



OUTPOST: a comprehensive analysis software for whole-metagenome shotgun sequencing incorporating group stratification.

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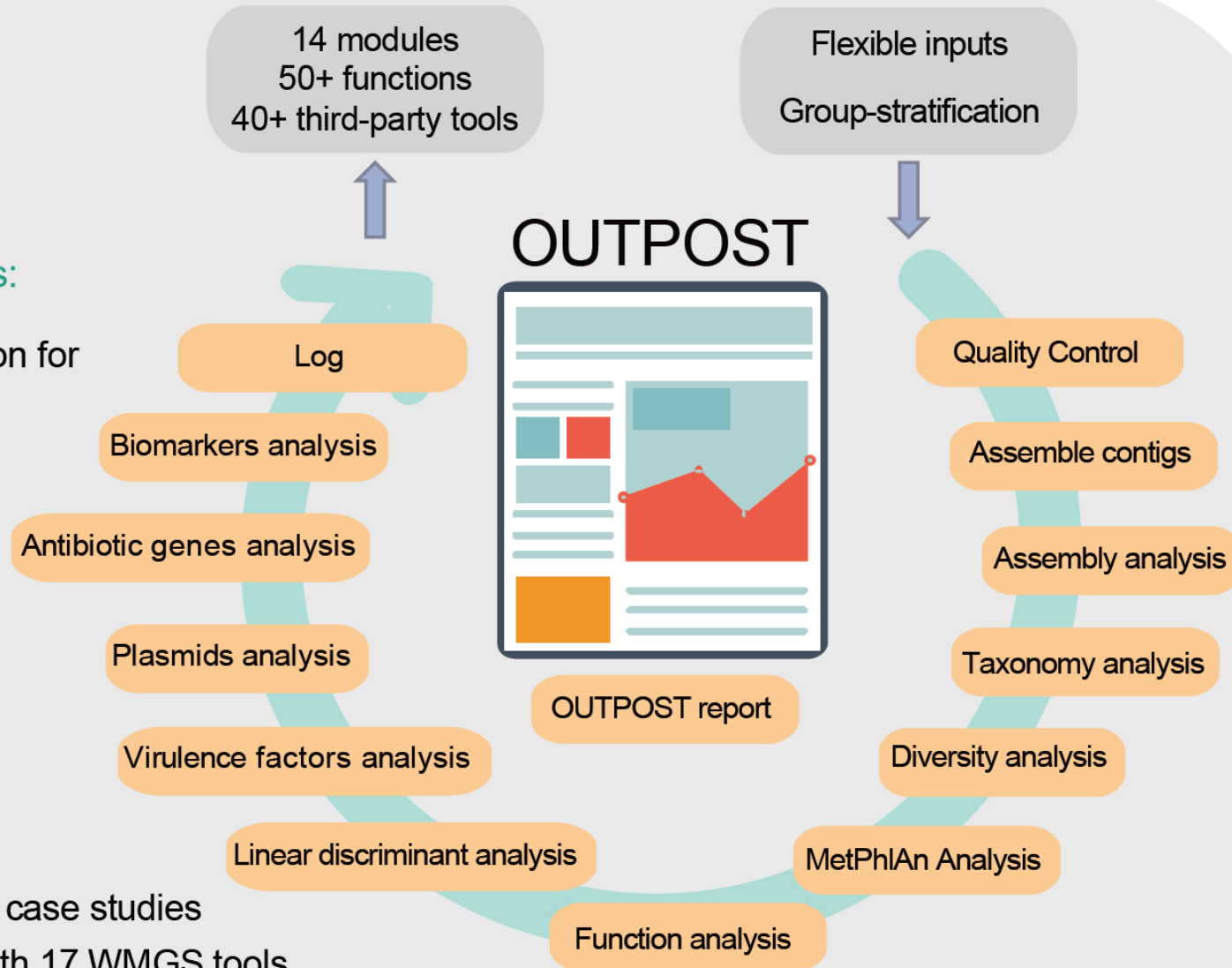
Introduction

Key novel features:

1. Group-stratification for multi-group experiments
2. Meta-analysis-based biomarker identification

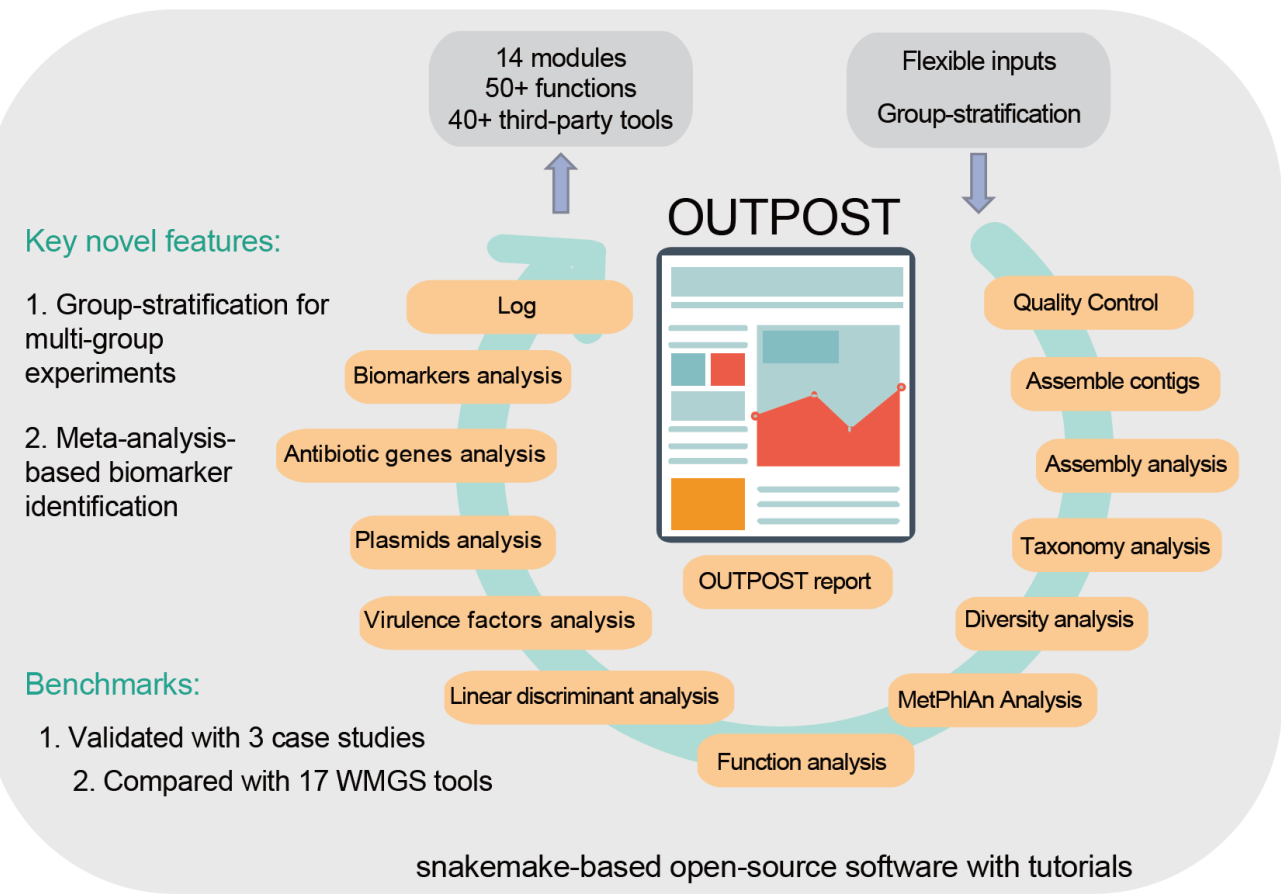
Benchmarks:

1. Validated with 3 case studies
2. Compared with 17 WMGS tools





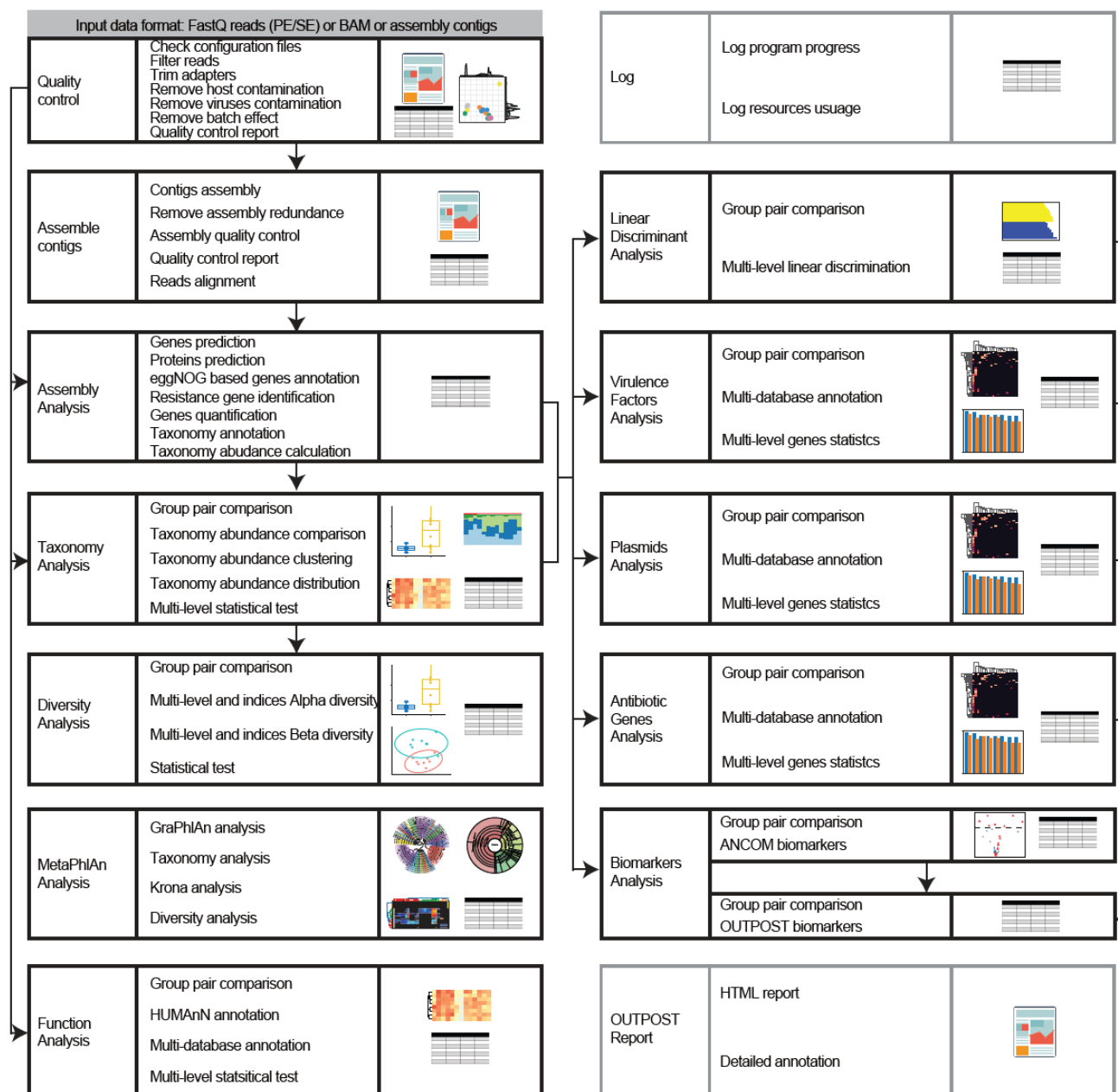
Highlights



- OUTPOST is a comprehensive analysis software for whole-metagenome shotgun sequencing , managed by Snakemake, encompasses 14 modules and boasts over 50 functions, distinguishes itself for its comprehensiveness when compared with 17 existing tools.
- OUTPOST's unique capability for processing group stratification makes it particularly suitable for multi-group experimental designs and tailored for computational perturbation studies.
- OUTPOST introduces innovative methods for meta-analysis-based biomarker identification.

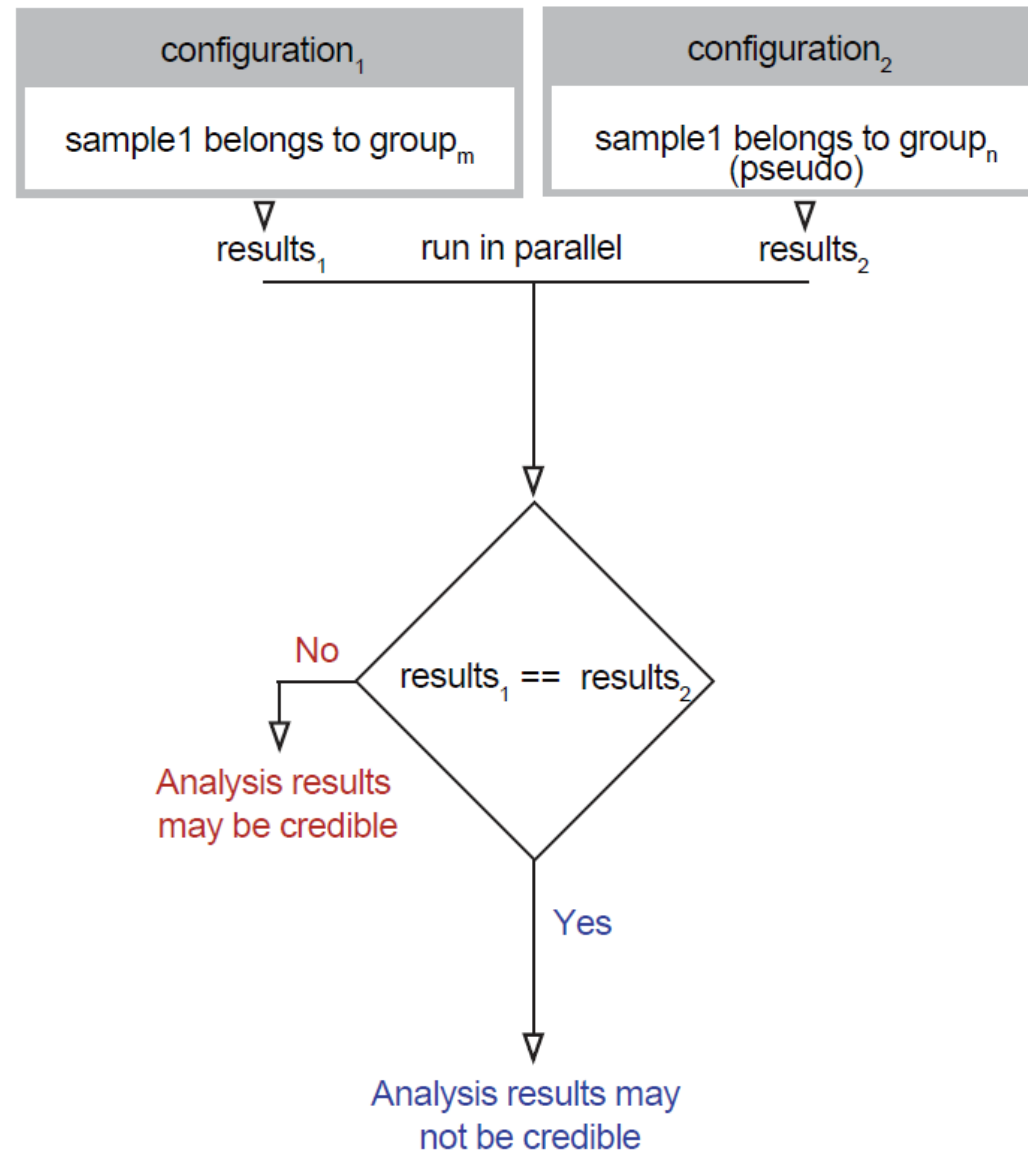


Overview of OUTPOST





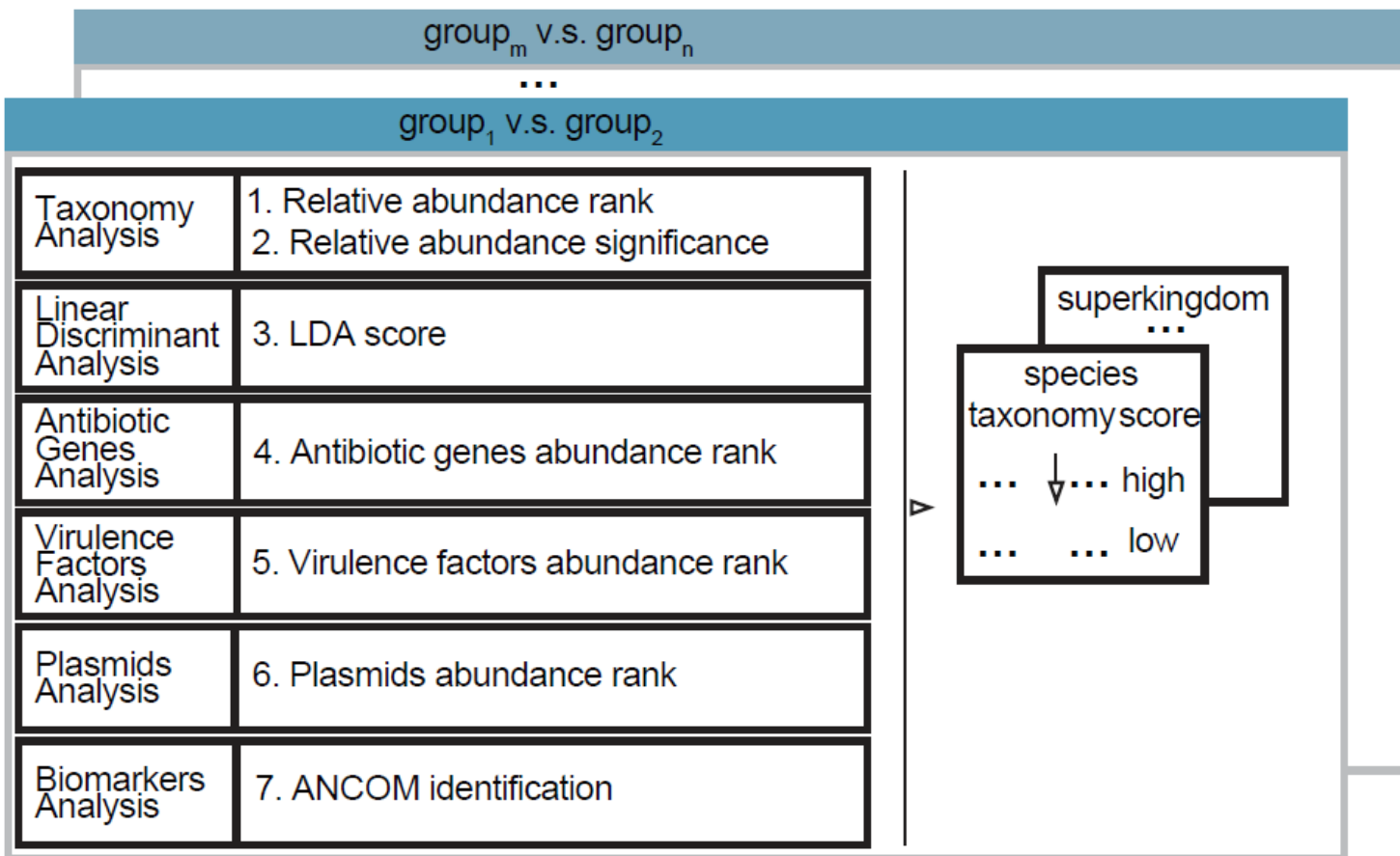
Overview of OUTPOST



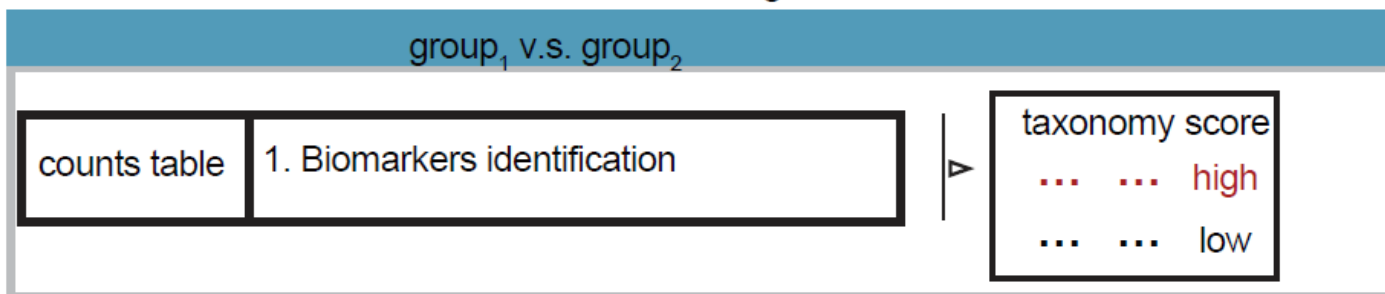


Overview of OUTPOST

OUTPOST biomarkers identification algorithm

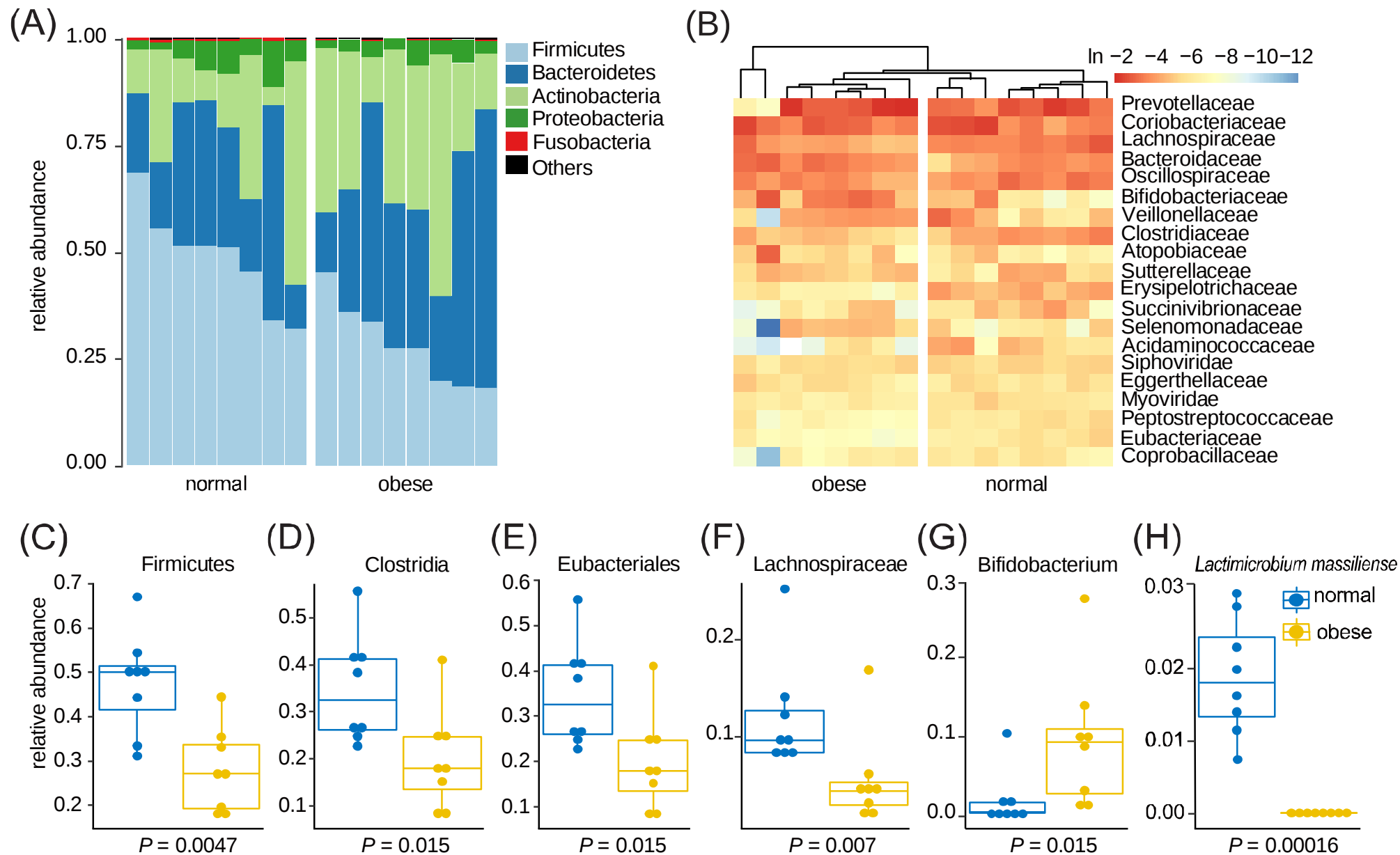


Classical biomarkers identification algorithm



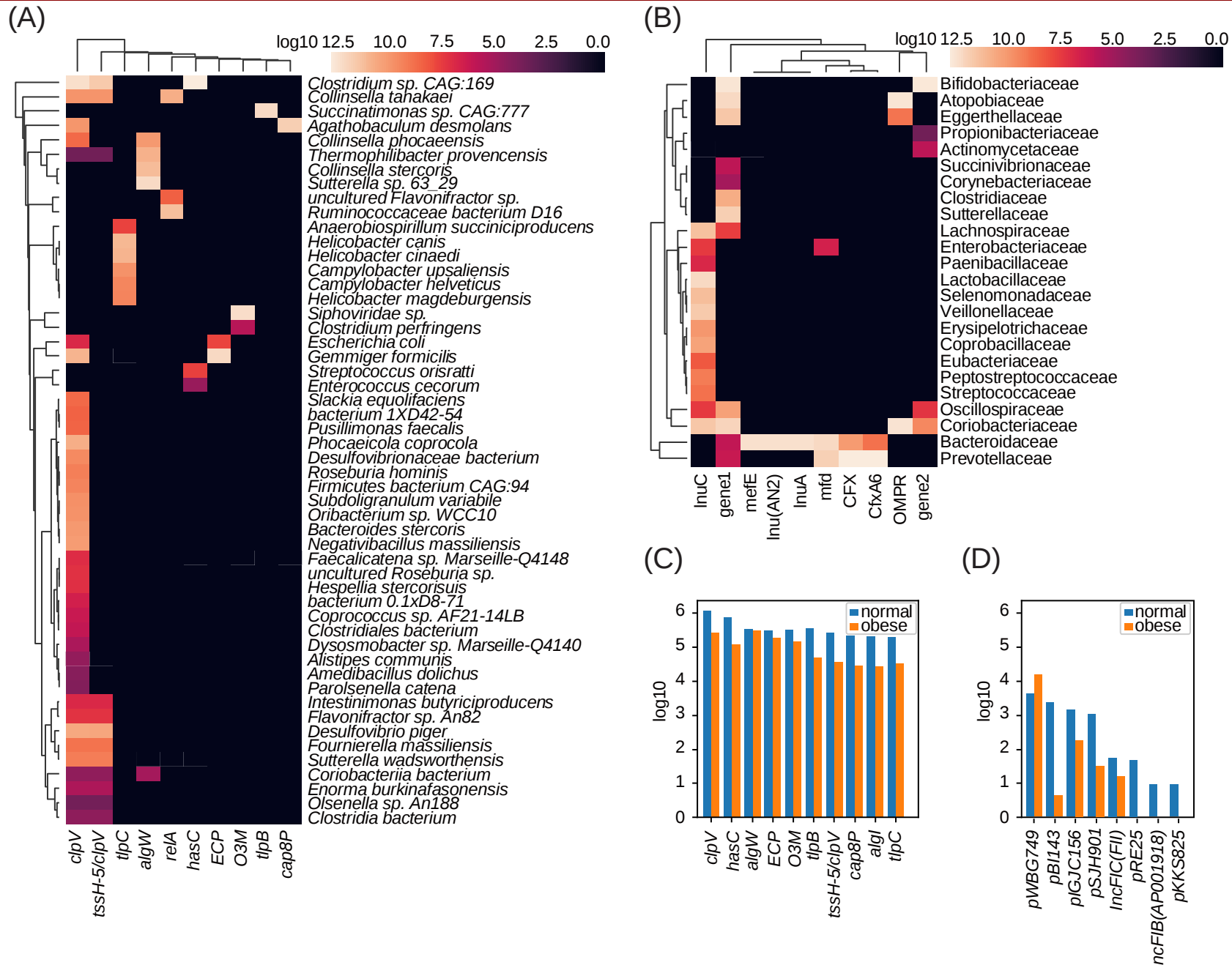


Case 1: The evaluation of OUTPOST using the published cat microbiome work



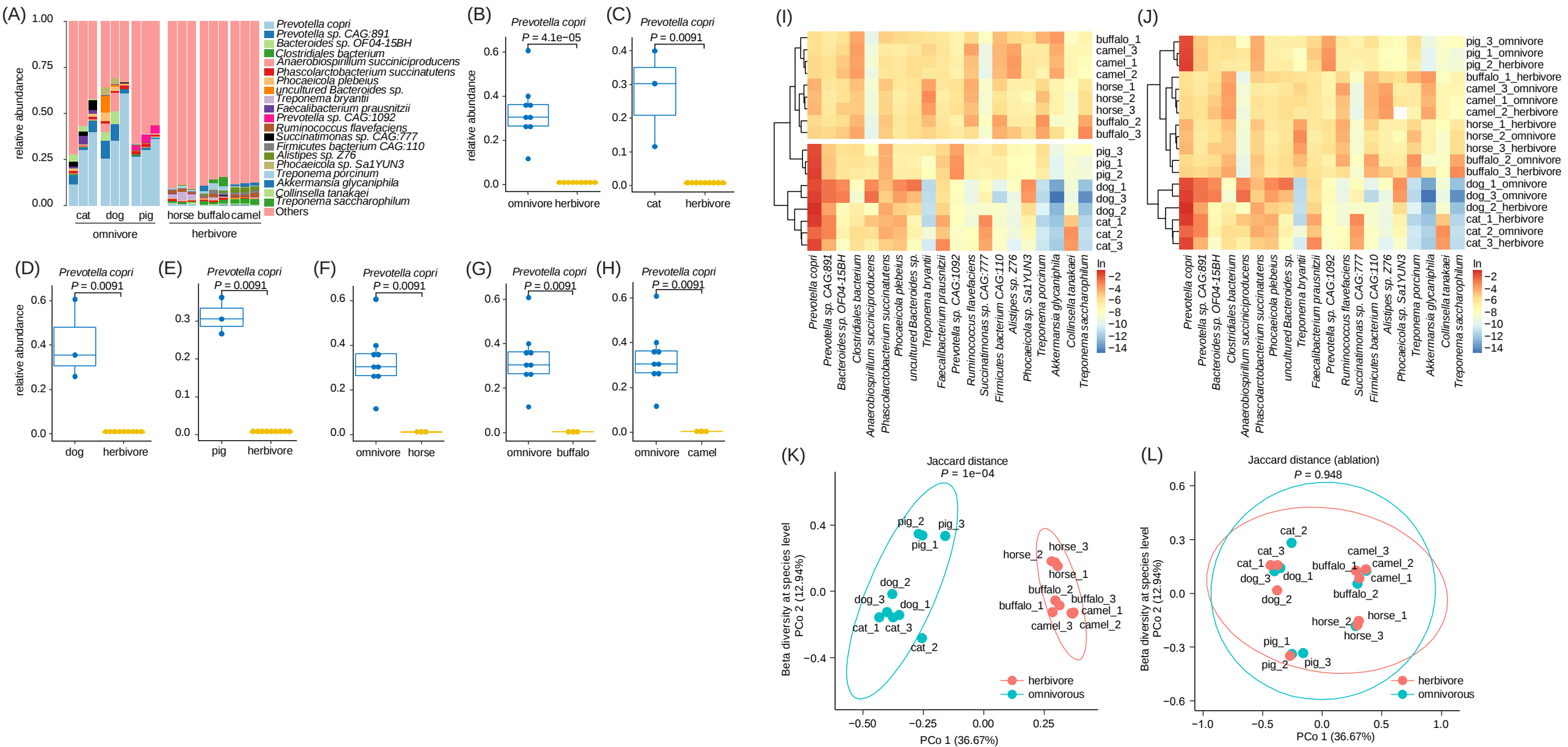


Case 2: The further exploitation of OUTPOST with the mammalian microbiome





Case 3: The test of OUTPOST in therapeutic microbiome





Summary

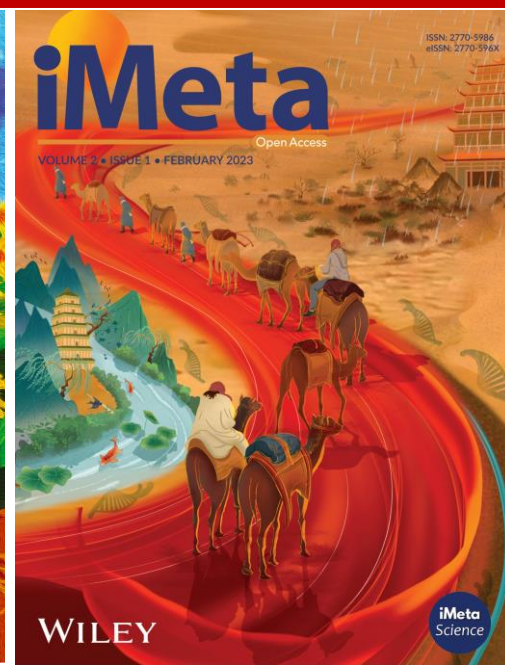
- ❑ Comprehensive Analytical Functions and Multi-Group Support: OUTPOST offers 14 modules, integrating over 50 functions and 40+ third-party tools, making it particularly effective for handling multi-group experimental designs and complex metagenomic analyses.
- ❑ Innovative Computational Perturbation Experiments and Biomarker Identification: OUTPOST introduces computational perturbation experiments and meta-analysis-based biomarker identification, enhancing the robustness and practical value of the analysis.
- ❑ Operational Robustness and User-Friendliness: With a Snakemake-based framework, OUTPOST provides a reliable and flexible analysis environment, catering to users ranging from beginners to advanced researchers.

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