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External Link(s)

- [Dr. You's research website](#)

Bacteria interaction sorter

Value Proposition

Microbe-microbe interactions influence microbial community dynamics, composition, and impact on the host. Thus, uncovering these interactions will enhance our scientific understanding of microbial communities and help aid efforts to manipulate bacterial communities which is beneficial in processes such as waste treatments, food production, and disease prevention and treatment. However, the precise nature of these interactions remains largely unknown because of the inherent complexity and difficulties in laboratory cultivation.

Traditional strategies to reduce the complexity involve studying a single interaction between two microbes but this is limited since the implications of this single interaction on the total community may be impossible to predict. does not account for these interactions. Thus, there is need for strategies where a large number of microbes are screened on their interactions so as to more accurately identify possible relationships that can impact population dynamics.

Technology

A device that sorts bacteria based on their population dynamics and interactions (cooperative and competitive strains) within a microbial community and allows for easy collection and quantification of the composition of the sorted microbial communities using technologies such as 16S sequencing and quantitative PCR.

Other Applications

- Scientific understanding and characterization of the interaction profiles of natural microbial communities
- Guiding engineering of microbial communities based on their types of interactions
- Screening for probiotics

Advantages

- No other available technologies that can perform high throughput screening and sorting of microbes based on their interactions
- Offers combined high-throughput screening and sorting of microbes
- The technology can be used in various culturing conditions, including anaerobic conditions
- The technology is transparent and hence the cultured cells can also be directly monitored using microscopy
- The technology is a simple, easy-to-use, low cost device that is not labor intensive

