**Article:**
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**Table S4** – Biological processes attributed to acid tolerance DEGs (% of DEGs) and genes showing the highest Log2fold change together with their biological process in each genome

| Genome | Biological processes | Gene (Log2fold change) and associated function |
|---|---|---|
| *L. acidophilus* | Translation, ribosomal structure and biogenesis (51.5%); Energy production and conversion (21.2%); Amino acid transport and metabolism (9.1%); Nucleotide transport and metabolism (9.1%); DNA elements (6.06%); Proteins repair (3.03%) | *LBA0774* (atpF) (11.59) Energy production and conversion (ATP synthase B subunit) |
| *L. brevis* | Translation, ribosomal structure and biogenesis (54.5%); Energy production and conversion (18.18%); Protein repair (18.18%); Cell division (9.09%) | *LVIS_RS14560* (groEL) (8.67) Protein Repair |
| *L. buchneri* | Translation, ribosomal structure and biogenesis (43.7%); Repair proteins (25%); Nucleotide transport and metabolism (12.5%); Energy production and conversion (12.5%); Amino acid transport and metabolism (6.25%) | *LBUCD034_RS02605* (purB) (7.61) Nucleotide transport and metabolism (protein adenyl succinate lyse) |
| *L. casei* | Translation, ribosomal structure and biogenesis (100%) | *LBCZ_RS05780* (rpsD) (6.73) Translation, ribosomal structure and biogenesis (ribossomal protein) |
| *L. crispatus* | Translation, ribosomal structure and biogenesis (57.1%); Nucleotide transport and metabolism (9.89%); Proteins repair (9.89%); Energy production and conversion (6.59%); Cell division (5.49%); Amino acid transport and metabolism (4.39%); Cell envelope biogenesis (3.29%); DNA elements (2.19%); Carbohydrate transport and metabolism (1.09%) | *LCRIS_RS01510* (rplC) (12.54) Translation, ribosomal structure and biogenesis (ribossomal protein) |
| *L. curvatus* | Nucleotide transport and metabolism (33.3%); DNA elements (33.3%); Signal transduction (33.3%) | *OA78_RS05010* (8.10) *DNA elements* |
| *L. delbrueckii* | Translation, ribosomal structure and biogenesis (33.3%); Amino acid transport and metabolism (25%); Nucleotide transport and metabolism (25%); Cell envelope biogenesis (8.3%); DNA elements (8.3%) | *LDB_RS07740* (7.61) DNA elements (transposase) |
| *L. fermentum* | Translation, ribosomal structure and biogenesis (42.8%); DNA elements (15.3%); Nucleotide transport and metabolism (13.2%); Amino acid transport and metabolism (12.2%); Energy production and conversion (6.12%); Proteins repair r proteína (5.10%); Celg division (4.08%); Cell envelope biogenesis (1.02%) | *LAF_RS01020* (12.06) DNA elements (transposase) |
| *L. gasseri* | Translation, ribosomal structure and biogenesis (44.5%); Nucleotide transport and metabolism (15.2%); Cell envelope biogenesis (8.69%); Proteins Repair (8.69%); Amino acid transport and metabolism (7.60%); DNA elements (7.60%); Energy production and conversion (6.52%); Cell division (1.08%) | *LGAS_RS05580* (rfbB) (11.31) *Cell envelope biogenesis (ABC-2 transporter)* |

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|---|---|---|
| *L. jensenii* | Translation, ribosomal structure and biogenesis (50%); Amino acid transport and metabolism (25%); Energy production and conversion (25%) | *HMPREF0526_RS06110* (7.66) Amino acid transport and metabolism (ABC transporter) |
| *L. johnsonii* | Translation, ribosomal structure and biogenesis (65.8%); Proteins repair (14.6%); Amino acid transport and metabolism (4.87%); Energy production and conversion (4.87%); Cell envelope biogenesis (4.87%); Nucleotide transport and metabolism (2.43%); Carbohydrate transport and metabolism (2.43%) | *LJ_RS01875* (rpsE) (10.26) Translation, ribosomal structure and biogenesis (ribosomal protein) |
| *L. paracasei* | Translation, ribosomal structure and biogenesis (23.5%); Nucleotide transport and metabolism (23.5%); Energy production and conversion (17.6%); Amino acid transport and metabolism (17.4%); Proteins Repair (11.7%); Unknown function (5.88%) | *LSEI_1868* (6.98) protein acyltransferase |
| *L. plantarum* | Nucleotide transport and metabolism (50%); Translation, ribosomal structure and biogenesis (25%); Cell division (25%) | *JDM1_RS04365* (7.31) Translation, ribosomal structure and biogenesis |
| *L. rhamnosus* | Translation, ribosomal structure and biogenesis (42.1%); Nucleotide transport and metabolism (16.6%); Amino acid transport and metabolism (14.9%); Energy production and conversion (7.89%); Proteins Repair (7.01%); Cell division (7.01%); Cell envelope biogenesis (2.63%); DNA elements (0.87%); Carbohydrate transport and metabolism (0.87%) | *LGG_RS11910* (fusA) (11.21) Translation, ribosomal structure and biogenesis (G elongation factor) |
| *L. salivarius* | Translation, ribosomal structure and biogenesis (43.1%); Nucleotide transport and metabolism (18.1%); Energy production and conversion (7.75%); Proteins Repair (7.75%); Signal transduction (7.75%); Amino acid transport and metabolism (5.17%); Cell envelope biogenesis (4.3%); Cell division (4.3%); DNA element (1.72%) | *HMPREF0545_RS03630* (10.77) Proteins Repair |