Supplementary Figure S 1. Study design. Panel A: Fifteen subjects with established ESRD receiving thrice weekly hemodialysis were randomly assigned, in a paired, single-blinded fashion, to receive either a 250 mg vancomycin or placebo capsule weekly. At 3 months, the subjects were crossed-over and either received placebo or vancomycin for another 3 months. Pre-dialysis blood samples were collected weekly for one month and then monthly. Stool samples were collected at baseline and then monthly. **Panel B:** Summary of subject's samples included in each analysis.

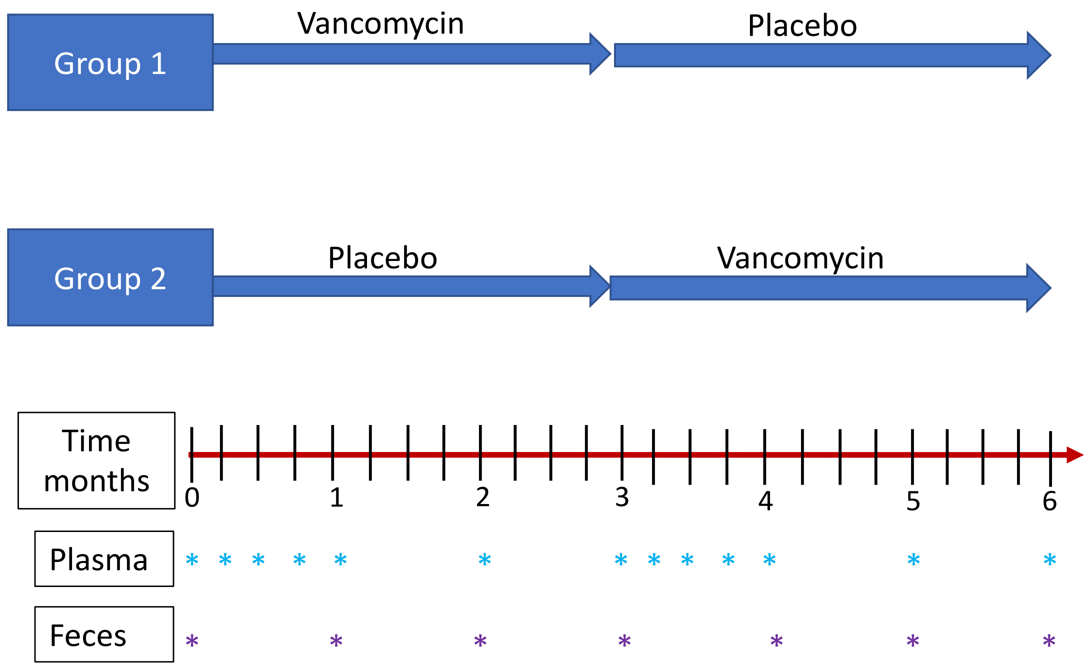
Supplementary Figure S2. Changes in concentration of solutes from 10 subjects (126 samples) over the 12-week treatment periods. Box and whisker plots are shown.

Supplementary Figure S3. Vancomycin-related changes in relative abundance of genera. Bar plot of the relative abundance of the top 10 most abundant genera at baseline and 4 weeks of antibiotics in each subjects. Samples rarefied to 1000.

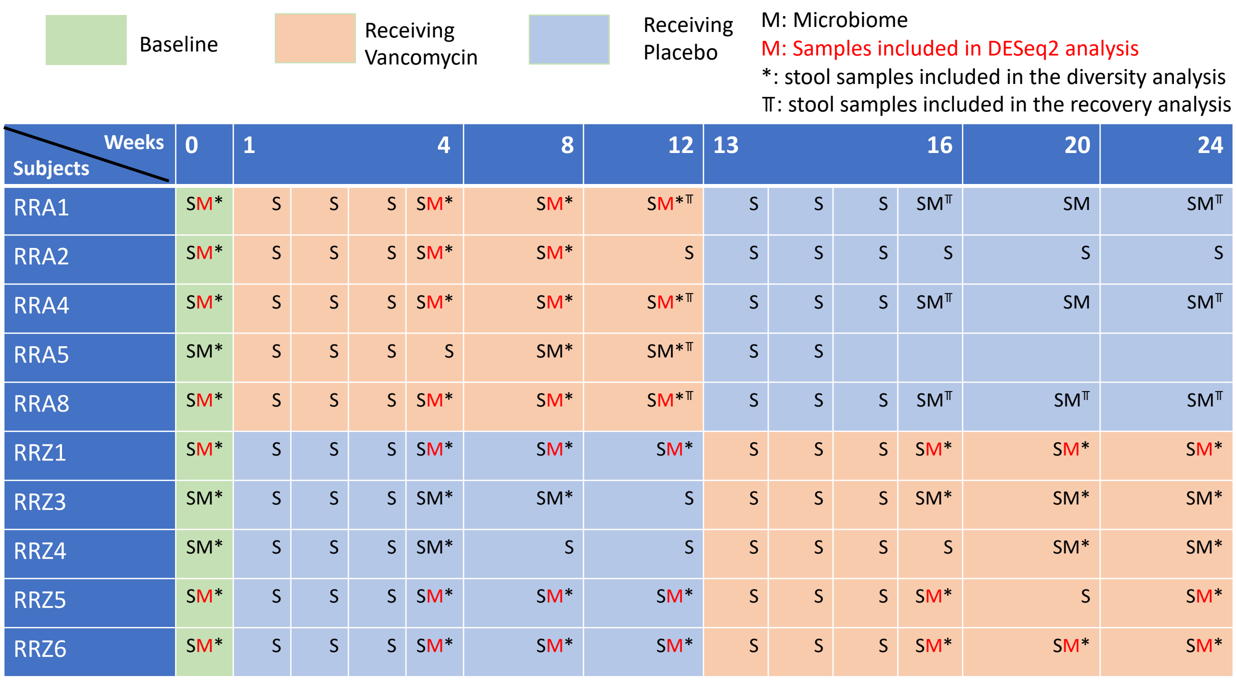
Supplementary Figure S4. IS recovery after 12 weeks vancomycin. Black line is fitted mixed model.

Suppl. Fig. S1

A



B



🟩 Baseline

🟧 Receiving Vancomycin

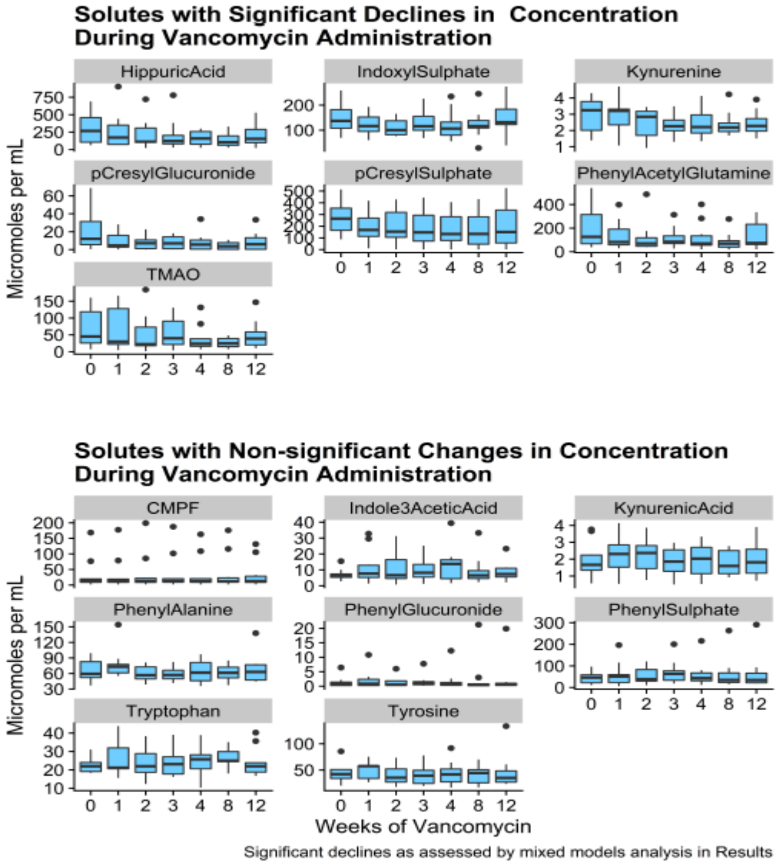
🟦 Receiving Placebo

S: Solutes
M: Microbiome
M: Samples included in DESeq2 analysis
*: stool samples included in the diversity analysis
╥: stool samples included in the recovery analysis

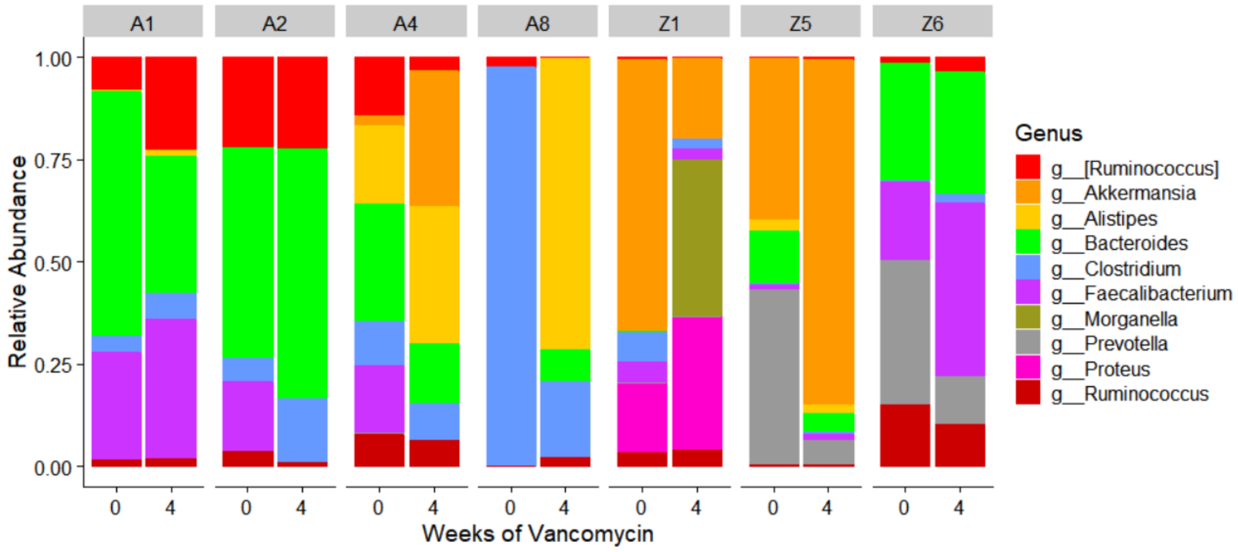
Weeks / Subjects	0	1			4	8	12	13			16	20	24
RRA1	SM*	S	S	S	SM*	SM*	SM*╥	S	S	S	SM╥	SM	SM╥
RRA2	SM*	S	S	S	SM*	SM*	S	S	S	S	S	S	S
RRA4	SM*	S	S	S	SM*	SM*	SM*╥	S	S	S	SM╥	SM	SM╥
RRA5	SM*	S	S	S	S	SM*	SM*╥	S	S				
RRA8	SM*	S	S	S	SM*	SM*	SM*╥	S	S	S	SM╥	SM╥	SM╥
RRZ1	SM*	S	S	S	SM*	SM*	SM*	S	S	S	SM*	SM*	SM*
RRZ3	SM*	S	S	S	SM*	SM*	S	S	S	S	SM*	SM*	SM*
RRZ4	SM*	S	S	S	SM*	S	S	S	S	S	S	SM*	SM*
RRZ5	SM*	S	S	S	SM*	SM*	SM*	S	S	S	SM*	S	SM*
RRZ6	SM*	S	S	S	SM*	SM*	SM*	S	S	S	SM*	SM*	SM*

All SM samples were included in the solutes and microbiome correlation analysis

Suppl. Fig. S2



Suppl. Fig. S3



Suppl. Fig. S4

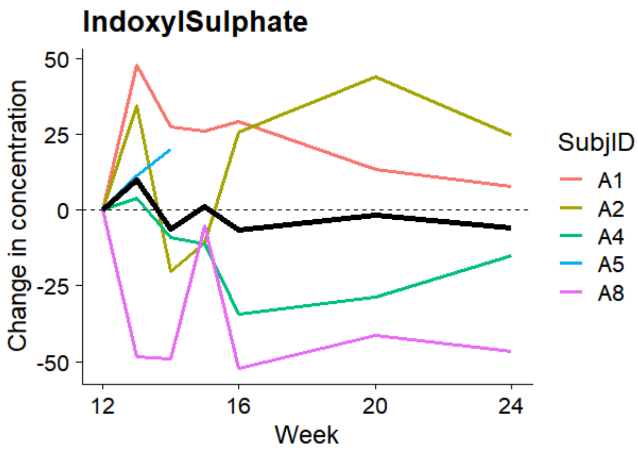


Table S1: Vancomycin-related changes in relative abundance of genera

Genus	n	avwk0	avwk4	difference	SE.diff	Paired.t.pval
Prevotella	7	0.067	0.008	-0.058	0.038	0.177
Clostridium	7	0.075	0.033	-0.041	0.05	0.439
Bacteroides	7	0.130	0.094	-0.037	0.021	0.134
Faecalibacterium	7	0.063	0.050	-0.013	0.018	0.506
Ruminococcus	7	0.023	0.019	-0.003	0.009	0.742
Akkermansia	7	0.094	0.095	0.001	0.056	0.985
[Ruminococcus]	7	0.032	0.036	0.005	0.016	0.775
Proteus	7	0.013	0.028	0.015	0.015	0.356
[Eubacterium]	7	0.008	0.042	0.034	0.016	0.078
Alistipes	7	0.013	0.080	0.067	0.049	0.224

avwk 0: average relative abundance at week 0
SE.diff: standard error difference
Paired.t.pval: p value from paired test comparing 0 and 4 weeks relative abundance.