

Choose your own adventure



- Bay Reading Room
 - Work on `lm` and `radEmu` labs
 - (Wiki ➡ Statistics Labs RHS)
- Candle House
 - Activity: *What parameters were they interested in?*

Activity

nature microbiology

Article

<https://doi.org/10.1038/s41564-024-01639-4>









Longitudinal dynamics of farmer and livestock nasal and faecal microbiomes and resistomes

Received: 3 July 2023

Accepted: 14 February 2024

Published online: 3 April 2024

 Check for updates

Bejan Mahmud ^{1,12}, Rhiannon C. Vargas ^{1,12}, Kimberley V. Sukhum^{1,2}, Sanket Patel^{1,2}, James Liao^{1,2}, Lindsey R. Hall ¹, Akhil Kesaraju¹, Thao Le³, Terrie Kitchner⁴, Erik Kronholm⁵, Kyle Koshalek⁶, Casper G. Bendixsen ⁶, Jeffrey J. VanWormer⁵, Sanjay K. Shukla ^{4,7,8}  & Gautam Dantas ^{1,2,9,10,11} 

Globally, half a billion people are employed in animal agriculture and are directly exposed to the associated microorganisms. However, the extent to which such exposures affect resident human microbiomes is unclear. Here we conducted a longitudinal profiling of the nasal and faecal microbiomes of 66 dairy farmers and 166 dairy cows over a year-long period. We compare farmer microbiomes to those of 60 age-, sex- and ZIP code-matched people with no occupational exposures to farm animals (non-farmers). We show that farming is associated with microbiomes containing livestock-associated microbes; this is most apparent in the nasal bacterial community, with farmers harbouring a richer and more diverse nasal community than non-farmers. Similarly, in the gut microbial communities, we identify more shared microbial lineages between cows and farmers from the same farms. Additionally, we find that shared microbes are associated with antibiotic resistance genes. Overall, our study demonstrates the interconnectedness of human and animal microbiomes.

Activity



- Today we've talked about
 - *parameters; and*
 - how every hypothesis test is a *statement about a parameter*

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Activity



- In small groups,
 - For every hypothesis test in this paper, guess what parameter they're making a statement about
- Yes! Feel free to do additional research as you go!
- We'll discuss them together at ~8pm

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