

Supplemental Figure legends:

Supplemental Figure 1. Bacterial community membership throughout the GI tract before and after cefoperazone treatment. The bar plots show the mean percent abundances of the top bacterial families ($\geq 1\%$ relative abundance). Mice (n=5) were A) Non-antibiotic treated or B) Cefoperazone-treated mice.

Supplemental Figure 2. Alterations of bile acids before and after cefoperazone treatment throughout the GI tract. Bile acids were analyzed by LC-MS from murine GI luminal content (proximal, mid and distal small intestine, cecum, colon and stool) (A) Before and (B) After cefoperazone-treatment (n=5 for each group).

Supplemental Figure 3. Physiologically relevant concentrations of cholate in the distal small intestine after antibiotics were able to support *C. difficile* spore germination *in vitro*. (A) *In vitro* germination assays were performed to assess the ability of cholate (CA) and taurochenodeoxycholate (TCDCA) to trigger *C. difficile* spore germination. A negative control (PBS alone) showed no germination. Data presented represent mean \pm SD of triplicate experiments and were significant by non-parametric Kruskal-Wallis one-way analysis of variance test followed by Dunn's Multiple Comparison Test.