

# Screening and Application of Novel Homofermentative Lactic Acid Bacteria Results in Low-FODMAP Whole-Wheat Bread

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**Table S1.** Collection of 244 lactic acid bacteria used in the study.

Strain	Origin
<i>Enterococcus faecium</i> LT105	Lentil sourdough
<i>Enterococcus faecium</i> LT108	Lentil sourdough
<i>Enterococcus faecium</i> TG102	Tigernut sourdough
<i>Lactocaseibacillus paracasei</i> R18	Human
<i>Lactocaseibacillus casei</i> MTUS21	Cheese
<i>Lactocaseibacillus paracasei</i> R3	Bovine
<i>Lactocaseibacillus paracasei</i> subsp. <i>paracasei</i> DSM 20006	Beer
<i>Lactocaseibacillus rhamnosus</i> MTUS10	Cheese
<i>Lactocaseibacillus rhamnosus</i> MTUS9	Cheese
<i>Lactiplantibacillus argentoratensis</i> DSM 16365 <sup>T</sup>	Cassava roots
<i>Lactiplantibacillus plantarum</i> F2	Sourdough
<i>Lactiplantibacillus plantarum</i> F5	Sourdough
<i>Lactiplantibacillus plantarum</i> FB102	Faba bean sourdough
<i>Lactiplantibacillus plantarum</i> FST1.7	Malted barley
<i>Lactiplantibacillus plantarum</i> FST1.9	Unknown
<i>Lactiplantibacillus plantarum</i> LT102	Lentil sourdough
<i>Lactiplantibacillus plantarum</i> R11	Cheese
<i>Lactiplantibacillus plantarum</i> R13	Cheese
<i>Lactiplantibacillus plantarum</i> R14	Human
<i>Lactiplantibacillus plantarum</i> R25	Human
<i>Lactiplantibacillus plantarum</i> R27	Human
<i>Lactiplantibacillus plantarum</i> R8	Human
<i>Lactiplantibacillus plantarum</i> RY(R7)	Human
<i>Lactiplantibacillus plantarum</i> subsp. <i>plantarum</i> DSM 20174 <sup>T</sup>	Pickled cabbage
<i>Lactiplantibacillus plantarum</i> subsp. <i>plantarum</i> DSM 20205	Unknown
<i>Lactiplantibacillus plantarum</i> subsp. <i>plantarum</i> DSM 2601	Pickled cabbage
<i>Lactiplantibacillus plantarum</i> subsp. <i>plantarum</i> DSM 2648	Silage
<i>Lactiplantibacillus plantarum</i> subsp. <i>plantarum</i> DSM 12028	Sausage

Strain	Origin
<i>Lactiplantibacillus plantarum</i> subsp. <i>plantarum</i> DSM 13273	Jojoba meal
<i>Lactobacillus agilis</i> DSM 20509 <sup>T</sup>	Sewage
<i>Lactobacillus amylovorus</i> AB32	Buckwheat sourdough
<i>Lactobacillus amylovorus</i> AB36	Teff sourdough
<i>Lactobacillus amylovorus</i> DSM 20531 <sup>T</sup>	Corn
<i>Lactobacillus amylovorus</i> FST2.11	Cereal
<i>Lactobacillus amyloyticus</i> DSM 11664 <sup>T</sup>	Beer worth
<i>Lactobacillus crispatus</i> AB19	Buckwheat sourdough
<i>Lactobacillus crispatus</i> DSM 20584 <sup>T</sup>	Eye
<i>Lactobacillus curvatus</i> BR103	Brown rice sourdough
<i>Lactobacillus gasseri</i> M11	Murine
<i>Lactobacillus intestinalis</i> DSM 6629 <sup>T</sup>	Rat
<i>Lactobacillus johnsonii</i> DSM 10533 <sup>T</sup>	Human
<i>Lactobacillus mali</i> DSM 20444 <sup>T</sup>	Apple juice
<i>Lactobacillus ruminis</i> DSM 20403 <sup>T</sup>	Bovine
<i>Lactococcus lactis</i> DSM 20069 <sup>T</sup>	Unknown
<i>Lapidilactobacillus dextrinicus</i> DSM 20293	Beer
<i>Latilactobacillus curvatus</i> BR104	Brown rice sourdough
<i>Latilactobacillus curvatus</i> BR110	Brown rice sourdough
<i>Latilactobacillus curvatus</i> FB104	Faba bean sourdough
<i>Latilactobacillus curvatus</i> LT102	Lentil sourdough
<i>Latilactobacillus curvatus</i> SG102	Sorghum sourdough
<i>Latilactobacillus curvatus</i> SG106	Sorghum sourdough
<i>Latilactobacillus curvatus</i> SG113	Sorghum sourdough
<i>Latilactobacillus sakei</i> FB103	Faba bean sourdough
<i>Latilactobacillus sakei</i> YP2 7.1.11A	Yellow pea sourdough
<i>Ligilactobacillus murinus</i> DSM 20452 <sup>T</sup>	Rat
<i>Liquorilactobacillus nagelii</i> DSM 13675 <sup>T</sup>	Wine
<i>Loigolactobacillus coryniformis</i> BR100	Brown rice sourdough
<i>Pediococcus pentosaceus</i> B1 7.1.2A	Sourdough
<i>Pediococcus pentosaceus</i> B1 7.1.4A	Sourdough
<i>Pediococcus pentosaceus</i> B1 7.1.5A	Sourdough
<i>Pediococcus pentosaceus</i> B1 7.1.6A	Sourdough
<i>Pediococcus pentosaceus</i> B1 7.1.7A	Sourdough
<i>Pediococcus pentosaceus</i> B1 7.1.8A	Sourdough
<i>Pediococcus pentosaceus</i> B1 7.1.9A	Sourdough
<i>Pediococcus pentosaceus</i> BB3 8.1.1A	Sourdough
<i>Pediococcus pentosaceus</i> RYE100	Rye sourdough
<i>Pediococcus pentosaceus</i> RYE102	Rye sourdough
<i>Pediococcus pentosaceus</i> RYE104	Rye sourdough
<i>Pediococcus pentosaceus</i> RYE106	Rye sourdough
<i>Pediococcus pentosaceus</i> WW105	Whole wheat flour
BK101	Baker's flour sourdough
BK102	Baker's flour sourdough
BK103	Baker's flour sourdough
BK104	Baker's flour sourdough

Strain	Origin
BK105	Baker's flour sourdough
BK106	Baker's flour sourdough
BK107	Baker's flour sourdough
BK108	Baker's flour sourdough
BR101	Brown rice sourdough
BR102	Brown rice sourdough
BR107	Brown rice sourdough
BR111	Brown rice sourdough
FB100	Faba bean sourdough
FB101	Faba bean sourdough
FB105	Faba bean sourdough
FB106	Faba bean sourdough
FB108	Faba bean sourdough
GP1 8.1.1B	Green pea sourdough
GP1 8.1.1C	Green pea sourdough
GP1 8.1.2A	Green pea sourdough
GP2 8.1.1A	Green pea sourdough
GP2 8.1.2A	Green pea sourdough
GP2 8.1.3A	Green pea sourdough
GP2 8.1.4A	Green pea sourdough
GP2 8.1.5A	Green pea sourdough
GP3 7.1.1A	Green pea sourdough
GP3 7.1.3A	Green pea sourdough
GP3 7.1.4A	Green pea sourdough
GP3 7.1.5A	Green pea sourdough
GP3 7.1.6A	Green pea sourdough
GP3 7.1.7A	Green pea sourdough
LK303	Leek
LK311	Leek
LK323	Leek
LT101	Lentil sourdough
LT103	Lentil sourdough
LT106	Lentil sourdough
LT107	Lentil sourdough
LT111	Lentil sourdough
LT112	Lentil sourdough
LT113	Lentil sourdough
LT114	Lentil sourdough
MT1 7.1.2A	Millet sourdough
MT1 7.1.3A	Millet sourdough
MT1 7.1.4A	Millet sourdough
MT2 6.1.2A	Millet sourdough
MT2 6.1.3A	Millet sourdough
MT2 6.1.4A	Millet sourdough
MT3 7.1.1A	Millet sourdough
MZ1 6.1.2A	Maize sourdough

Strain	Origin
MZ1 6.1.3A	Maize sourdough
MZ1 6.1.4A	Maize sourdough
MZ1 6.1.5A	Maize sourdough
MZ1 6.1.6A	Maize sourdough
MZ2 6.1.2A	Maize sourdough
MZ2 6.1.3A	Maize sourdough
MZ2 6.1.4A	Maize sourdough
MZ2 6.1.5A	Maize sourdough
MZ3 6.1.1A	Maize sourdough
MZ3 6.1.2A	Maize sourdough
MZ3 6.1.3A	Maize sourdough
MZ3 6.1.4A	Maize sourdough
OAT100	Oat sourdough
OAT107	Oat sourdough
OAT110	Oat sourdough
OAT117	Oat sourdough
OAT119	Oat sourdough
QN1 7.1.1A	Quinoa sourdough
QN1 8.1.1A	Quinoa sourdough
QN1 8.2.1A	Quinoa sourdough
QN1 8.2.2A	Quinoa sourdough
QN1 9.2.1A	Quinoa sourdough
QN2 7.1.2A	Quinoa sourdough
QN2 7.1.3A	Quinoa sourdough
QN2 7.1.4A	Quinoa sourdough
QN2 7.2.1A	Quinoa sourdough
QN2 8.2.1A	Quinoa sourdough
QN2 8.2.2A	Quinoa sourdough
QN3 7.1.1A	Quinoa sourdough
QN3 8.1.1A	Quinoa sourdough
QN3 8.1.2A	Quinoa sourdough
QN3 9.2.1A	Quinoa sourdough
QN3 9.2.2A	Quinoa sourdough
QN3 9.2.3A	Quinoa sourdough
QN3 9.2.4A	Quinoa sourdough
RYE105	Rye sourdough
RYE107	Rye sourdough
RYE108	Rye sourdough
RYE109	Rye sourdough
RYE110	Rye sourdough
RYE111	Rye sourdough
SG104	Sorghum sourdough
SG107	Sorghum sourdough
SG112	Sorghum sourdough
SG115	Sorghum sourdough
SG116	Sorghum sourdough

Strain	Origin
SG117	Sorghum sourdough
SG118	Sorghum sourdough
SP1 6.1.1A	Spelt sourdough
SP1 6.1.2A	Spelt sourdough
SP1 6.1.4A	Spelt sourdough
SP2 7.1.2A	Spelt sourdough
SP2 7.1.3A	Spelt sourdough
SP2 7.1.4A	Spelt sourdough
SP3 6.1.1A	Spelt sourdough
SP3 6.1.2A	Spelt sourdough
SP3 6.1.3A	Spelt sourdough
SP3 6.1.4A	Spelt sourdough
SP3 6.1.5A	Spelt sourdough
SP3 7.1.1A	Spelt sourdough
TF1 9.1.2A	Teff sourdough
TF1 9.1.3A	Teff sourdough
TF1 9.2.1A	Teff sourdough
TF2 8.1.1A	Teff sourdough
TF2 8.1.2A	Teff sourdough
TF2 8.2.1A	Teff sourdough
TF2 8.2.3A	Teff sourdough
TF3 7.2.1A	Teff sourdough
TF3 8.1.2A	Teff sourdough
TF3 8.1.4A	Teff sourdough
TF3 9.2.2A	Teff sourdough
TG105	Tigernut sourdough
TG108	Tigernut sourdough
TP1 8.1.1A	Tapioca sourdough
TP1 9.2.1A	Tapioca sourdough
TP2 7.1.1A	Tapioca sourdough
TP3 7.1.1A	Tapioca sourdough
TP3 7.2.2A	Tapioca sourdough
TP3 7.2.3A	Tapioca sourdough
TP3 7.2.4A	Tapioca sourdough
WR100	White rice sourdough
WR101	White rice sourdough
WR103	White rice sourdough
WR107	White rice sourdough
WR108	White rice sourdough
WR109	White rice sourdough
WR111	White rice sourdough
WR113	White rice sourdough
WT101	Watermelon
WT201	Watermelon
WT202	Watermelon
WT211	Watermelon
WT212	Watermelon

Strain	Origin
WT221	Watermelon
WT222	Watermelon
WT301	Watermelon
WT302	Watermelon
WT312	Watermelon
WT313	Watermelon
WT322	Watermelon
WT323	Watermelon
WW106	Whole wheat flour
WW107	Whole wheat flour
WW108	Whole wheat flour
WW110	Whole wheat flour
WW111	Whole wheat flour
WW113	Whole wheat flour
WW114	Whole wheat flour
YP1 7.1.10A	Yellow pea sourdough
YP1 7.1.11A	Yellow pea sourdough
YP1 7.1.1A	Yellow pea sourdough
YP1 7.1.2B	Yellow pea sourdough
YP1 7.1.5A	Yellow pea sourdough
YP1 7.1.8A	Yellow pea sourdough
YP2 7.1.3A	Yellow pea sourdough
YP2 7.1.6A	Yellow pea sourdough
YP2 7.1.9B	Yellow pea sourdough
YP3 7.1.12A	Yellow pea sourdough
YP3 7.1.14A	Yellow pea sourdough
YP3 7.1.1A	Yellow pea sourdough
YP3 7.1.3A	Yellow pea sourdough
YP3 7.1.4A	Yellow pea sourdough
YP3 7.1.5A	Yellow pea sourdough
YP3 7.1.7A	Yellow pea sourdough

<sup>T</sup> Type strain.

**Table S2.** Carbohydrates used in the study.

Carbohydrate	Company	Technical properties
Sucrose	Sigma Aldrich	≥99.0% purity
D-(-)-Fructose	Sigma Aldrich	≥98.0% purity
D-Lactose monohydrate	Sigma Aldrich	≥98.0% purity
D-Mannitol	Sigma Aldrich	≥99.0% purity
D-(+)-Raffinose pentahydrate	Sigma Aldrich	≥99.0% purity
Inulin from chicory	Megazyme	95% pure, Total fructose, sucrose, glucose content < 0.1%, DP 2-60, main chain glycosidic β-2,1 bond
FOS	Megazyme	95% pure DP 2-8, Total fructose, sucrose, glucose content ~ 5%, main chain glycosidic β-2,1 bond, produced by endo- Fructanase hydrolysis of chicory inulin