Relationship Between Gut Microbiome and Candida in PWH: Role of Bacterial Extracellular Vesicles

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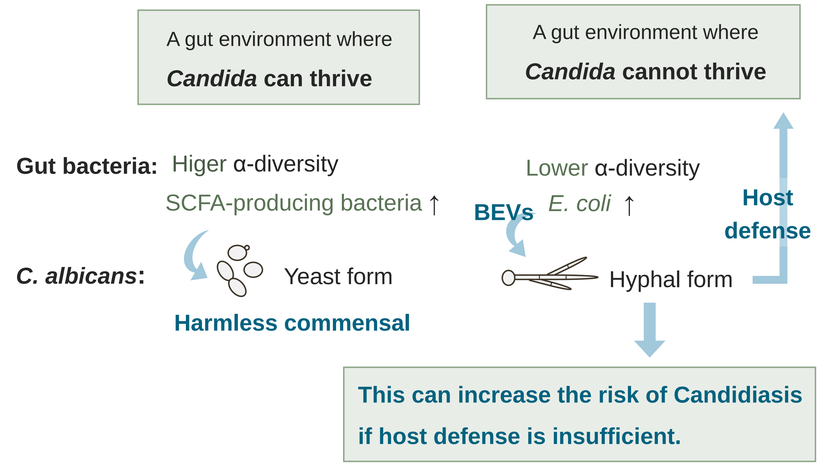
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BACKGROUND

- The intestinal tract is a source of *Candida* infection; however, the role of commensal bacteria and intestinal immunity in *Candida* colonization in the intestinal tract is unclear.
- Bacterial extracellular vesicles (BEVs) are nano-sized vesicles with a lipid membrane, carrying various bacteria-derived components that enhance bacterial communications between host cells and other bacteria.
- This study aimed to understand the symbiotic relationship between gut bacteria and fungi in people with HIV (PWH).

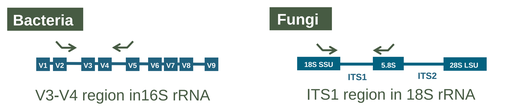
Gut-derived **bacterial extracellular vesicles (BEVs)** regulate *Candida* morphogenesis and intestinal colonization.

SUMMARY

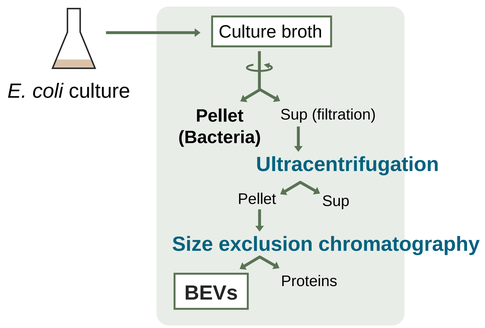


METHODS

- We recruited 96 PWH with immunological recovery (median CD4: 637 cells/μl) and extracted stool DNA.
- Bacterial and fungal flora were analyzed via MiSeq sequencing of 16S rDNA V3-V4 and ITS1 regions using QIIME2.

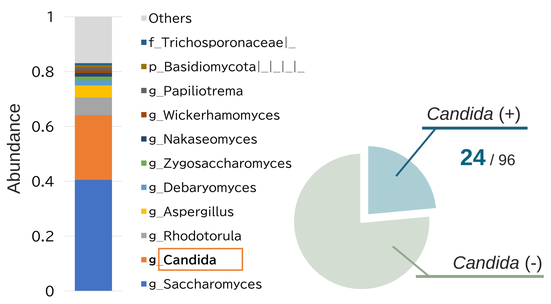


- Bacterial extracellular vesicles (BEVs) were purified from E. coli supernatant.

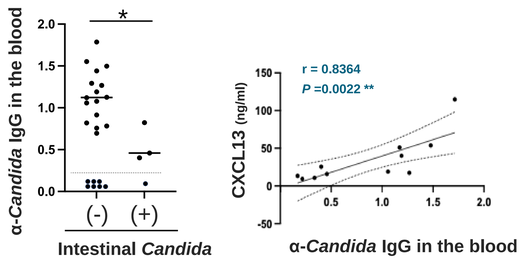


RESULTS

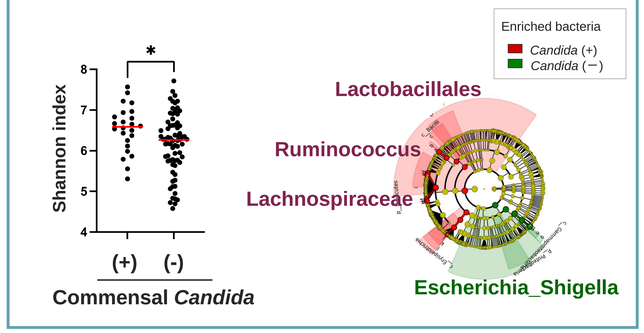
1. Fungal profile in the gut of PWH



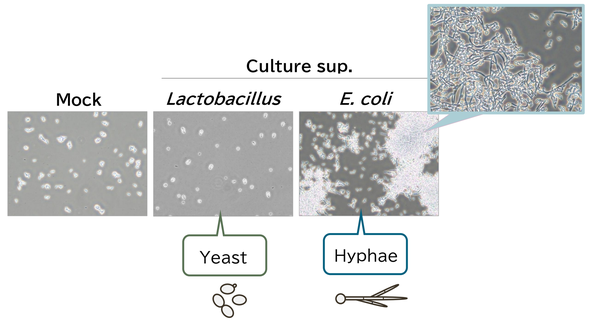
2. Ongoing anti-*Candida* immune activity in those lacking commensal *Candida*.



3. Bacterial profile with or without Commensal *Candida*

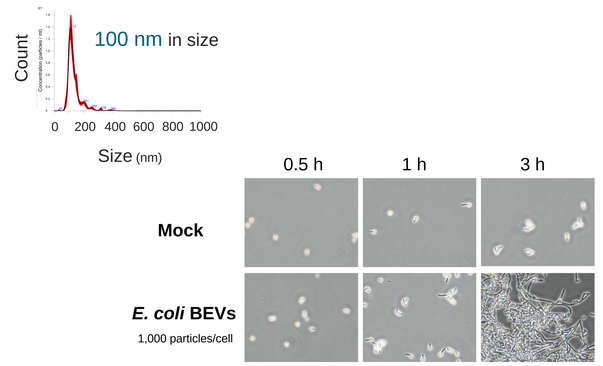


4. *E. coli* sup induced hyphal formation of *C. albicans*



After 6 hours of cultivation

5. Purified *E. coli* extracellular vesicles (BEVs) induced hyphal formation of *C. albicans*



6. *E. coli* BEVs transactivated hyphae-related genes

