

## SUPPLEMENTARY MATERIAL DESCRIPTION

Supplementary tables are available on the open data repository Zenodo at <https://zenodo.org/records/13325351>.

**Supplementary table 1:** List of carbohydrates of interest and bacteria present in KEGG with at least one of the manually curated enzymes with validated potential to catabolise chemical bonds present in those carbohydrates.

**Supplementary table 2:** Average nucleotide identity (ANI) between the different *L. plantarum* strains analysed in the paper.

**Supplementary table 3:** List of forward and reverse primers for the genes analysed.

**Supplementary table 4:** Results of differential abundance analysis performed on every metabolite detected in the bacterial supernatant from APC2688 isolates grown in different growth media.

**Supplementary figure 1:** Workflow of the *in-silico* analysis used to identify a new bacterial strain that satisfy the desired metabolic profile.

**Supplementary figure 2:** PCA plot of the metabolites synthesized by APC2688 under different growth media conditions.

**Supplementary figure 3:** Hatching of zebrafish eggs and larvae survival plots.