

# Reciprocal Fecal Microbiota Transfer of Vendor-Dependent Gut Microbiota



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## Background

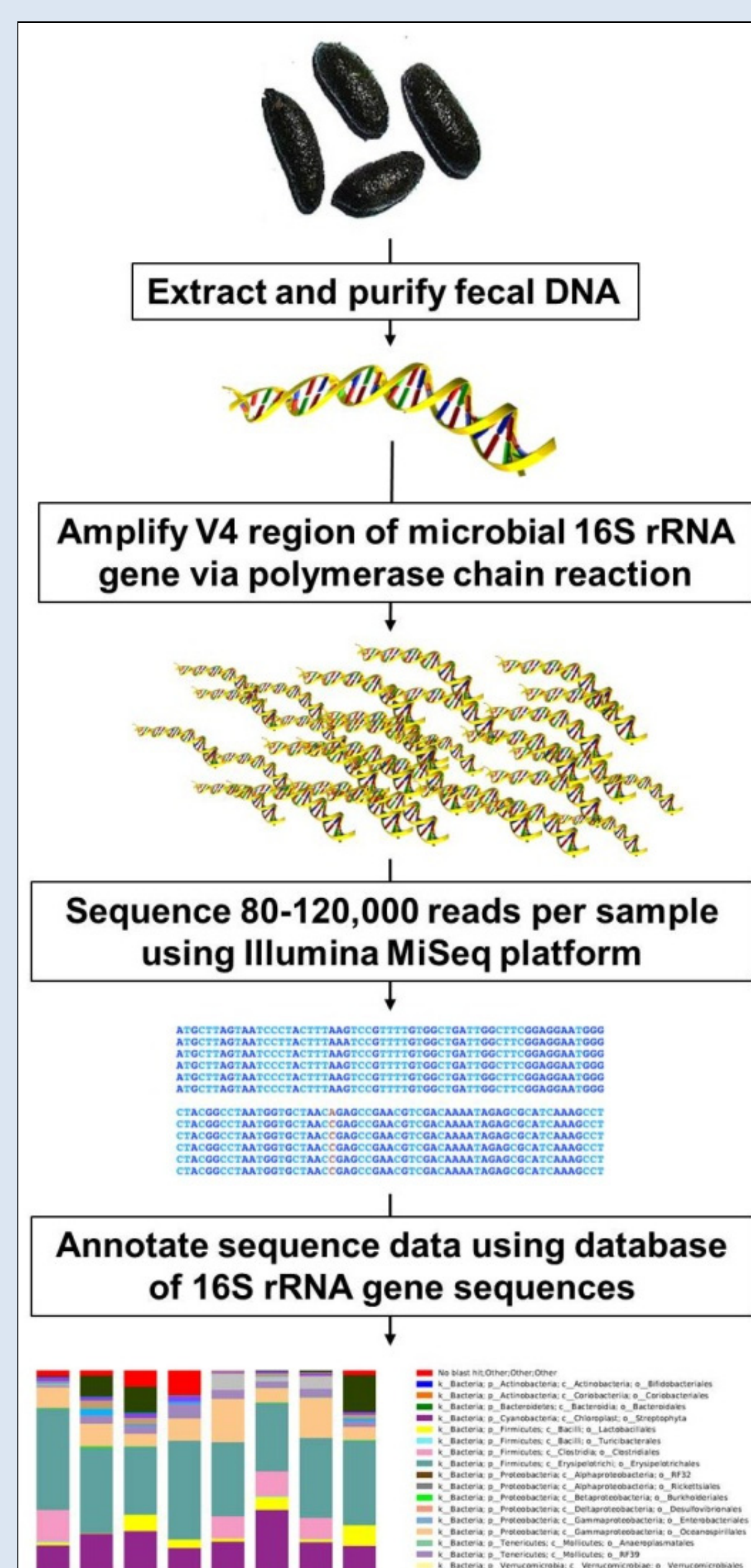
- Mice have varying gut microbiota (GM) depending on the vendor they come from
- Variations in the GM can impact the phenotype of research models
- The ability to manipulate the GM would allow researchers to reduce or remove this potential variable

## Hypothesis

Gut microbiota derived from mice from one vendor can be successfully transferred to mice from a different vendor after antibiotic administration.

## Methods

- Recipient animals were administered a combination of broad-spectrum bactericidal antibiotics for 3 consecutive days prior to fecal microbiota transfer (FMT)
- Following antibiotic treatment, fecal material was collected from donor mice and made into slurries
- The freshly prepared slurries were administered to the recipient mice via intragastric gavage once each day for a total of 3 days
- Samples were collected at 3 different time points: prior to the start of the study, immediately post antibiotic treatment, and 7 days post FMT
- The composition of GM was determined using next-generation sequencing of 16s rRNA amplicons



## Results

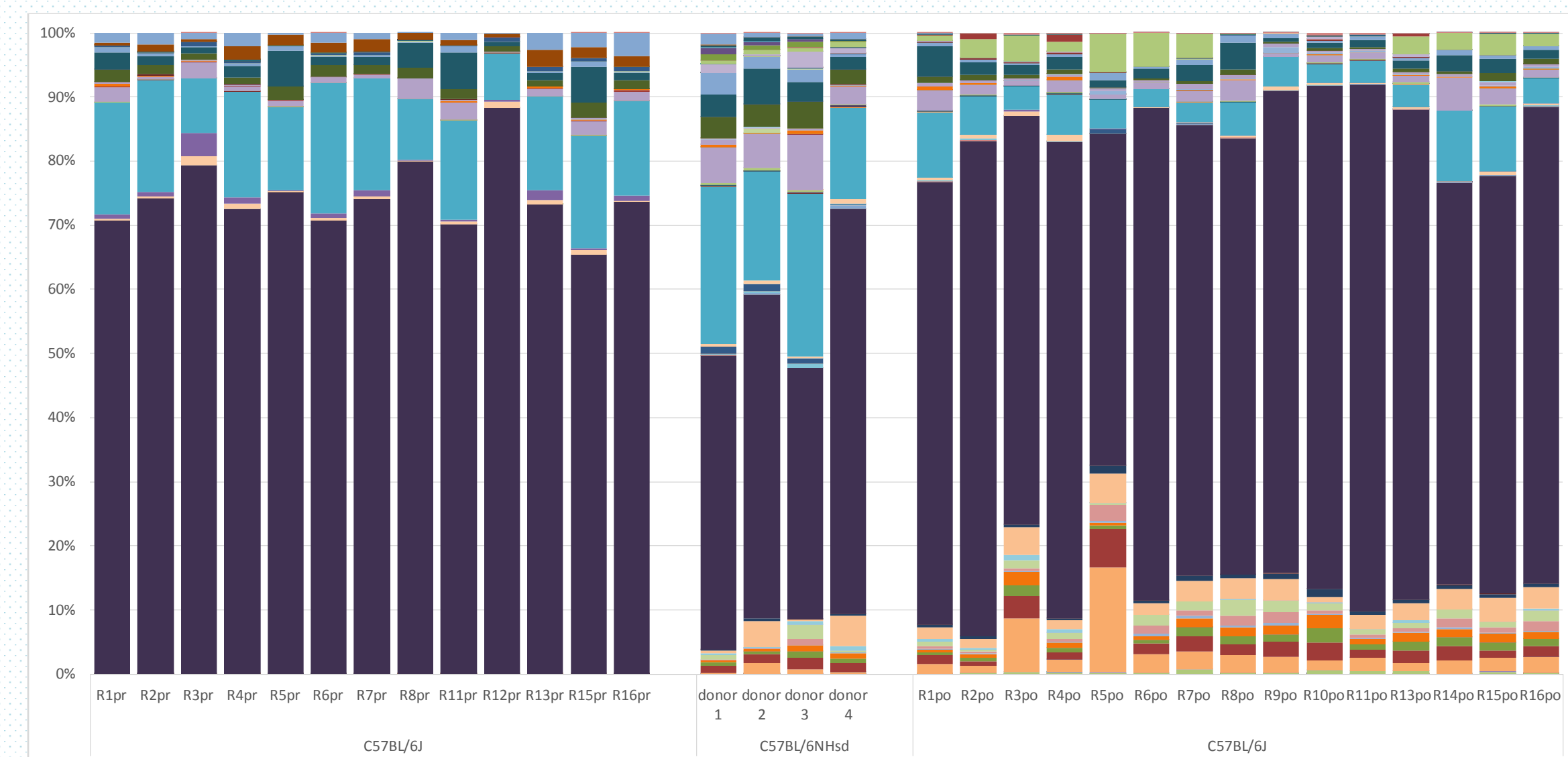


Figure 1. Bar graph showing the GM of Jax mice, Harlan donor mice, and Jax mice post-FMT, at the operational taxonomic unit level.

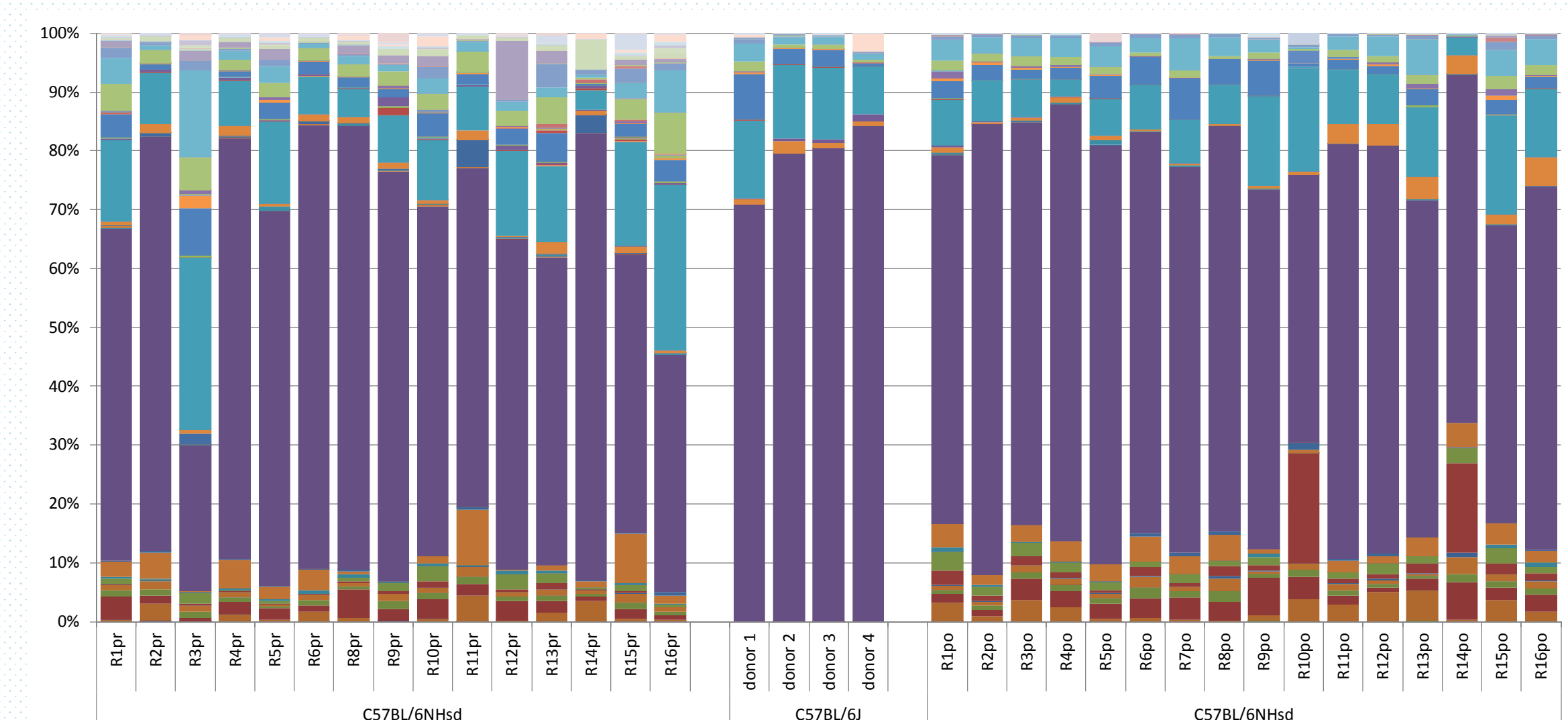


Figure 2. Bar graph showing the GM of Harlan mice, Jax donor mice, and Harlan mice post-FMT, at the operational taxonomic unit level.

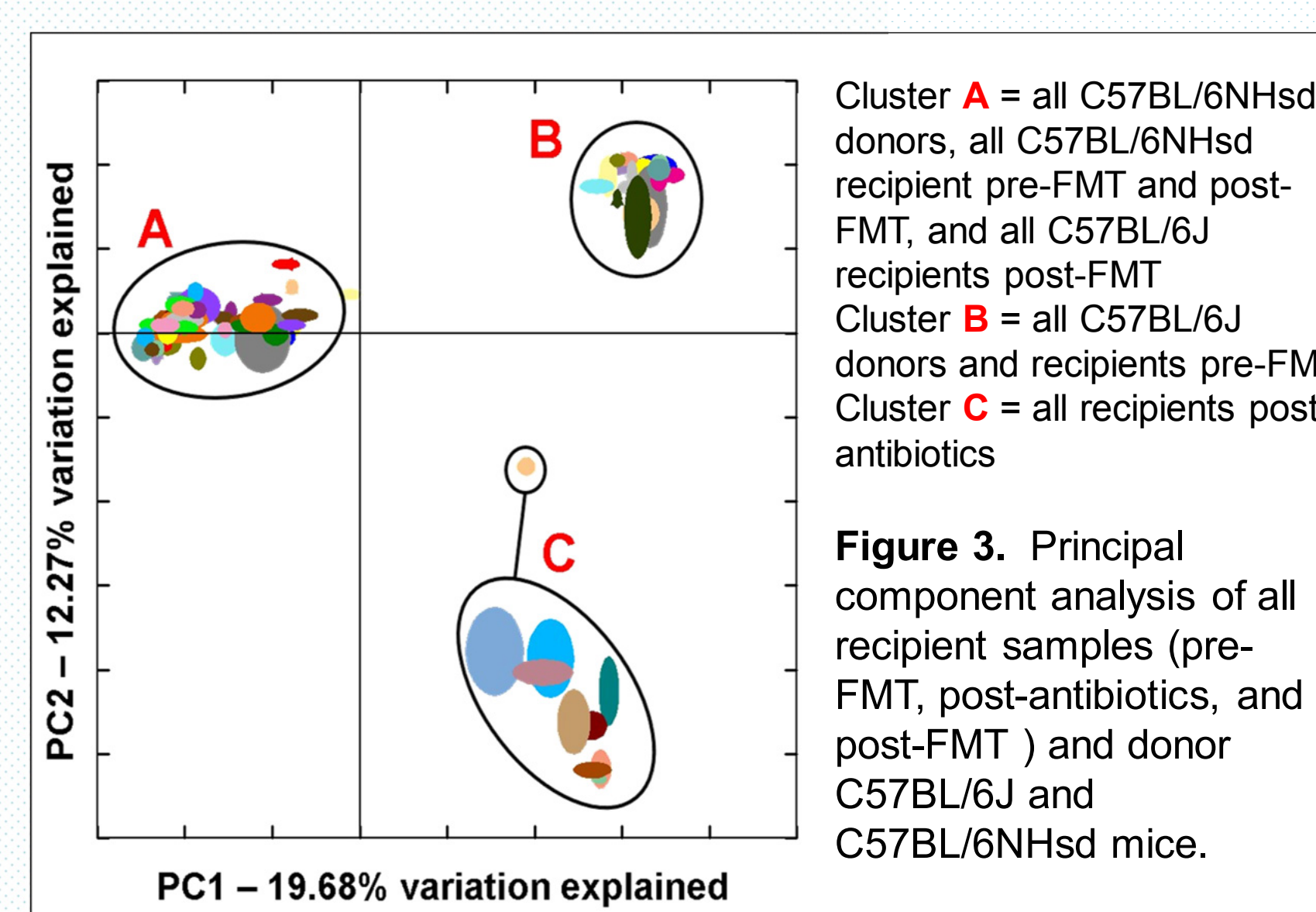


Figure 3. Principal component analysis of all recipient samples (pre-FMT, post-antibiotics, and post-FMT) and donor C57BL/6J and C57BL/6NHsd mice.

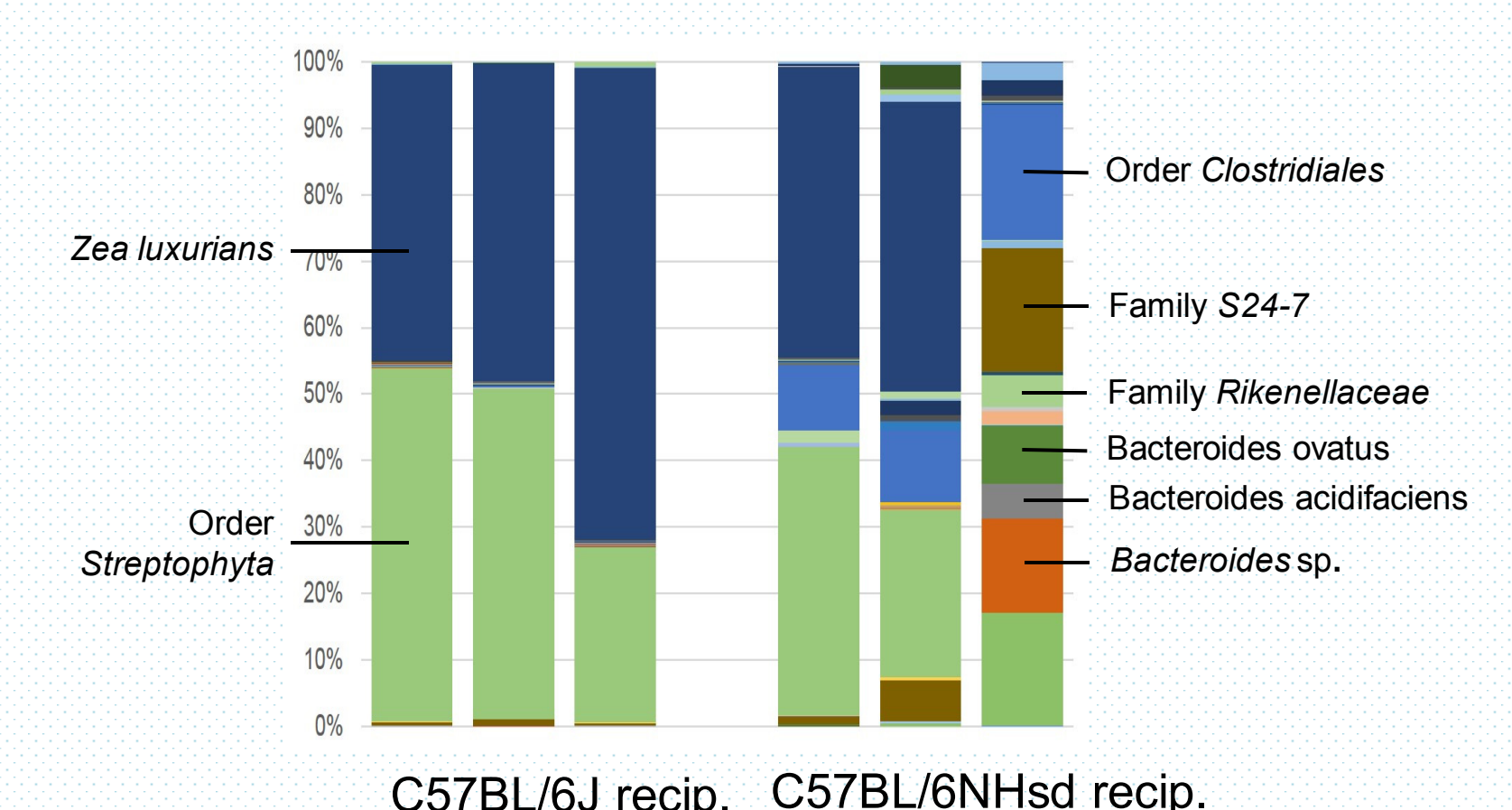


Figure 4. Bar charts of the gut microbiota of C57BL/6J and C57BL/6NHsd recipients ( $n = 3$ ) following three days of broad spectrum antibiotics, at the operational taxonomic unit level.

## Conclusions

- The gut microbiota (GM) can be transplanted between adult mice via antibiotics and intragastric gavage of donor fecal material
- Transfer of C57BL/6NHsd GM into C57BL/6J recipients results in a post-FMT GM indistinguishable from donor mice
- Transfer of C57BL/6J GM into C57BL/6NHsd recipients was not successful with the tested protocol
- The antibiotic regimen used was unable to remove all endogenous microbes in C57BL/6NHsd mice

## Acknowledgements

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