SUPPLEMENTARY FIGURE LEGENDS

434 **Supplementary Figure 1:** Alpha diversity metrics in patients stratified according to IBD

435 phenotype. SF1A: Chao1 alpha diversity in sigmoid samples of patients with CD), UC/IBD-U

436 and healthy controls. * represents CD vs HC, p= .04, ^ represents UC/IBD-U vs CD, p= .02 and

437 > represents UC/IBD-U vs HC, p< .0001. SF1B: Chao1 alpha diversity in terminal ileum

438 samples. *p= .03 CD vs. UC/IBD-U, +p=0.001 CD vs. UC/IBD-U.

439

440 **Supplementary Figure 2:** Beta diversity of sigmoid colon biopsies in healthy controls, CD and

441 UC/IBD-U. SF2A: Bray-Curtis beta diversity analysis indicating population dissimilarity

442 between HC (n=48), UC/IBD-U (n=37), and CD (n=26). * represents CD vs HC, p<0.001 and

443 CD vs UC/IBD-U, p<0.001. SF2B: Bray-Curtis dissimilarity between patients with Crohn's

444 disease activity index (CDAI) >150, (n=17) compared with CDAI <150 (n=41). * represents

445 p=0.01, r=0.24.

446

447 **Supplementary Figure 3:** Microbial Dysbiosis index (MD-index) scores of the mucosa-

448 associated microbiome calculated in terminal ileum and sigmoid colon samples and compared in

449 patients with UC/IBD-U, CD and healthy controls (HC). SF3A: All patients with available

450 samples from the sigmoid colon (HC vs CD p=0.04, UC vs CD p=0.01) and terminal ileum (HC

451 vs CD p=.02, UC vs CD p=.004). SF3B: Data represent patients with inflammation (Mayo

452 score >1 in UC, n=48 and SES-CD >5 in CD, n=50). MD-Index scores were calculated from

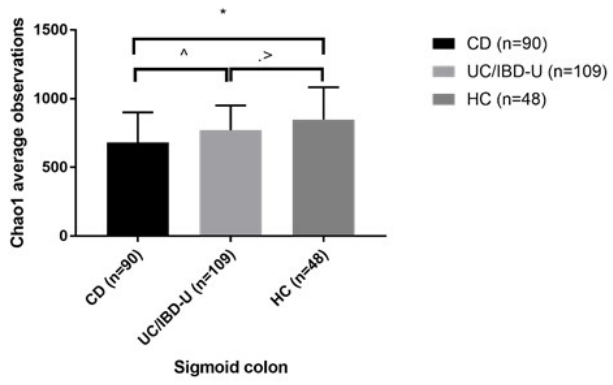453 tissue-associated microbiome of inflamed sigmoid colon samples (HC vs CD p=0.01, UC vs CD

454   p=0.03) and terminal ileum (HC vs CD p=0.01, UC vs CD p=0.02) * represents statistical

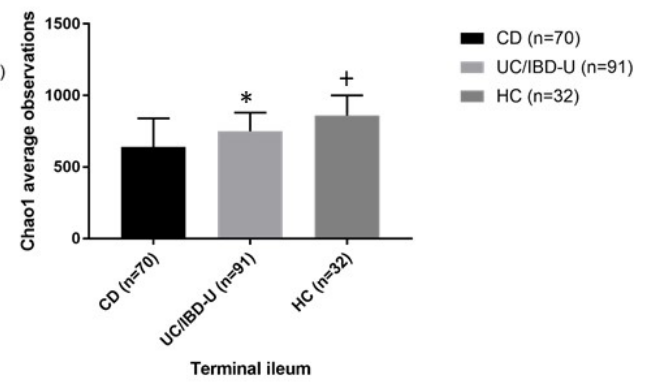455   differences, (p<0.05) across groups

456

457   **Supplementary Figure 4:** Comparison of Chao1 diversity and Microbial Dysbiosis Index (MD-

458   Index) according to severity of endoscopic inflammation. **SF4A:** Chao1 index of species

459   richness at sigmoid and terminal ileum biopsy sites in CD patients with data representing four

460   groups categorized by severity of inflammation at that biopsy segment (0=normal, 1=mild,

461   2=moderate, 3=severe). Chao1 metrics were analyzed with individual comparisons between

462   groups with no statistical significance, 0.89<p<1. There was no correlation between MD-index

463   and severity at biopsy site (p=0.24, rho=0.12). **SF4B:** Chao1 diversity index at the sigmoid colon

464   in ulcerative colitis, categorizing patients according to Mayo scores. Chao1 metrics were

465   compared between groups with no statistical significance, 0.5<p<1. There was no correlation

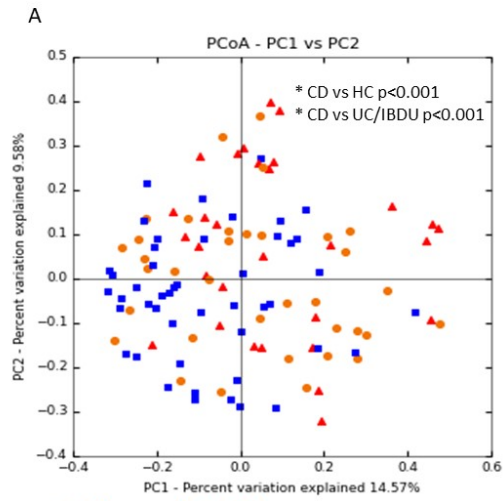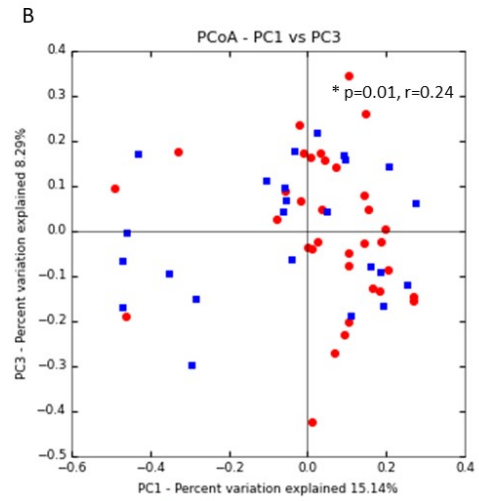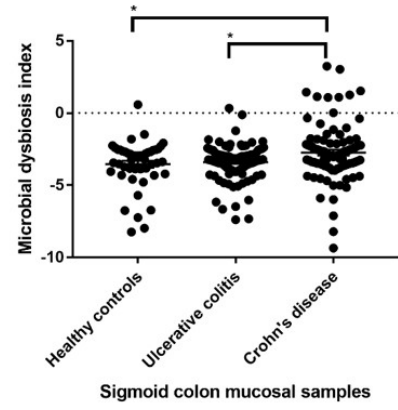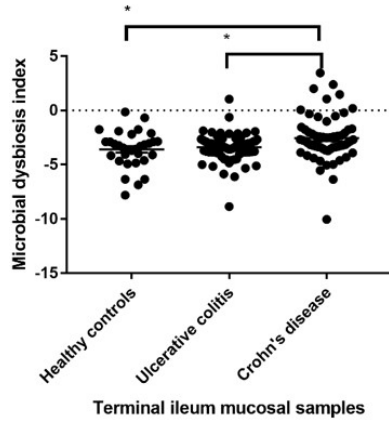466   between MD-index and severity (p=0.06, rho=0.2).

467

A

Sigmoid colon

B

Terminal ileum

A

PCoA - PC1 vs PC2

* CD vs HC p<0.001
* CD vs UC/IBDU p<0.001

PC2 - Percent variation explained 9.58%
PC1 - Percent variation explained 14.57%

Healthy controls (n=48)
Ulcerative colitis/IBD-unclassified (n=37)
Crohn's Disease (n=26)

B

PCoA - PC1 vs PC3

* p=0.01, r=0.24

PC3 - Percent variation explained 8.29%
PC1 - Percent variation explained 15.14%

CDAI > 150, (n=17)
CDAI < 150, (n=41)

A

Terminal ileum mucosal samples

Sigmoid colon mucosal samples

B

Terminal ileum mucosal samples

Sigmoid colon mucosal samples
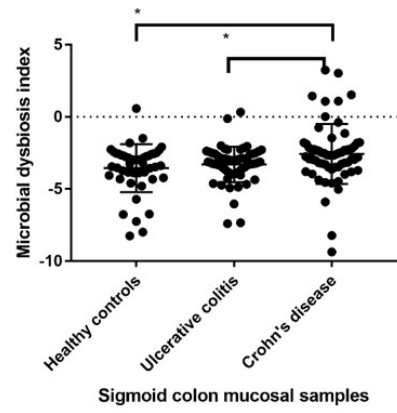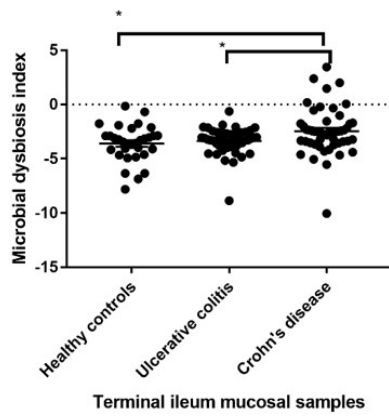
Sigmoid colon mucosa   **Terminal ileum mucosa**

A

Normal, n= 57
Mild inflammation, n=27
Moderate inflammation , n=12
Severe inflammation, n= 8

Normal, n= 42
Mild inflammation, n=18
Moderate inflammation , n=7
Severe inflammation, n= 3

Endoscopic score sigmoid colon

B

Mayo 0, n= 46
Mayo 1, n=32
Mayo 2, n= 24
Mayo 3, n= 5

Mayo score at sigmoid colon