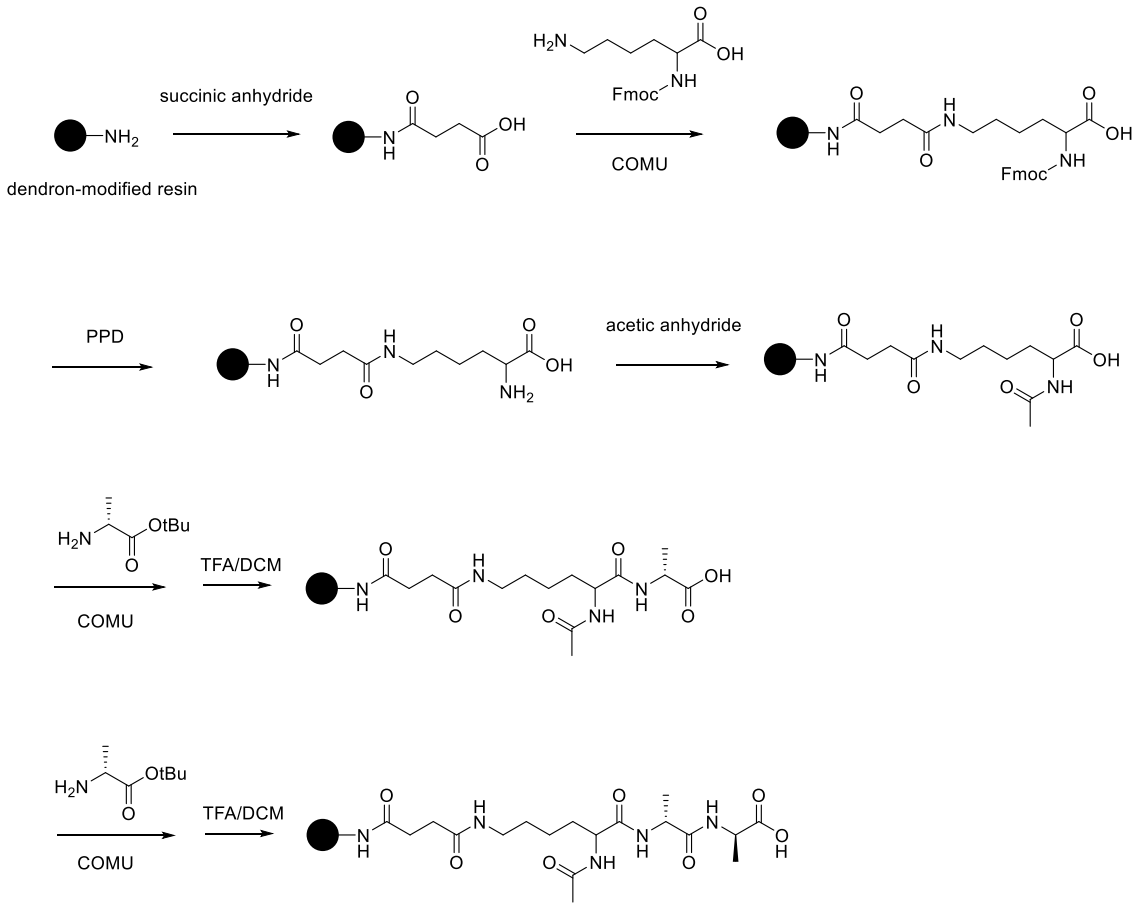


Supplementary Scheme 1. Synthesis of ligand from the termini of α- and ε-amine groups of D-lysine dendrons modified on NovaPEG amino resin.

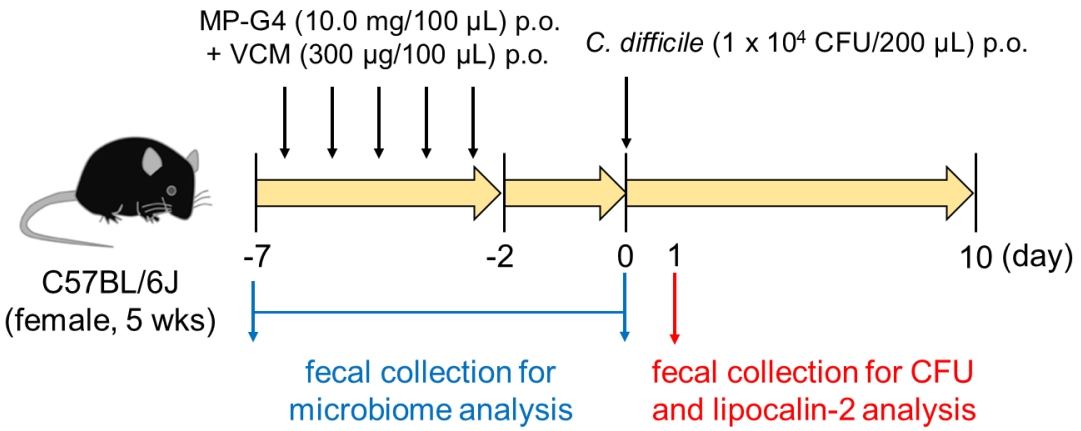
Supplementary Table 1. Sequences of primers for 16S rDNA amplification

	Sequence (5'-3')
Forward	TCGTCGGCAGCGTCAGATGTGTATAAGAGACAGGTGCCAGCMGCCGCGGTAA
Reverse	GTCTCGTGGGCTCGGAGATGTGTATAAGAGACAGGGACTACHVGGGTWTCTAAT

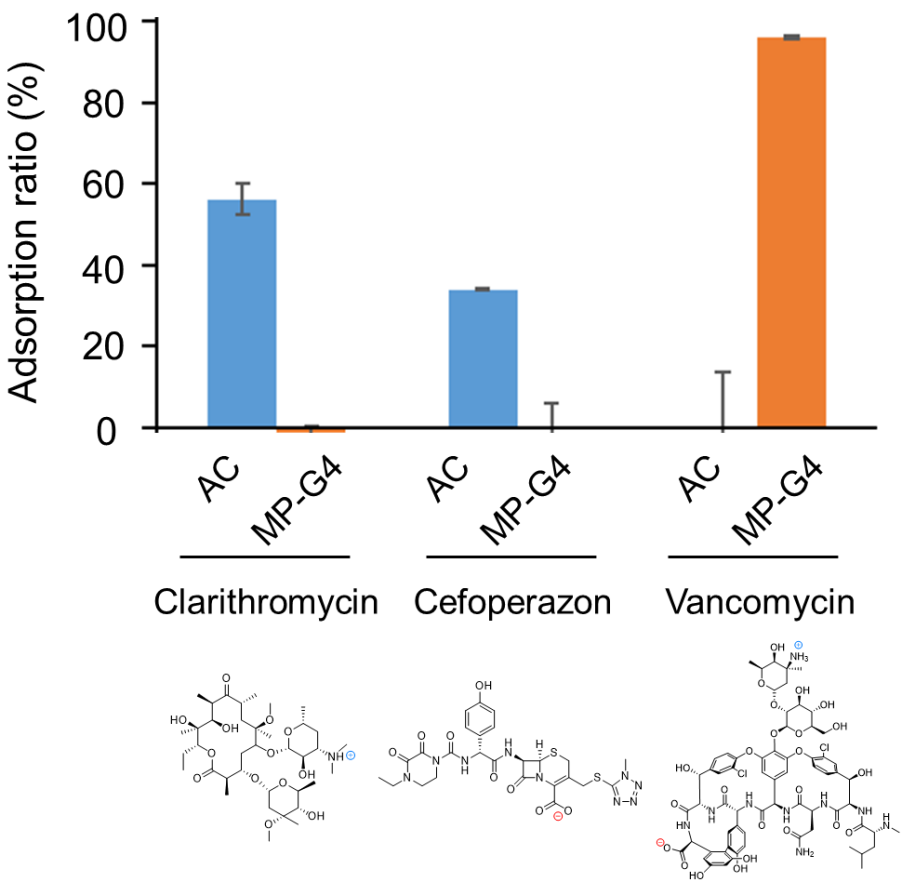
M: A or C.

H: A, T or C.

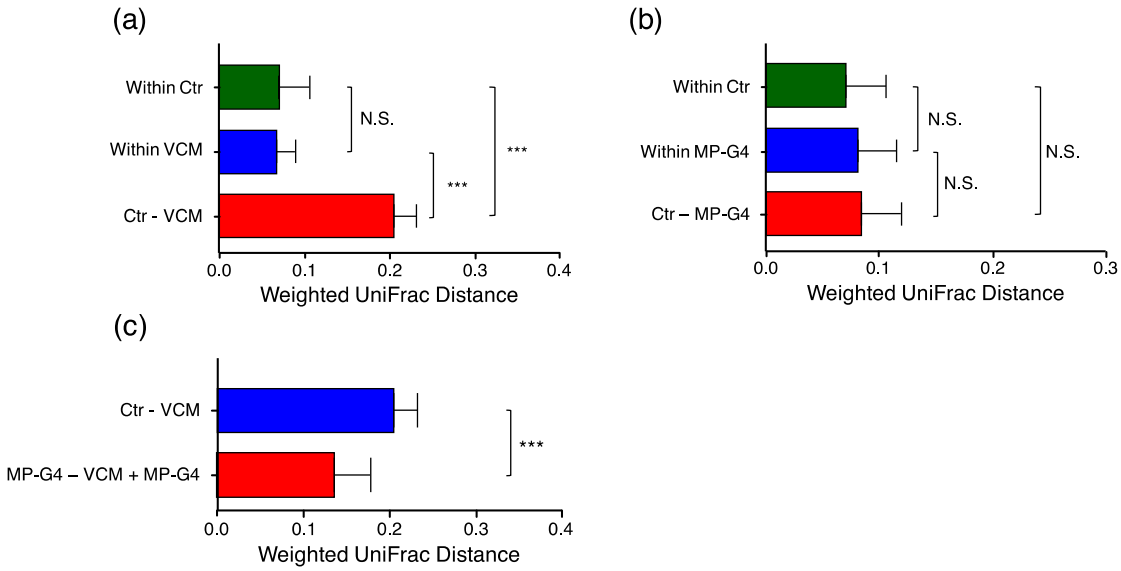
V: A, G or C.



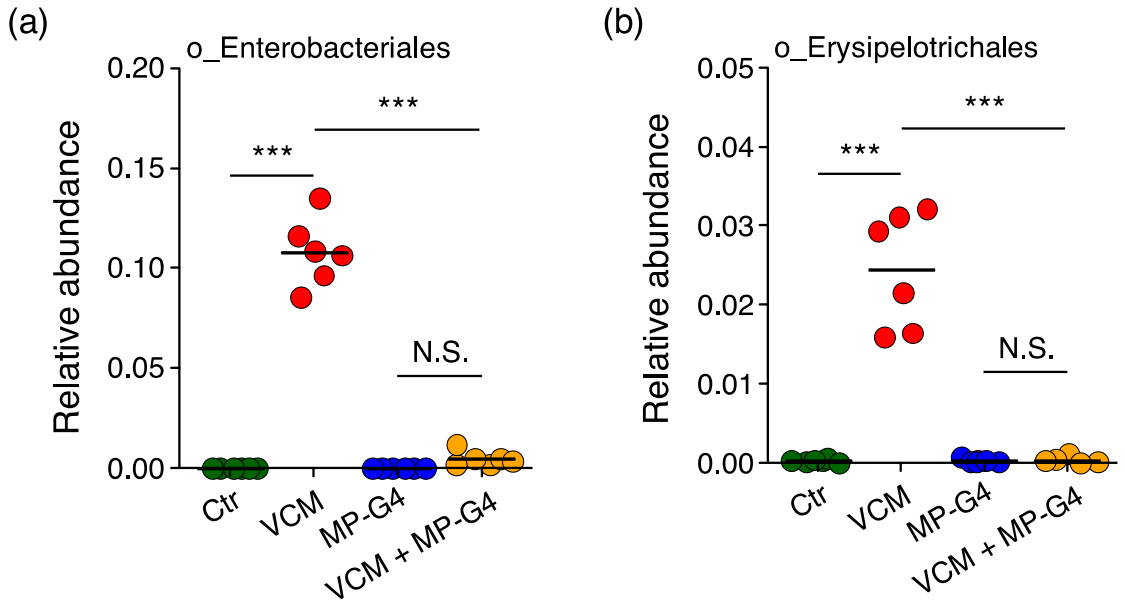
Supplementary Fig. 1. Procedure for the animal experiment to examine gut microbiome protection and protection from CDI. C57BL/6J WT mice were divided into four groups (n=6 per group) and were administered DPBS or MP-G4 (10.0 mg/100 µL DPBS(-), and after 1 h, either sterile water or vancomycin (300 µg/100 µL sterile water) by oral gavage for 5 days (= treatment period). Following the treatment period, mice were allowed to drink normal water for 2 days, and the next day, mice were challenged with *C. difficile* spores 1×10^4 CFU by oral gavage.



Supplementary Fig. 2. Adsorption of antibiotics to MP-G4 and AC. Experimental procedures were same with those of VCM adsorption to MPs described in Materials and Methods section. Concentration of each antibiotic was 350 μM. Amount of MP-G4 or AC was 2.0 mg. Hydration of MP-G4 or AC (purchased from UES, Japan) was conducted in distilled water for 24 h at 37°C in distilled water.



Supplementary Fig. 3. Intra- and inter-group β-diversity analysis on day 0. Weighted UniFrac distance metric in the water (Ctr) and VCM-treated groups (a), Ctr and MP-G4-treated groups (b) and between Ctr to VCM-treated groups and MP-G4 to VCM with MP-G4-treated groups (c). Mean (± SD) pairwise weighted UniFrac distances shown. ***$p<0.001$.



Supplementary Fig. 4. The relative abundance of Enterobacteriales (a) and Erysipelotrichales (b) in feces from mice orally treated with water (Ctr), VCM, MP-G4, or VCM with MP-G4 on day 0 (n=6 per group). Each dot represents an individual mouse. ***p<0.001.