Repeated Measures PERMANOVA

Luminal

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2       Pr(>F)
Sequencing_Run  1     6.720  6.7196  5.7328 0.06135    0.407059
Sex             1    23.945 23.9452 20.4288 0.21861    0.005399 **
Site_General    1    22.607 22.6066 19.2869 0.20639 0.00009999 ***
Residuals      48    56.262  1.1721         0.51365 0.00009999 ***
Total          51   109.533                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Mucosal

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2 Pr(>F)
Sequencing_Run  2    20.855 10.4275 10.5299 0.23393 0.2345
Sex             1    25.763 25.7630 26.0160 0.28898 0.0013 **
Site_General    1     5.892  5.8917  5.9496 0.06609 0.0048 **
Residuals      37    36.640  0.9903         0.41100 0.0003 ***
Total          41    89.150                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Mucosal SI

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)
```

```
                  Df SumsOfSqs MeanSqs F.Model      R2 Pr(>F)
Sequencing_Run  2    17.101  8.5505 11.0152 0.42416 0.1261
Sex             1    10.826 10.8257 13.9462 0.26851 0.1110
Site            2     2.300  1.1500  1.4815 0.05705 0.1475
Residuals      13    10.091  0.7762         0.25029 0.0130 *
Total          18    40.318                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Mucosal Colon

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)

                  Df SumsOfSqs MeanSqs F.Model      R2   Pr(>F)
Sequencing_Run  2    13.008  6.5042  6.5230 0.27423 0.186881
Sex             1    16.336 16.3357 16.3829 0.34437 0.009199 **
Site            2     1.141  0.5706  0.5723 0.02406 0.832017
Residuals      17    16.951  0.9971         0.35734 0.005000 **
Total          22    47.436                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Luminal SI

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)

                  Df SumsOfSqs MeanSqs F.Model      R2      Pr(>F)
Sequencing_Run  1     0.280  0.2796  0.1825 0.00531     0.8884
Sex             1    20.315 20.3151 13.2607 0.38604 0.00009999 ***
Site            2     1.390  0.6951  0.4537 0.02642     0.5645
Residuals      20    30.640  1.5320         0.58223     0.0343 *
Total          24    52.625                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Luminal Colon

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)

              Df SumsOfSqs MeanSqs F.Model      R2 Pr(>F)
Sequencing_Run  1    19.638 19.6377 16.2834 0.35975 0.0273 *
Sex             1     8.234  8.2343  6.8278 0.15085 0.2977
Site            2     0.184  0.0918  0.0761 0.00336 0.9387
Residuals      22    26.532  1.2060         0.48604 0.0174 *
Total          26    54.587                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Colon

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)

              Df SumsOfSqs MeanSqs F.Model      R2 Pr(>F)
Sequencing_Run  1    17.374 17.3737 13.3925 0.17087 0.0284 *
Sex             1    24.760 24.7604 19.0866 0.24352 0.0213 *
Site            2     0.601  0.3003  0.2315 0.00591 0.8999
Type            1     1.864  1.8637  1.4366 0.01833 0.2295
Residuals      44    57.080  1.2973         0.56138 0.0257 *
Total          49   101.678                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

SI

```
Permutation: free
Number of permutations: 0

Terms added sequentially (first to last)

              Df SumsOfSqs MeanSqs F.Model      R2   Pr(>F)
Sequencing_Run  1     4.970  4.9701  3.0950 0.05295 0.615038
Sex             1    21.564 21.5636 13.4283 0.22974 0.009499 **
Site            2     1.985  0.9925  0.6181 0.02115 0.493451
Type            1     4.319  4.3191  2.6896 0.04602 0.091391 .
```

```
Residuals     38    61.022  1.6058          0.65014 0.028797 *
Total         43    93.860                  1.00000
---
```