

## SUPPLEMENTARY INFORMATION

### **A gut-oral microbiome-driven axis promotes mucosal immunity to *Candida albicans* through retinoic acid**

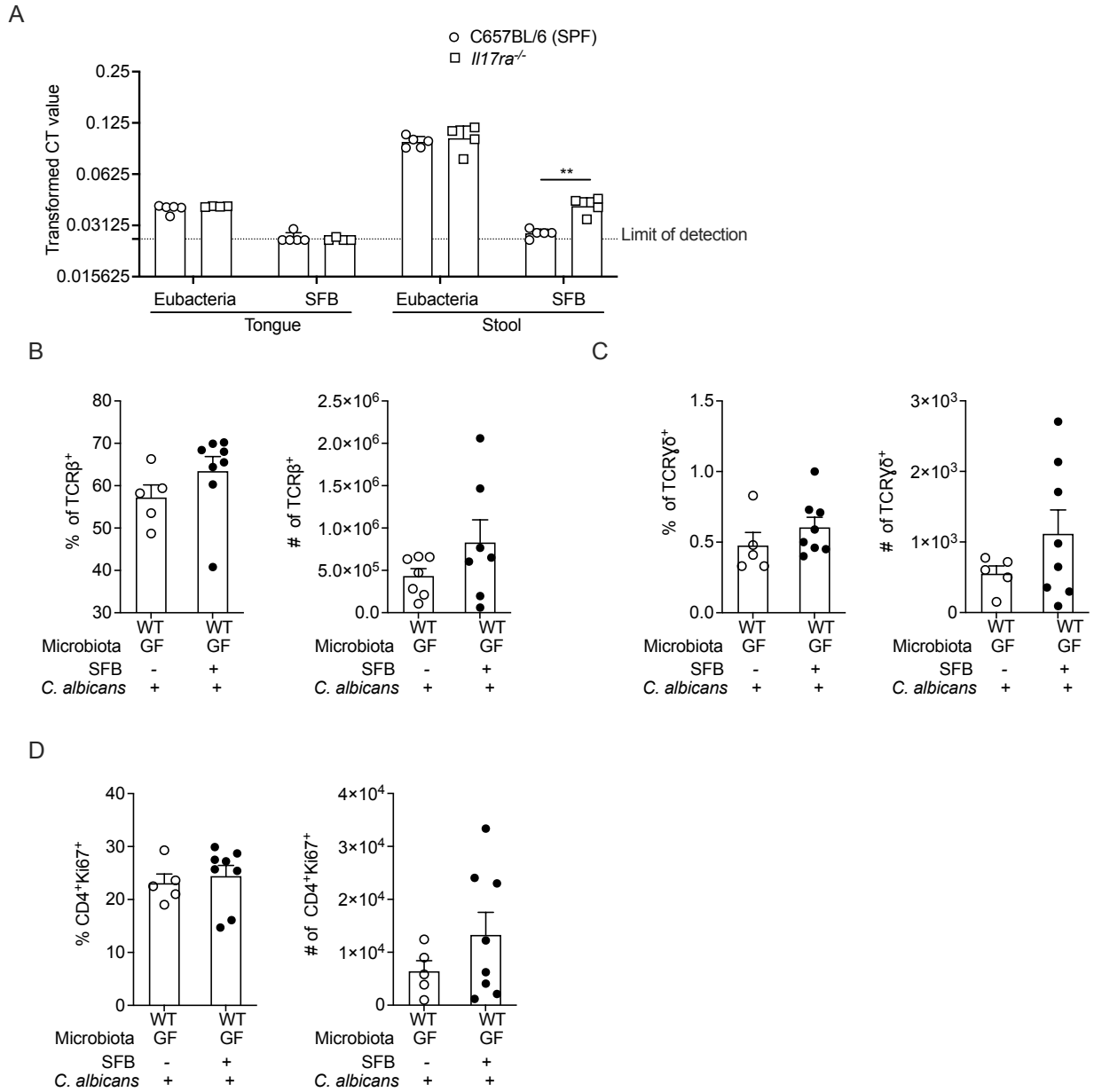
Felix EY Aggor<sup>1</sup>, Martinna Bertolini<sup>1,2</sup>, Chunsheng Zhou<sup>1</sup>, Tiffany C. Taylor<sup>1</sup>, Darryl A. Abbott, Javonn Musgrove<sup>3</sup>, Vincent M. Bruno<sup>4</sup>, Timothy W. Hand<sup>3</sup>, Sarah L. Gaffen<sup>1¶</sup>

<sup>1</sup> Division of Rheumatology & Clinical Immunology, University of Pittsburgh, Pittsburgh, PA

<sup>2</sup> Department of Periodontics, School of Dental Medicine, University of Pittsburgh, Pittsburgh, PA

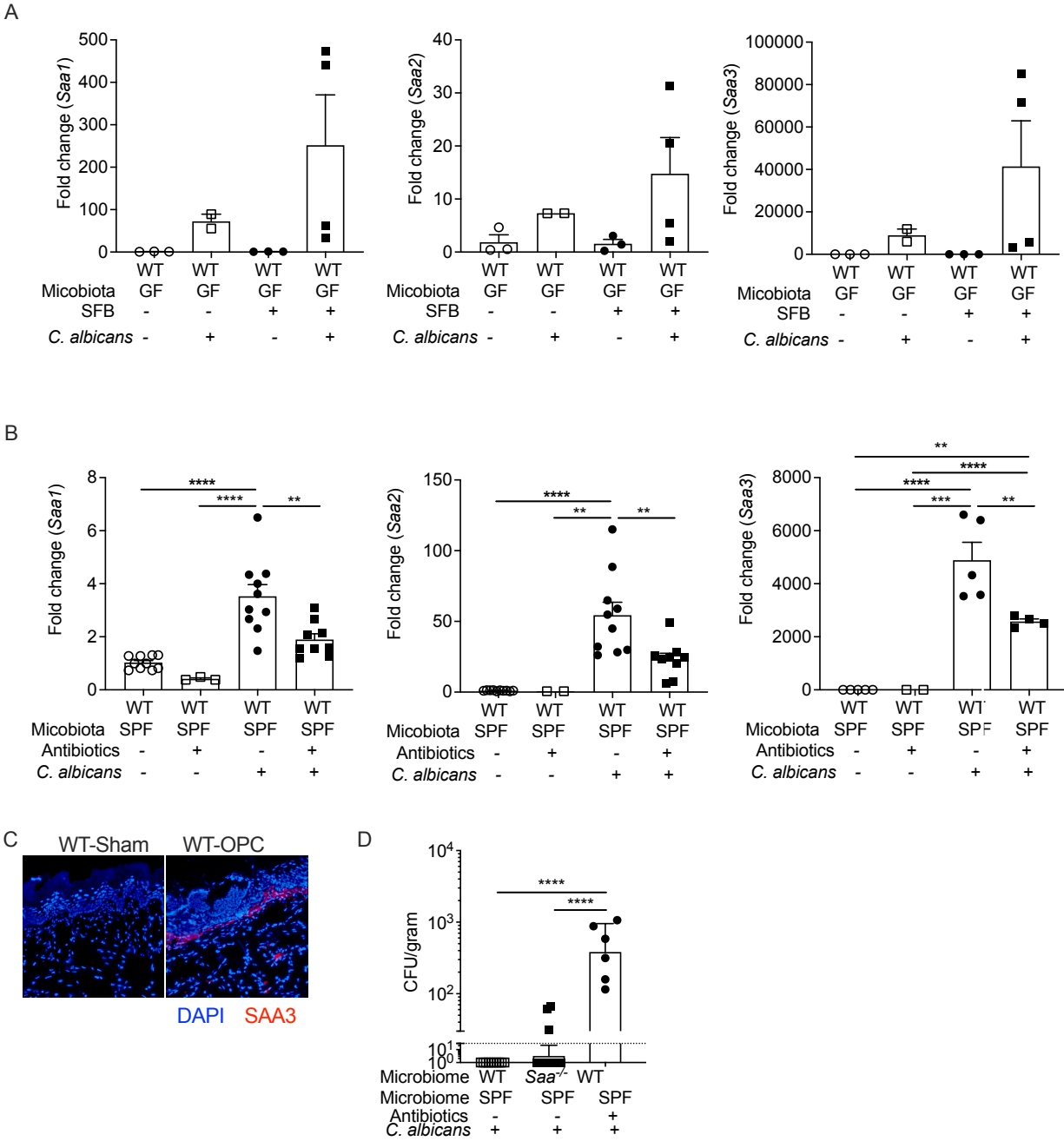
<sup>3</sup> RK Mellon Institute for Pediatric Research, Pediatrics Department, Infectious Disease Section, UPMC Children's Hospital of Pittsburgh, University of Pittsburgh, Pittsburgh, PA

<sup>4</sup> Institute for Genome Sciences, University of Maryland School of Medicine, Baltimore, MD



**Supplementary fig. 1: SFB is not detected in murine tongue**

(A) Tongue and stool samples from WT C56BL/6 mice (JAX) or *Ill17ra*<sup>-/-</sup> mice were evaluated for SFB or total Eubacteria by qPCR. Dashed line = limit of detection (LOD). Percentage and numbers of tongue TCR $\beta$ <sup>+</sup> (C) and  $\gamma\delta$ <sup>+</sup>T cells (D) from *C. albicans*-infected GF or SFB mice harvested day 2 p.i. (E) Percentage and numbers of proliferating Tongue T cells (CD4<sup>+</sup>Ki67<sup>+</sup>) from *C. albicans*-infected GF and SFB mice harvested day 2 p.i.



**Supplementary fig. 2: Serum amyloids are induced during OPC but are not required for fungal clearance.**

(A) WT-GF mice were gavaged with PBS or SFB, and after 14 days infected orally with *C. albicans*. Tongue homogenates prepared on day 2 p.i. were evaluated for the indicated mRNAs by qPCR, normalized to *Gapdh*. (B) WT-SPF mice were given antibiotics in drinking water for 7 days and then infected orally with *C. albicans*. Tongue homogenates prepared on day 2 p.i. were evaluated for the indicated mRNAs by qPCR, normalized to *Gapdh*. (C) Frozen tongue sections from Sham (PBS)-infected or *C. albicans*-infected mice day 2 p.i. were stained for DAPI and

SAA3. (D) The indicated mice were given antibiotics in drinking water for 7 days and then infected orally with *C albicans*. After 5 d, fungal loads in tongue were evaluated by CFU enumeration of tissue homogenates. Graphs show geometric mean  $\pm$  SD analyzed by ANOVA with Mann Whitney U. Data from 2 independent experiments.