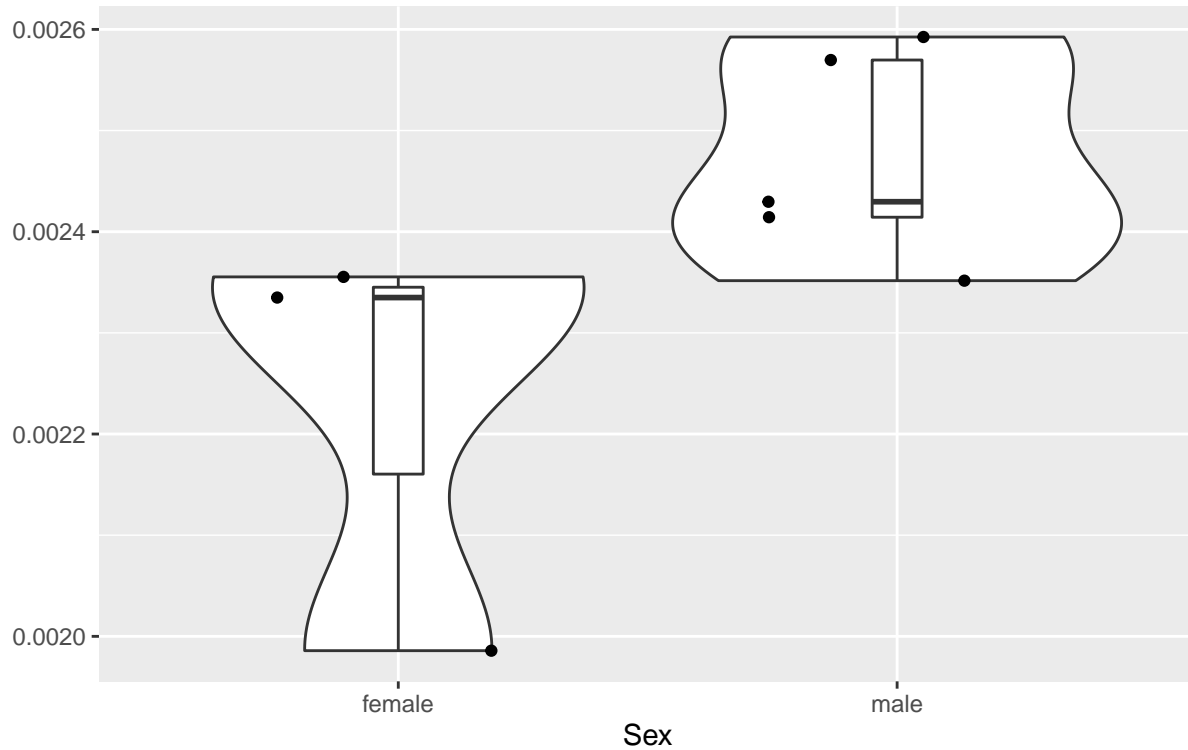# Left APOE3 Disaggregated by Sex

Anna MacFarlane

3/21/2021

Interpeduncular Nucleus: apoe3
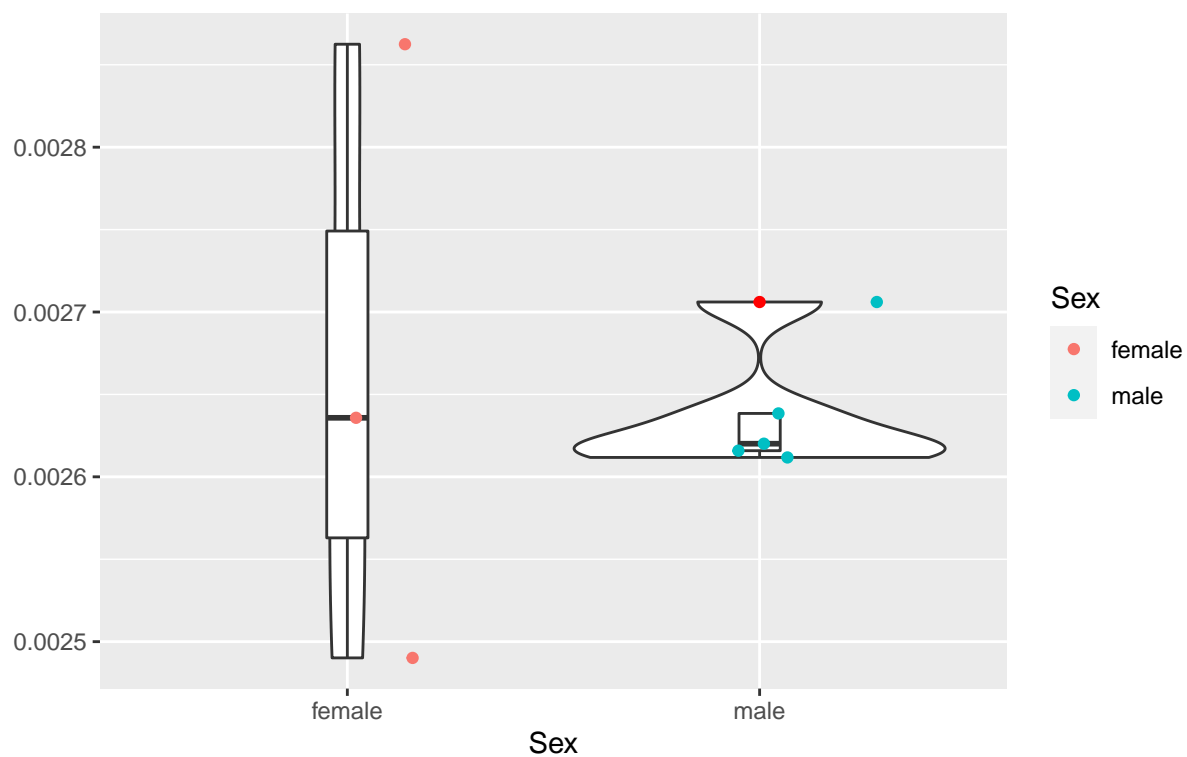Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.137e-07 1.137e-07   5.247 0.0619 .
## Residuals     6 1.300e-07 2.166e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
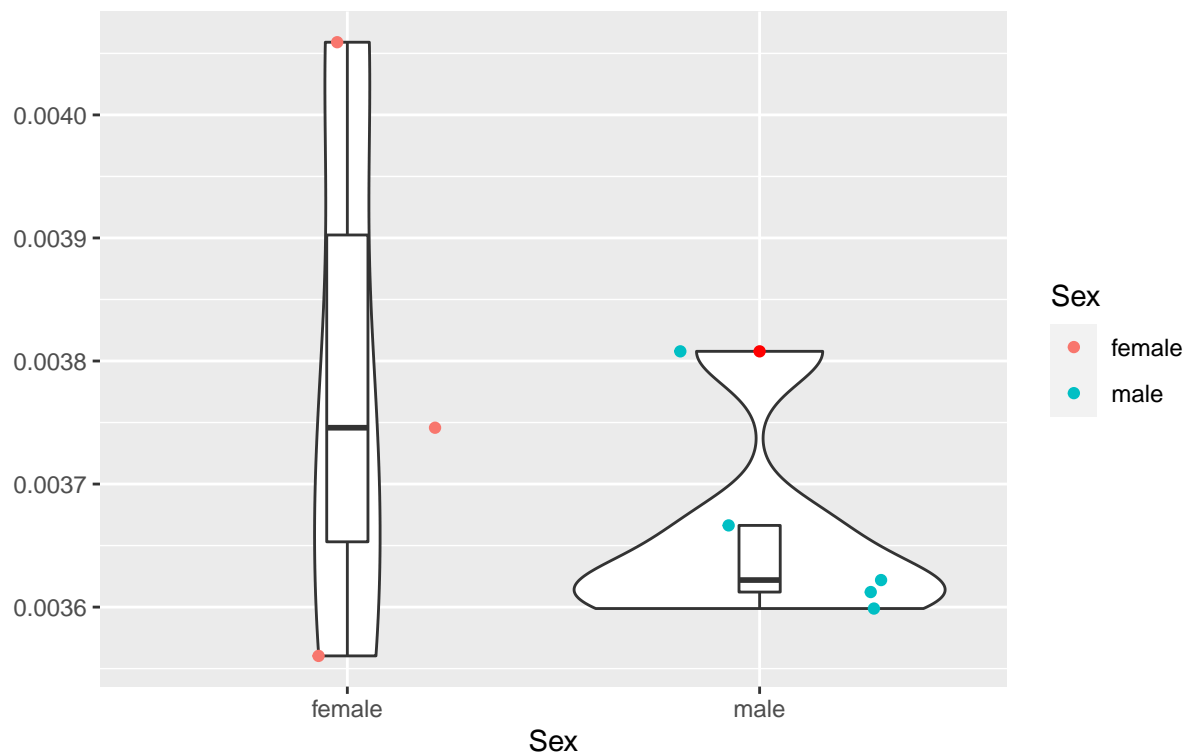
Cerebellar Cortex
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.110e-09 1.112e-09   0.087  0.778
## Residuals    6 7.653e-08 1.276e-08
```
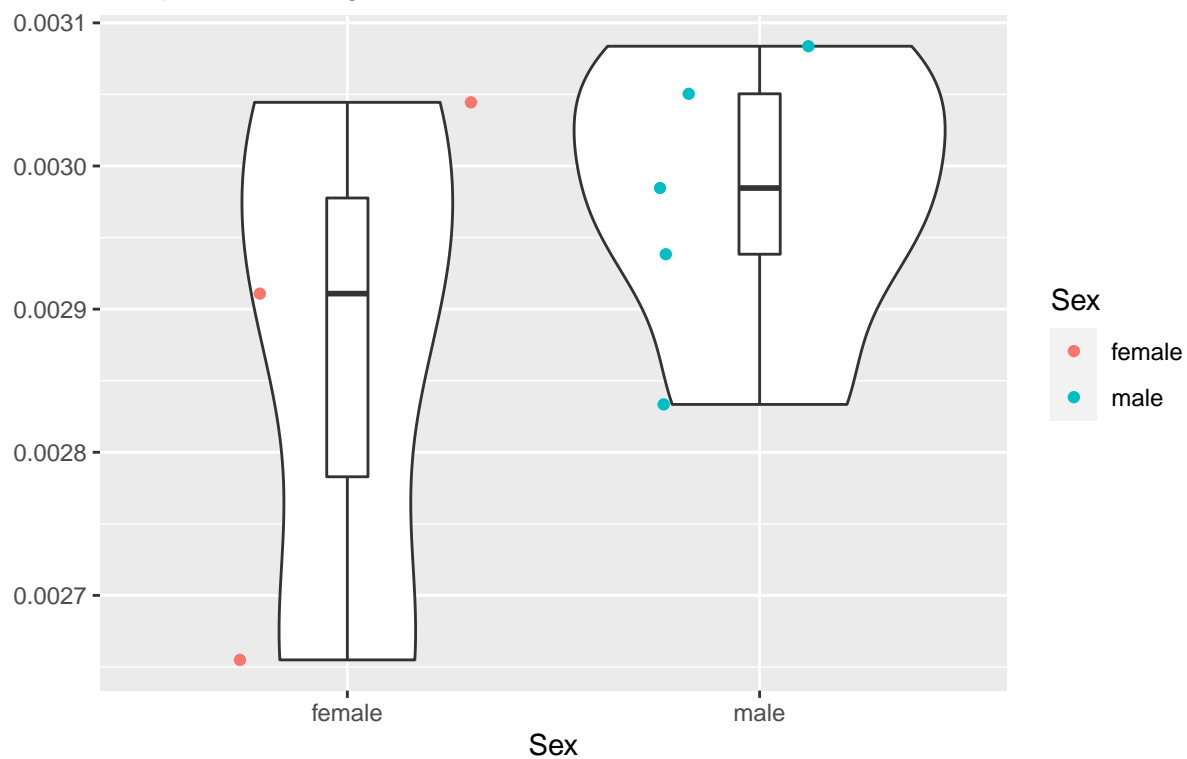
Dentate (Lateral) Nucleus of Cerebellum

Red points denoting outliers

```
##            Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex         1 3.022e-08 3.022e-08   1.159  0.323
## Residuals   6 1.565e-07 2.608e-08
```
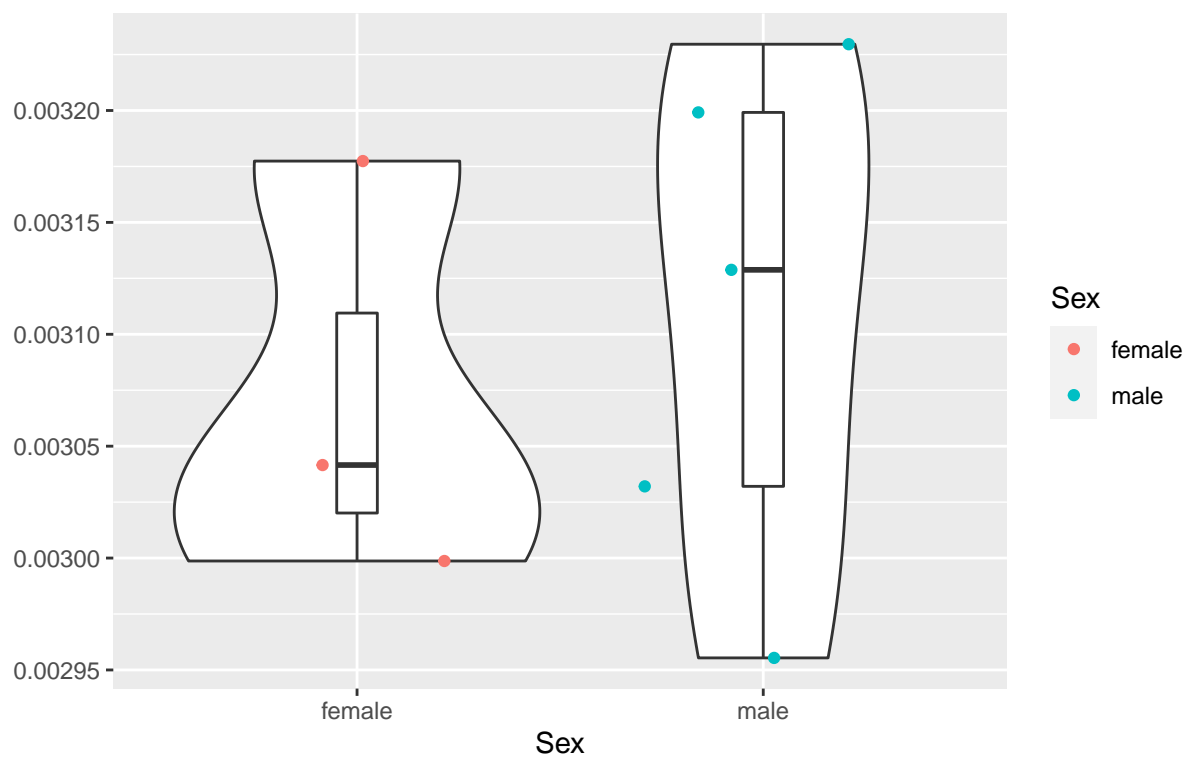
Interposed Nucleus of Cerebellum
Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.188e-08 2.188e-08   1.119  0.331
## Residuals    6 1.173e-07 1.955e-08
```

Fastigial Medial Dorsolateral Nucleus of Cerebellum
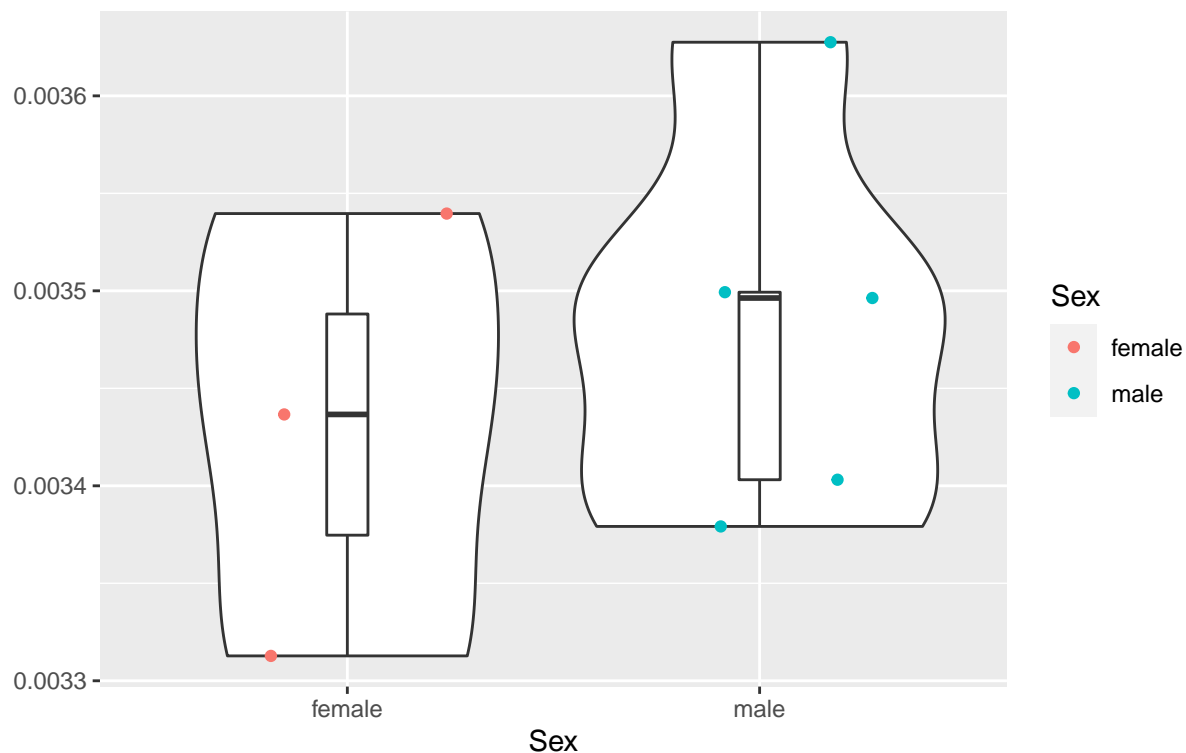Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.490e-09 2.491e-09   0.213   0.66
## Residuals    6 6.999e-08 1.167e-08
```

Fastigial Medial Nucleus of Cerebellum
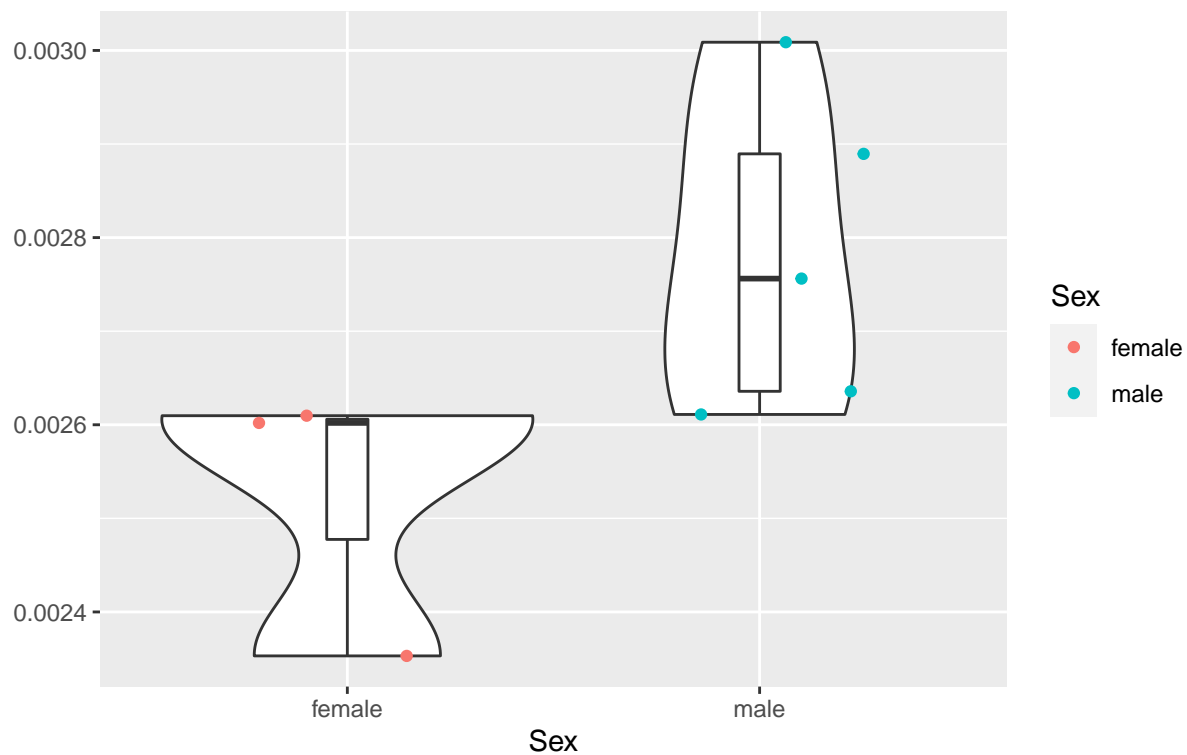Red points denoting outliers


```
##               Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 4.960e-09 4.957e-09   0.463  0.522
## Residuals     6 6.428e-08 1.071e-08
```

#"'{r VII, echo = FALSE} #ggplot(data = apoe3, aes(factor(Sex), VII)) + #geom_violin() + #geom_boxplot(width = 0.1, outlier.color = "red") + #geom_jitter(height = 0, width = 0.3) + #labs(x = "Sex", #y = "", #title ="Ventral Lateral Lemniscus Nucleus", #subtitle ="Red points denoting outliers")

#res.aov <- aov(VII ~ Sex, data = apoe3) #summary(res.aov) #"'
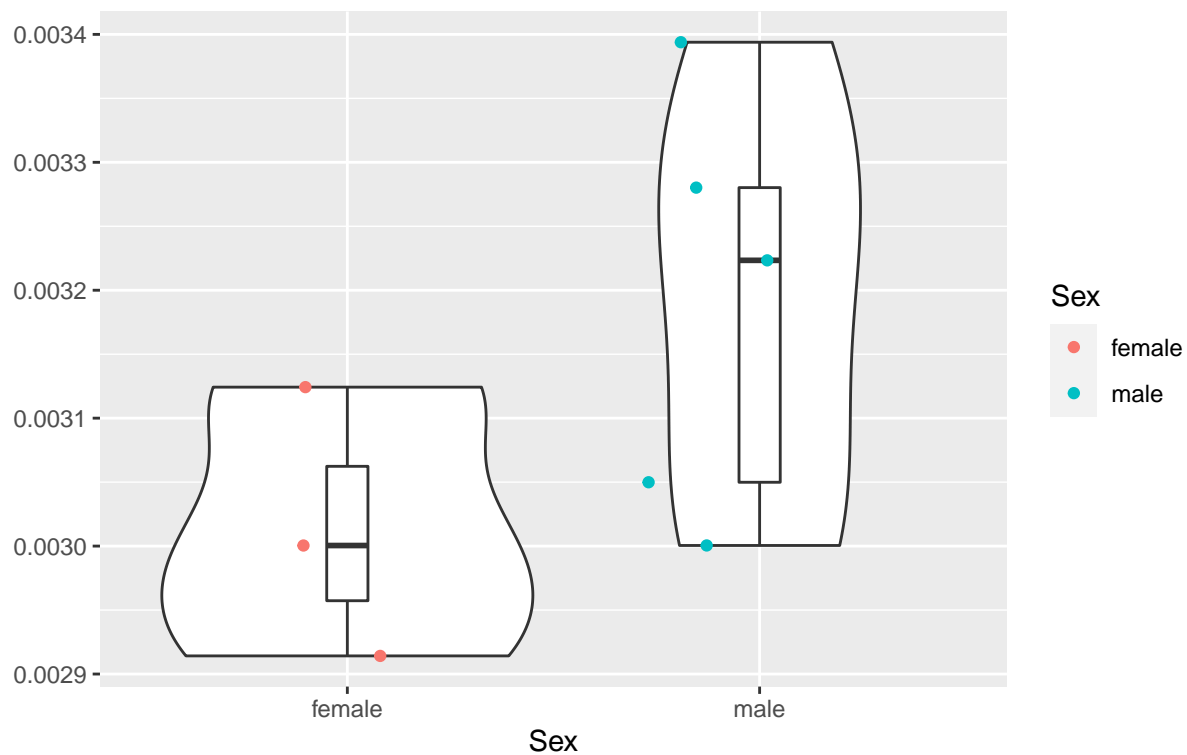
Parabrachial Nucleus
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.255e-07 1.255e-07   4.798  0.071 .
## Residuals    6 1.569e-07 2.615e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Parabrachial Medial Nucleus and Koelliker Fuse Nucleus
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 5.849e-08 5.849e-08   2.728   0.15
## Residuals   6 1.287e-07 2.144e-08
```

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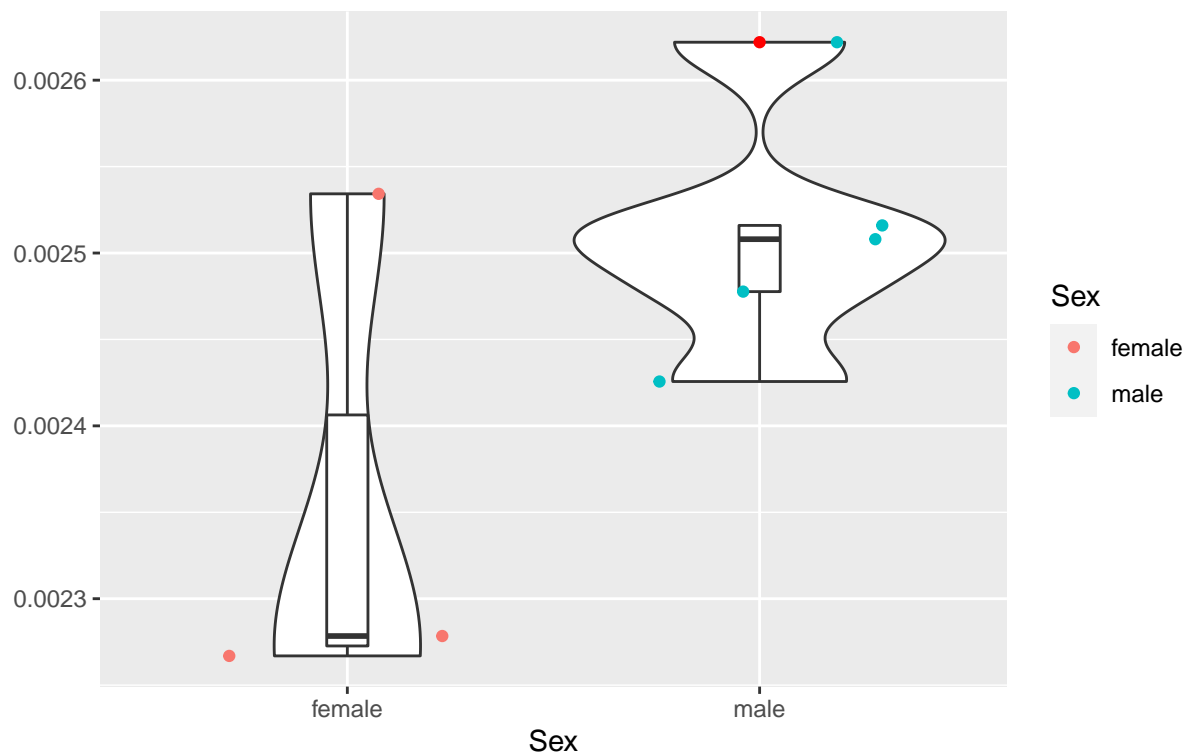
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.407e-09 1.407e-09   0.326  0.589
## Residuals     6 2.593e-08 4.322e-09
```
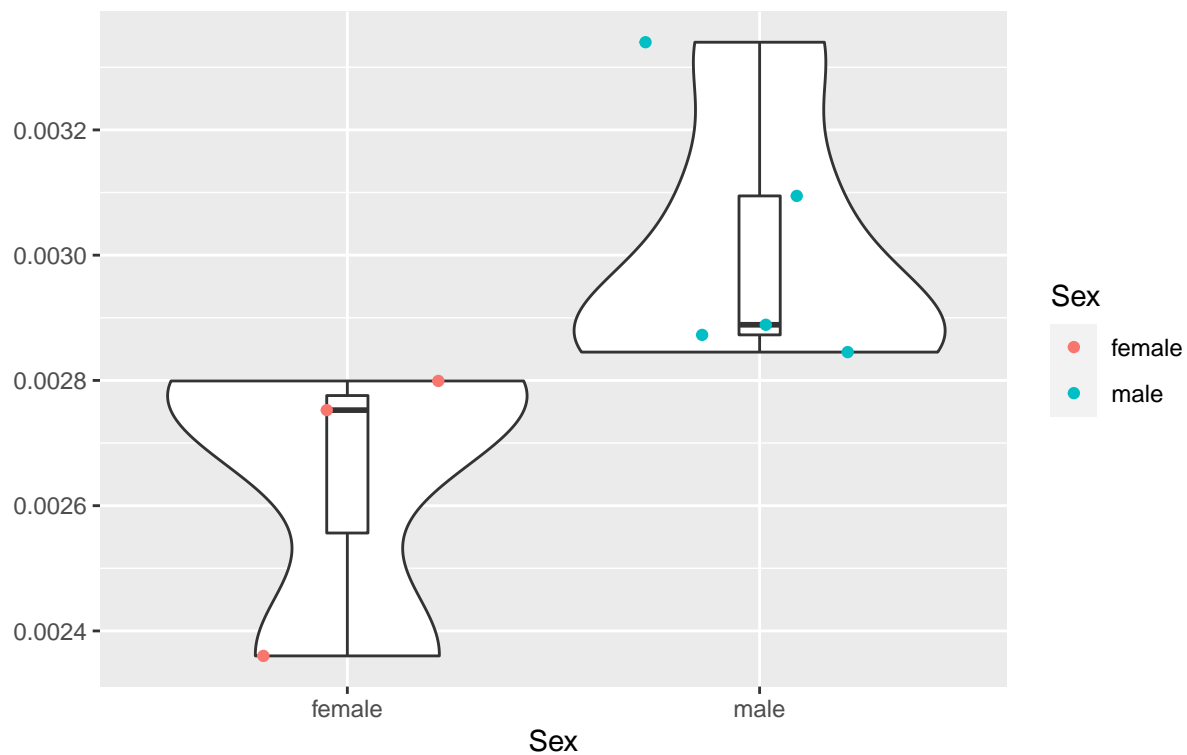
Central Gray
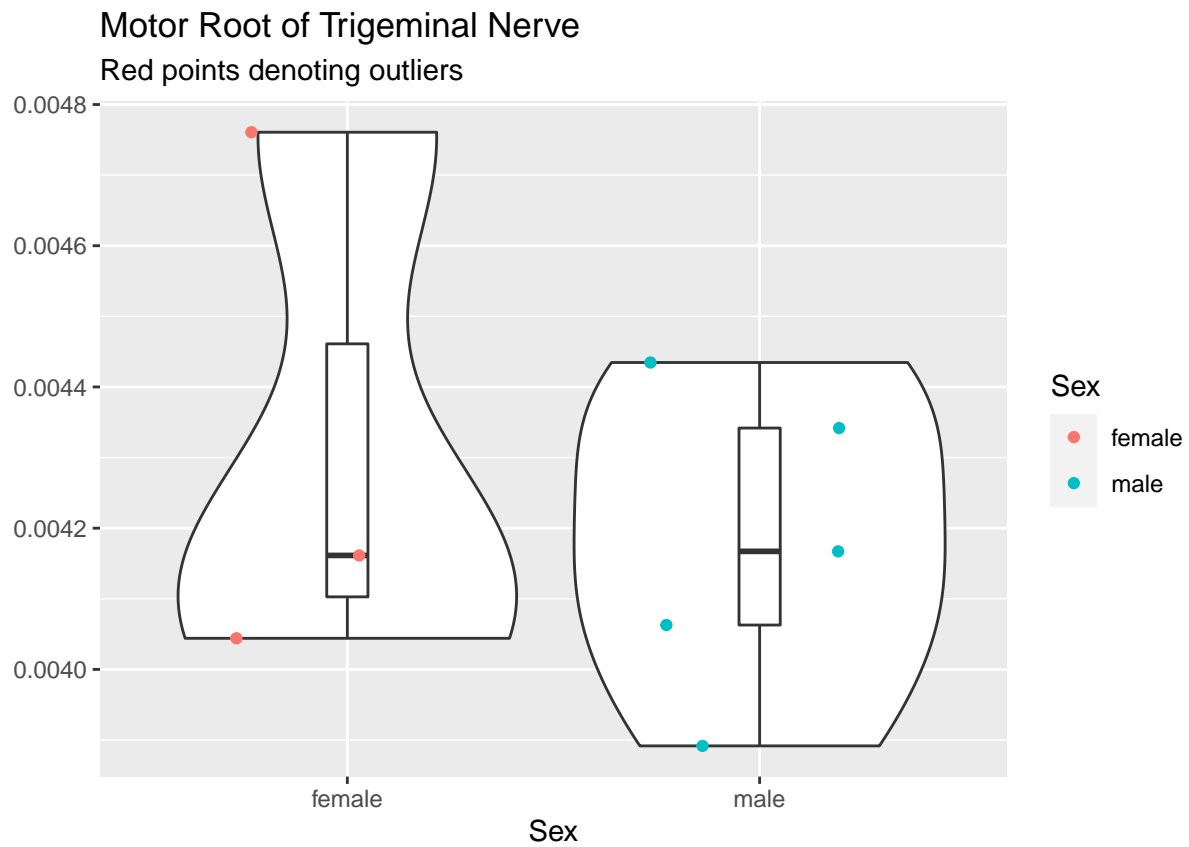Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.218e-08 4.218e-08   3.811 0.0988 .
## Residuals    6 6.642e-08 1.107e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Pedunculotegmental Medial Paralemniscial and Supratrigemnial Nuclei
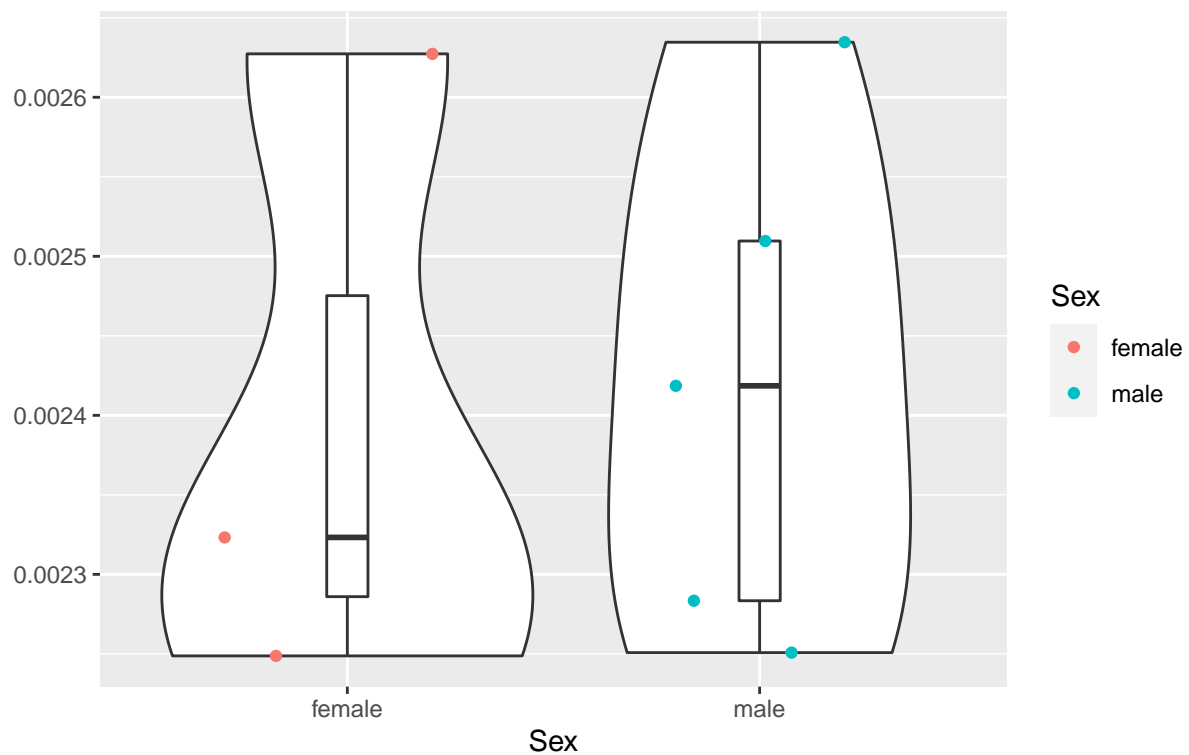Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.581e-07 2.581e-07   5.284 0.0612 .
## Residuals    6 2.931e-07 4.885e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Motor Root of Trigeminal Nerve
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.800e-08 3.805e-08   0.472  0.518
## Residuals    6 4.836e-07 8.060e-08
```

Trigeminal Motor Nucleus
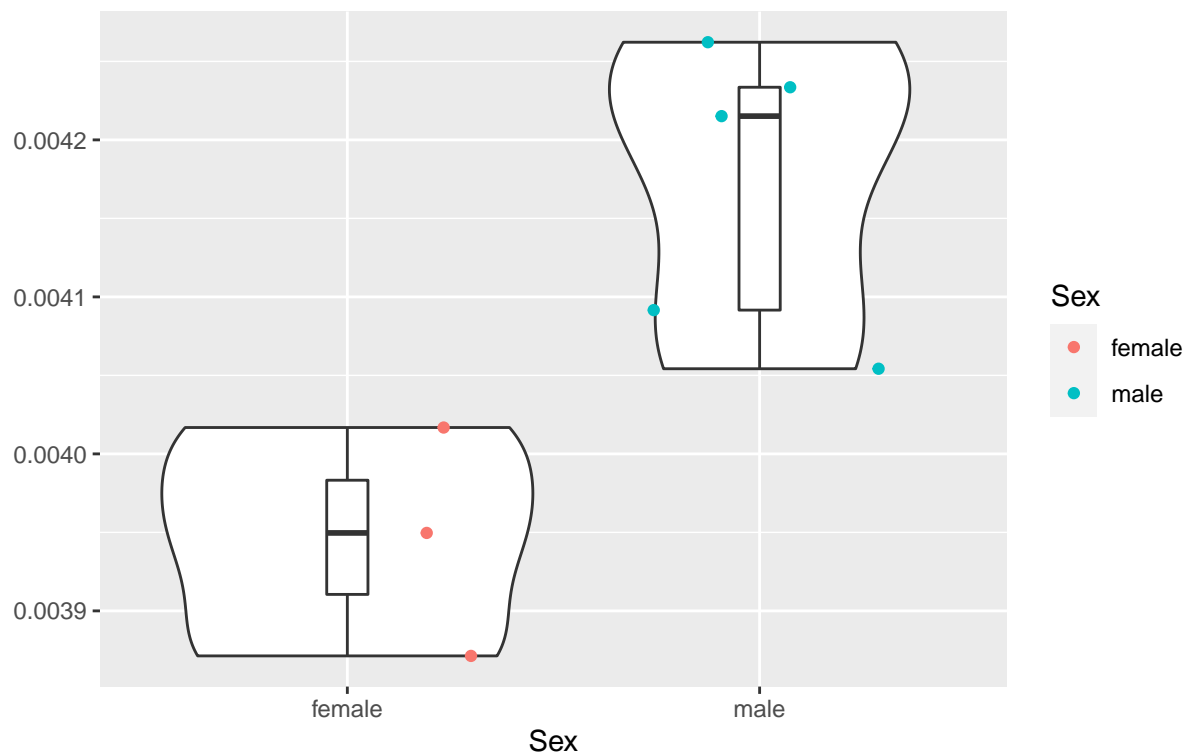Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.200e-10  7.24e-10   0.024  0.882
## Residuals    6 1.818e-07  3.03e-08
```

Pontine Reticular Nucleus
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.483e-08 1.483e-08   1.523  0.263
## Residuals    6 5.841e-08 9.736e-09
```
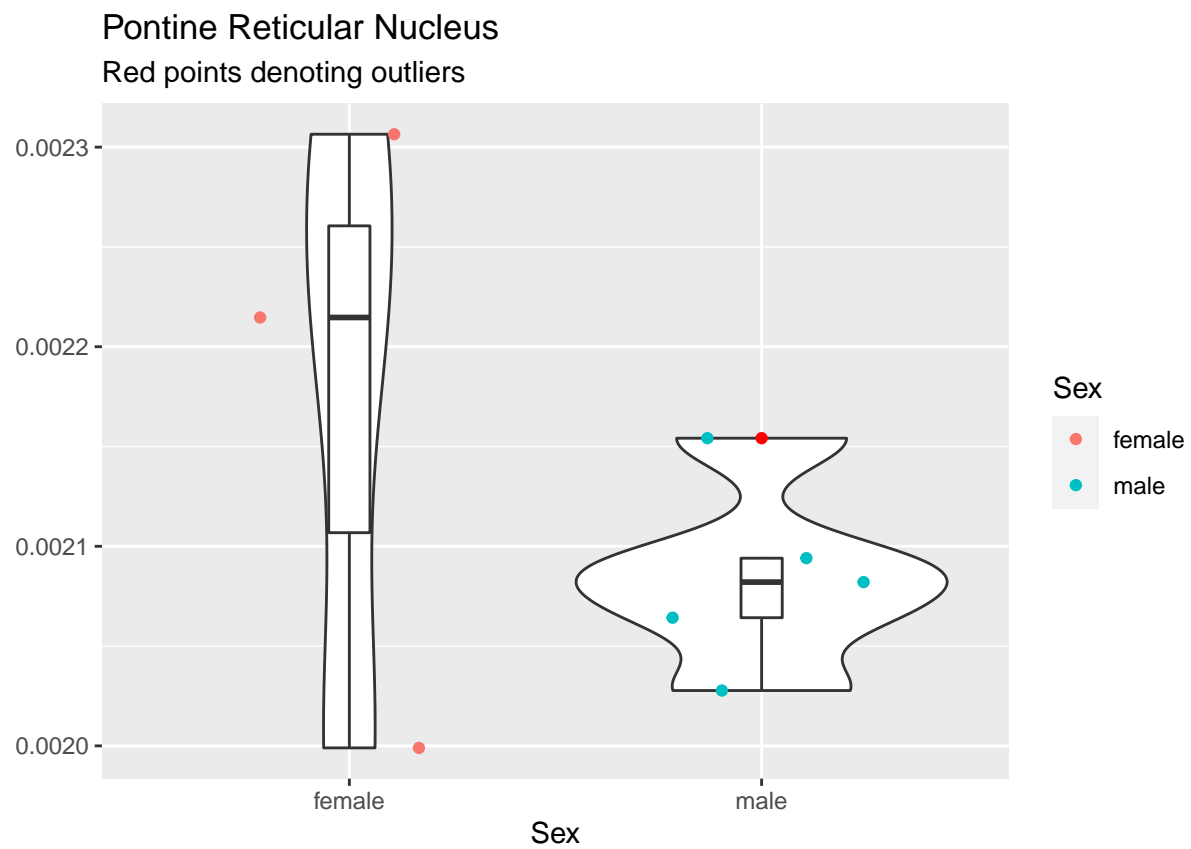
Raphe Nucleus
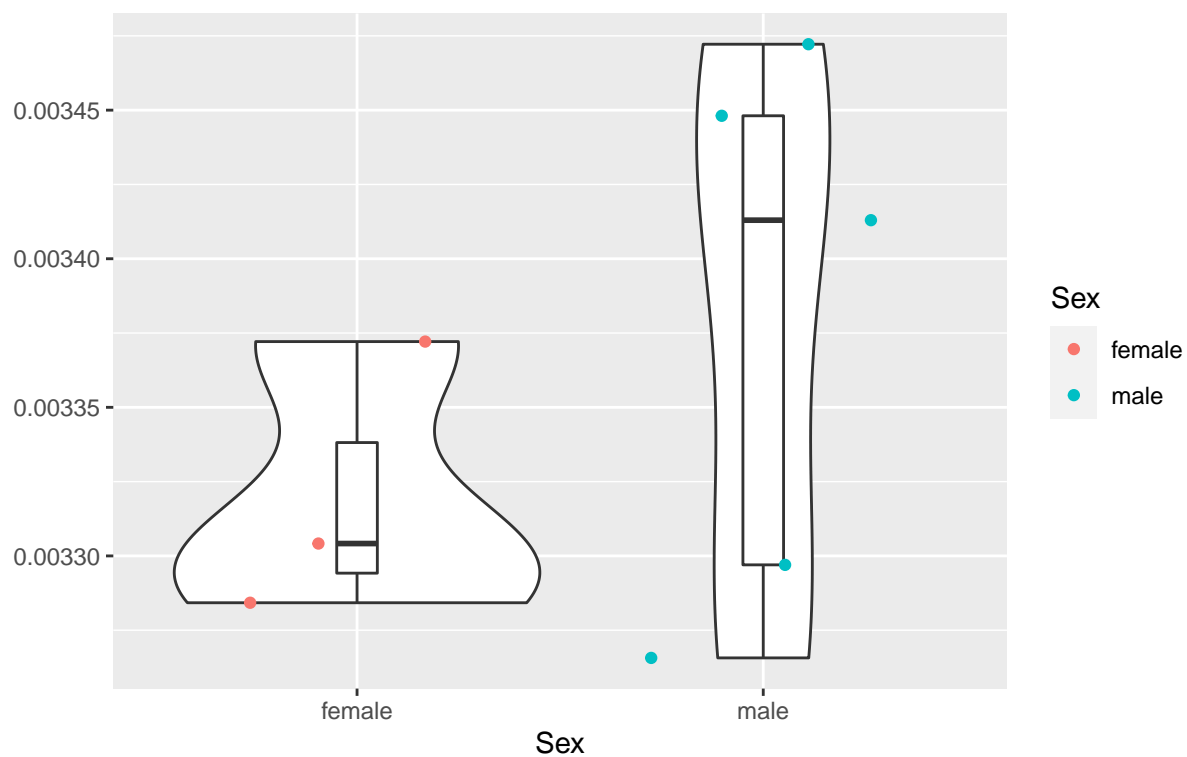Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 9.528e-08 9.528e-08   12.78 0.0117 *
## Residuals   6 4.472e-08 7.450e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
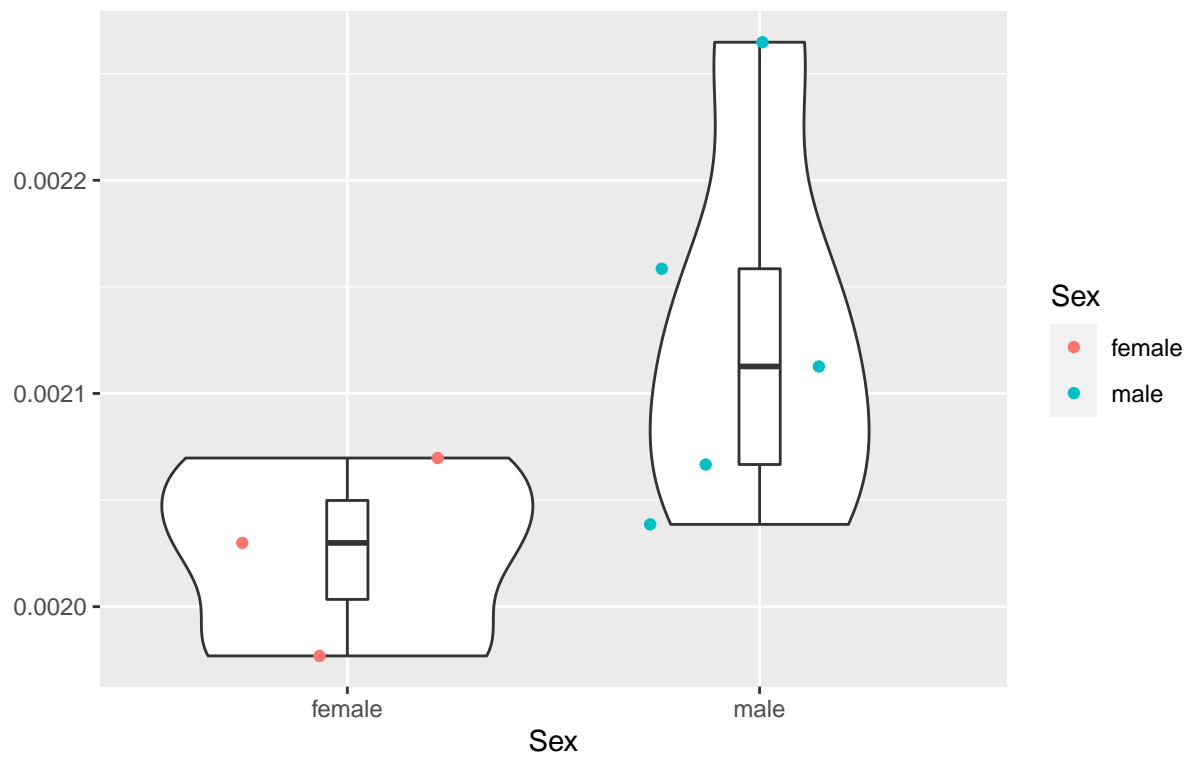
Trigeminal Sensory Nucleus
Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 6.530e-09 6.530e-09    1.02  0.352
## Residuals     6 3.843e-08 6.405e-09
```
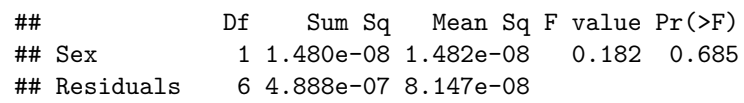
Dorsal Tegmentum
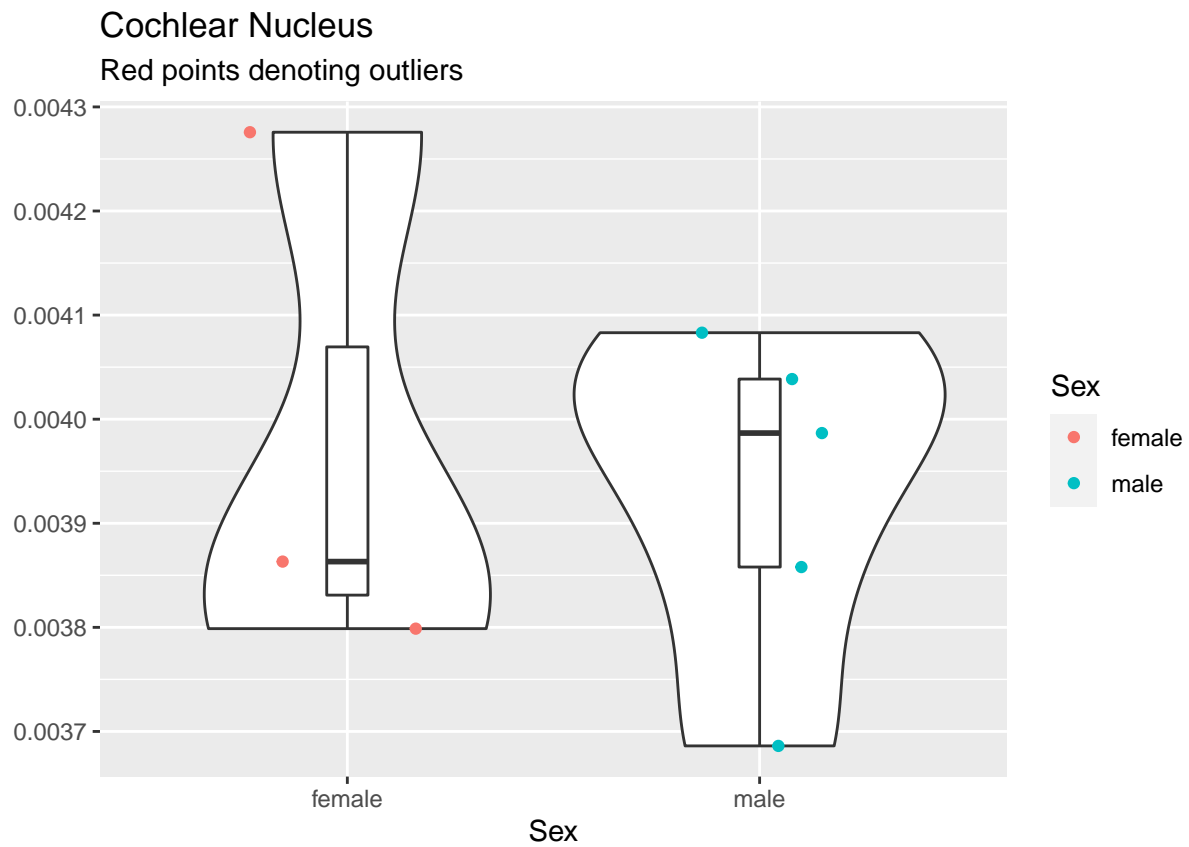Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.979e-08 1.979e-08   3.301  0.119
## Residuals    6 3.596e-08 5.993e-09
```

Tegmental Nucleus

Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.480e-08 1.482e-08   0.182  0.685
## Residuals     6 4.888e-07 8.147e-08
```

Cochlear Nucleus
Red points denoting outliers
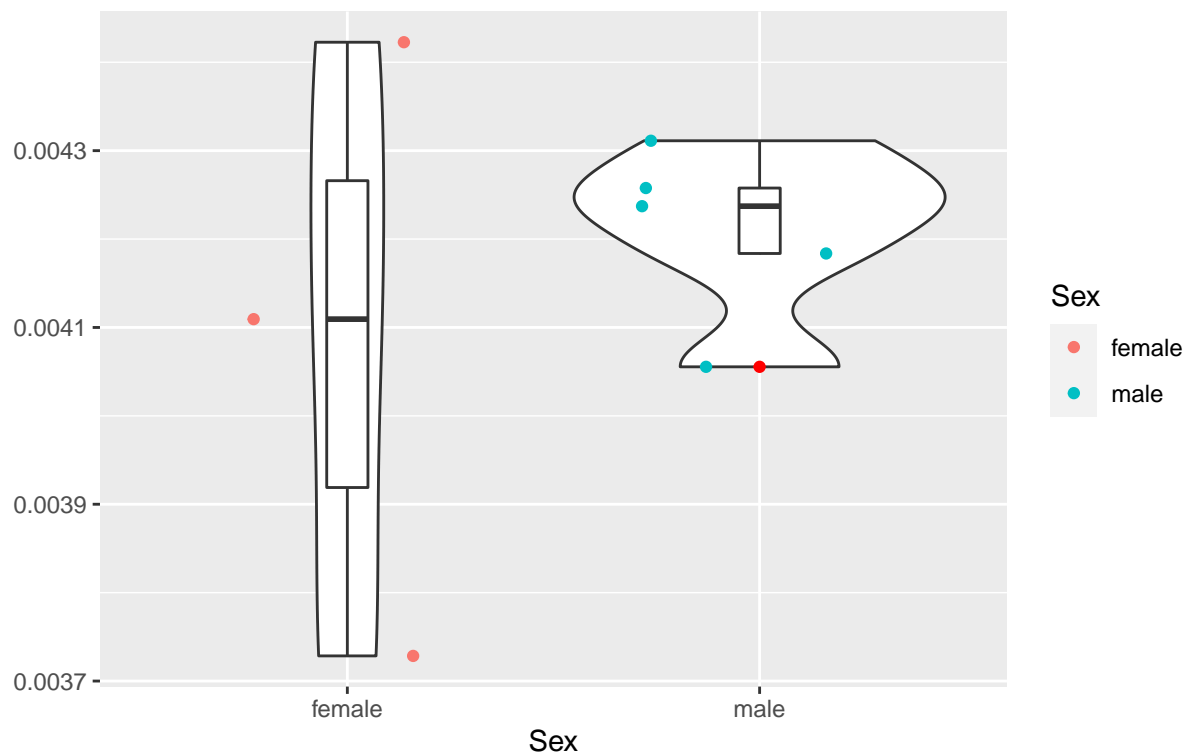
```
##             Df   Sum Sq  Mean Sq F value Pr(>F)
## Sex          1 4.46e-09 4.46e-09   0.113  0.748
## Residuals    6 2.37e-07 3.95e-08
```

Pontine Nucleus
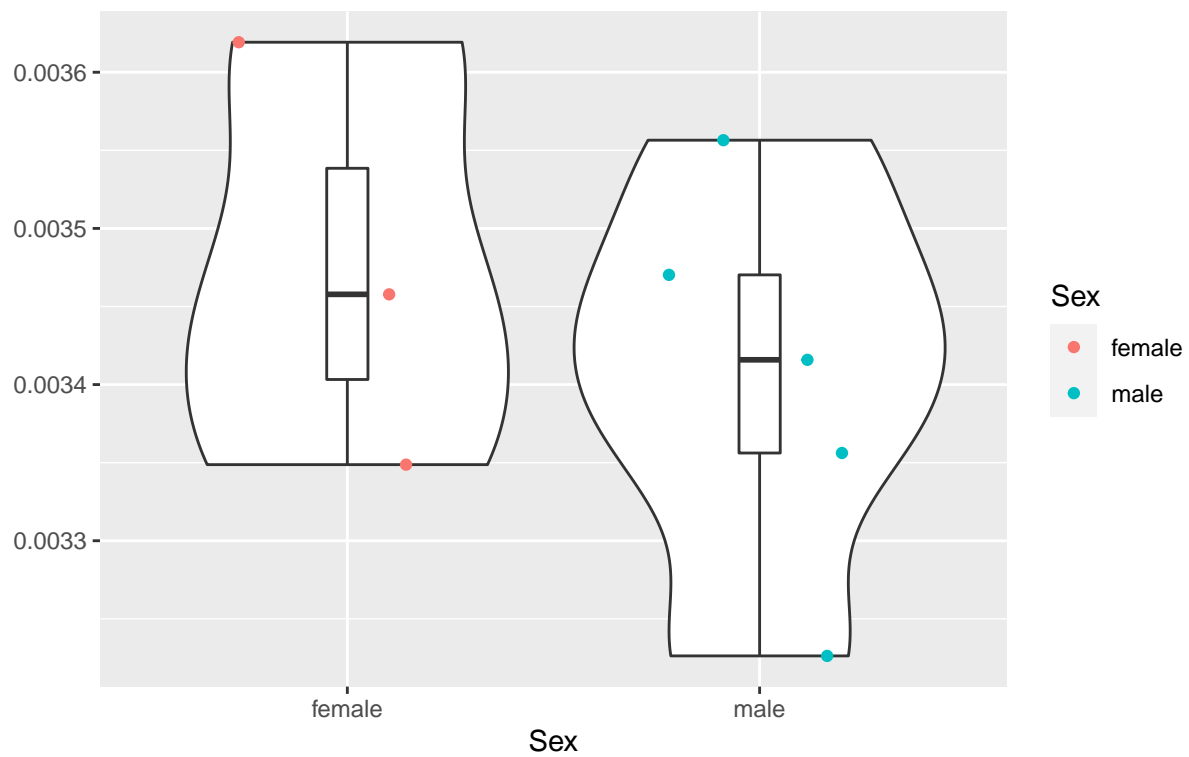Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.801e-08 2.801e-08   0.601  0.468
## Residuals   6 2.796e-07 4.659e-08
```

Reticulotegmental Nucleus of Pons
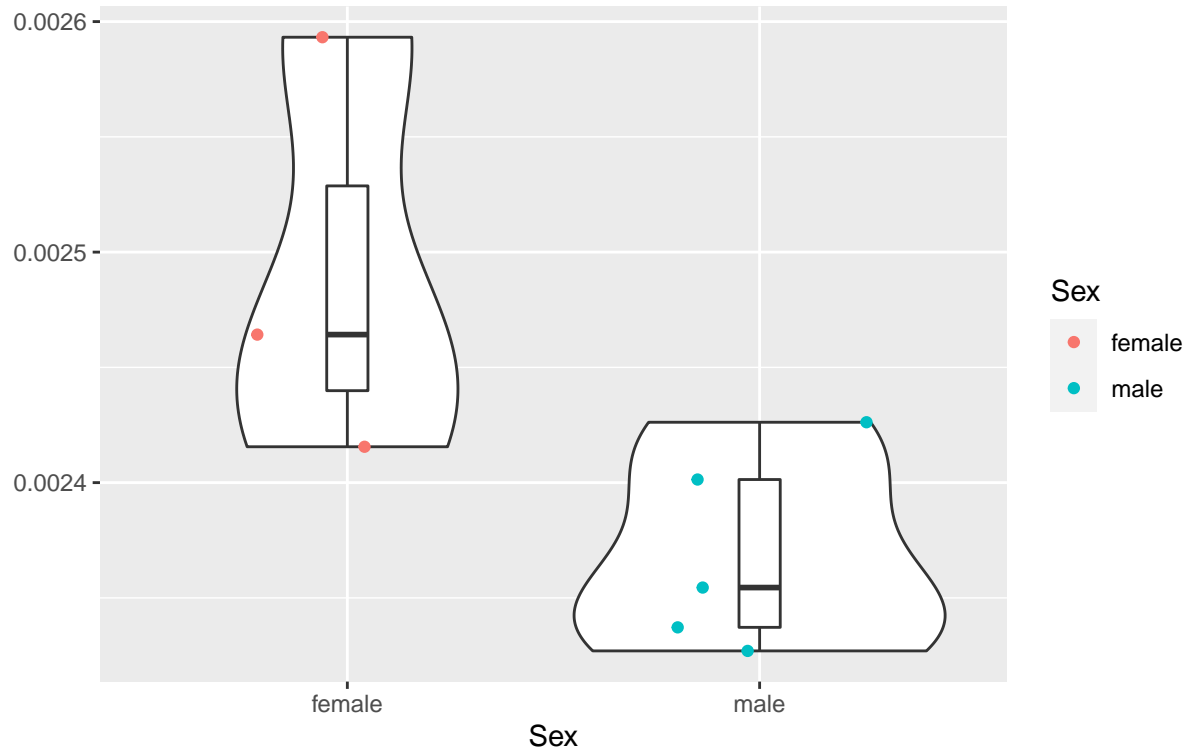### Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq  F value  Pr(>F)
## Sex          1  9.25e-09  9.250e-09   0.562   0.482
## Residuals    6  9.87e-08  1.645e-08
```

Olivary Complex
Red points denoting outliers



```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.779e-08 2.779e-08   6.902 0.0392 *
## Residuals    6 2.416e-08 4.026e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

#"'{r PnRt, echo = FALSE} #ggplot(data = apoe3, aes(factor(Sex), PnRt)) + # geom_violin() + # geom_boxplot(width = 0.1, outlier.color = "red") + # geom_jitter(height = 0, width = 0.3) + # labs(x = "Sex", # y = "", # title ="Pontine Reticular Nucleus", # subtitle ="Red points denoting outliers")

#res.aov <- aov(PnRt ~ Sex, data = apoe3) #summary(res.aov) #"'

Spinal Trigeminal Nucleus
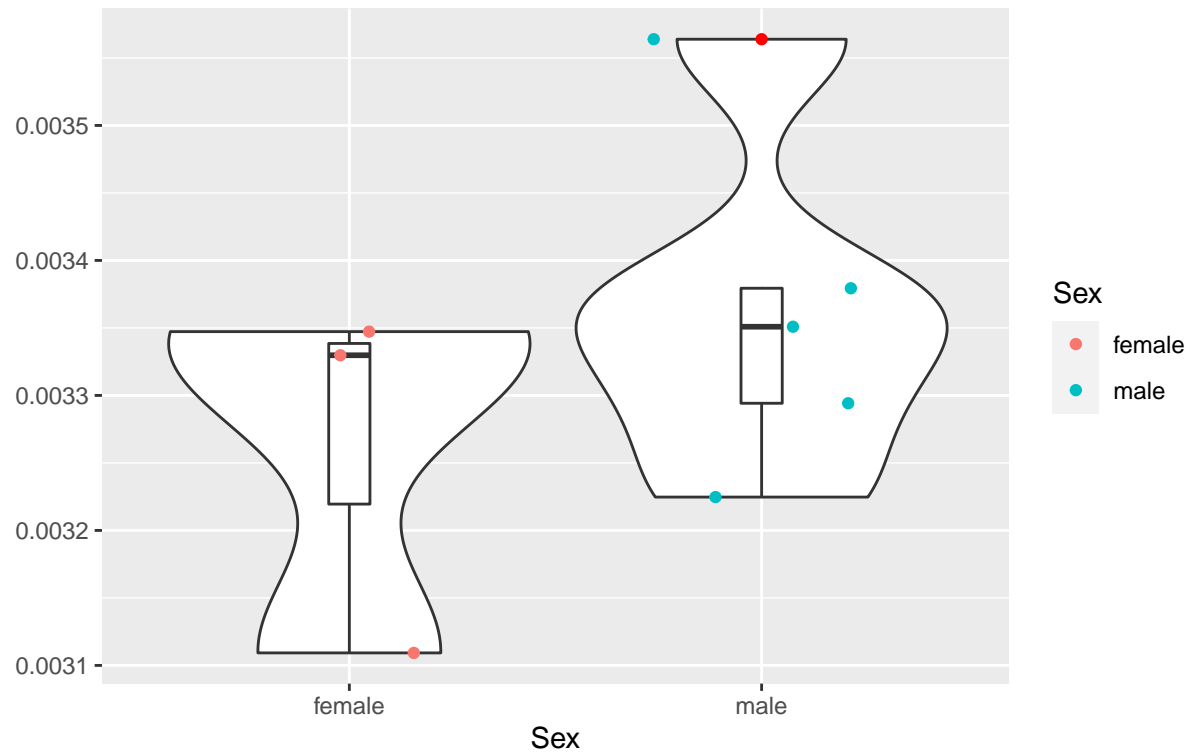Red points denoting outliers
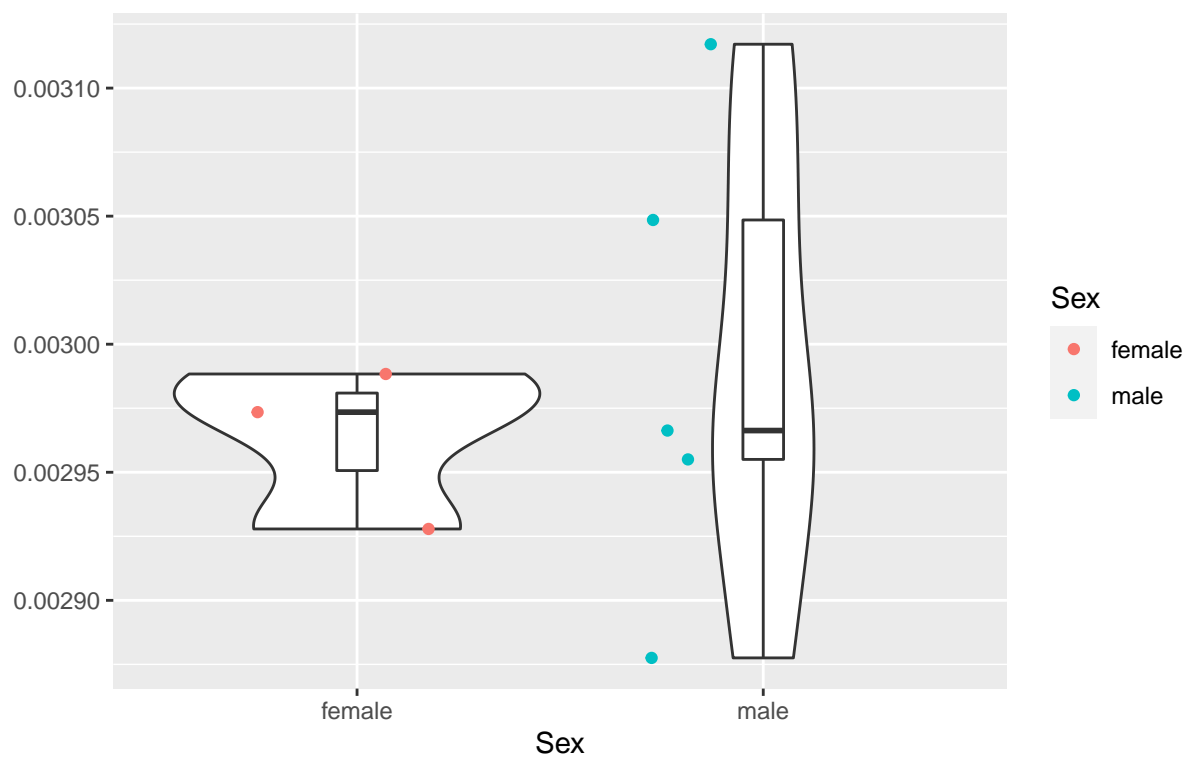

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.650e-09 1.649e-09   0.275  0.619
## Residuals    6 3.597e-08 5.994e-09
```
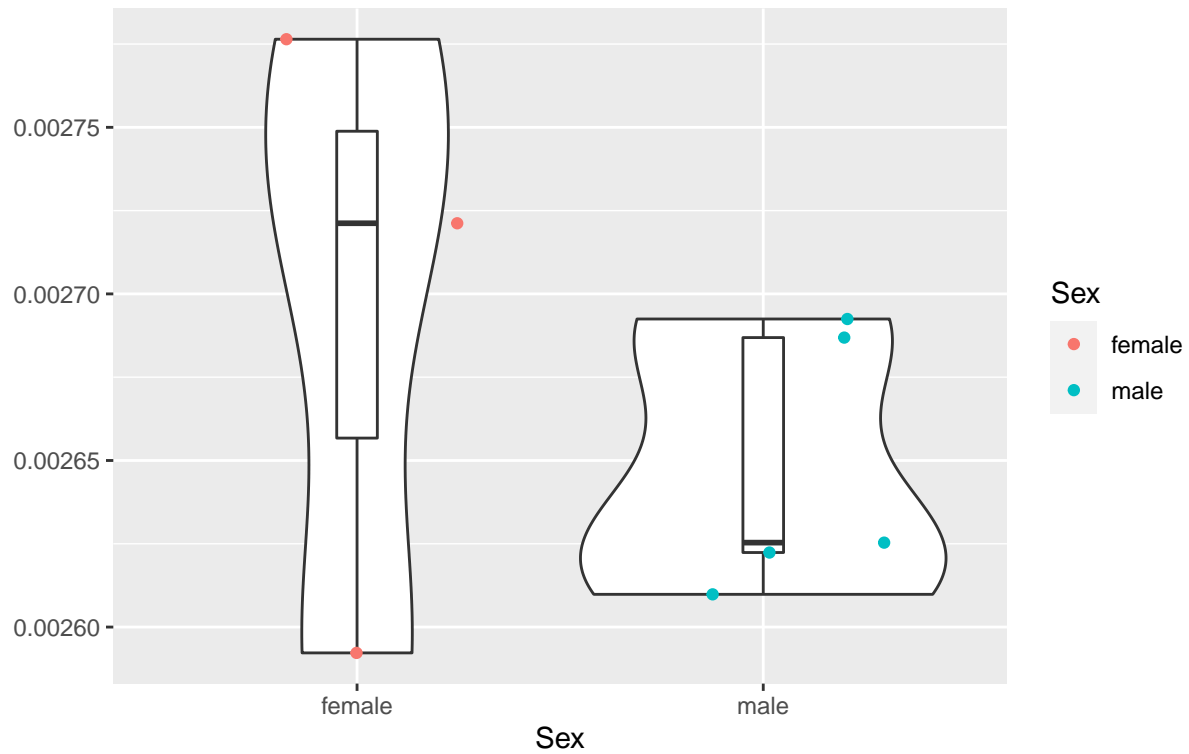
Vestibular Nuclei
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.894e-08 1.894e-08   1.139  0.327
## Residuals   6 9.981e-08 1.664e-08
```
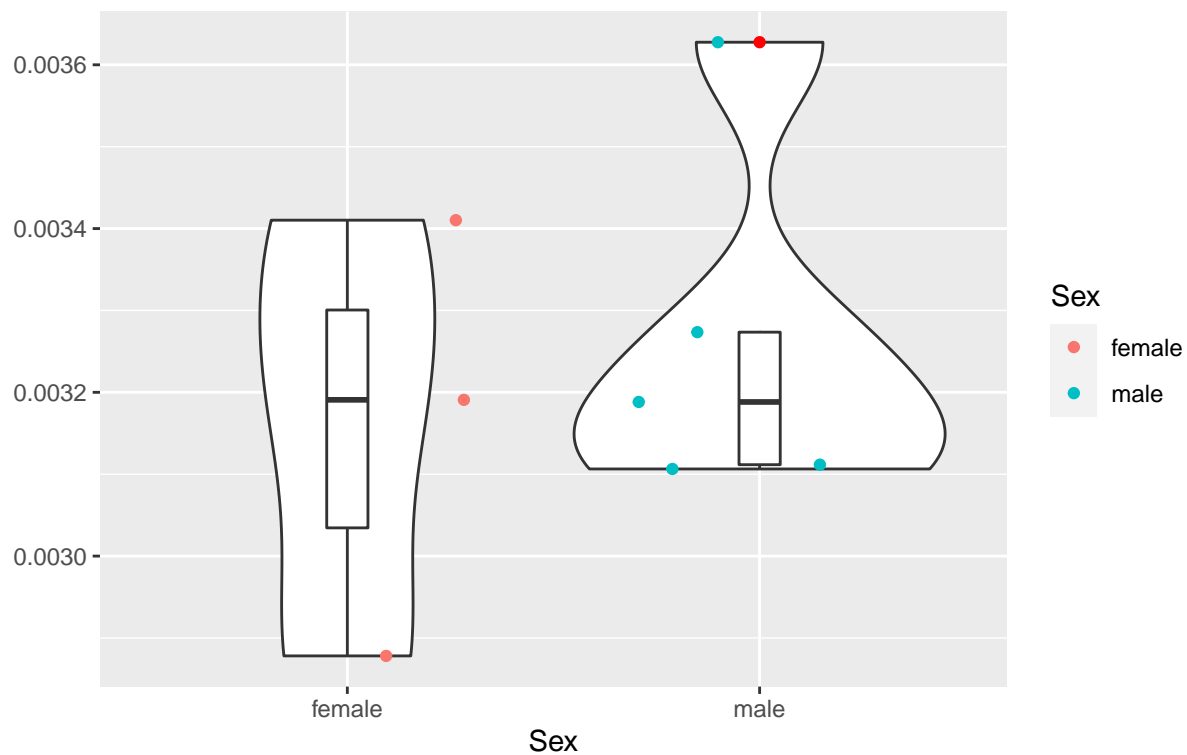
Gigantocellular Reticular Nucleus

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.549e-09 4.549e-09   1.138  0.327
## Residuals    6 2.399e-08 3.998e-09
```

Cuneate Nucleus
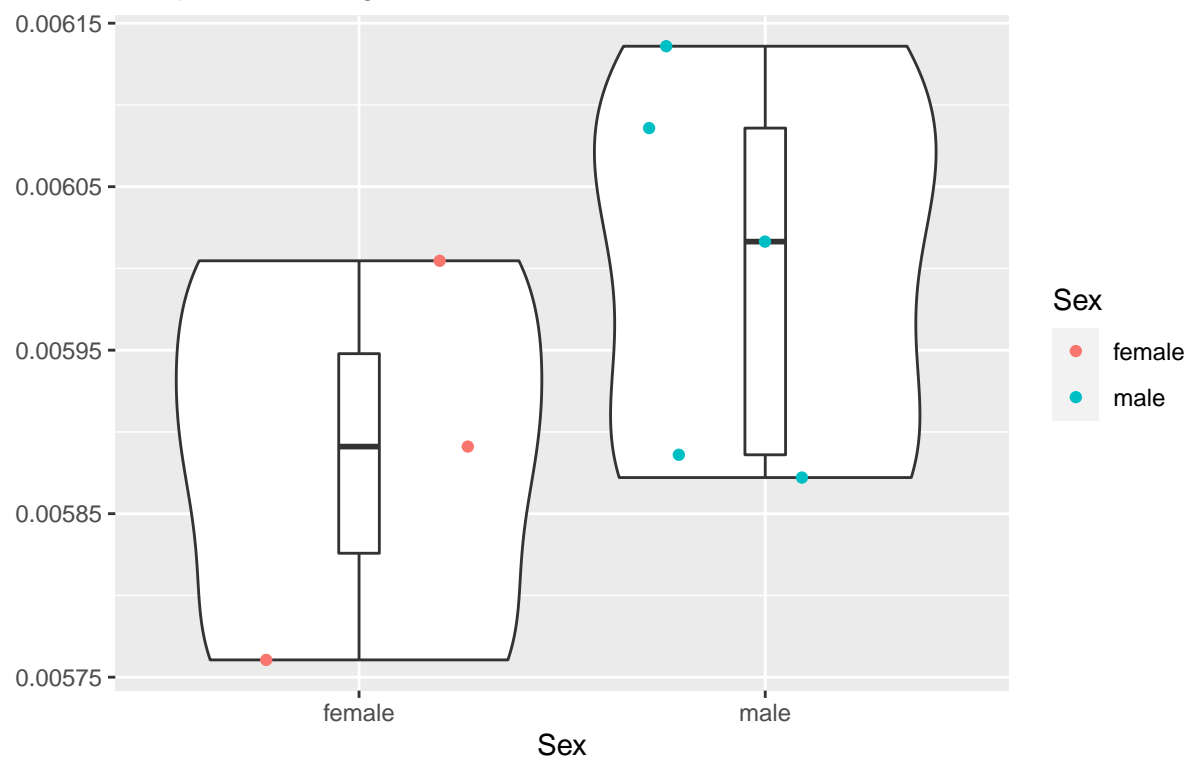Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.940e-08 1.941e-08   0.354  0.574
## Residuals     6 3.291e-07 5.485e-08
```

Anterior Commisure
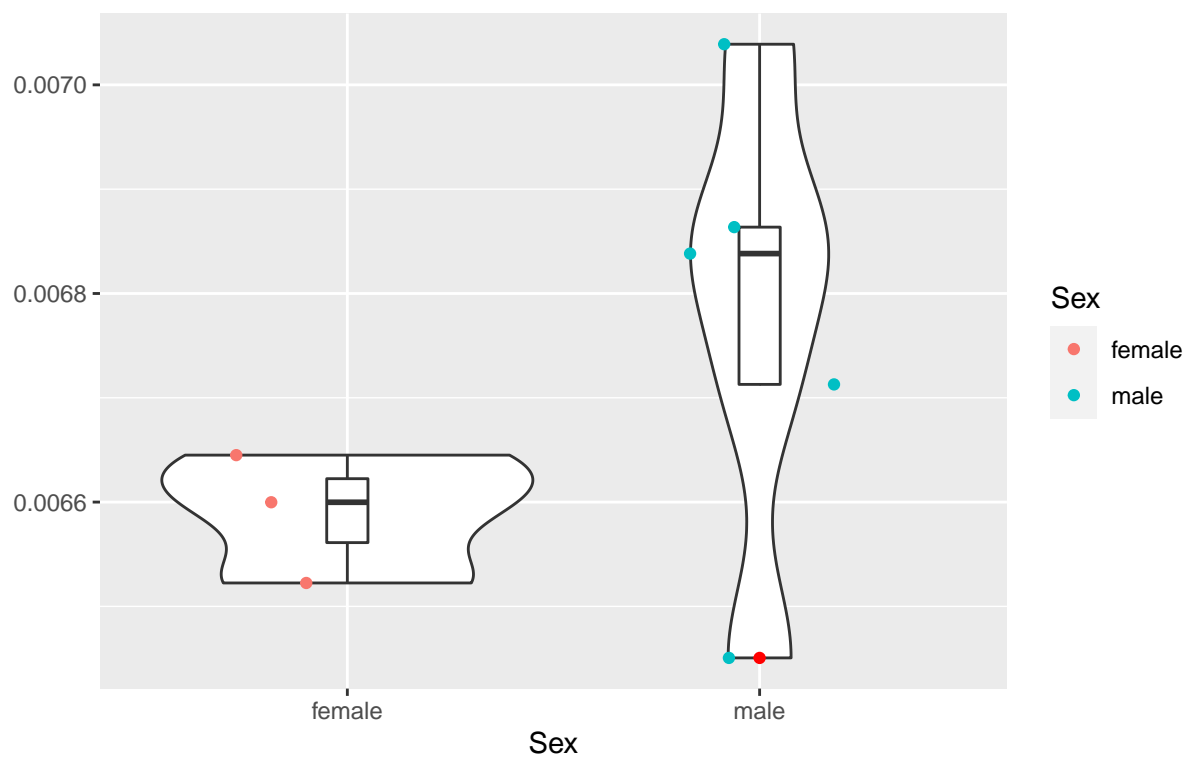
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.429e-08 2.429e-08   1.709  0.239
## Residuals    6 8.530e-08 1.422e-08
```

Optic Tracts
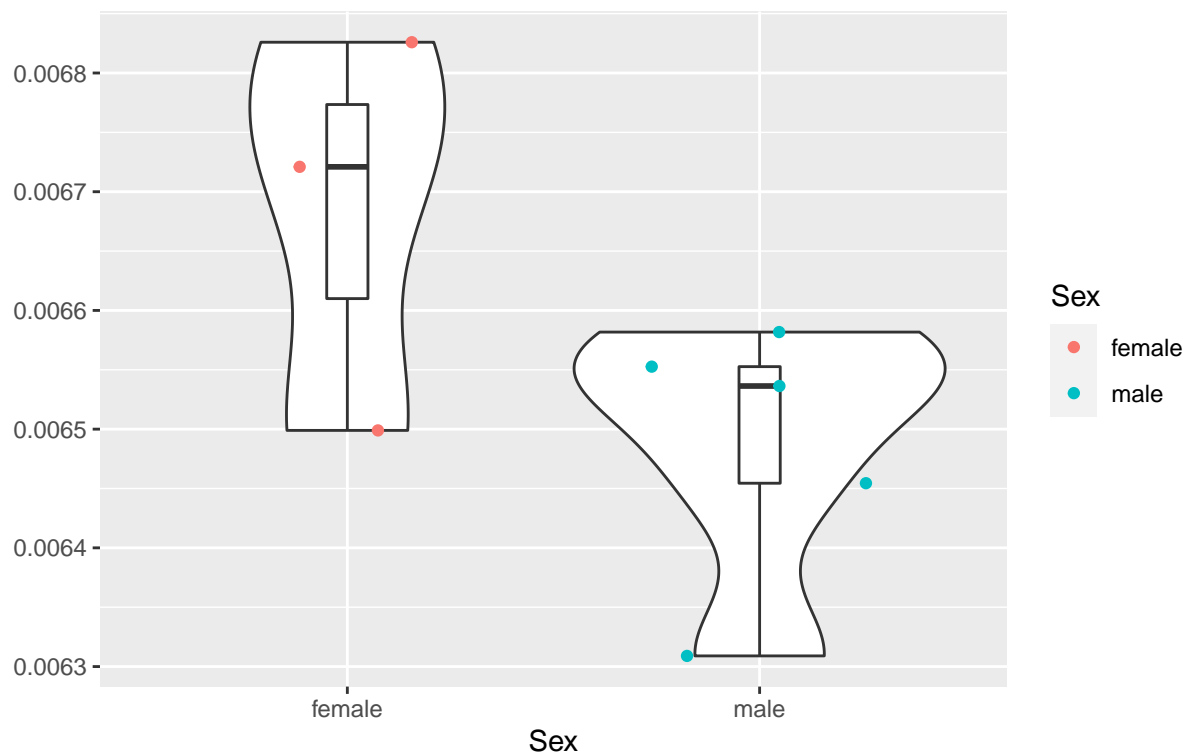Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 6.895e-08 6.895e-08   2.088  0.199
## Residuals     6 1.982e-07 3.303e-08
```
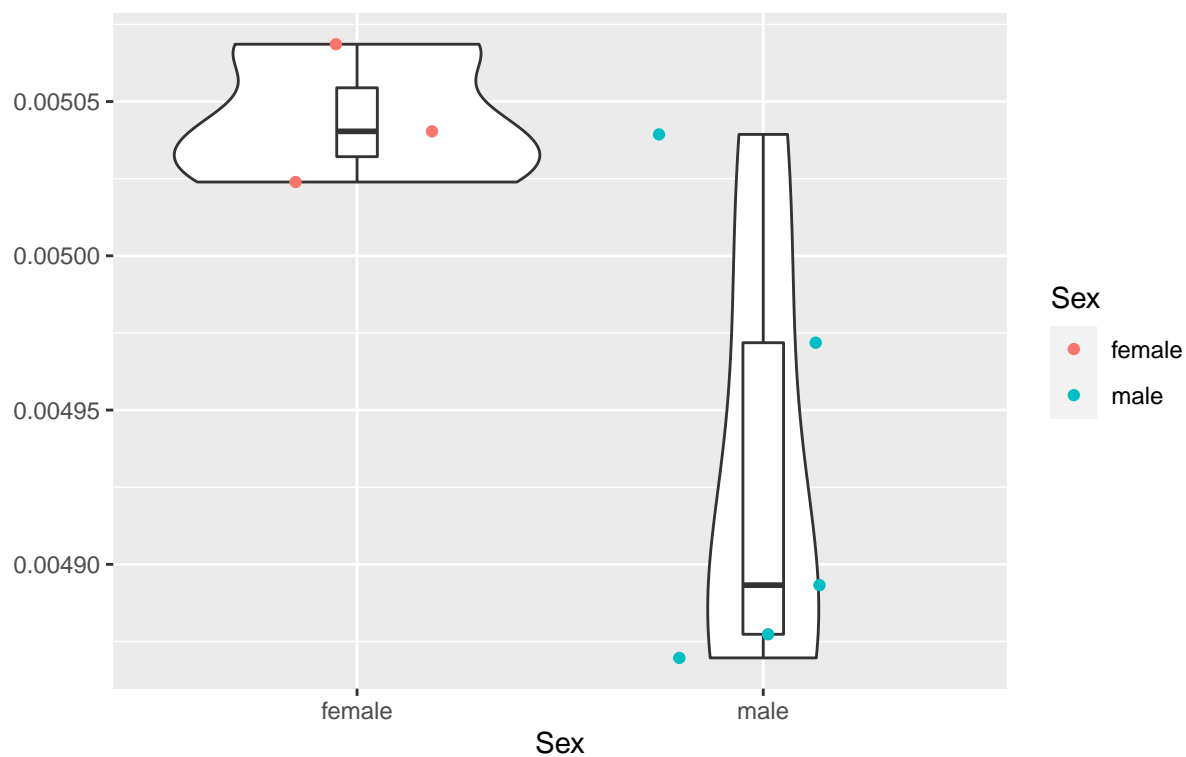
Fimbria
Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.137e-08 7.137e-08   4.109  0.089 .
## Residuals    6 1.042e-07 1.737e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
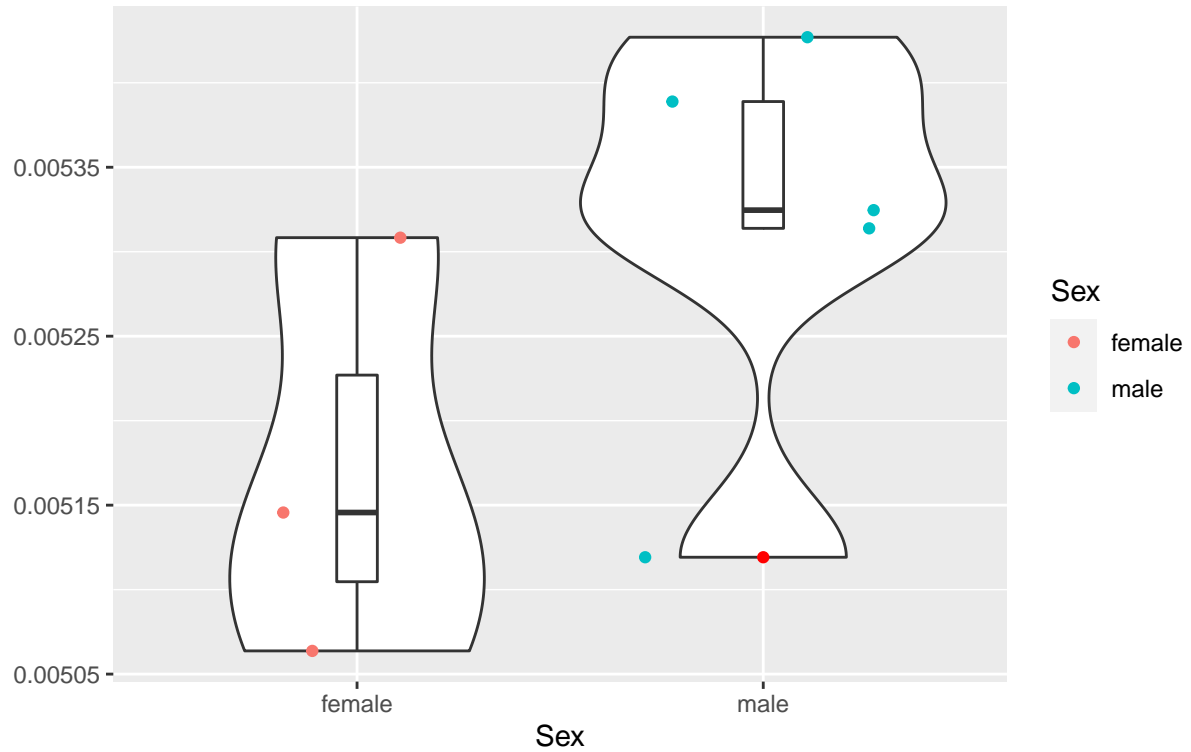
Corpus Callosum
Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.436e-08 2.436e-08     6.5 0.0435 *
## Residuals    6 2.249e-08 3.748e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Fornix
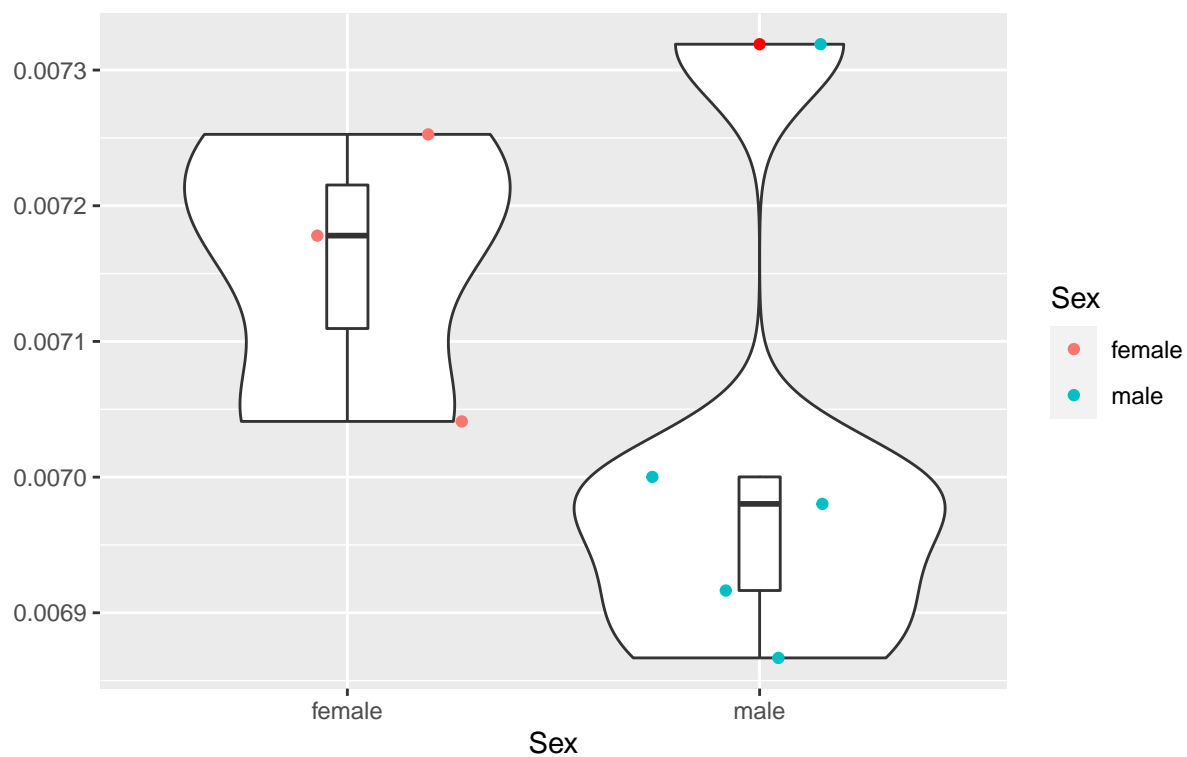
Red points denoting outliers
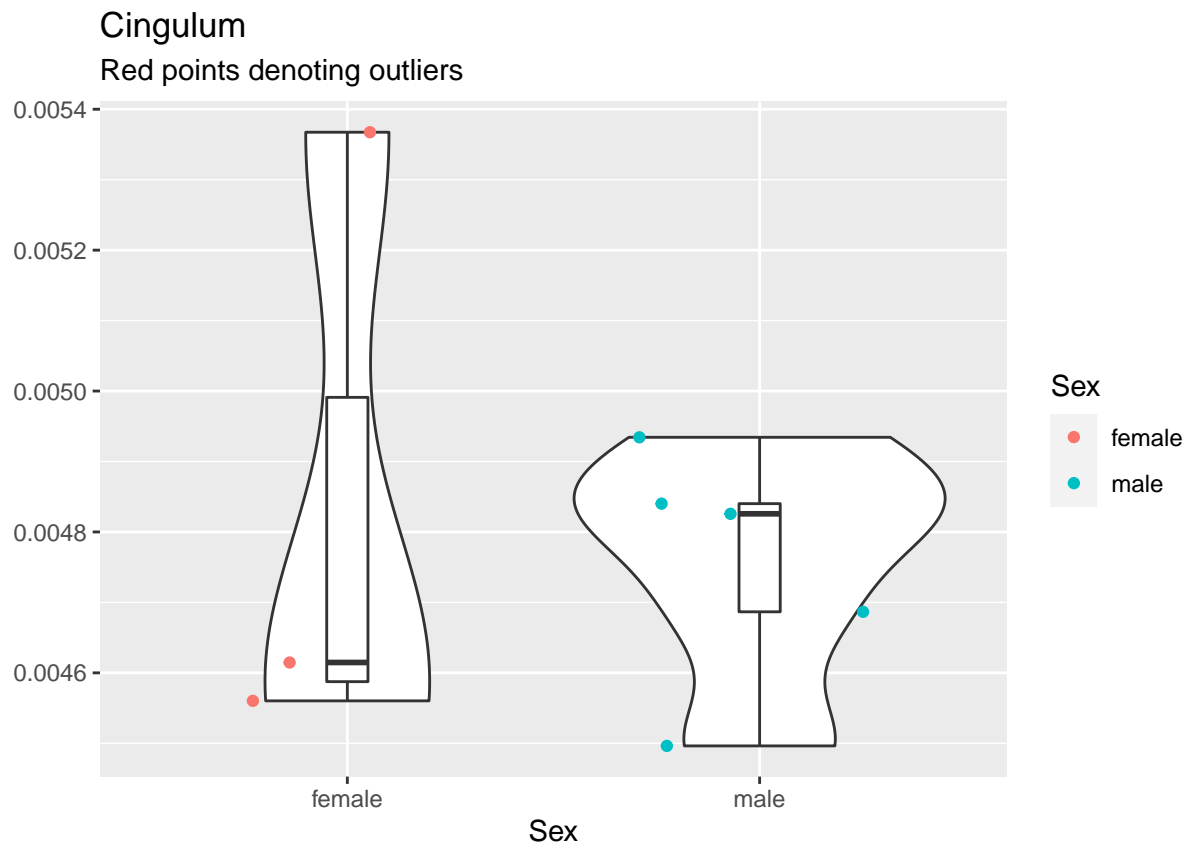


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 3.788e-08 3.788e-08   2.599  0.158
## Residuals  6 8.744e-08 1.457e-08
```

Stria Terminalis
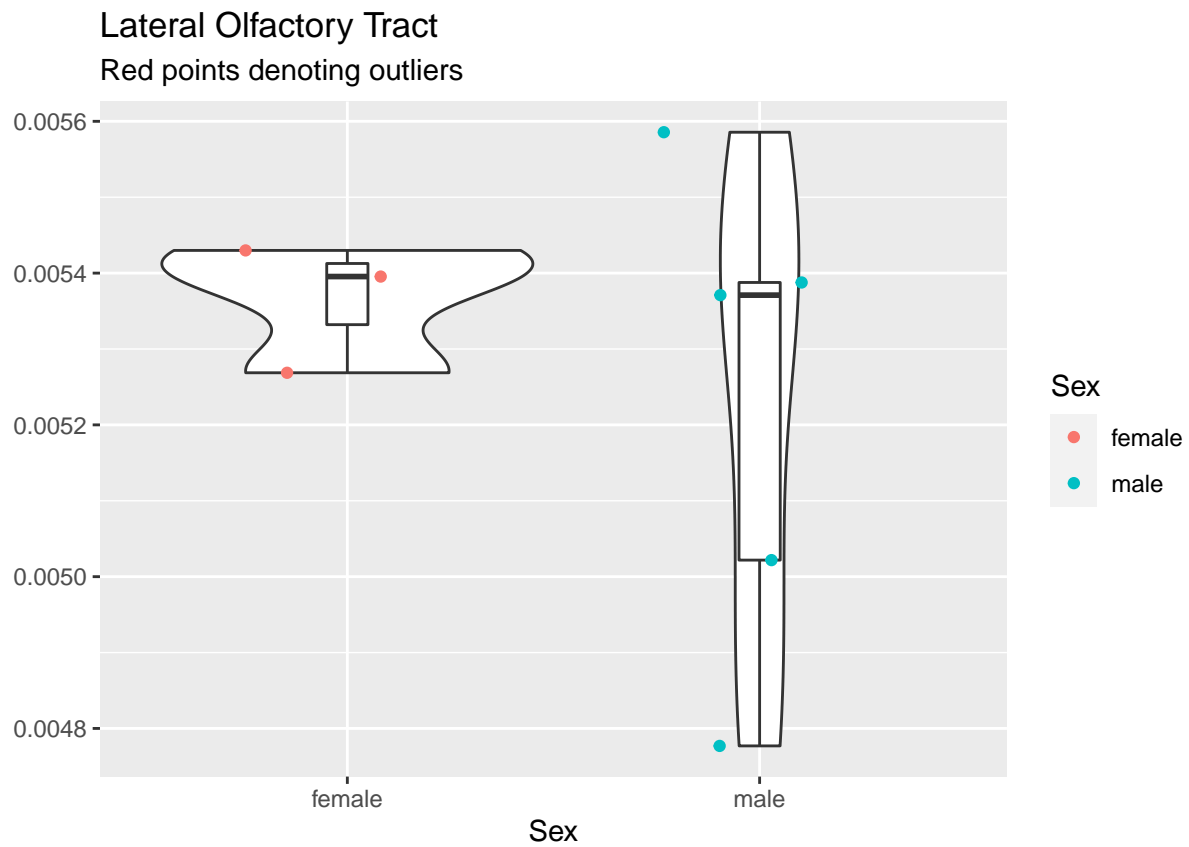
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.711e-08 3.711e-08   1.499  0.267
## Residuals    6 1.486e-07 2.477e-08
```
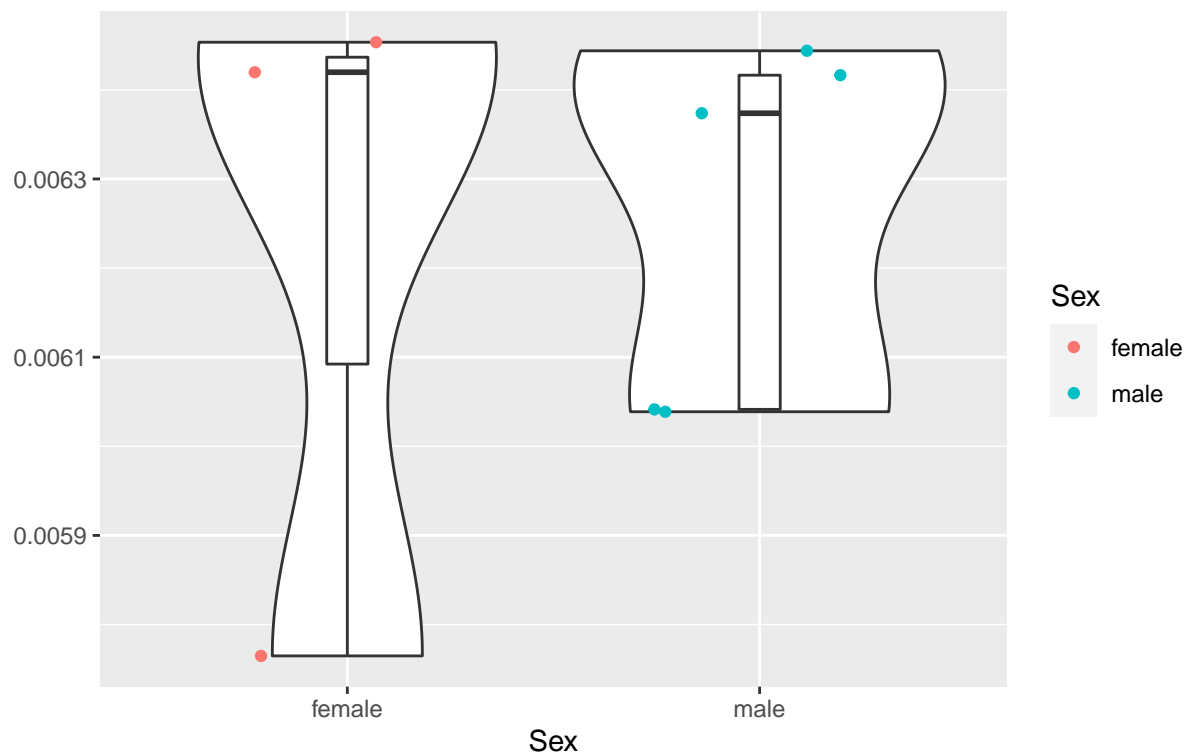
Cingulum
Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.55e-08 1.547e-08   0.177  0.688
## Residuals    6 5.23e-07 8.716e-08
```

Lateral Olfactory Tract
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 3.470e-08 3.471e-08    0.48  0.514
## Residuals   6 4.342e-07 7.237e-08
```
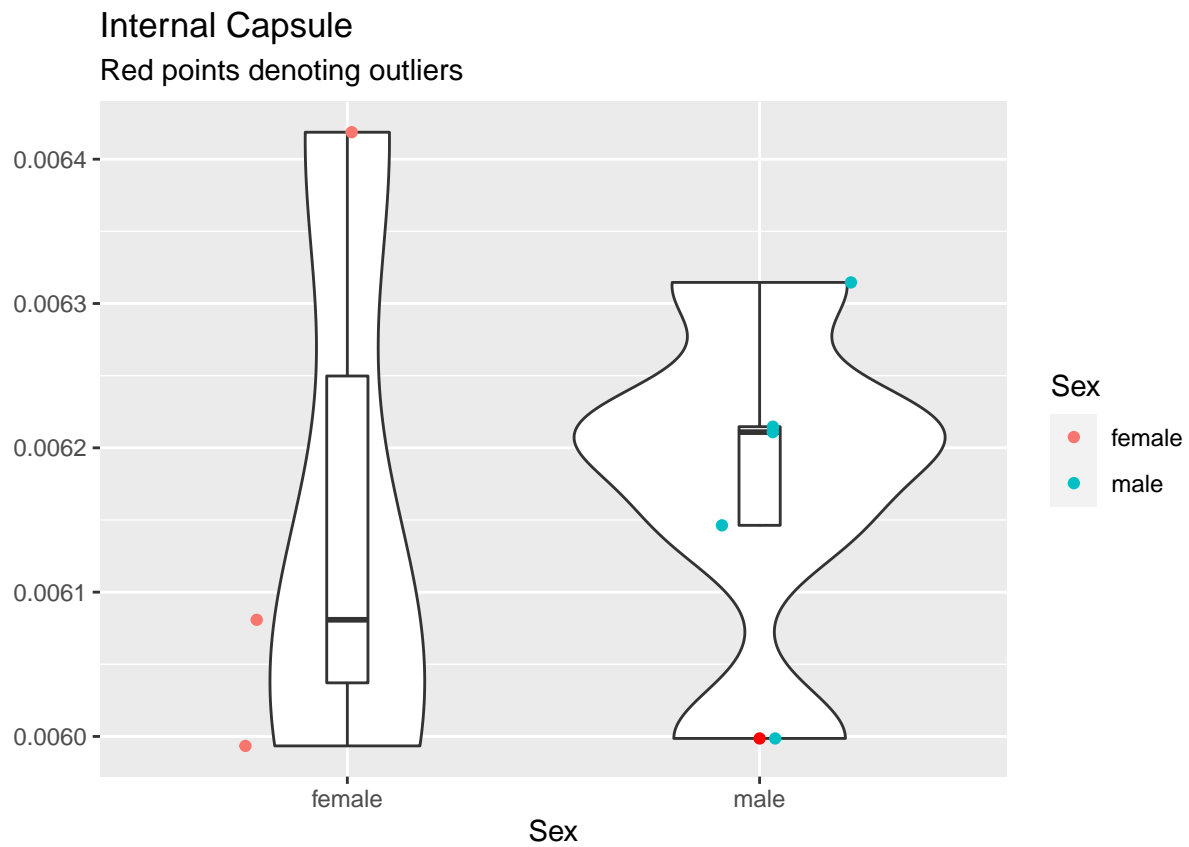
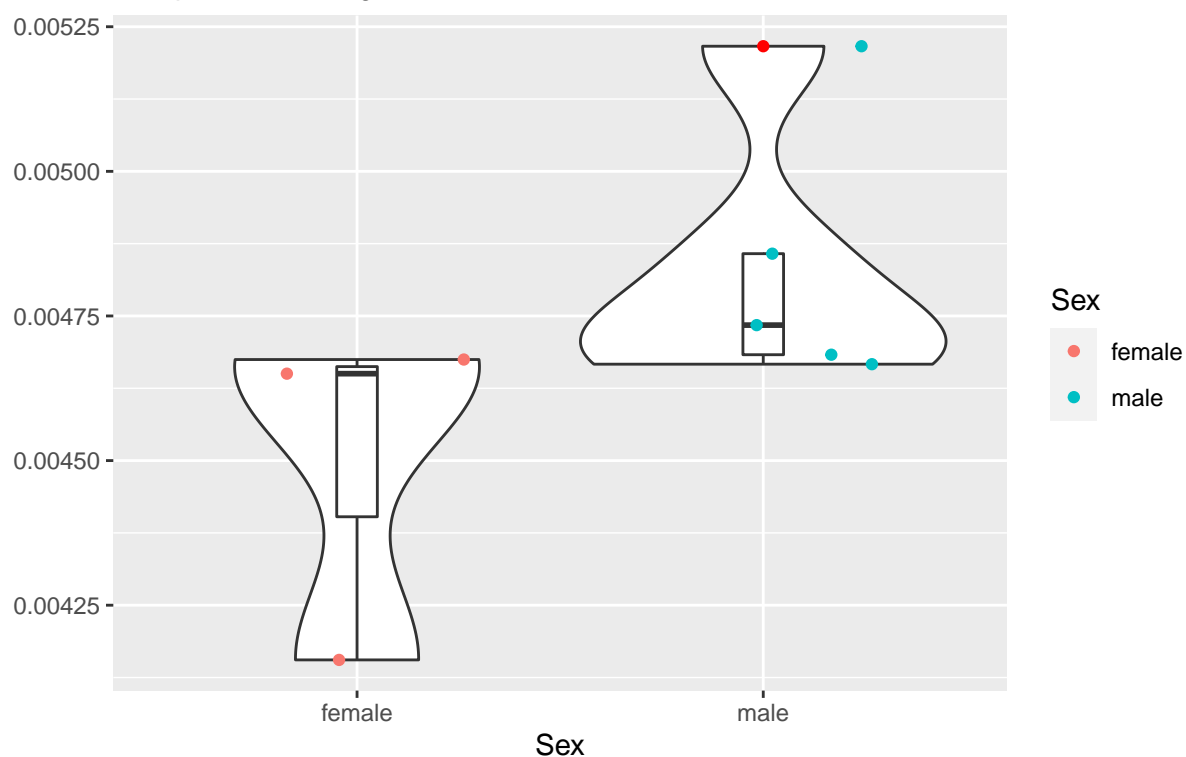## Ventral Hippocampal Commissure
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.700e-09 4.720e-09    0.06  0.814
## Residuals    6 4.693e-07 7.822e-08
```

Internal Capsule
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.000e-10 3.010e-10   0.012  0.918
## Residuals    6 1.551e-07 2.586e-08
```
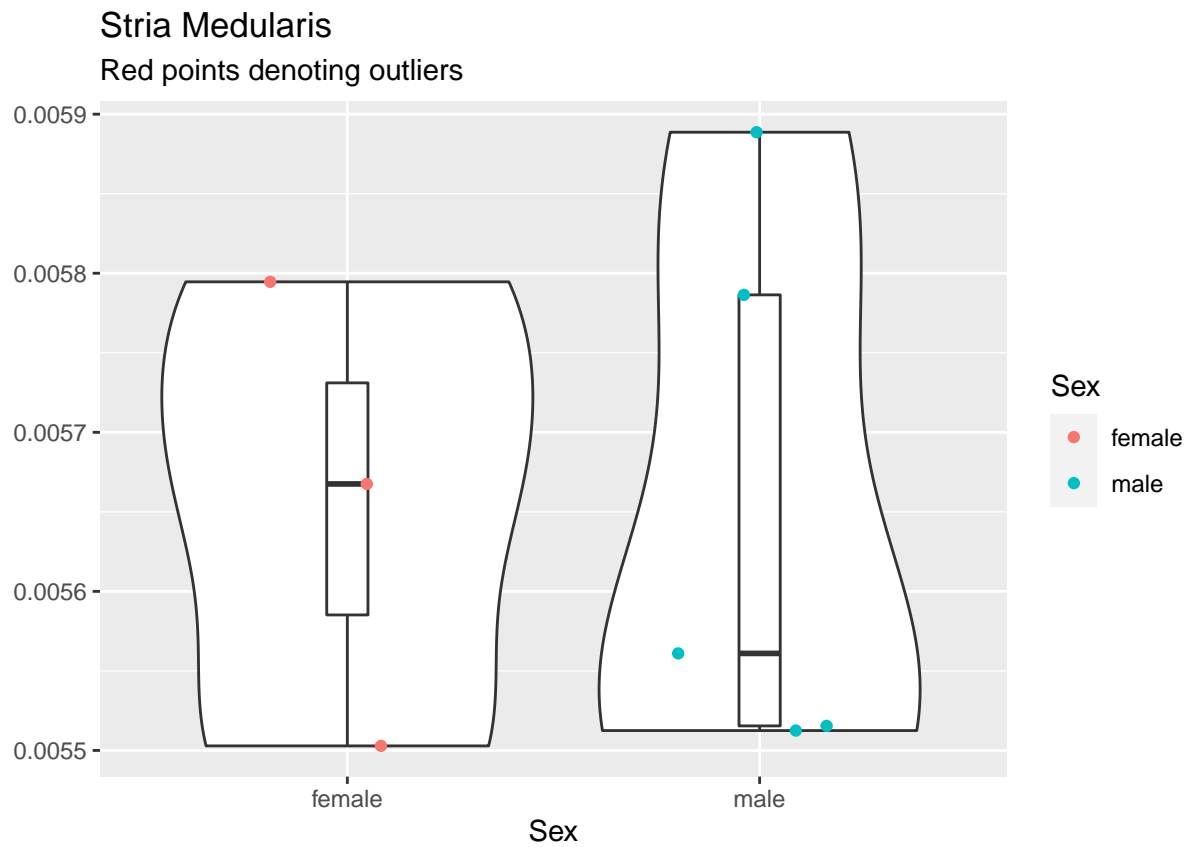
Fasciculus Retroflexus

Red points denoting outliers
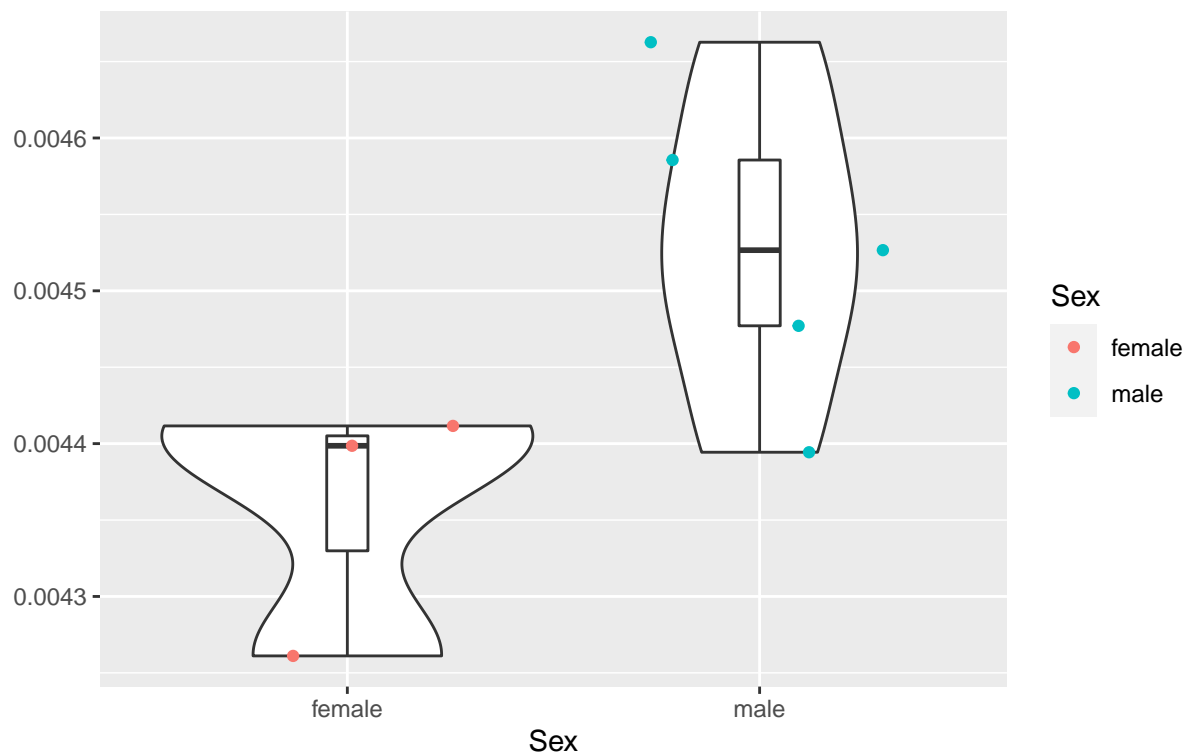


```
##            Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex         1 2.143e-07 2.143e-07   3.392  0.115
## Residuals   6 3.791e-07 6.319e-08
```

Stria Medularis
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.000e-11 9.000e-12       0  0.986
## Residuals    6 1.633e-07 2.721e-08
```

Mammillothalamic Tract
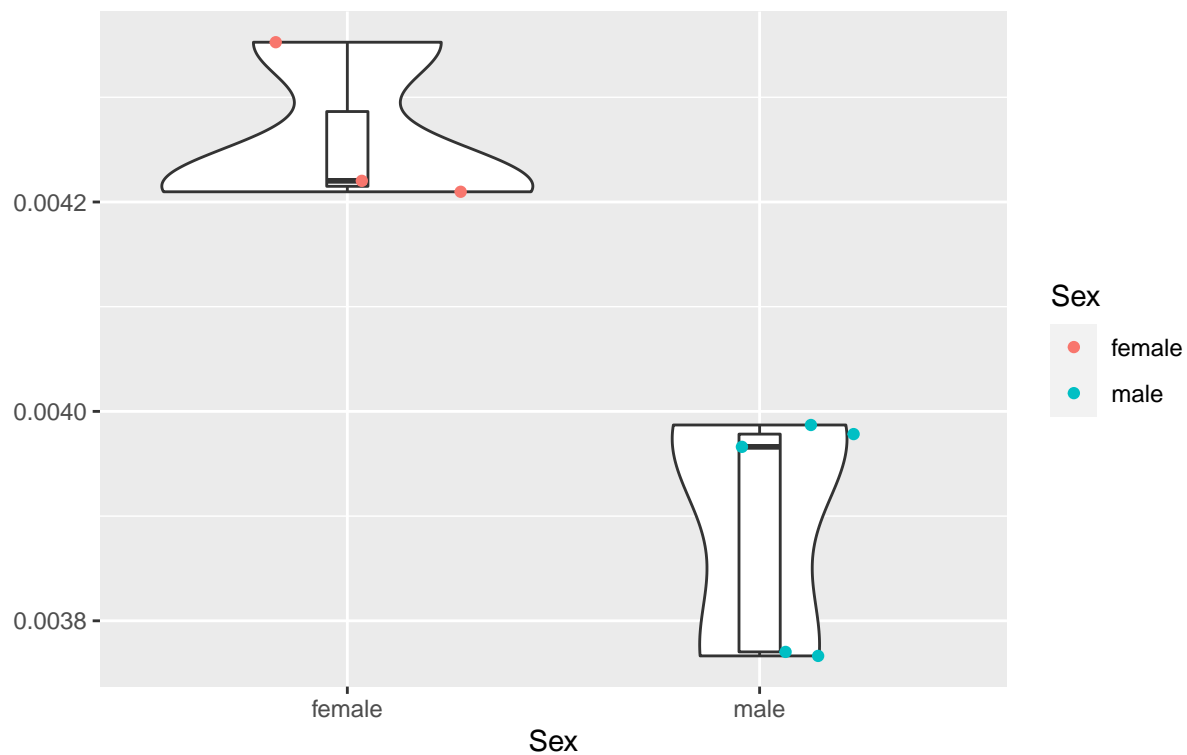Red points denoting outliers


```
##             Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 5.558e-08 5.558e-08   5.975 0.0502 .
## Residuals    6 5.581e-08 9.300e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Posterior Commissure
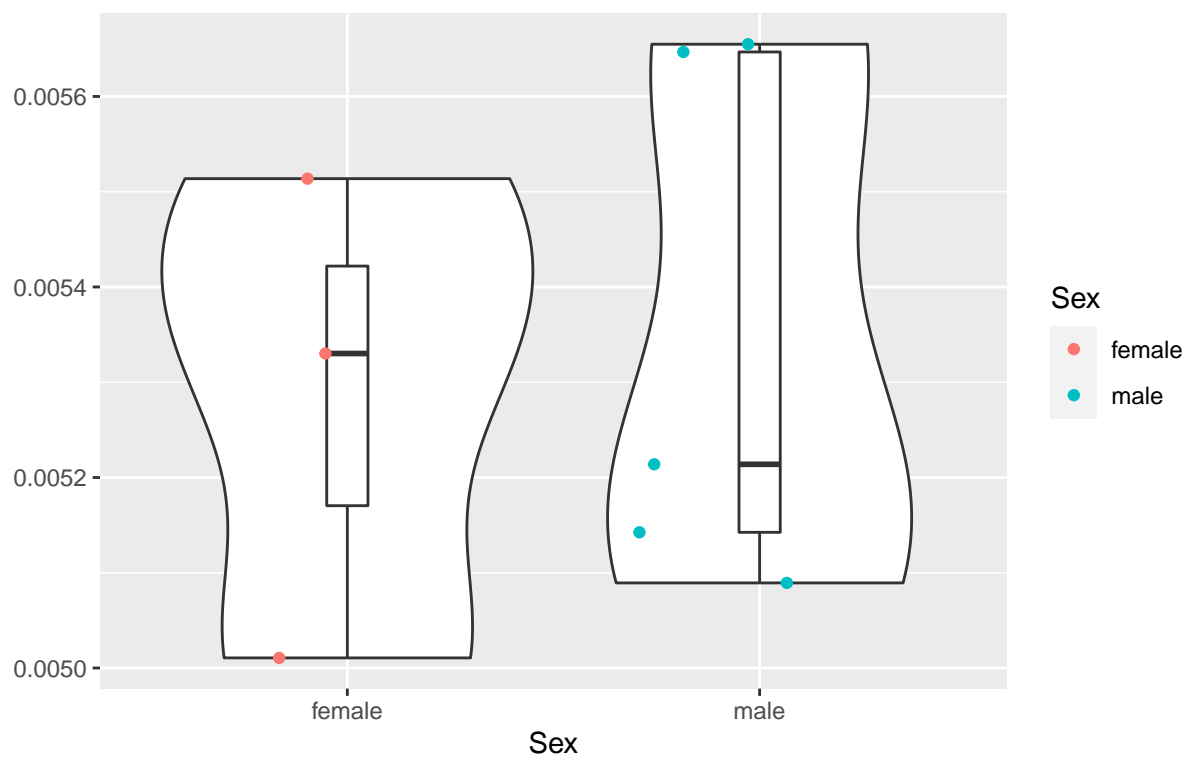Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value  Pr(>F)
## Sex          1 2.528e-07 2.528e-07   23.26 0.00293 **
## Residuals    6 6.521e-08 1.087e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
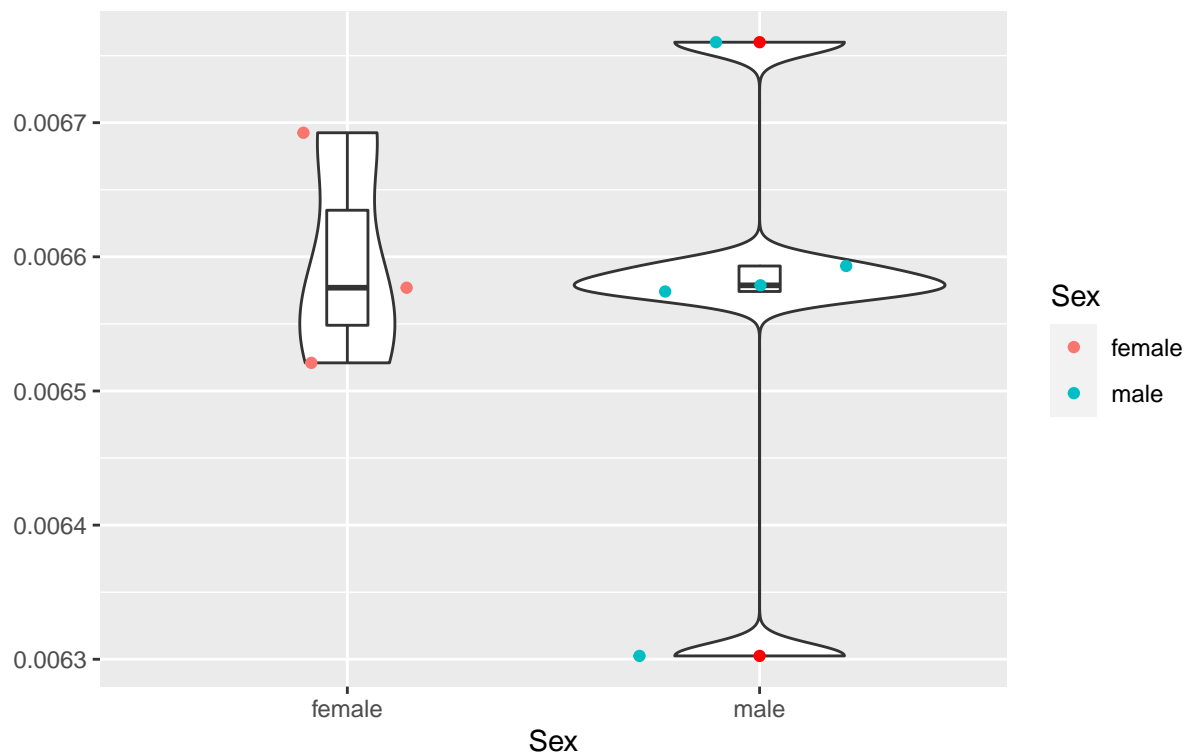
Brachium of Superior Colliculus
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 7.800e-09 7.830e-09   0.107  0.755
## Residuals   6 4.402e-07 7.336e-08
```

Cerebral Peduncle
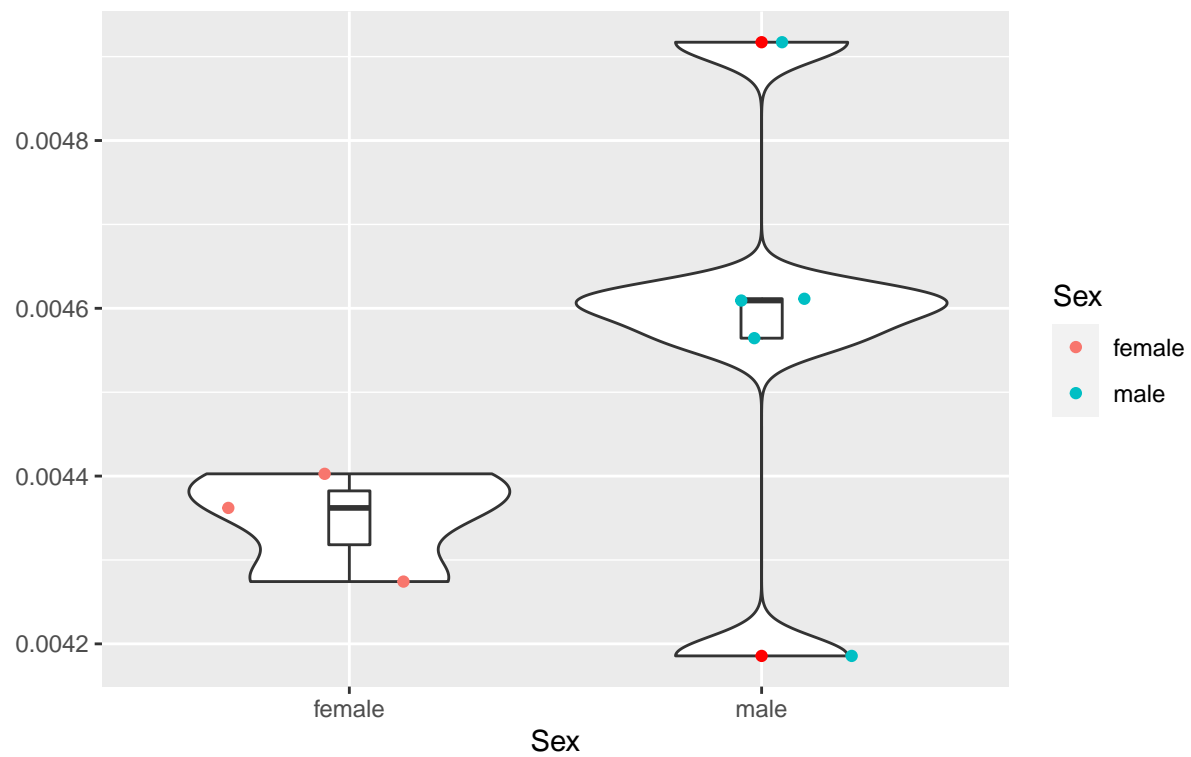Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.310e-09 2.309e-09   0.112  0.749
## Residuals    6 1.232e-07 2.054e-08
```

Lateral Lemniscus

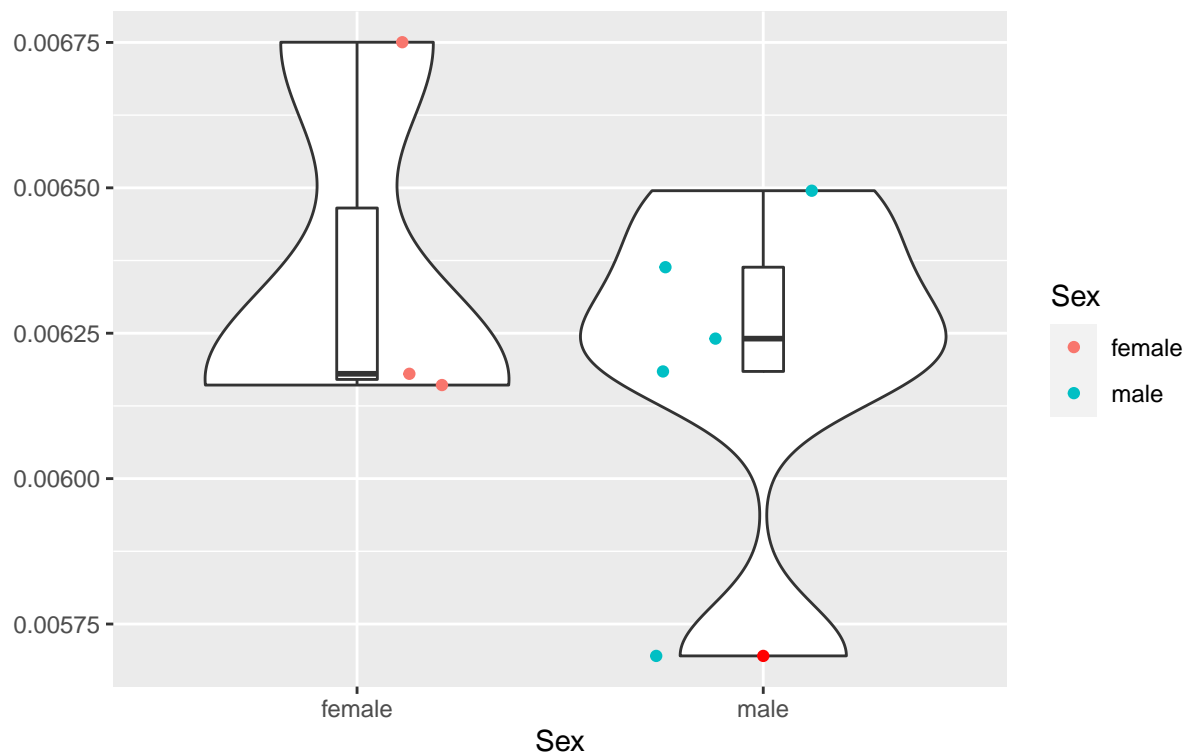Red points denoting outliers


```
##              Df    Sum Sq    Mean Sq  F value  Pr(>F)
## Sex          1 1.003e-07  1.003e-07    2.149   0.193
## Residuals    6 2.799e-07  4.664e-08
```

Spinal Trigeminal Nerve
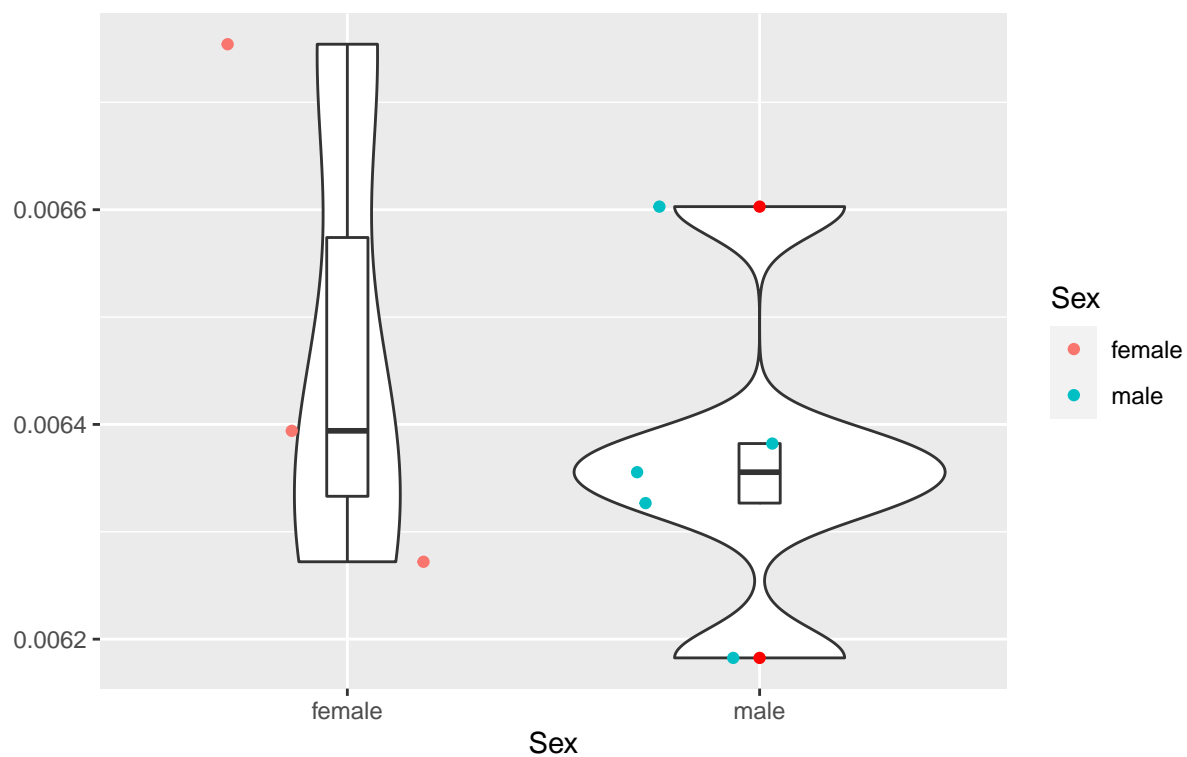### Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 5.300e-08 5.297e-08   0.534  0.492
## Residuals     6 5.947e-07 9.912e-08
```

Pyramidal Tract
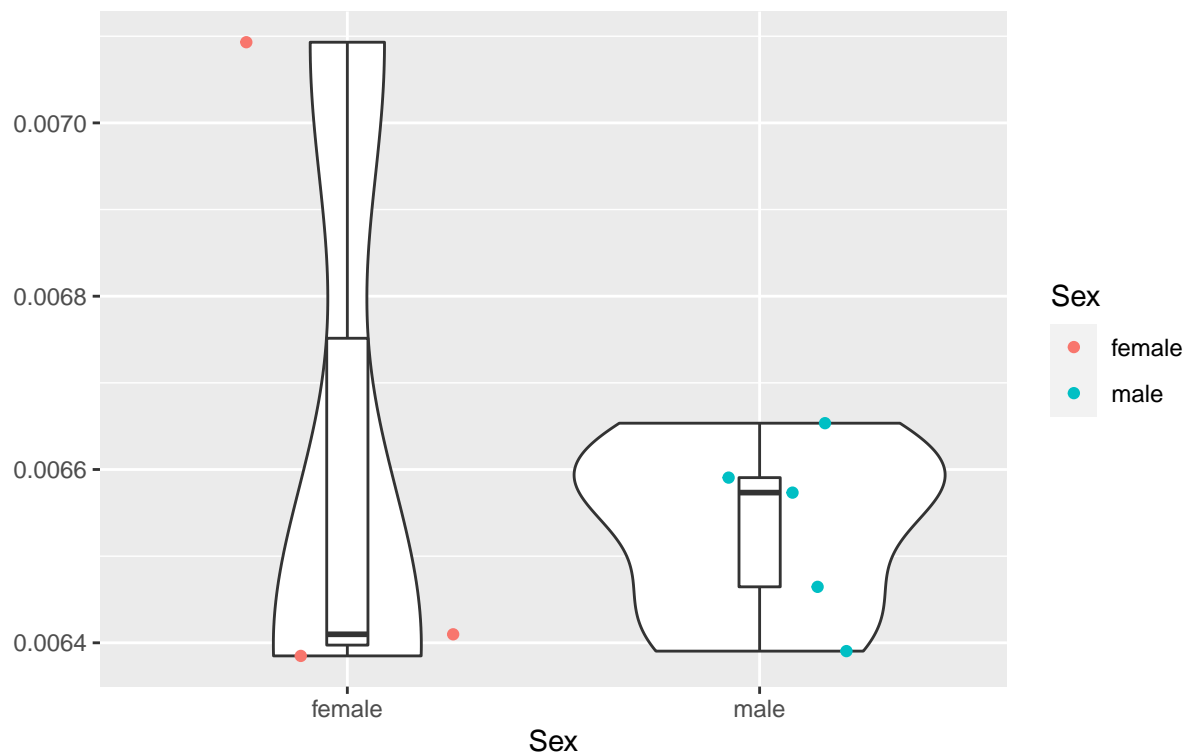Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.007e-08 2.007e-08   0.554  0.485
## Residuals    6 2.172e-07 3.621e-08
```

Vestibulocochlear Nerve
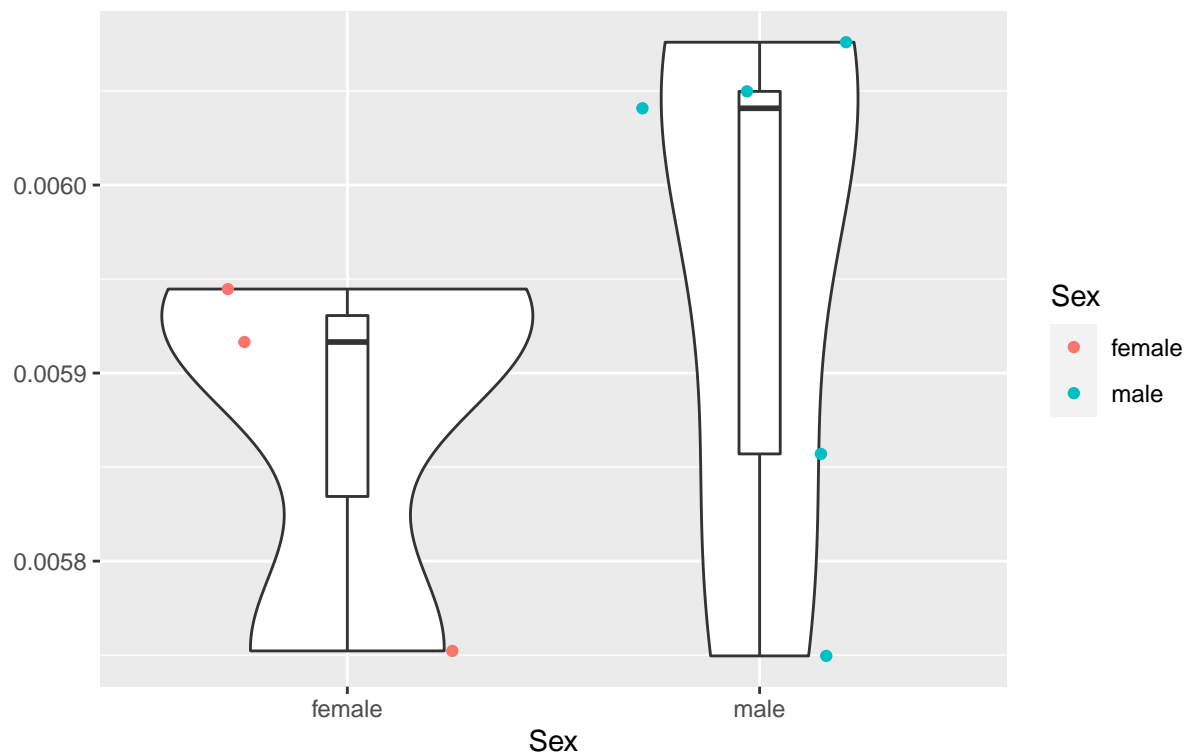
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.680e-08 1.685e-08   0.275  0.619
## Residuals    6 3.675e-07 6.124e-08
```

Facial Nerve
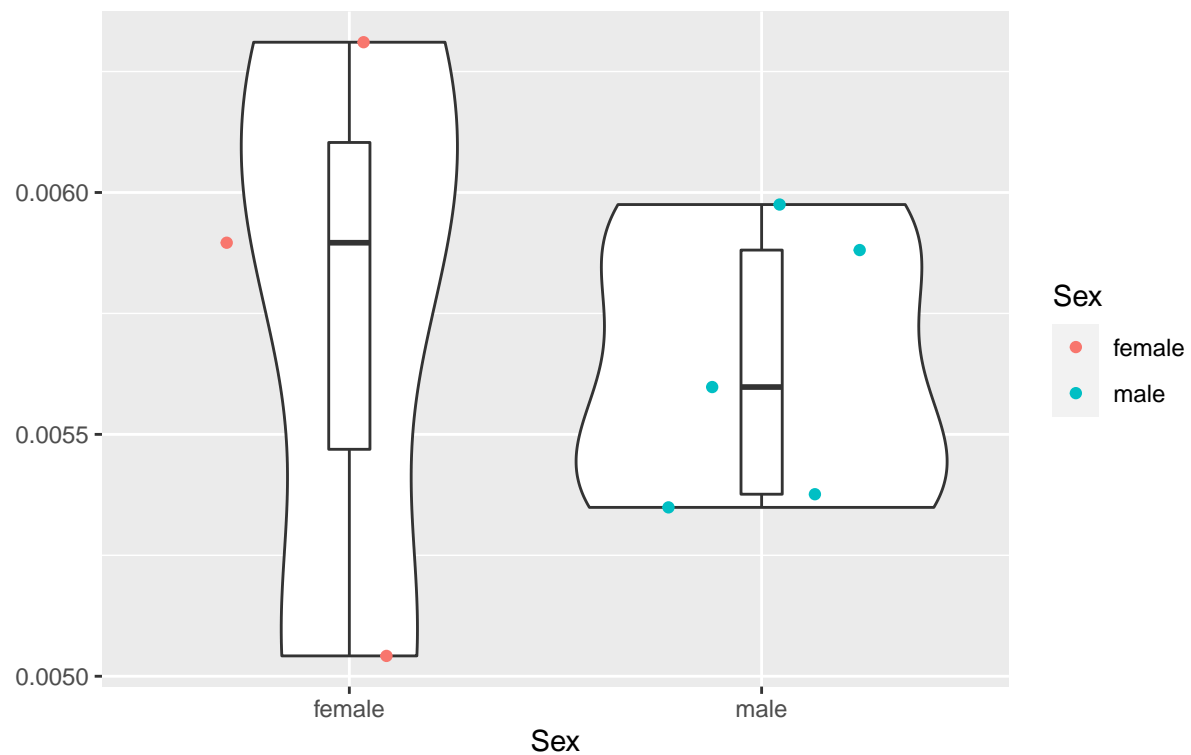
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.307e-08 1.307e-08   0.751  0.419
## Residuals    6 1.044e-07 1.740e-08
```
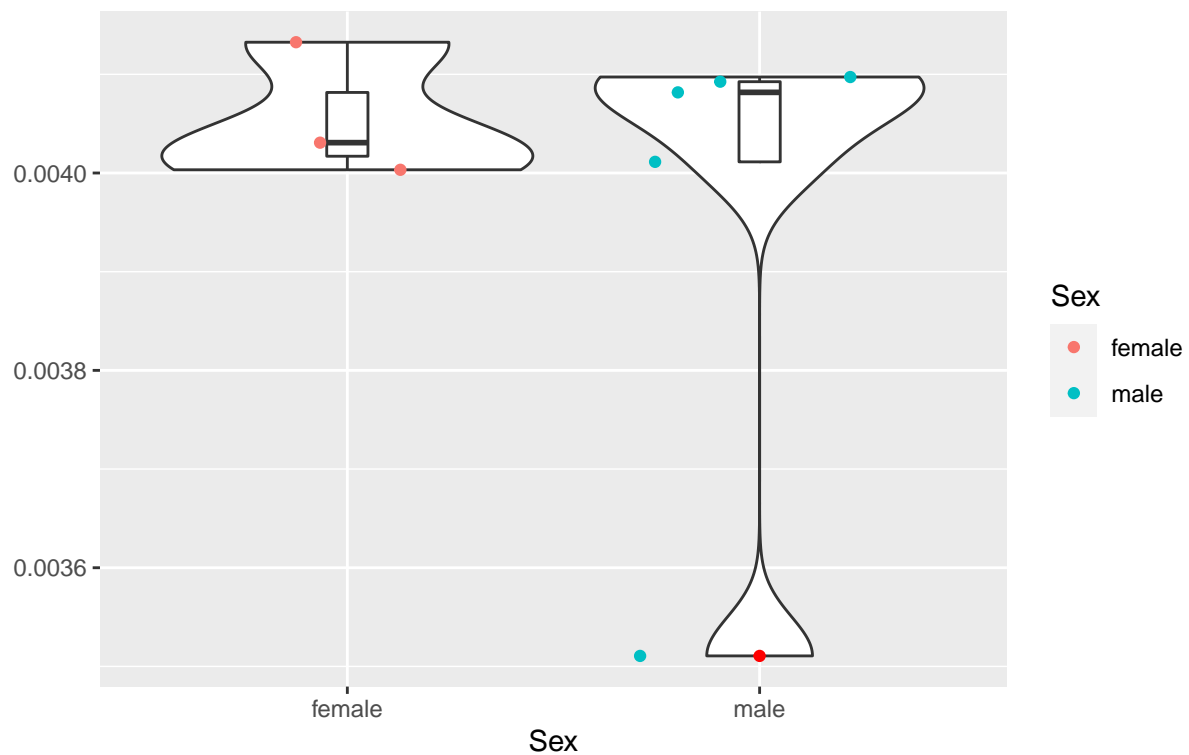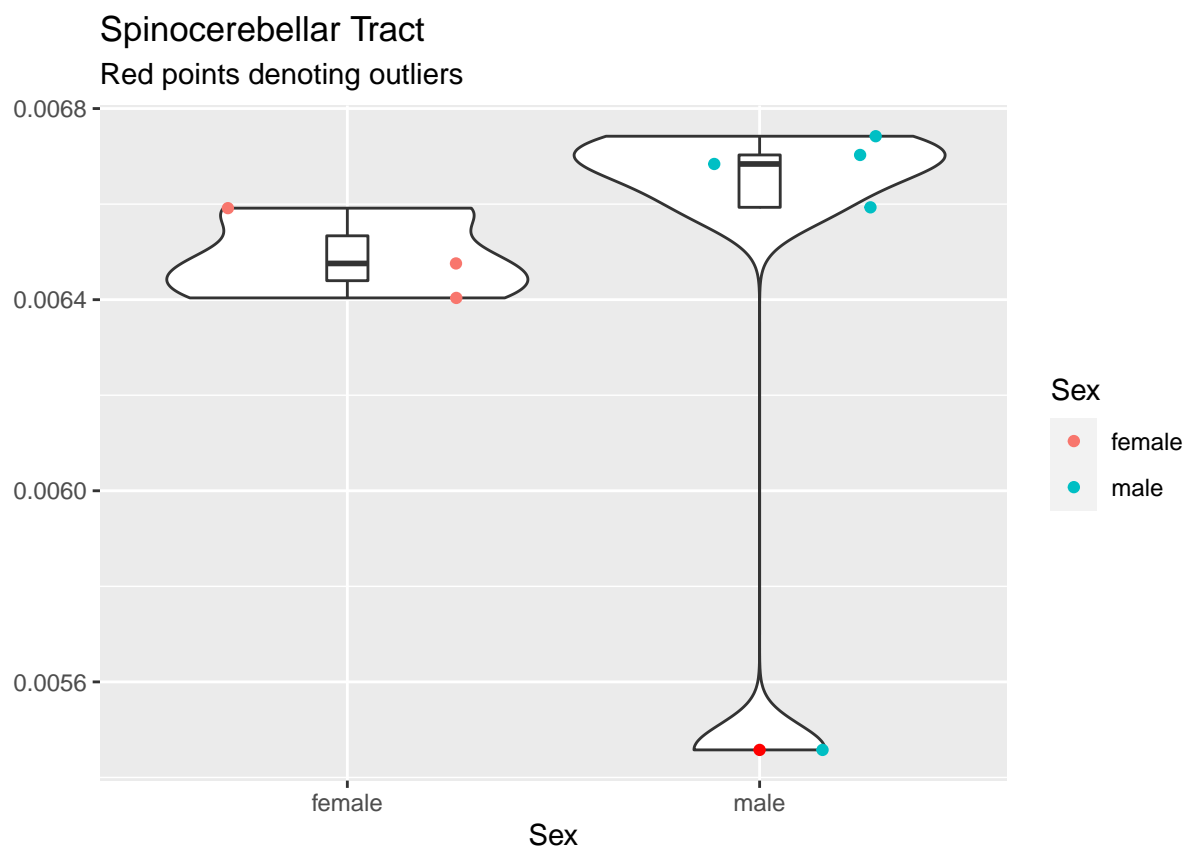
Longitudinal Fasciculus of Pons

Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.430e-08 2.427e-08   0.125  0.736
## Residuals   6 1.163e-06 1.938e-07
```
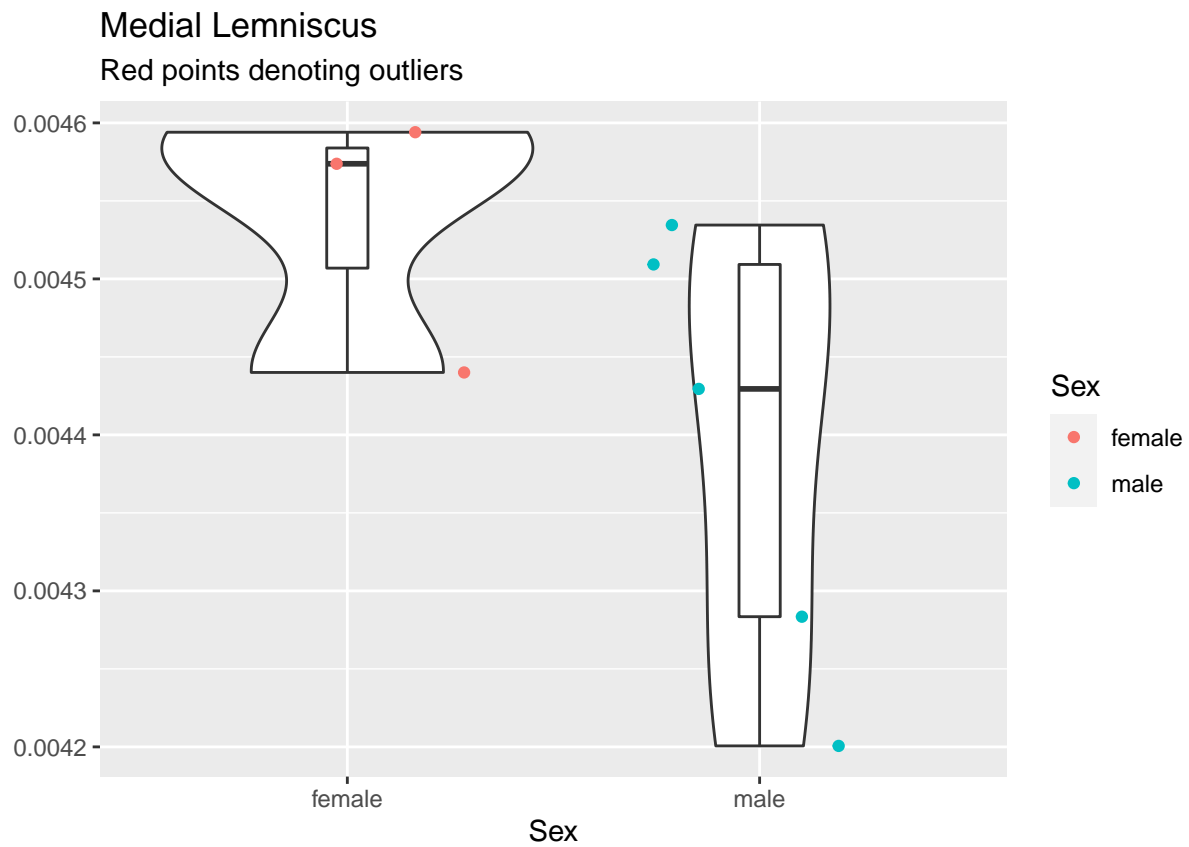
Medial Longitudinal Fasciculus and Tectospinal Tract
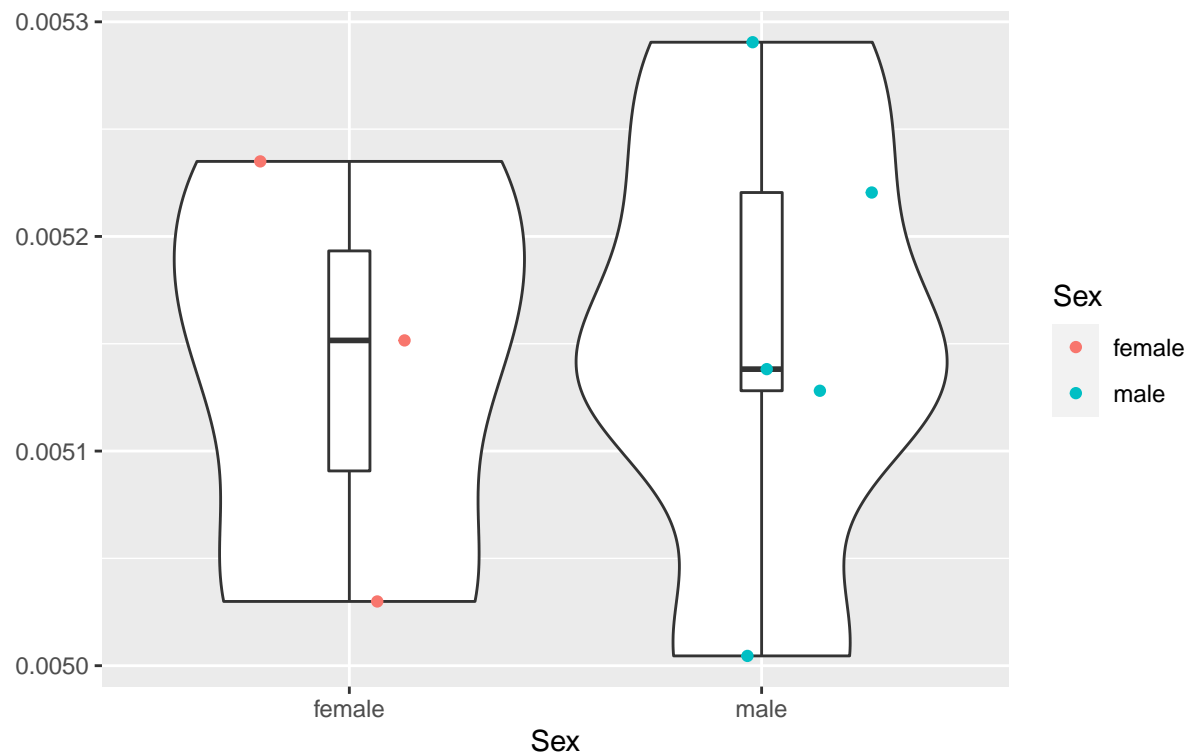Red points denoting outliers


```
##             Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 1.758e-08  1.758e-08   0.398  0.551
## Residuals    6 2.650e-07  4.417e-08
```

Spinocerebellar Tract
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 5.500e-09 5.540e-09   0.027  0.875
## Residuals   6 1.226e-06 2.044e-07
```

Medial Lemniscus
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.914e-08 3.914e-08   2.399  0.172
## Residuals    6 9.788e-08 1.631e-08
```
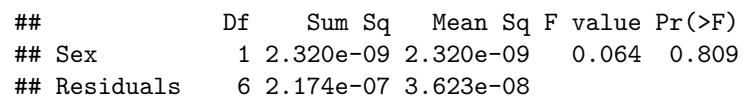
Ventral Spinocerebellar Tract
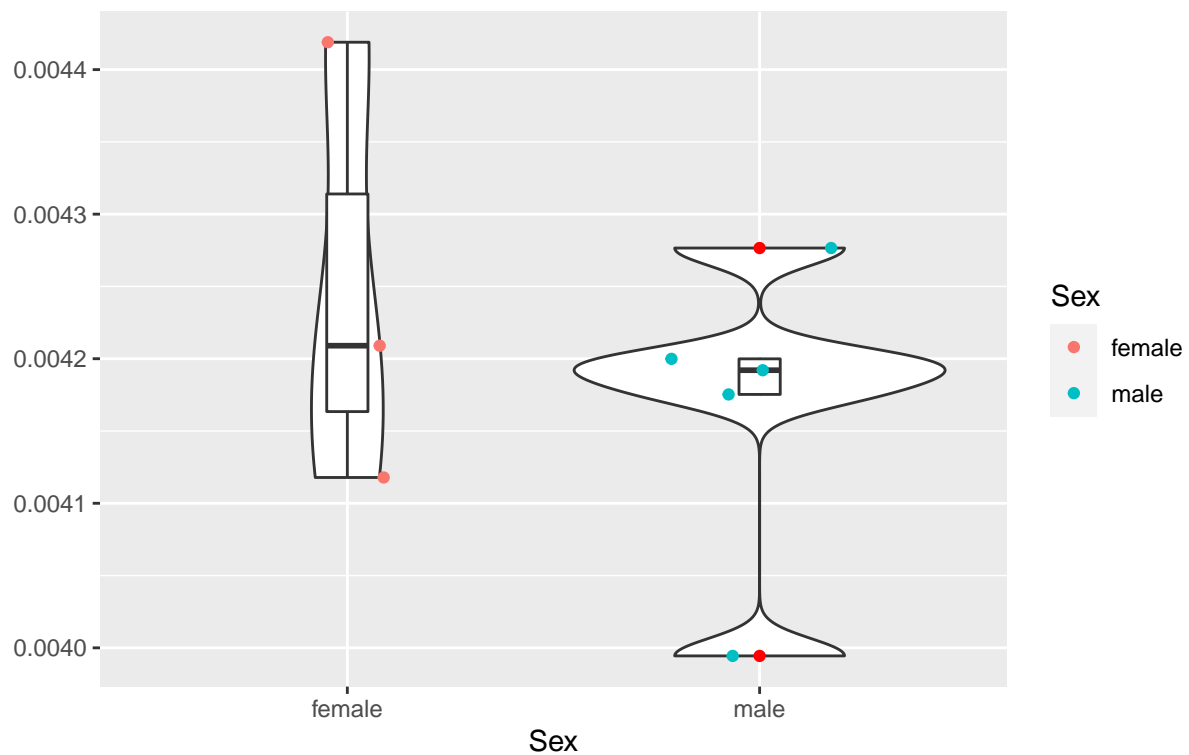
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 5.800e-10 5.770e-10   0.051  0.828
## Residuals   6 6.754e-08 1.126e-08
```

Middle Cerebellar Peduncle
Red points denoting outliers


```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 2.320e-09 2.320e-09   0.064  0.809
## Residuals  6 2.174e-07 3.623e-08
```

Superior Cerebellar Peduncle
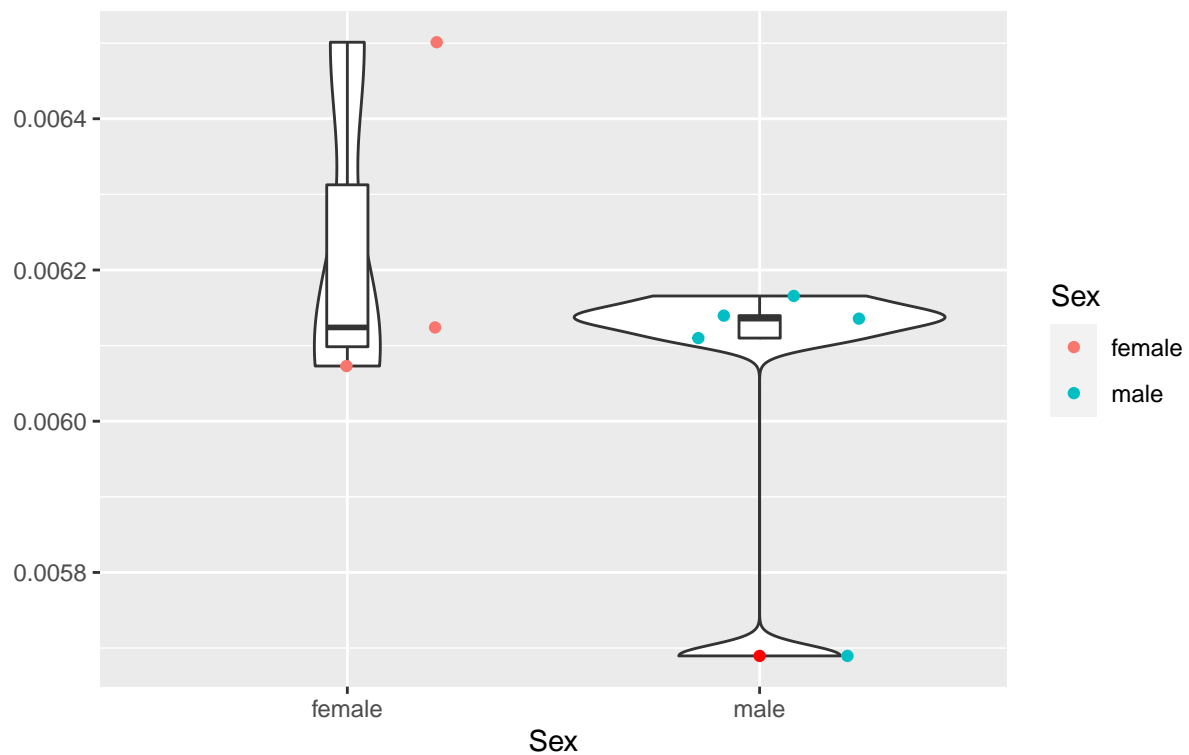
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.229e-08 1.229e-08   0.808  0.403
## Residuals    6 9.124e-08 1.521e-08
```

Inferior Cerebellar Peduncle
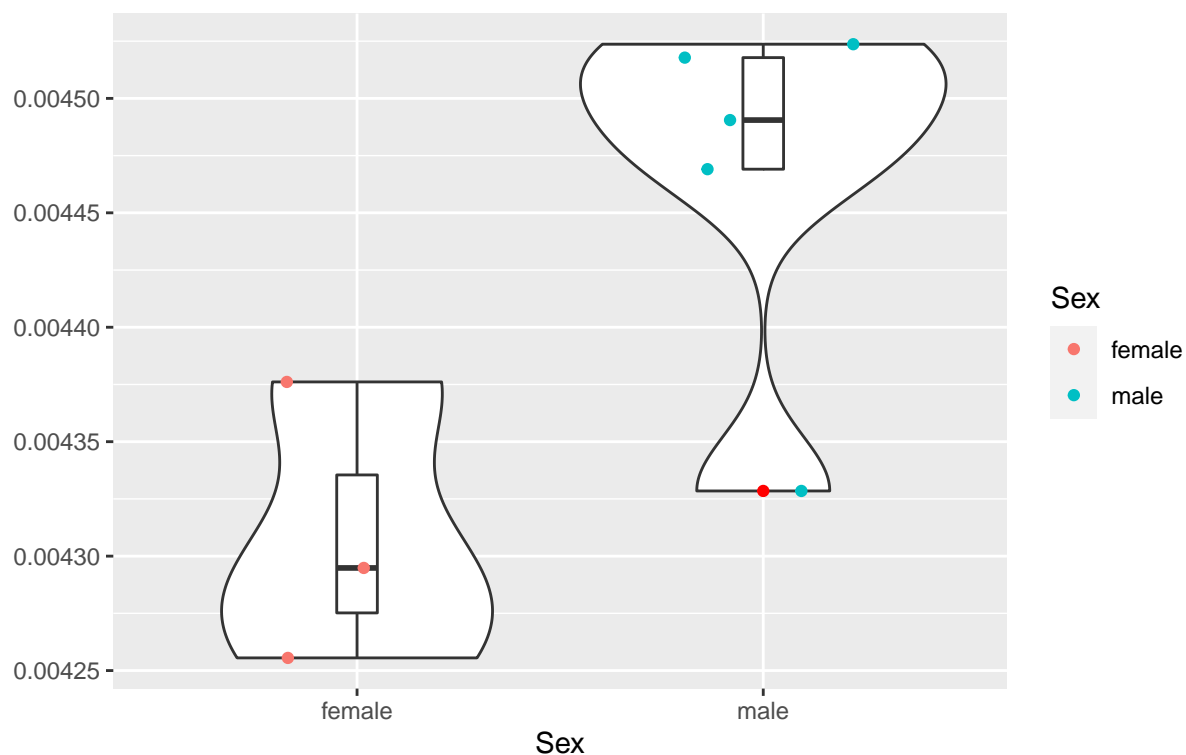
Red points denoting outliers
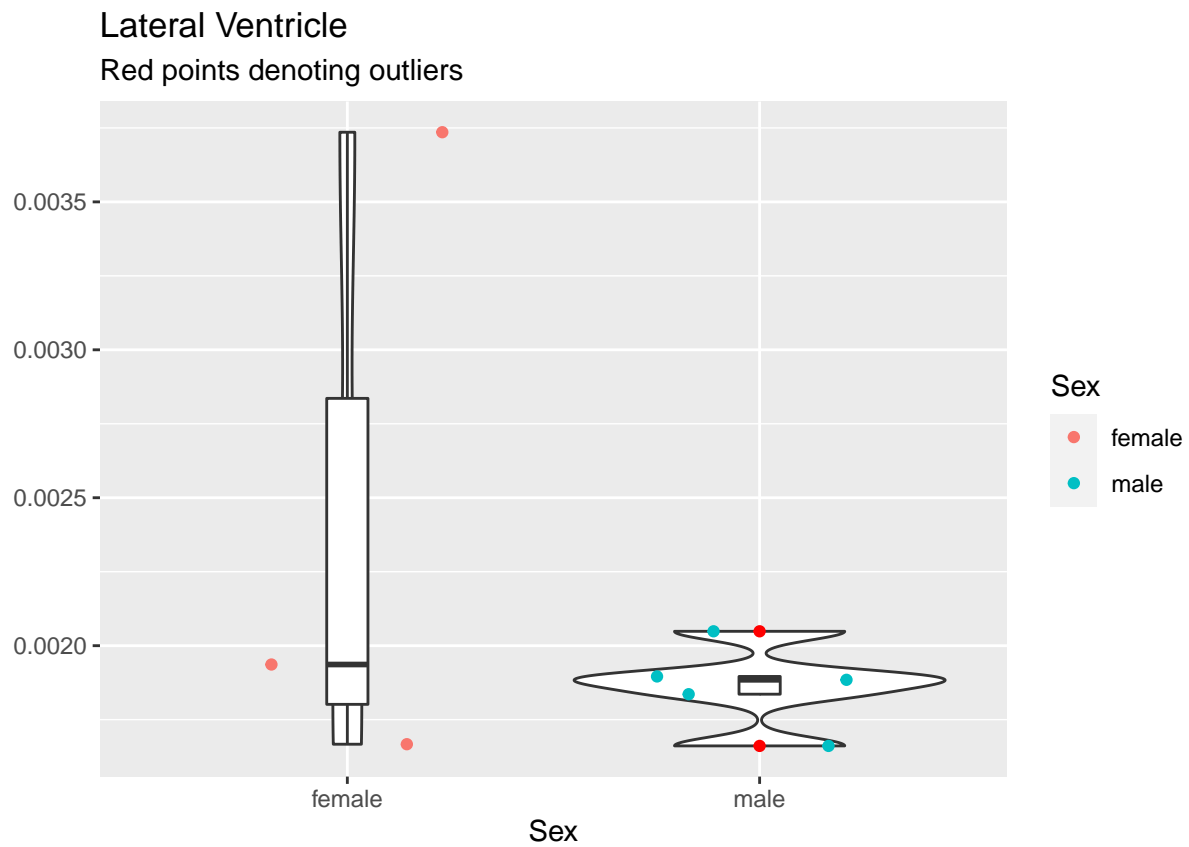


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.393e-08 6.393e-08   1.412   0.28
## Residuals    6 2.716e-07 4.527e-08
```

Cerebellar White Matter
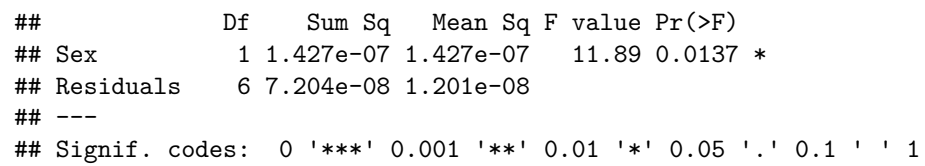
Red points denoting outliers
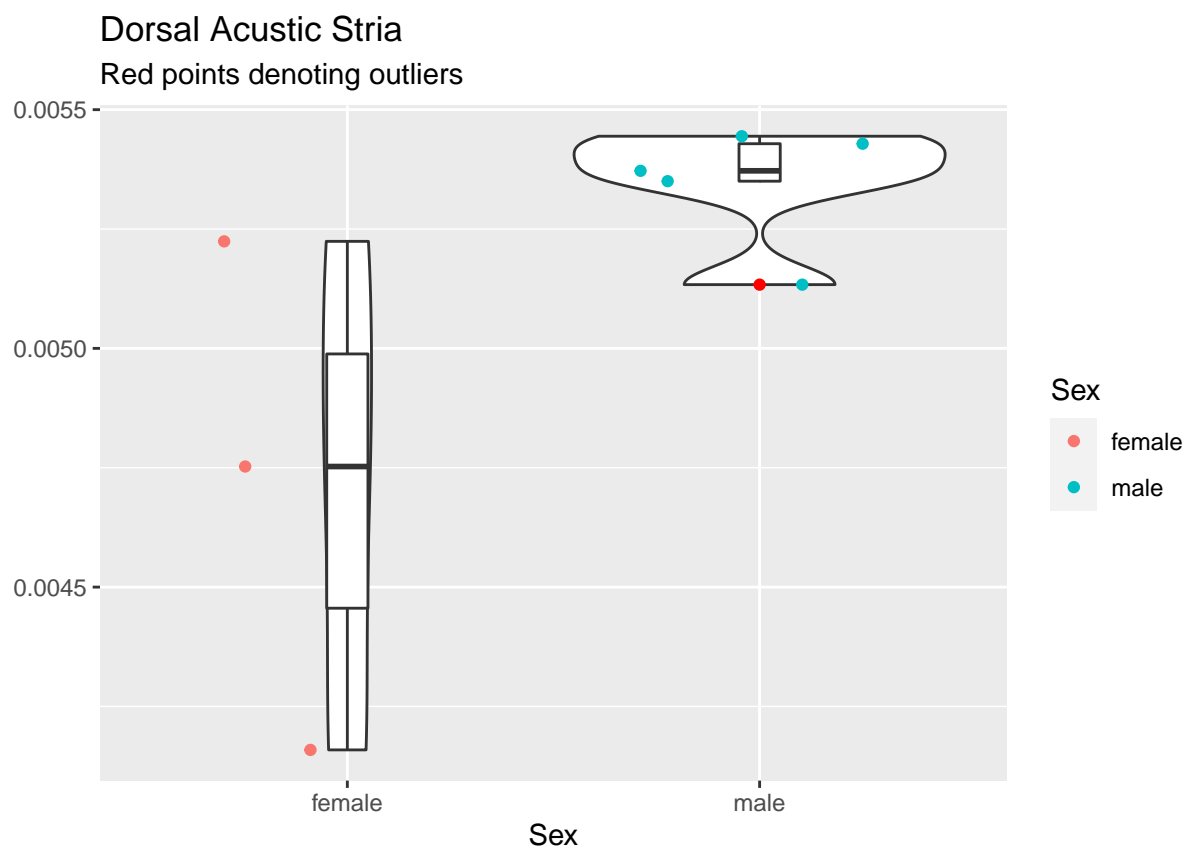


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.627e-08 4.627e-08   8.387 0.0275 *
## Residuals   6 3.310e-08 5.520e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Lateral Ventricle
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 6.329e-07 6.329e-07   1.457  0.273
## Residuals     6 2.607e-06 4.345e-07
```

Cingulate Cortex Area 25
Red points denoting outliers


```
##             Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex         1  1.427e-07  1.427e-07   11.89 0.0137 *
## Residuals   6  7.204e-08  1.201e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

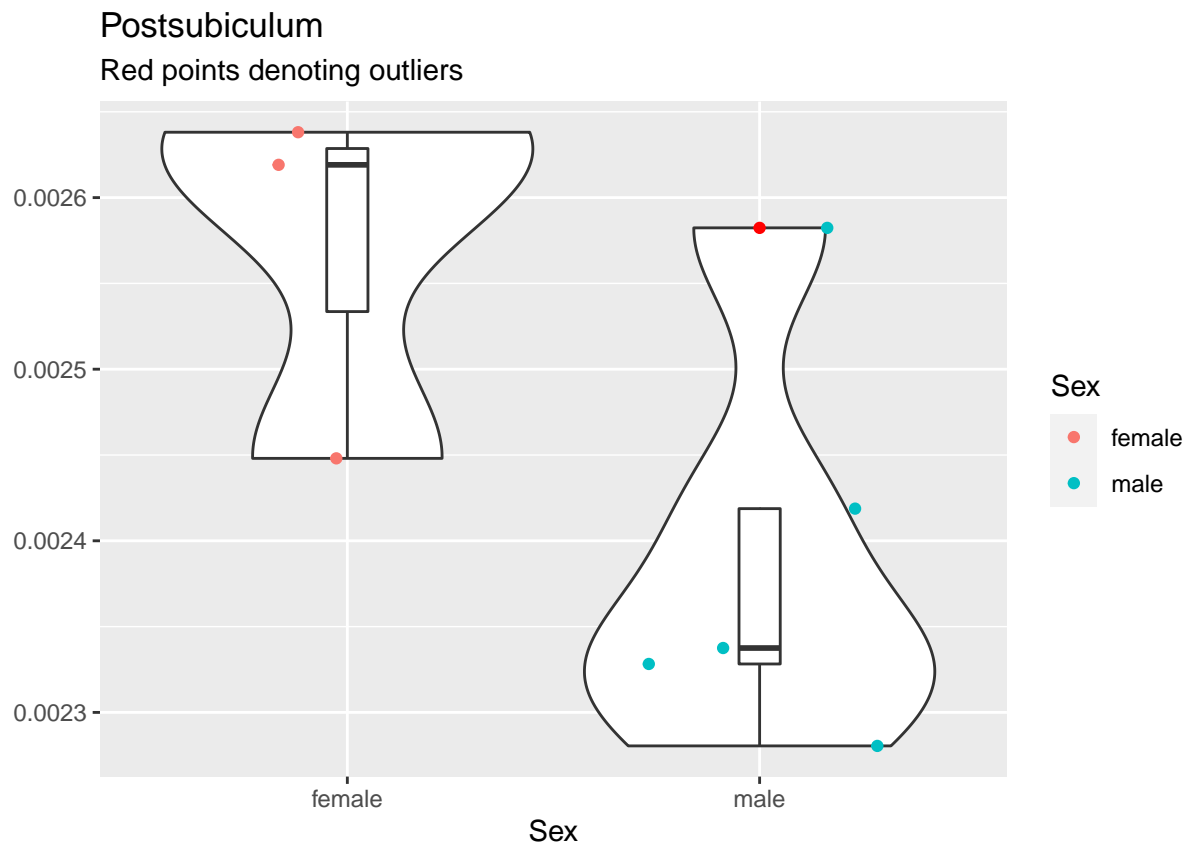## Dorsal Acustic Stria
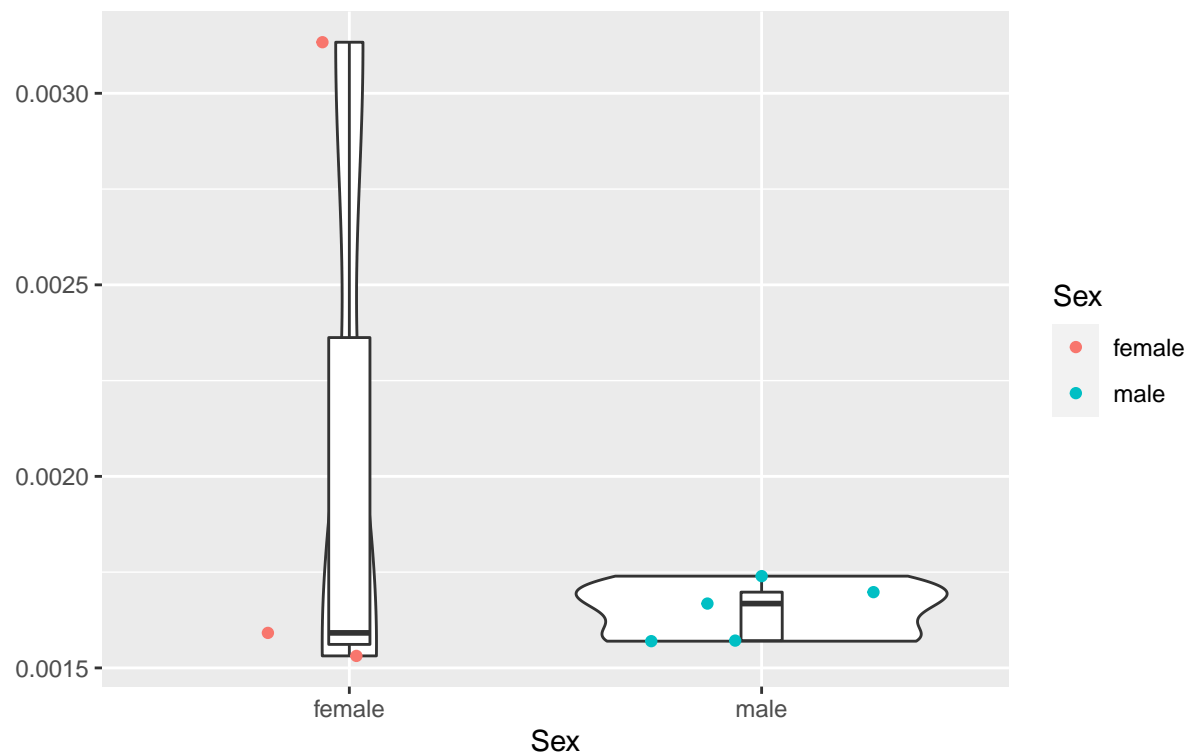Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 7.533e-07 7.533e-07    7.15 0.0368 *
## Residuals   6 6.322e-07 1.054e-07
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Postsubiculum
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 6.004e-08 6.004e-08     4.6 0.0756 .
## Residuals     6 7.831e-08 1.305e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
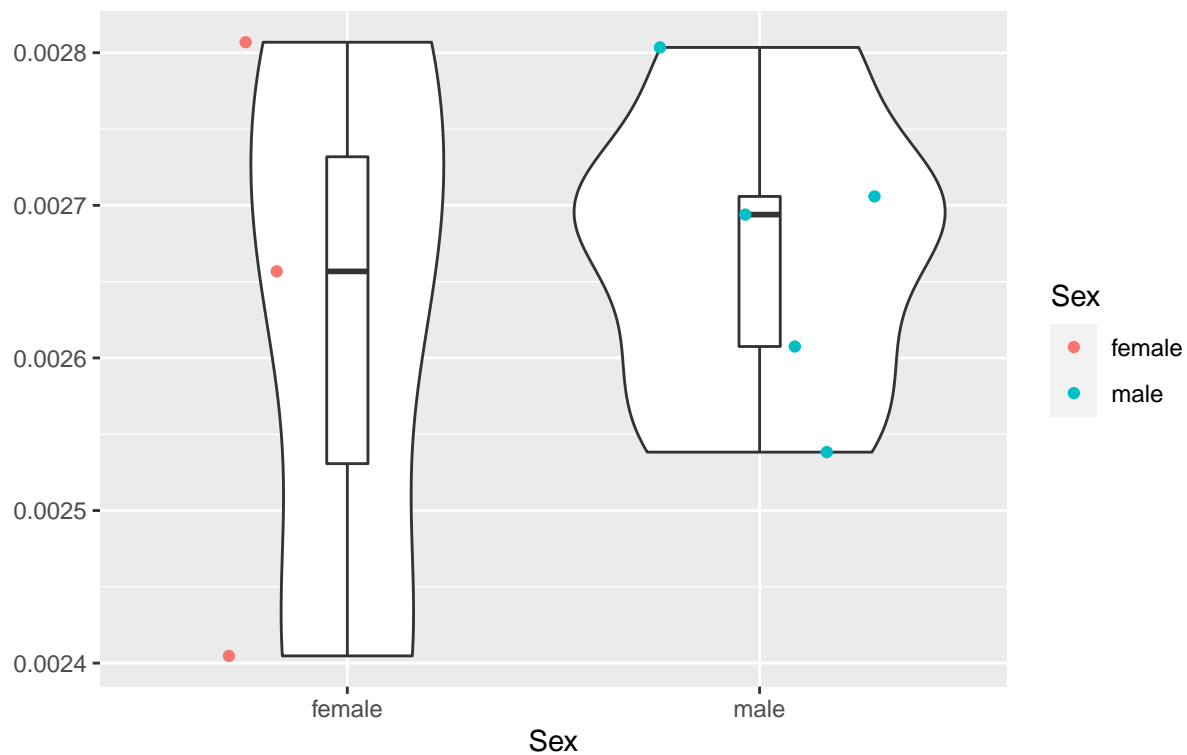
Ventricular System 4th Ventricle
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.566e-07 3.566e-07   1.279  0.301
## Residuals    6 1.673e-06 2.788e-07
```

Microcellular Tegmental Nucleus
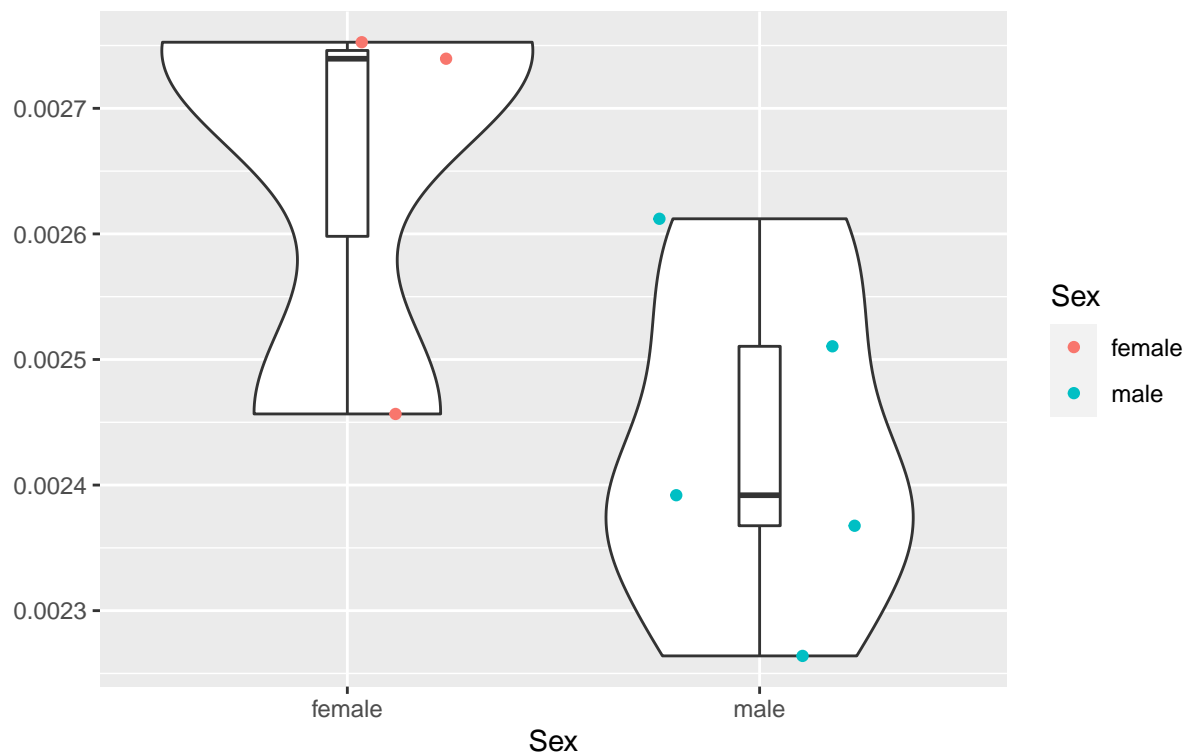Red points denoting outliers


```
##           Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 4.140e-09 4.145e-09   0.201  0.669
## Residuals  6 1.235e-07 2.059e-08
```

Pretectal Nucleus
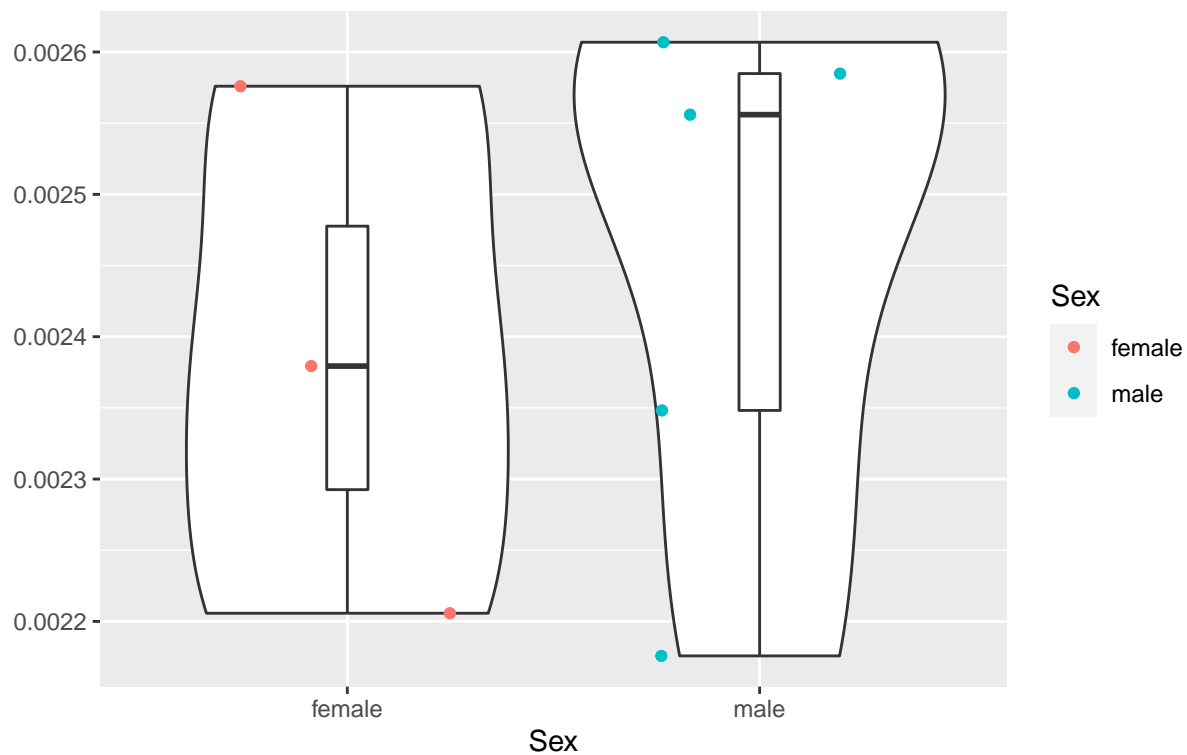Red points denoting outliers


```
##               Df     Sum Sq    Mean Sq F value Pr(>F)
## Sex           1 9.107e-08 9.107e-08    4.254 0.0848 .
## Residuals     6 1.285e-07 2.141e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

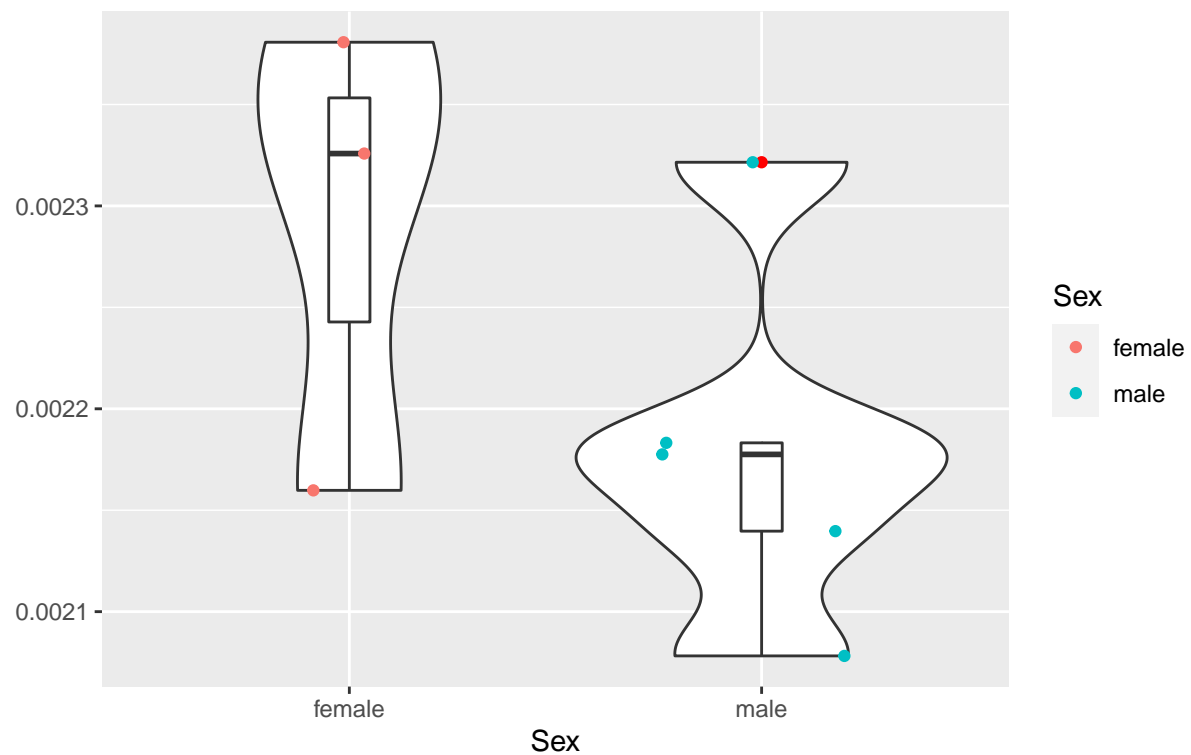# Latero Dorsal Thalamic Nucleus Ventro Lateral

Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 8.500e-09 8.500e-09   0.245  0.638
## Residuals  6 2.081e-07 3.469e-08
```

Latero Posterior Nuclei of Thalamus
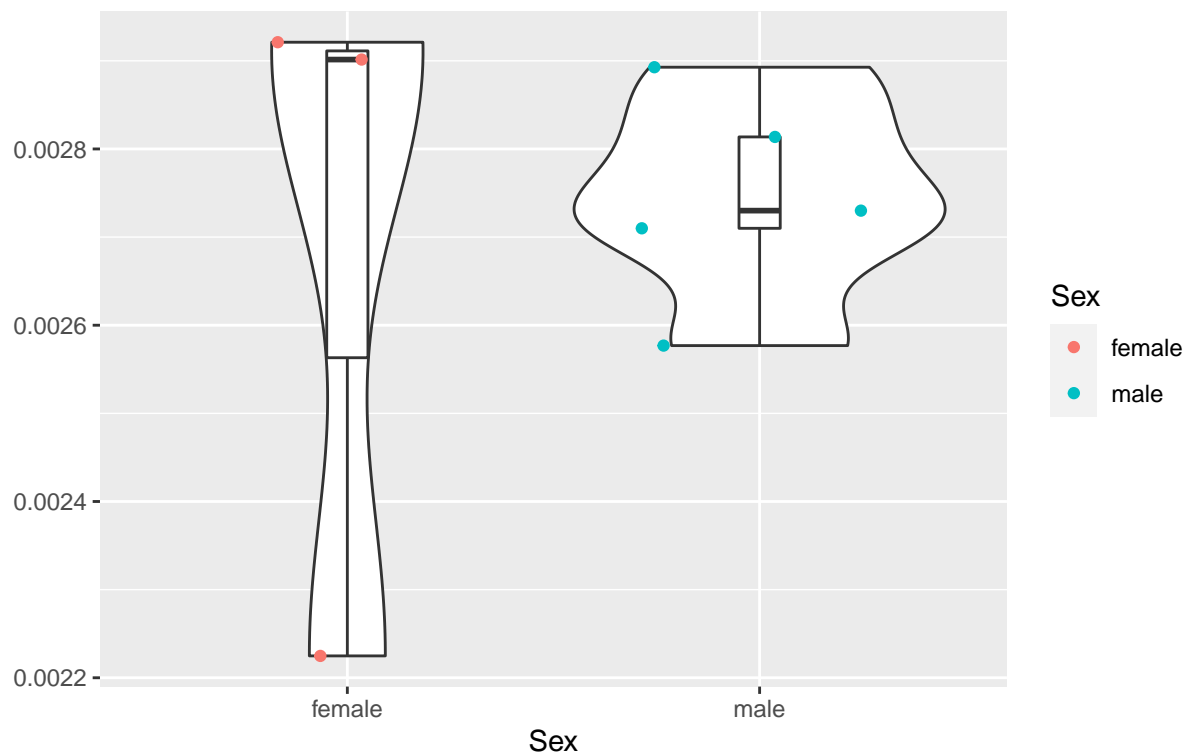Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 2.217e-08 2.217e-08   2.274  0.182
## Residuals     6 5.849e-08 9.749e-09
```

Anterior Thalamic Nuclei
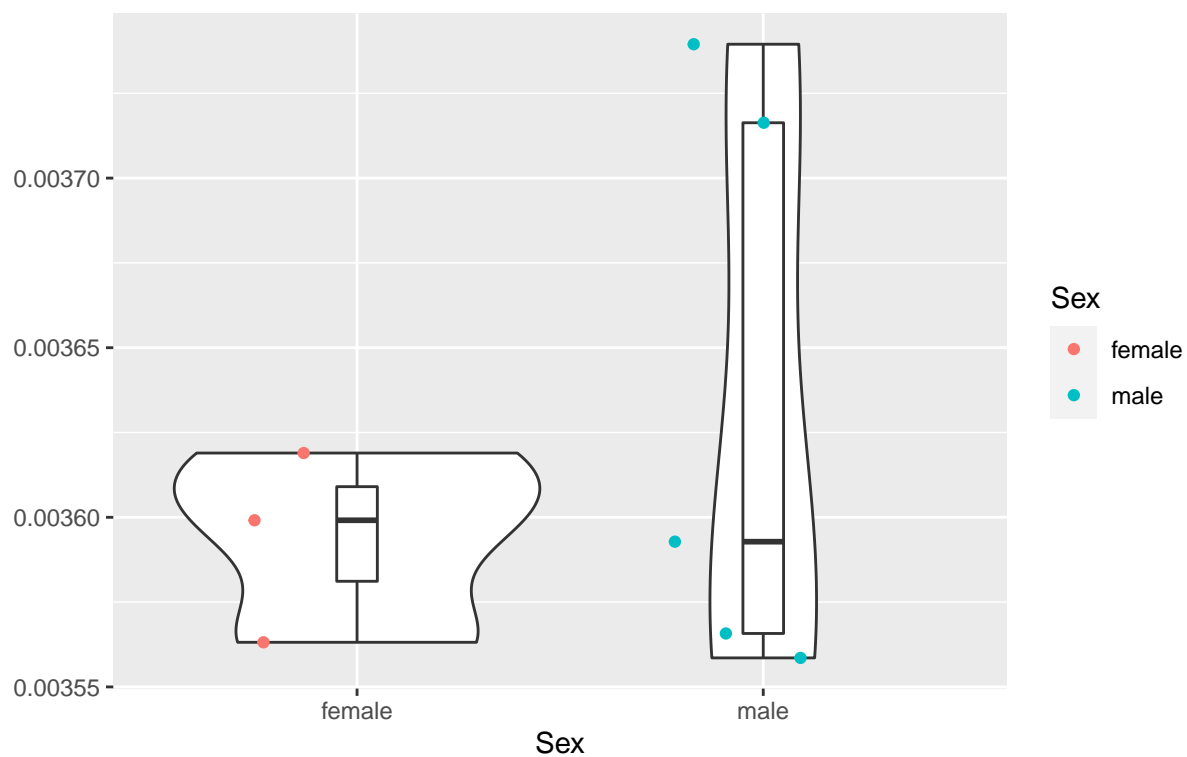
Red points denoting outliers
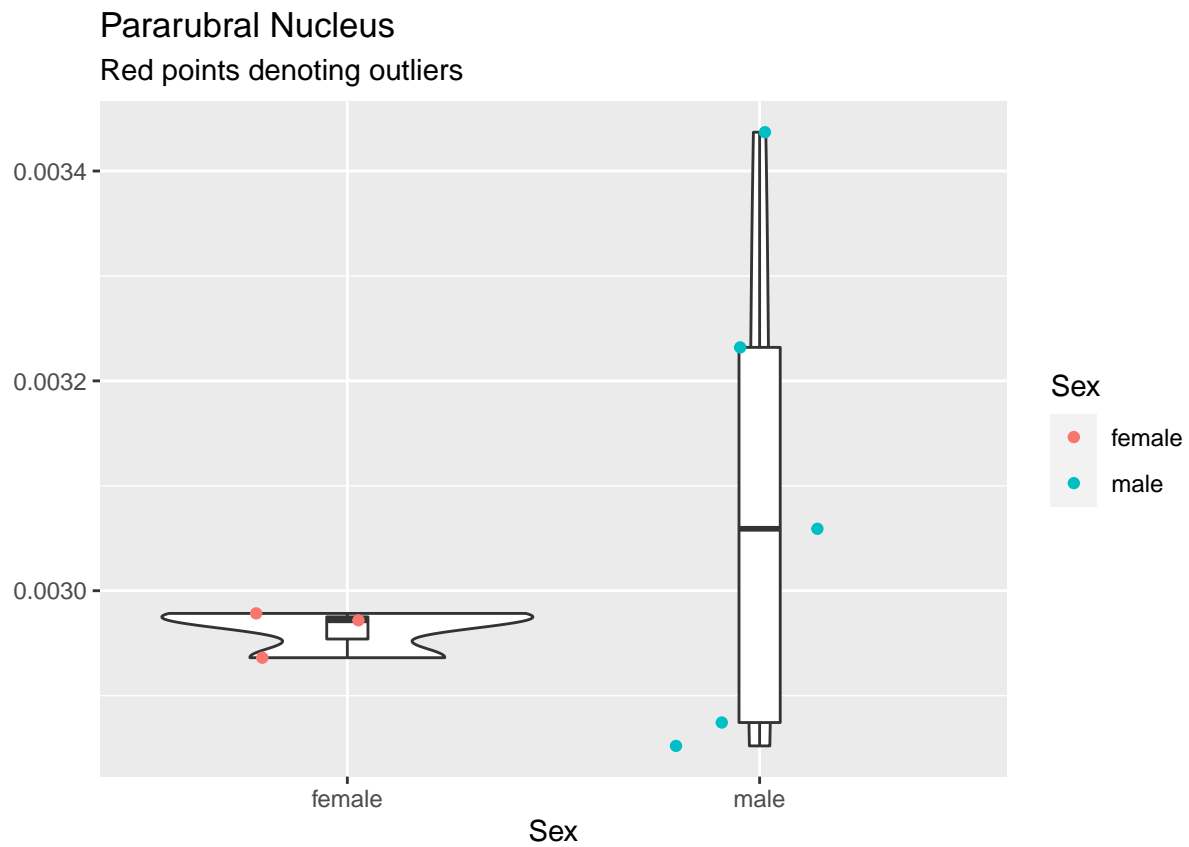


```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 7.300e-09 7.250e-09   0.117  0.744
## Residuals  6 3.706e-07 6.177e-08
```

Red Nucleus Magnocellular
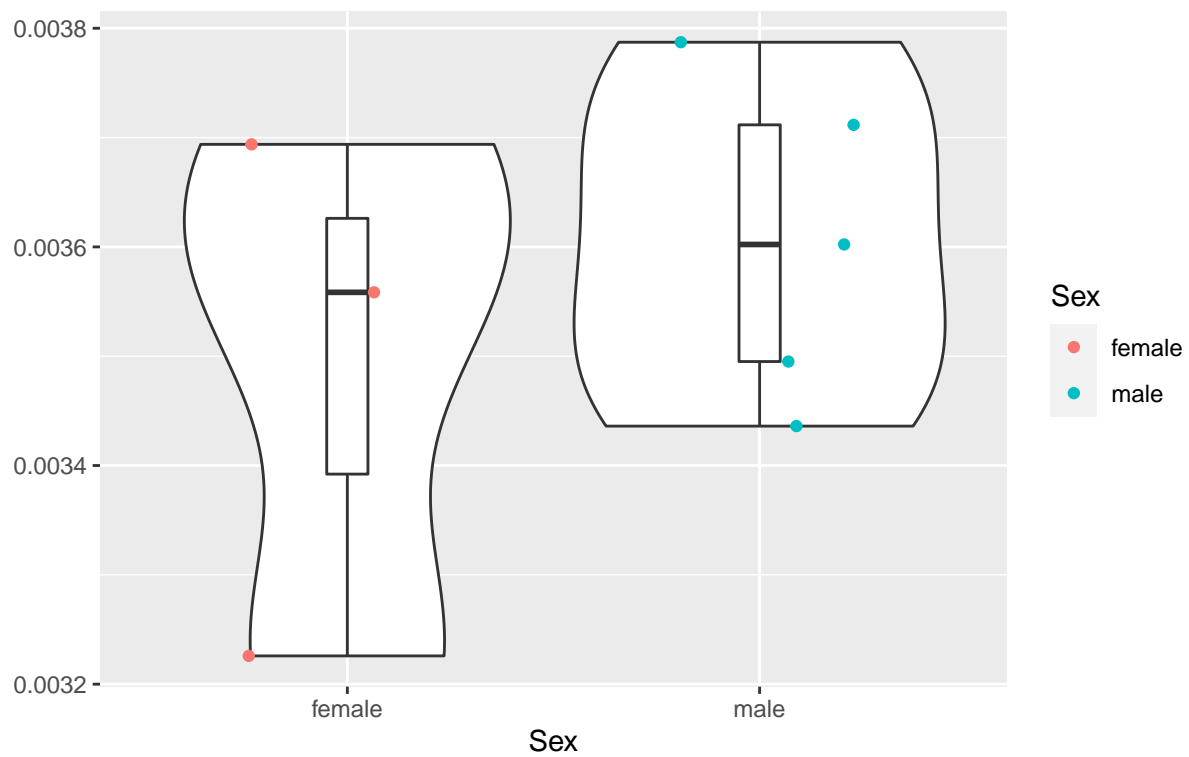
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.127e-09 3.127e-09   0.595   0.47
## Residuals    6 3.154e-08 5.257e-09
```
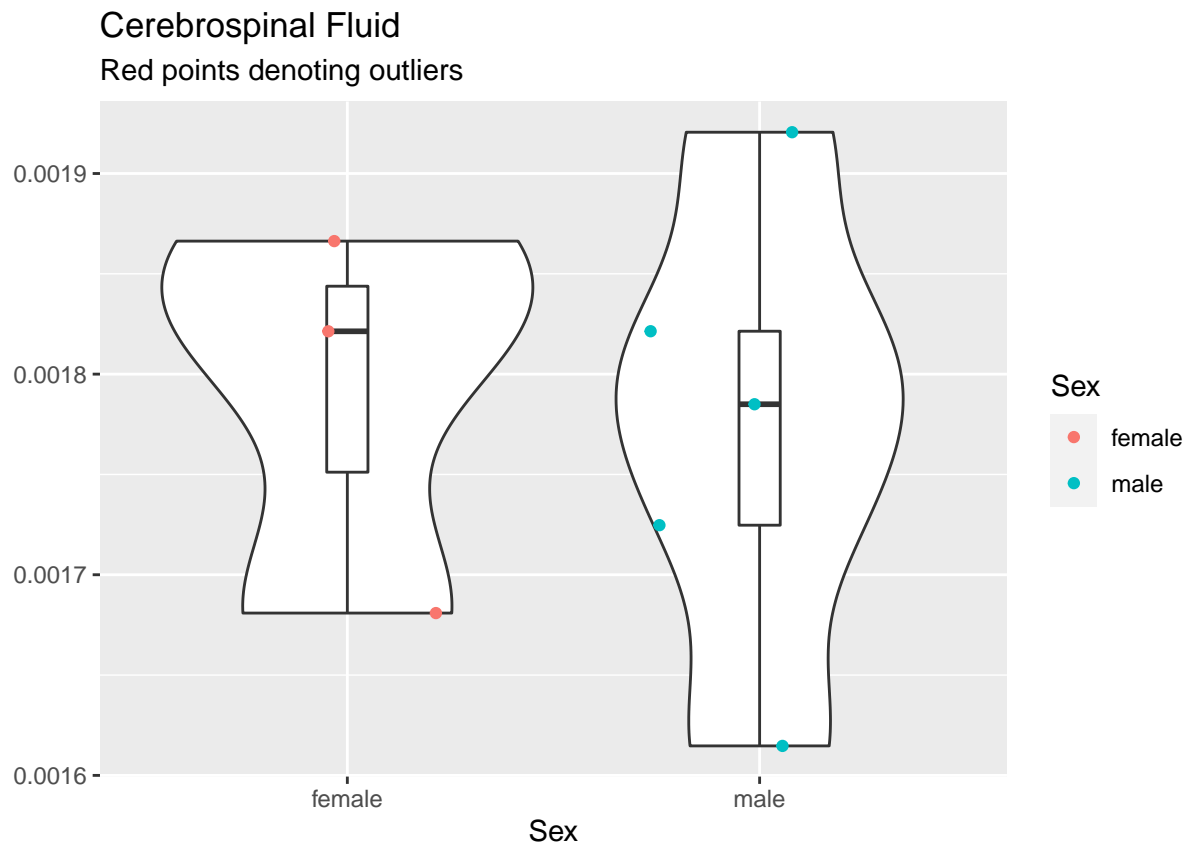
Pararubral Nucleus
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 3.109e-08 3.109e-08    0.76  0.417
## Residuals   6 2.456e-07 4.094e-08
```

Retro Rubral Fluid
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.427e-08 2.427e-08   0.724  0.428
## Residuals   6 2.012e-07 3.353e-08
```

Cerebrospinal Fluid

Red points denoting outliers


```
##              Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 4.900e-10 4.950e-10   0.042  0.844
## Residuals    6 7.036e-08 1.173e-08
```
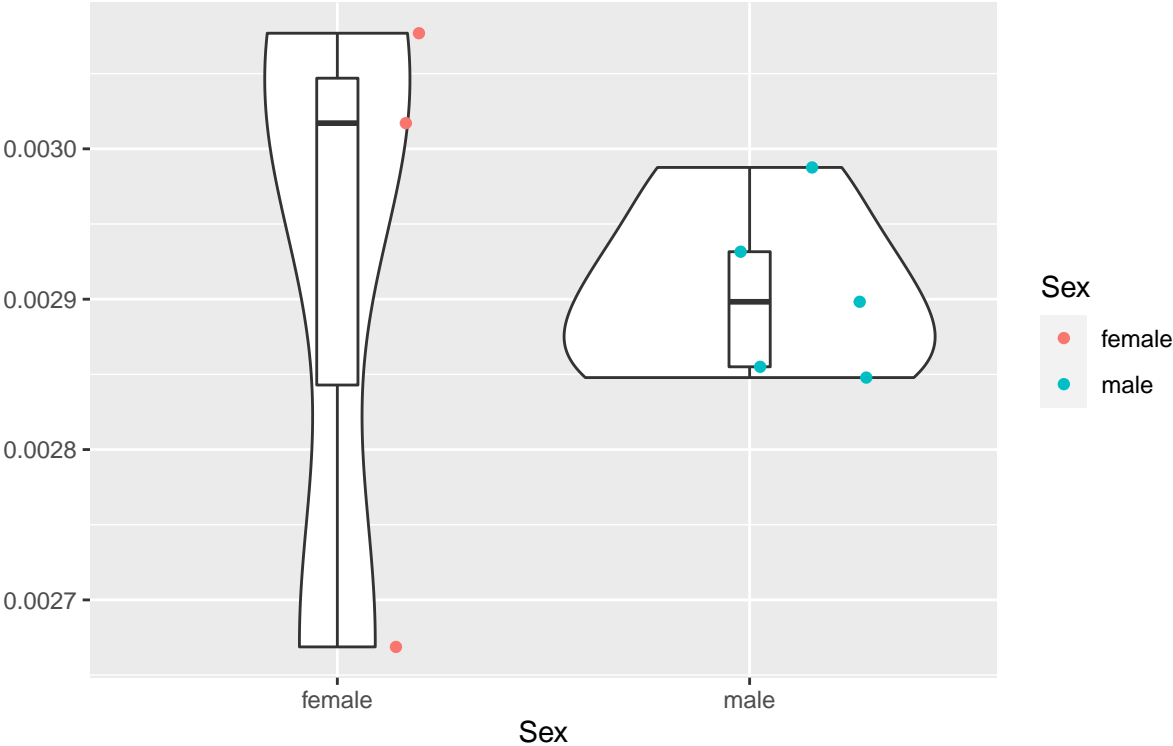
Intermediate Reticular Nucleus

Red points denoting outliers
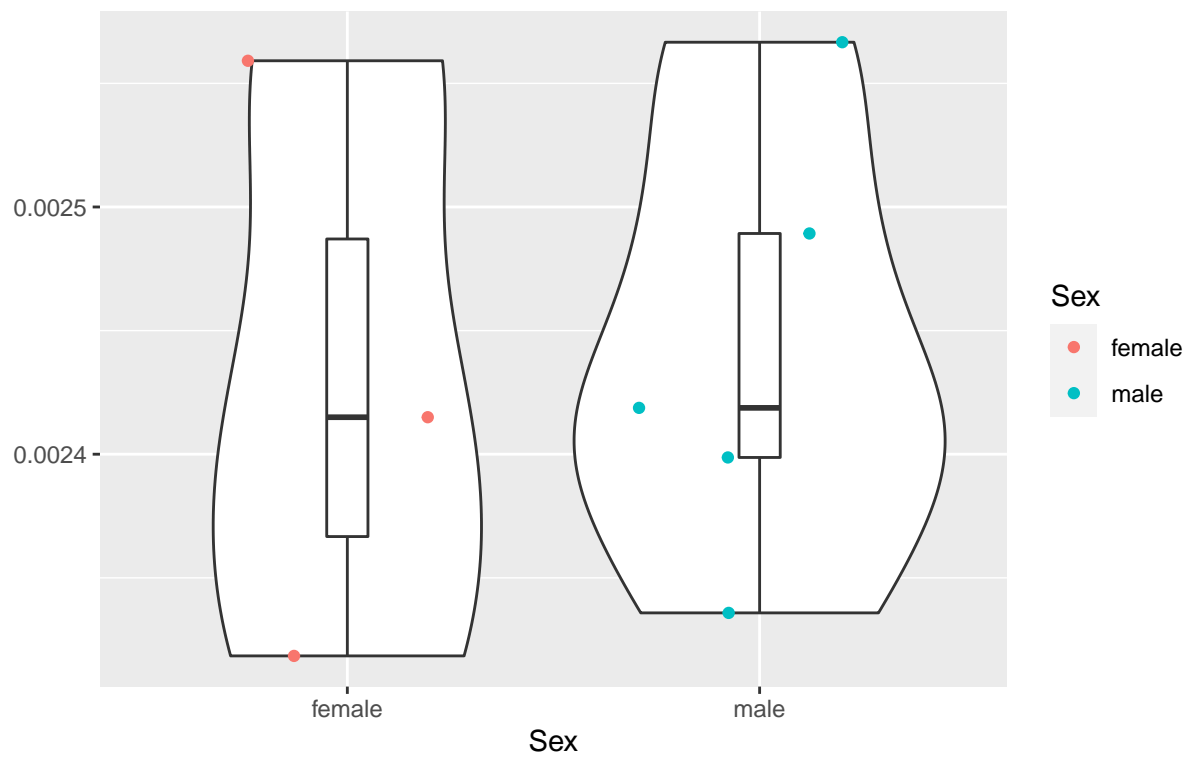

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.300e-10 2.270e-10   0.022  0.886
## Residuals    6 6.081e-08 1.013e-08
```
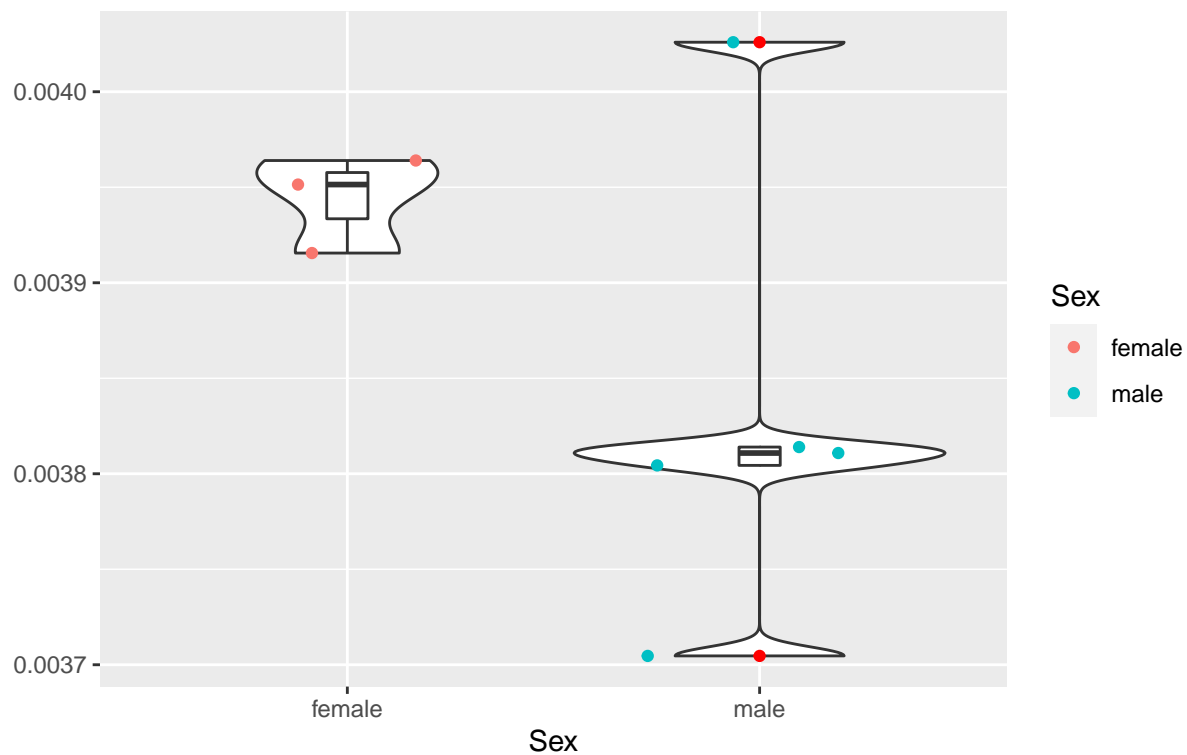
Posterior Dorsal Paraventricular Medial Parvicellular Posterior Lateral Hy

Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.300e-10 5.320e-10   0.029  0.871
## Residuals    6 1.105e-07 1.842e-08
```

Prerubral Forel
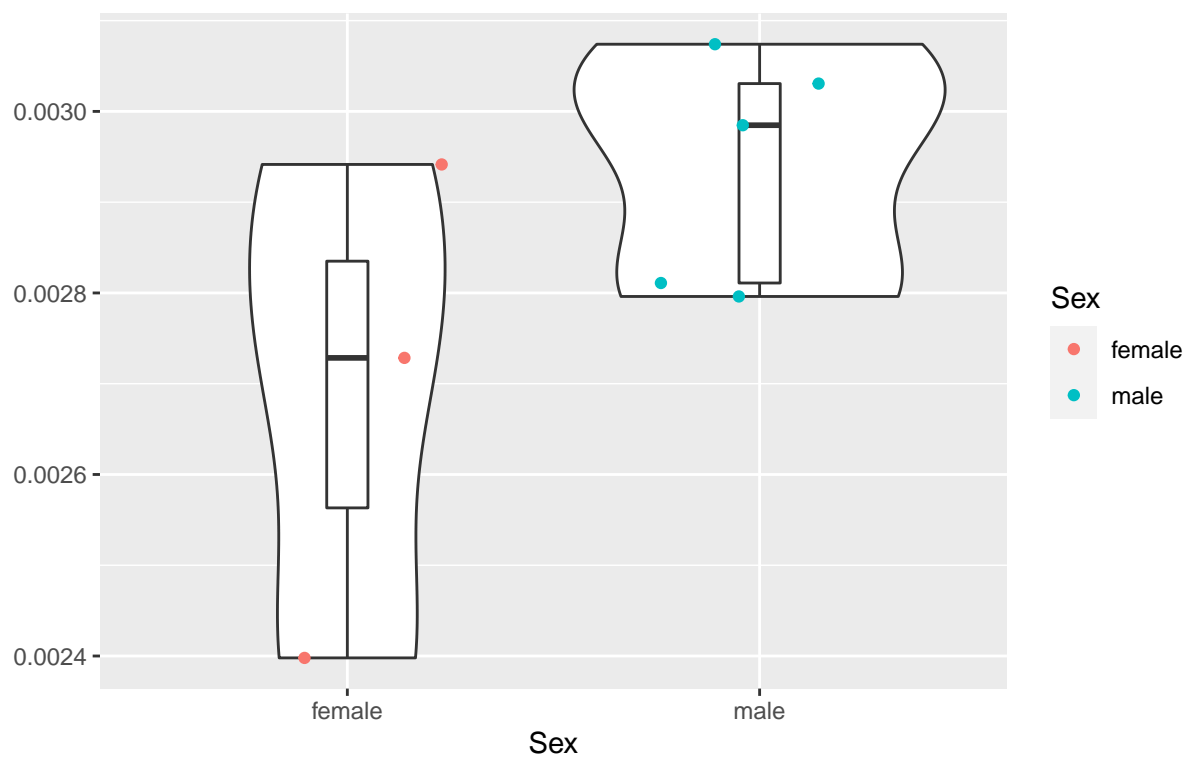Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.339e-08 2.339e-08   2.478  0.166
## Residuals    6 5.663e-08 9.439e-09
```

PVG of Hypothalamus
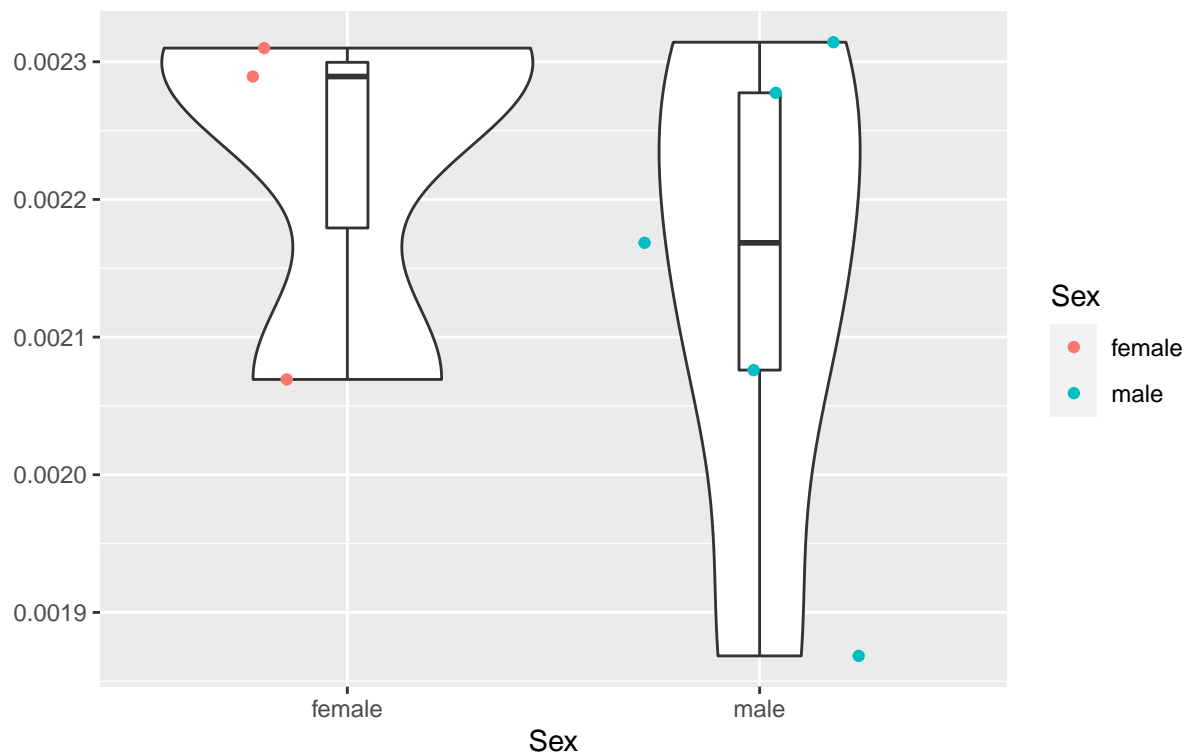Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.172e-07 1.172e-07   3.261  0.121
## Residuals    6 2.156e-07 3.594e-08
```

Basal Lateral Amygdala
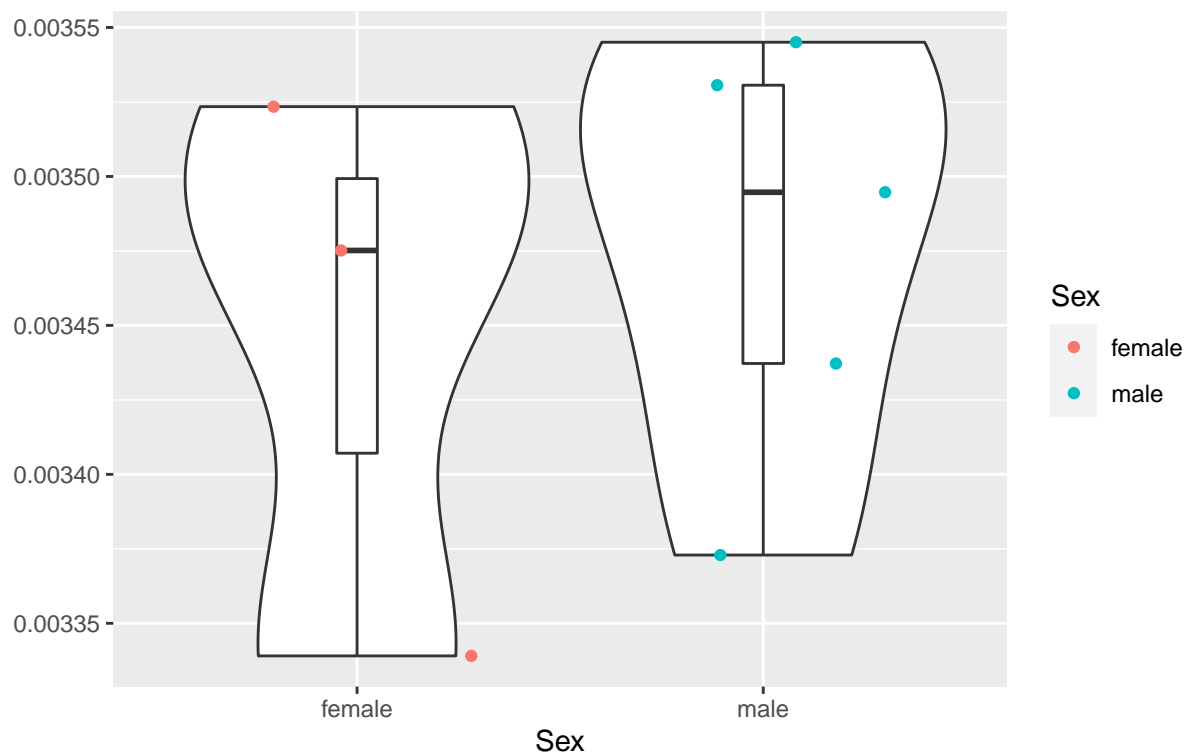Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.258e-08 1.258e-08   0.462  0.522
## Residuals   6 1.635e-07 2.725e-08
```

Brain Stem Rest
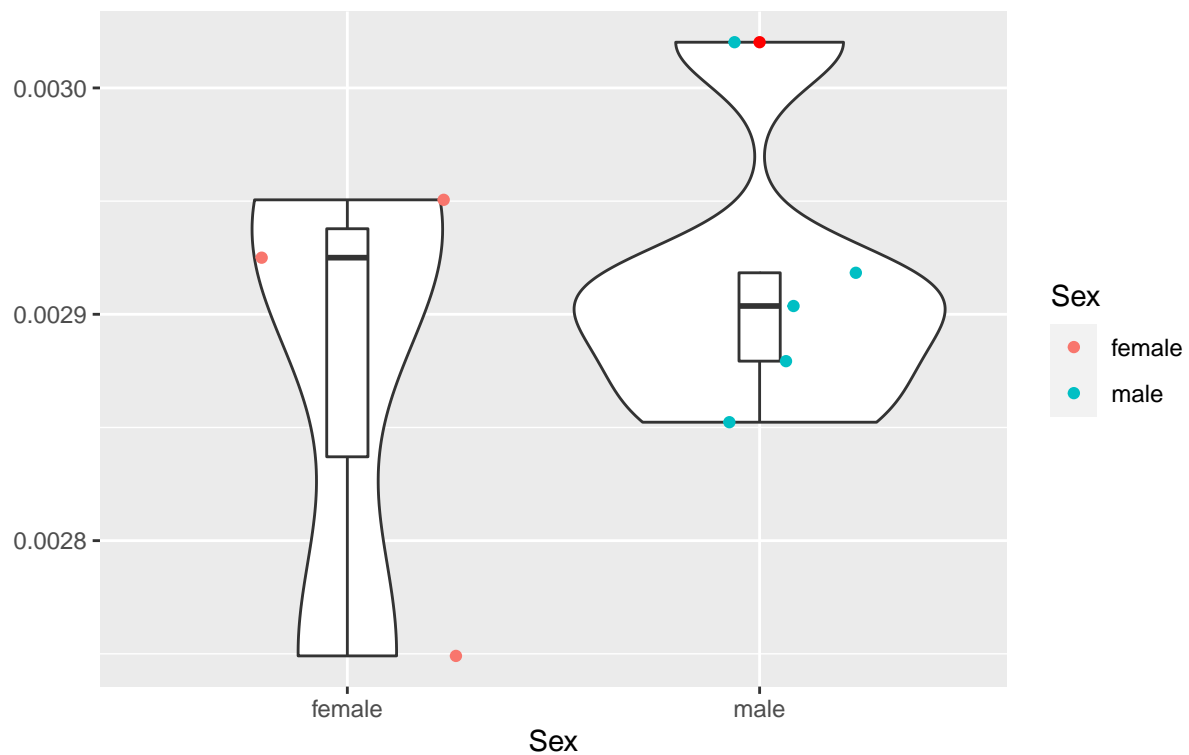Red points denoting outliers


```
##              Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex           1 1.710e-09 1.713e-09   0.267  0.624
## Residuals     6 3.852e-08 6.419e-09
```
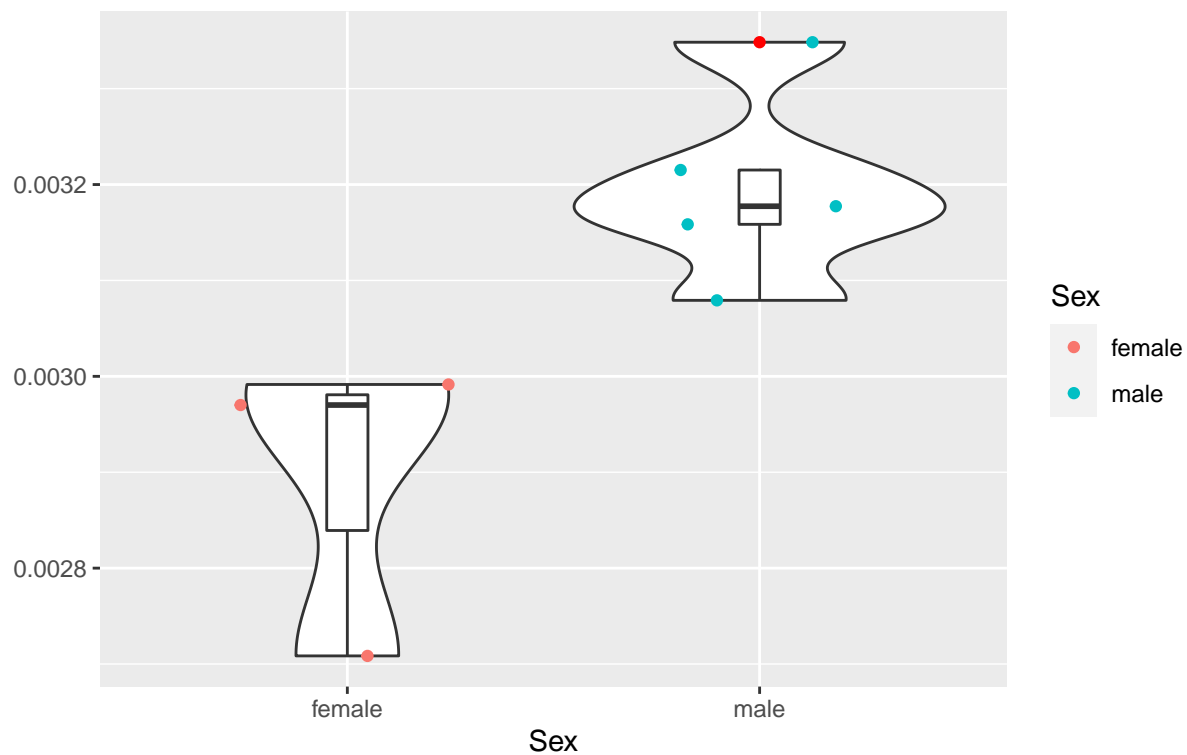
Precuneiform Nucleus
Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.980e-09 2.982e-09   0.442  0.531
## Residuals   6 4.047e-08 6.746e-09
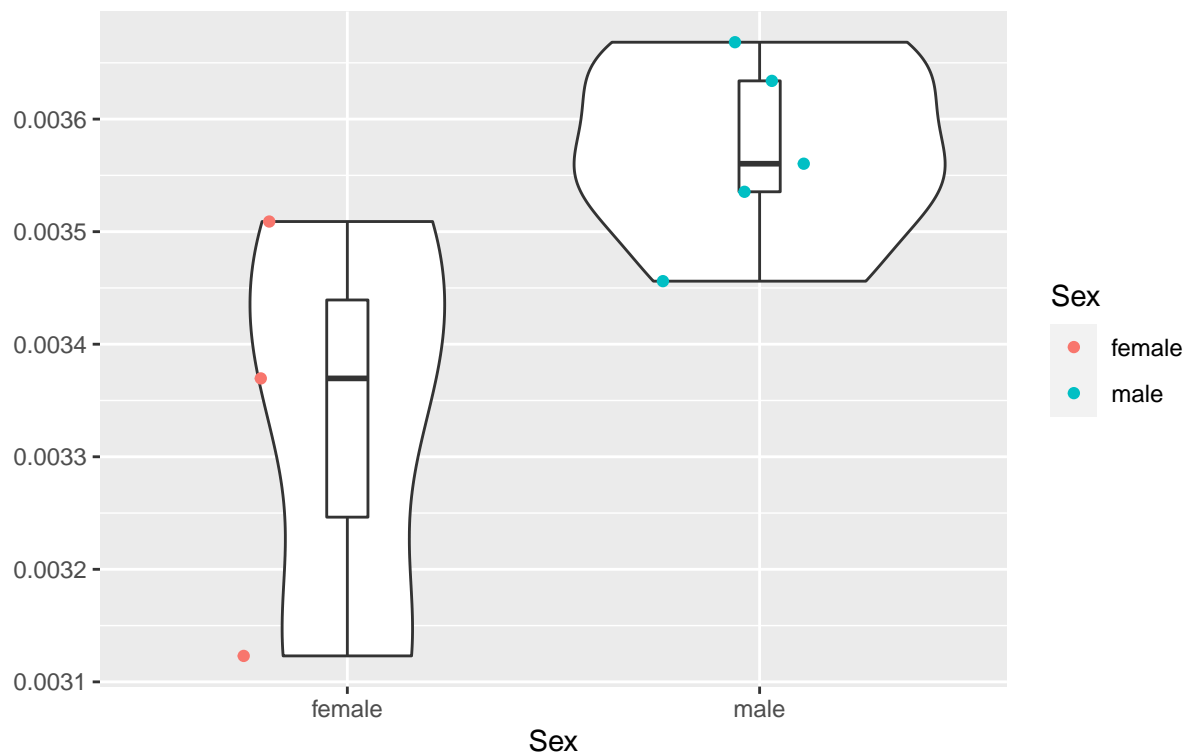```

# Cuneiform Nucleus

Red points denoting outliers



```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.753e-07 1.753e-07   11.86 0.0137 *
## Residuals    6 8.866e-08 1.478e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Midbrain Linear Nucleus
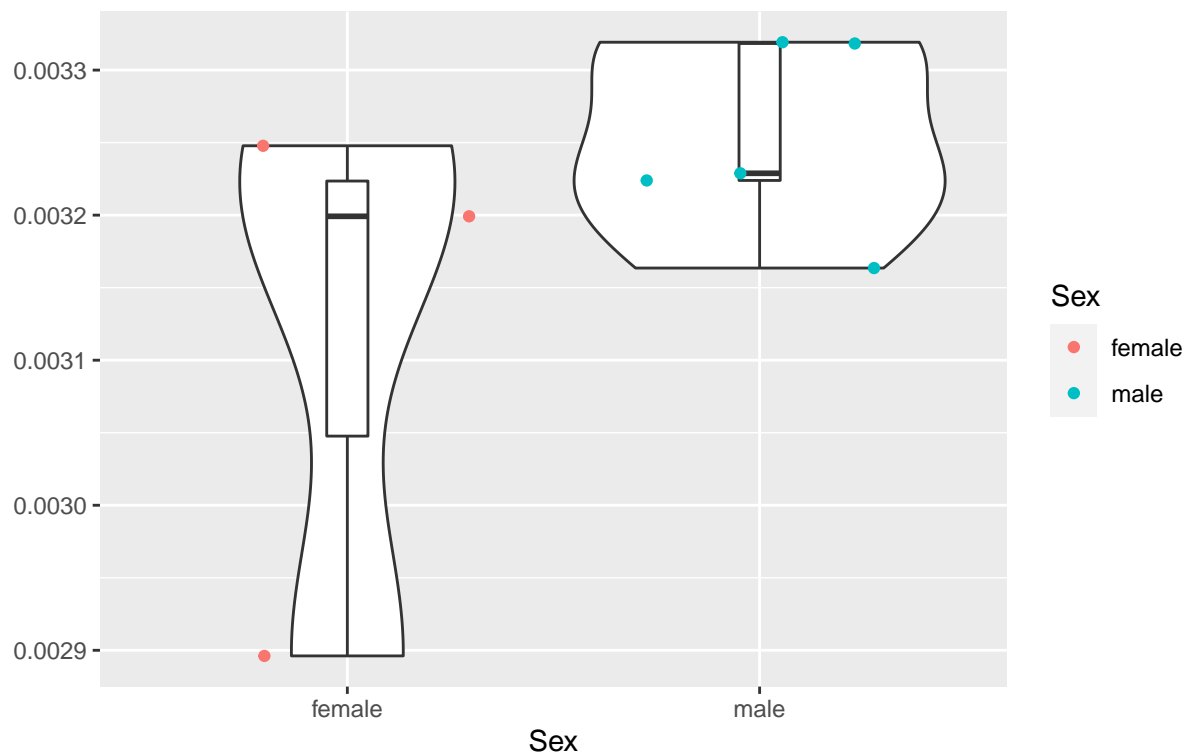Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.053e-07 1.053e-07   6.047 0.0492 *
## Residuals     6 1.044e-07 1.740e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
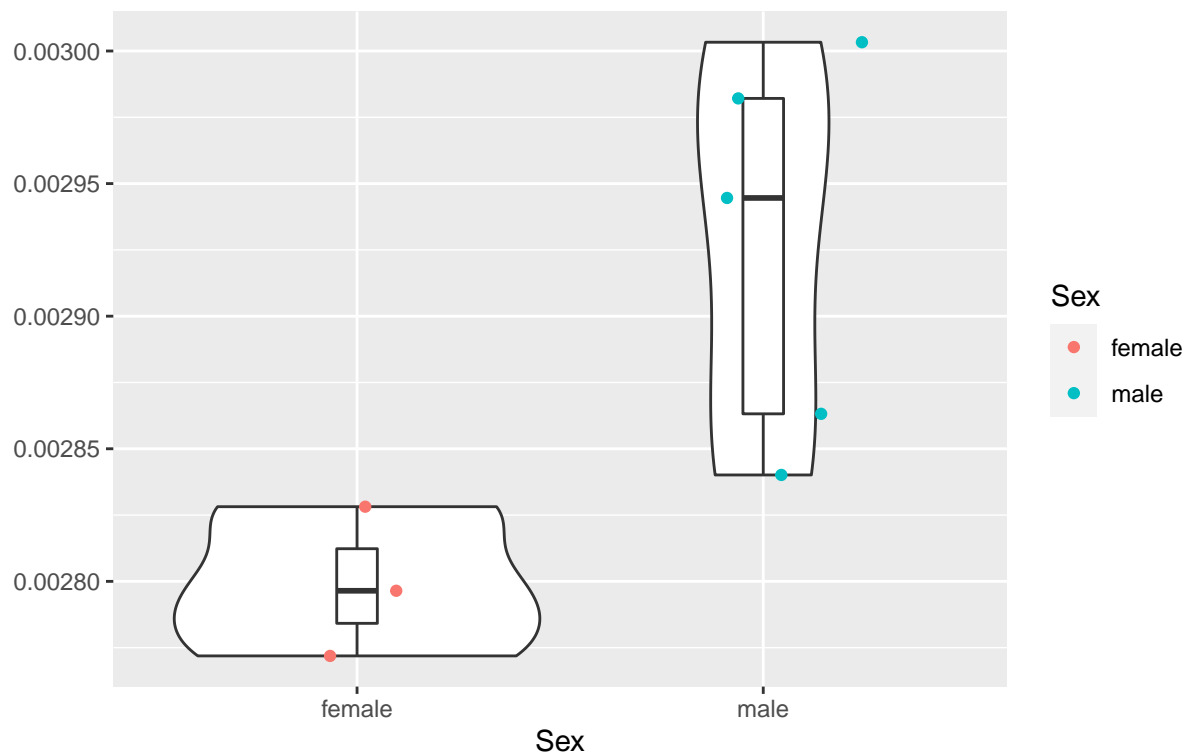
Midbrain Reticular Nucleus
Red points denoting outliers


```
##              Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 3.487e-08 3.487e-08   2.307   0.18
## Residuals     6 9.069e-08 1.511e-08
```

Red Nucleus Parvicellular
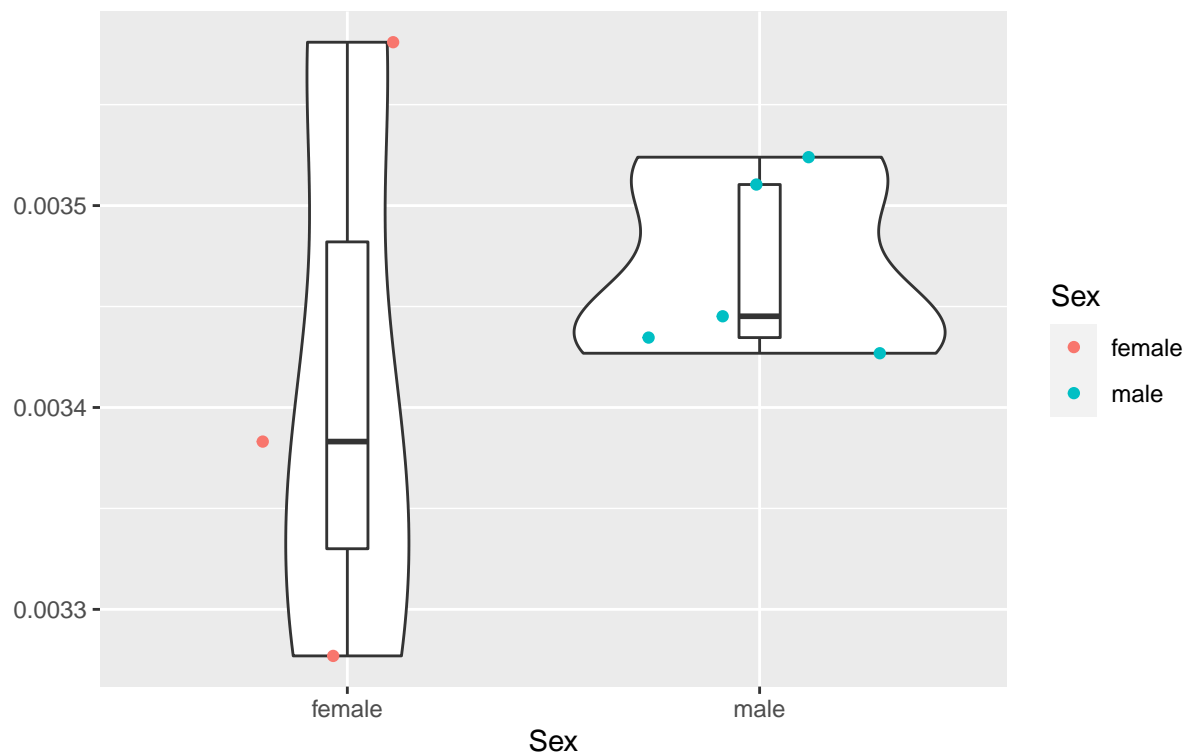Red points denoting outliers


```
##              Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 3.064e-08 3.064e-08   8.213 0.0286 *
## Residuals    6 2.238e-08 3.731e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
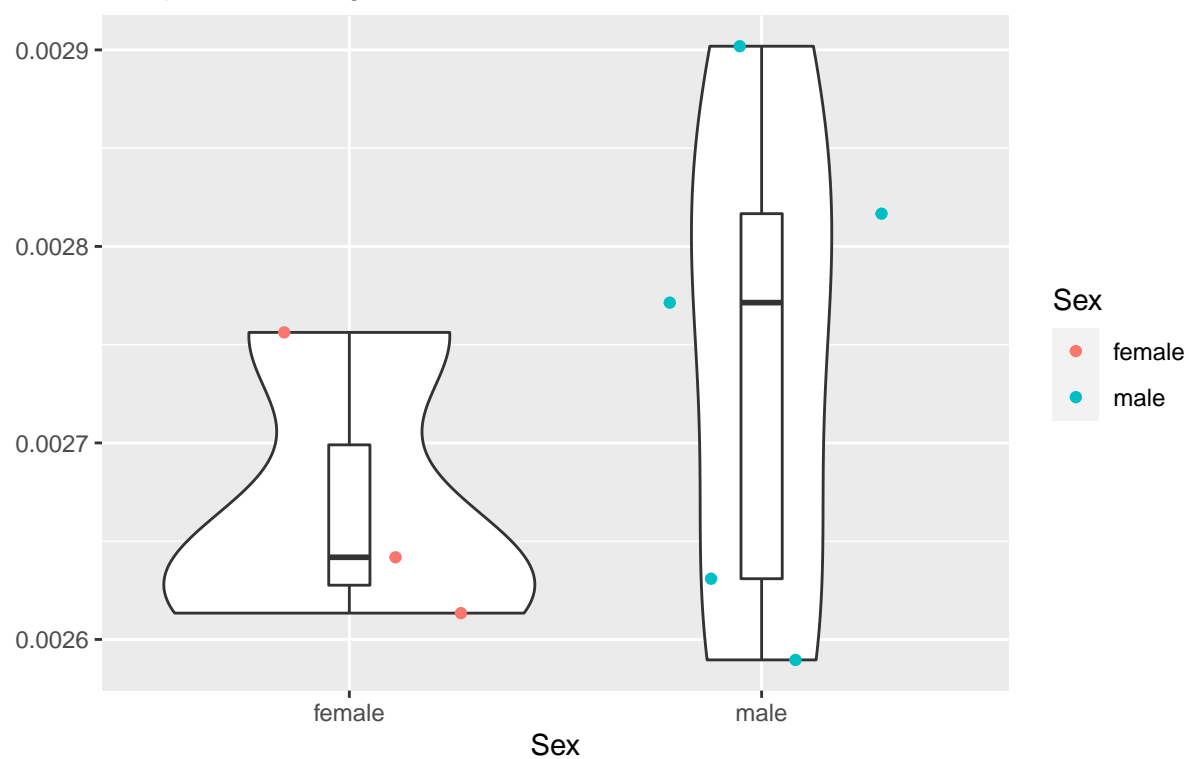
Substania Nigra
Red points denoting outliers


```
##             Df    Sum Sq  Mean Sq F value Pr(>F)
## Sex          1 5.580e-09 5.58e-09   0.599  0.468
## Residuals    6 5.586e-08 9.31e-09
```
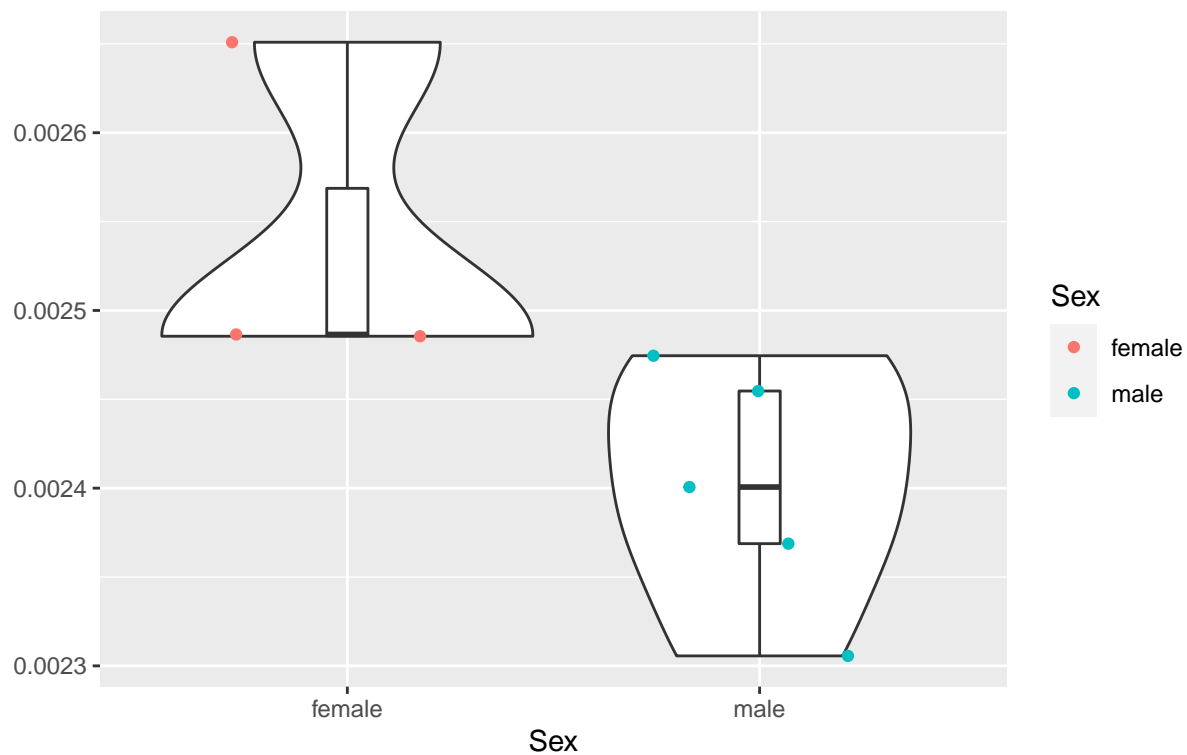
Inferior Colliculus
Red points denoting outliers

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 9.610e-09 9.612e-09    0.73  0.426
## Residuals   6 7.901e-08 1.317e-08
```

Superior Colliculus
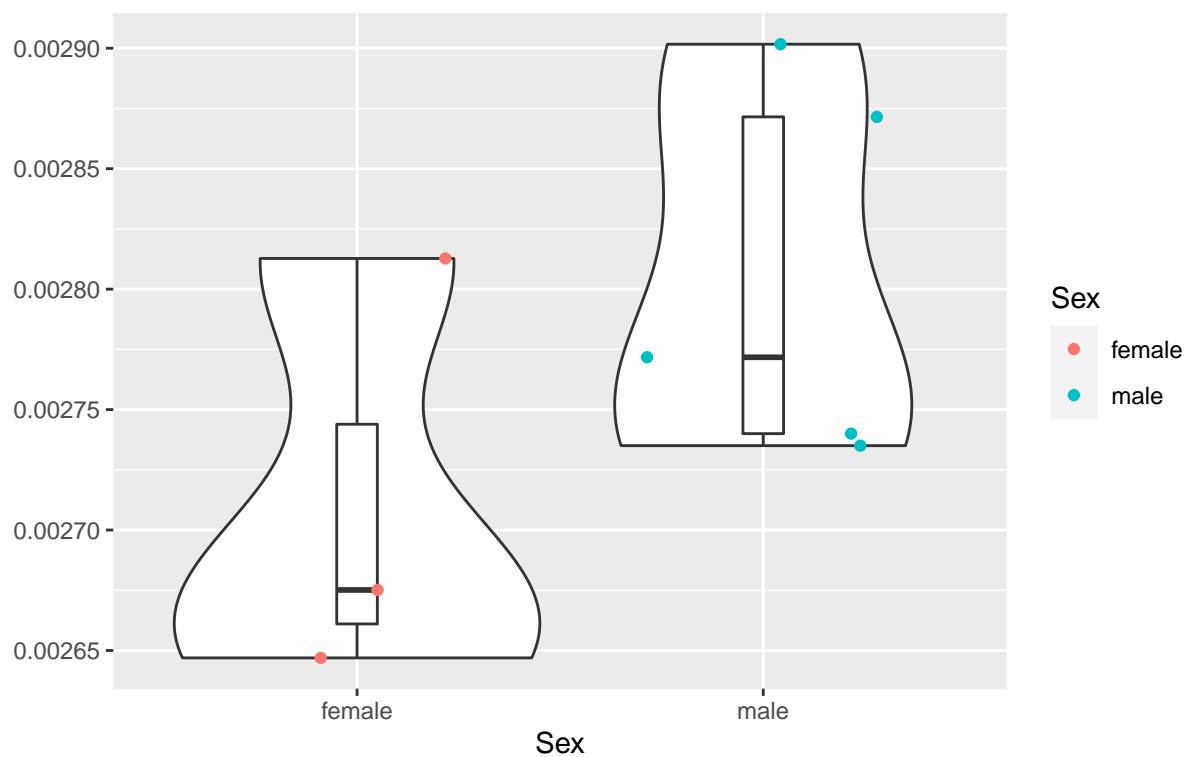Red points denoting outliers


```
##            Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex         1 3.682e-08 3.682e-08   6.042 0.0492 *
## Residuals   6 3.656e-08 6.090e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
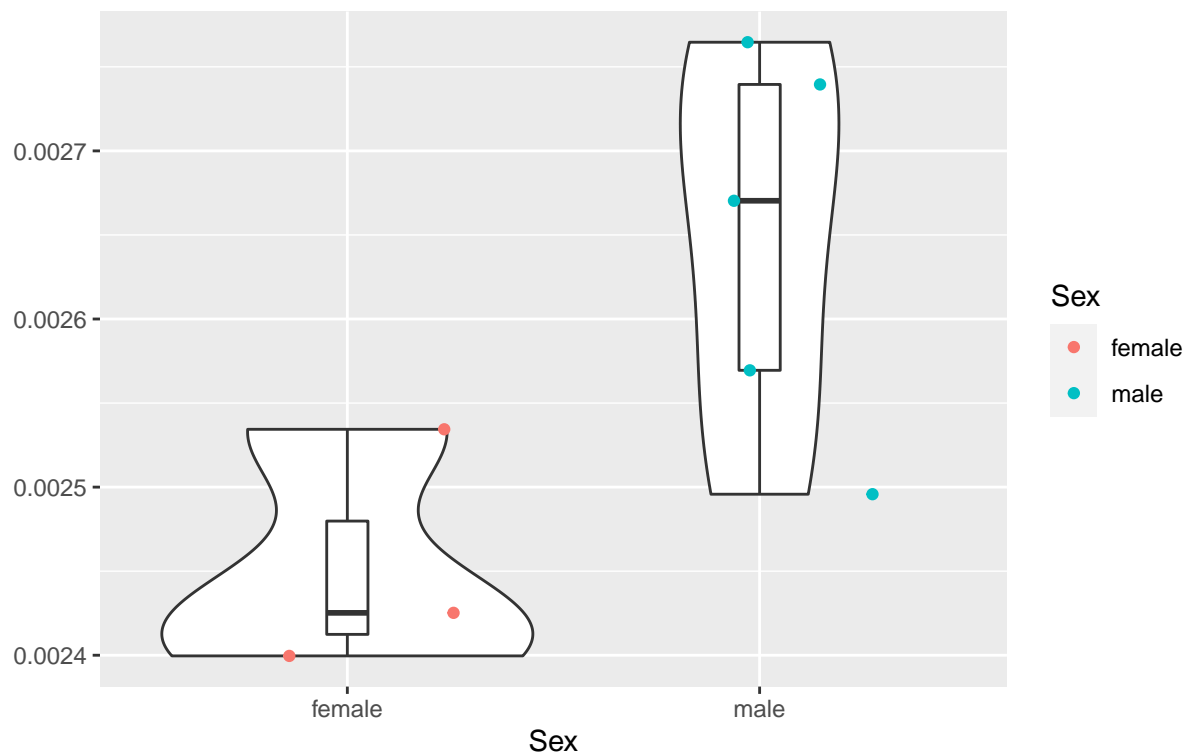
Deep Mesencephalic Nuclei
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.601e-08 1.601e-08   2.417  0.171
## Residuals    6 3.973e-08 6.622e-09
```

Subbrachial Nucleus and Peripeduncular Nucleus
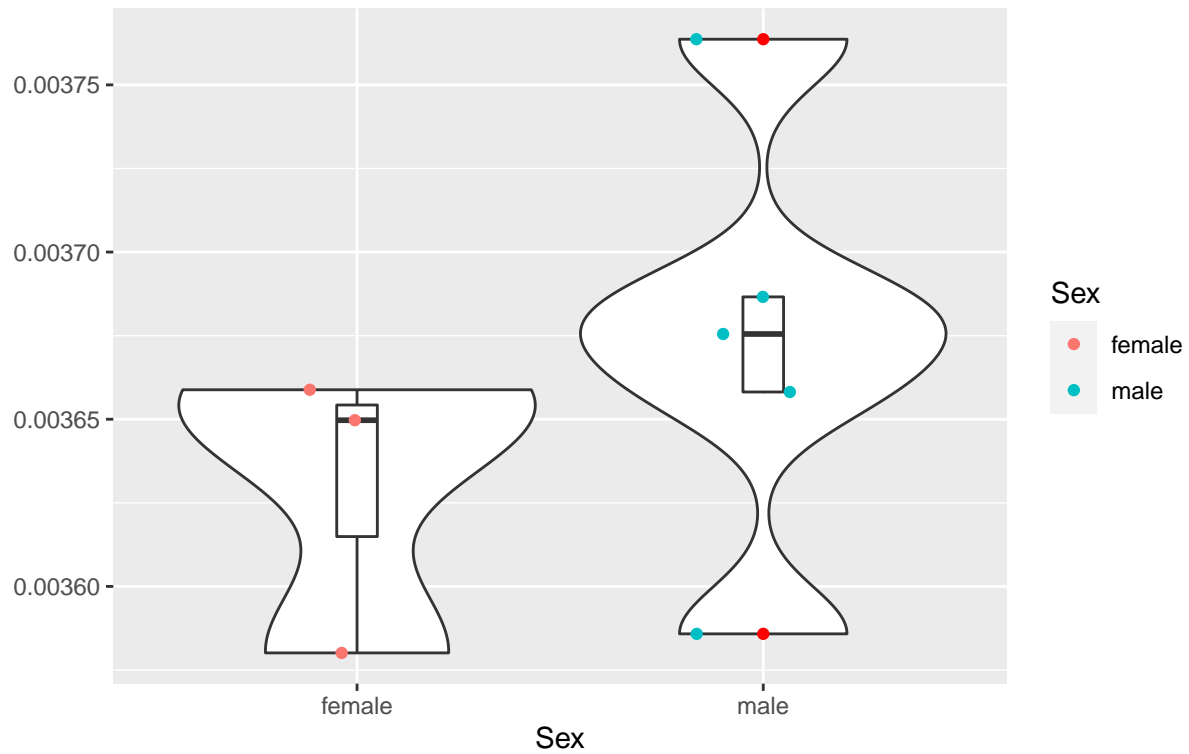Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 7.121e-08 7.121e-08   6.884 0.0394 *
## Residuals     6 6.206e-08 1.034e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Reticular Nucleus of Thalamus

Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.696e-09 3.696e-09   1.112  0.332
## Residuals    6 1.993e-08 3.322e-09
```

Zona Incerta
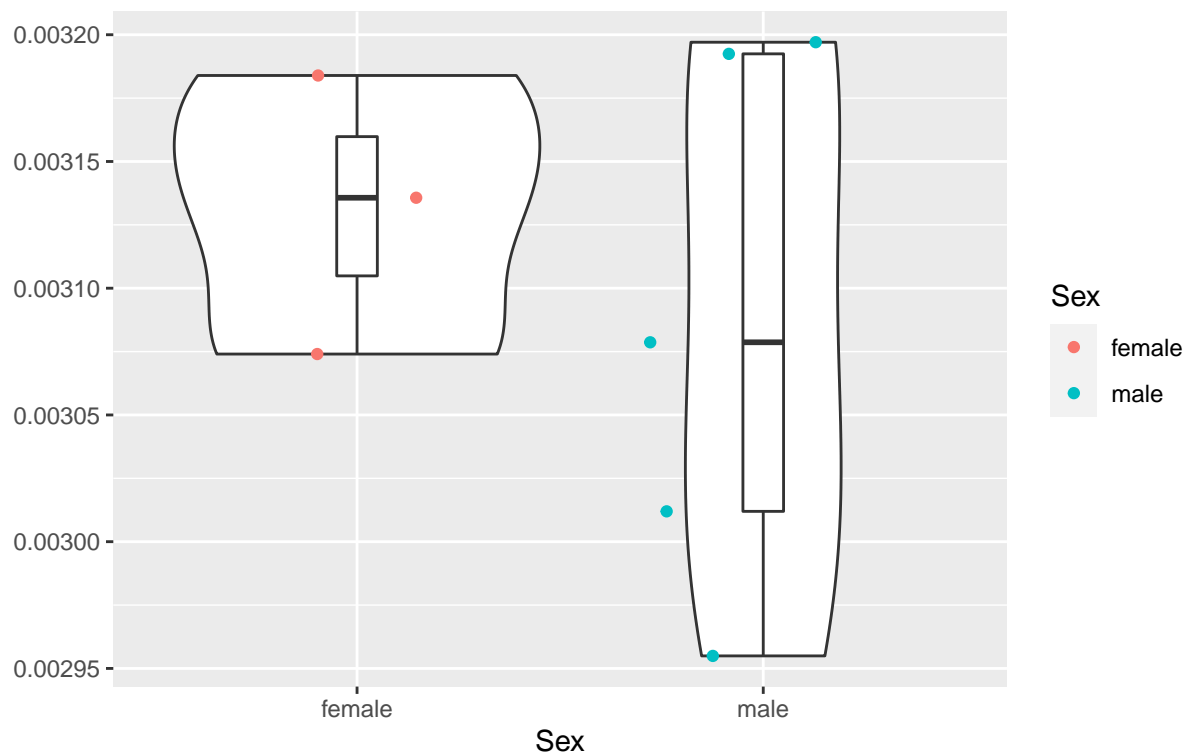Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.901e-09 2.901e-09   0.646  0.452
## Residuals    6 2.695e-08 4.491e-09
```

Lateral Geniculate Nucleus
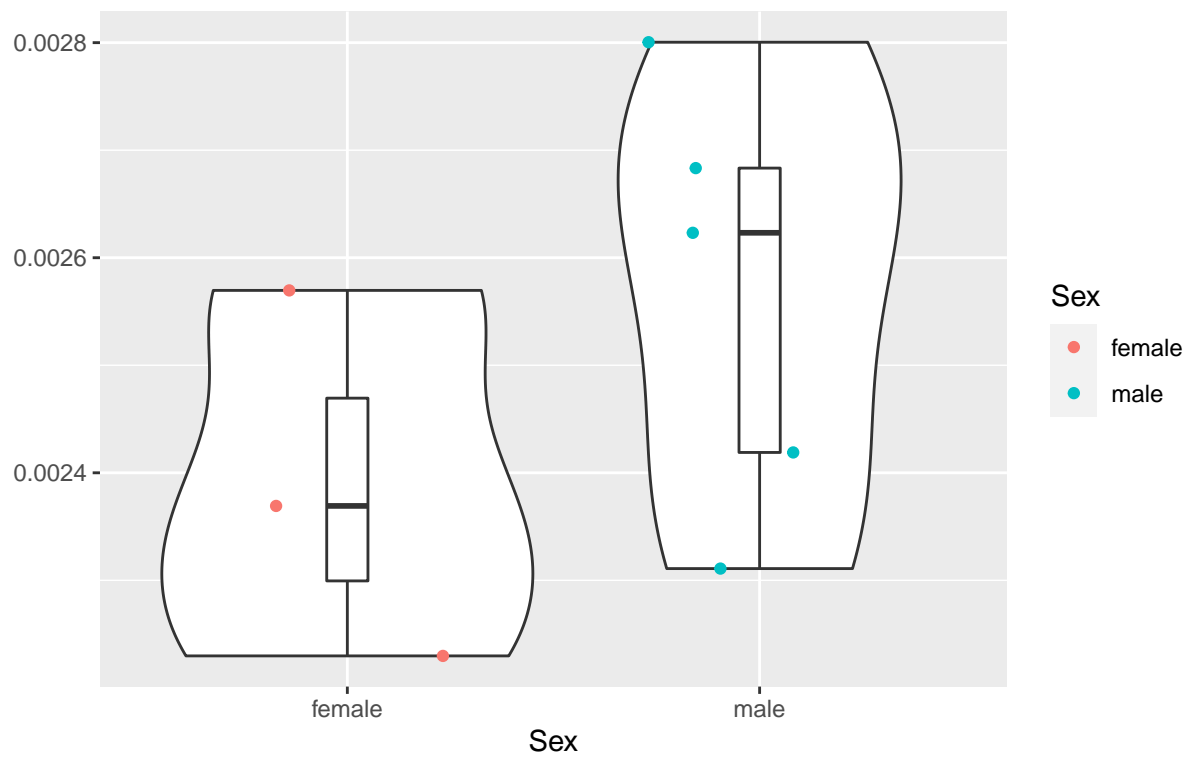Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.660e-09 3.663e-09   0.419  0.541
## Residuals    6 5.244e-08 8.740e-09
```

Medial Geniculate Nucleus
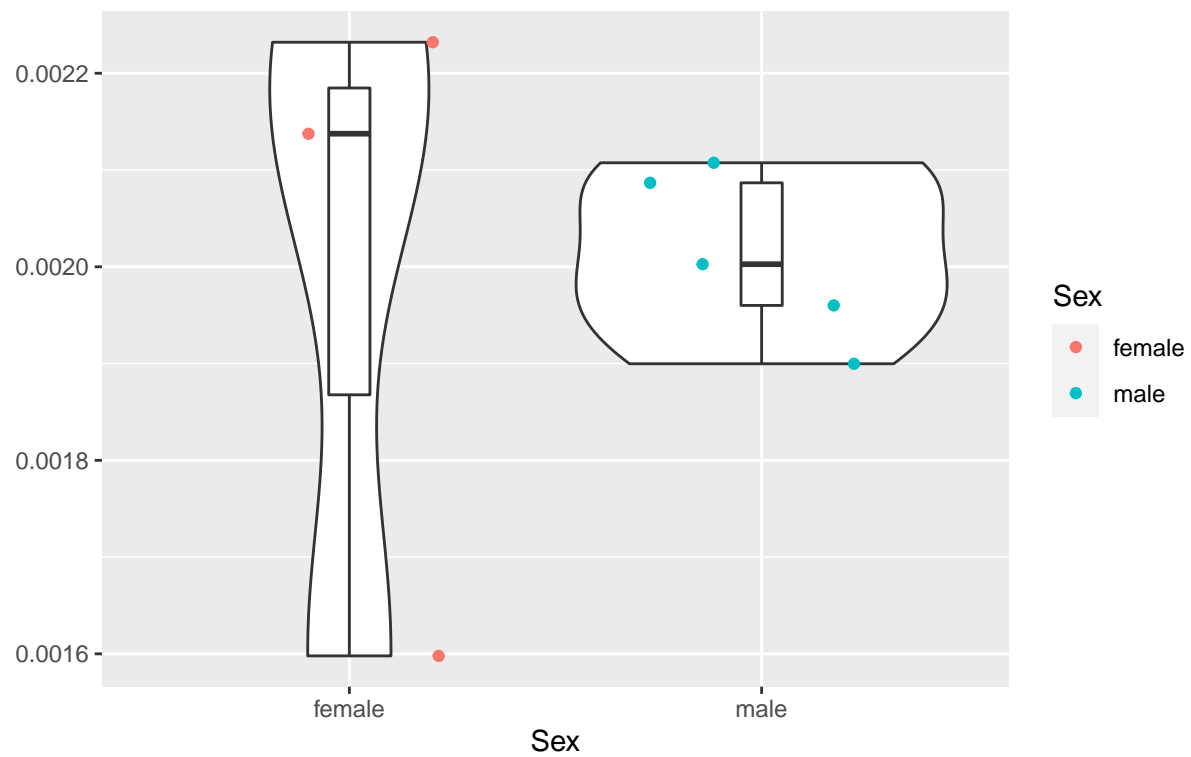Red points denoting outliers


```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 5.931e-08 5.931e-08   1.639  0.248
## Residuals  6 2.171e-07 3.618e-08
```
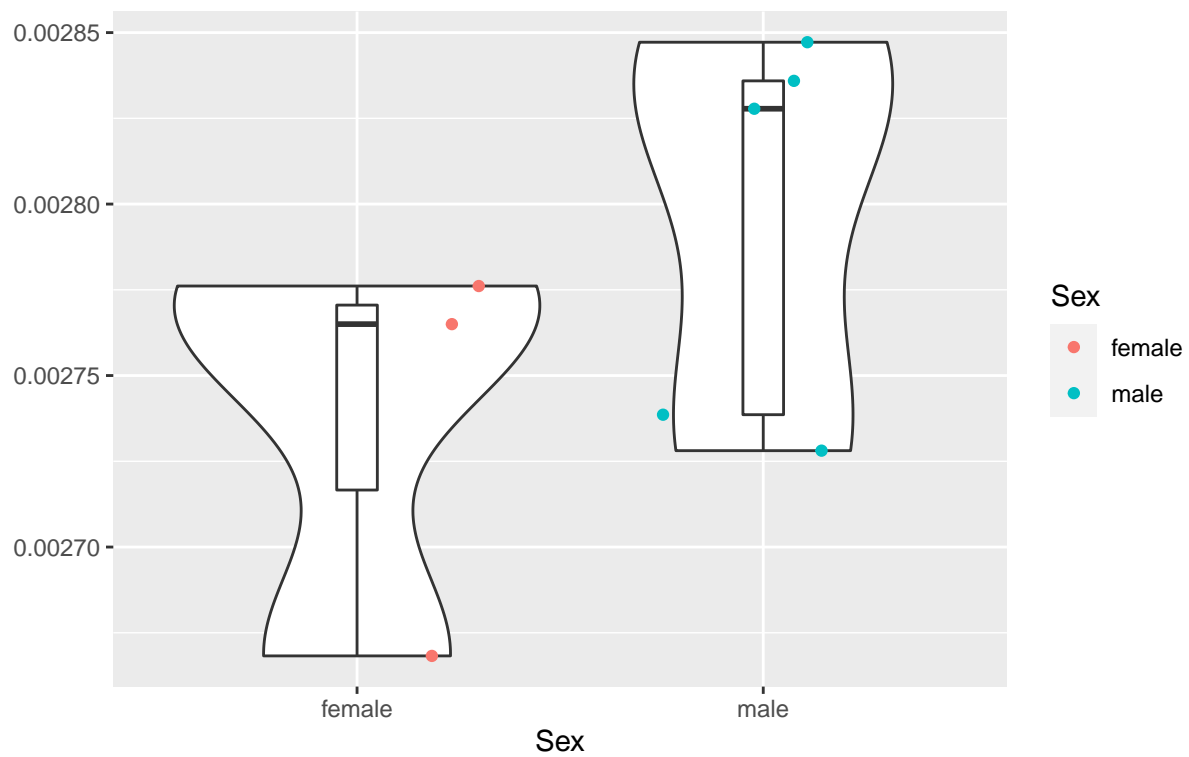
Latero Dorsal Nucleus of Thalamus
Red points denoting outliers
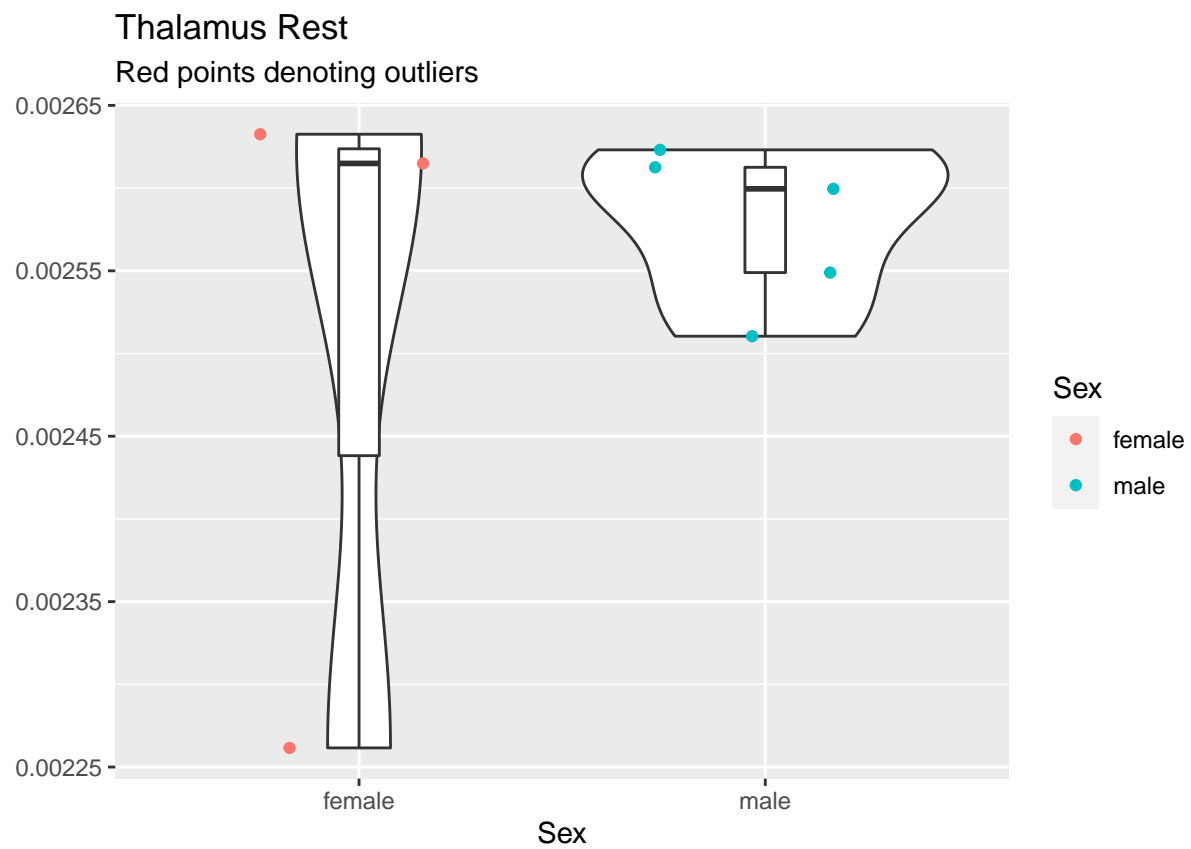


```
##            Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex         1 9.200e-10 9.200e-10   0.021   0.89
## Residuals   6 2.642e-07 4.404e-08
```
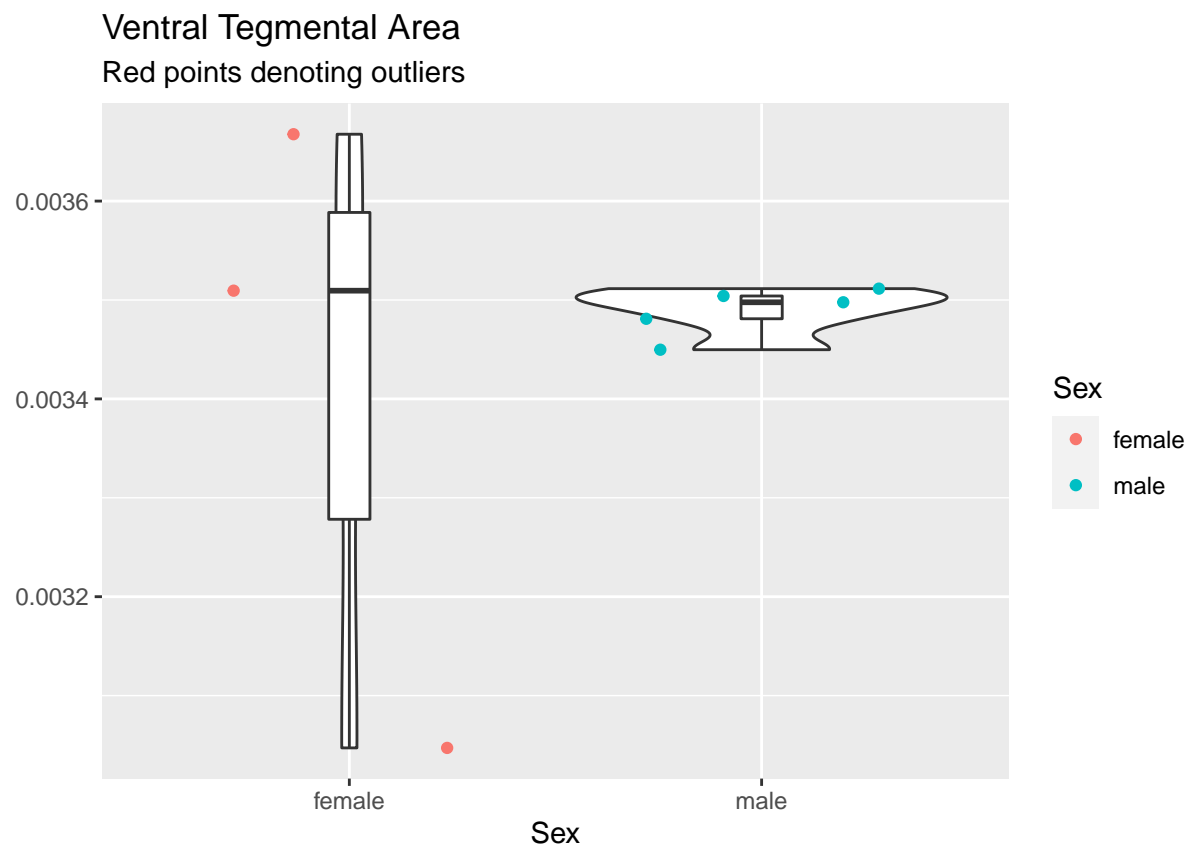
## Ventral Thalamic Nuclei
Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 6.542e-09 6.542e-09   1.946  0.212
## Residuals   6 2.017e-08 3.361e-09
```

Thalamus Rest

Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.08e-08 1.080e-08    0.67  0.444
## Residuals    6 9.67e-08 1.612e-08
```

Ventral Tegmental Area
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.222e-08 1.222e-08   0.349  0.576
## Residuals   6 2.103e-07 3.506e-08
```
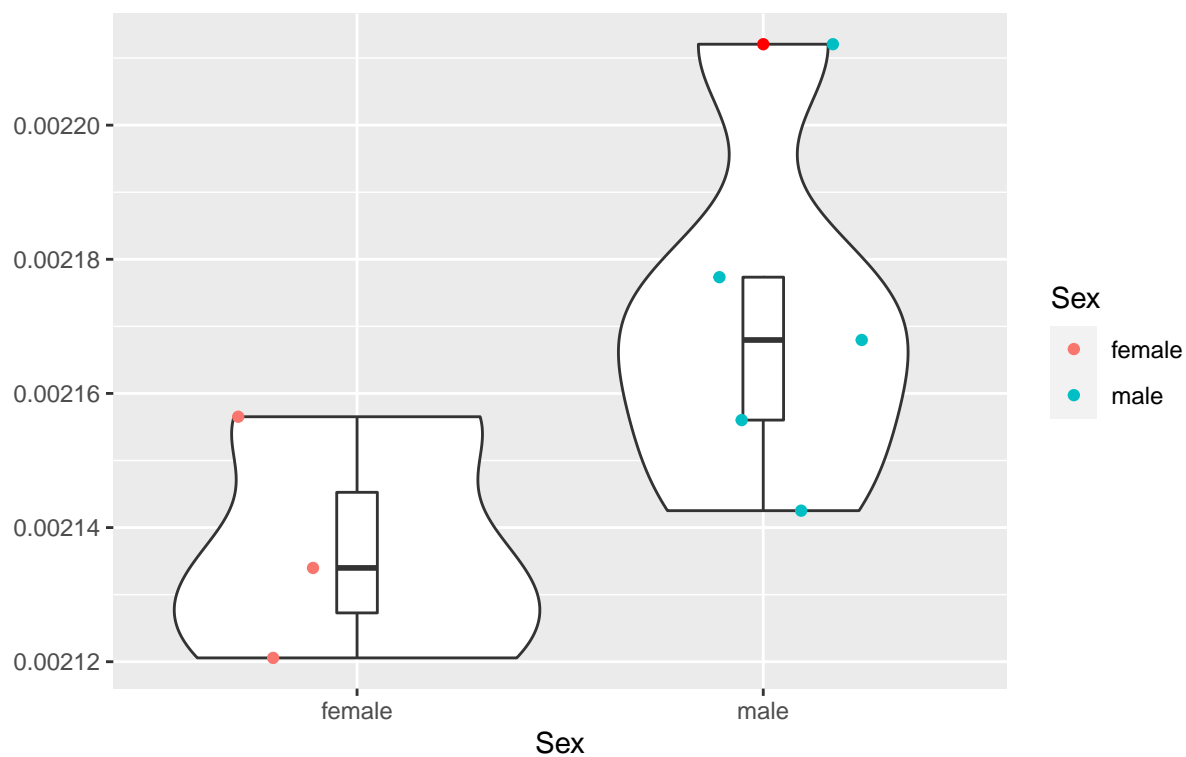
Anterior Pretectal Nucleus
Red points denoting outliers
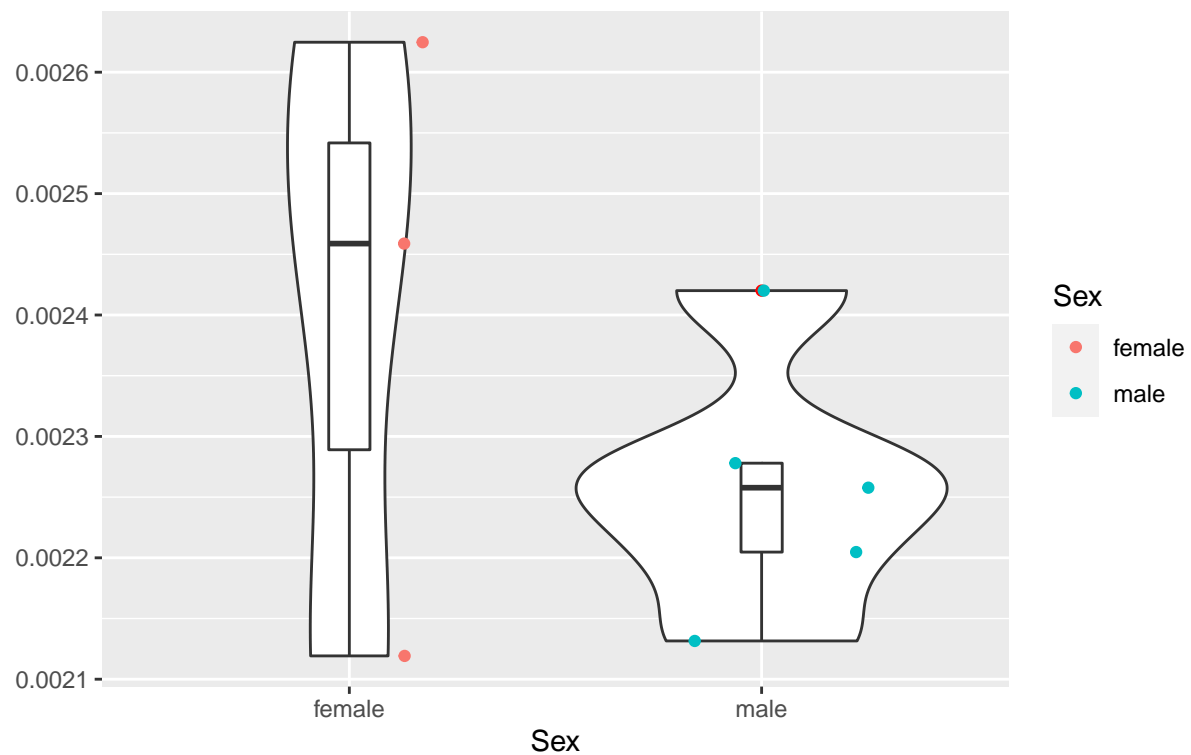

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.807e-08 3.807e-08   1.281  0.301
## Residuals    6 1.783e-07 2.972e-08
```
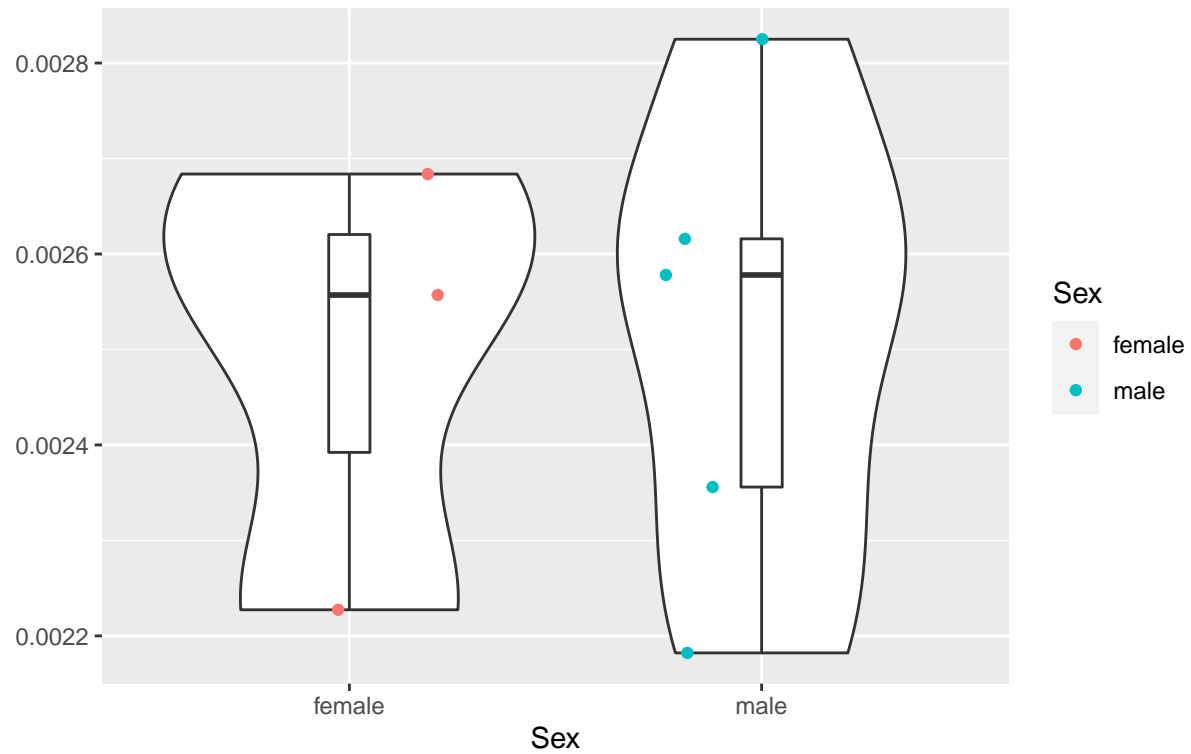
Periaquaductal Grey
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 2.188e-09 2.188e-09   3.825 0.0983 .
## Residuals     6 3.431e-09 5.719e-10
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
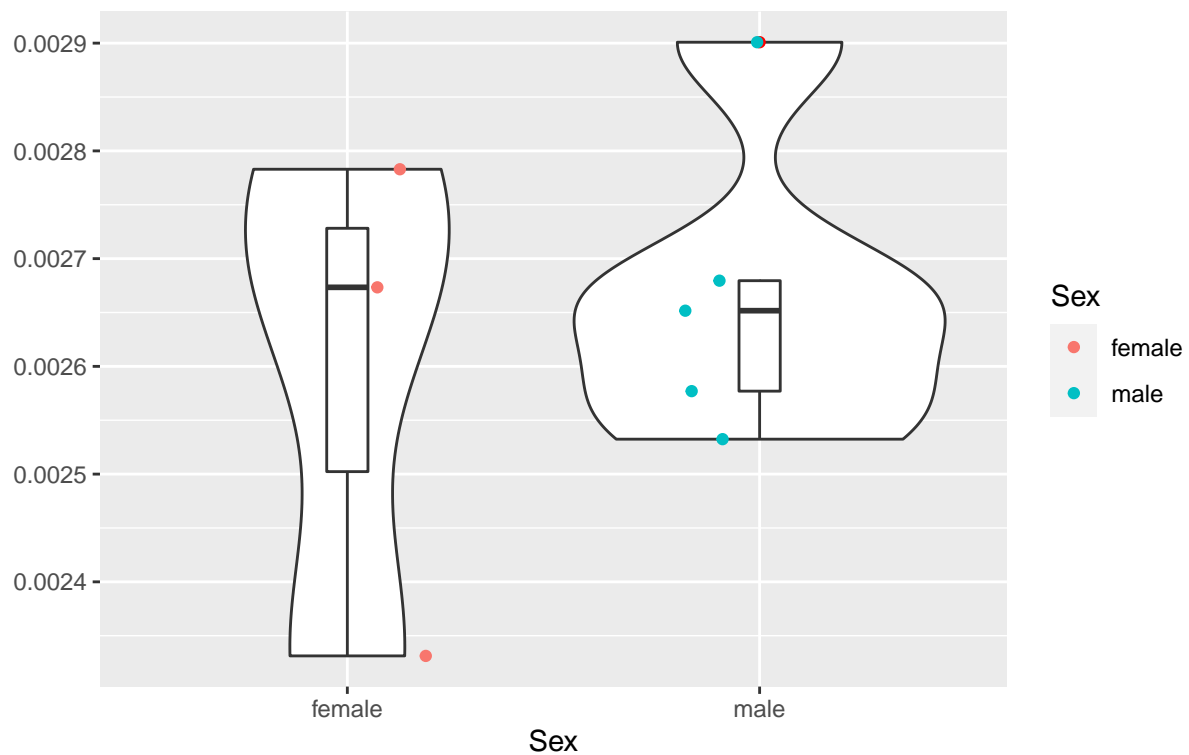
Ventral Pallidum
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.000e-10 9.100e-10   0.015  0.906
## Residuals    6 3.572e-07 5.954e-08
```
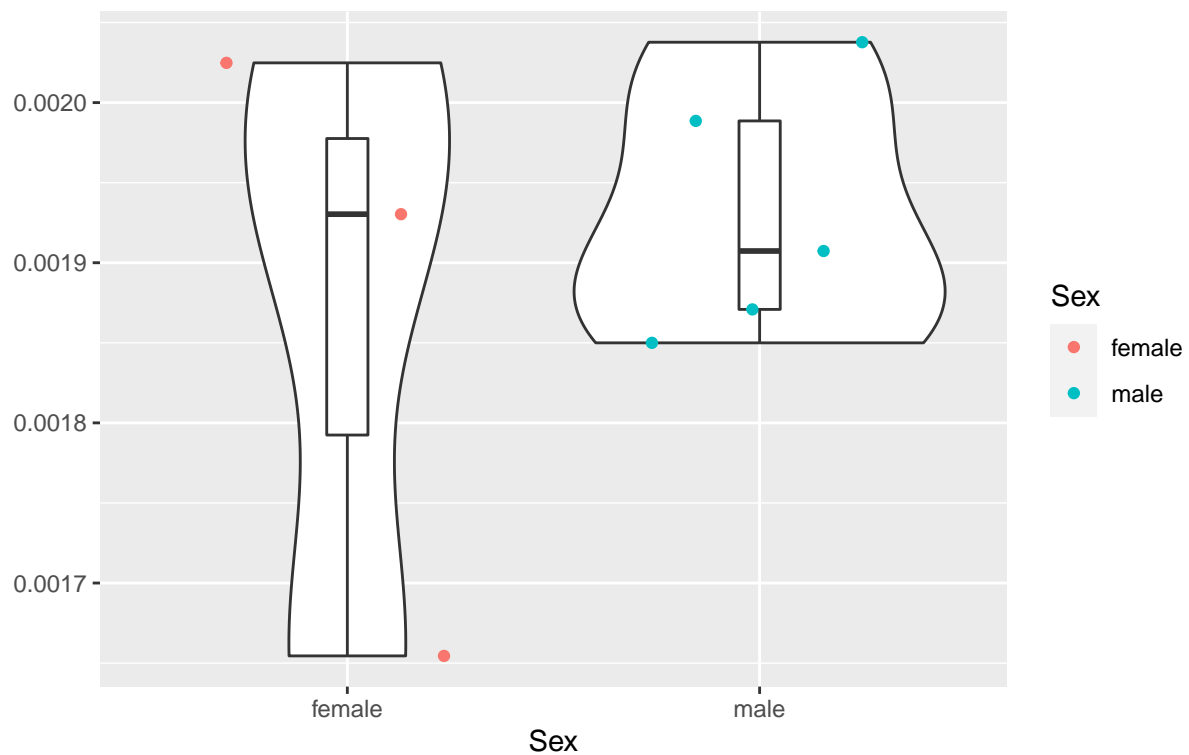
Bed Nucleus of the Stria Terminalis
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.840e-09 9.840e-09   0.307    0.6
## Residuals    6 1.923e-07 3.205e-08
```
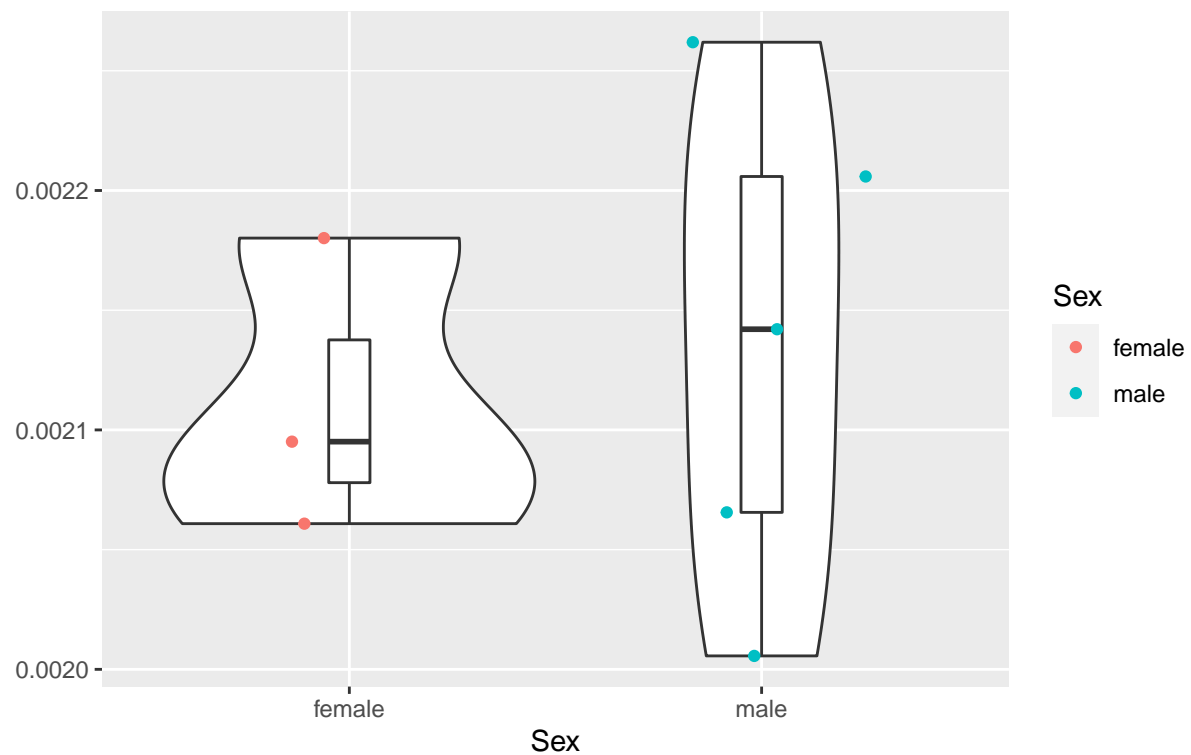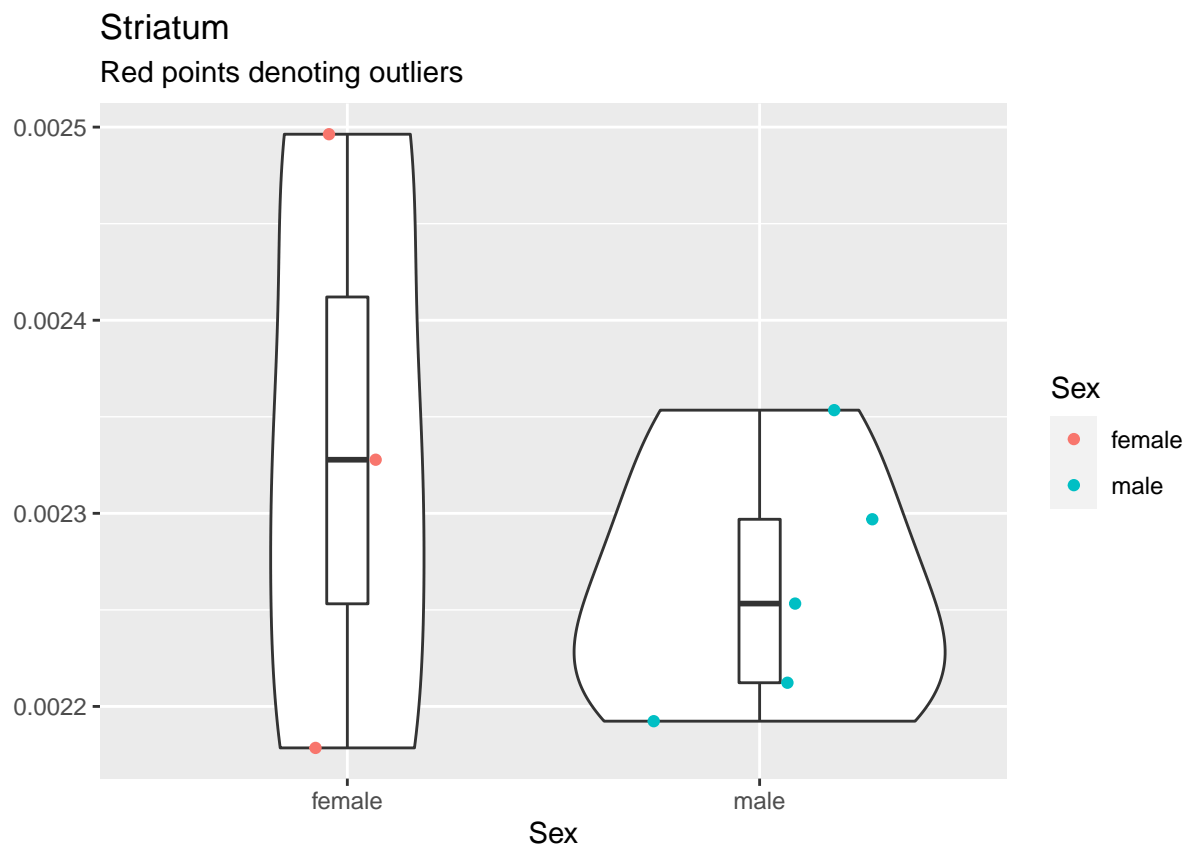
Acumbens
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq  F value  Pr(>F)
## Sex           1  6.980e-09  6.978e-09   0.421   0.541
## Residuals     6  9.949e-08  1.658e-08
```
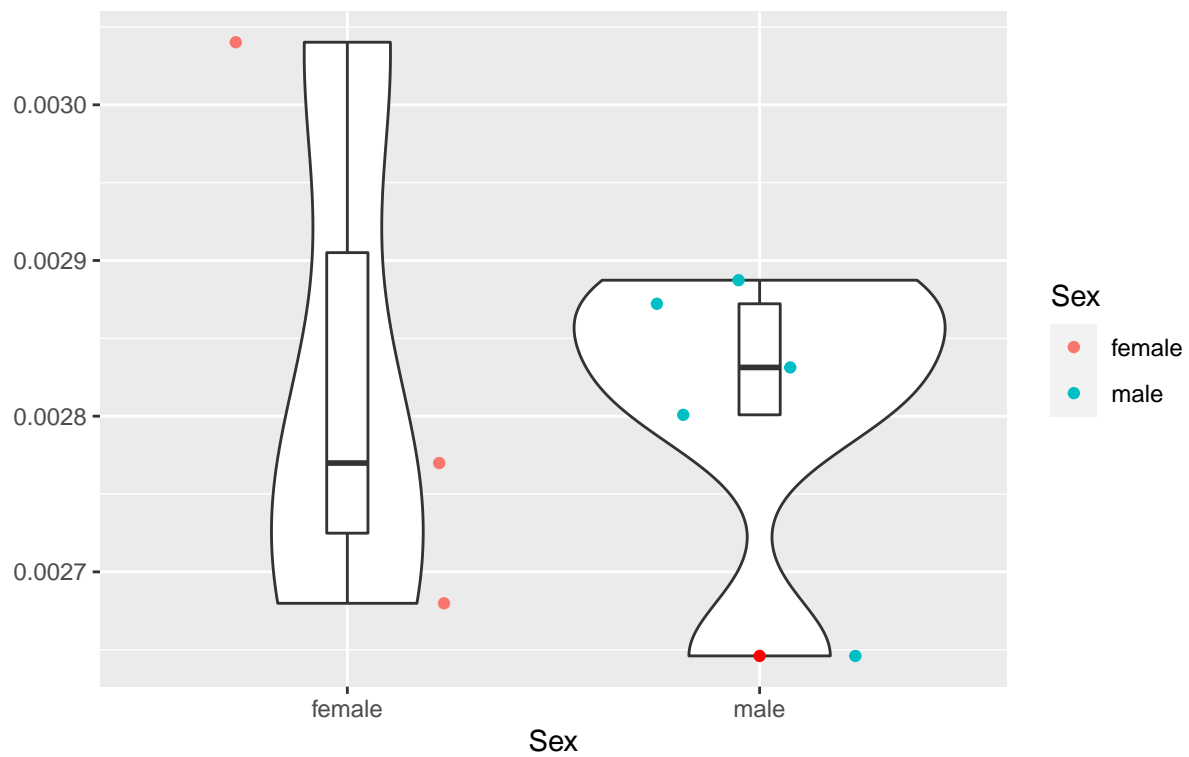
Amygdala
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.100e-09 1.096e-09   0.131   0.73
## Residuals   6 5.028e-08 8.380e-09
```

Striatum
Red points denoting outliers
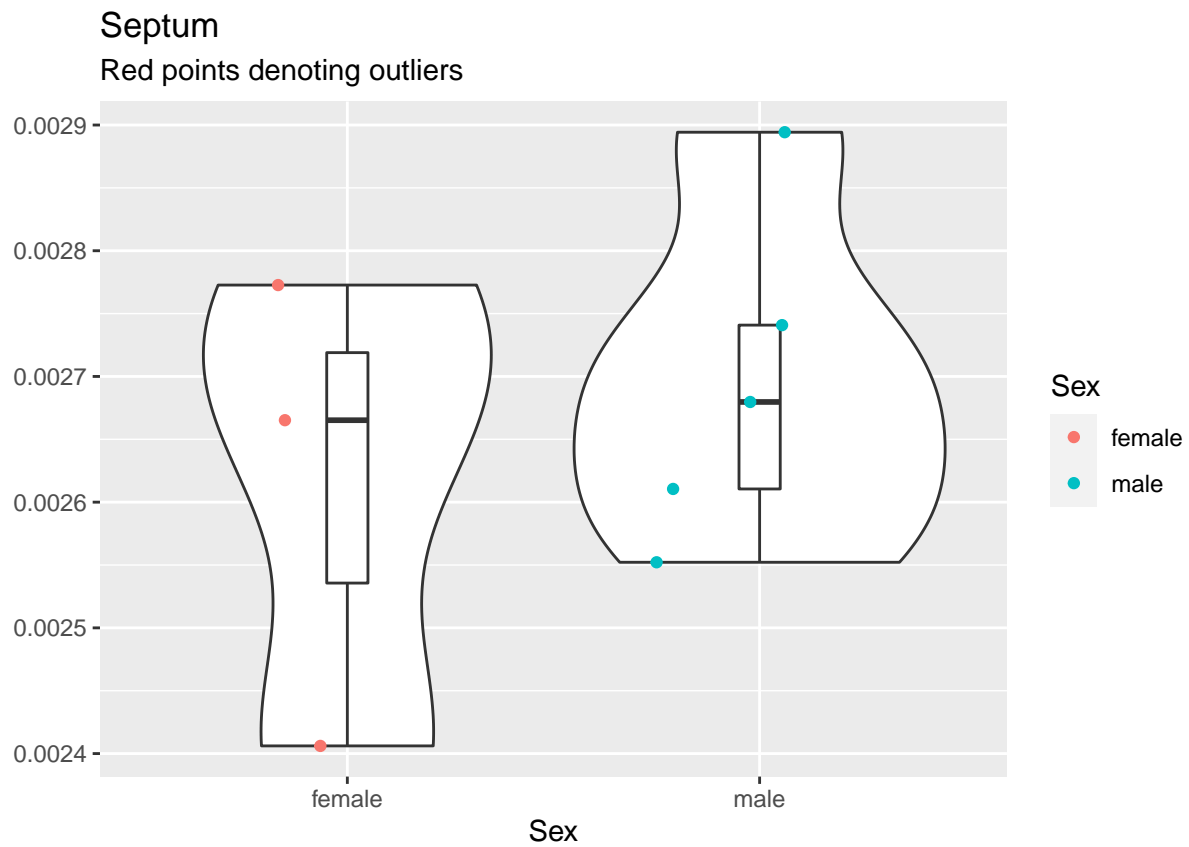


```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 9.870e-09 9.869e-09   0.877  0.385
## Residuals  6 6.754e-08 1.126e-08
```

Globus Pallidus
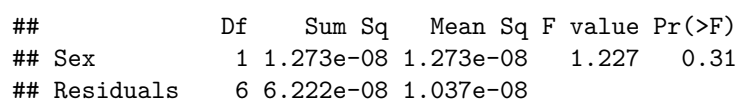Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.400e-10 9.430e-10   0.053  0.826
## Residuals    6 1.076e-07 1.793e-08
```
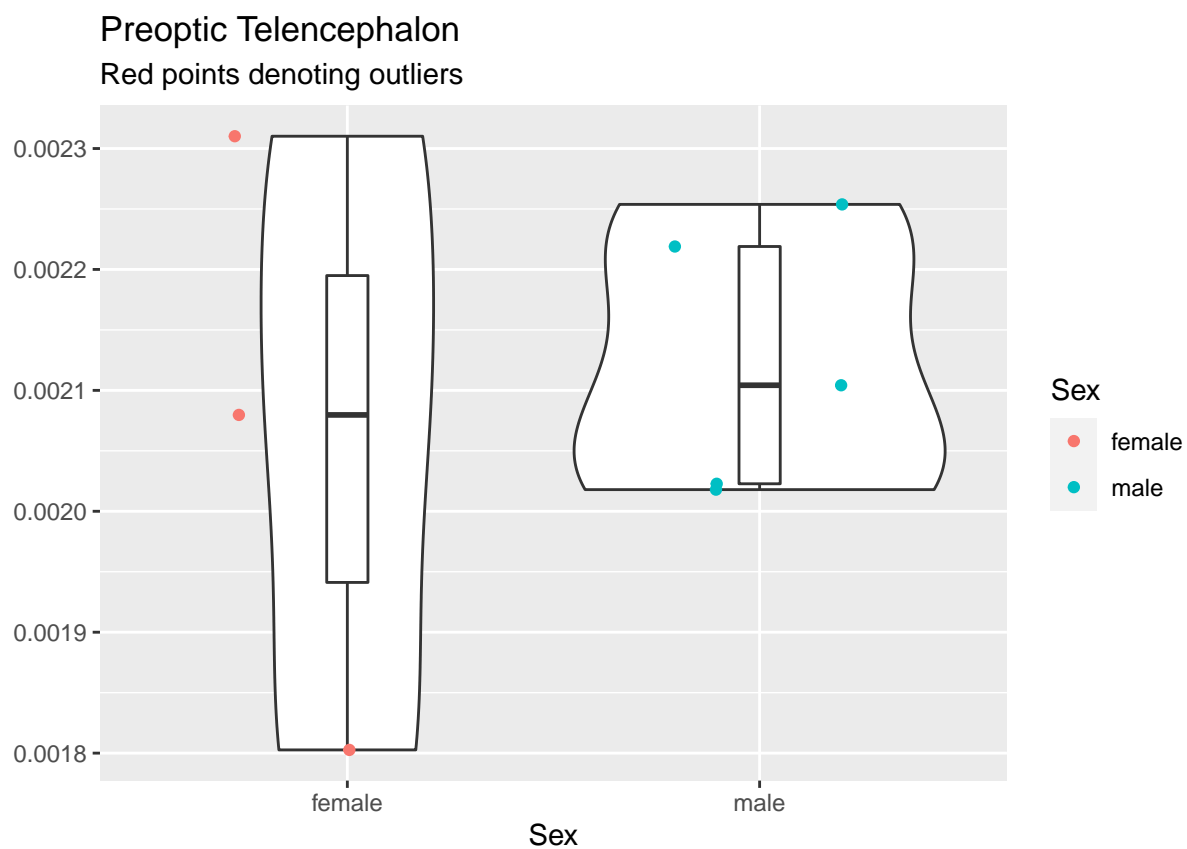
Septum
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.225e-08 1.225e-08   0.523  0.497
## Residuals   6 1.406e-07 2.343e-08
```

Subthalamic Nucleus
Red points denoting outliers

```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.273e-08 1.273e-08   1.227   0.31
## Residuals   6 6.222e-08 1.037e-08
```

Preoptic Telencephalon
Red points denoting outliers
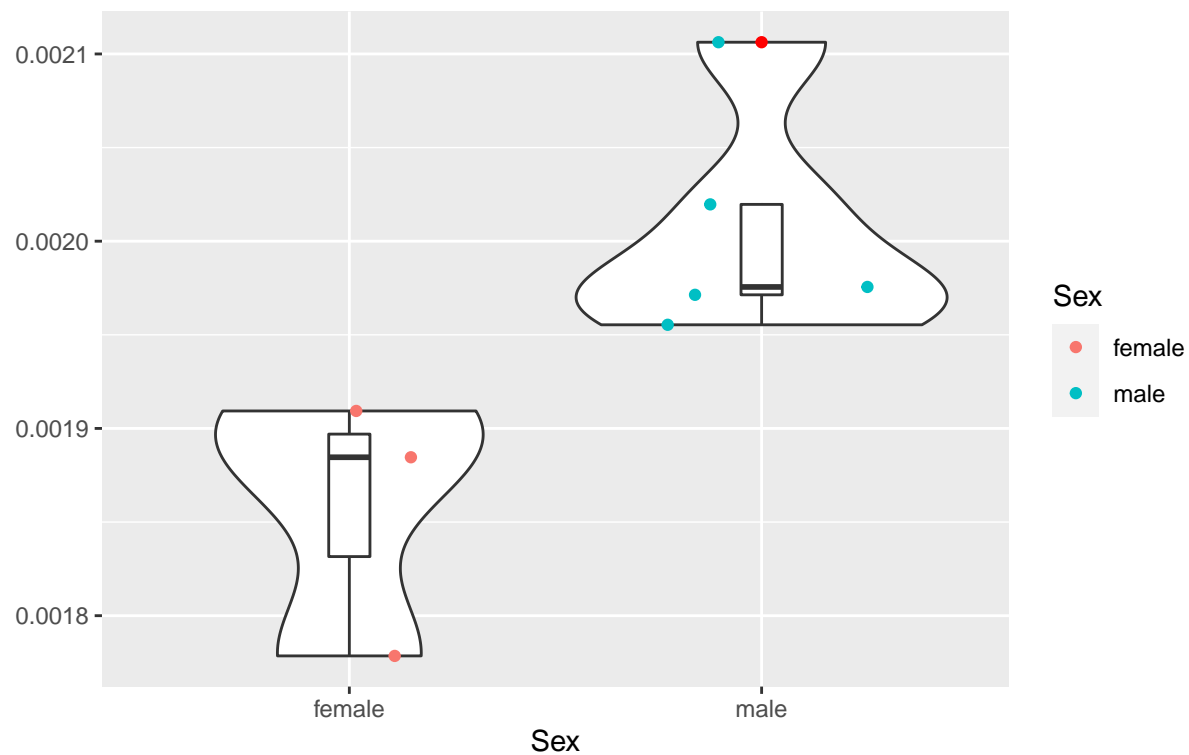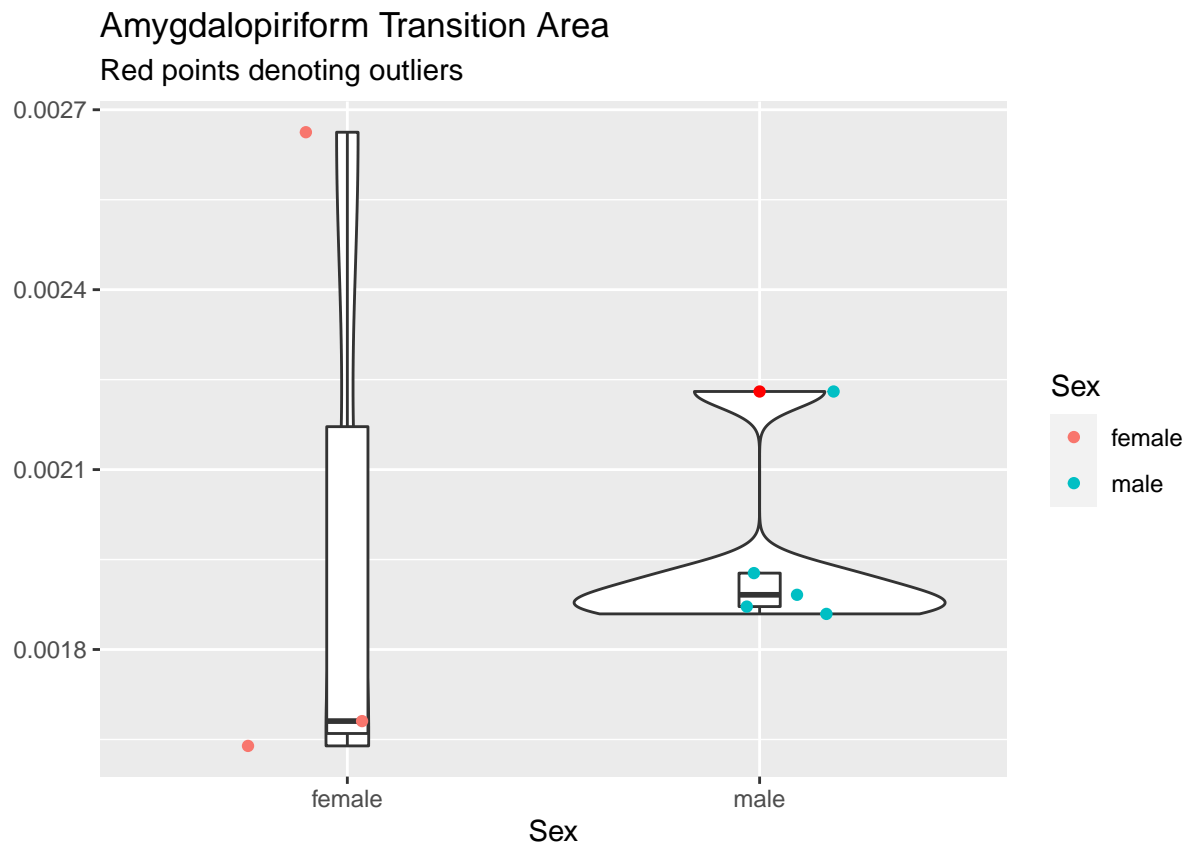
```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 6.600e-09 6.605e-09   0.224  0.653
## Residuals   6 1.769e-07 2.948e-08
```

Hypothalamus
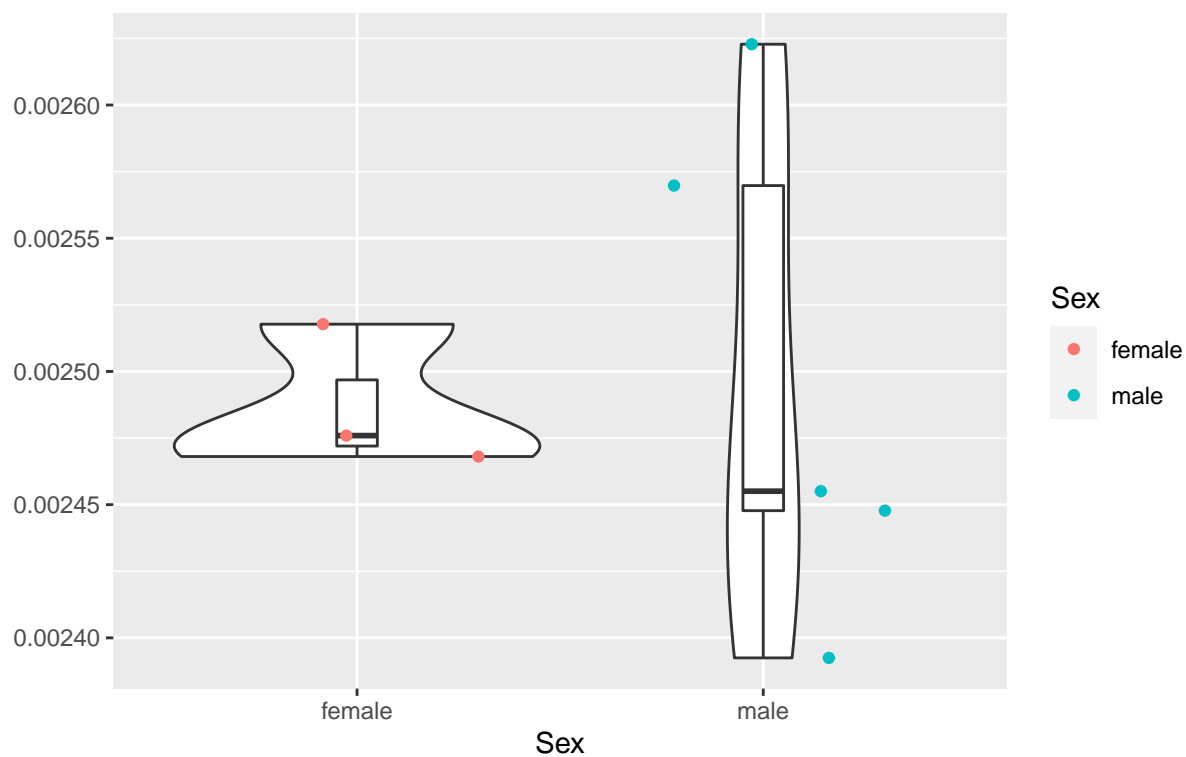Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.116e-08 4.116e-08   10.04 0.0193 *
## Residuals    6 2.459e-08 4.100e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
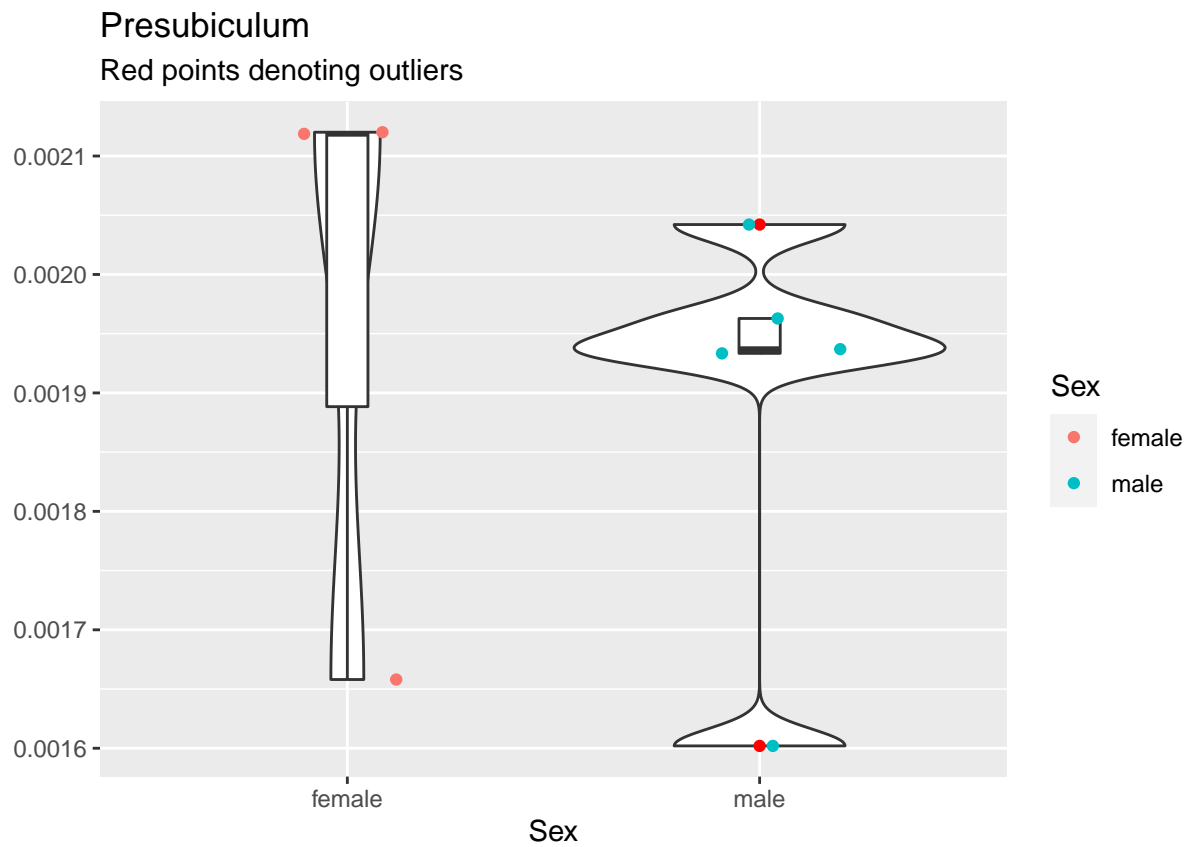
Amygdalopiriform Transition Area
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.700e-09  2.73e-09   0.021  0.889
## Residuals    6 7.677e-07  1.28e-07
```

Periform Cortex

Red points denoting outliers

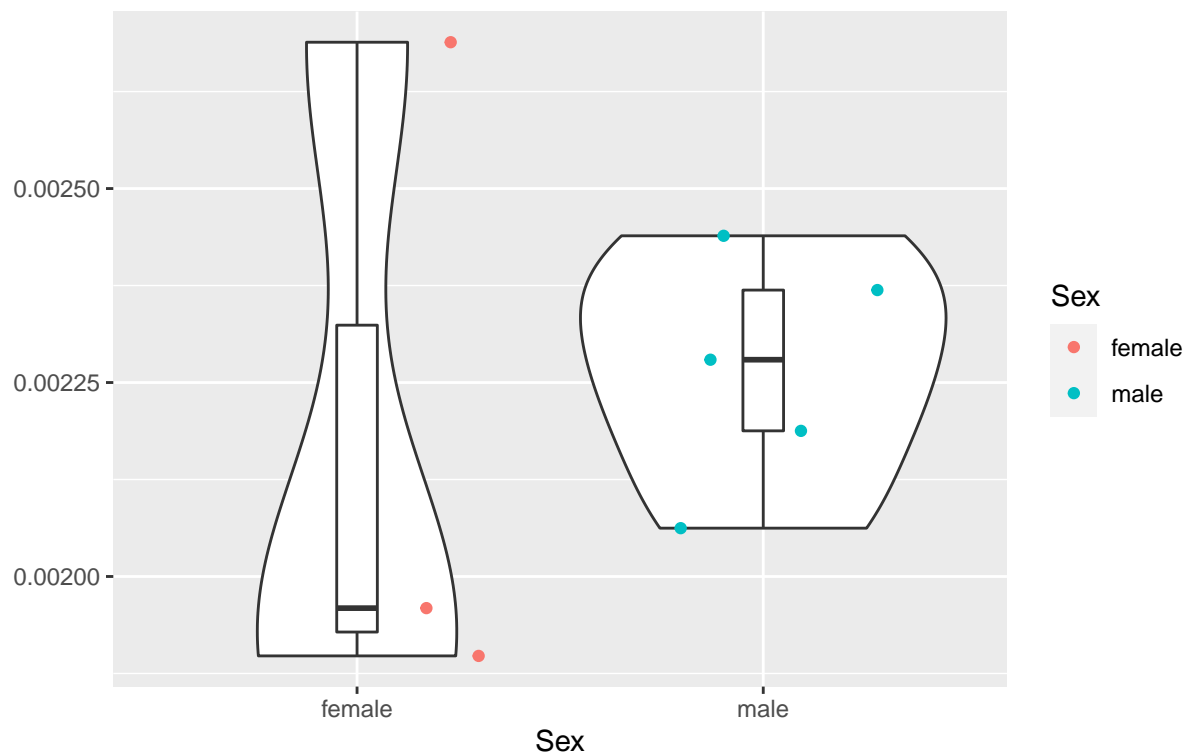
```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.000e-10 2.000e-10   0.032  0.864
## Residuals    6 3.766e-08 6.277e-09
```

Presubiculum
Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.230e-09 9.230e-09   0.215  0.659
## Residuals    6 2.573e-07 4.288e-08
```
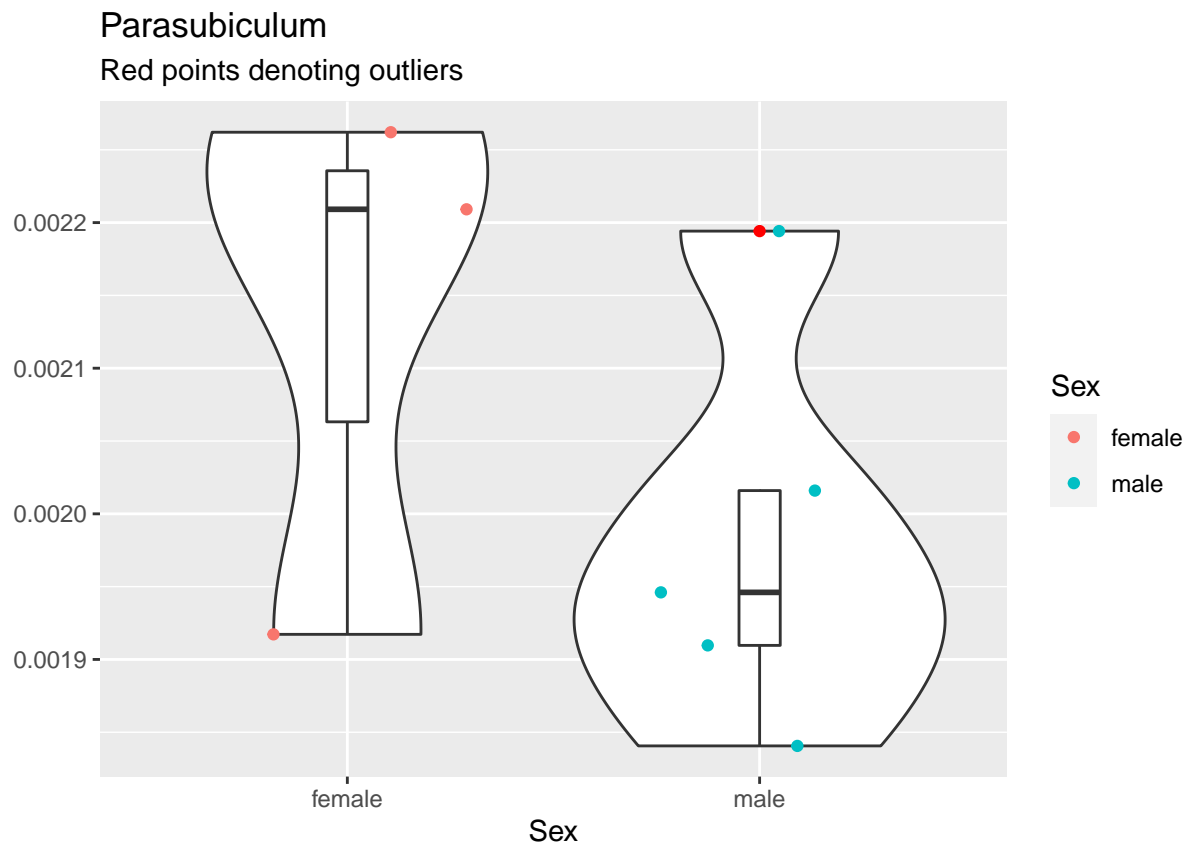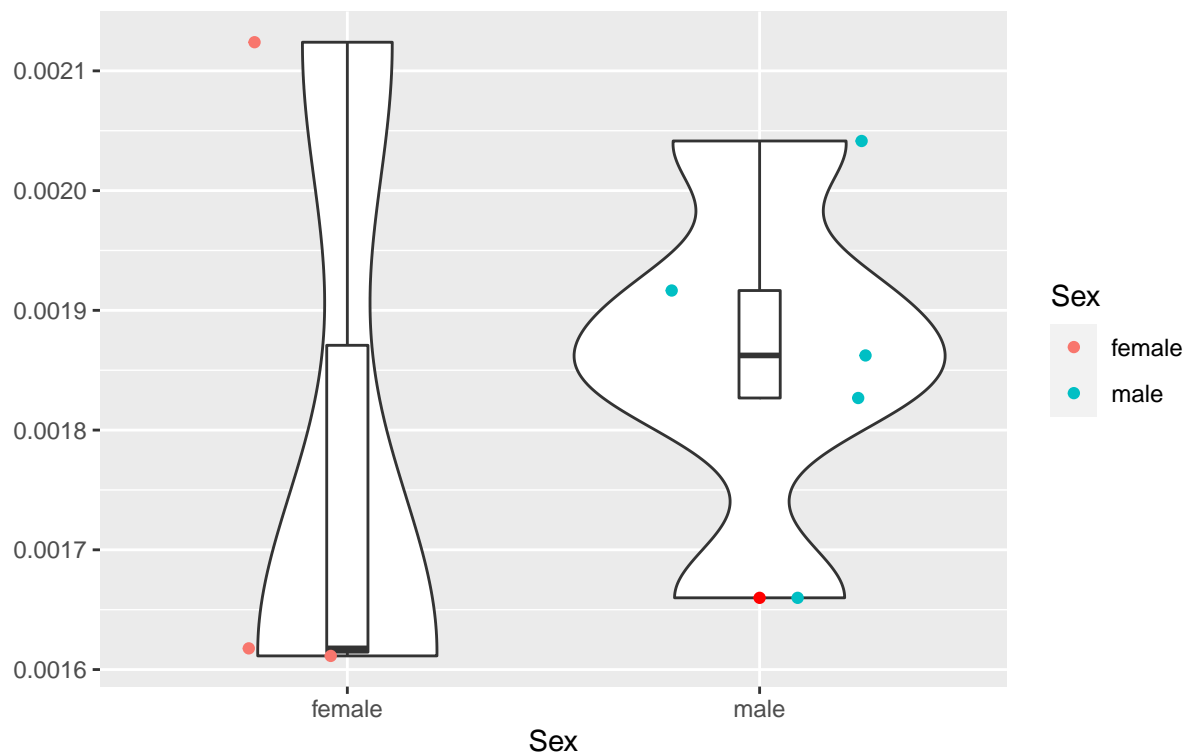
Perirhinal Cortex
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.380e-08 1.377e-08   0.174  0.691
## Residuals    6 4.755e-07 7.925e-08
```

Parasubiculum

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 4.117e-08 4.117e-08   1.744  0.235
## Residuals   6 1.417e-07 2.361e-08
```

Ectorhinal Cortex
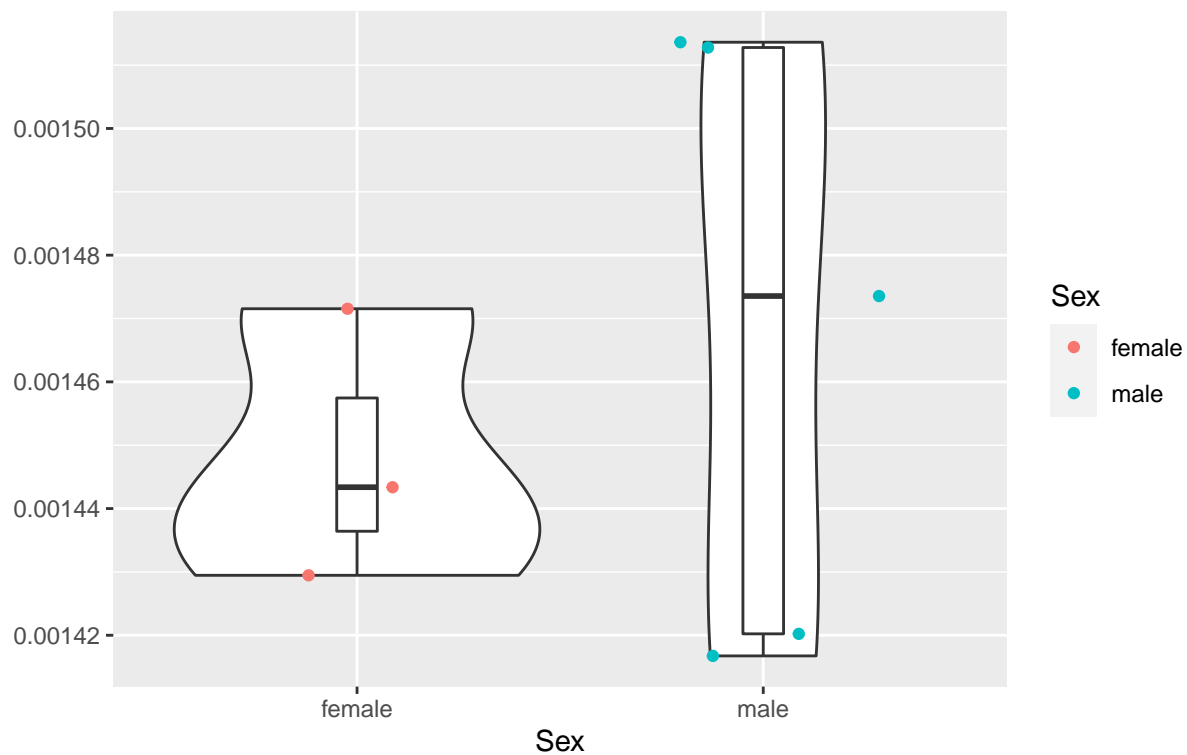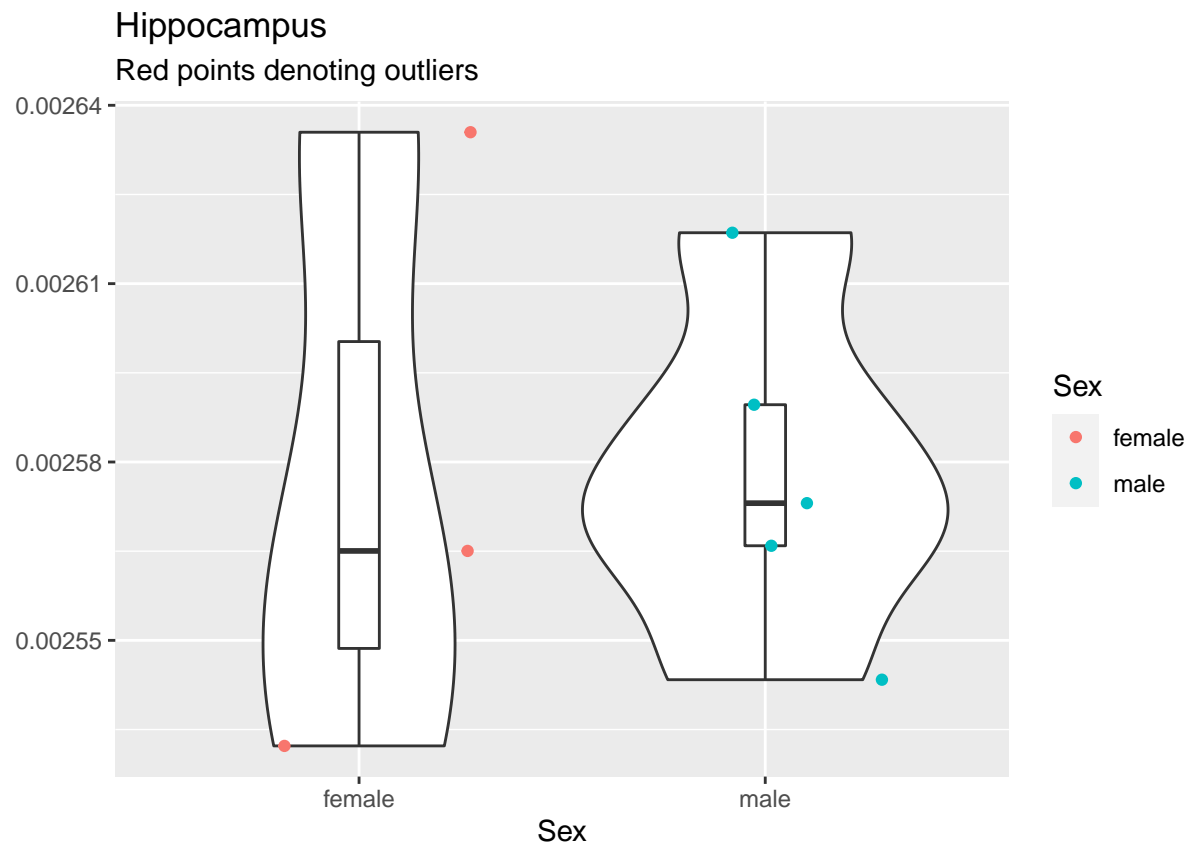Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.114e-08 1.114e-08   0.267  0.624
## Residuals    6 2.503e-07 4.171e-08
```
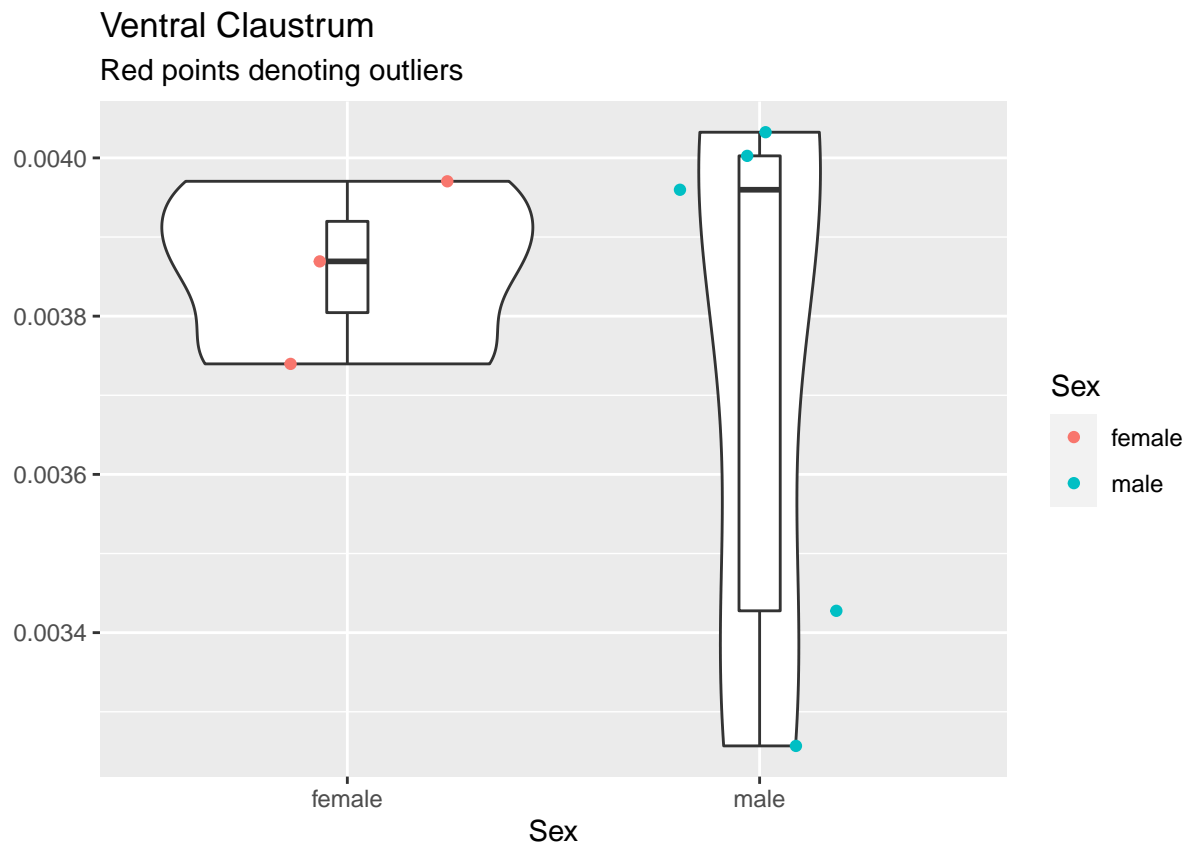
Dorsal Tenia Tecta
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.950e-10 6.952e-10   0.419  0.541
## Residuals    6 9.944e-09 1.657e-09
```

Hippocampus
Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.000e-12 5.000e-13       0  0.986
## Residuals    6 8.714e-09 1.452e-09
```

Ventral Claustrum
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 2.880e-08 2.880e-08   0.308  0.599
## Residuals     6 5.605e-07 9.342e-08
```

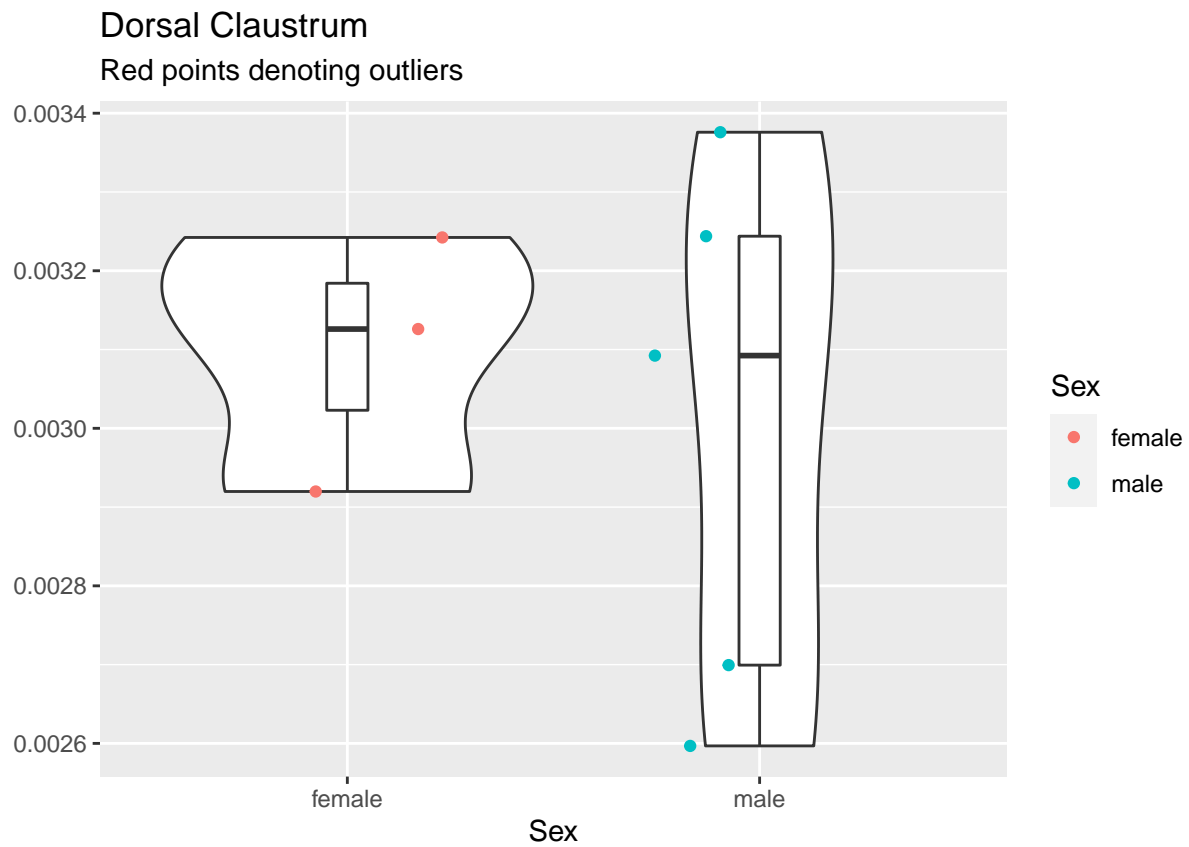# Posterolateral Cortical Amygdaloid Area
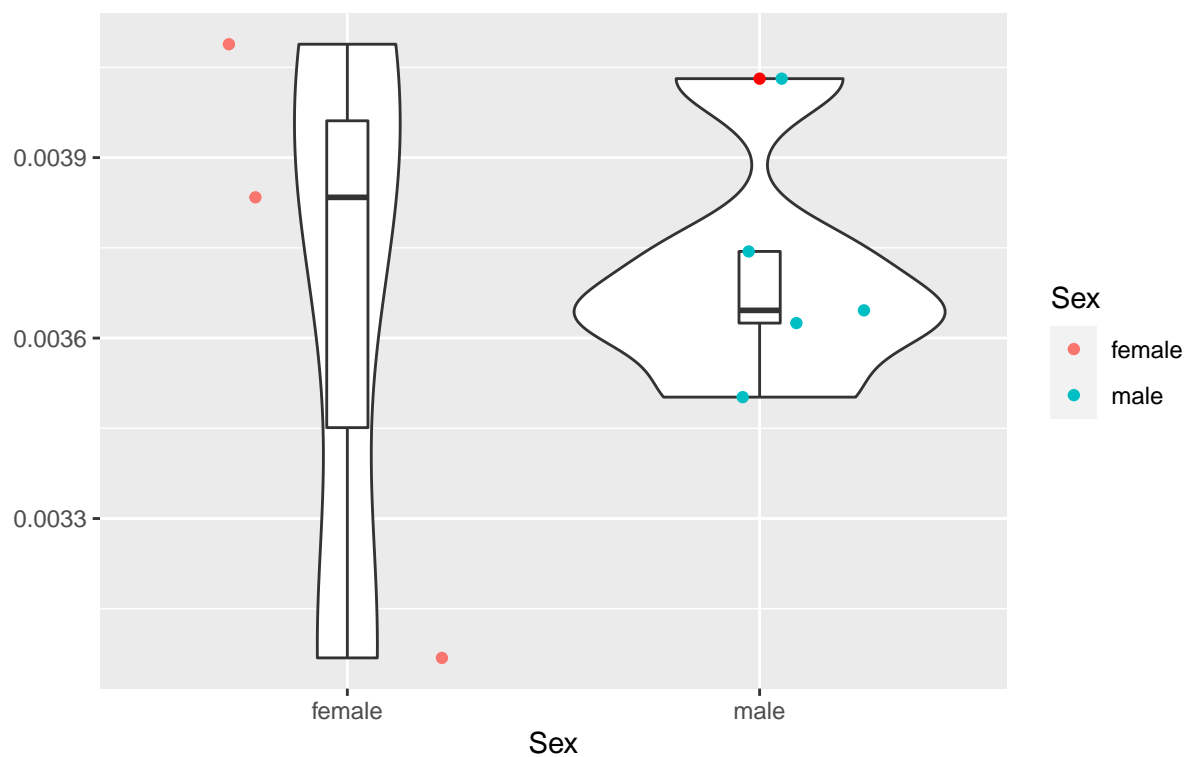
Red points denoting outliers
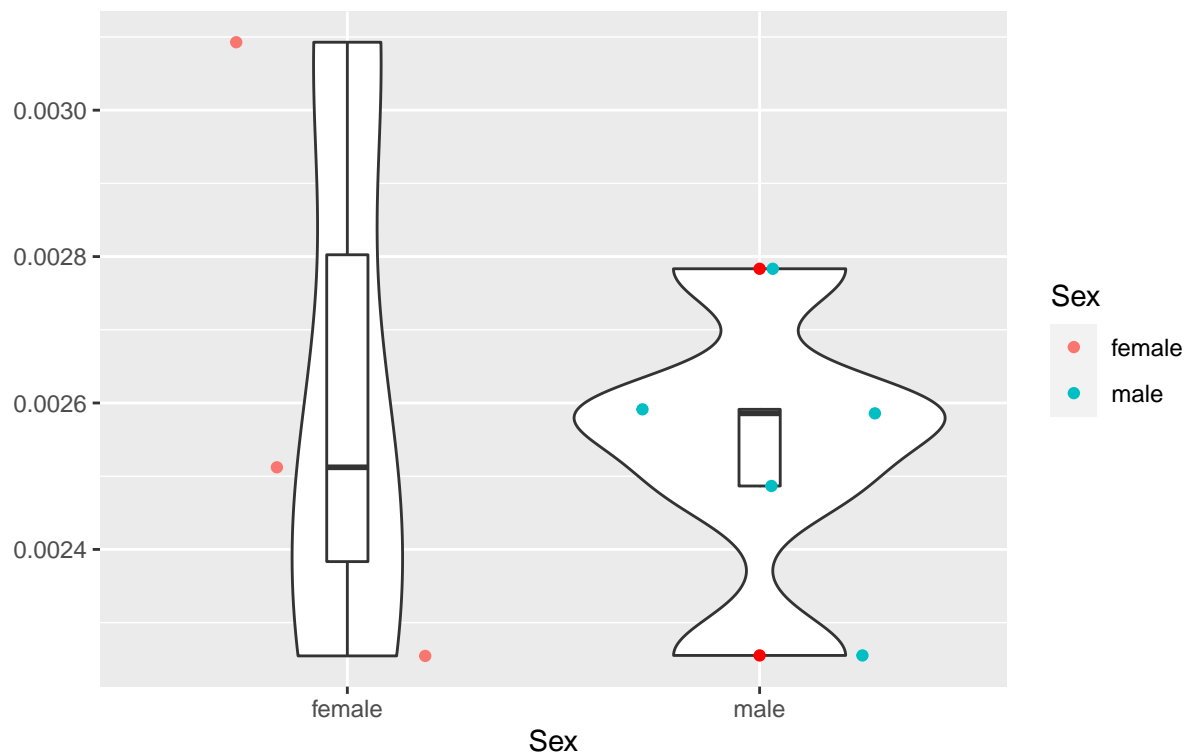

```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.180e-08 1.181e-08   0.137  0.724
## Residuals   6 5.167e-07 8.611e-08
```

Dorsal Claustrum

Red points denoting outliers


```
##             Df     Sum Sq    Mean Sq F value Pr(>F)
## Sex          1 1.670e-08  1.670e-08   0.194  0.675
## Residuals    6 5.156e-07  8.593e-08
```

Claustrum
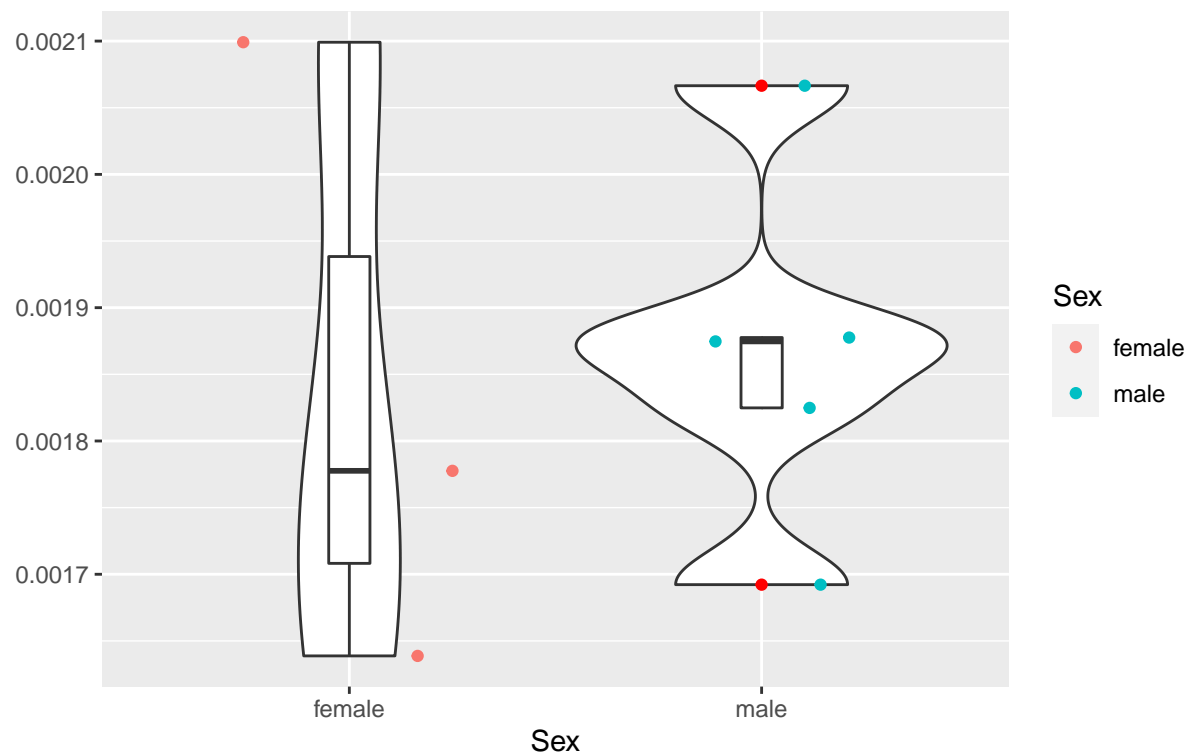Red points denoting outliers


```
##              Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 4.00e-09 3.970e-09   0.033  0.862
## Residuals     6 7.23e-07 1.205e-07
```

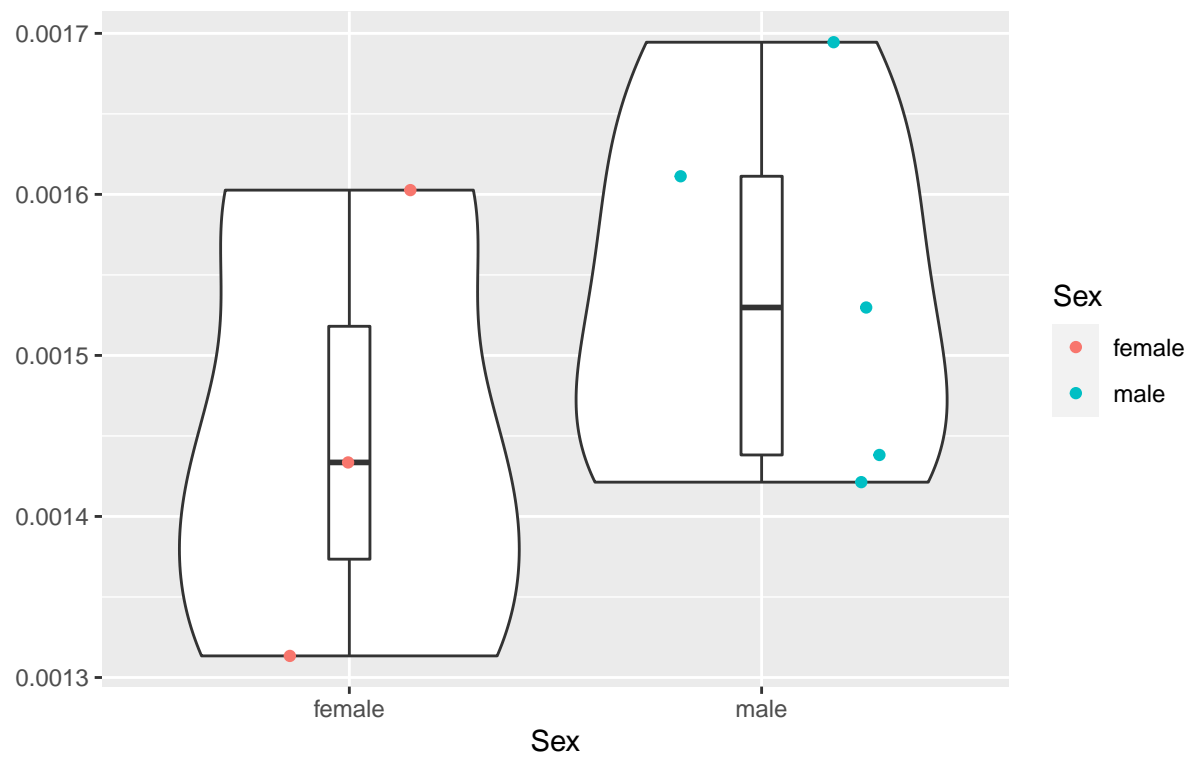## Ventral Intermediate Entorhinal Cortex
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.540e-09 1.540e-09    0.05   0.83
## Residuals    6 1.839e-07 3.064e-08
```

Left Caudomedial Entorhinal Cortex
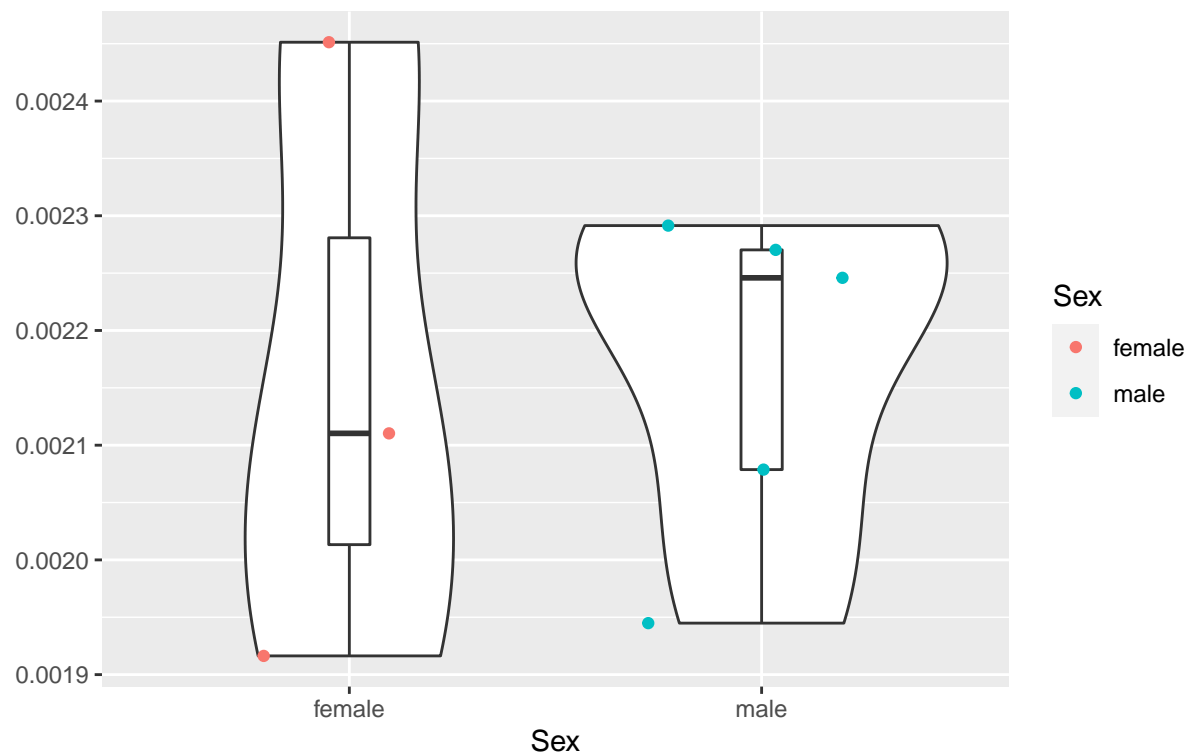Red points denoting outliers

```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.490e-08 1.490e-08   0.934  0.371
## Residuals    6 9.574e-08 1.596e-08
```

Left Dorsolateral Entorhinal Cortex

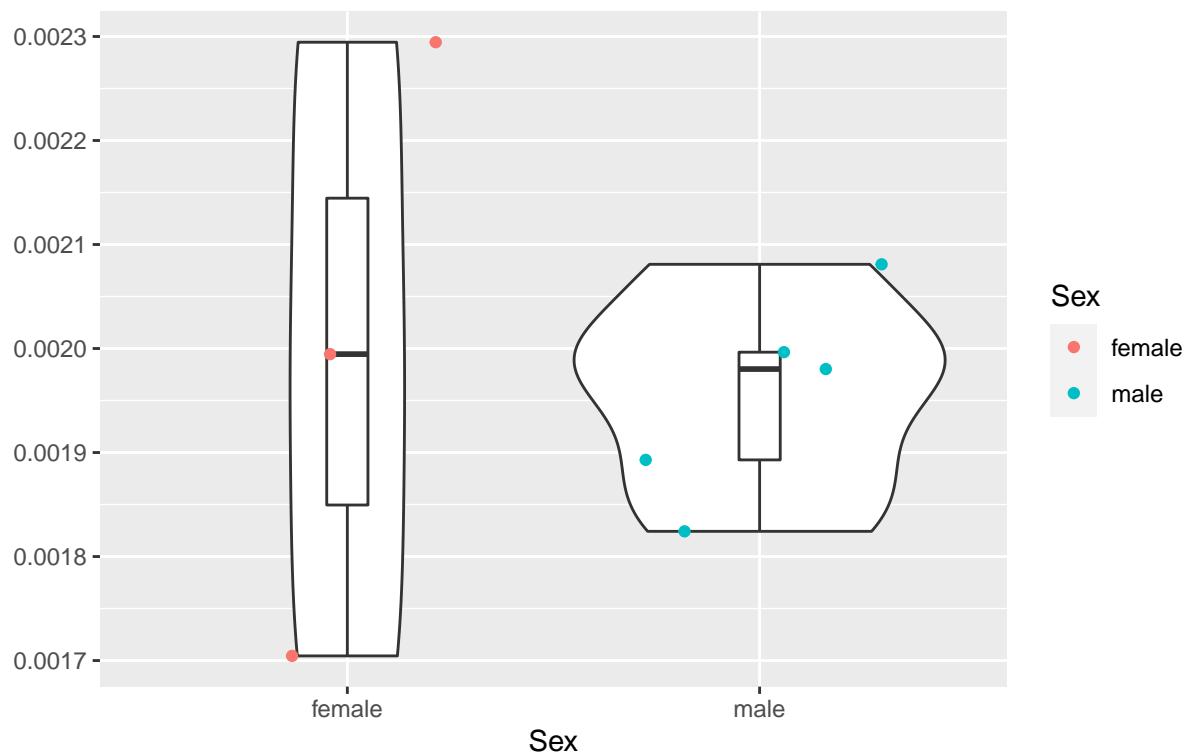Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 9.000e-11 9.000e-11   0.002  0.963
## Residuals     6 2.362e-07 3.937e-08
```

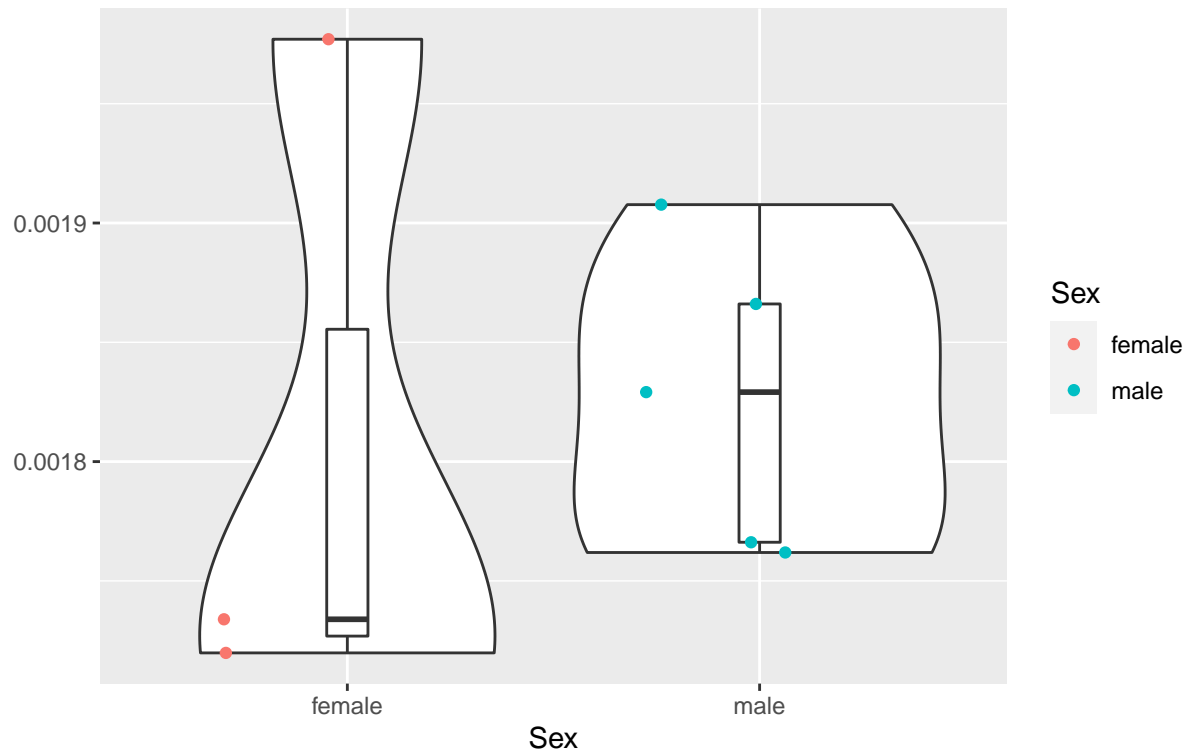# Left Dorsal Intermediate Entorhinal Cortex

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.450e-09 3.450e-09   0.097  0.766
## Residuals    6 2.133e-07 3.554e-08
```

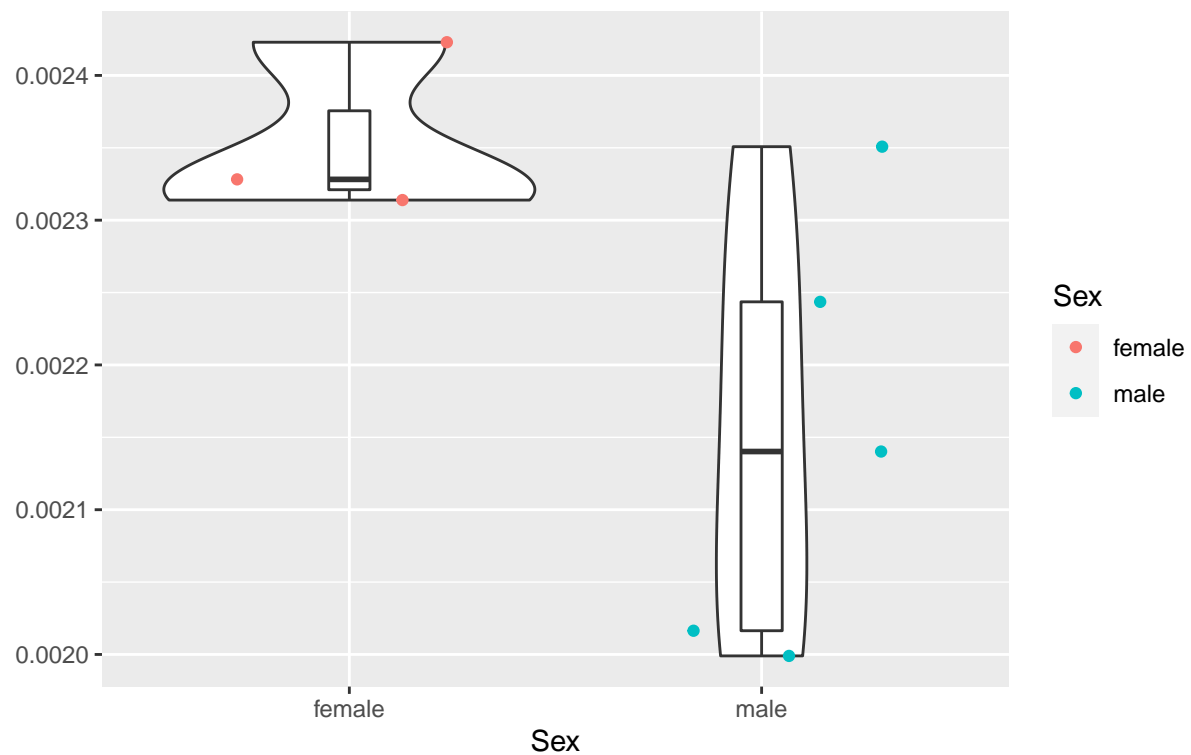# Left Caudomedial Entorhinal Cortex

Red points denoting outliers


```
##             Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.80e-10 4.770e-10   0.049  0.831
## Residuals    6 5.78e-08 9.634e-09
```

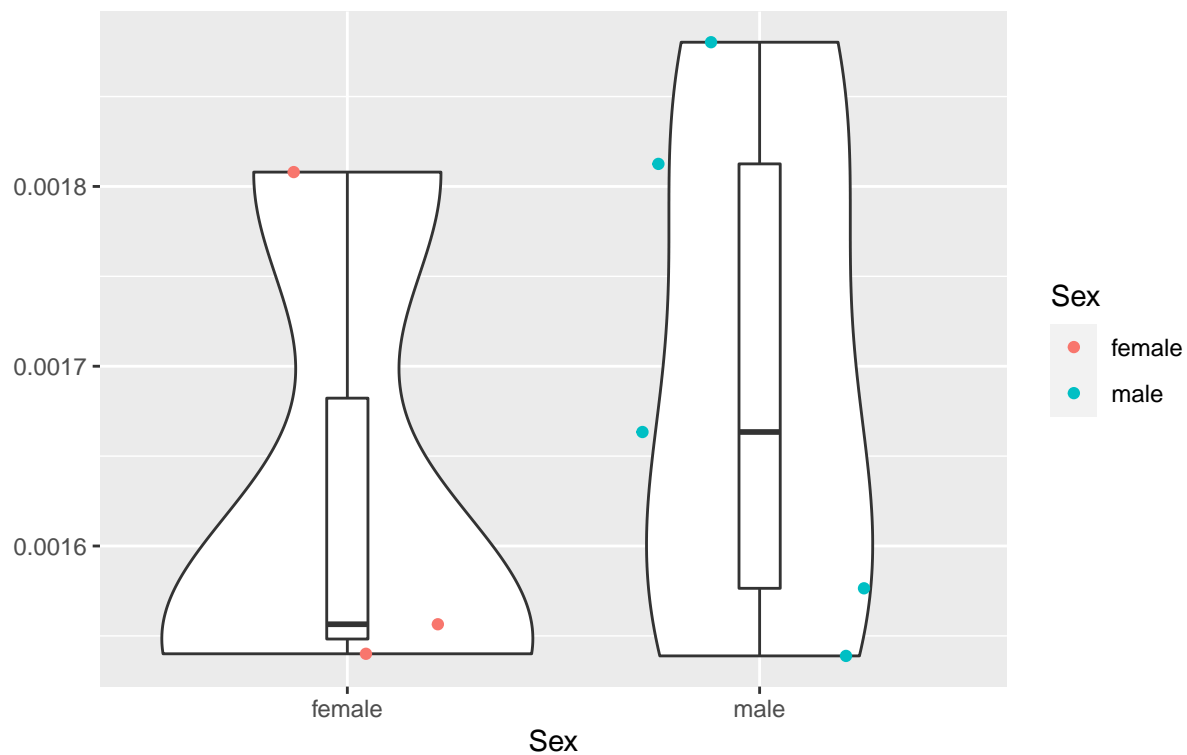## Left Ventral Orbital Cortex
Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.881e-08 7.881e-08   4.883 0.0692 .
## Residuals    6 9.684e-08 1.614e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
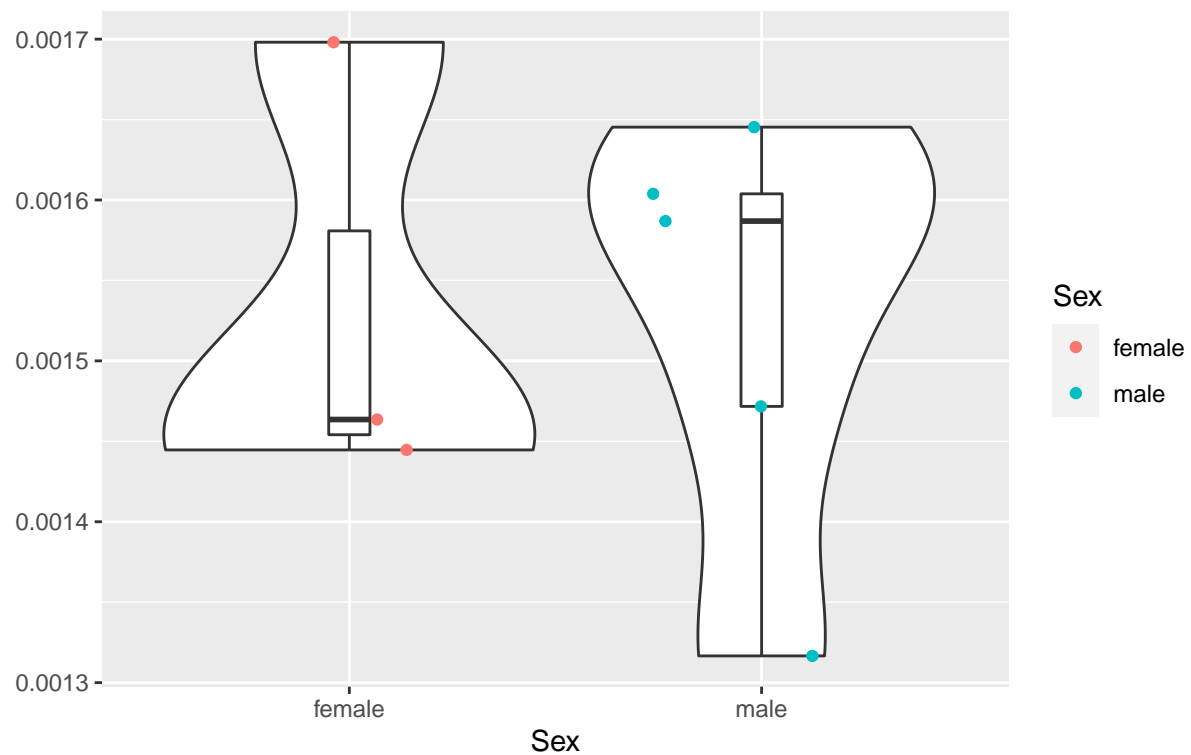
Left Secondary Visual Cortex Mediomedial Area

Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 6.630e-09 6.630e-09     0.3  0.604
## Residuals   6 1.327e-07 2.211e-08
```

Left Secondary Visual Cortex Mediolateral Area
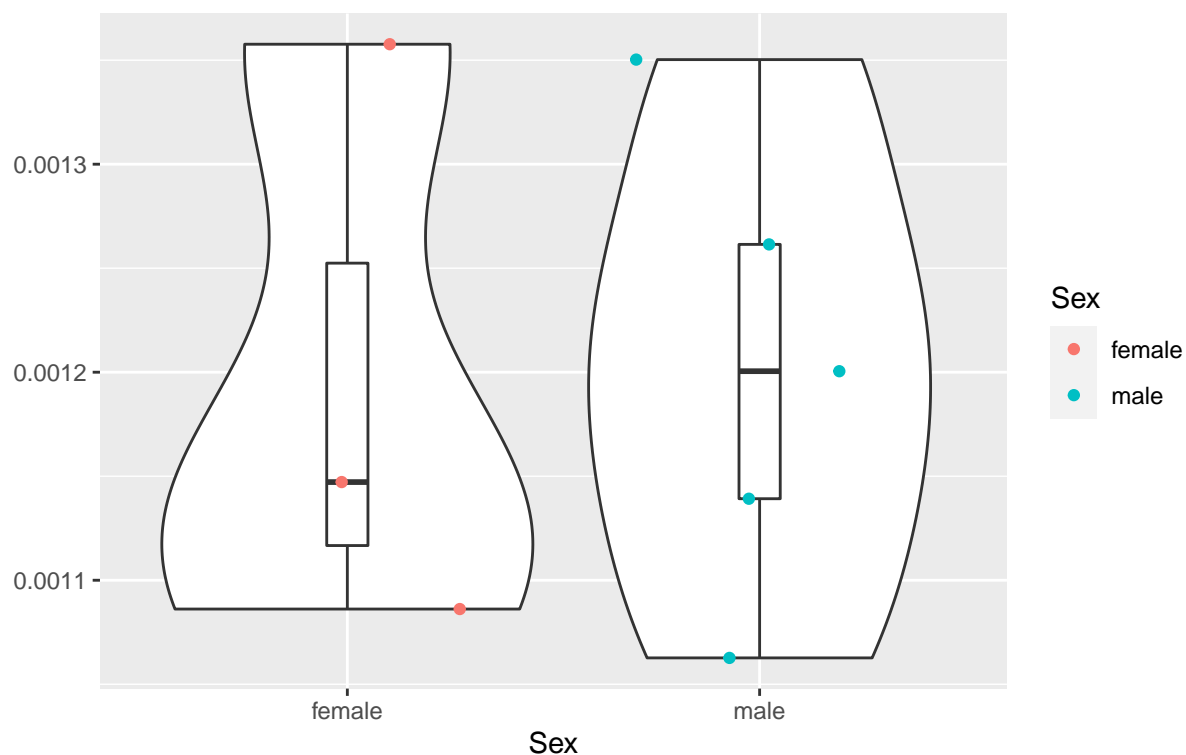
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 2.100e-10 2.090e-10   0.011  0.919
## Residuals   6 1.106e-07 1.844e-08
```
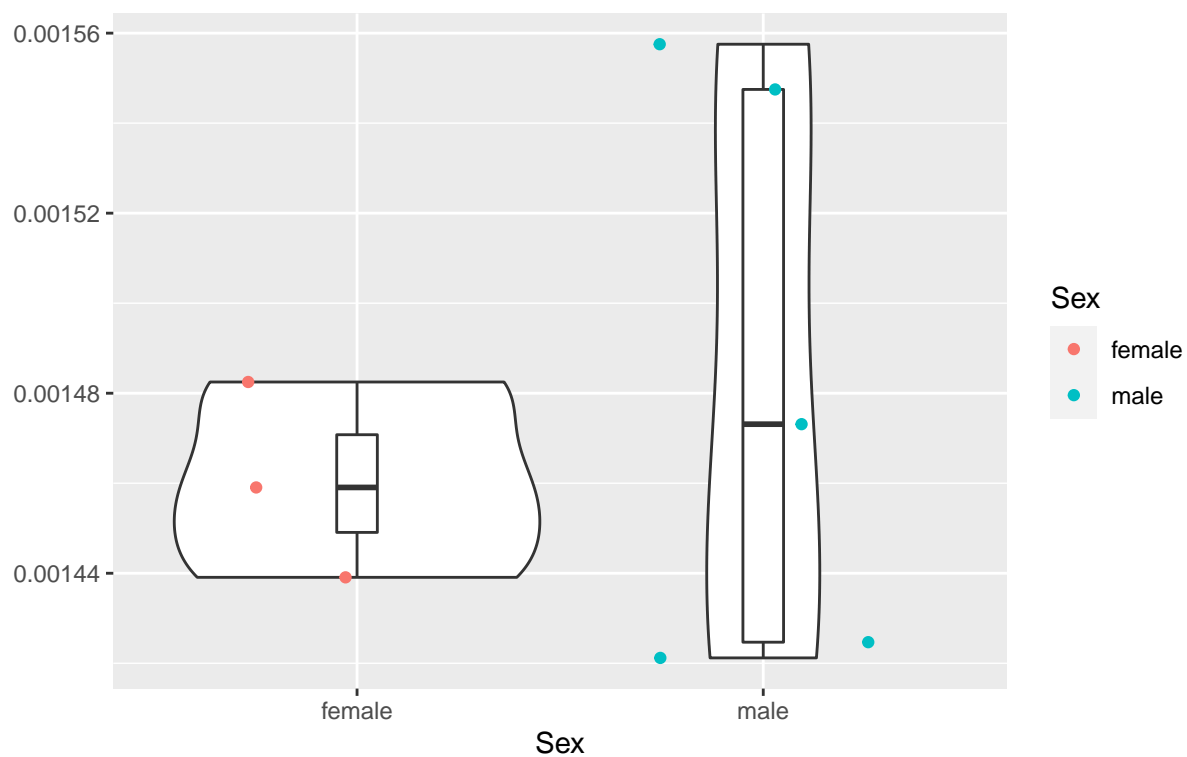
Left Secondary Visual Cortex Lateral Area

Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 6.000e-11 6.300e-11   0.004   0.95
## Residuals   6 8.947e-08 1.491e-08
```

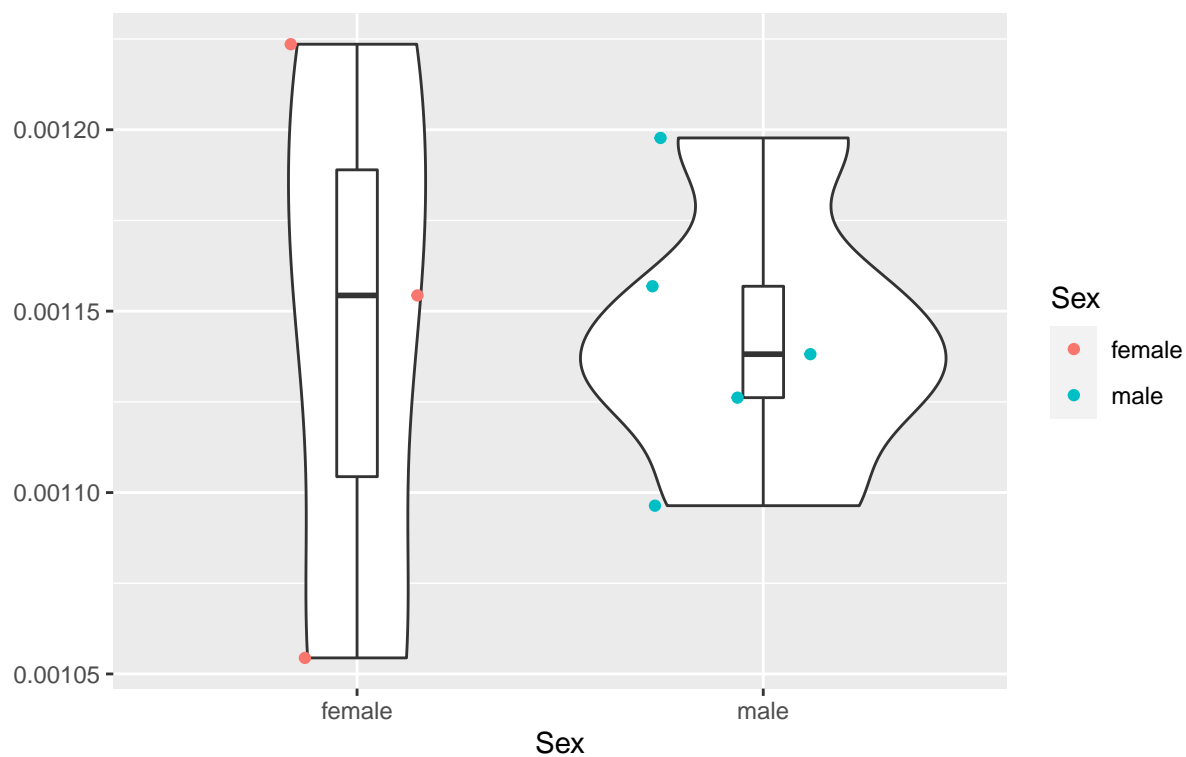# Left Primary Visual Cortex Monocular Area

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.134e-09 1.134e-09   0.379  0.561
## Residuals    6 1.796e-08 2.993e-09
```

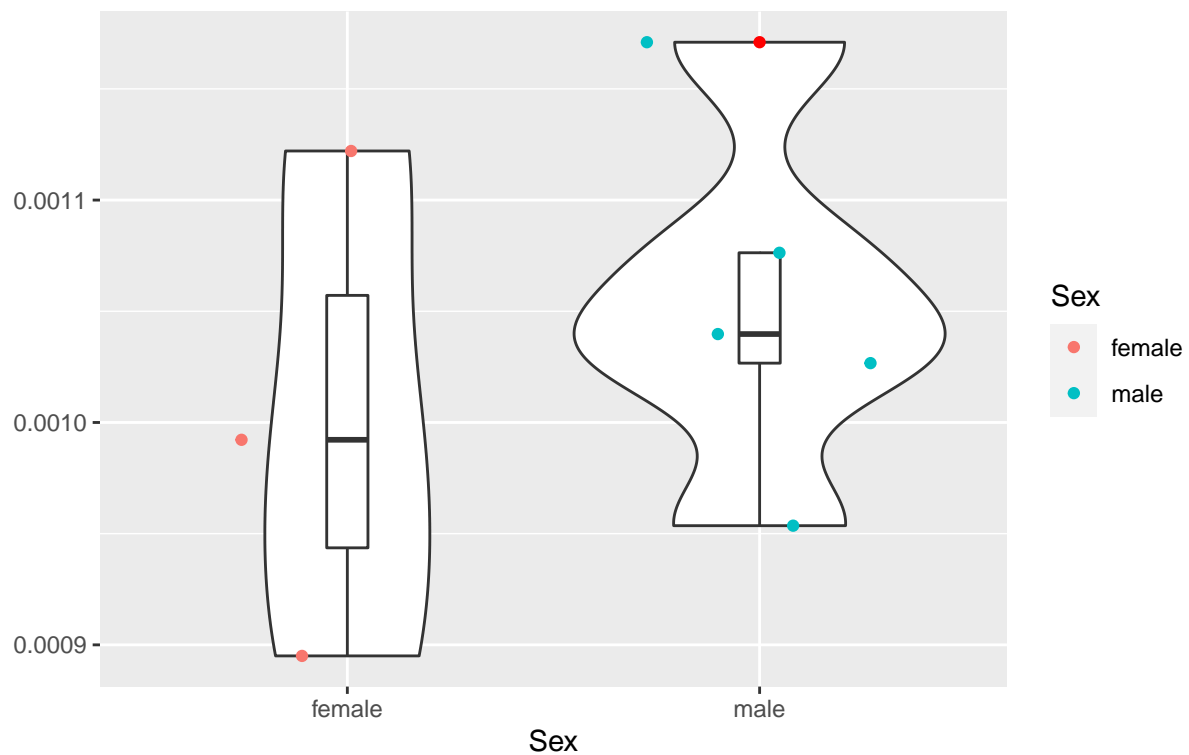# Left Primary Visual Cortex Binocular Area

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.000e-12 2.000e-12   0.001  0.981
## Residuals    6 2.013e-08 3.355e-09
```

Left Primary Visual Cortex
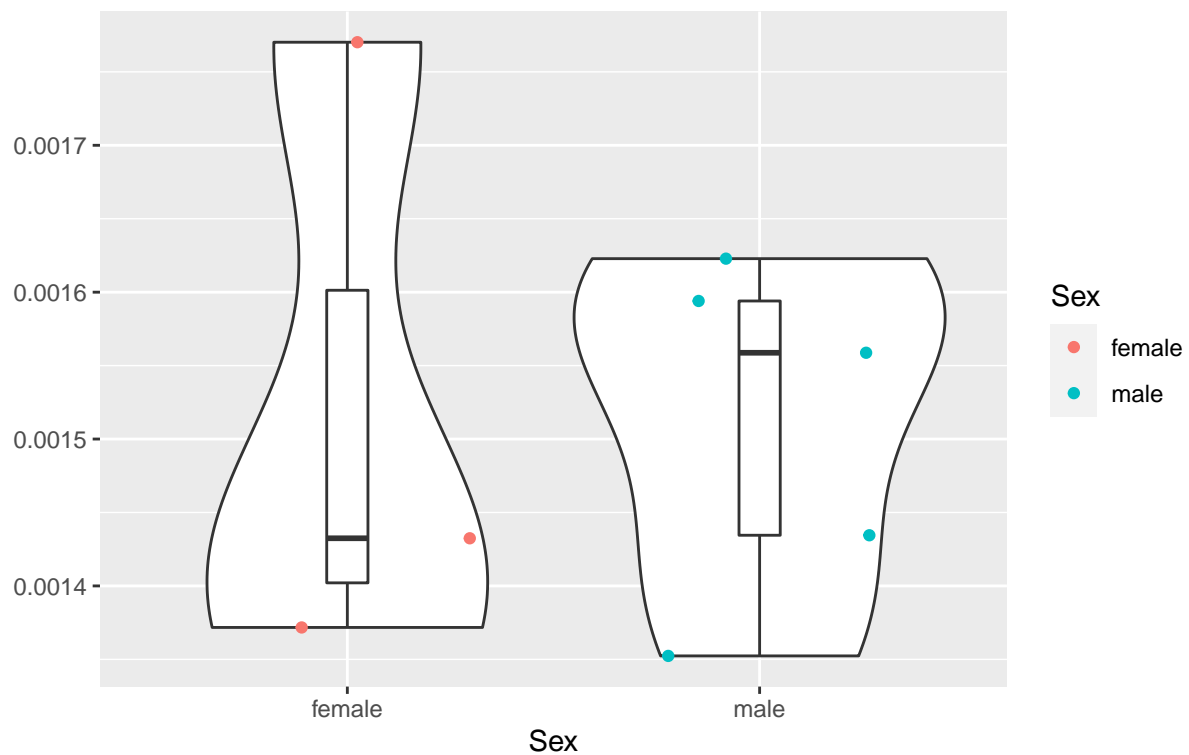Red points denoting outliers
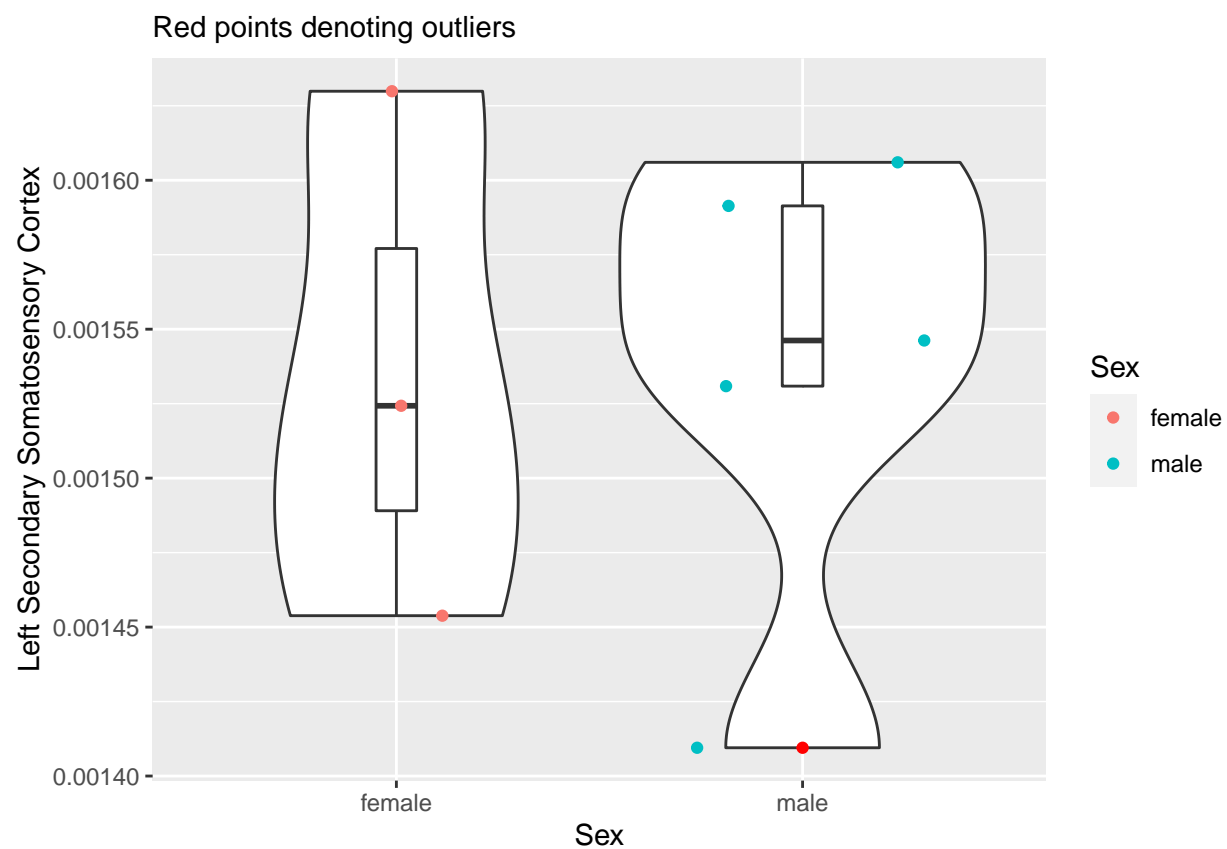


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 4.750e-09 4.754e-09   0.558  0.483
## Residuals    6 5.116e-08 8.527e-09
```

Left Temporal Association Cortex
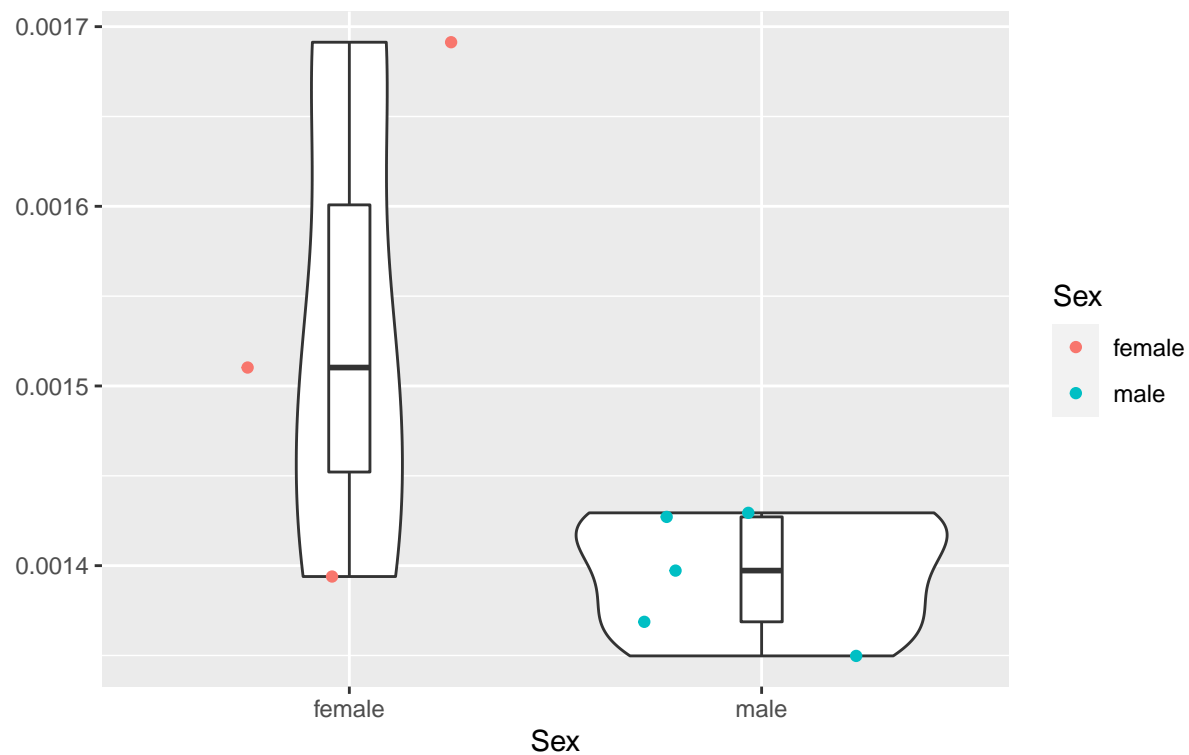Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.800e-10 2.840e-10   0.012  0.917
## Residuals    6 1.449e-07 2.414e-08
```

Red points denoting outliers

```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 0.000e+00 1.000e-12       0   0.99
## Residuals     6 3.981e-08 6.635e-09
```

Left Primary Somatosensory Cortex Upper Lip Region
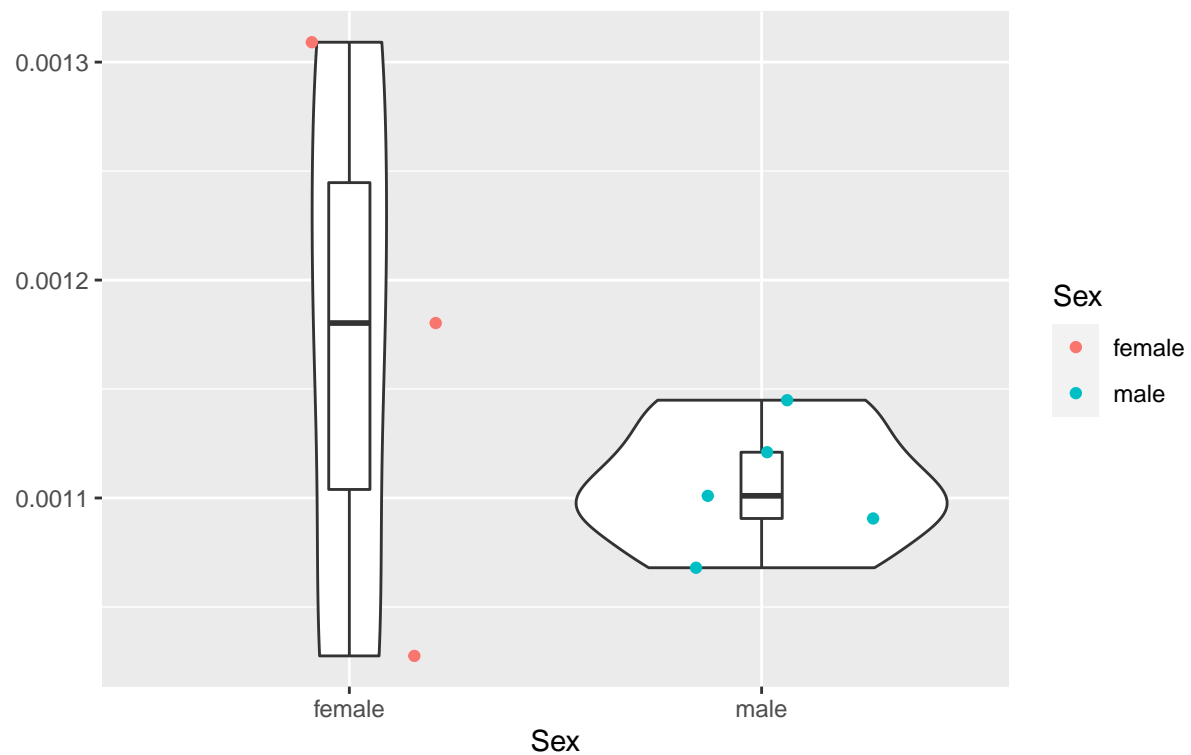Red points denoting outliers


```
##               Df    Sum Sq  Mean Sq F value Pr(>F)
## Sex            1 3.540e-08 3.54e-08   4.258 0.0846 .
## Residuals      6 4.988e-08 8.31e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
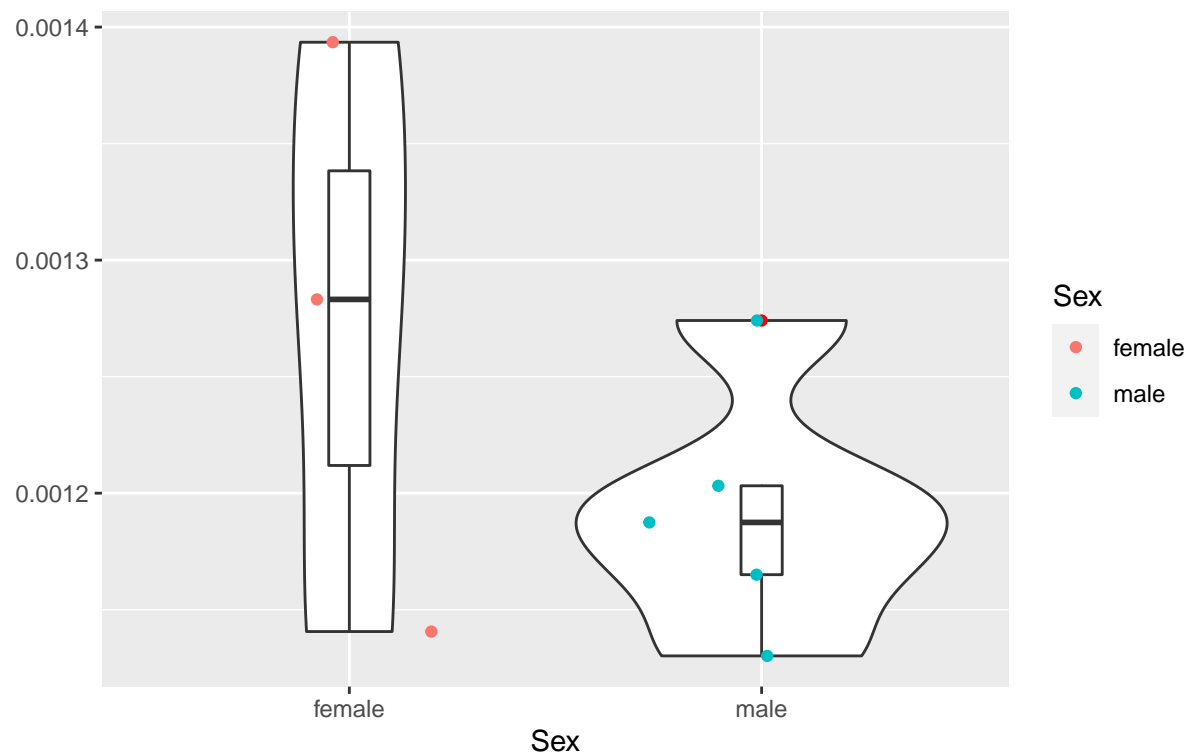
Left Primary Somatosensory Cortex Trunk Region

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 8.470e-09 8.471e-09   1.177   0.32
## Residuals    6 4.318e-08 7.196e-09
```
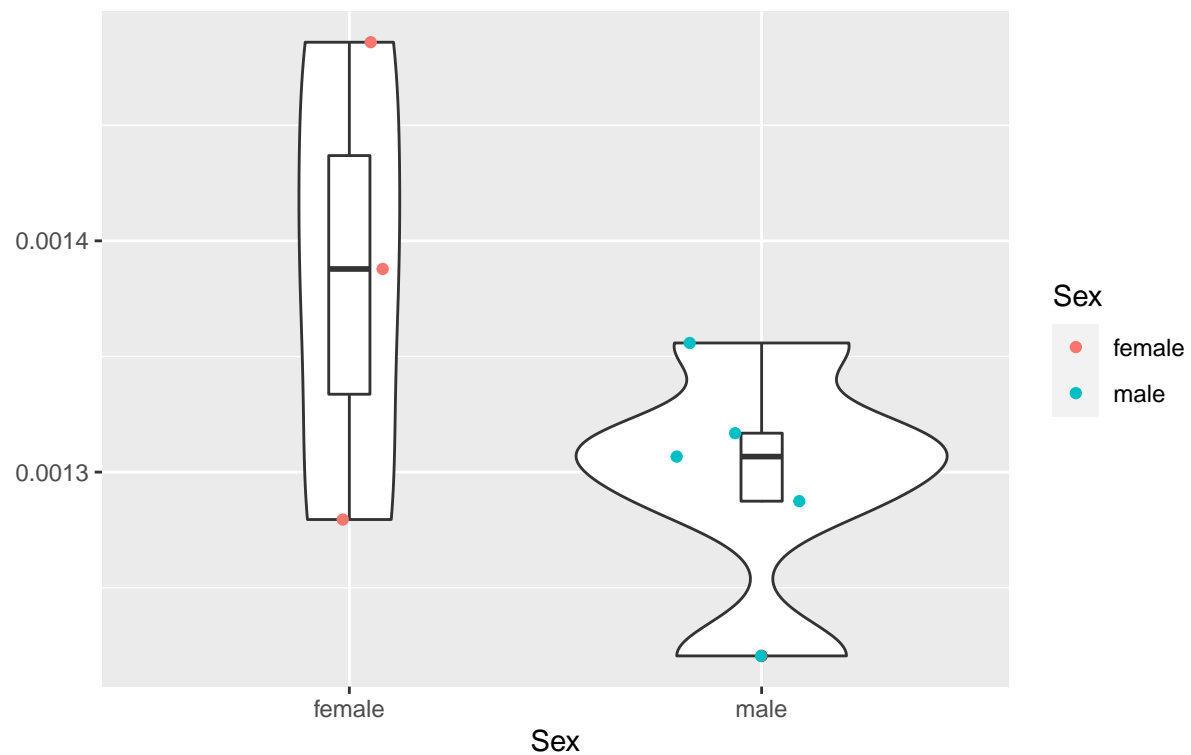
Left Primary Somatosensory Cortex Shoulder Region

Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.213e-08 1.213e-08    1.67  0.244
## Residuals   6 4.358e-08 7.264e-09
```
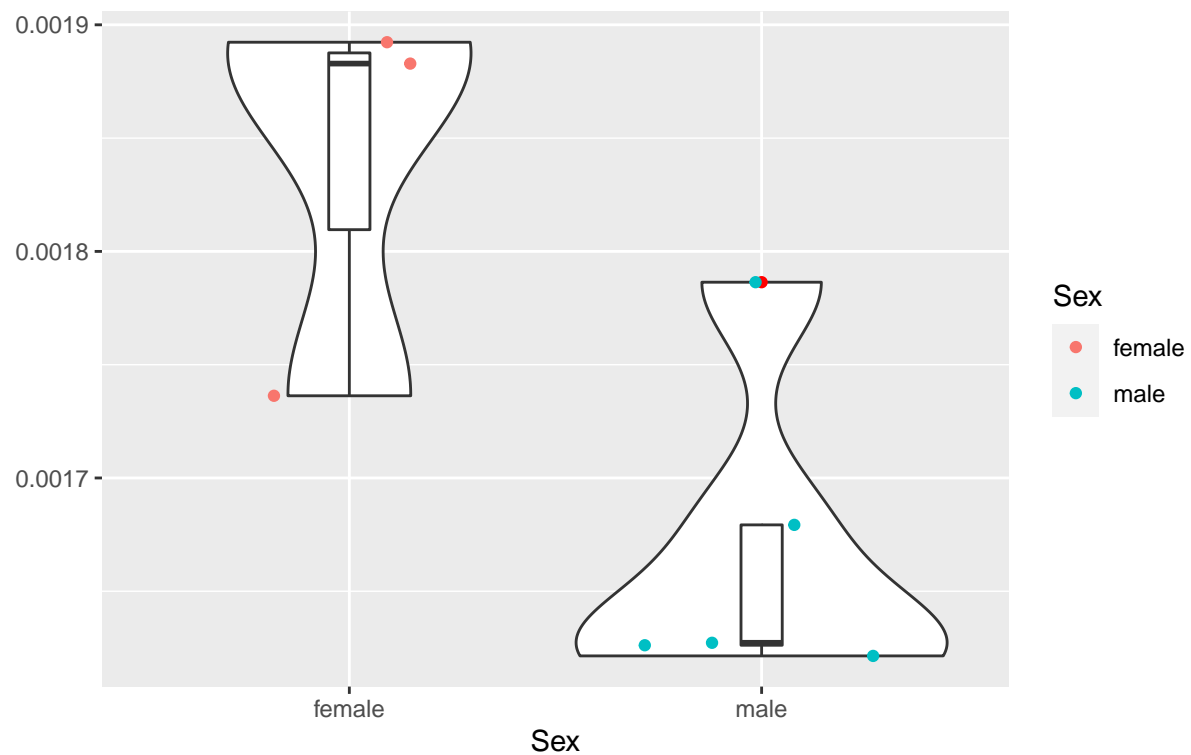
Left Primary Somatosensory Cortex Jaw Region
Red points denoting outliers


```
##              Df    Sum Sq    Mean Sq F value Pr(>F)
## Sex           1 1.417e-08 1.417e-08   2.725   0.15
## Residuals     6 3.120e-08 5.200e-09
```

Left Primary Somatosensory Cortex Hindlimb Region
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 5.358e-08 5.358e-08   9.176 0.0231 *
## Residuals   6 3.503e-08 5.840e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

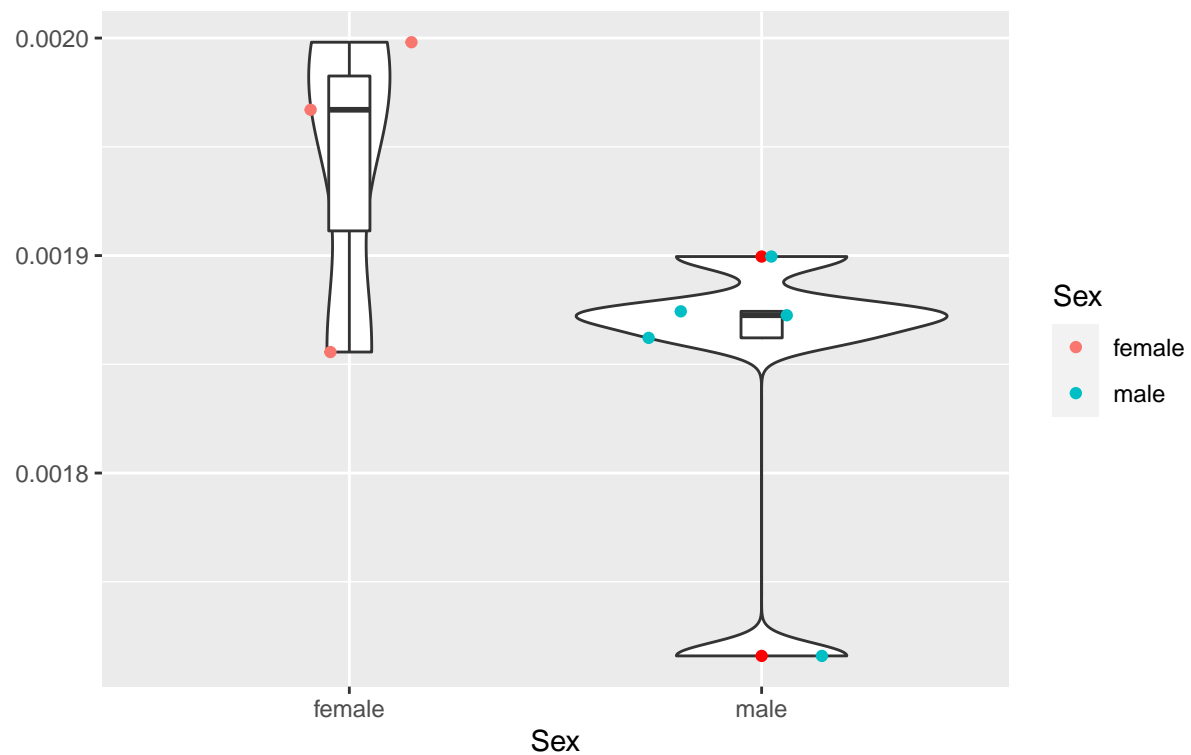# Left Primary Somatosensory Cortex Forelimb Region

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.170e-09 6.170e-09   1.832  0.225
## Residuals    6 2.021e-08 3.369e-09
```
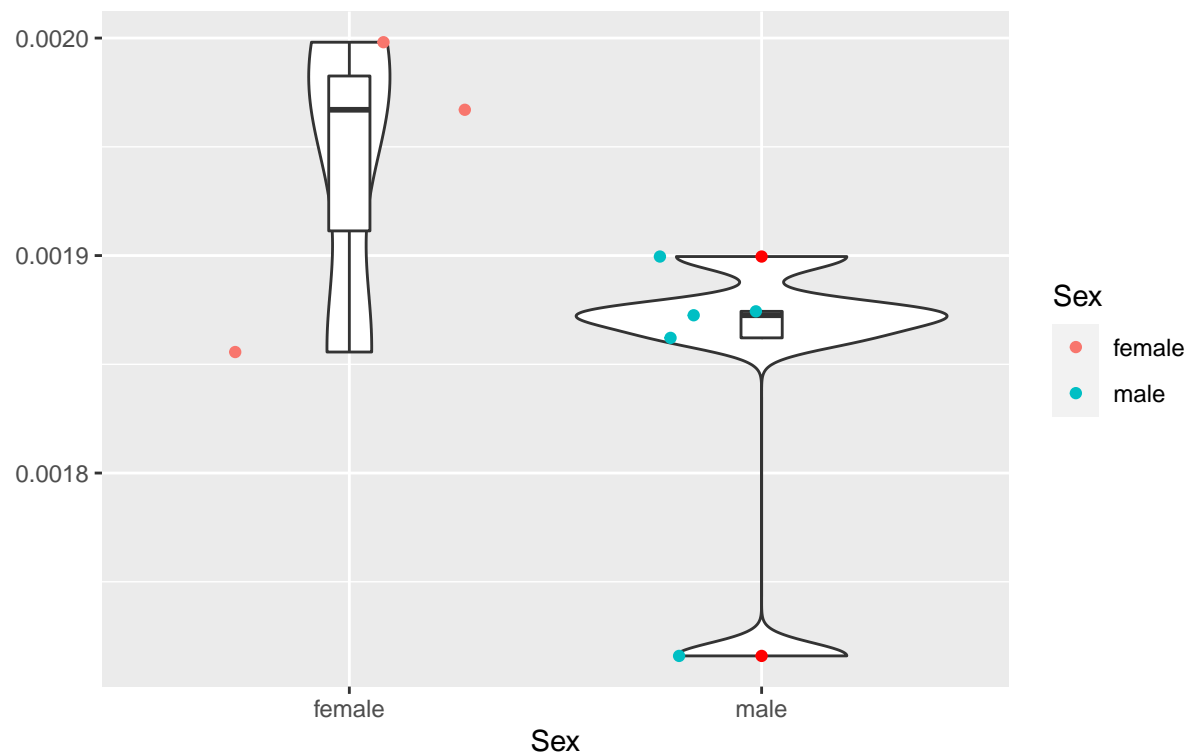
Left Primary Somatosensory Cortex Dysgranular Zone

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 9.820e-10 9.820e-10   0.294  0.607
## Residuals    6 2.003e-08 3.338e-09
```

Left Primary Somatosensory Cortex Barrel Field
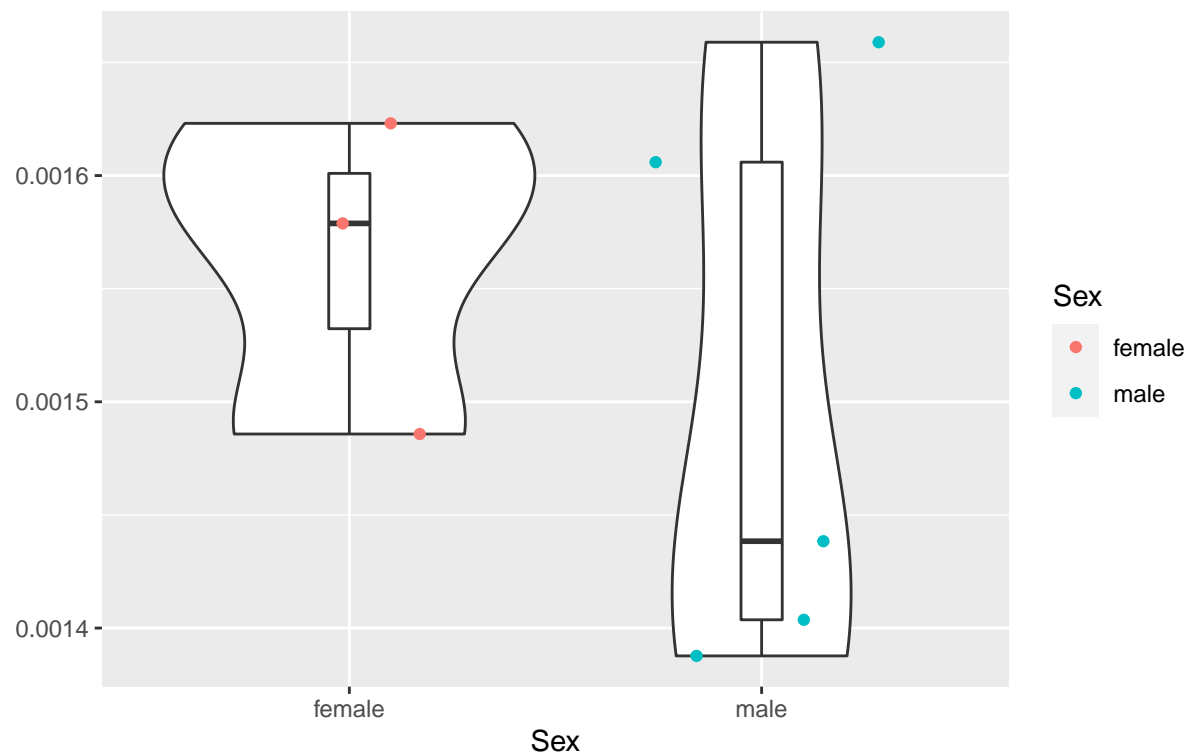Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.705e-08 1.705e-08   3.121  0.128
## Residuals   6 3.277e-08 5.462e-09
```
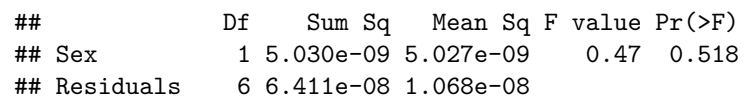
Left Primary Somatosensory Cortex
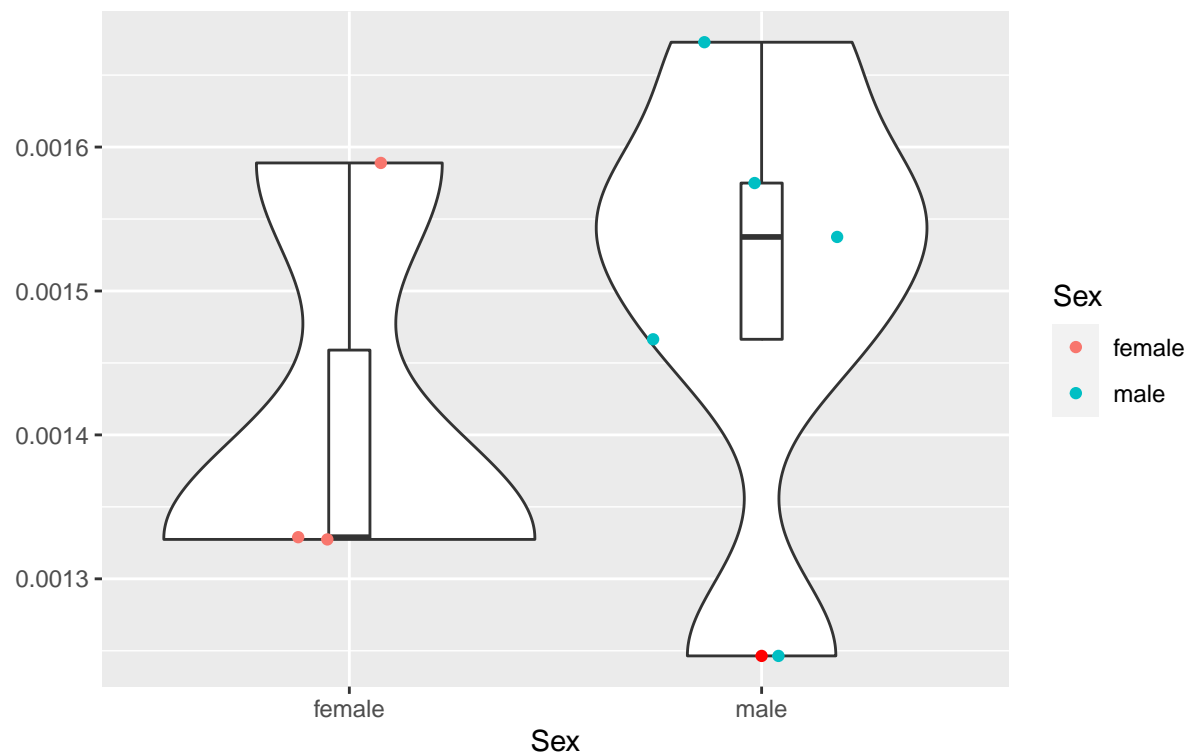
Red points denoting outliers


```
##              Df  Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 7.6e-09 7.596e-09   0.633  0.457
## Residuals    6 7.2e-08 1.200e-08
```

Left Parietal Cortex Posterial Area Rostral Part

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 5.030e-09 5.027e-09    0.47  0.518
## Residuals   6 6.411e-08 1.068e-08
```

Left Medial Parietal Association Cortex
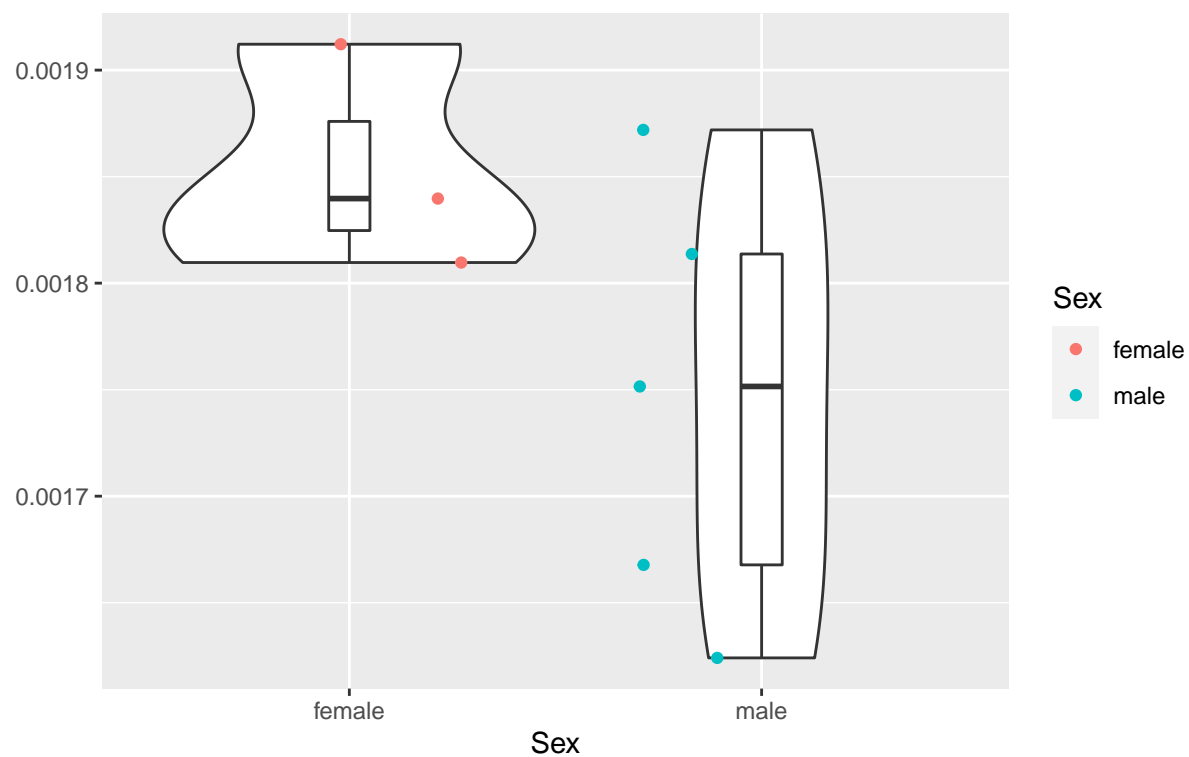
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.341e-08 1.341e-08   0.545  0.488
## Residuals    6 1.477e-07 2.461e-08
```

Left Medial Orbital Cortex
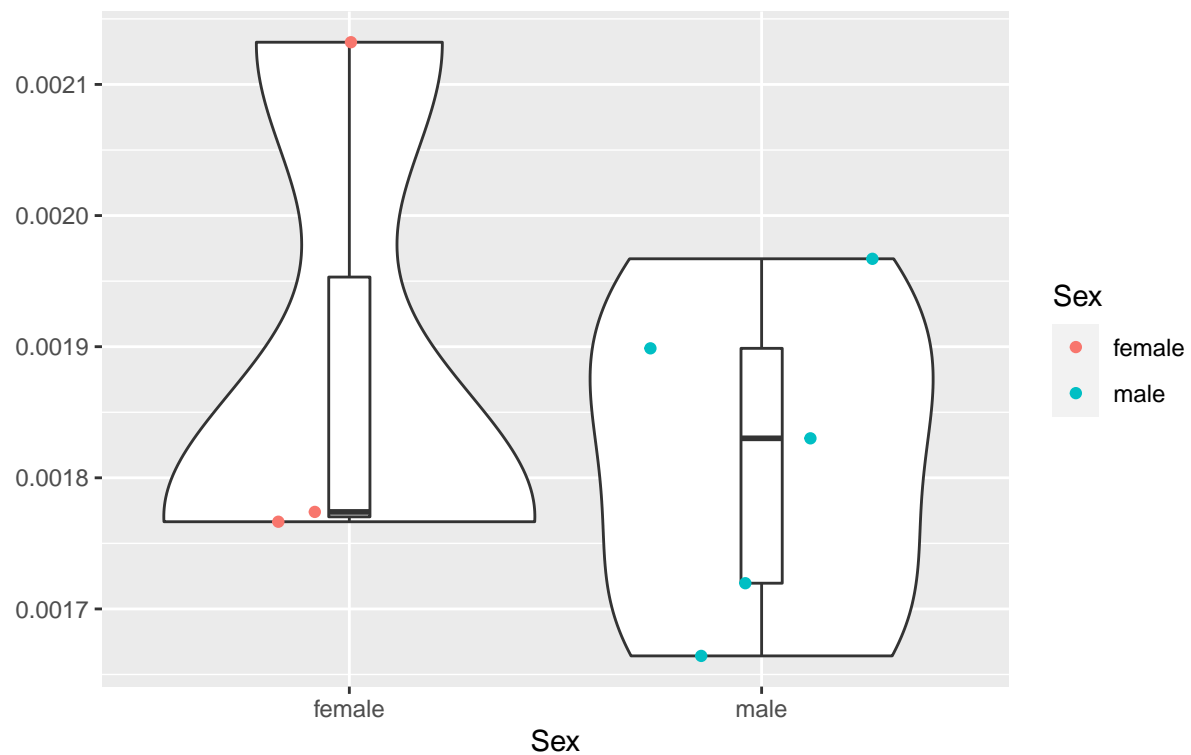Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.189e-08 2.189e-08   2.794  0.146
## Residuals    6 4.701e-08 7.835e-09
```

Left Secondary Motor Cortex
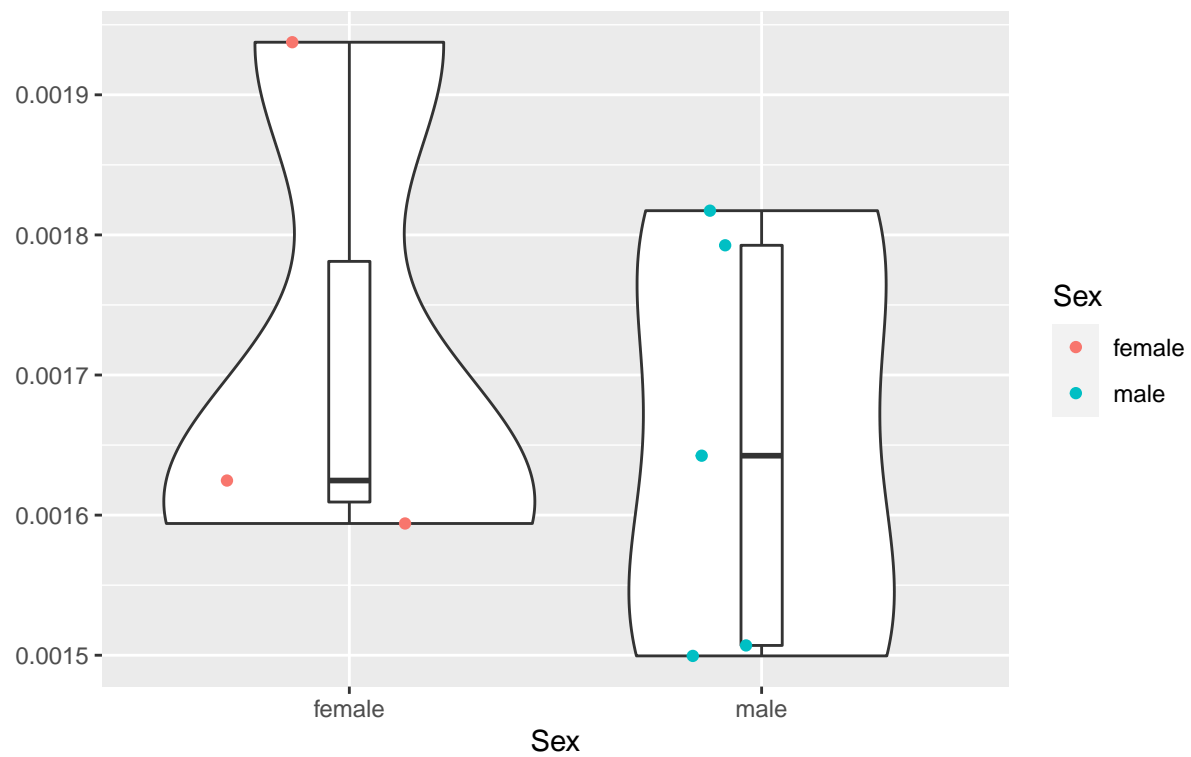Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.054e-08 1.054e-08   0.423   0.54
## Residuals   6 1.496e-07 2.493e-08
```

Left Primary Motor Cortex
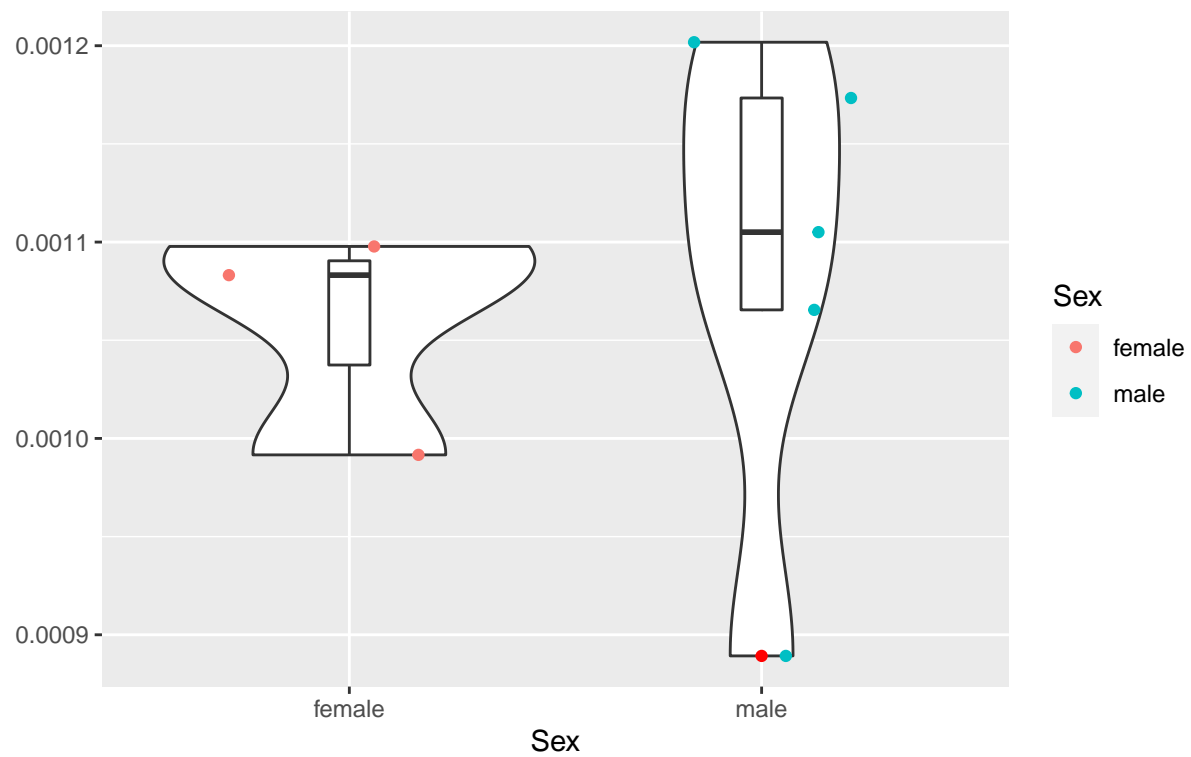Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 8.410e-09 8.414e-09   0.308  0.599
## Residuals    6 1.637e-07 2.729e-08
```

Left Lateral Parietal Association Cortex
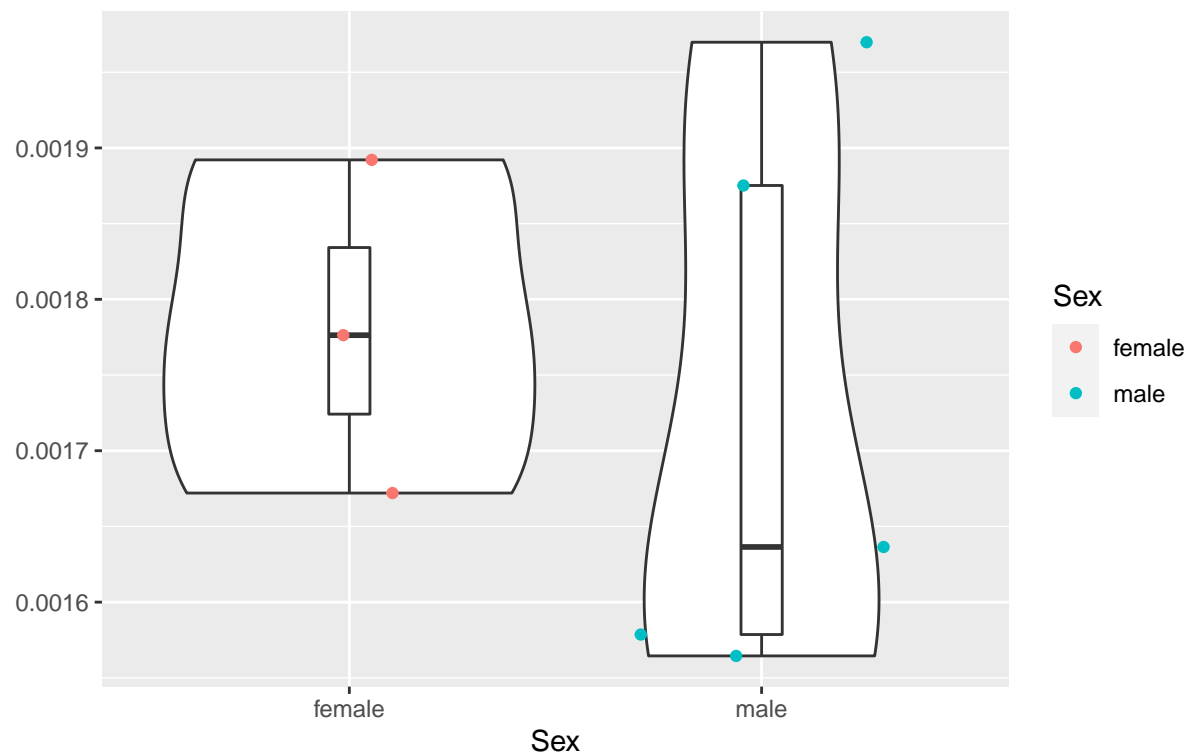Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.630e-09 1.628e-09   0.145  0.716
## Residuals   6 6.715e-08 1.119e-08
```

Left Lateral Orbital Cortex
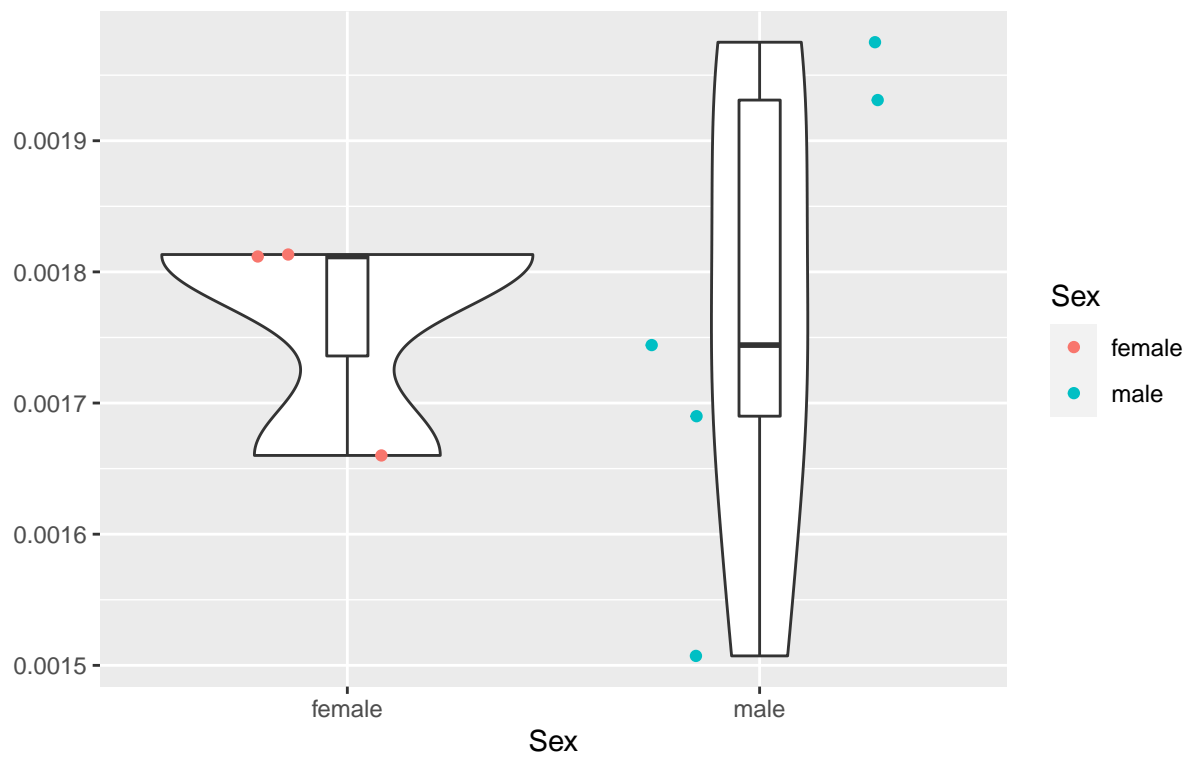Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 5.720e-09 5.724e-09   0.212  0.661
## Residuals    6 1.618e-07 2.696e-08
```

Left Insular Cortex
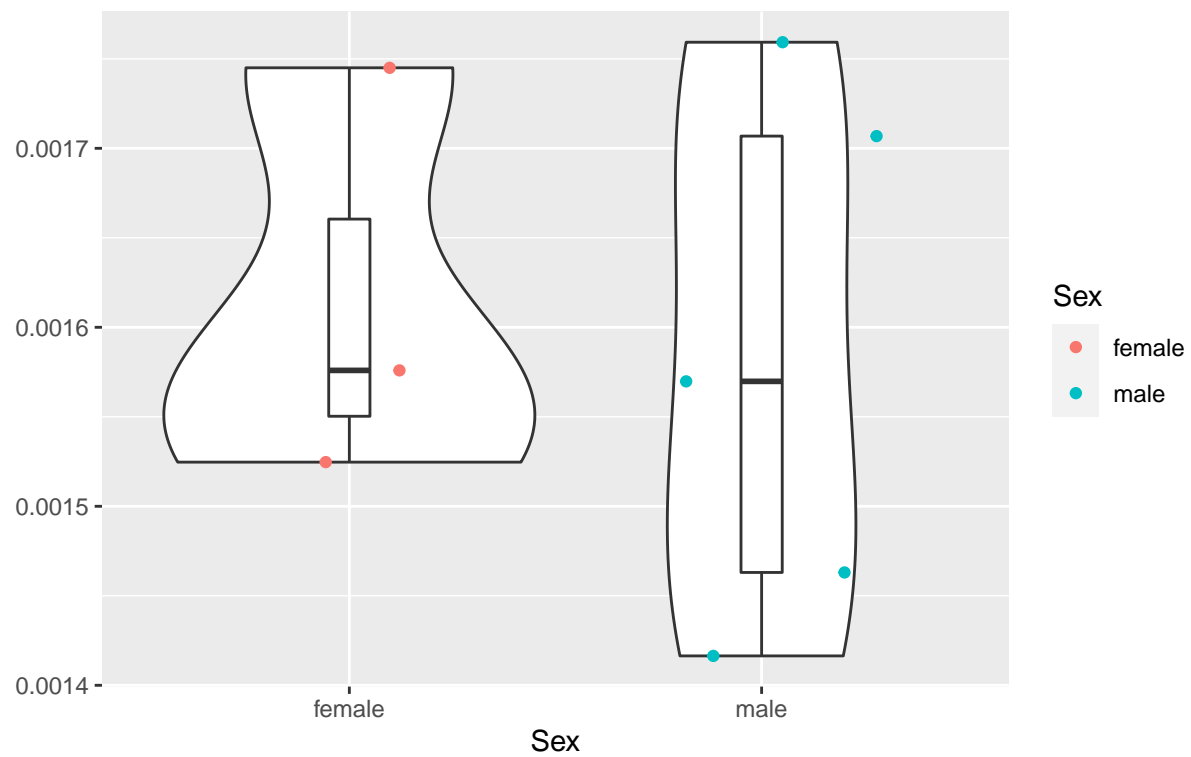Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex           1 1.100e-10  1.15e-10   0.004   0.95
## Residuals     6 1.596e-07  2.66e-08
```

Left Frontal Assocation Cortex
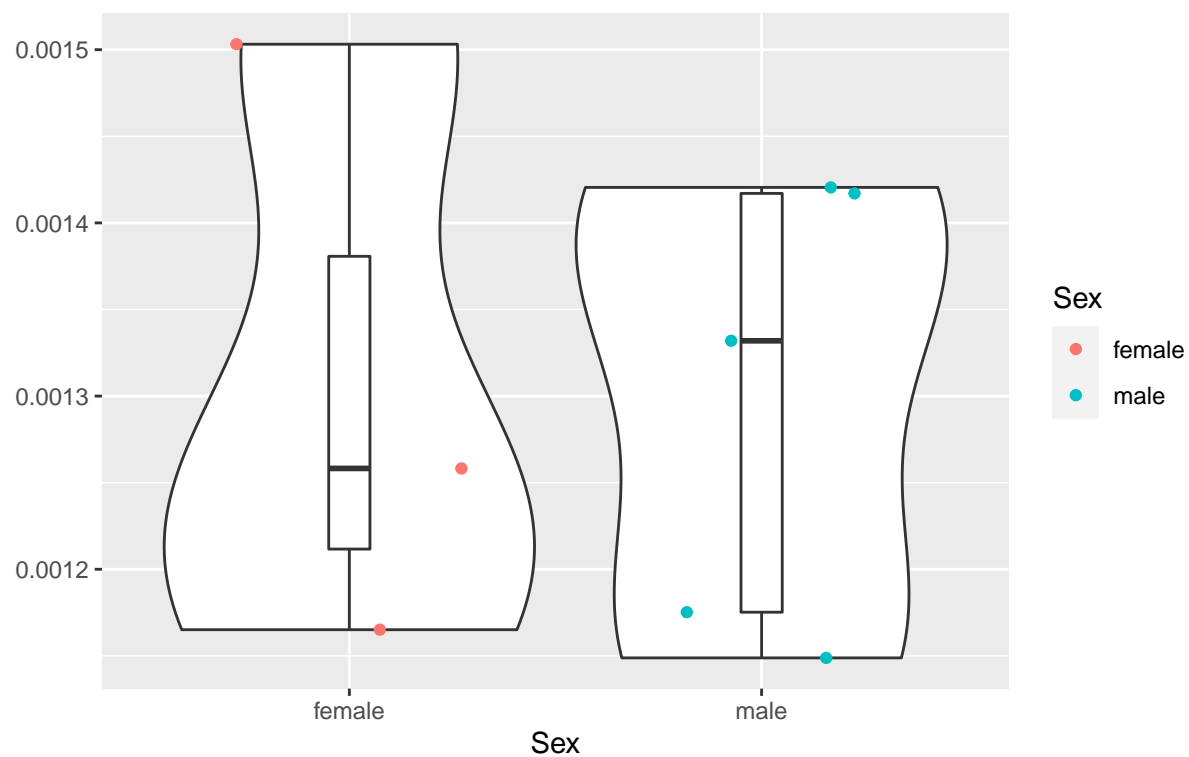Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.940e-09 1.935e-09   0.101  0.762
## Residuals   6 1.153e-07 1.922e-08
```

Left Frontal Cortex Area 3
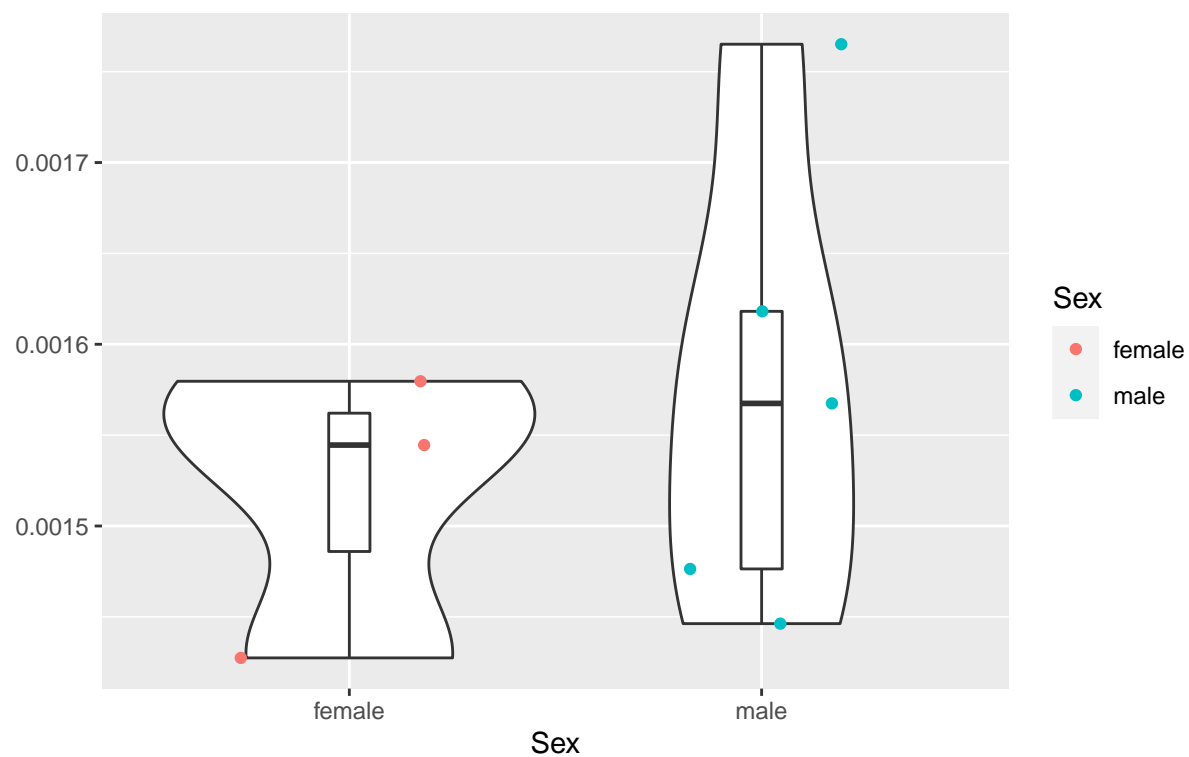
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.900e-10 1.930e-10   0.009  0.928
## Residuals    6 1.287e-07 2.144e-08
```

Left Dorsolateral Orbital Cortex
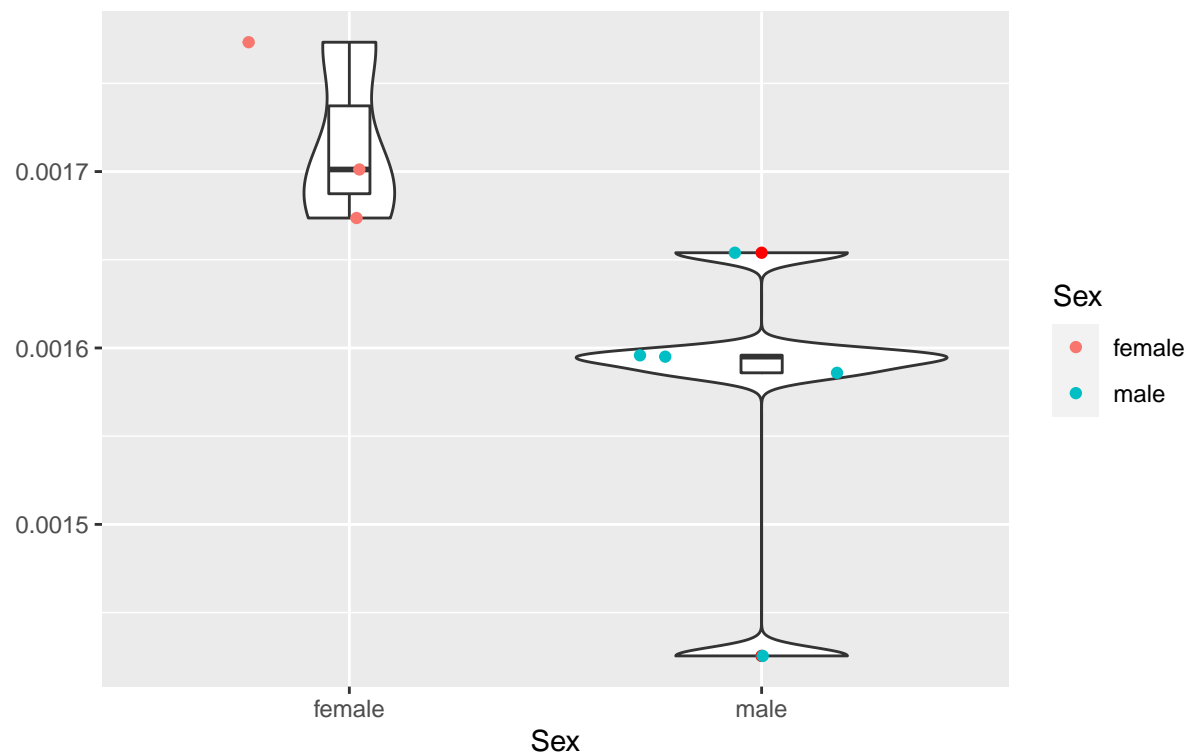
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 6.190e-09 6.192e-09   0.482  0.513
## Residuals    6 7.706e-08 1.284e-08
```

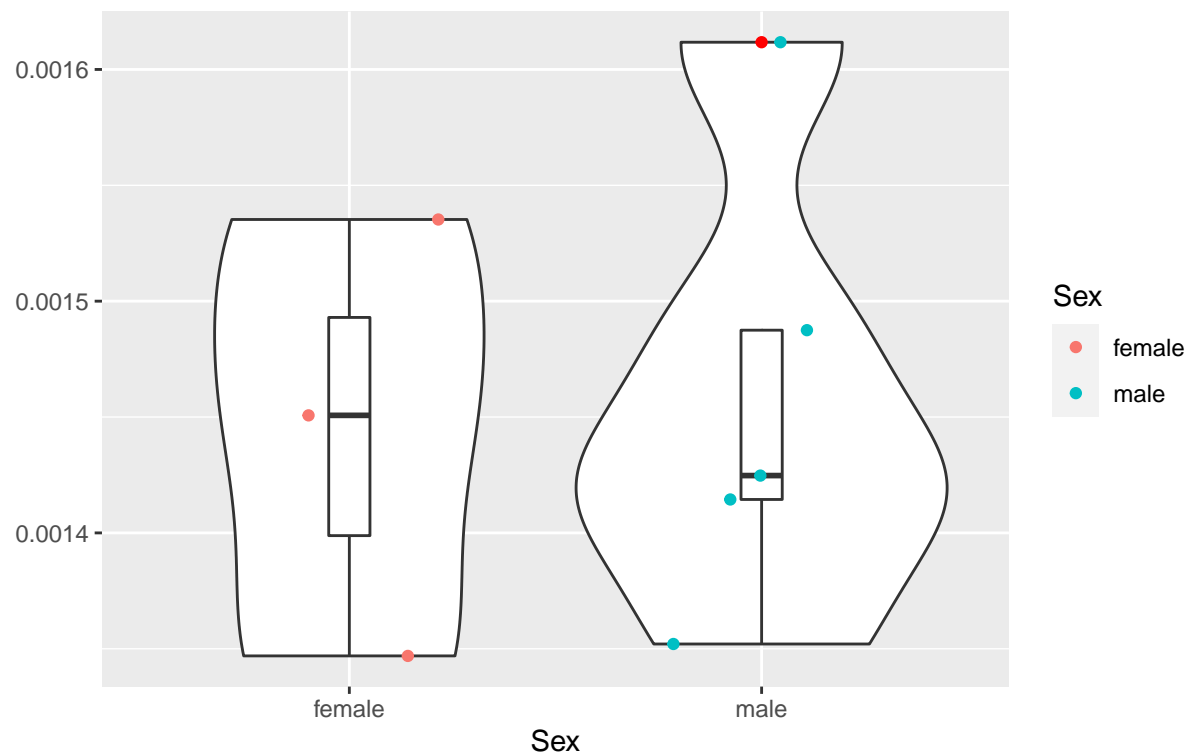## Left Secondary Auditory Cortex Ventral Part
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 3.932e-08 3.932e-08   6.781 0.0404 *
## Residuals   6 3.479e-08 5.800e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
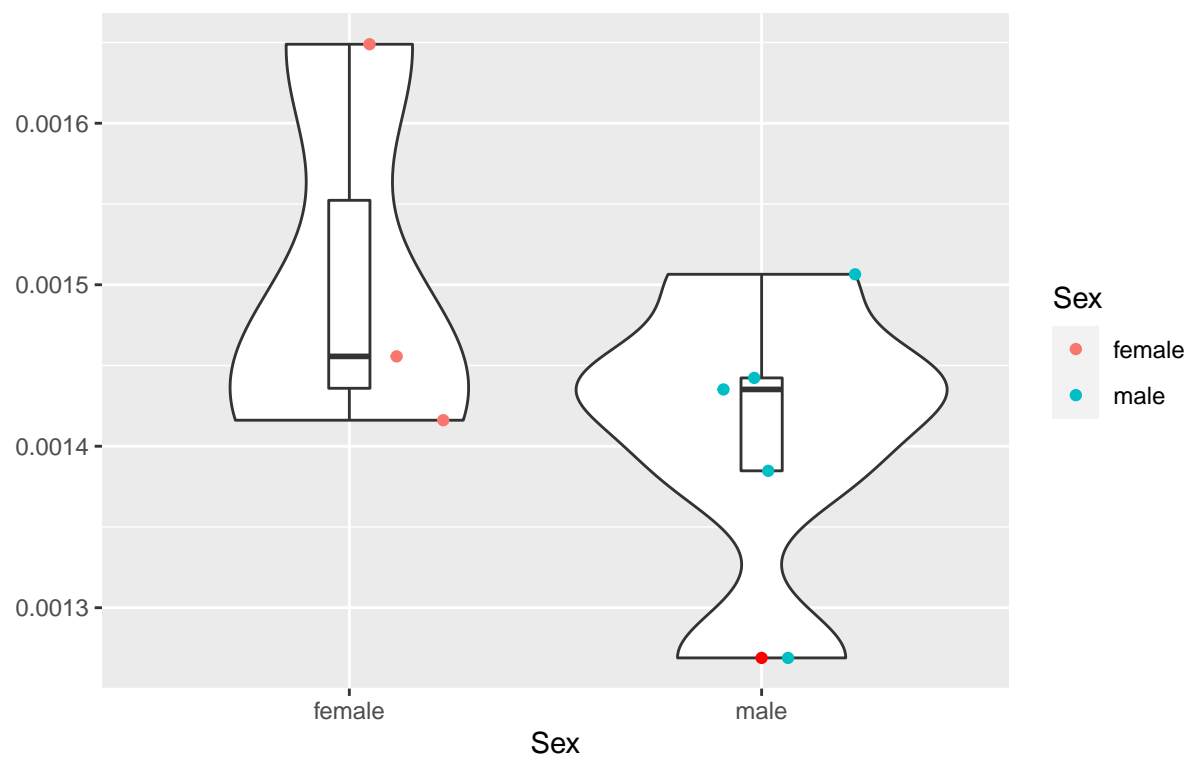
Left Secondary Auditory Cortex Dorsal Part

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.600e-10 3.570e-10   0.038  0.852
## Residuals    6 5.653e-08 9.422e-09
```

Left Primary Auditory Cortex
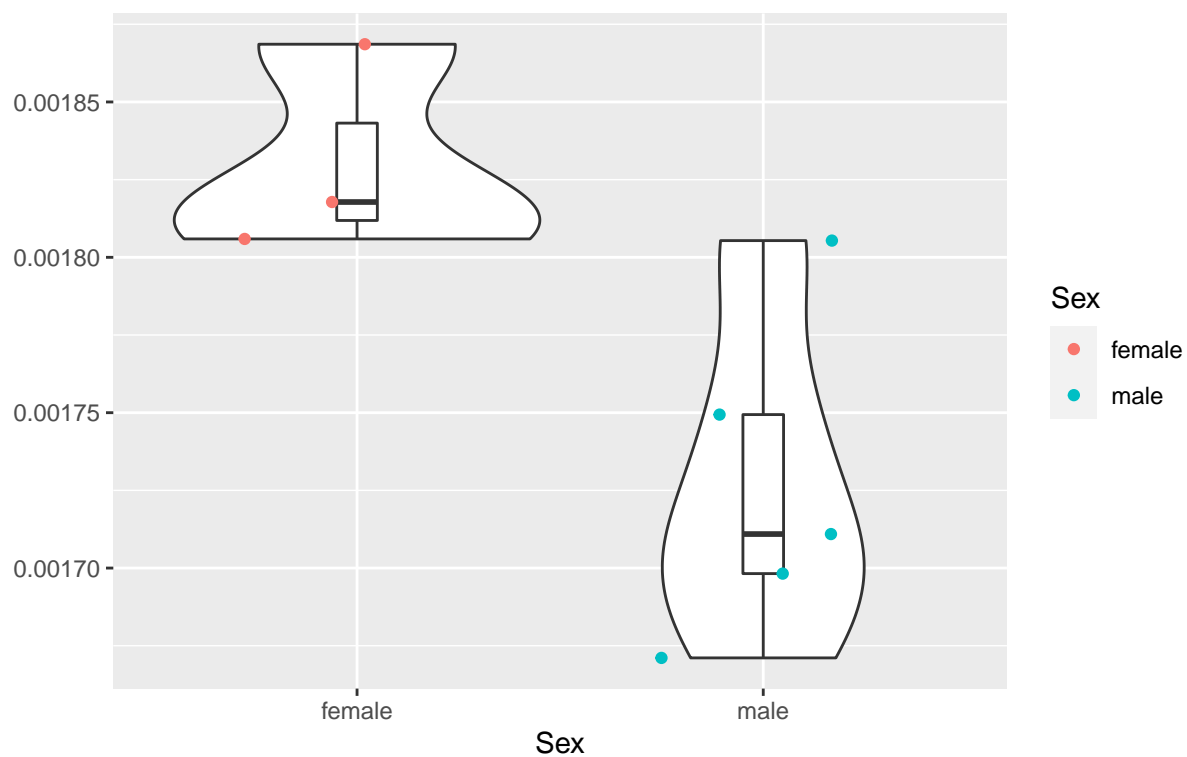
Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 1.852e-08 1.852e-08   1.776  0.231
## Residuals   6 6.254e-08 1.042e-08
```

Left Cingulate Cortex Area 32
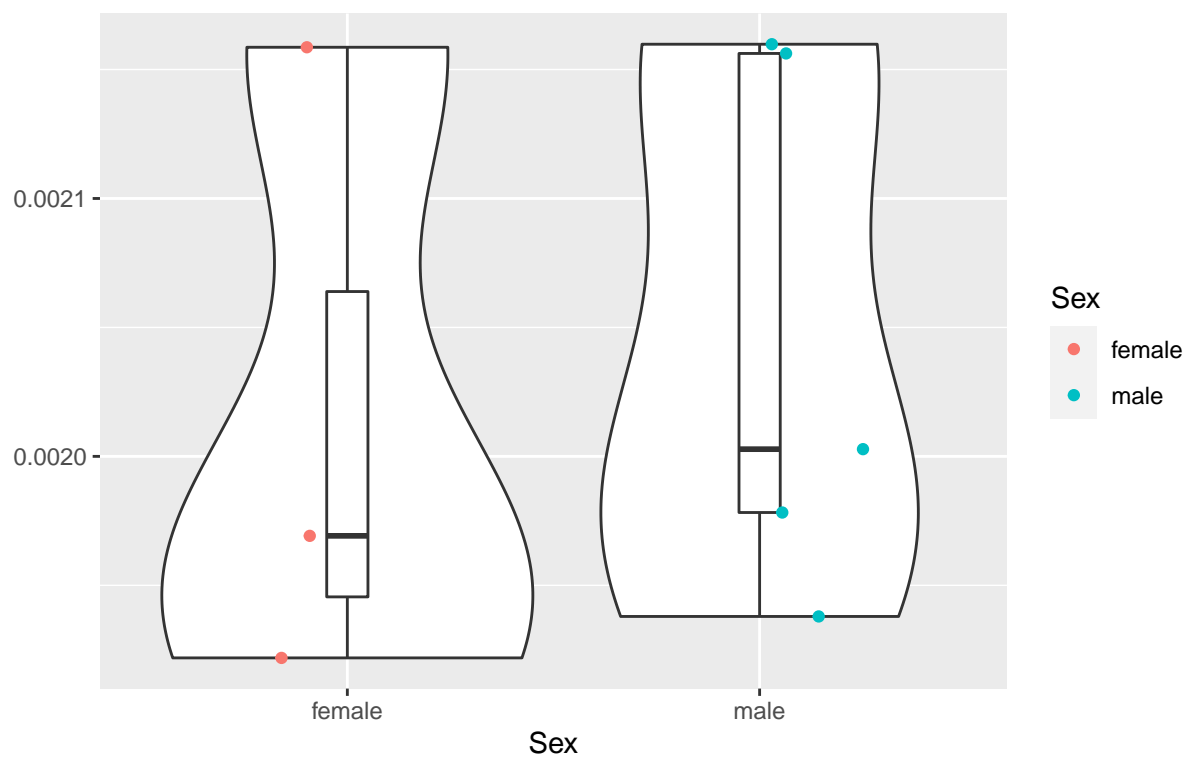### Red points denoting outliers


```
##              Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 2.019e-08 2.019e-08   9.265 0.0227 *
## Residuals    6 1.307e-08 2.179e-09
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```
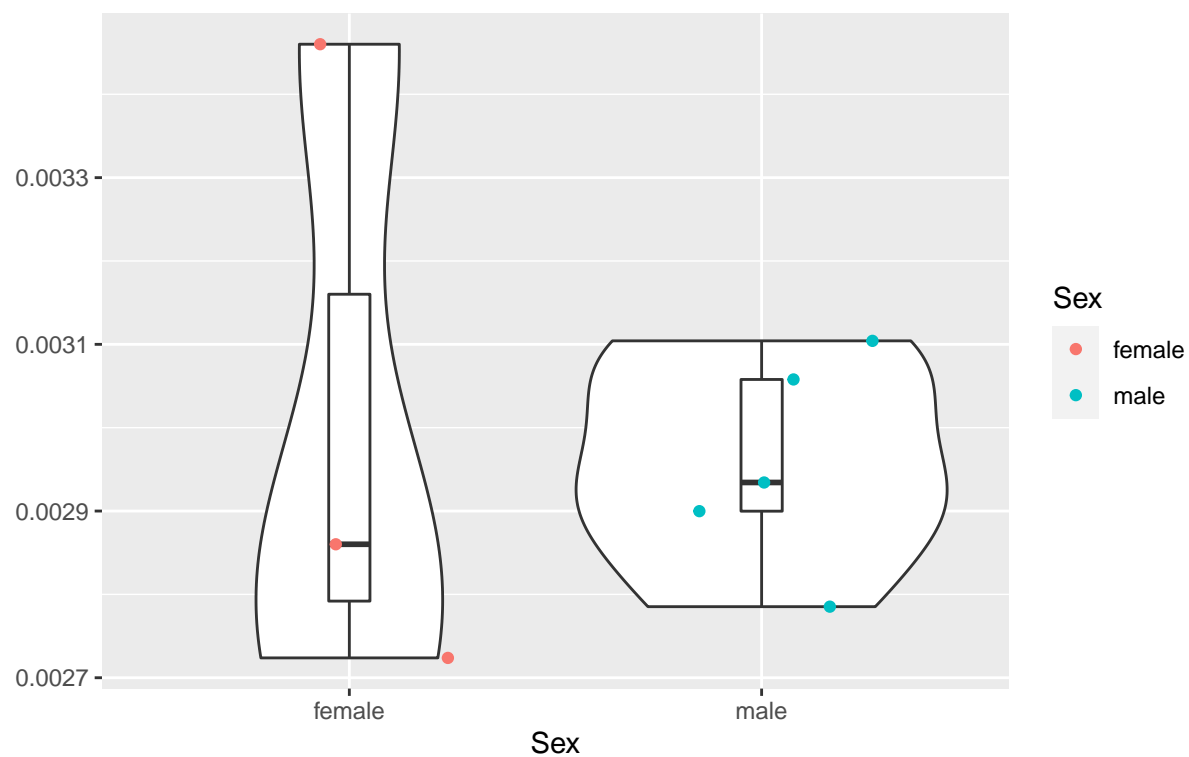
Left Cingulate Cortex Area 30

Red points denoting outliers


```
##            Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 1.740e-09 1.738e-09    0.14  0.721
## Residuals  6 7.463e-08 1.244e-08
```

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Left Cingulate Cortex Area 29c
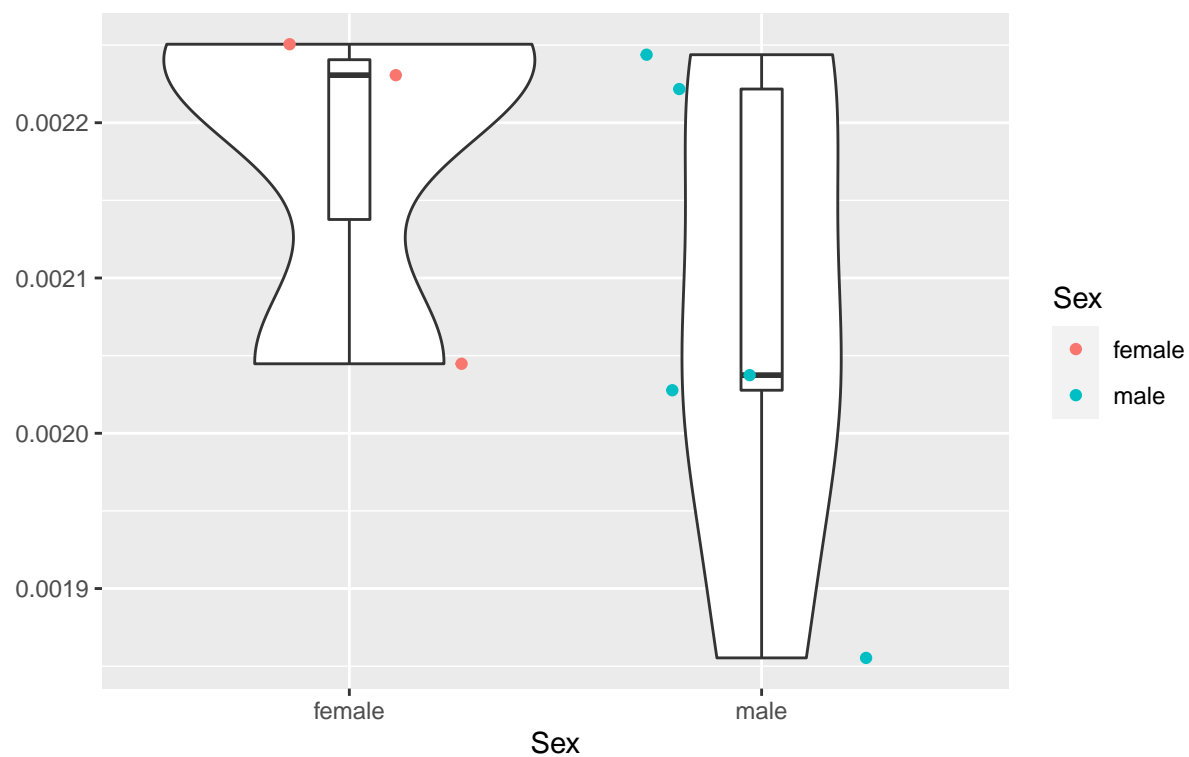Red points denoting outliers
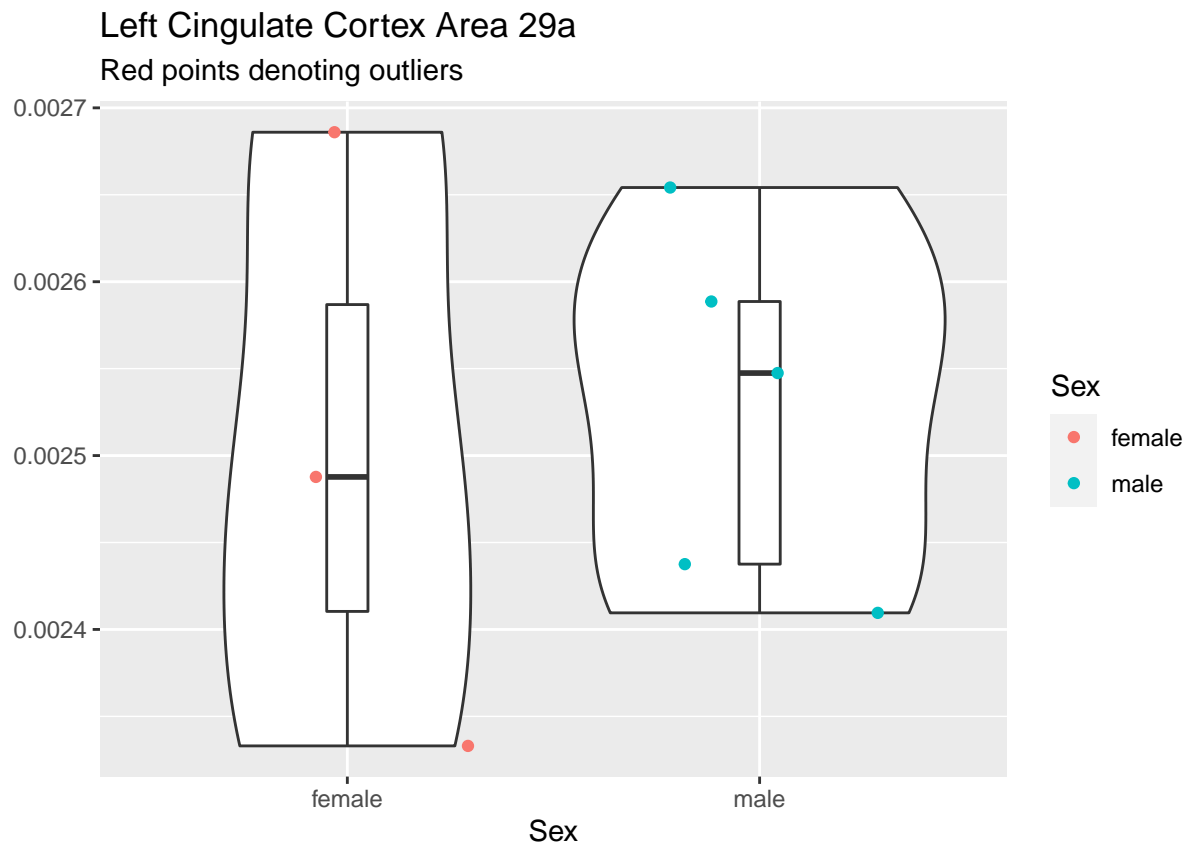


```
##             Df   Sum Sq  Mean Sq F value Pr(>F)
## Sex          1 6.40e-09 6.39e-09   0.103  0.759
## Residuals    6 3.72e-07 6.20e-08
```

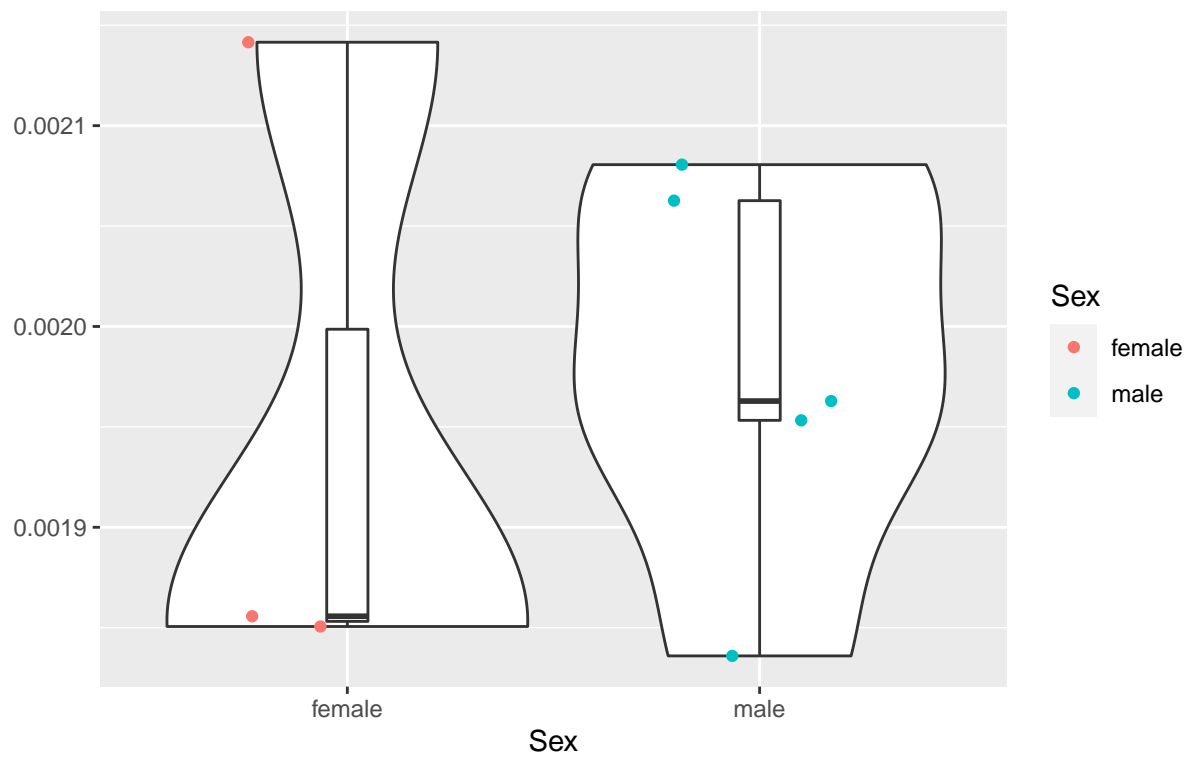## Left Cingulate Cortex Area 29b
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.805e-08 1.805e-08   0.848  0.393
## Residuals    6 1.277e-07 2.128e-08
```

Left Cingulate Cortex Area 29a

Red points denoting outliers


```
##           Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex        1 1.190e-09 1.193e-09   0.068  0.803
## Residuals  6 1.048e-07 1.747e-08
```

Left Cingulate Cortex Area 24b Prime
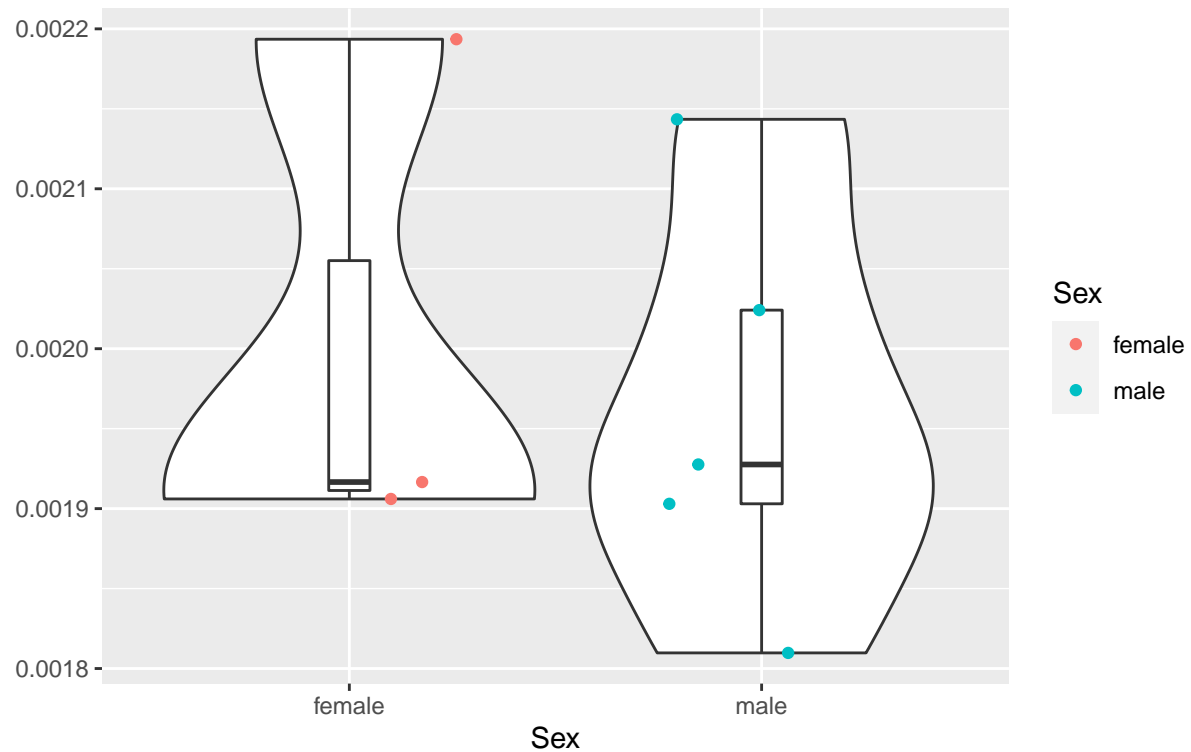Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.660e-09 1.663e-09   0.106  0.756
## Residuals    6 9.418e-08 1.570e-08
```

Left Cingulate Cortex Area 24b
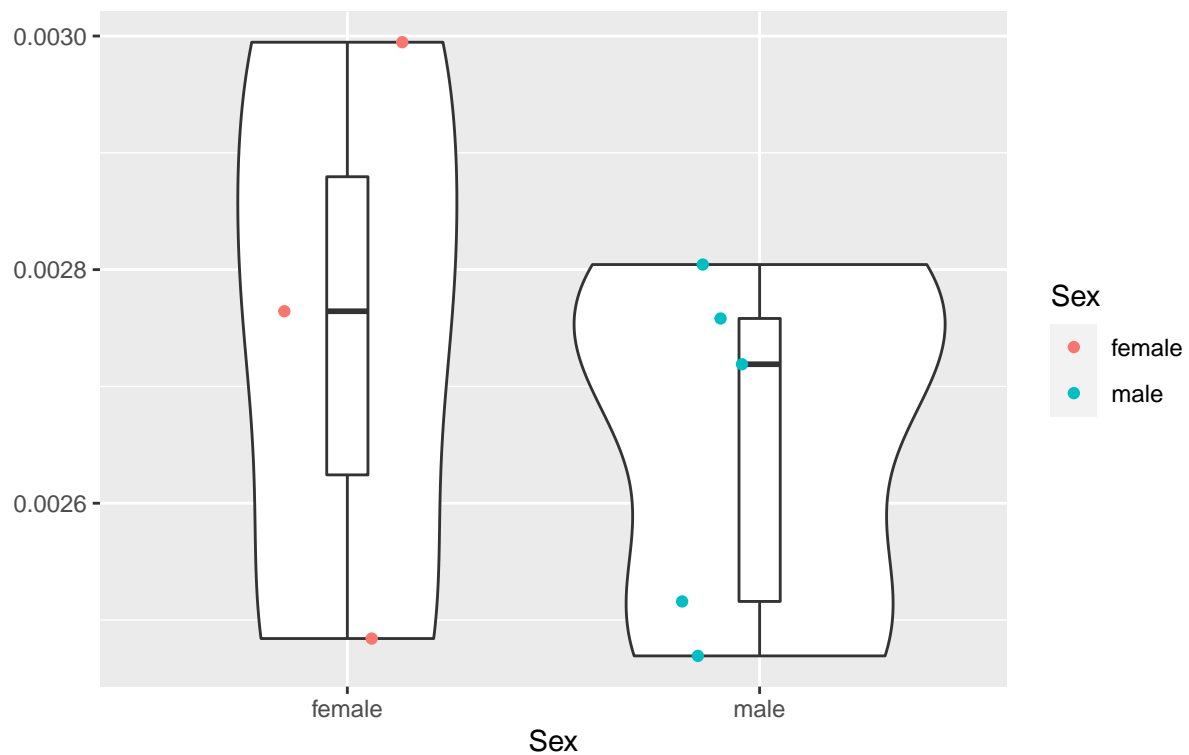Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 3.600e-09 3.598e-09   0.183  0.683
## Residuals    6 1.178e-07 1.963e-08
```
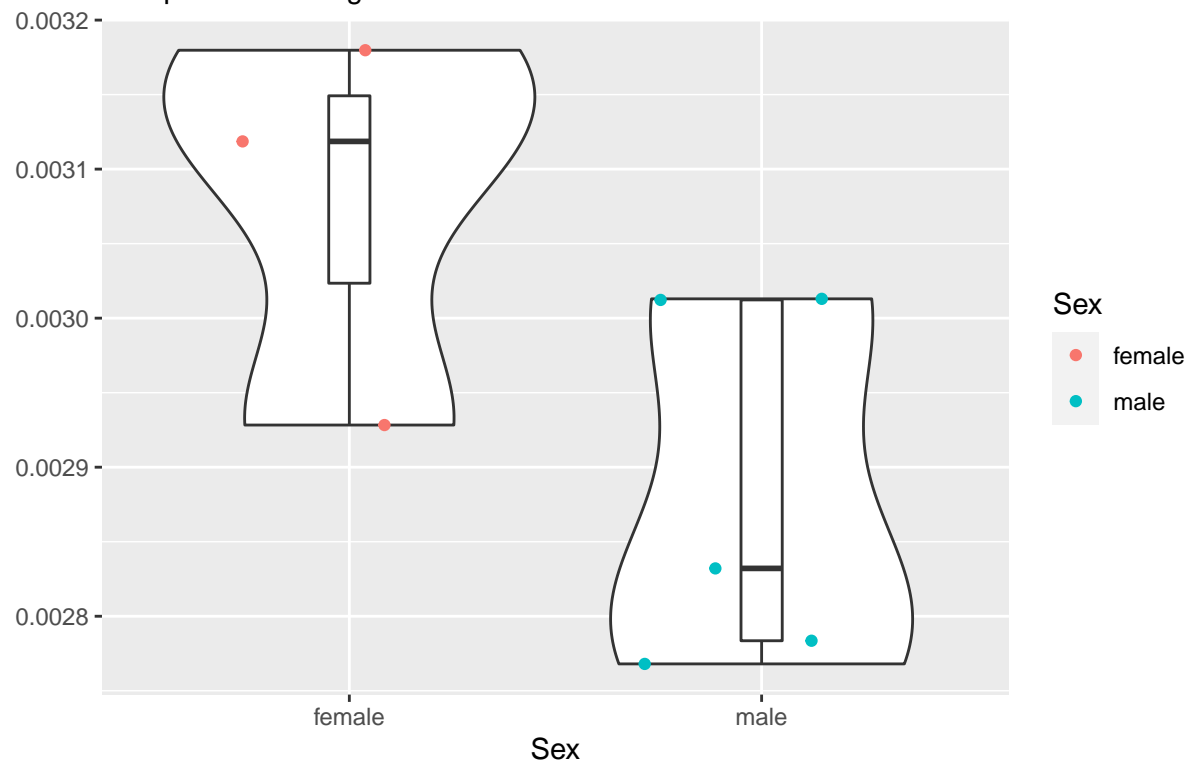
Left Cingulate Cortex Area 24a Prime

Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 1.671e-08 1.671e-08   0.452  0.526
## Residuals    6 2.216e-07 3.694e-08
```

Left Cingulate Cortex Area 24a
Red points denoting outliers


```
##            Df   Sum Sq   Mean Sq F value Pr(>F)
## Sex         1 7.041e-08 7.041e-08   4.509 0.0779 .
## Residuals   6 9.369e-08 1.561e-08
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Exterior
Red points denoting outliers


```
##             Df    Sum Sq   Mean Sq F value Pr(>F)
## Sex          1 0.0009902 0.0009902   2.913  0.139
## Residuals    6 0.0020396 0.0003399
```