

## **The challenges of understanding microbiomes through metagenomes: can nanopores help?**

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Mixed microbial communities ('microbiomes') provide emergent functions through complex interactions. The technical challenges of culturing the vast majority of microbes in isolation in the laboratory have yet to be overcome. A different approach is to make ensemble measurements and try to deconvolve these signals ('-omics' approaches). Here I will focus on metagenomics: how sequencing DNA from microbiomes can be used to understand changes in the abundance of different microbes and what we can infer regarding their contributions to the communities of which they are a part. I will discuss the challenges of interpreting metagenomics data and the potential for nanopore technologies to improve our ability to understand this field.