



# Complete and Assembled Genome Sequence of *Lactobacillus plantarum* RI-113 Isolated from Salami

Raffael C. Inglin,<sup>a</sup> Leo Meile,<sup>a</sup>  Jochen Klumpp,<sup>b</sup> Marc J. A. Stevens<sup>a</sup>

Laboratory of Food Biotechnology, Institute of Food, Nutrition and Health, ETH Zurich, Zurich, Switzerland<sup>a</sup>; Laboratory of Food Microbiology, Institute of Food, Nutrition and Health, ETH Zurich, Zurich, Switzerland<sup>b</sup>

**ABSTRACT** We present here the complete genome sequence of *Lactobacillus plantarum* RI-113, a strain isolated from salami, which was determined using single-molecule real-time sequencing.

*Lactobacillus plantarum* strains have been isolated from a broad spectrum of ecosystems such as silage, olives, sourdough, sauerkraut, cheese, and fermented sausages (1, 2). This habitat diversity of *L. plantarum* might be related to abundant gene functions resulting in a genome size which is one of the largest among lactobacilli (3, 4). *L. plantarum* RI-113 is a single-colony strain isolated from salami that grows at a pH of 3.5, 7.5% NaCl, and 5% ethanol at a temperature range of 14°C to 43°C in Man-Rogosa-Sharpe medium. The strain shows antifungal activity against *Trichosporon* sp. and *Rhodotorula mucilaginosa*, as detected in a high-throughput screening (5). Genomic DNA was isolated by first using lysozyme-based cell-wall digestion with a Wizard genomic DNA purification kit (Promega, Dübendorf, Switzerland). The genome was sequenced using single-molecule real-time sequencing cells on a PacBio RS II platform (Pacific Biosciences, Menlo Park, CA, USA) at the Functional Genomics Center Zurich (Zurich, Switzerland). In total, 94,382 reads, with a mean length of 12,974 bp resulting in 370× coverage, were assembled into a single contig and six plasmids using the Hierarchical Genome Assembly Process (6). The genome was automatically annotated using the NCBI Prokaryotic Genome Annotation Pipeline. The genome of *L. plantarum* RI-113 consists of a 3,462,990-bp circular molecule and comprises 67 tRNA genes and 16 rRNA genes. The G+C content of the genome is 44.34%, and a total of 3,361 protein-coding sequences were predicted.

**Accession number(s).** Sequence and annotation data of the complete *L. plantarum* strain RI-113 genome have been deposited at GenBank under the accession numbers [CP017406](https://doi.org/10.1093/nar/gkx113) (genome) and [CP017407](https://doi.org/10.1093/nar/gkx113) to [CP017412](https://doi.org/10.1093/nar/gkx113) (six plasmids).

## ACKNOWLEDGMENTS

This project was financed by the Swiss National Science Foundation with the National Research Program 69, project number 145214, and supported by the Foundation Hermann Herzer.

## REFERENCES

1. Rizzello CG, Cassone A, Coda R, Gobbetti M. 2011. Antifungal activity of sourdough fermented wheat germ used as an ingredient for bread making. *Food Chem* 127:952–959. <https://doi.org/10.1016/j.foodchem.2011.01.063>.
2. Siezen RJ, van Hylckama Vlieg JE. 2011. Genomic diversity and versatility of *Lactobacillus plantarum*, a natural metabolic engineer. *Microb Cell Fact* 10:S3. <https://doi.org/10.1186/1475-2859-10-S1-S3>.
3. Bringel F, Quéneé P, Tailliez P. 2001. Polyphasic investigation of the diversity within *Lactobacillus plantarum* related strains revealed two *L. plantarum* subgroups. *Syst Appl Microbiol* 24:561–571. <https://doi.org/10.1078/0723-2020-00061>.
4. Kant R, Blom J, Palva A, Siezen RJ, de Vos WM. 2011. Comparative genomics of *Lactobacillus*. *Microb Biotechnol* 4:323–332. <https://doi.org/10.1111/j.1751-7915.2010.00215.x>.
5. Inglin RC, Stevens MJA, Meile L, Lacroix C, Meile L. 2015. High-throughput screening assays for antibacterial and antifungal activities of *Lactobacillus* species. *J Microbiol Methods* 114:26–29. <https://doi.org/10.1016/j.mimet.2015.04.011>.
6. Chin CS, Alexander DH, Marks P, Klammer AA, Drake J, Heiner C, Clum A, Copeland A, Huddleston J, Eichler EE, Turner SW, Korlach J. 2013. Nonhybrid, finished microbial genome assemblies from long-read SMRT sequencing data. *Nat Methods* 10:563–569. <https://doi.org/10.1038/nmeth.2474>.

**Received** 17 February 2017 **Accepted** 21 February 2017 **Published** 20 April 2017

**Citation** Inglin RC, Meile L, Klumpp J, Stevens MJA. 2017. Complete and assembled genome sequence of *Lactobacillus plantarum* RI-113 isolated from salami. *Genome Announc* 5: e00183-17. <https://doi.org/10.1128/genomeA.00183-17>.

**Copyright** © 2017 Inglin et al. This is an open-access article distributed under the terms of the [Creative Commons Attribution 4.0 International license](https://creativecommons.org/licenses/by/4.0/).

Address correspondence to Leo Meile, [leo.meile@hest.ethz.ch](mailto:leo.meile@hest.ethz.ch).