Full Dataset

Microbiota* Site General

```
                  Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)


                        Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run           2     51.20  25.600  19.590 0.12358 9.999e-05 ***
Sex                      1      3.31   3.312   2.535 0.00799   0.07359 .
Type                     1      1.86   1.865   1.427 0.00450   0.23648
Microbiota               1     90.58  90.576  69.313 0.21863 9.999e-05 ***
Site_General             1      7.08   7.075   5.414 0.01708   0.00310 **
Microbiota:Site_General  1     22.43  22.435  17.168 0.05415 9.999e-05 ***
Residuals              182    237.83   1.307         0.57406
Total                  189    414.29                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Microbiota* Site

```
Permutation: free
Number of permutations: 10000


Terms added sequentially (first to last)


                Df SumsOfSqs MeanSqs F.Model      R2    Pr(>F)
Sequencing_Run   2     51.20  25.600  19.273 0.12358 9.999e-05 ***
Sex              1      3.31   3.312   2.493 0.00799   0.07489 .
Type             1      1.86   1.865   1.404 0.00450   0.24058
Microbiota       1     90.58  90.576  68.190 0.21863 9.999e-05 ***
Site             5     10.50   2.100   1.581 0.02534   0.10069
Microbiota:Site  5     25.72   5.144   3.873 0.06208   0.00020 ***
Residuals      174    231.12   1.328         0.55787
Total          189    414.29                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Microbiota * Type

```
Terms added sequentially (first to last)


                Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run   2     51.20  25.600  17.757 0.12358 9.999e-05 ***
Sex              1      3.31   3.312   2.297 0.00799   0.09469 .
Site             5     11.58   2.317   1.607 0.02796   0.09129 .
Type             1      1.54   1.541   1.069 0.00372   0.34707
Microbiota       1     89.81  89.814  62.300 0.21679 9.999e-05 ***
Type:Microbiota  1      0.23   0.231   0.160 0.00056   0.89191
Residuals      178    256.61   1.442         0.61939
Total          189    414.29                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Site Subsets

Luminal Colon

```
Permutation: free
Number of permutations: 10000


Terms added sequentially (first to last)


                Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run   2    14.247   7.124   6.591 0.12065   0.00020 ***
Sex              1     3.112   3.112   2.879 0.02635   0.05609 .
Microbiota       1    51.047  51.047  47.230 0.43228 9.999e-05 ***
Site             2     0.397   0.199   0.184 0.00337   0.96570
Microbiota:Site  2     0.648   0.324   0.300 0.00549   0.90221
Residuals       45    48.637   1.081         0.41187
Total           53   118.090                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Luminal SI

```
Permutation: free
Number of permutations: 10000
```

```
Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run   1     2.449  2.4490  1.4476 0.02344 0.2396760
Sex              1    12.045 12.0452  7.1201 0.11531 0.0005999 ***
Microbiota       1    13.928 13.9277  8.2329 0.13333 0.0002000 ***
Site             2     1.384  0.6920  0.4091 0.01325 0.8271173
Microbiota:Site  2     5.294  2.6471  1.5647 0.05068 0.1865813
Residuals       41    69.361  1.6917         0.66399
Total           48   104.461                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Mucosal Colon

```
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run   2    20.931  10.465  8.4494 0.19255 9.999e-05 ***
Sex              1     1.448   1.448  1.1693 0.01332    0.3079
Microbiota       1    34.028  34.028 27.4732 0.31303 9.999e-05 ***
Site             2     1.550   0.775  0.6259 0.01426    0.6593
Microbiota:Site  2     1.204   0.602  0.4862 0.01108    0.7584
Residuals       40    49.543   1.239         0.45576
Total           48   108.705                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Mucosal SI

```
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run   2    25.922 12.9612  9.4652 0.29312 9.999e-05 ***
Sex              1     1.963  1.9635  1.4339 0.02220    0.2431
Microbiota       1    15.905 15.9048 11.6149 0.17985 9.999e-05 ***
Site             2     4.189  2.0947  1.5297 0.04737    0.1982
```

```
Microbiota:Site   2      0.745   0.3723   0.2719 0.00842      0.9344
Residuals        29     39.711   1.3693           0.44904
Total            37     88.436                    1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Type Subsets

Colon

```
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

               Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run  2    28.246  14.123  13.452 0.12614 9.999e-05 ***
Sex             1     5.054   5.054   4.814 0.02257  0.005799 **
Site            2     1.404   0.702   0.669 0.00627  0.629837
Microbiota      1    86.140  86.140  82.050 0.38468 9.999e-05 ***
Type            1     0.588   0.588   0.560 0.00263  0.590541
Microbiota:Type 1     3.810   3.810   3.629 0.01701  0.023098 *
Residuals      94    98.685   1.050          0.44070
Total         102   223.926                  1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

SI

```
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

               Df SumsOfSqs MeanSqs F.Model      R2    Pr(>F)
Sequencing_Run  2    10.983  5.4914  3.2066 0.05830   0.01160 *
Sex             1    12.519 12.5186  7.3101 0.06646   0.00050 ***
Site            2     3.270  1.6352  0.9549 0.01736   0.44986
Microbiota      1    23.074 23.0742 13.4739 0.12249 9.999e-05 ***
Type            1     0.927  0.9267  0.5411 0.00492   0.60854
Microbiota:Type 1     4.022  4.0219  2.3486 0.02135   0.09169 .
Residuals      78   133.575  1.7125          0.70911
Total          86   188.370                  1.00000
```

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Distal Colon

```
> data.adonis$aov.tab
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2    Pr(>F)
Sequencing_Run   2    16.056  8.0281  6.6146 0.22446    0.0002 ***
Sex              1     1.233  1.2326  1.0156 0.01723    0.3774
Microbiota       1    20.883 20.8825 17.2057 0.29193 9.999e-05 ***
Type             1     1.444  1.4441  1.1899 0.02019    0.3178
Microbiota:Type  1     1.575  1.5749  1.2976 0.02202    0.2717
Residuals       25    30.342  1.2137         0.42418
Total           31    71.533                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

PC

```
> data.adonis$aov.tab
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2    Pr(>F)
Sequencing_Run   2     8.014   4.007  3.3701 0.10244    0.0112 *
Sex              1     1.325   1.325  1.1142 0.01693    0.3424
Microbiota       1    33.836  33.836 28.4585 0.43250 9.999e-05 ***
Type             1     0.052   0.052  0.0434 0.00066    0.9805
Microbiota:Type  1     1.717   1.717  1.4442 0.02195    0.2401
Residuals       28    33.291   1.189         0.42553
Total           34    78.235                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Cec

```R
> data.adonis$aov.tab
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2      Pr(>F)
Sequencing_Run   2     9.343   4.672  4.1015 0.11720    0.00350 **
Sex              1     2.799   2.799  2.4577 0.03511    0.09139 .
Microbiota       1    33.557  33.557 29.4620 0.42094 9.999e-05 ***
Type             1     0.395   0.395  0.3469 0.00496    0.74613
Microbiota:Type  1     0.594   0.594  0.5211 0.00745    0.61814
Residuals       29    33.030   1.139         0.41434
Total           35    79.718                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1```

### Ile
```R
> data.adonis$aov.tab
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2 Pr(>F)
Sequencing_Run   2     4.144  2.0721  1.1951 0.06078 0.3155
Sex              1     5.543  5.5428  3.1966 0.08128 0.0400 *
Microbiota       1    13.678 13.6779  7.8884 0.20058 0.0004 ***
Type             1     2.947  2.9473  1.6998 0.04322 0.1823
Microbiota:Type  1     0.264  0.2637  0.1521 0.00387 0.9149
Residuals       24    41.614  1.7339         0.61027
Total           30    68.190                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Jej

```R
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2 Pr(>F)
Sequencing_Run   2     6.941  3.4703  1.7184 0.10311 0.1447
```

```
Sex             1      3.131   3.1312   1.5506 0.04652 0.2167
Microbiota      1      6.522   6.5224   3.2299 0.09690 0.0291 *
Type            1      0.480   0.4802   0.2378 0.00713 0.8414
Microbiota:Type 1      3.792   3.7919   1.8777 0.05633 0.1490
Residuals      23     46.447   2.0194          0.69001
Total          29     67.313                   1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Duo

```
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model     R2  Pr(>F)
Sequencing_Run   2     3.998  1.9990  1.0654 0.07166 0.38196
Sex              1     7.654  7.6541  4.0792 0.13719 0.01850 *
Microbiota       1     4.490  4.4901  2.3929 0.08048 0.09269 .
Type             1     1.041  1.0413  0.5549 0.01866 0.59974
Microbiota:Type  1     2.957  2.9571  1.5759 0.05300 0.22108
Residuals       19    35.651  1.8764          0.63901
Total           25    55.792                  1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Source Subset: Humanized vs SPF

Humanized

```
> data.adonis$aov.tab
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model     R2     Pr(>F)
Sequencing_Run   2    41.429  20.715  18.786 0.20774 9.999e-05 ***
Sex              1    38.016  38.016  34.476 0.19062 9.999e-05 ***
Site             5    26.730   5.346   4.848 0.13403    0.0002 ***
Type             1     0.629   0.629   0.571 0.00316    0.5785
Residuals       84    92.623   1.103          0.46444
```

```
Total          93   199.427                  1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
> data.adonis$aov.tab
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2    Pr(>F)
Sequencing_Run   2    41.429  20.715  18.786 0.20774 9.999e-05 ***
Sex              1    38.016  38.016  34.476 0.19062 9.999e-05 ***
Type             1     1.434   1.434   1.301 0.00719    0.2833
Site             5    25.925   5.185   4.702 0.13000 9.999e-05 ***
Residuals       84    92.623   1.103         0.46444
Total           93   199.427                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

                Df SumsOfSqs MeanSqs F.Model      R2    Pr(>F)
Sequencing_Run   2    41.429  20.715  19.124 0.20774 9.999e-05 ***
Sex              1    38.016  38.016  35.097 0.19062 9.999e-05 ***
Type             1     1.434   1.434   1.324 0.00719    0.2596
Site_General     1    23.231  23.231  21.448 0.11649 9.999e-05 ***
Residuals       88    95.317   1.083         0.47796
Total           93   199.427                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Cedars SPF

```
Permutation: free
Number of permutations: 10000


Terms added sequentially (first to last)
```

```
              Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run  2   29.672 14.8362  9.1307 0.14204 9.999e-05 ***
Sex             1    1.070  1.0704  0.6588 0.00512    0.5376
Site            5   37.219  7.4439  4.5812 0.17816 9.999e-05 ***
Type            1    1.203  1.2034  0.7406 0.00576    0.5034
Residuals      86  139.740  1.6249         0.66891
Total          95  208.905                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

              Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run  2   29.672 14.8362  9.1307 0.14204 9.999e-05 ***
Sex             1    1.070  1.0704  0.6588 0.00512    0.5455
Type            1    1.309  1.3087  0.8054 0.00626    0.4632
Site            5   37.114  7.4228  4.5682 0.17766 9.999e-05 ***
Residuals      86  139.740  1.6249         0.66891
Total          95  208.905                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
> data.adonis$aov.tab
Permutation: free
Number of permutations: 10000

Terms added sequentially (first to last)

              Df SumsOfSqs MeanSqs F.Model      R2     Pr(>F)
Sequencing_Run  2   29.672 14.8362  9.1679 0.14204 9.999e-05 ***
Sex             1    1.070  1.0704  0.6614 0.00512    0.5387
Type            1    1.309  1.3087  0.8087 0.00626    0.4497
Site_General    1   31.209 31.2091 19.2854 0.14939 9.999e-05 ***
Residuals      90  145.645  1.6183         0.69718
Total          95  208.905                 1.00000
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```