

**Supplementary Figure S3** Comparisons of microbial community membership and structure. D, J, I, C and F denote the microbial community of the duodenum, jejunum, ileum, cecum and feces, respectively. FD represents the UniFrac distance (mean  $\pm$  SEM) between fecal and duodenal microbial communities, equivalent to FJ, FI and FC. Asterisks indicate the significance of the paired *t*-test: \*\*\*P < 0.001.