Dear editor,

Attached please find our manuscript “Predicting microbial relative growth in a mixed culture from growth curve data”. In this manuscript we present a new approach for prediction of microbial growth in a mixed culture from easy-to-obtain growth curves data.

Microbial fitness is best inferred from pairwise competition experiments, but these experiments require distinct genotypic or phenotypic markers. In contrast, growth rates of individual isolates are easy to find – but constitute poor estimators of fitness. We have developed a new approach for predicting relative growth in a mixed culture – the results of competition experiments – from growth curve data. We validated our approach using experiments with bacteria.

Differently from competition experiments, our new approach doesn’t require distinct markers; therefore, it requires less expertise, can be used with non-model organisms, and is more cost-effective. Moreover, our new approach integrates several growth phases, allowing a more accurate approach to fitness estimation compared to existing approaches that utilize growth curve data. We implemented our approach in an open-source software written in Python so that it can be used and extended by the microbiology community.

We hope you will find this manuscript worthy of publication in eLife.

Sincerely,

Yoav Ram and Lilach Hadany

Department of Plants Sciences  
Faculty of Life Sciences,

Tel-Aviv University, Tel-Aviv, Israel