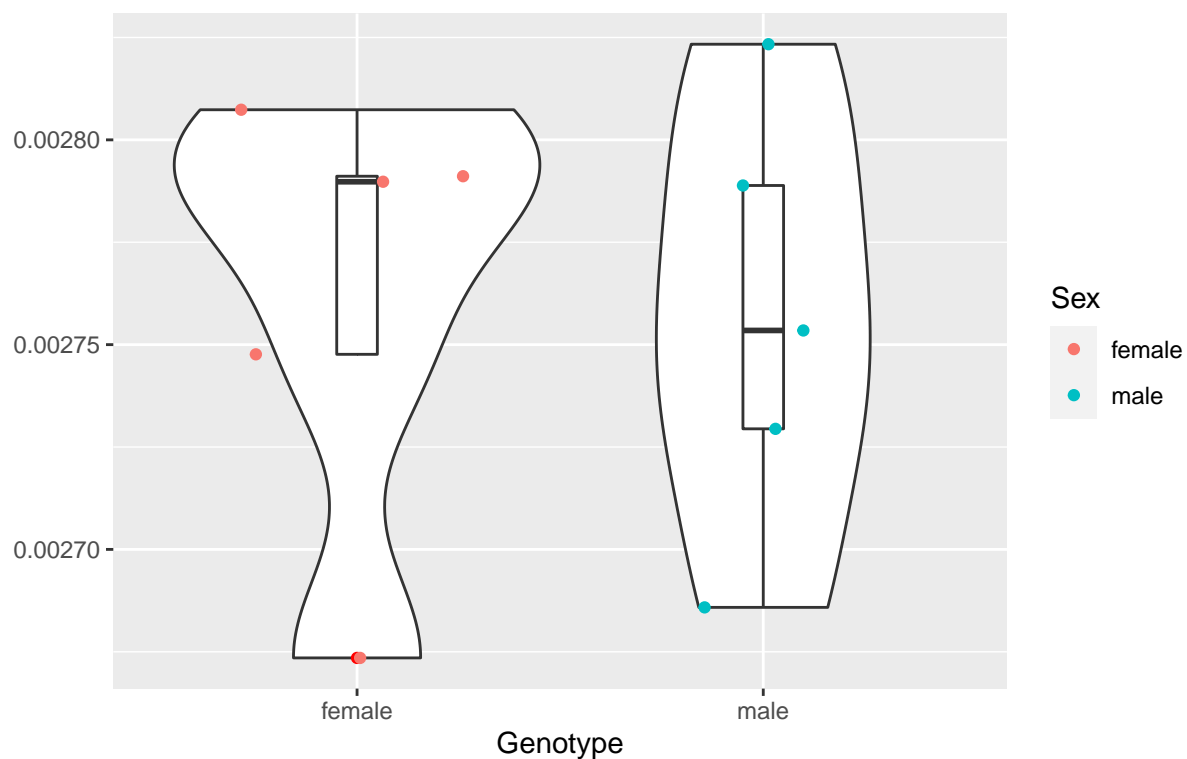
Striatum
Red points denoting outliers
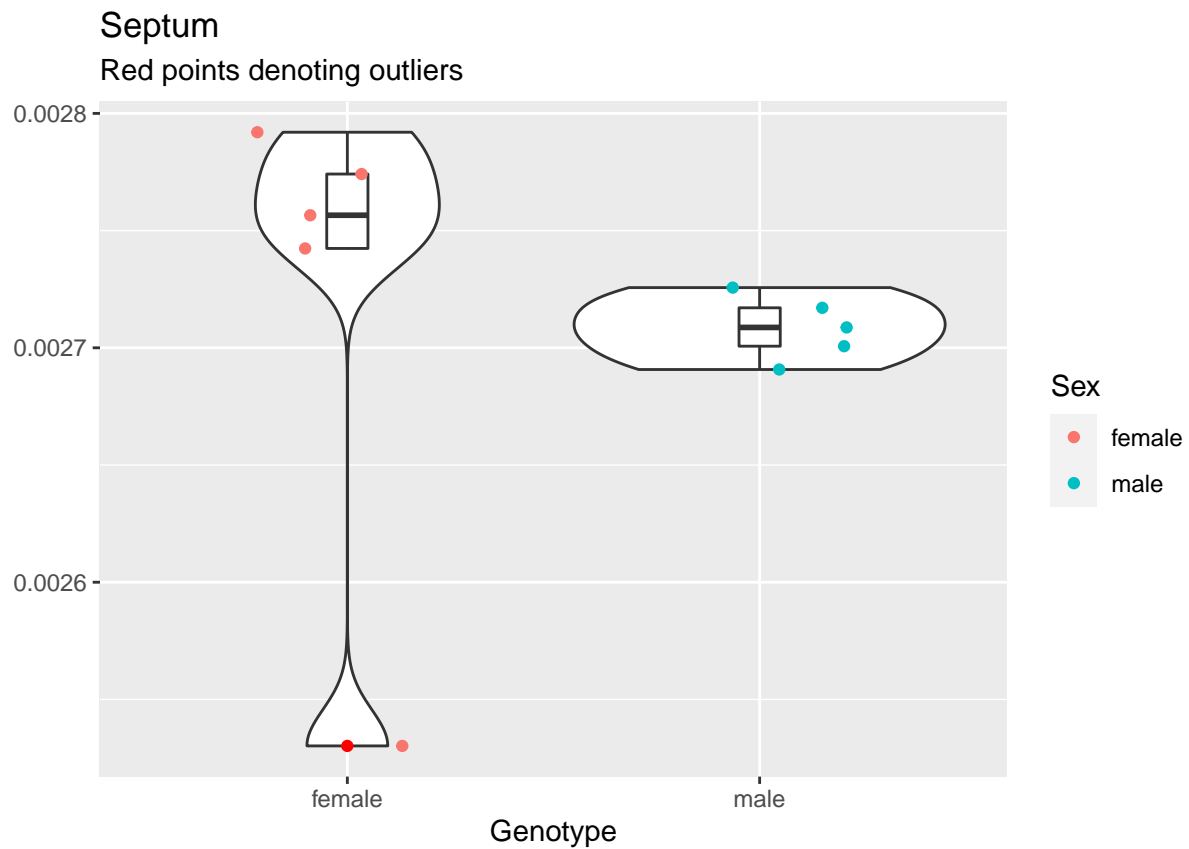
```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 2.226e-09 2.226e-09   1.195  0.306
## Residuals  8 1.490e-08 1.863e-09
```

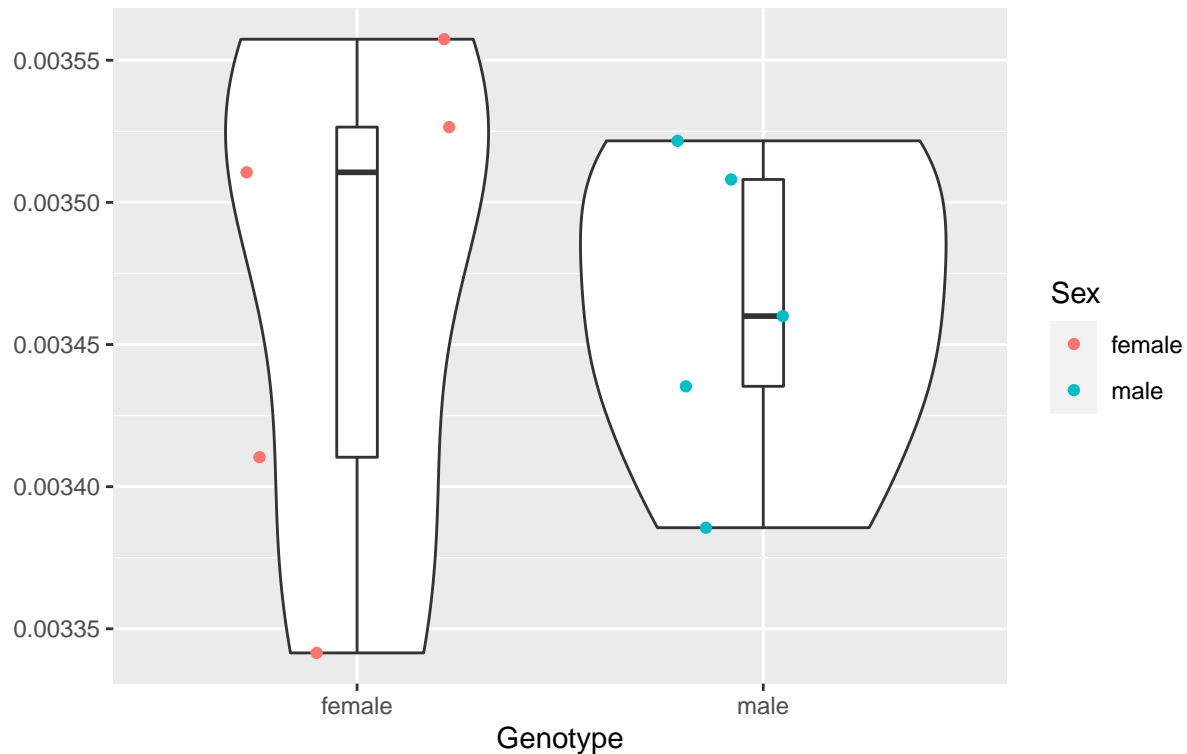## Globus Pallidus
Red points denoting outliers


```
##             Df   Sum Sq  Mean Sq F value Pr(>F)
## Sex          1 8.100e-11 8.08e-11   0.028  0.871
## Residuals    8 2.296e-08 2.87e-09
```

Septum
Red points denoting outliers


```
##            Df   Sum Sq  Mean Sq F value Pr(>F)
## Sex         1 2.700e-10 2.74e-10   0.047  0.834
## Residuals   8 4.672e-08 5.84e-09
```

Subthalamic Nucleus
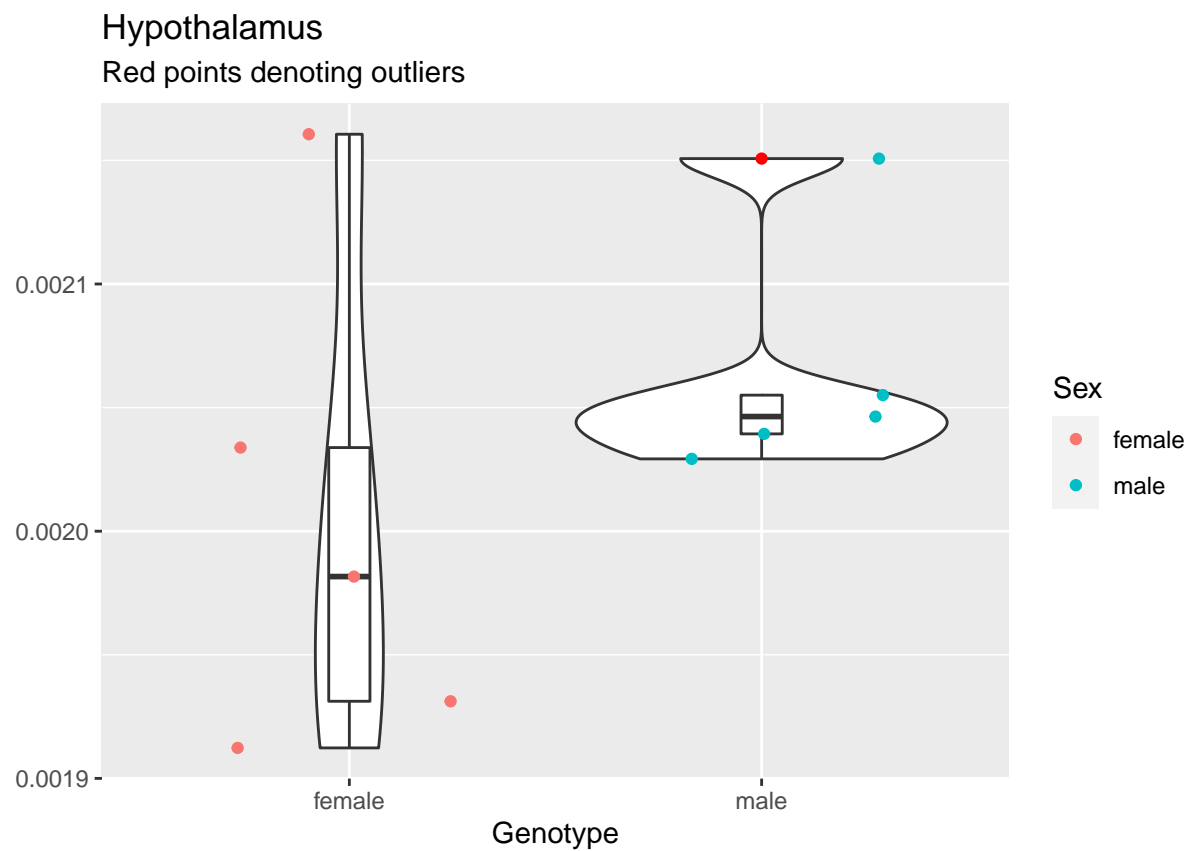### Red points denoting outliers


```
##            Df   Sum Sq    Mean Sq F value Pr(>F)
## Sex         1 1.300e-10 1.280e-10   0.023  0.884
## Residuals   8 4.478e-08 5.597e-09
```

#"'{r Preopt, echo = FALSE} #ggplot(data = apoe4, aes(factor(Sex), Preopt)) + #geom_violin() + #geom_boxplot(width = 0.1, outlier.color = "red") + #geom_jitter(height = 0, width = 0.3, aes(color = Sex)) + #labs(x = "Genotype", #y = "", #title ="Preoptic Telencephalon", #subtitle ="Red points denoting outliers")

#res.aov <- aov(Preopt ~ Sex, data = apoe4) #summary(res.aov) #"'

Hypothalamus
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.070e-09 9.071e-09   1.471   0.26
## Residuals    8 4.934e-08 6.168e-09
```

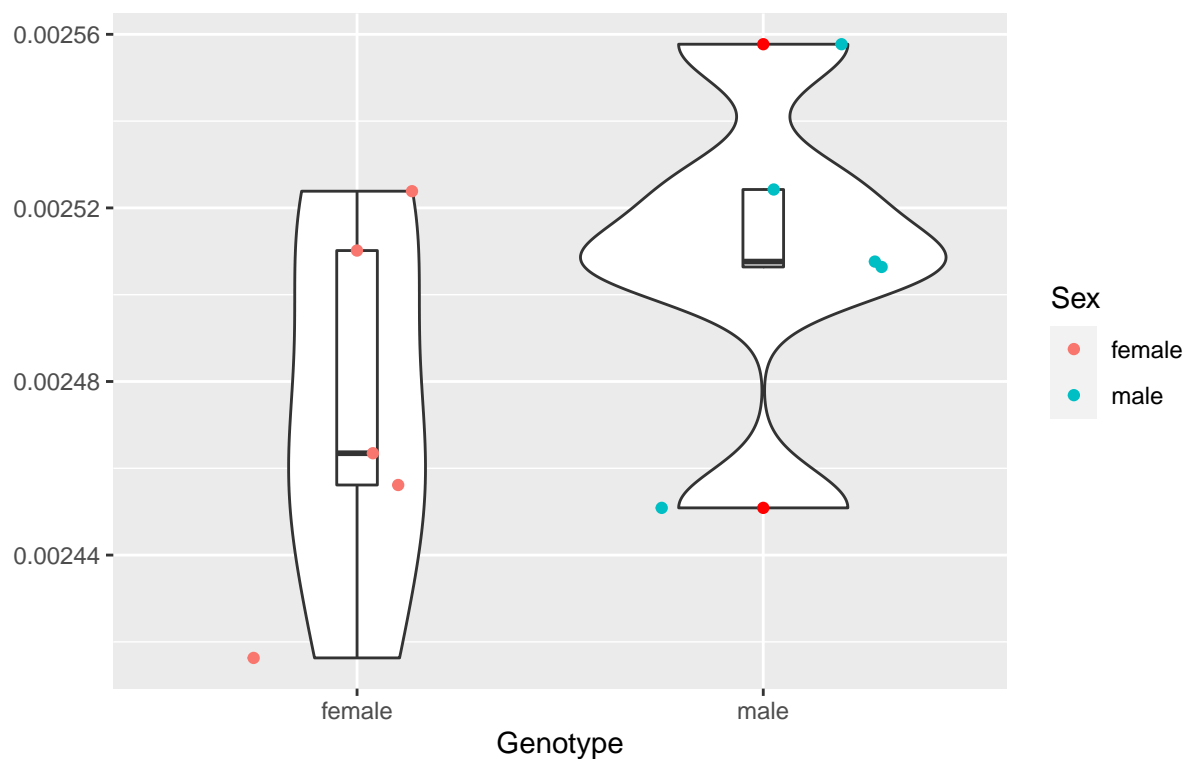## Amygdalopiriform Transition Area
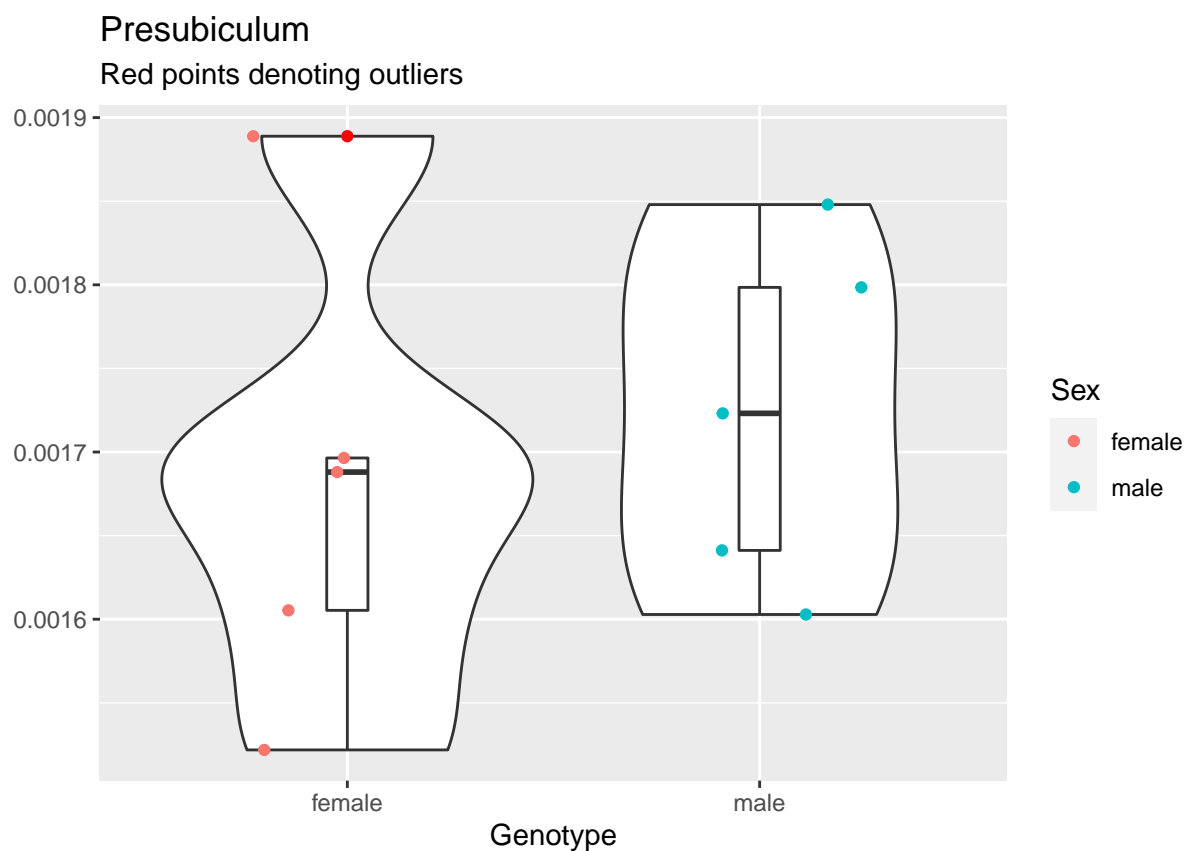Red points denoting outliers
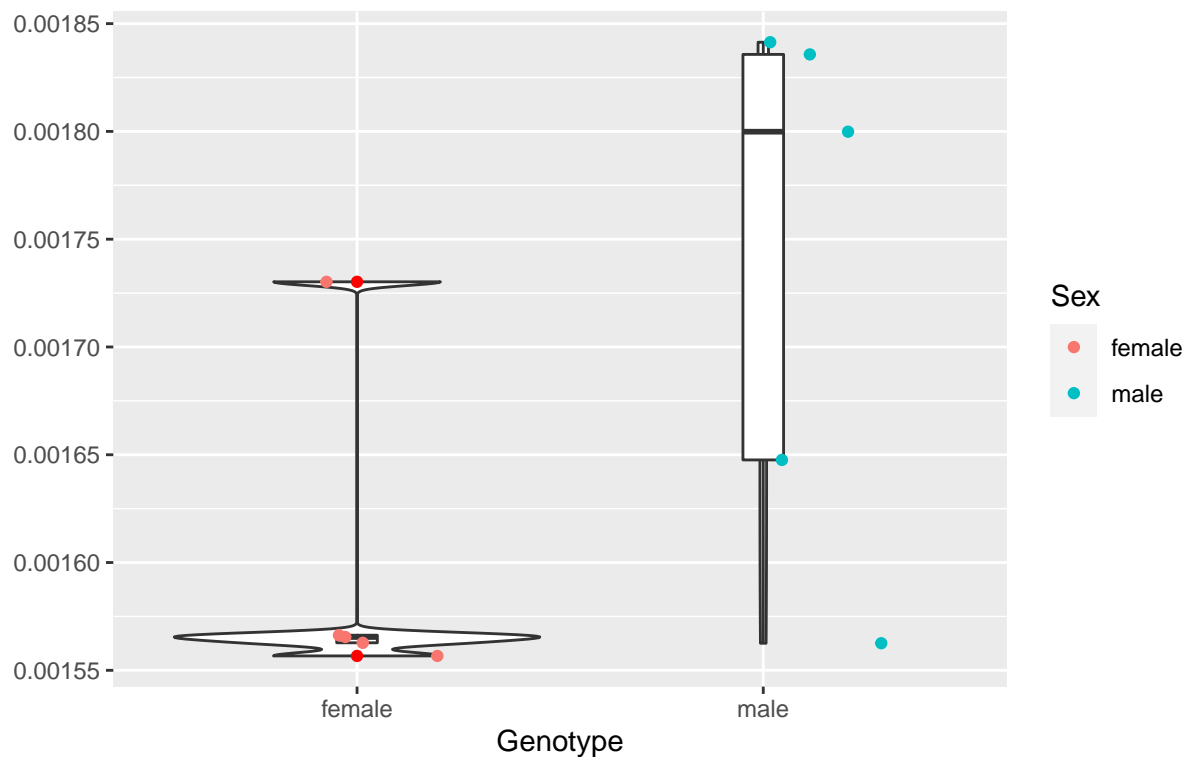

```
##              Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 4.98e-08 4.980e-08    4.66 0.0629 .
## Residuals     8 8.55e-08 1.069e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
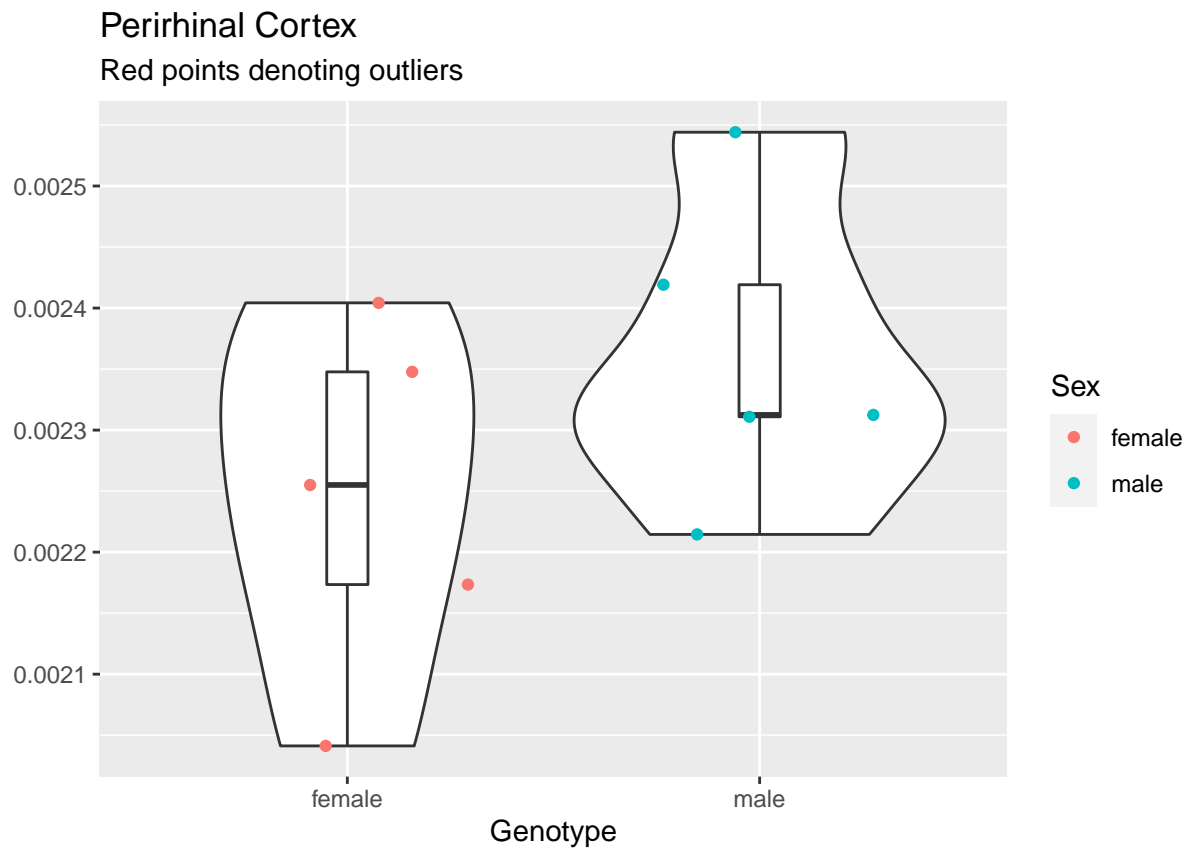
Periform Cortex
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.130e-09 3.130e-09   1.849  0.211
## Residuals    8 1.354e-08 1.693e-09
```
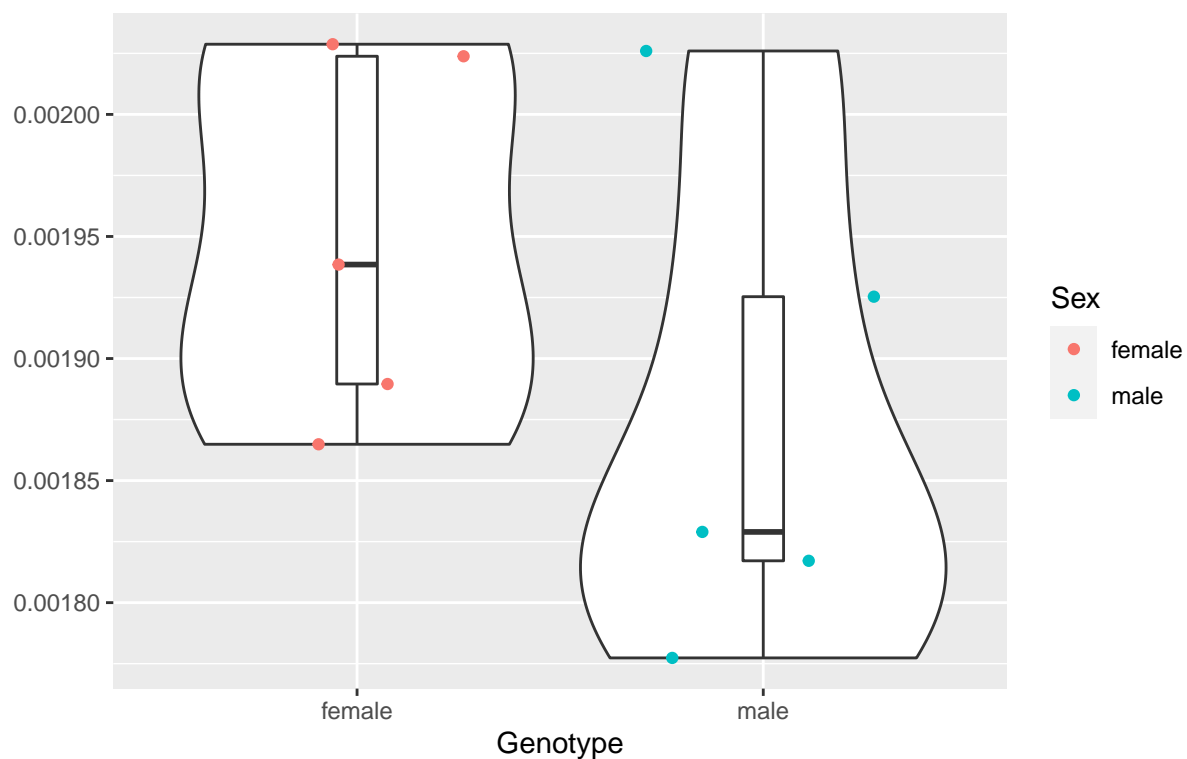
Presubiculum

Red points denoting outliers


```
##            Df  Sum Sq  Mean Sq F value Pr(>F)
## Sex        1 4.54e-09 4.542e-09   0.31  0.593
## Residuals  8 1.17e-07 1.463e-08
```

Perirhinal Cortex
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 3.358e-08 3.358e-08   1.841  0.212
## Residuals     8 1.459e-07 1.824e-08
```

Parasubiculum
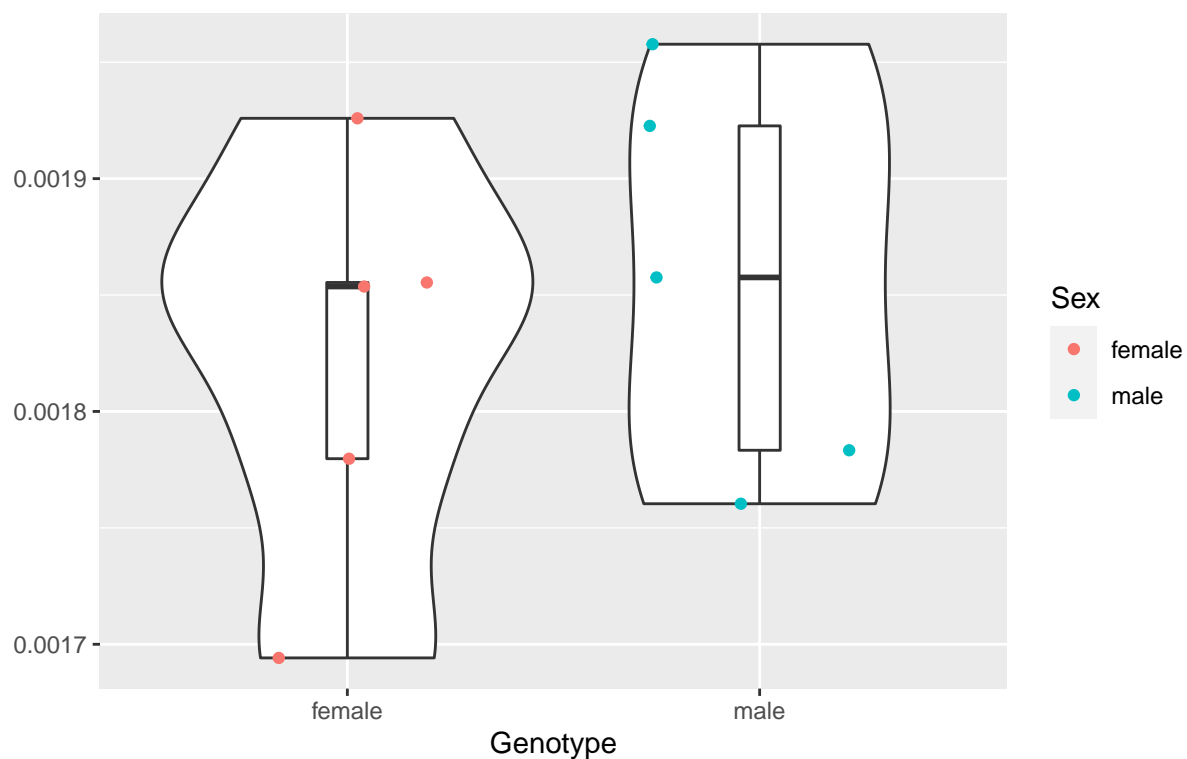### Red points denoting outliers


```
##              Df     Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.374e-08 1.374e-08   1.745  0.223
## Residuals     8 6.301e-08 7.876e-09
```

Ectorhinal Cortex
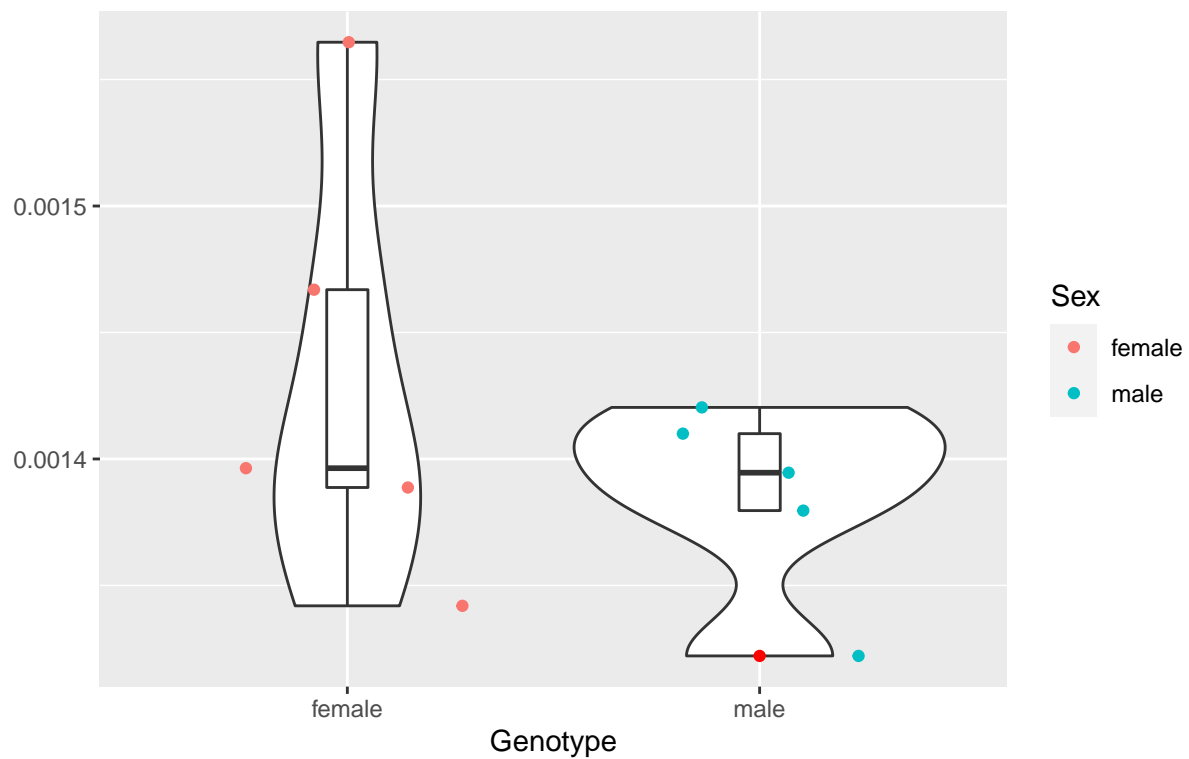Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.990e-09 2.987e-09   0.396  0.546
## Residuals   8 6.028e-08 7.535e-09
```

Dorsal Tenia Tecta
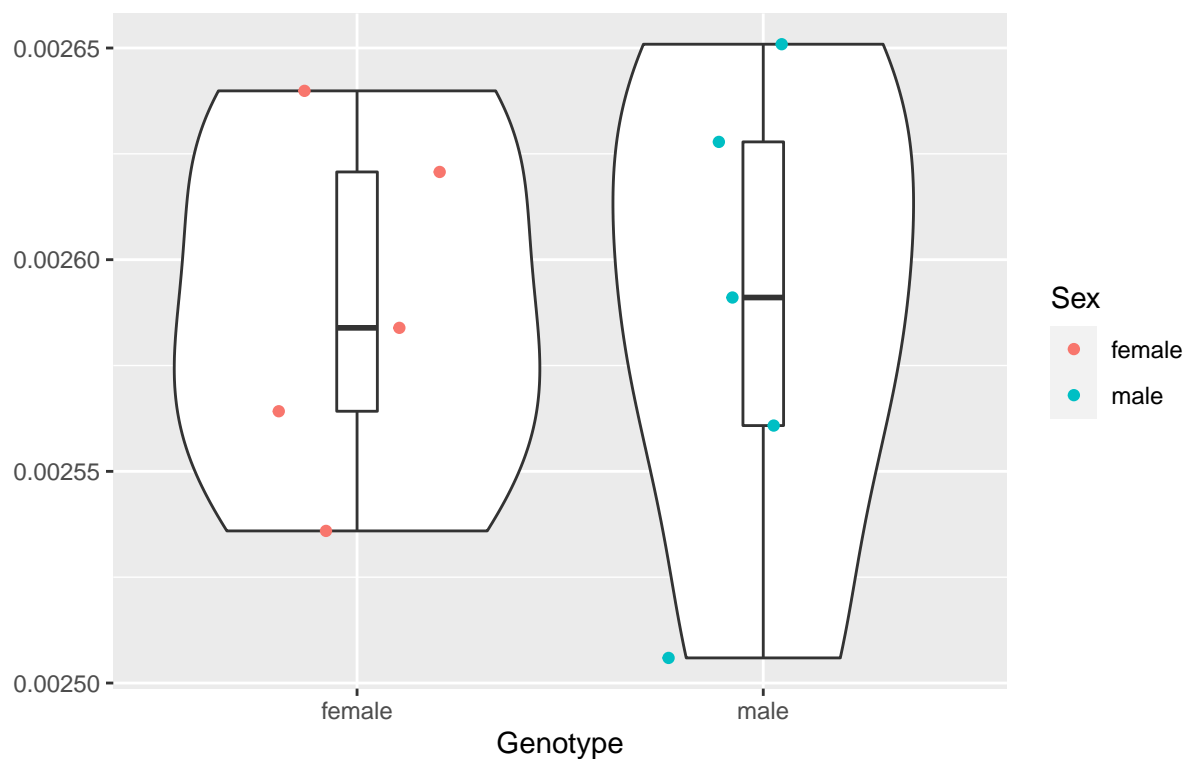Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 5.380e-09 5.383e-09   1.195  0.306
## Residuals     8 3.605e-08 4.506e-09
```
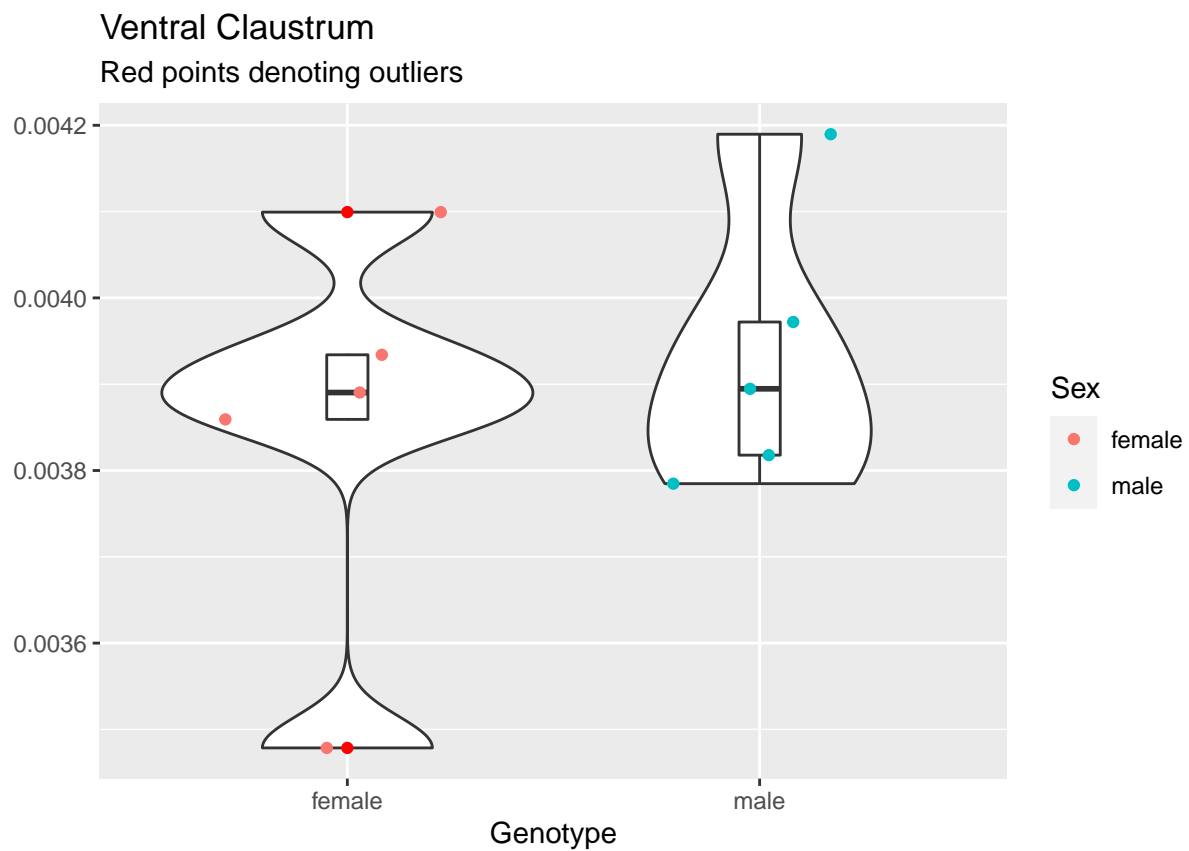
Hippocampus
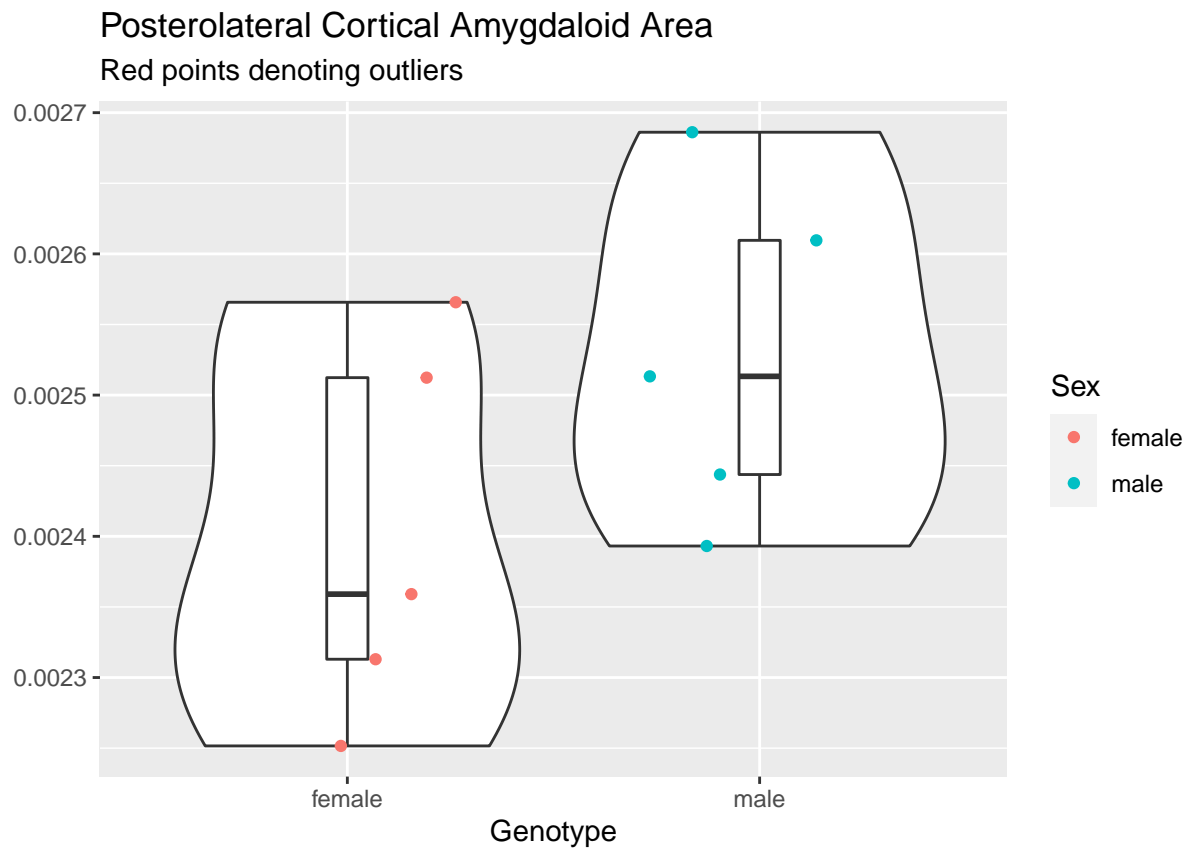Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 7.000e-12 6.600e-12   0.003   0.96
## Residuals     8 2.007e-08 2.509e-09
```

Ventral Claustrum
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.579e-08 1.579e-08   0.403  0.543
## Residuals    8 3.130e-07 3.913e-08
```

Posterolateral Cortical Amygdaloid Area

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.150e-08 4.150e-08   2.583  0.147
## Residuals   8 1.285e-07 1.607e-08
```
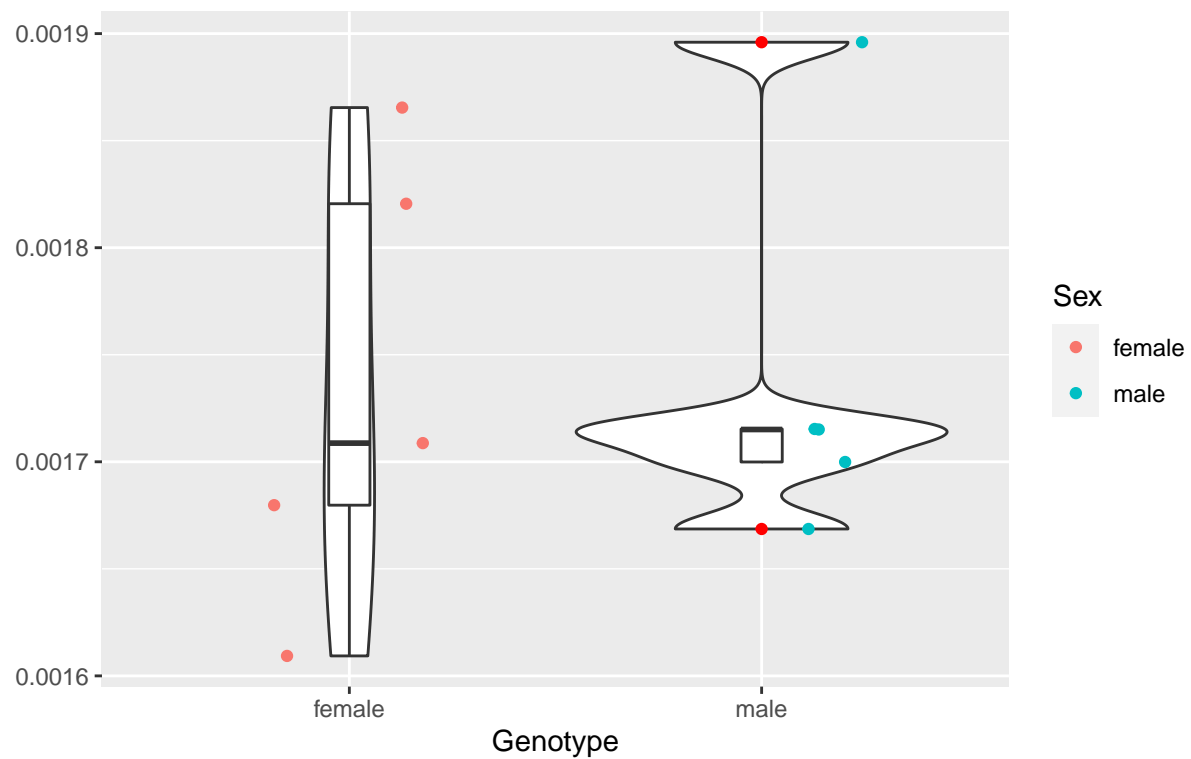
Dorsal Claustrum
Red points denoting outliers
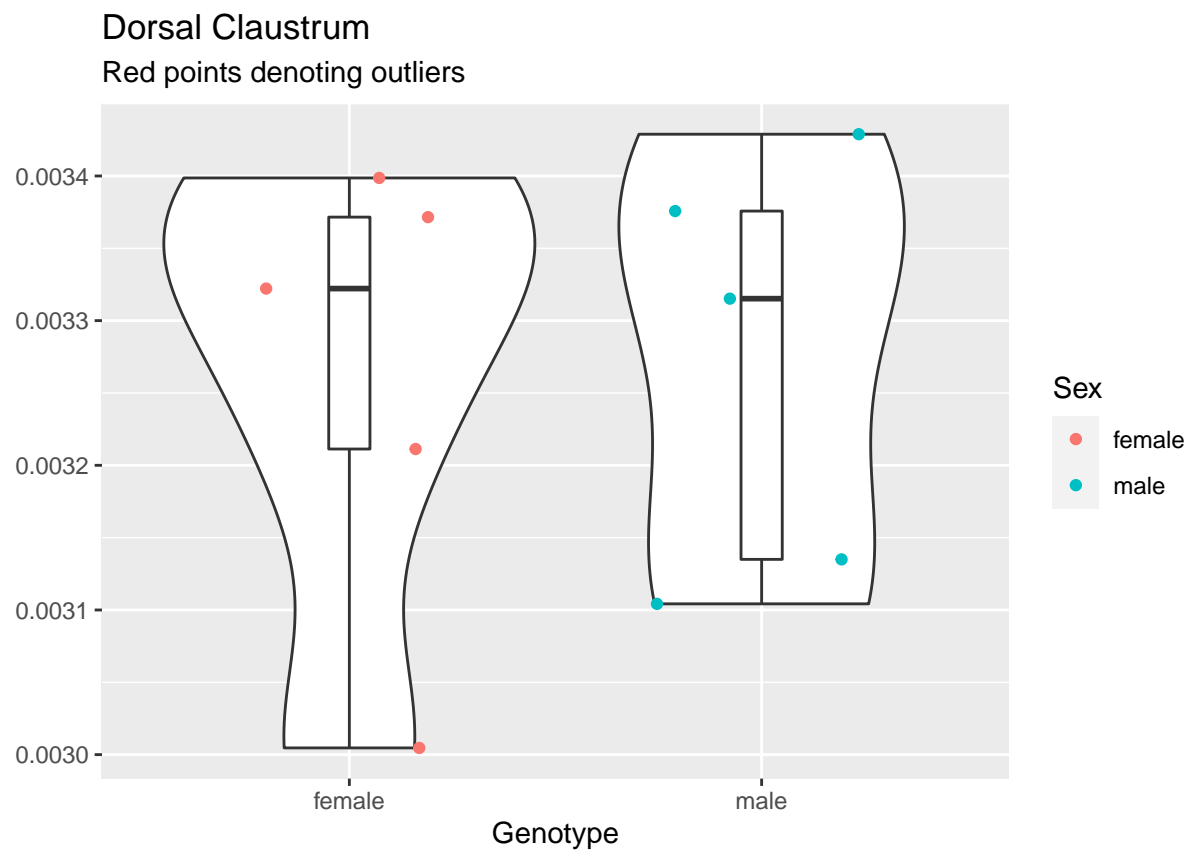

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.600e-10 2.580e-10   0.011  0.919
## Residuals   8 1.873e-07 2.341e-08
```

Claustrum

Red points denoting outliers
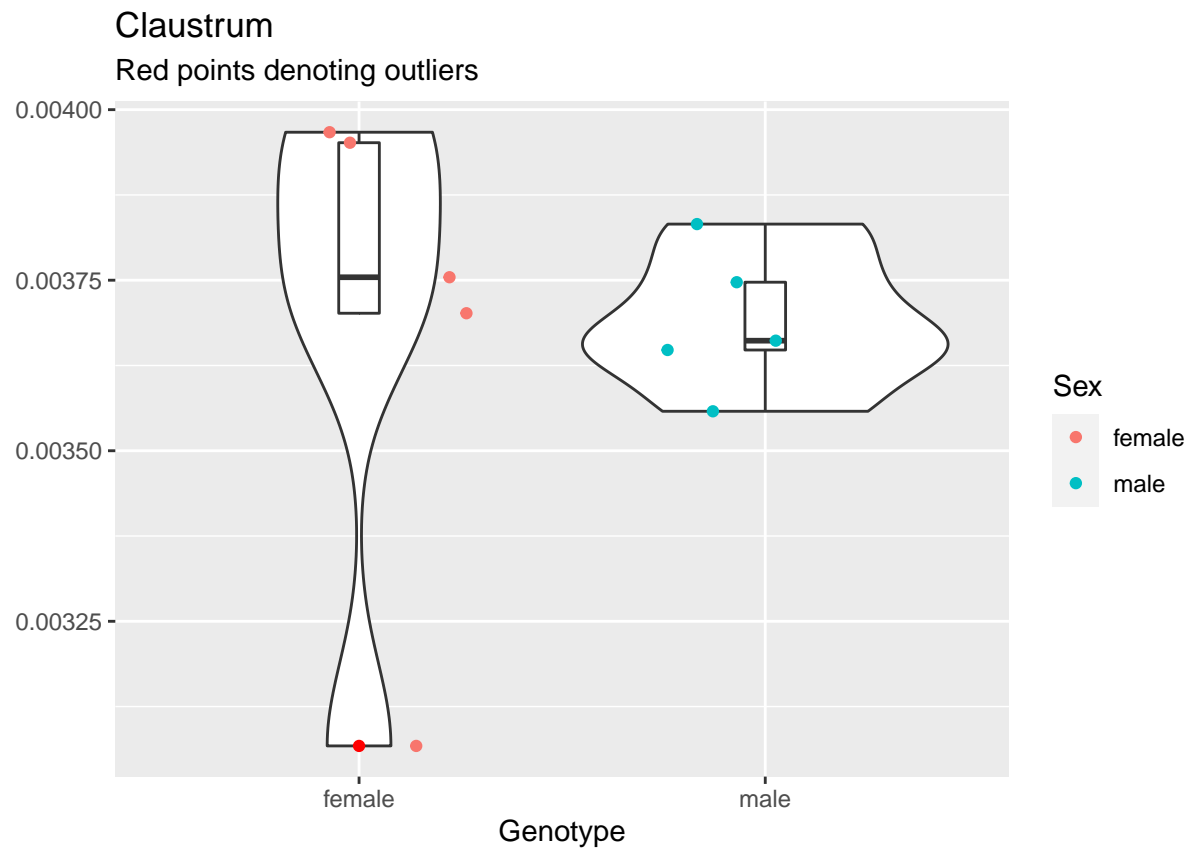
```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 0.000e+00 0.000e+00       0  0.996
## Residuals    8 5.807e-07 7.259e-08
```

Ventral Intermediate Entorhinal Cortex
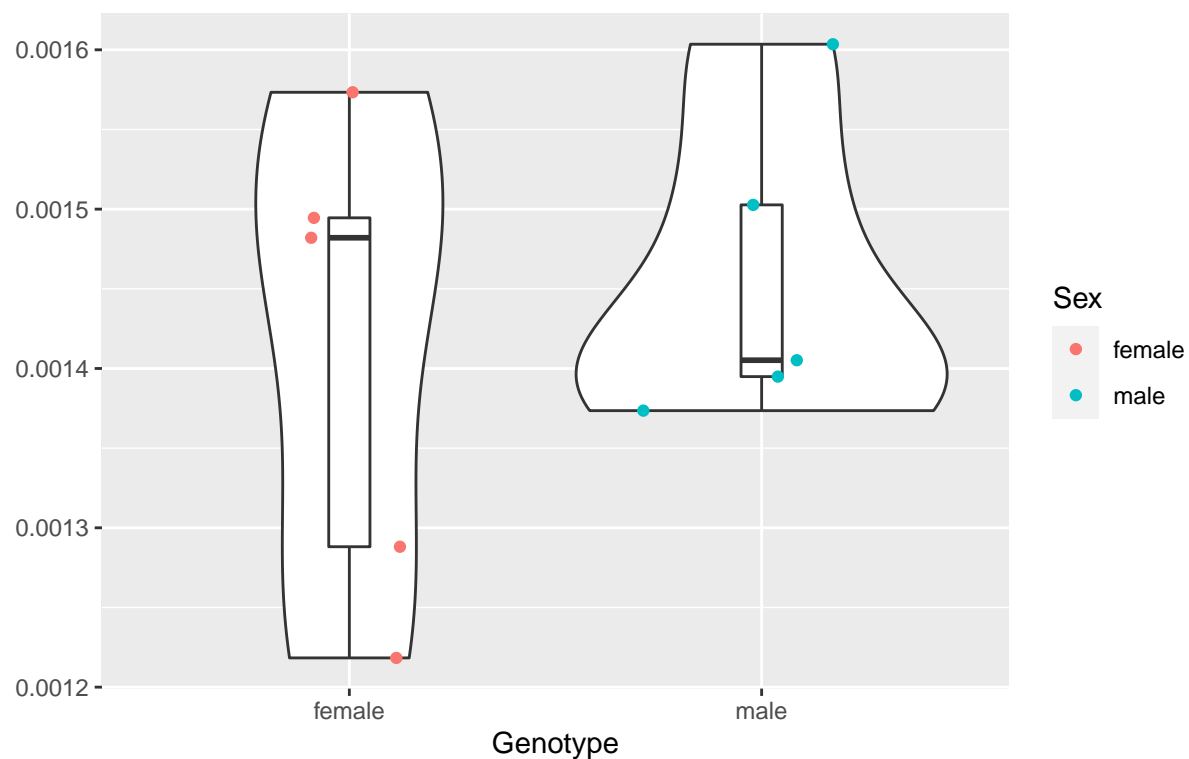Red points denoting outliers
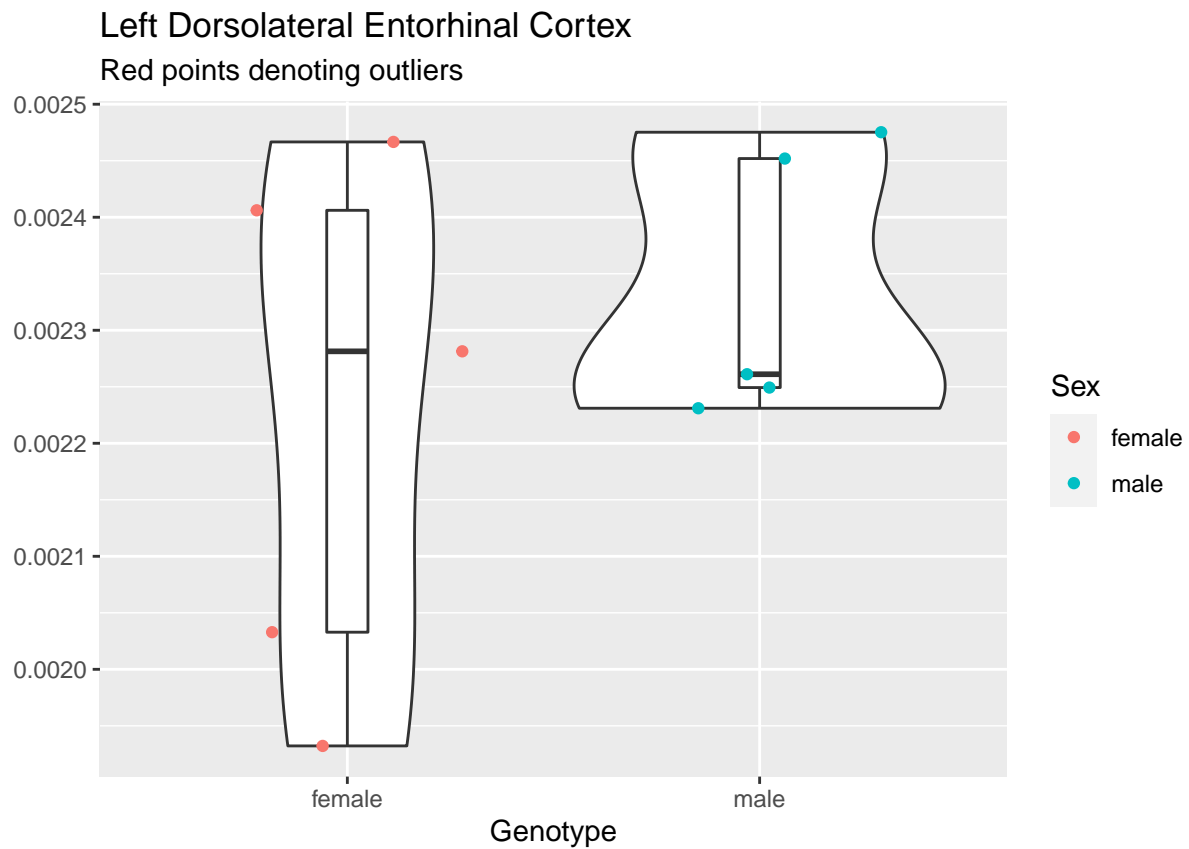


```
##              Df     Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.000e-11 1.200e-11   0.001  0.972
## Residuals    8 7.611e-08 9.514e-09
```

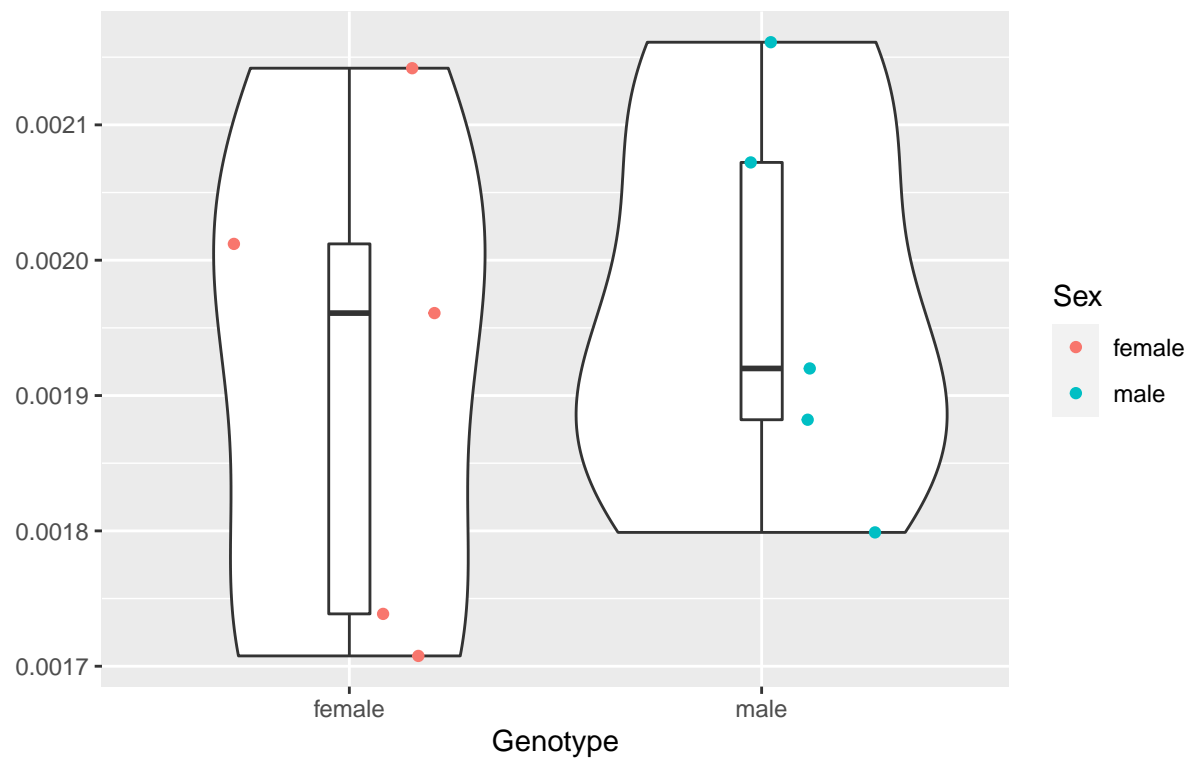## Left Caudomedial Entorhinal Cortex
Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.990e-09 4.991e-09   0.313  0.591
## Residuals    8 1.277e-07 1.596e-08
```

Left Dorsolateral Entorhinal Cortex
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.018e-08 3.018e-08   0.881  0.375
## Residuals    8 2.740e-07 3.425e-08
```

Left Dorsal Intermediate Entorhinal Cortex
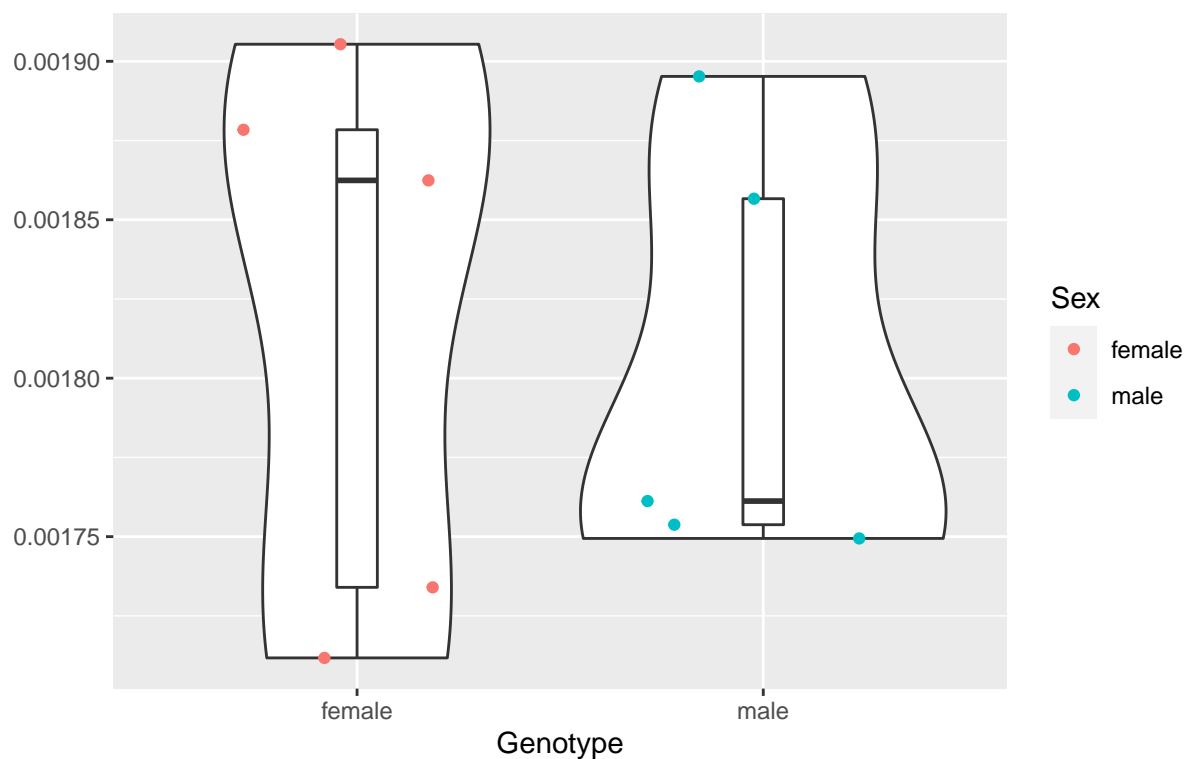Red points denoting outliers
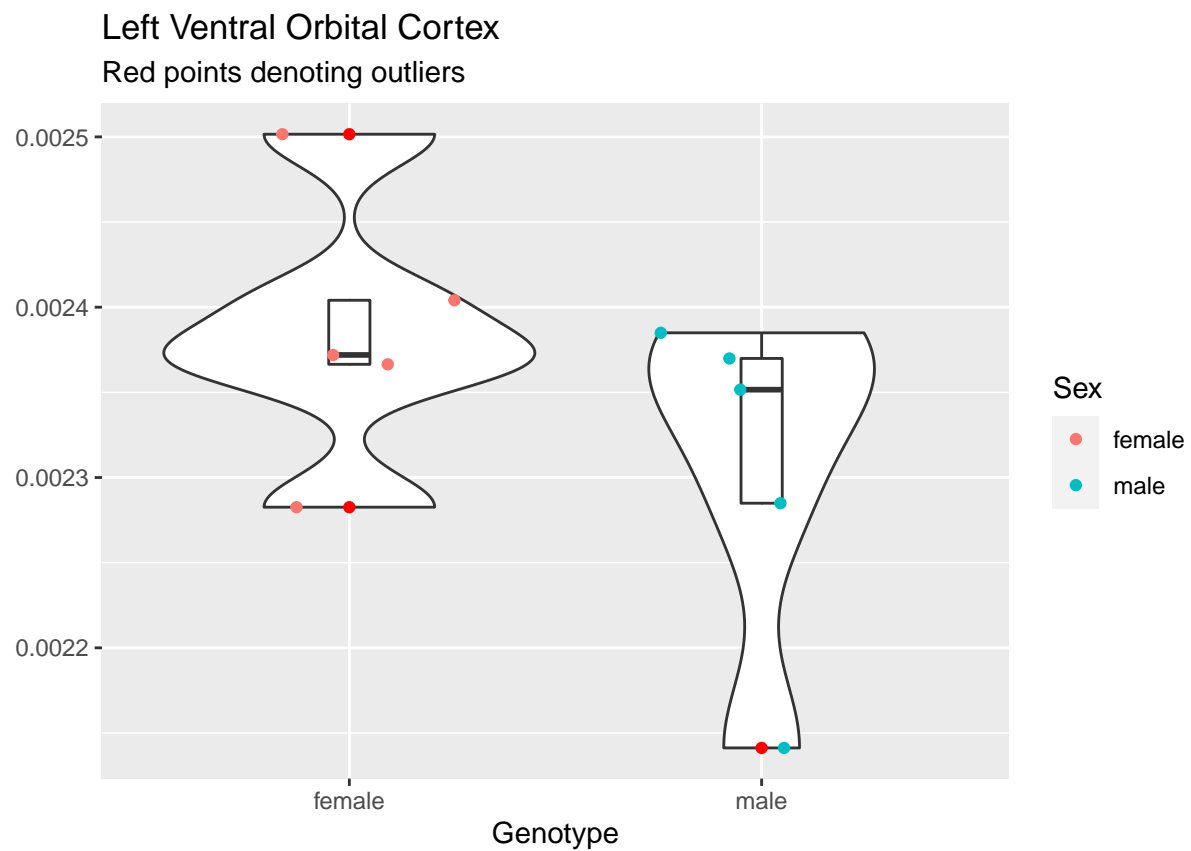


```
##              Df     Sum Sq   Mean Sq  F value  Pr(>F)
## Sex          1 7.470e-09 7.465e-09    0.267   0.619
## Residuals    8 2.235e-07 2.793e-08
```
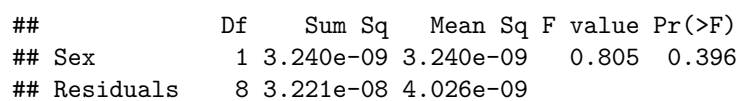
Left Caudomedial Entorhinal Cortex
Red points denoting outliers


```
##             Df     Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.700e-10 5.720e-10   0.091   0.77
## Residuals    8 5.002e-08 6.253e-09
```

Left Ventral Orbital Cortex
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.553e-08 1.553e-08   1.913  0.204
## Residuals    8 6.494e-08 8.117e-09
```

Left Secondary Visual Cortex Mediomedial Area
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 3.240e-09 3.240e-09   0.805  0.396
## Residuals  8 3.221e-08 4.026e-09
```

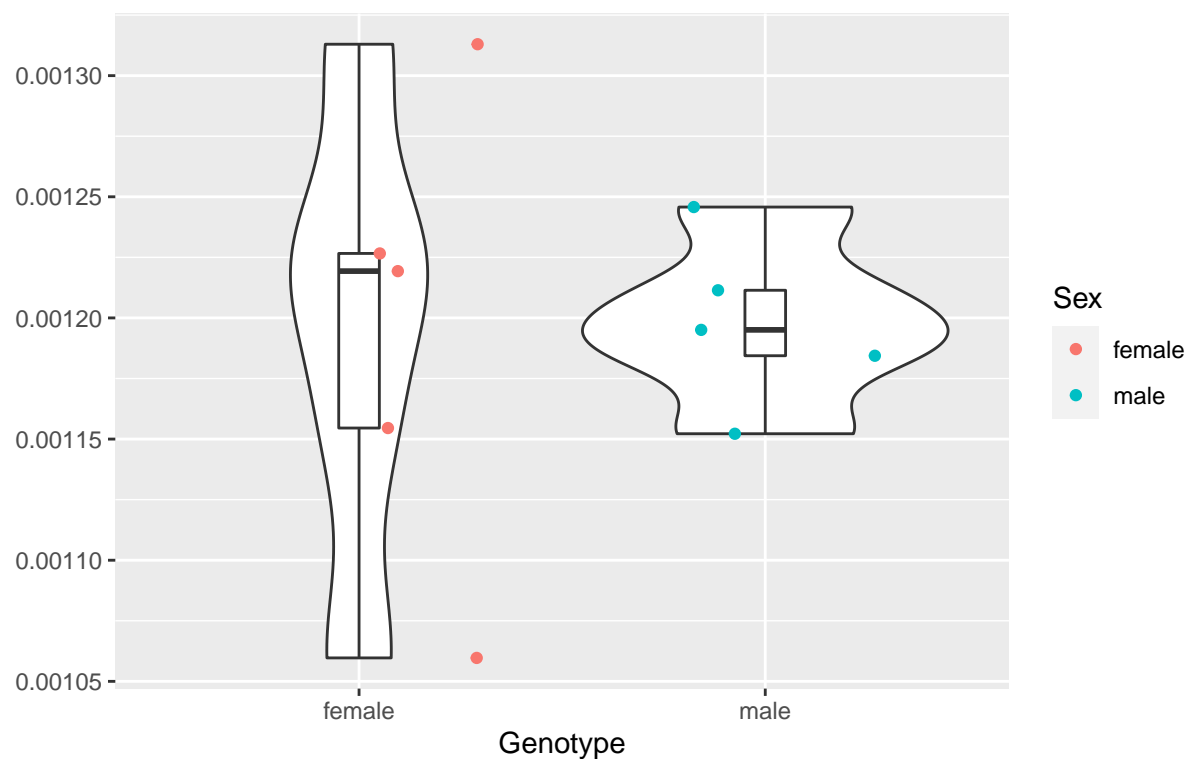## Left Secondary Visual Cortex Mediolateral Area

Red points denoting outliers
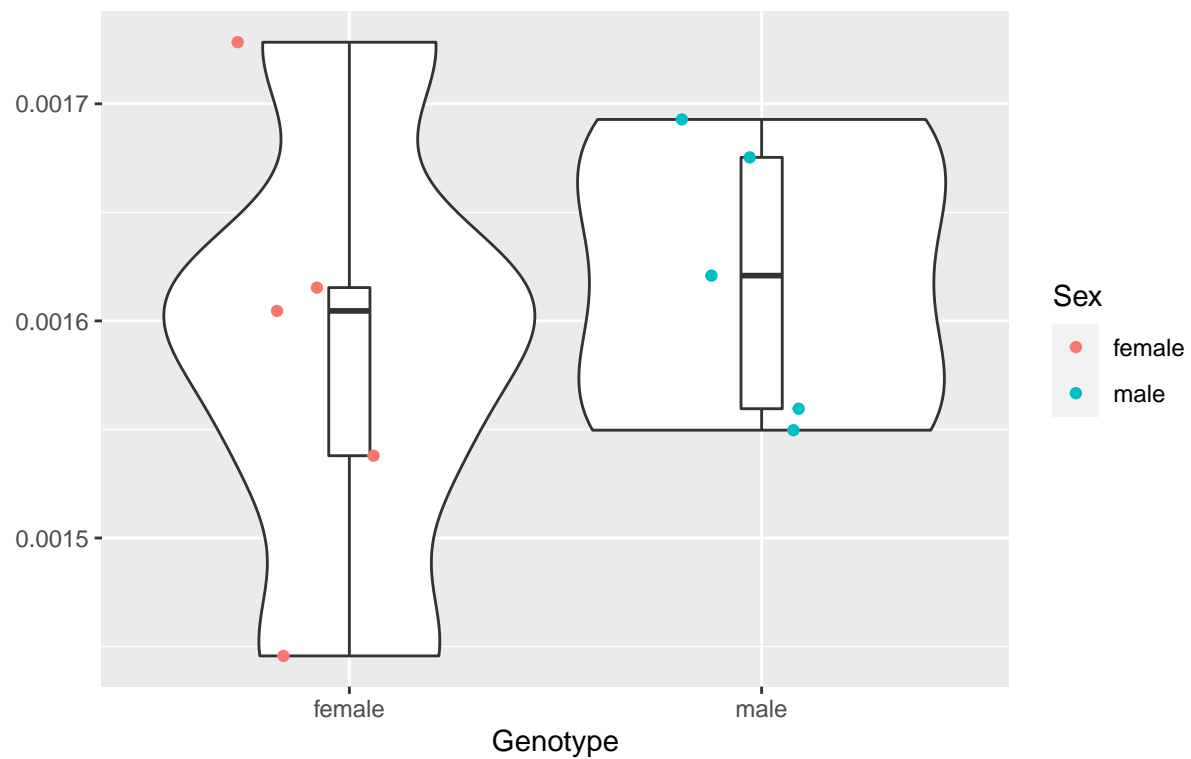

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.770e-09 2.766e-09   0.366  0.562
## Residuals   8 6.044e-08 7.555e-09
```
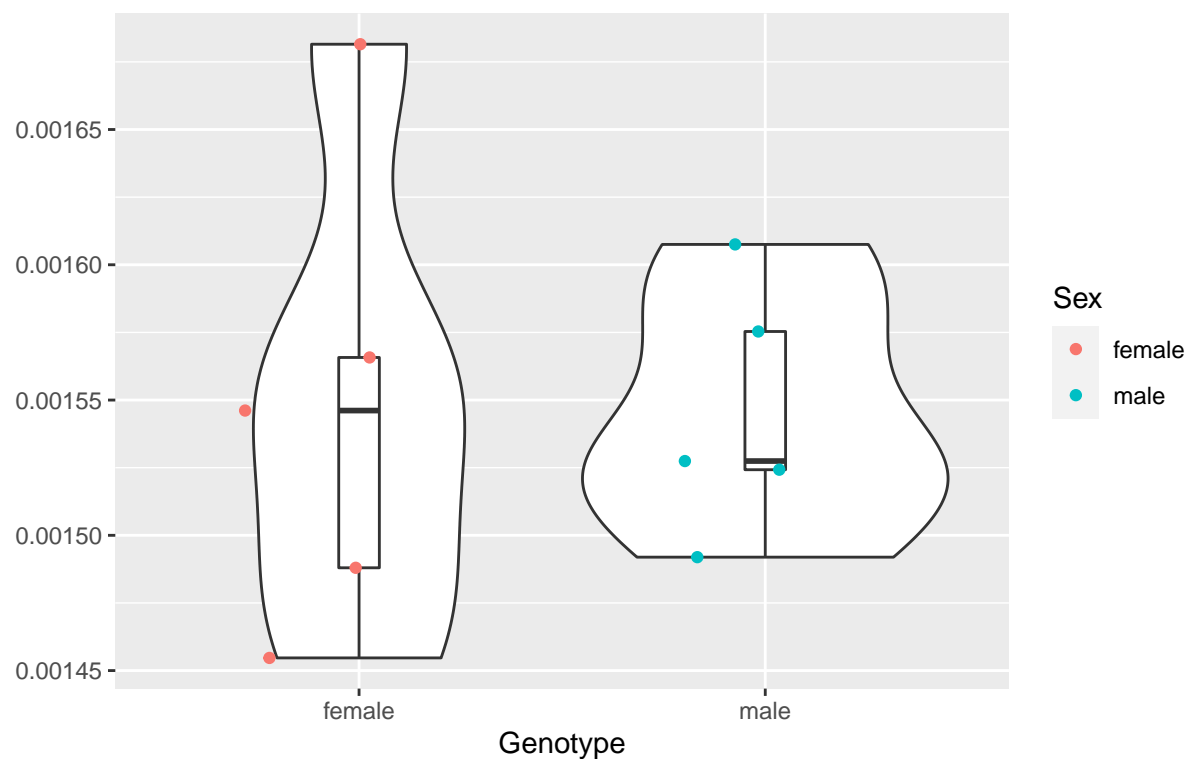
Left Secondary Visual Cortex Lateral Area
Red points denoting outliers


```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 2.000e-11 2.500e-11   0.005  0.946
## Residuals  8 4.021e-08 5.026e-09
```
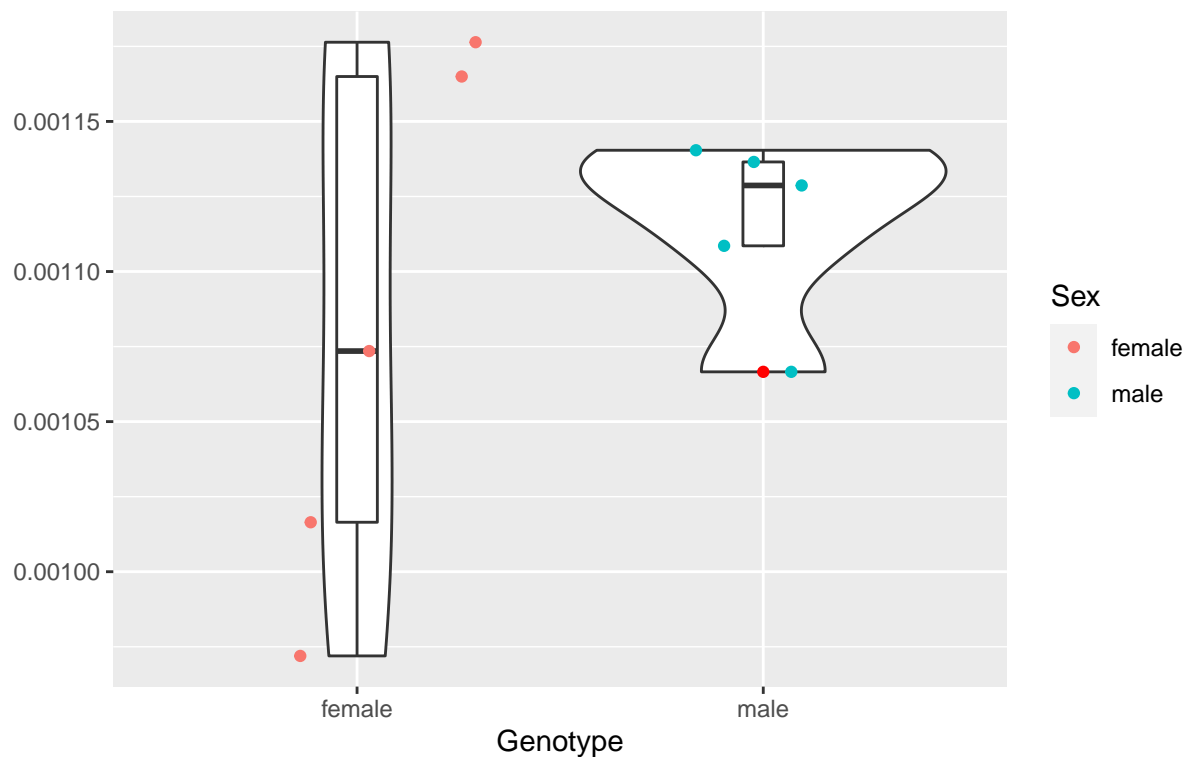
Left Primary Visual Cortex Monocular Area
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.000e-11 9.000e-12   0.002  0.966
## Residuals    8 3.884e-08 4.855e-09
```
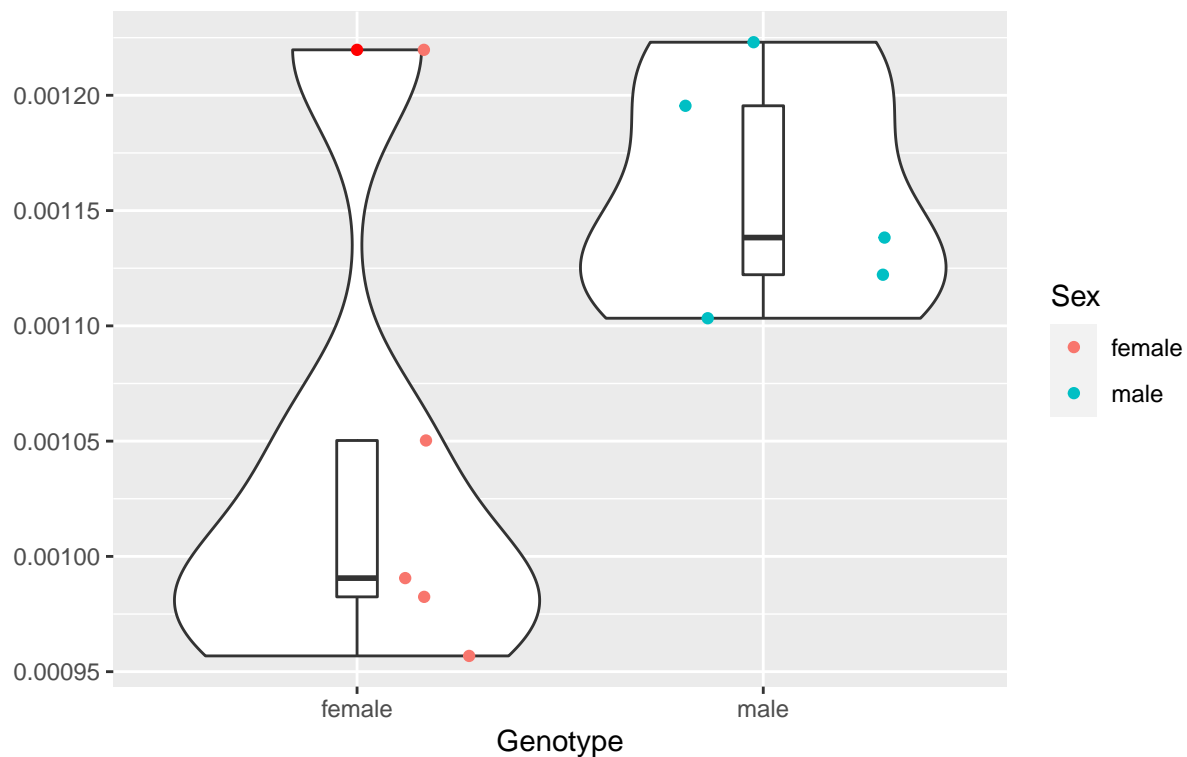
Left Primary Visual Cortex Binocular Area

Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 3.150e-09 3.148e-09   0.701  0.427
## Residuals   8 3.593e-08 4.491e-09
```

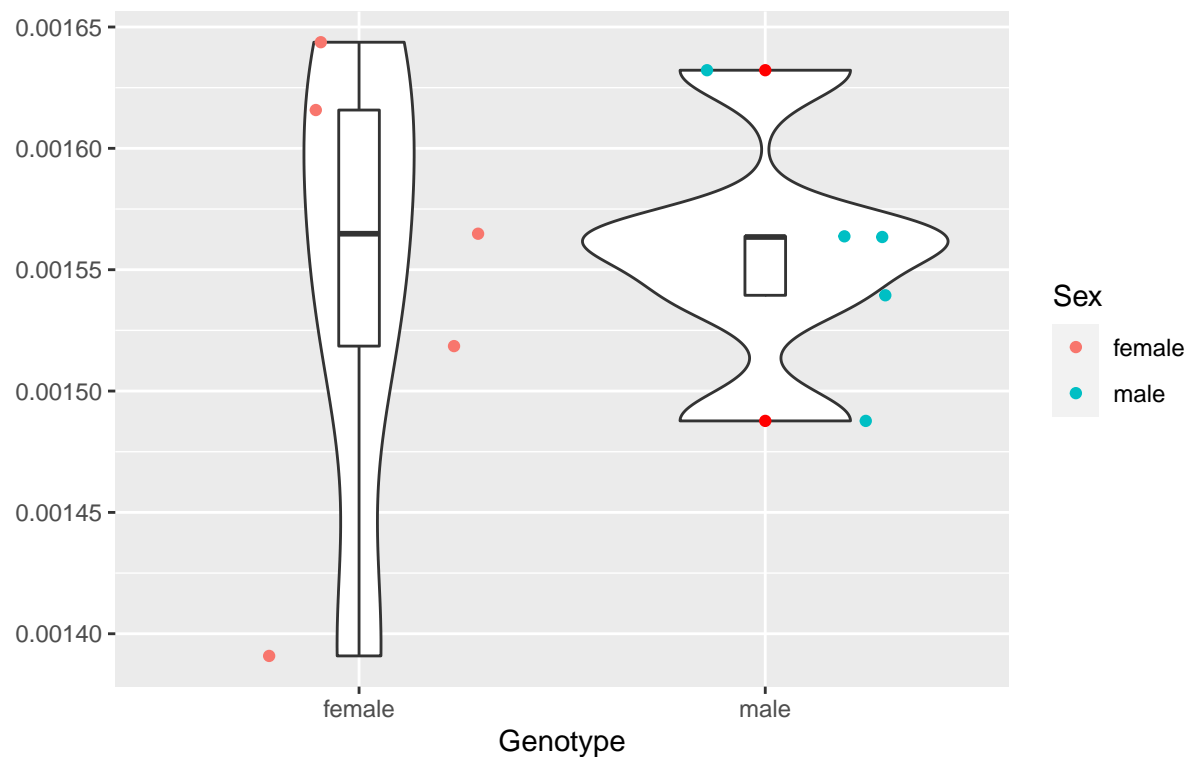## Left Primary Visual Cortex
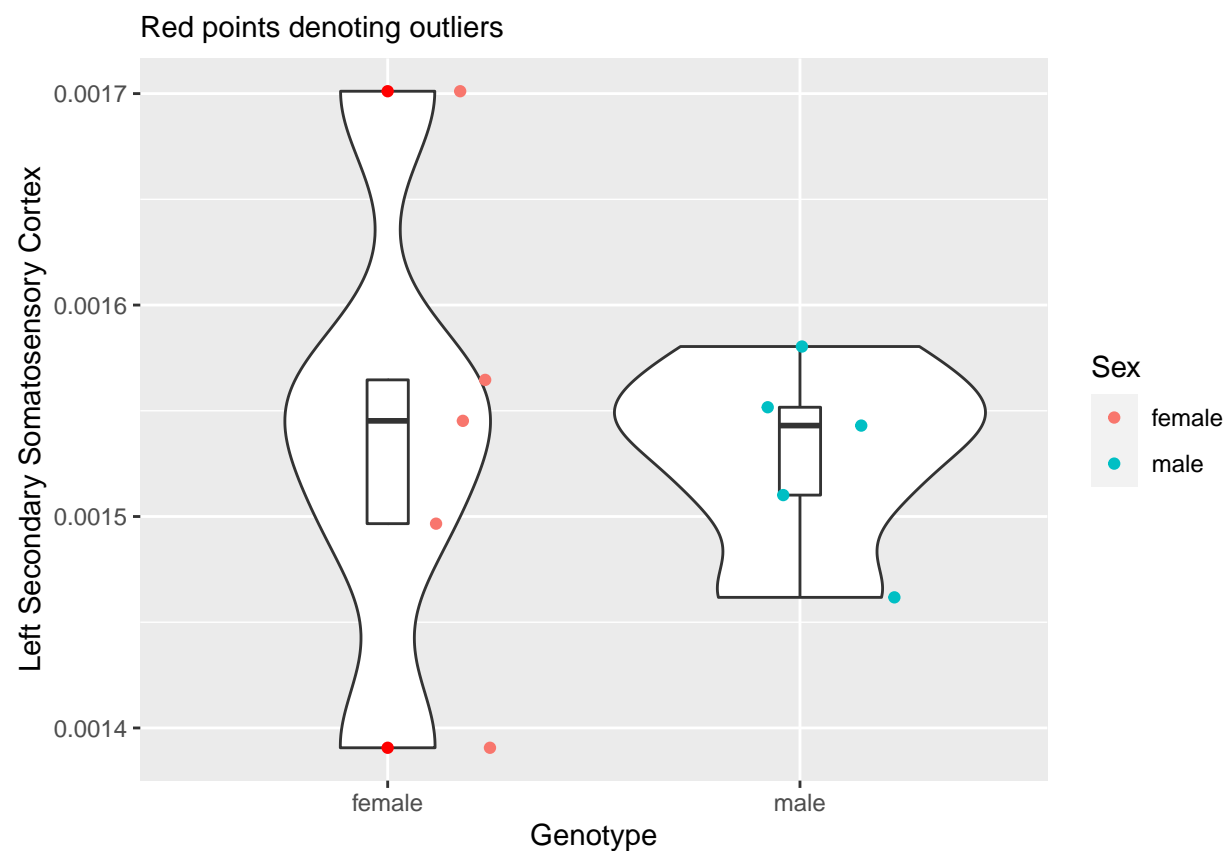### Red points denoting outliers


```
##              Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 3.392e-08 3.392e-08   4.901 0.0577 .
## Residuals     8 5.536e-08 6.920e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Left Temporal Association Cortex
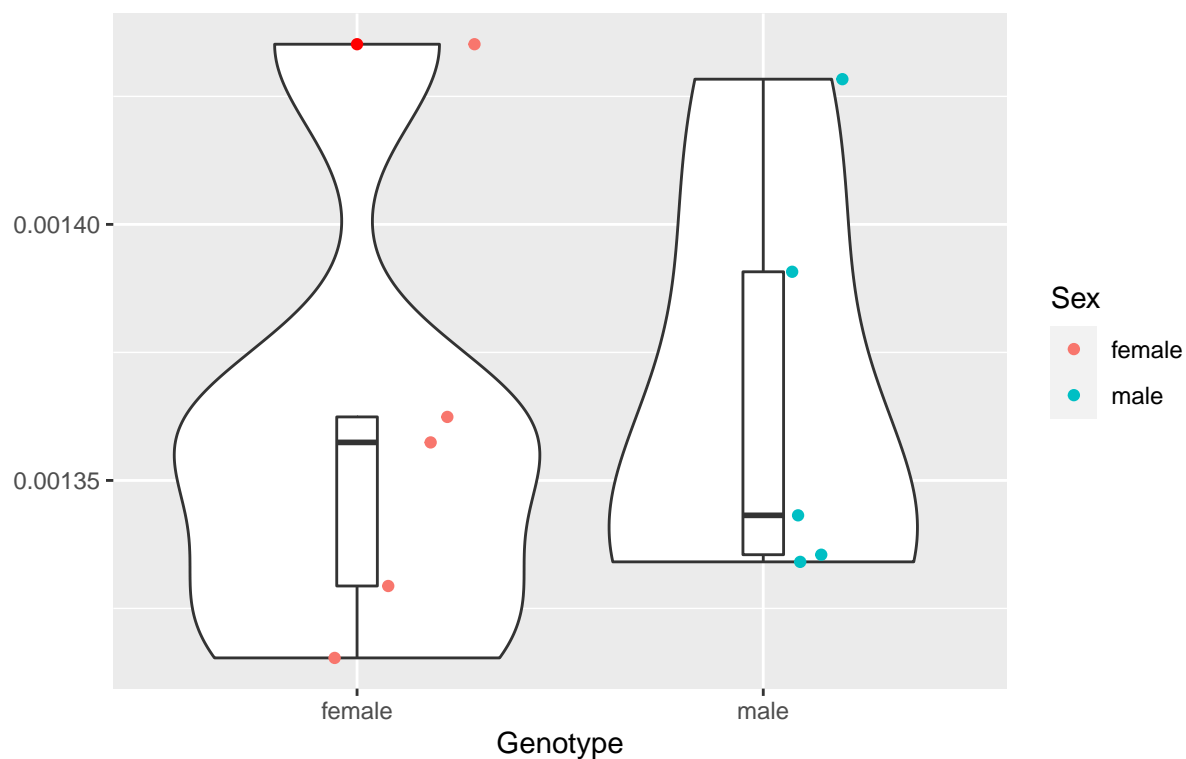### Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.800e-10 2.790e-10   0.044  0.839
## Residuals   8 5.045e-08 6.306e-09
```

Red points denoting outliers

```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.600e-10 2.630e-10   0.036  0.855
## Residuals   8 5.902e-08 7.377e-09
```

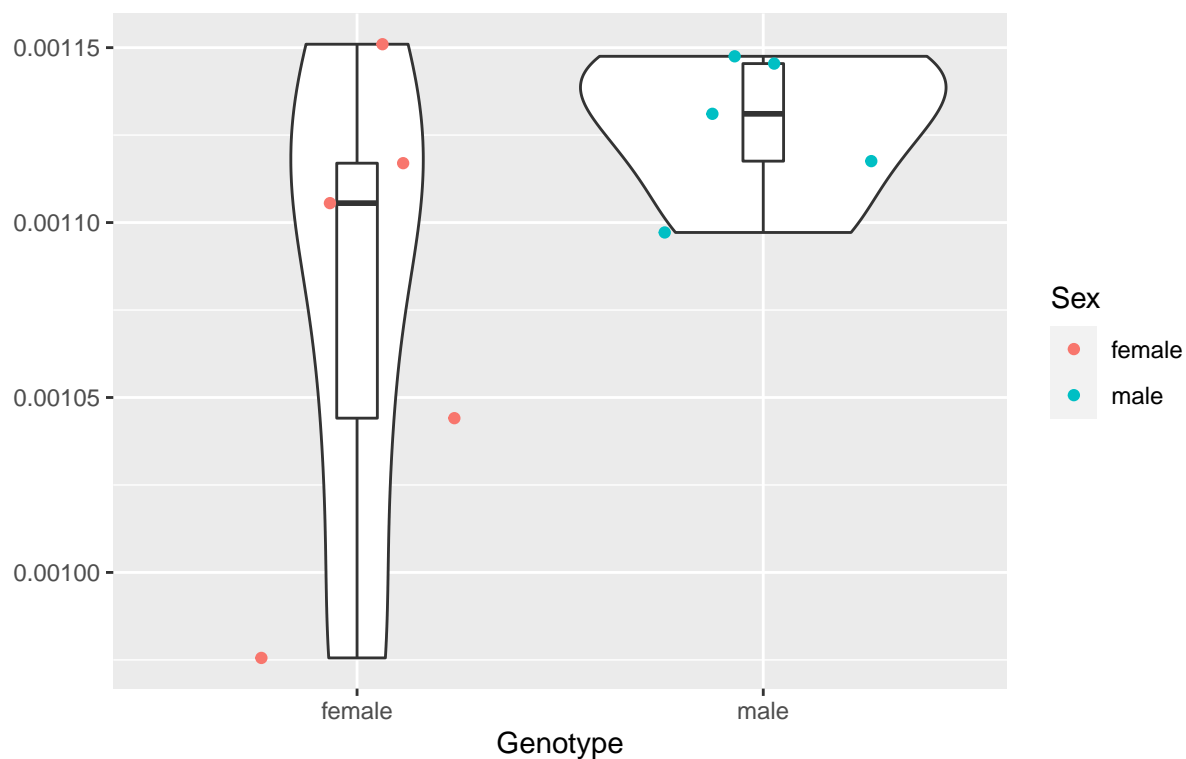# Left Primary Somatosensory Cortex Upper Lip Region

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.030e-10 1.033e-10   0.053  0.824
## Residuals    8 1.557e-08 1.946e-09
```
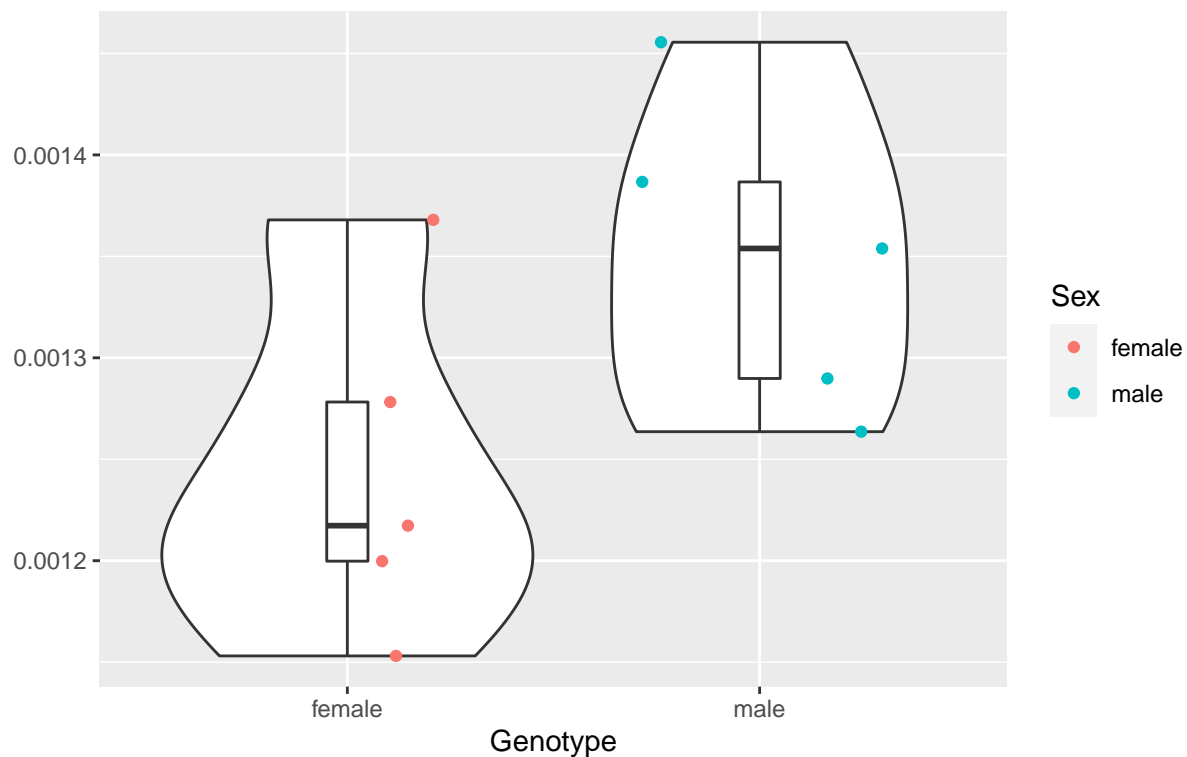
Left Primary Somatosensory Cortex Trunk Region
Red points denoting outliers

```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 6.032e-09 6.032e-09   2.298  0.168
## Residuals   8 2.100e-08 2.625e-09
```

Left Primary Somatosensory Cortex Shoulder Region
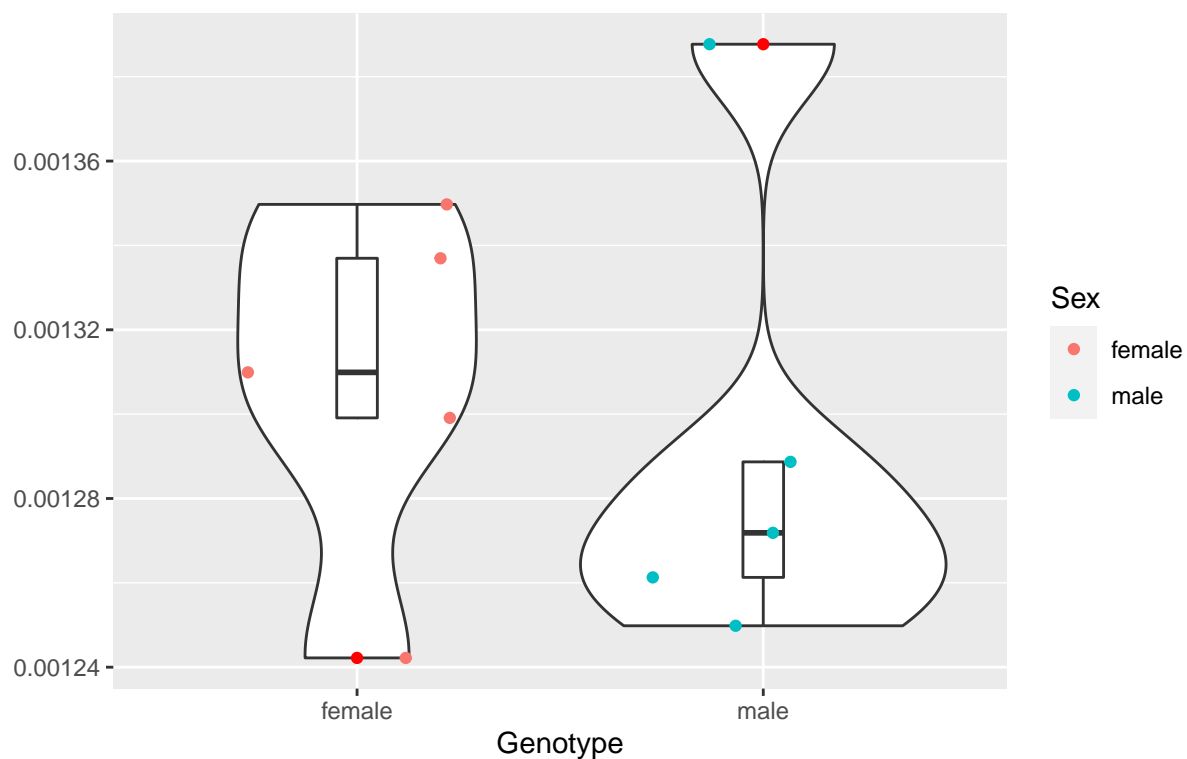
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.843e-08 2.843e-08   4.454 0.0678 .
## Residuals    8 5.107e-08 6.384e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

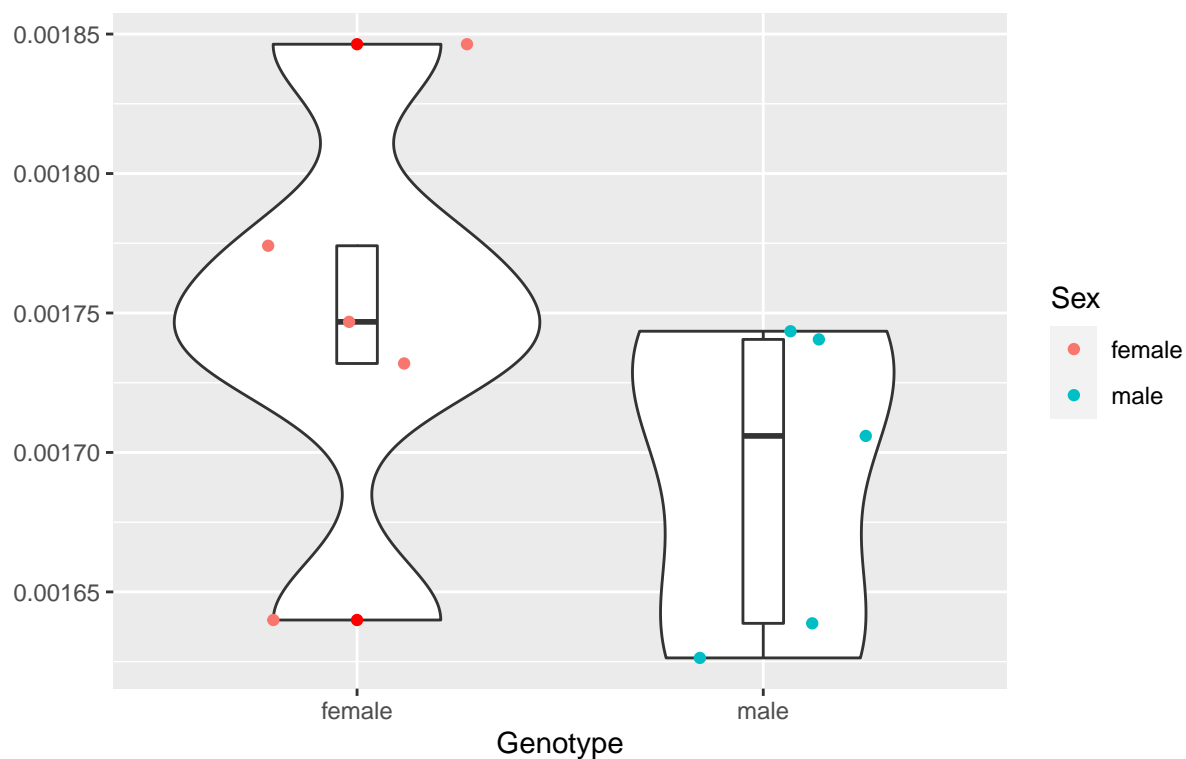# Left Primary Somatosensory Cortex Jaw Region

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.170e-10 6.168e-10   0.256  0.627
## Residuals    8 1.929e-08 2.411e-09
```
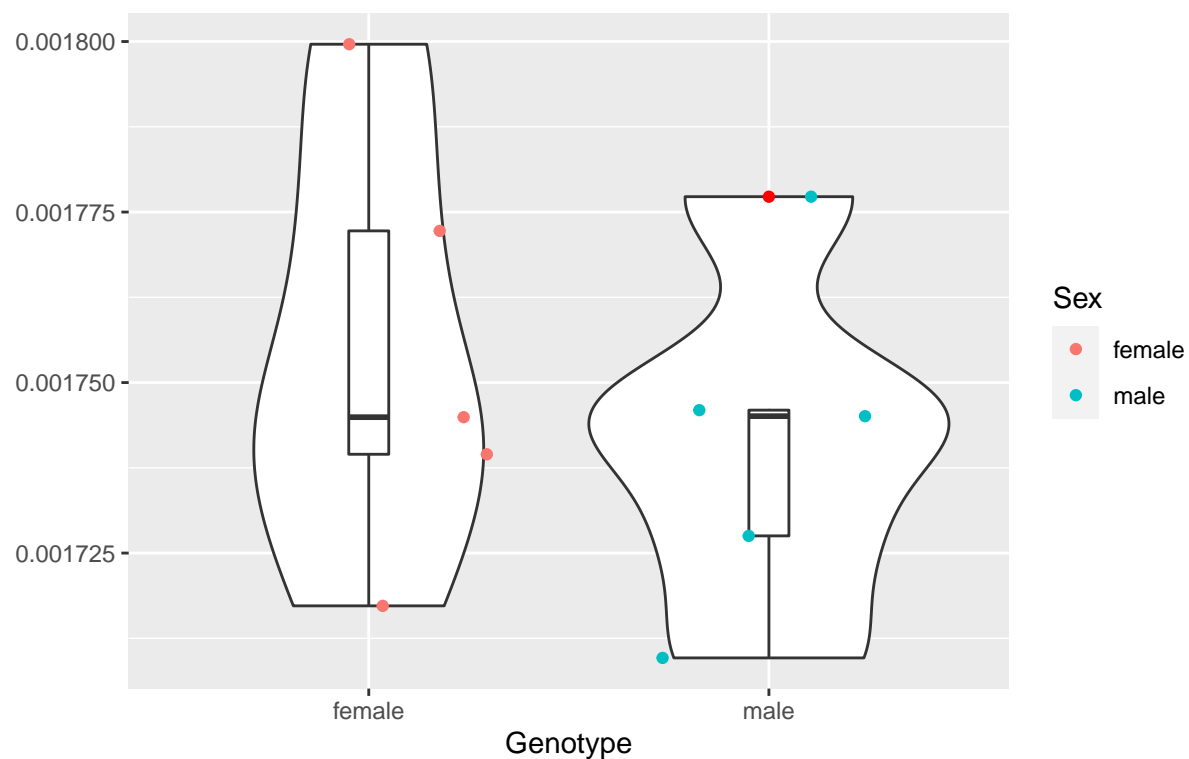
Left Primary Somatosensory Cortex Hindlimb Region

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 8.070e-09 8.072e-09   1.864  0.209
## Residuals    8 3.464e-08 4.330e-09
```
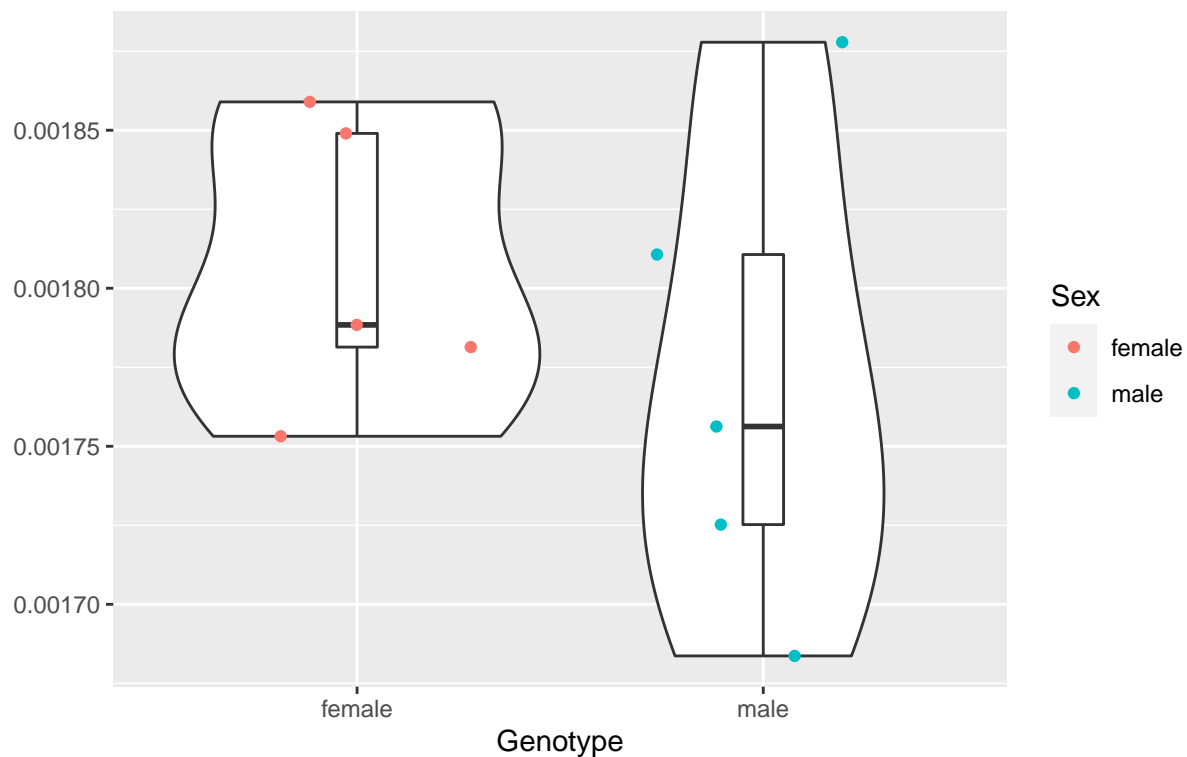
Left Primary Somatosensory Cortex Forelimb Region

Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.640e-10 4.636e-10   0.564  0.474
## Residuals   8 6.573e-09 8.217e-10
```
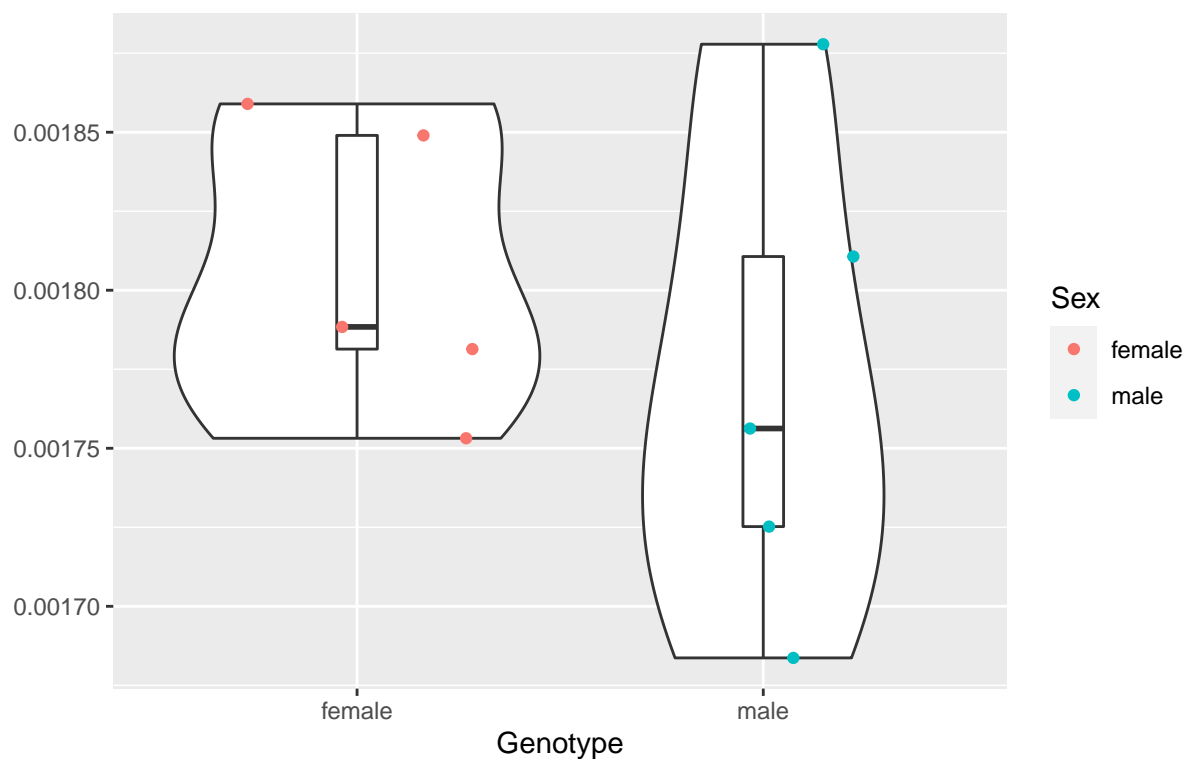
Left Primary Somatosensory Cortex Dysgranular Zone

Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1  6.300e-10 6.302e-10   0.209   0.66
## Residuals    8  2.415e-08 3.018e-09
```
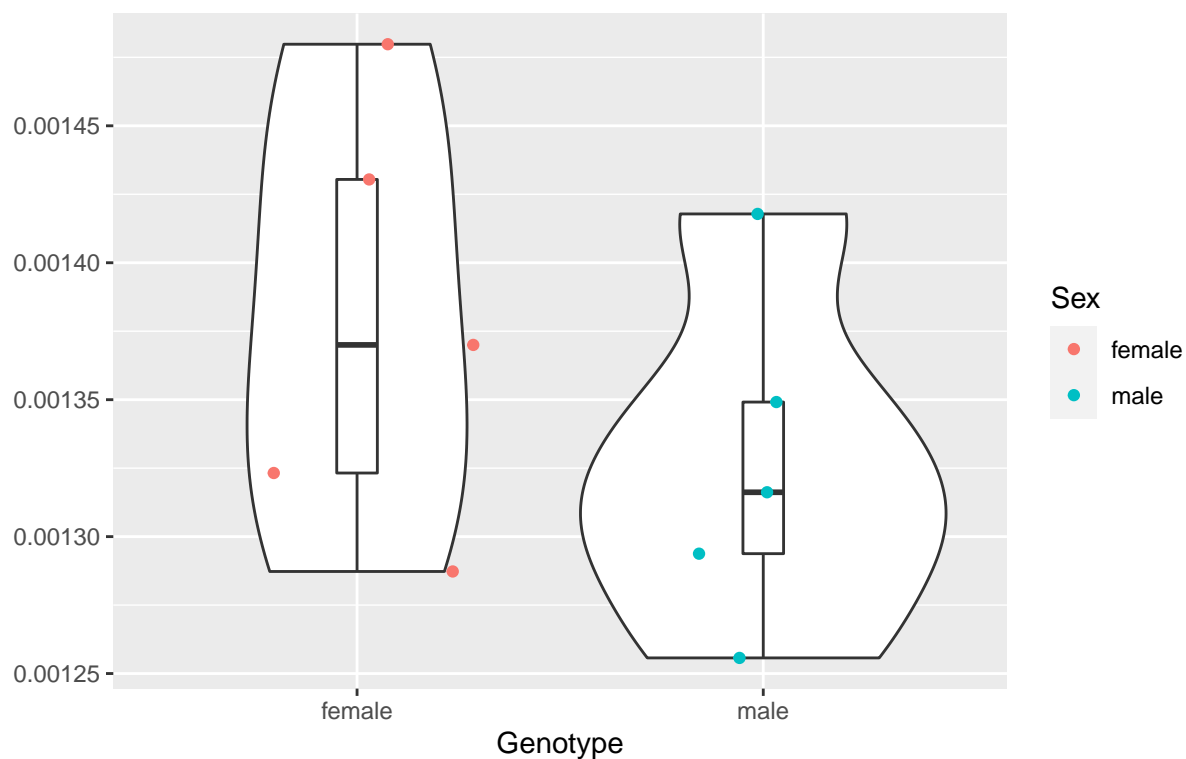
Left Primary Somatosensory Cortex Barrel Field

Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 3.142e-09 3.142e-09   0.803  0.396
## Residuals  8 3.129e-08 3.911e-09
```

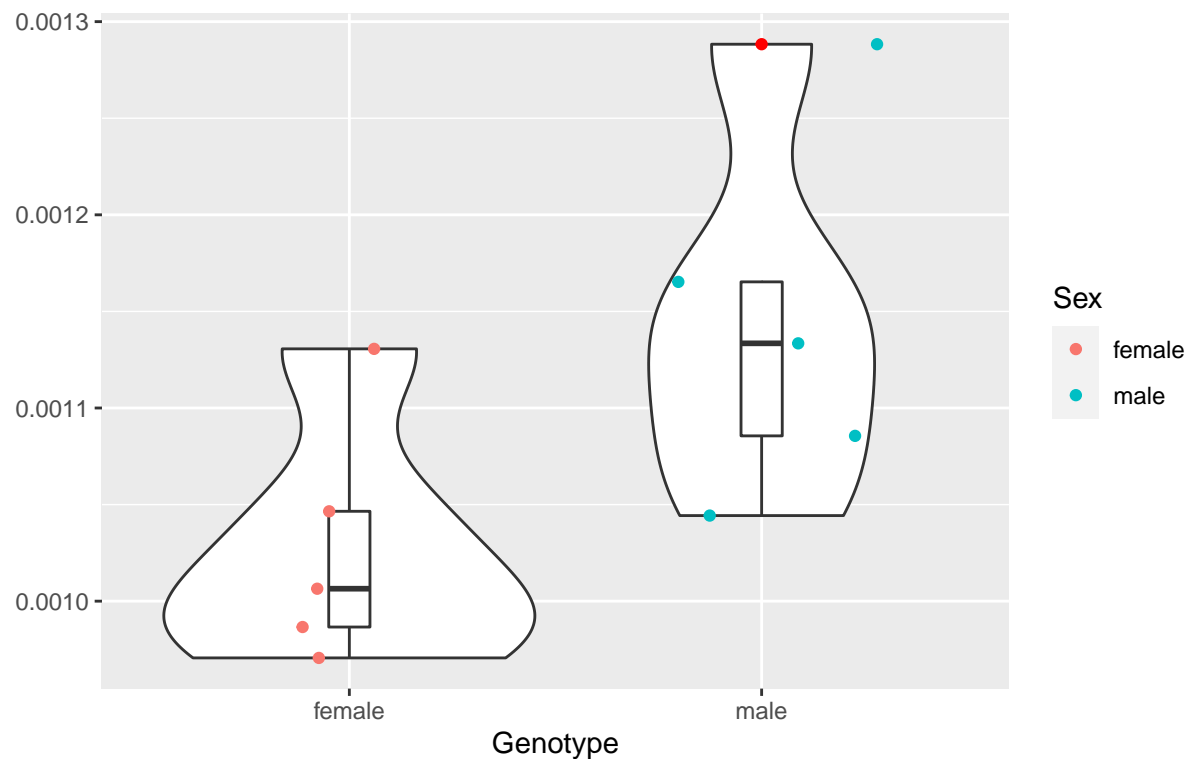# Left Primary Somatosensory Cortex
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.660e-09 6.660e-09   1.351  0.279
## Residuals    8 3.945e-08 4.931e-09
```

Left Parietal Cortex Posterial Area Rostral Part
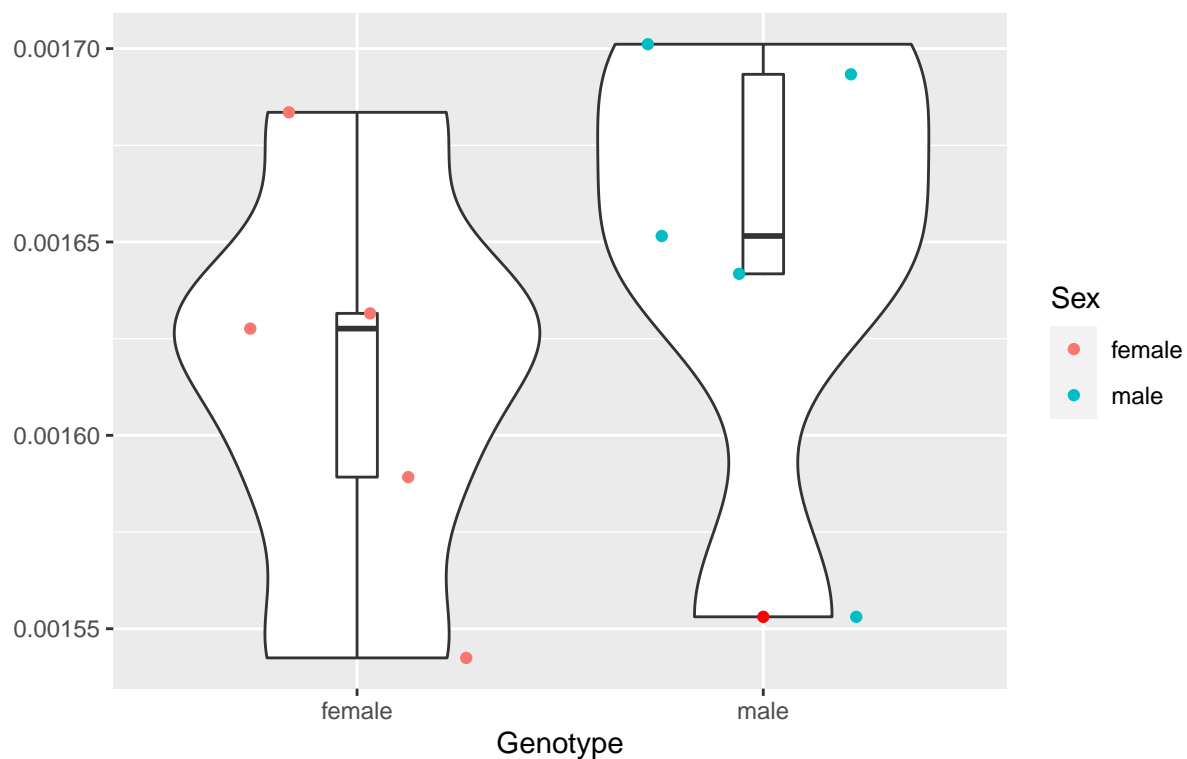
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.319e-08 3.319e-08   5.198 0.0521 .
## Residuals    8 5.108e-08 6.390e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

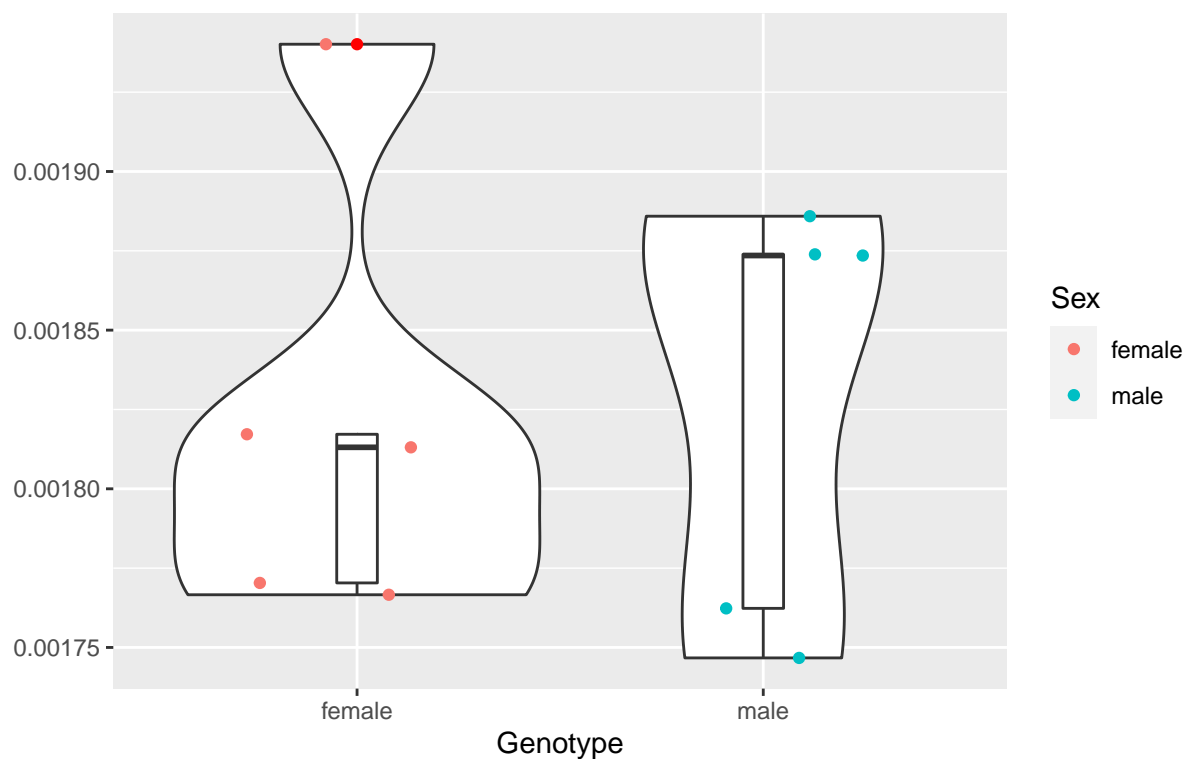Left Medial Parietal Association Cortex
Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.774e-09 2.774e-09   0.888  0.374
## Residuals    8 2.500e-08 3.125e-09
```

Left Medial Orbital Cortex
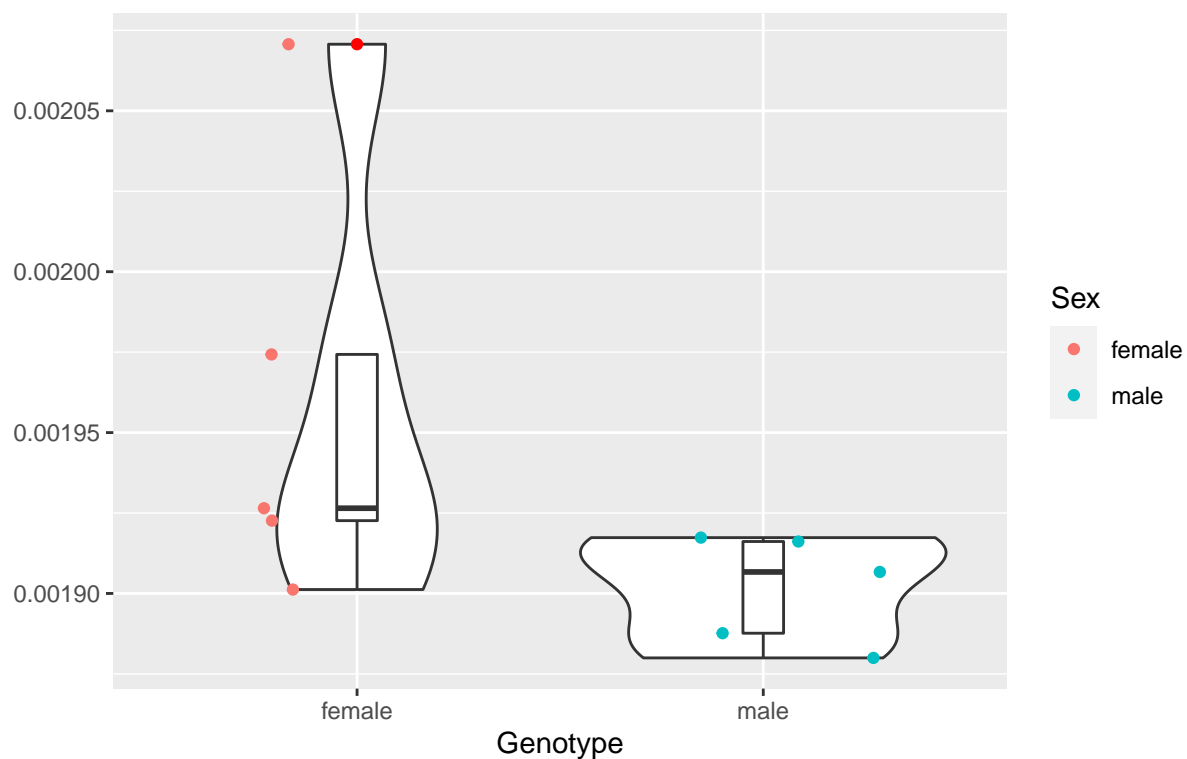
Red points denoting outliers


```
##            Df    Sum Sq  Mean Sq F value Pr(>F)
## Sex         1 1.200e-10 1.23e-10   0.026  0.877
## Residuals   8 3.824e-08 4.78e-09
```

Left Secondary Motor Cortex
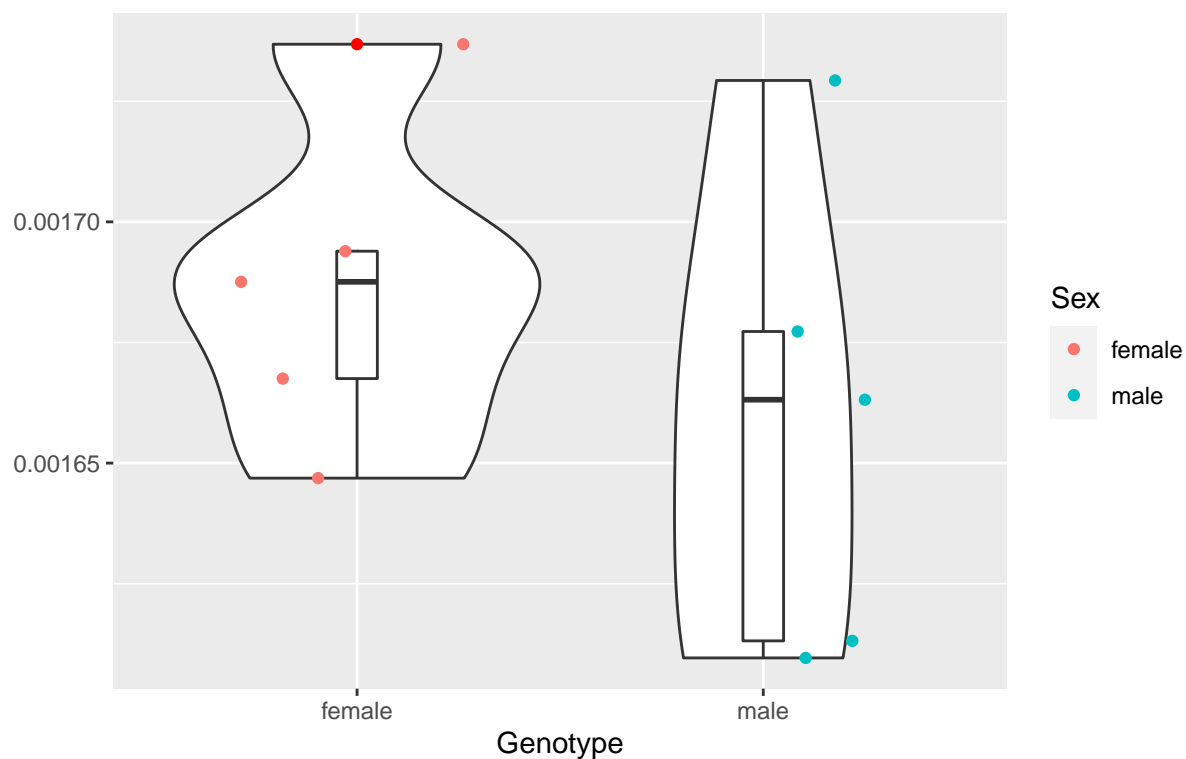
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 8.267e-09 8.267e-09   3.378  0.103
## Residuals   8 1.958e-08 2.447e-09
```

Left Primary Motor Cortex
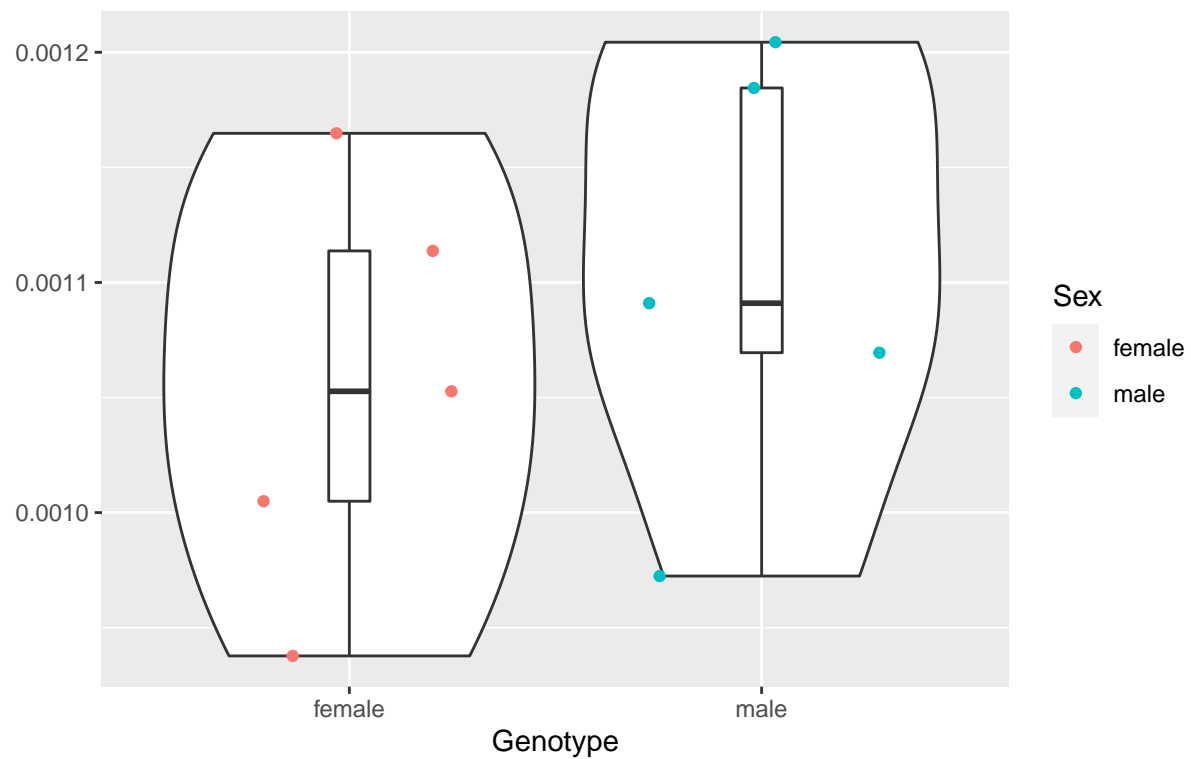Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.966e-09 1.966e-09   1.096  0.326
## Residuals   8 1.435e-08 1.794e-09
```

Left Lateral Parietal Association Cortex
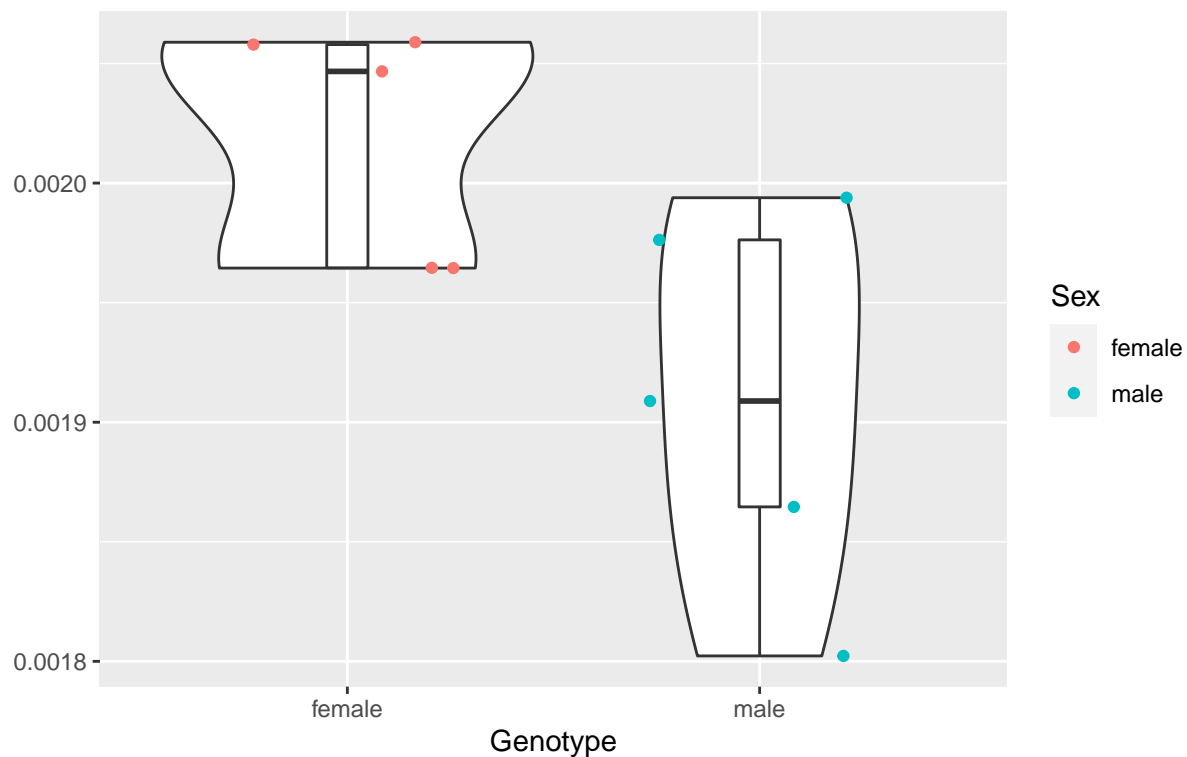Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.150e-09 6.145e-09   0.734  0.417
## Residuals    8 6.698e-08 8.373e-09
```
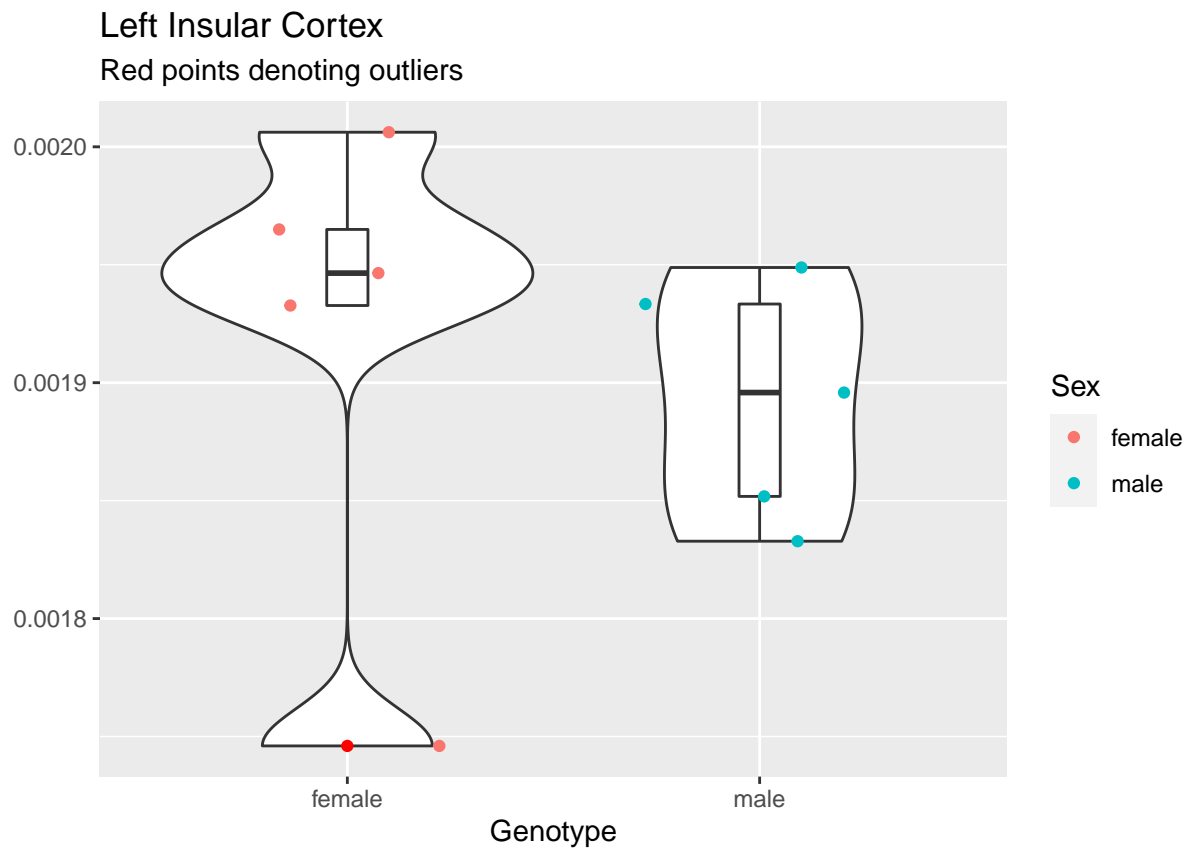
Left Lateral Orbital Cortex
Red points denoting outliers
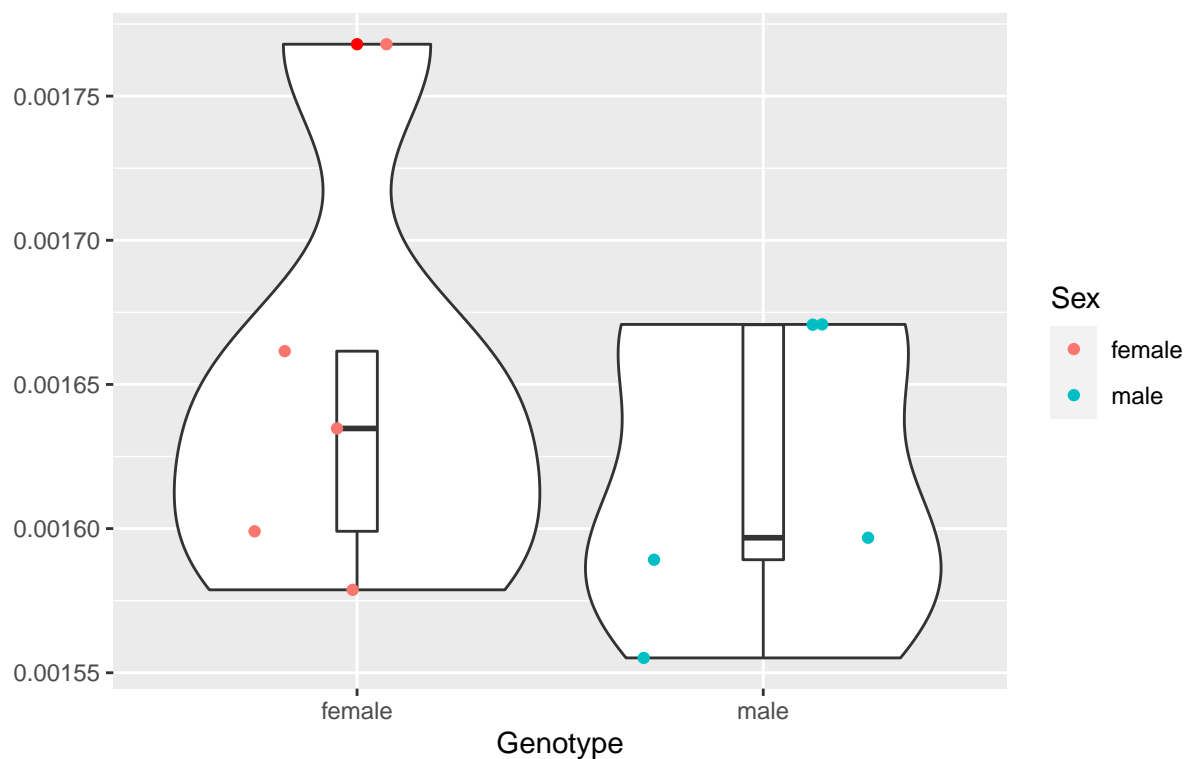


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.989e-08 2.989e-08   6.852 0.0308 *
## Residuals    8 3.490e-08 4.363e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Left Insular Cortex
Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.790e-09 1.789e-09   0.283  0.609
## Residuals   8 5.066e-08 6.332e-09
```

Left Frontal Assocation Cortex
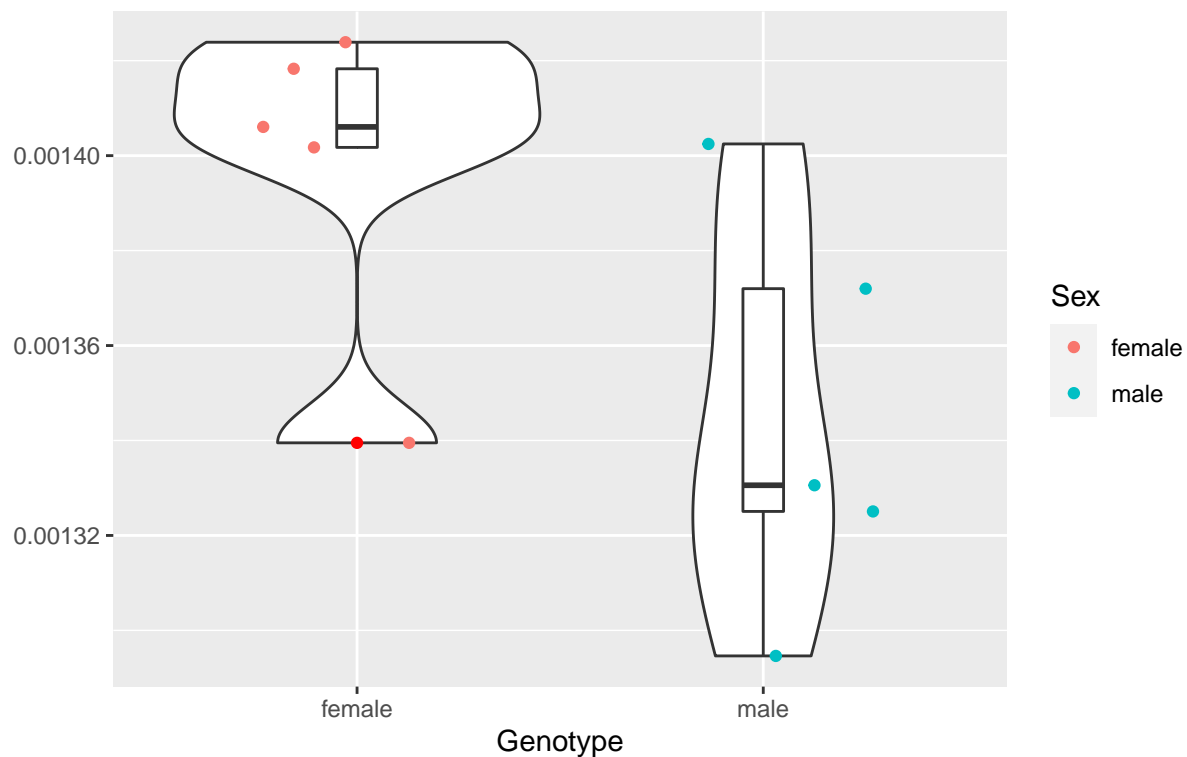Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.540e-09 2.540e-09   0.621  0.453
## Residuals    8 3.273e-08 4.092e-09
```

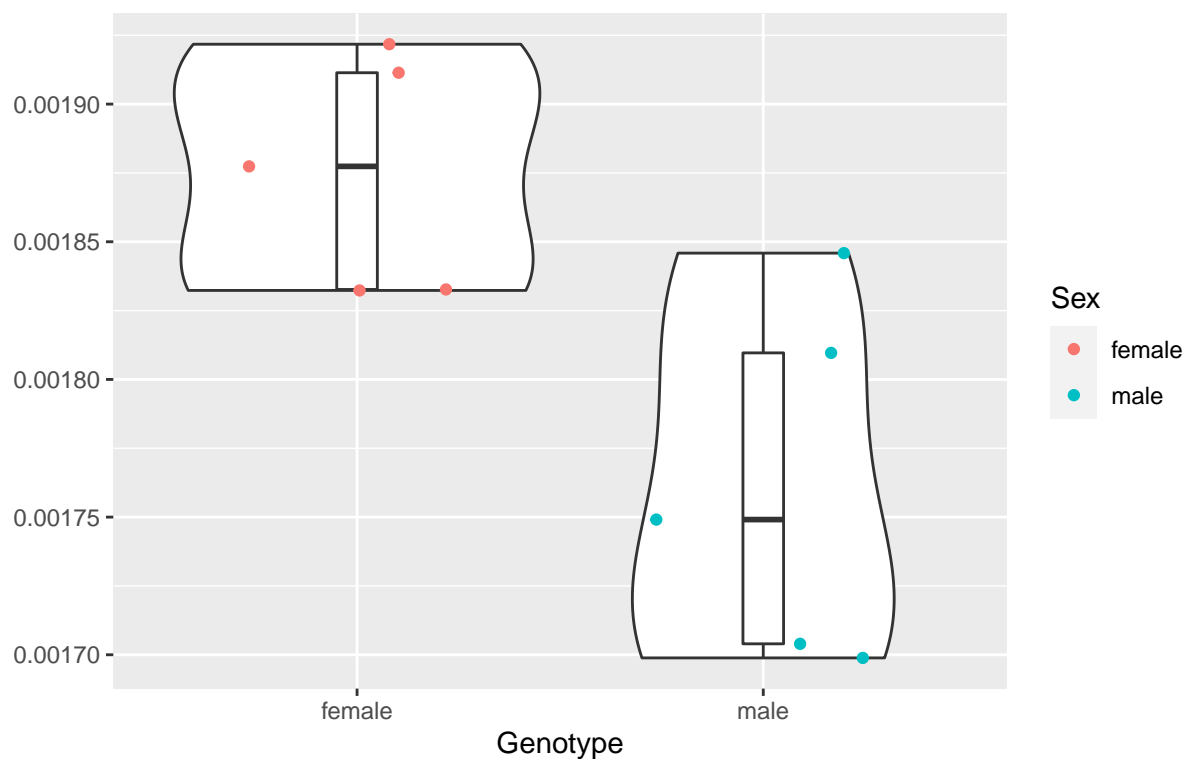# Left Frontal Cortex Area 3
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.011e-09 7.011e-09   4.771 0.0605 .
## Residuals    8 1.176e-08 1.470e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Left Dorsolateral Orbital Cortex
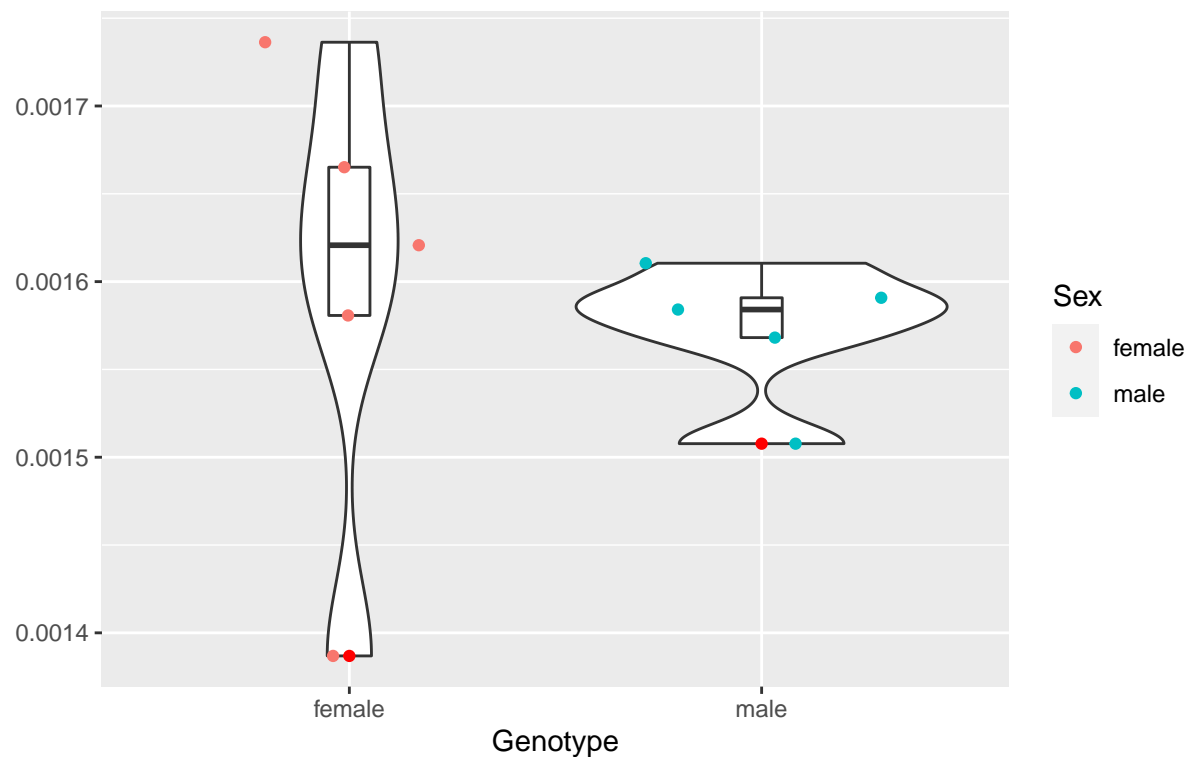Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 3.227e-08 3.227e-08   10.78 0.0111 *
## Residuals   8 2.395e-08 2.990e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
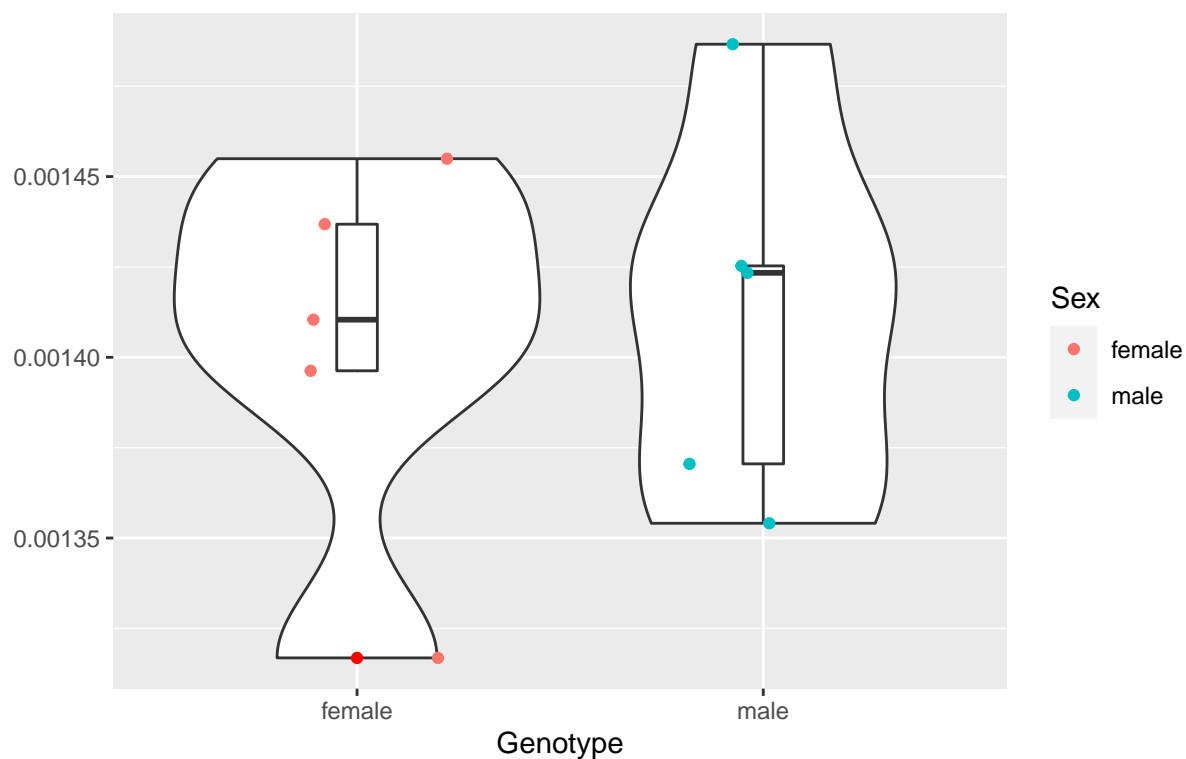
Left Secondary Auditory Cortex Ventral Part

Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.650e-09 1.653e-09   0.176  0.686
## Residuals   8 7.516e-08 9.396e-09
```
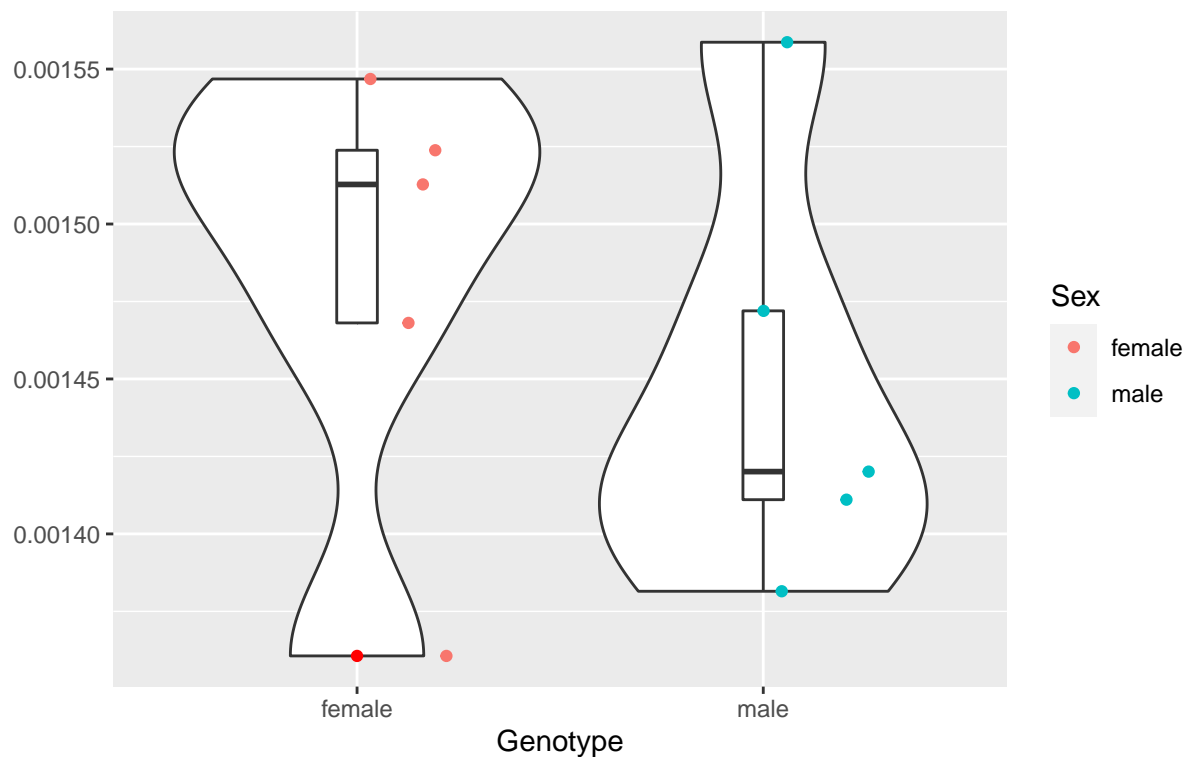
Left Secondary Auditory Cortex Dorsal Part
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.990e-10 1.990e-10   0.071  0.796
## Residuals    8 2.231e-08 2.789e-09
```

Left Primary Auditory Cortex
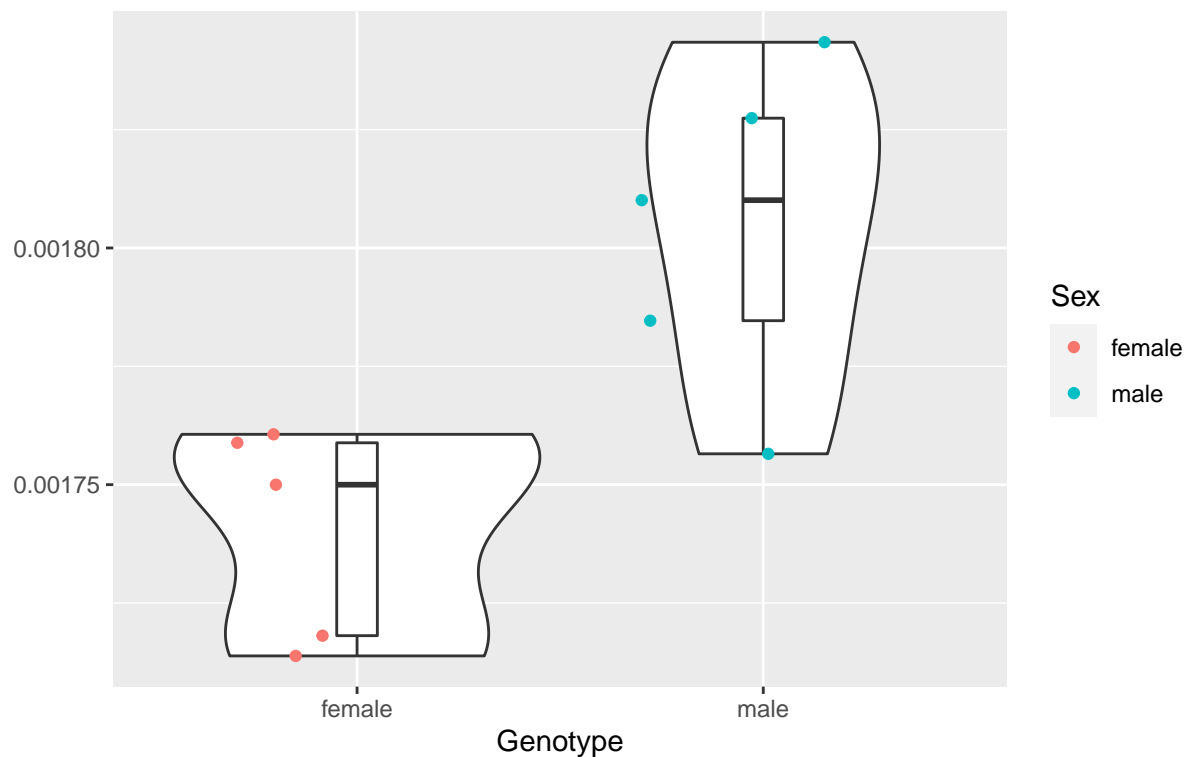## Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.850e-09 2.850e-09   0.553  0.478
## Residuals   8 4.121e-08 5.151e-09
```

Left Cingulate Cortex Area 32
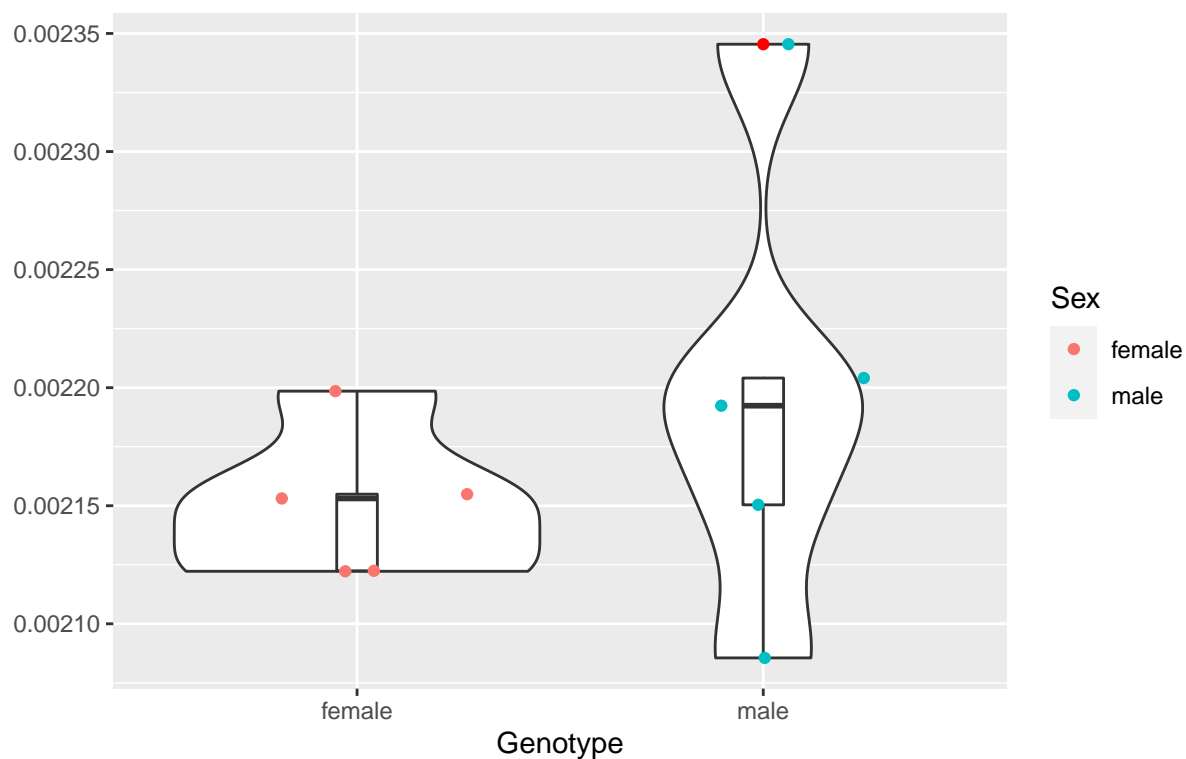Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value  Pr(>F)
## Sex        1 1.029e-08 1.029e-08   12.07 0.00839 **
## Residuals  8 6.817e-09 8.520e-10
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
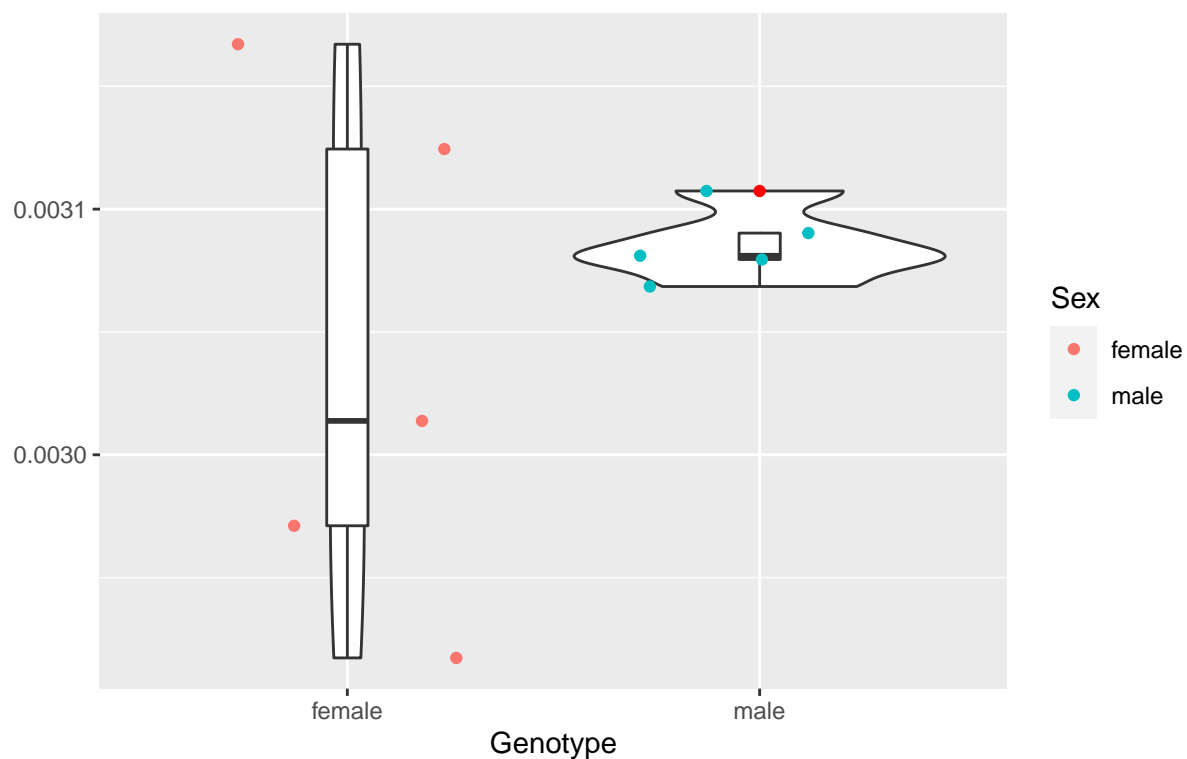
Left Cingulate Cortex Area 30

Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 5.140e-09 5.137e-09   1.012  0.344
## Residuals  8 4.061e-08 5.076e-09
```
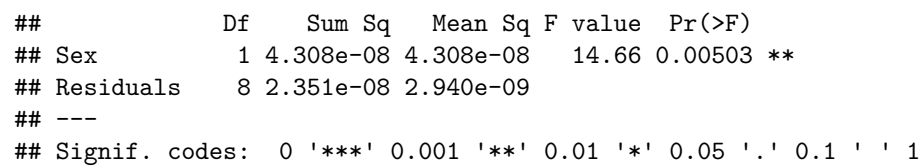
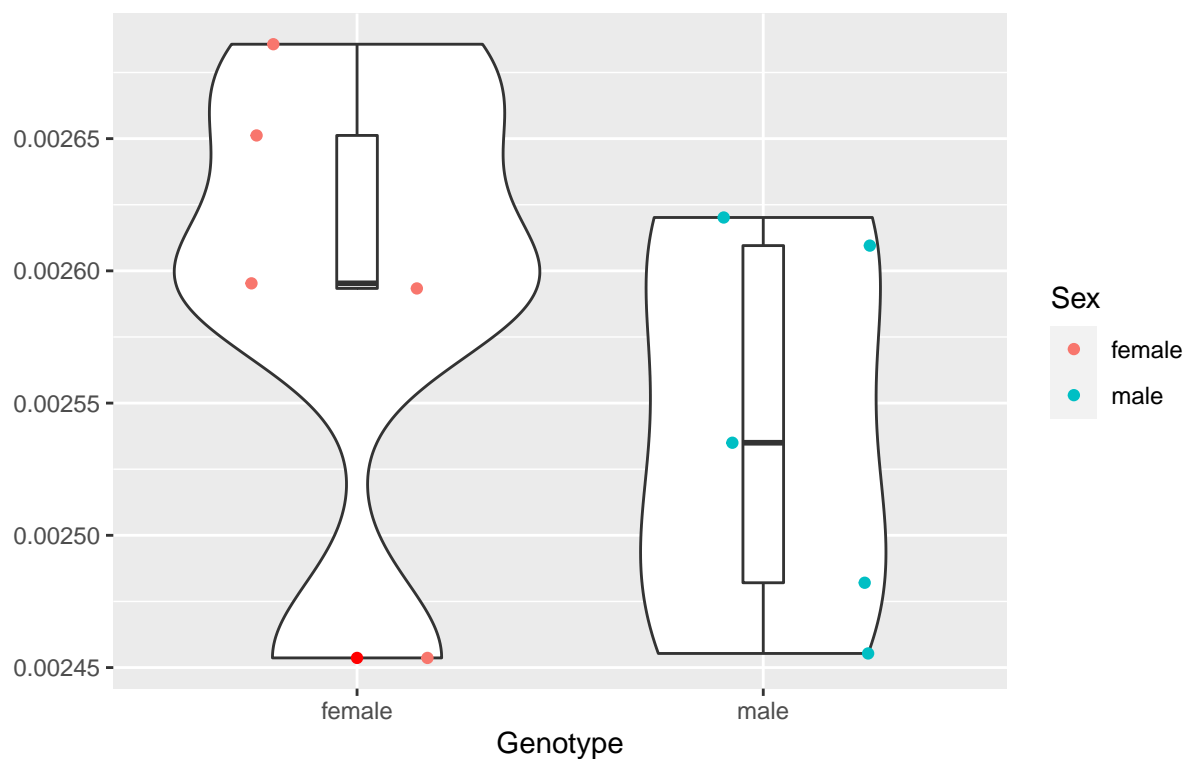## Left Cingulate Cortex Area 29c
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 5.420e-09 5.423e-09   0.972  0.353
## Residuals     8 4.462e-08 5.577e-09
```

Left Cingulate Cortex Area 29b
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value  Pr(>F)
## Sex          1 4.308e-08 4.308e-08   14.66 0.00503 **
## Residuals    8 2.351e-08 2.940e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Left Cingulate Cortex Area 29a
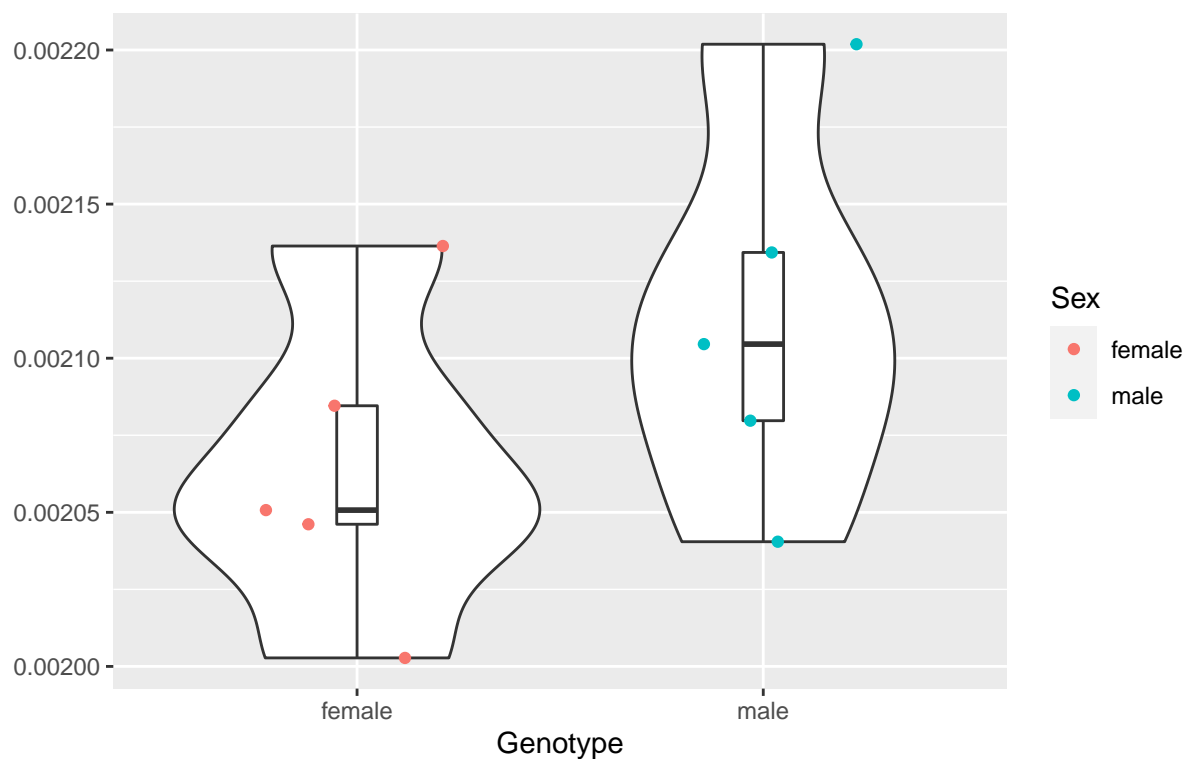Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.680e-09 7.676e-09   1.155  0.314
## Residuals    8 5.318e-08 6.647e-09
```
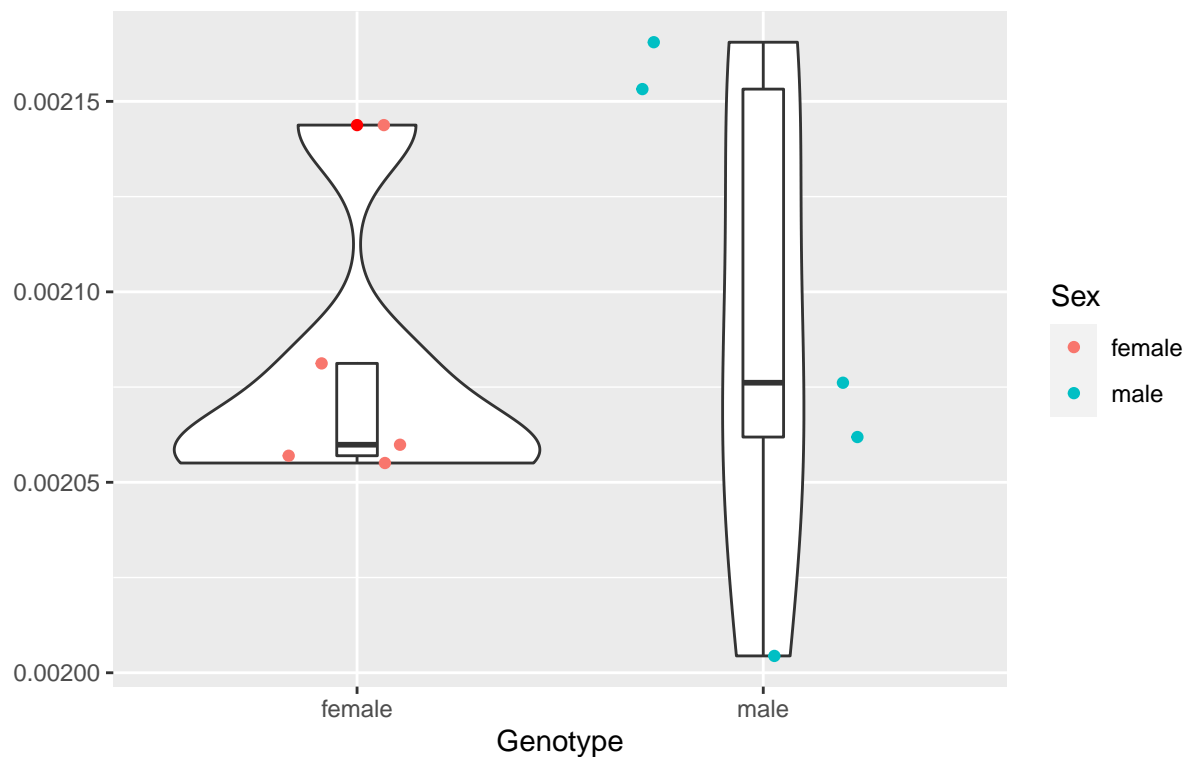
Left Cingulate Cortex Area 24b Prime

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 5.778e-09 5.778e-09   1.871  0.209
## Residuals   8 2.470e-08 3.088e-09
```
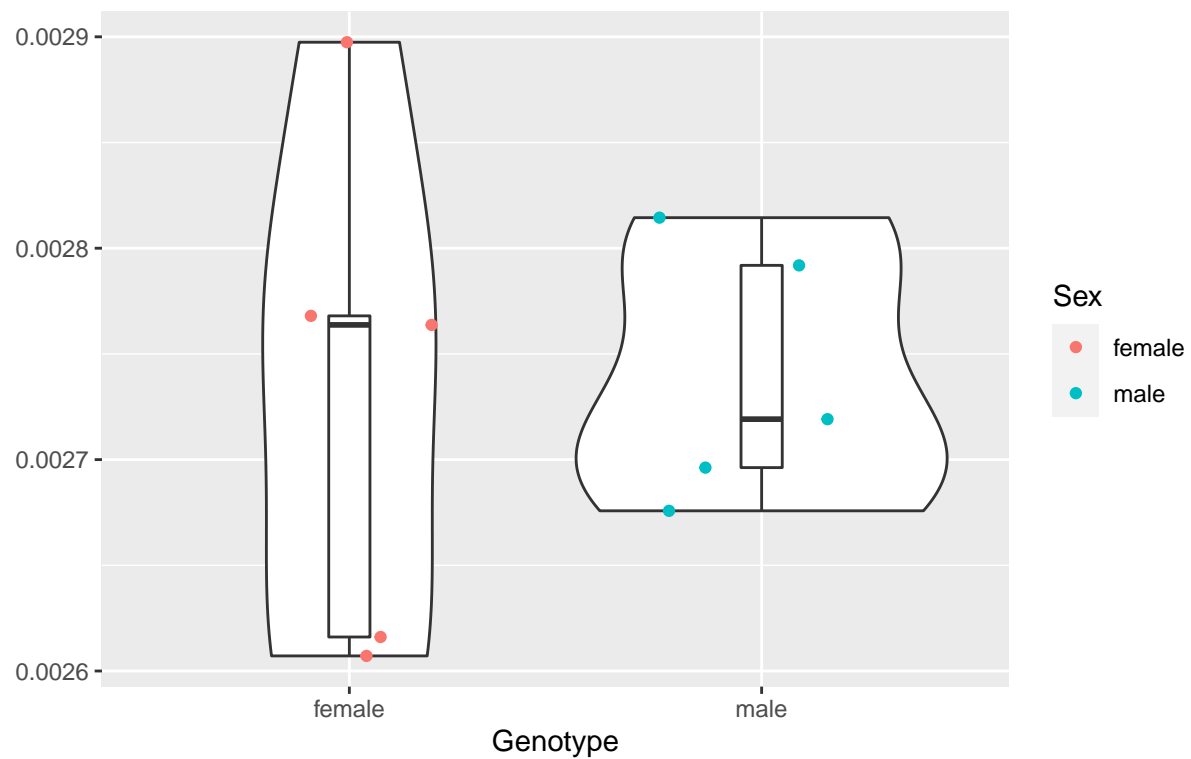
Left Cingulate Cortex Area 24b
Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.140e-10 4.135e-10    0.14  0.718
## Residuals   8 2.361e-08 2.951e-09
```
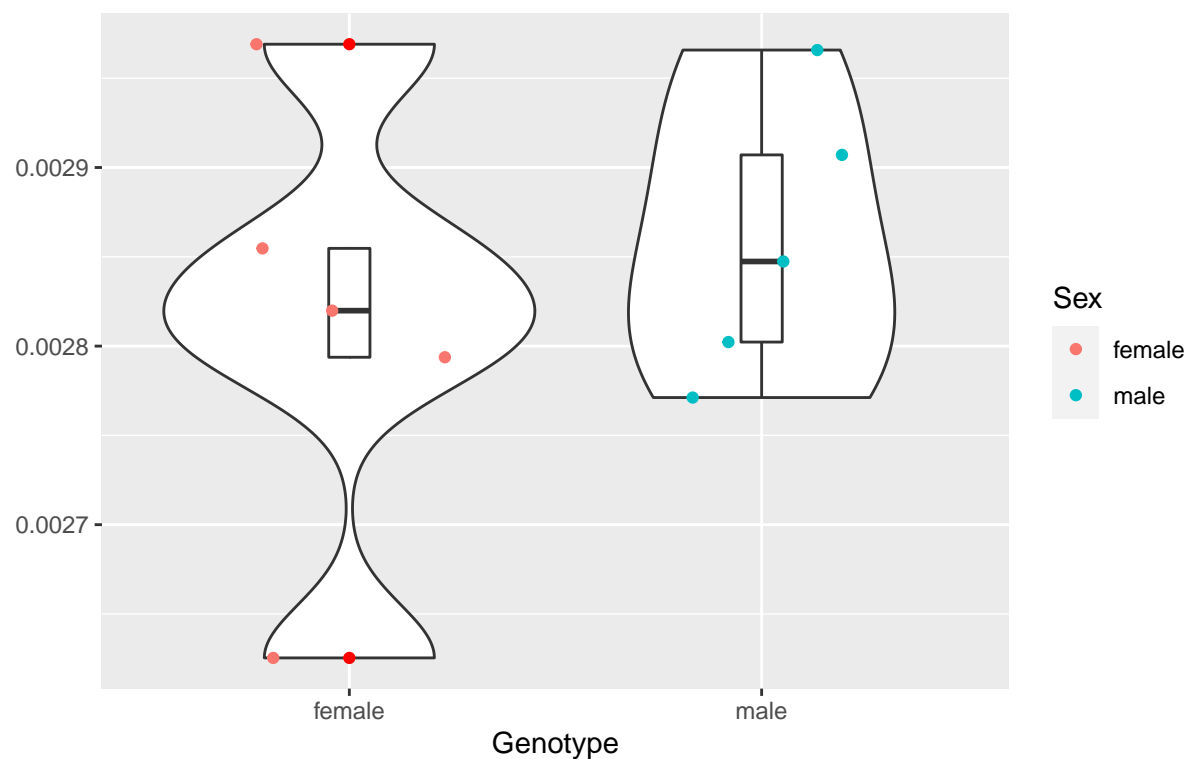
Left Cingulate Cortex Area 24a Prime

Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.00e-10 2.030e-10   0.022  0.885
## Residuals    8 7.34e-08 9.175e-09
```

Left Cingulate Cortex Area 24a
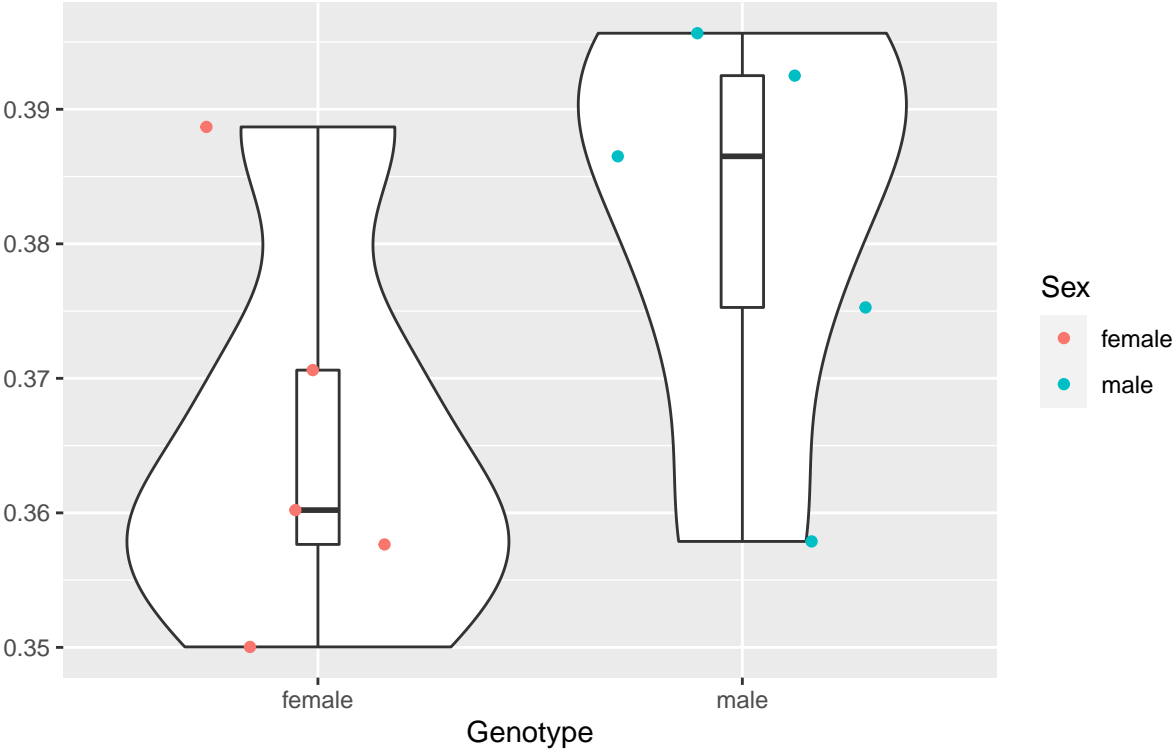
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.330e-09 5.333e-09   0.493  0.502
## Residuals    8 8.649e-08 1.081e-08
```

Exterior
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 0.0006498 0.0006498   2.832  0.131
## Residuals    8 0.0018359 0.0002295
```