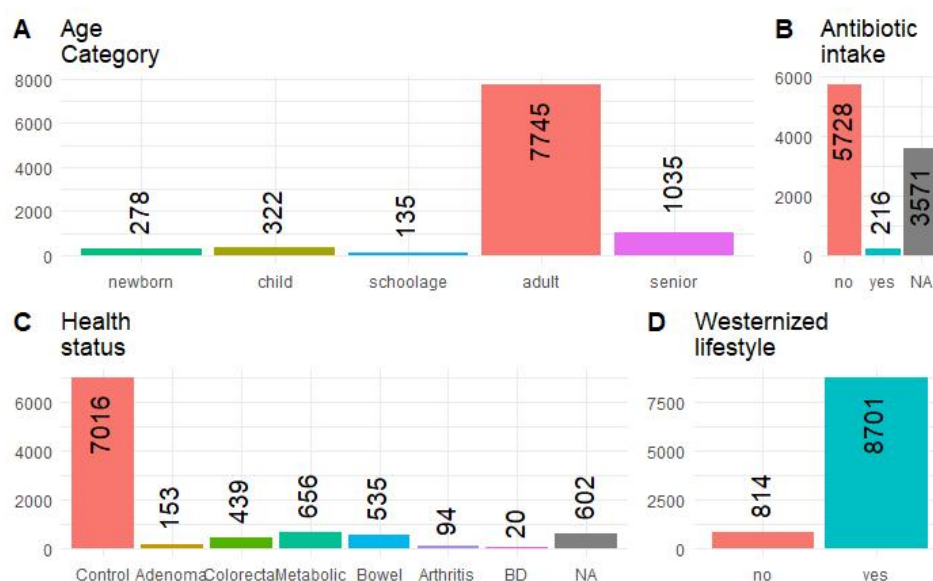
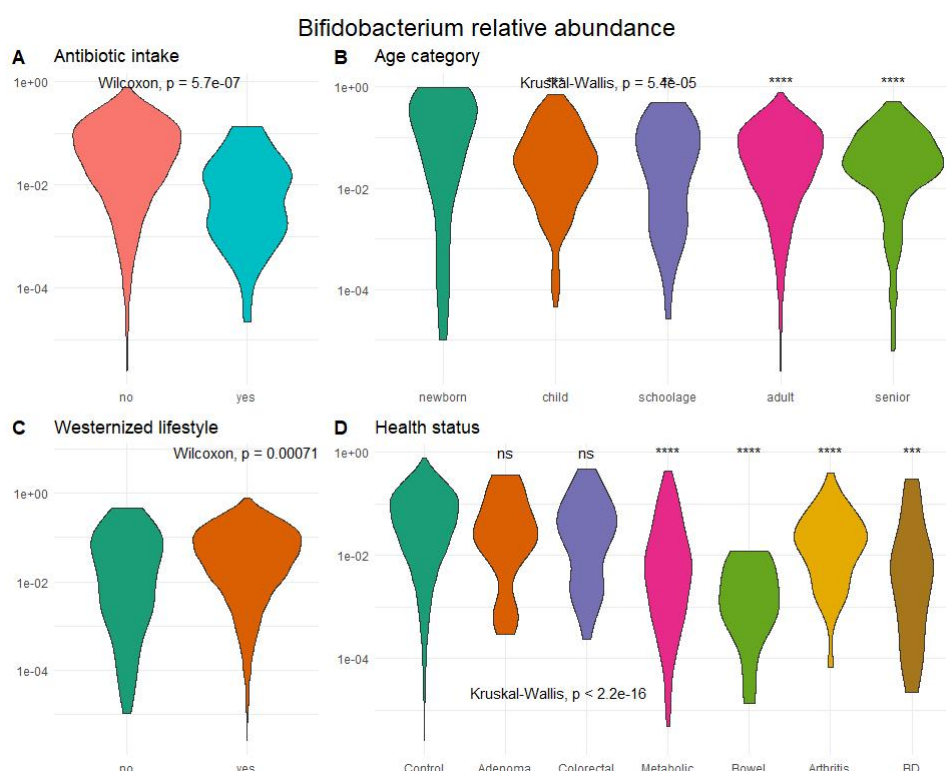


## SUPPLEMENTARY FIGURES

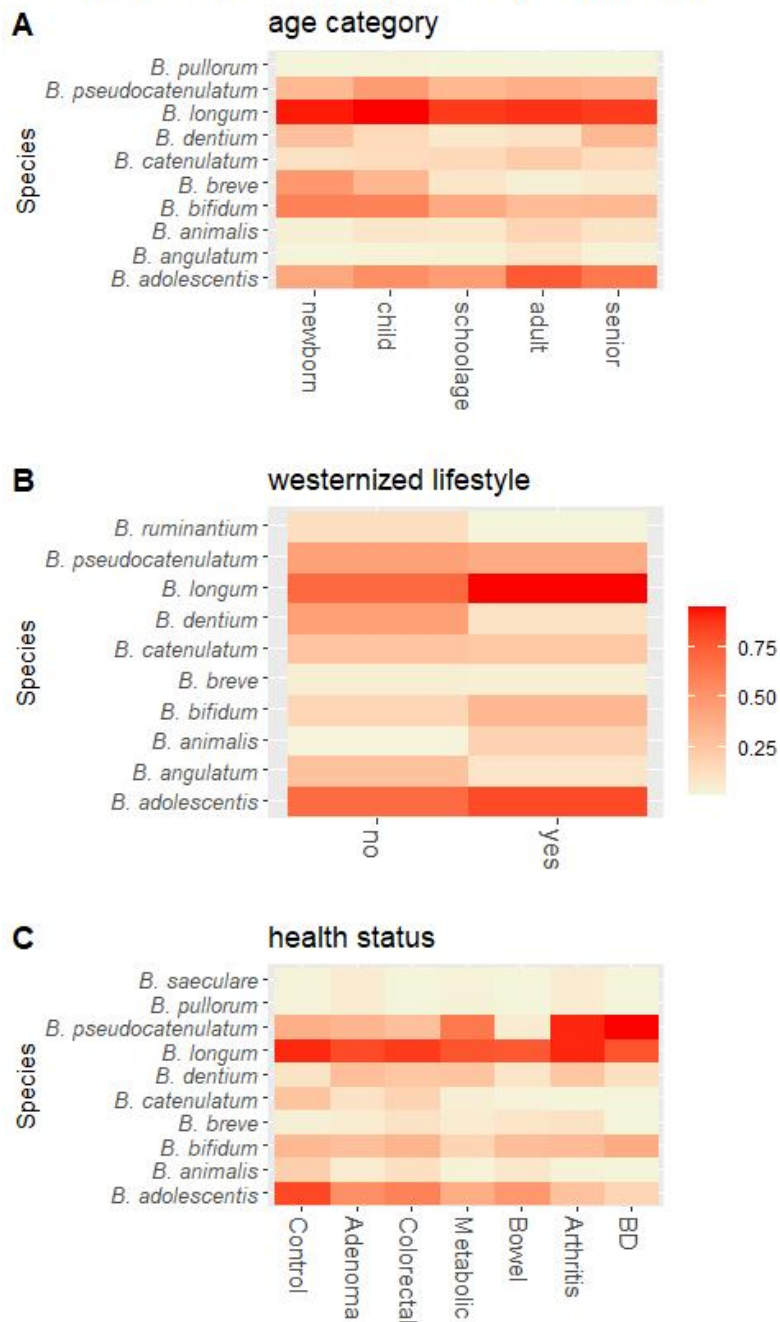


**Supplementary Figure 1.** Number of subjects per type of metadata. (A) Age category (B) Antibiotic intake (C) Health status (D) Westernized lifestyle NA: data not available.

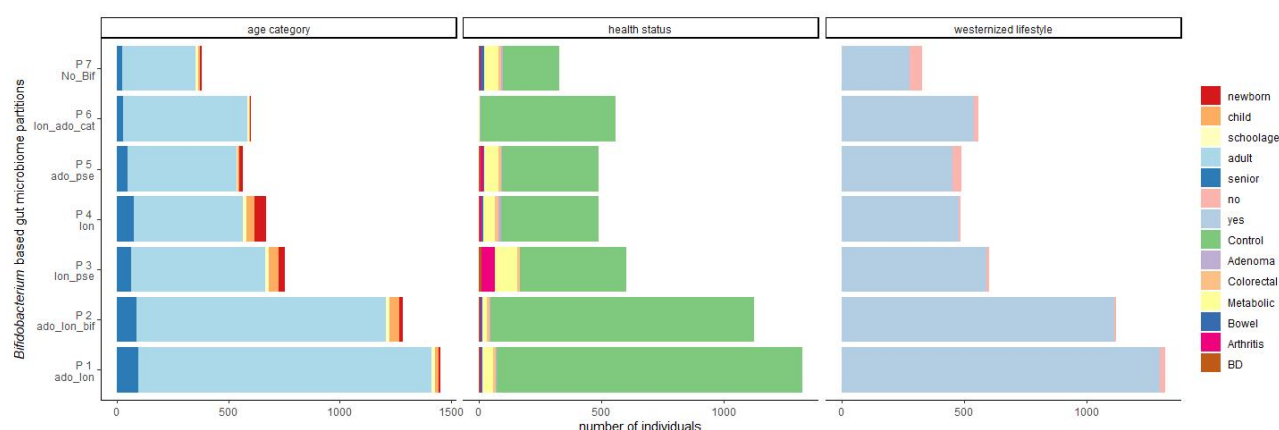


**Supplementary Figure 2.** Relative abundance of *Bifidobacterium* as a function of (A) Antibiotic intake, (B) Age-category without recent antibiotic intake (C) Westernized lifestyle in adults without recent antibiotic intake, (D) Health status in adults without recent antibiotic intake. Kruskal-Wallis tests (A and D) and Mann-Whitney test against the controls: no (B and C), newborn (A), and control (D). ns: not significant; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ ; \*\*\*\* $P < 0.0001$ ". See Table S1 for number of subjects. BD: Behcet's disease.

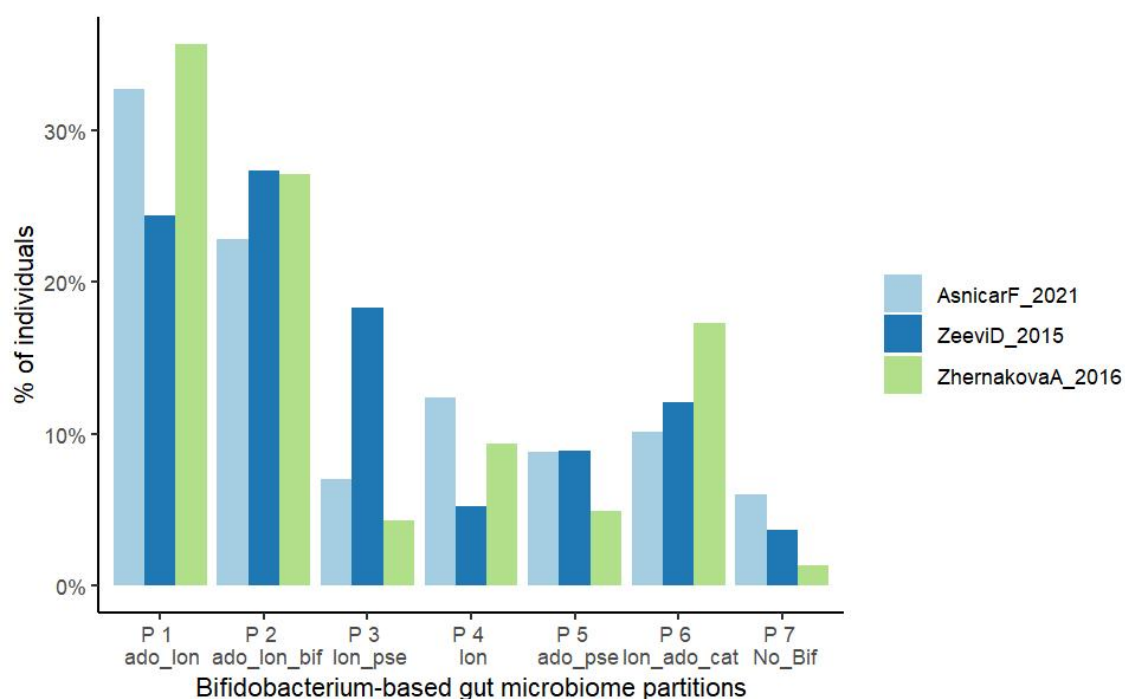
## Bifidobacterium species prevalence



**Supplementary Figure 3.** Heatmap of the 10 most prevalent *Bifidobacterium* species as a function of (A) Age category for subjects with no antibiotics, (B) Westernized lifestyle on adults with no antibiotics and (C) Health status on adults with no antibiotics BD: Behcet's disease.



**Supplementary Figure 4.** Number of subjects between *Bifidobacterium*-based gut microbiome partitions according to metadata (without recent antibiotic intake). (A) Age category (B) Health status (adults) (C) Westernized lifestyle (adults).



**Supplementary Figure 5.** Prevalence of *Bifidobacterium*-based gut microbiome partitions in three large cohorts of adults integrated into the CMD (Asnicar *et al.*,  $N = 1,098$ ), Zeevi *et al.* ( $N = 800$ ), Zhernakova *et al.* ( $N = 1,135$ ).

## SUPPORTING TABLES

**Supplementary Table 1.** Main features of *Bifidobacterium*-based partitions (number of reads, relative abundance of *Bifidobacterium*, and Shannon index).

**Supplementary Table 2.** OGs associated with each *Bifidobacterium* species.

**Supplementary Table 3.** OGs associated with health-*Bifidobacterium* partitions. 15 OGs related to phages (integrases, transposases, and helicases) are in bold.