

Supplementary Table S1. List of genes previously shown to be linked to cold tolerance in *L. Monocytogenes*.

| Gene name | Aliases | Function | Temperature | Assay/Remark | References |
|--------------|-----------------|--|-------------|---|------------|
| <i>OppA</i> | <i>lmo2569</i> | similar to dipeptide ABC transporter (dipeptide-binding protein) | 5°C | A strain LO28 deletion mutant exhibited lower growth rate than wildtype (WT) | [1] |
| <i>gbuA</i> | <i>lmo1014</i> | highly similar to glycine betaine ABC transporter (ATP-binding protein) | 4°C | Deletion mutant exhibited lower growth rate against WT using 10403S strain. | [2] |
| <i>gbuB</i> | <i>lmo1015</i> | highly similar to glycine betaine ABC transporters (permease) | 4°C | Deletion mutant exhibited lower growth rate against WT using 10403S strain. | [2] |
| <i>gbuC</i> | <i>lmo1016</i> | highly similar to glycinebetaine ABC transporters (permease) | 4°C | Deletion mutant exhibited lower growth rate against WT using 10403S strain. | [2] |
| <i>betL</i> | <i>lmo2092</i> | glycine betaine transporter | 4°C | Deletion mutant exhibited lower generation time against WT using 10403S strain. | [2] |
| <i>OpuCA</i> | <i>lmo01428</i> | similar to glycine betaine/carnitine/choline ABC transporter (ATP-binding protein) | 4°C | Deletion mutant exhibited lower generation time against WT using 10403S strain. | [2] |
| <i>OpuCB</i> | <i>lmo01427</i> | similar to glycine betaine/carnitine/choline ABC transporter (membrane protein) | 4°C | Deletion mutant exhibited lower generation time against WT using 10403S strain. | [2] |

| | | | | | |
|--------------------|-----------------|---|------|---|-----|
| <i>OpuCC</i> | <i>lmo01426</i> | similar to glycine betaine/carnitine/choline ABC transporter (osmoprotectant-binding protein) | 4°C | Deletion mutant exhibited lower generation time against WT using 10403S strain. | [2] |
| <i>OpuCD</i> | <i>lmo01425</i> | similar to betaine/carnitine/choline ABC transporter (membrane p) | 4°C | Deletion mutant exhibited lower generation time against WT using 10403S strain. | [2] |
| <i>flaA</i> | <i>lmo00690</i> | flagellin protein | 10°C | The genes was expressed in response to growth at low temperature | [3] |
| <i>fbP</i> | <i>lmo00830</i> | highly similar to fructose-1,6-bisphosphatase | 10°C | Genes expressed in response to growth at low temperature | [3] |
| <i>orfX</i> | <i>lmo0206</i> | hypothetical protein | 3°C | Deletion mutant exhibited longer lag time then WT using EGD strain | [4] |
| <i>sigB</i> | <i>lmo00895</i> | RNA polymerase sigma-37 factor (sigma-B) | 8°C | Deletion mutant shown double lag time compared to WT using 10403S starin | [5] |
| <i>rpoN (sigL)</i> | <i>lmo02461</i> | RNA polymerase sigma-54 factor (sigma-L) | 10°C | Genes Expressed in Response to Growth at Low Temperature | [3] |
| <i>bglG</i> | <i>lmo00501</i> | similar to transcription antiterminator BglG family | 10°C | Genes Expressed in Response to Growth at Low Temperature | [3] |

| | | | | | |
|-------------------|-----------------|--|-------------|--|-----|
| <i>hfq</i> | <i>lmo01295</i> | similar to host factor-1 protein | 4°C | Mutant strain displayed a slightly prolonged lag phase than WT using EGD strain. | [6] |
| <i>degU</i> | <i>lmo02515</i> | similar to <i>B. subtilis</i> two-component response regulator | 25°C | Transcriptional activator of <i>flaA</i> gene, in EGD strain | [7] |
| <i>yycJ</i> | <i>lmo00291</i> | conserved hypothetical protein similar to <i>B. subtilis</i> <i>YycJ</i> protein | 10°C | Genes expressed in response to growth at low temperature in 10403S strain | [3] |
| <i>lhkA</i> | <i>lmo1508</i> | similar to two-component sensor histidine kinase | 10°C | Genes expressed in response to growth at low temperature in 10403S strain | [3] |
| <i>psr</i> | <i>lmo0443</i> | similar to <i>B. subtilis</i> transcription regulator <i>LytR</i> | 10°C | Genes expressed in response to growth at low temperature in 10403S strain | [3] |
| <i>cspL, cspA</i> | <i>lmo01364</i> | similar to cold shock protein | 4, and 10°C | Gene expressed in response to cold shock at 10 °C in LO28 strain | [8] |
| <i>cspD</i> | <i>lmo01879</i> | similar to major cold-shock protein | 4, and 10°C | Deletion mutant exhibited longer lag time then WT using EGDe strain | [8] |
| <i>fri (flp)</i> | <i>lmo0943</i> | non-heme iron-binding ferritin | 10°C | Genes expressed in response to grow at 10°C | [3] |
| <i>trxB</i> | <i>lmo2478</i> | thioredoxin reductase | 10°C | Genes expressed in response to grow at 10°C | [3] |

| | | | | | |
|--------------|----------------|---|------|---|-----|
| <i>aroA</i> | <i>lmo1600</i> | 3-deoxy-D-arabino-heptulosonate 7-phosphate synthase | 10°C | Genes expressed in response to grow at 10°C | [3] |
| <i>cysS</i> | <i>lmo0239</i> | Cysteinyl-tRNA synthetase | 10°C | Genes expressed in response to grow at 10°C | [3] |
| <i>trpG</i> | <i>lmo1632</i> | highly similar to anthranilate synthase beta subunit | 10°C | Genes expressed in response to grow at 10°C | [3] |
| <i>ltrA</i> | <i>lmo0389</i> | low temperature requirement protein A | 4°C | Genes Expressed in Response to Growth at Low Temperature | [9] |
| <i>ltrB</i> | <i>lmo0215</i> | low temperature requirement B protein | 4°C | Genes Expressed in Response to Growth at Low Temperature | [9] |
| <i>ltrC</i> | <i>lom2398</i> | low temperature requirement C protein | 4°C | Genes Expressed in Response to Growth at Low Temperature | [9] |
| <i>groEL</i> | <i>lmo2068</i> | class I heat-shock protein (chaperonin) <i>GroEL</i> | 10°C | Multiple strains Genes Expressed in Response to Growth at Low Temperature | [3] |
| <i>clpP</i> | <i>lmo2468</i> | ATP-dependent <i>Clp</i> protease proteolytic subunit | 10°C | Genes Expressed in Response to Growth at Low Temperature | [3] |
| <i>clpB</i> | <i>lmo2206</i> | similar to endopeptidase <i>Clp</i> ATP-binding chain B (<i>ClpB</i>) | 10°C | Genes Expressed in Response to Growth at Low Temperature | [3] |

| | | | | | |
|-------------|-----------------|--|-----|--|------|
| <i>deAD</i> | <i>lmo0866</i> | similar to ATP-dependent RNA helicase | 3°C | Deletion mutant Vs wildtype EGDe No difference growth rate but shorten lag in WT | [10] |
| <i>deAD</i> | <i>lmo1450</i> | similar to ATP-dependent RNA helicase, DEAD-box family (<i>deAD</i>) | 3°C | Deletion mutant Vs wildtype EGDe No difference growth rate but shorten lag in WT | [10] |
| <i>deAD</i> | <i>lmo1722</i> | similar to ATP-dependent RNA helicase, DEAD-box family (<i>deAD</i>) | 3°C | Deletion mutant Vs wildtype EGDe No difference growth rate but shorten lag in WT | [10] |
| <i>pgpH</i> | <i>lmo1466</i> | similar to unknown proteins | 3°C | Genes Expressed in Response to Growth at Low Temperature | [11] |
| <i>yycG</i> | <i>lmo0288</i> | Sensors (signal transduction) | 3°C | Genes Expressed in Response to Growth at Low Temperature | [12] |
| <i>LisR</i> | <i>lmo01377</i> | two-component response regulator | 3°C | Genes Expressed in Response to Growth at Low Temperature | [12] |
| <i>resE</i> | <i>lmo01947</i> | similar to two-component sensor histidine kinase (<i>ResE</i>) | 3°C | Deletion mutant Vs wildtype EGDe low growth rate than WT | [12] |
| <i>flhA</i> | <i>lmo0680</i> | similar to flagella-associated protein <i>flhA</i> | 3°C | Deletion mutant Vs wildtype EGDe low growth rate than WT | [13] |

| | | | | | |
|-------------|----------------|--|-----|--|------|
| <i>MotA</i> | <i>lmo0685</i> | similar to motility protein (flagellar motor rotation) <i>MotA</i> | 3°C | Deletion mutant Vs wildtype EGDe low growth rate than WT | [13] |
|-------------|----------------|--|-----|--|------|

Supplementary Table S2. Isolate characteristics and phenotypic traits.

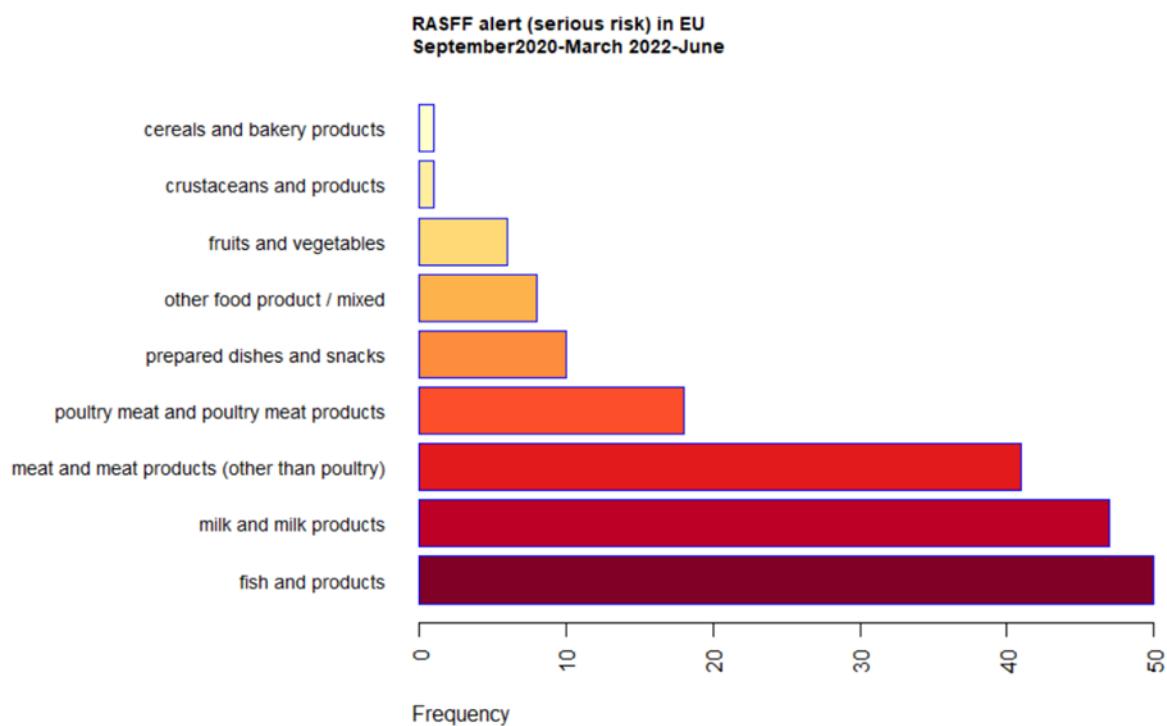
| ID | Source | CC | Lineage | Serogroup | Plasmid | μ_{4C} | μ_{7C} | H_Cluster |
|--------|-------------|-------|---------|-----------|---------|------------|------------|-----------|
| Lm966 | Environment | CC220 | I | 4b,4d,4e | Absent | 0.0123 | 0.0179 | Slow |
| Lm974 | Environment | CC121 | II | 1/2a,3a | Present | 0.0134 | 0.0153 | Slow |
| Lm976 | Mixed food | CC20 | II | 1/2a,3a | Absent | 0.0138 | 0.0241 | Fast |
| Lm1055 | Environment | CC59 | I | 1/2b,3b,7 | Absent | 0.0110 | 0.0127 | Slow |
| Lm1093 | Environment | CC59 | I | 1/2b,3b,7 | Absent | 0.0128 | 0.0176 | Slow |
| Lm1095 | Environment | CC37 | II | 1/2a,3a | Absent | 0.0149 | 0.0264 | Fast |
| Lm1123 | Seafood | CC121 | II | 1/2a,3a | Present | 0.0138 | 0.0227 | Fast |
| Lm1203 | Environment | CC18 | II | 1/2a,3a | Absent | 0.0148 | 0.0292 | Fast |
| Lm1268 | Dairy | CC224 | I | 1/2b,3b,7 | Absent | 0.0131 | 0.0125 | Slow |
| Lm1304 | Environment | NOVEL | II | 1/2a,3a | Present | 0.0155 | 0.0212 | Fast |
| Lm1306 | Environment | NOVEL | II | 1/2a,3a | Present | 0.0146 | 0.0243 | Fast |
| Lm1309 | Environment | CC204 | II | 1/2a,3a | Present | 0.0144 | 0.0207 | Fast |
| Lm1313 | Environment | CC121 | II | 1/2a,3a | Present | 0.0144 | 0.0227 | Fast |
| Lm1321 | Environment | CC101 | II | 1/2a,3a | Present | 0.0118 | 0.0200 | Slow |
| Lm1370 | Meat | CC9 | II | 1/2c,3c | Absent | 0.0155 | 0.0284 | Fast |
| Lm1371 | Meat | CC31 | II | 1/2a,3a | Present | 0.0118 | 0.0138 | Slow |
| Lm1372 | Meat | CC3 | I | 1/2b,3b,7 | Present | 0.0140 | 0.0143 | Slow |
| Lm1373 | Meat | CC121 | II | 1/2a,3a | Present | 0.0128 | 0.0172 | Slow |
| Lm1374 | Meat | CC3 | I | 1/2b,3b,7 | Present | 0.0140 | 0.0120 | Slow |
| Lm1375 | Meat | CC2 | I | 4b,4d,4e | Absent | 0.0127 | 0.0178 | Slow |
| Lm1376 | Meat | CC3 | I | 1/2b,3b,7 | Absent | 0.0131 | 0.0161 | Slow |
| Lm1377 | Meat | CC2 | I | 4b,4d,4e | Absent | 0.0130 | 0.0165 | Slow |
| Lm1378 | Dairy | CC5 | I | 1/2b,3b,7 | Present | 0.0136 | 0.0175 | Slow |
| Lm1379 | Dairy | CC14 | II | 1/2a,3a | Absent | 0.0146 | 0.0272 | Fast |
| Lm1380 | Meat | CC2 | I | 4b,4d,4e | Absent | 0.0129 | 0.0178 | Slow |
| Lm1381 | Meat | CC2 | I | 4b,4d,4e | Absent | 0.0112 | 0.0159 | Slow |
| Lm1382 | Dairy | CC4 | I | 4b,4d,4e | Absent | 0.0142 | 0.0153 | Slow |
| Lm1383 | Dairy | CC412 | II | 1/2a,3a | Absent | 0.0148 | 0.0212 | Fast |
| Lm1384 | Seafood | CC59 | I | 1/2b,3b,7 | Absent | 0.0112 | 0.0166 | Slow |
| Lm1385 | Seafood | CC155 | II | 1/2a,3a | Absent | 0.0150 | 0.0259 | Fast |
| Lm1386 | Seafood | CC5 | I | 1/2b,3b,7 | Present | 0.0135 | 0.0185 | Slow |
| Lm1387 | Seafood | CC2 | I | 4b,4d,4e | Absent | 0.0157 | 0.0171 | Fast |
| Lm1388 | Seafood | CC2 | I | 4b,4d,4e | Absent | 0.0130 | 0.0183 | Slow |
| Lm1389 | Seafood | CC31 | II | 1/2a,3a | Present | 0.0151 | 0.0168 | Fast |
| Lm1390 | Dairy | CC4 | I | 4b,4d,4e | Absent | 0.0132 | 0.0133 | Slow |
| Lm1391 | Dairy | CC54 | I | 4b,4d,4e | Absent | 0.0115 | 0.0125 | Slow |
| Lm1392 | Seafood | CC6 | I | 4b,4d,4e | Absent | 0.0139 | 0.0134 | Slow |
| Lm1393 | Meat | CC2 | I | 4b,4d,4e | Absent | 0.0142 | 0.0167 | Slow |
| Lm1394 | Dairy | CC26 | II | 1/2a,3a | Absent | 0.0178 | 0.0224 | Fast |
| Lm1403 | Seafood | CC121 | II | 1/2a,3a | Present | 0.0156 | 0.0140 | Fast |
| Lm1411 | Environment | CC1 | I | 4b,4d,4e | Absent | 0.0127 | 0.0137 | Slow |
| Lm1413 | Environment | CC2 | I | 4b,4d,4e | Absent | 0.0127 | 0.0117 | Slow |
| Lm1423 | Environment | CC121 | II | 1/2a,3a | Present | 0.0129 | 0.0100 | Slow |
| Lm1427 | Environment | NOVEL | II | 1/2a,3a | Present | 0.0152 | 0.0179 | Fast |
| Lm1428 | Environment | NOVEL | II | 1/2a,3a | Present | 0.0162 | 0.0201 | Fast |
| Lm1439 | Seafood | CC121 | II | 1/2a,3a | Present | 0.0125 | 0.0125 | Slow |
| Lm1441 | Environment | CC5 | I | 1/2b,3b,7 | Present | 0.0117 | 0.0127 | Slow |

| | | | | | | | | |
|------------|-------------|-------|----|-----------|---------|--------|--------|------|
| Lm1445 | Meat | CC7 | ll | 1/2a,3a | Absent | 0.0121 | 0.0135 | Slow |
| Lm1502 | Environment | NOVEL | ll | 1/2a,3a | Absent | 0.0160 | 0.0189 | Fast |
| Lm1507 | Environment | NOVEL | ll | 1/2a,3a | Absent | 0.0141 | 0.0192 | Fast |
| Lm1513 | Seafood | CC121 | ll | 1/2a,3a | Present | 0.0137 | 0.0162 | Slow |
| Lm1515 | Environment | CC18 | ll | 1/2a,3a | Absent | 0.0155 | 0.0210 | Fast |
| Lm1519 | Seafood | CC121 | ll | 1/2a,3a | Present | 0.0126 | 0.0181 | Slow |
| Lm1527 | Environment | CC37 | ll | 1/2a,3a | Absent | 0.0148 | 0.0226 | Fast |
| Lm1534 | Meat | CC6 | l | 4b,4d,4e | Absent | 0.0121 | 0.0162 | Slow |
| Lm1564 | Environment | CC2 | l | 4b,4d,4e | Absent | 0.0132 | 0.0150 | Slow |
| Lm1679 | Environment | CC204 | ll | 1/2a,3a | Absent | 0.0163 | 0.0183 | Fast |
| Lm1798 | Dairy | CC18 | ll | 1/2a,3a | Absent | 0.0152 | 0.0207 | Fast |
| Lm1880 | Vegetable | CC8 | ll | 1/2a,3a | Present | 0.0137 | 0.0222 | Fast |
| Lm1976 | Environment | CC8 | ll | 1/2a,3a | Present | 0.0147 | 0.0275 | Fast |
| Lm1989 | Seafood | CC121 | ll | 1/2a,3a | Present | 0.0126 | 0.0197 | Slow |
| Lm1991 | Seafood | CC121 | ll | 1/2a,3a | Present | 0.0125 | 0.0168 | Slow |
| Lm2075 | Environment | CC14 | ll | 1/2a,3a | Absent | 0.0148 | 0.0254 | Fast |
| Lm2095 | Environment | CC54 | l | 4b,4d,4e | Absent | 0.0057 | 0.0107 | Slow |
| Lm2105 | Environment | CC54 | l | 4b,4d,4e | Absent | 0.0120 | 0.0128 | Slow |
| Lm2113 | Environment | CC1 | l | 4b,4d,4e | Absent | 0.0123 | 0.0102 | Slow |
| Lm2181 | Environment | CC220 | l | 4b,4d,4e | Absent | 0.0113 | 0.0127 | Slow |
| Lm2183 | Environment | CC2 | l | 4b,4d,4e | Absent | 0.0153 | 0.0155 | Fast |
| Lm2185 | Environment | CC14 | ll | 1/2a,3a | Absent | 0.0165 | 0.0194 | Fast |
| Lm2226 | Environment | CC220 | l | 4b,4d,4e | Absent | 0.0166 | 0.0139 | Fast |
| Lm2234 | Environment | CC220 | l | 4b,4d,4e | Absent | 0.0147 | 0.0145 | Fast |
| Lm2237 | Environment | CC2 | l | 4b,4d,4e | Absent | 0.0079 | 0.0185 | Slow |
| Lm2240 | Environment | CC59 | l | 1/2b,3b,7 | Absent | 0.0134 | 0.0127 | Slow |
| Lm2241 | Environment | CC59 | l | 1/2b,3b,7 | Absent | 0.0143 | 0.0150 | Slow |
| Lm2256 | Environment | CC121 | ll | 1/2a,3a | Absent | 0.0192 | 0.0258 | Fast |
| Lm2259 | Environment | CC54 | l | 4b,4d,4e | Absent | 0.0125 | 0.0166 | Slow |
| Lm2294 | Environment | CC8 | ll | 1/2a,3a | Present | 0.0153 | 0.0217 | Fast |
| Lm2298 | Environment | CC379 | l | 1/2b,3b,7 | Absent | 0.0132 | 0.0153 | Slow |
| Lm2507 | Environment | CC220 | l | 4b,4d,4e | Absent | 0.0133 | 0.0135 | Slow |
| Lm3442 | Vegetable | CC87 | l | 1/2b,3b,7 | Absent | 0.0114 | 0.0134 | Slow |
| Lm3443 | Vegetable | CC18 | ll | 1/2a,3a | Absent | 0.0174 | 0.0196 | Fast |
| Lm3444 | Vegetable | CC1 | l | 4b,4d,4e | Absent | 0.0134 | 0.0124 | Slow |
| Lm3445 | Vegetable | CC54 | l | 4b,4d,4e | Absent | 0.0124 | 0.0129 | Slow |
| Lm3446 | Vegetable | CC54 | l | 4b,4d,4e | Absent | 0.0129 | 0.0168 | Slow |
| Lm3447 | Vegetable | CC59 | l | 1/2b,3b,7 | Absent | 0.0139 | 0.0130 | Slow |
| Lm3448 | Vegetable | CC18 | ll | 1/2a,3a | Absent | 0.0183 | 0.0212 | Fast |
| Lm6179 | Dairy | CC121 | ll | 1/2c,3c | Present | 0.0165 | 0.0174 | Fast |
| Lm10403S | Clinical | CC7 | ll | 1/2a,3a | Absent | 0.0148 | 0.0171 | Fast |
| Lm1513C | Environment | NOVEL | ll | 1/2a,3a | Absent | 0.0120 | 0.0197 | Slow |
| LmEGD-e | Clinical | CC9 | ll | 1/2c,3c | Absent | 0.0168 | 0.0199 | Fast |
| LmF1109-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0084 | 0.0105 | Slow |
| LmF111-17 | Mixed food | CC121 | ll | 1/2a,3a | Present | 0.0140 | 0.0156 | Slow |
| LmF112-17 | Mixed food | CC121 | ll | 1/2a,3a | Present | 0.0137 | 0.0141 | Slow |
| LmF114-17 | Mixed food | CC121 | ll | 1/2a,3a | Present | 0.0157 | 0.0174 | Fast |
| LmF1209-16 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0133 | 0.0141 | Slow |
| LmF1221-16 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0123 | 0.0150 | Slow |
| LmF1230-16 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0139 | 0.0120 | Slow |

| | | | | | | | | |
|------------|-------------|-------|----|-----------|---------|--------|--------|------|
| LmF1524-16 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0130 | 0.0102 | Slow |
| LmF1644-17 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0106 | 0.0152 | Slow |
| LmF1646-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0134 | 0.0147 | Slow |
| LmF168-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0131 | 0.0118 | Slow |
| LmF1857-15 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0117 | 0.0134 | Slow |
| LmF1994-15 | Meat | CC220 | 1 | 4b,4d,4e | Absent | 0.0119 | 0.0132 | Slow |
| LmF2151-17 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0125 | 0.0133 | Slow |
| LmF2152-17 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0127 | 0.0105 | Slow |
| LmF2153-17 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0125 | 0.0123 | Slow |
| LmF2154-17 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0121 | 0.0192 | Slow |
| LmF2155-17 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0124 | 0.0125 | Slow |
| LmF2160-17 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0125 | 0.0146 | Slow |
| LmF2161-17 | Environment | CC121 | ll | 1/2a,3a | Absent | 0.0132 | 0.0125 | Slow |
| LmF2165-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0081 | 0.0113 | Slow |
| LmF2166-17 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0100 | 0.0137 | Slow |
| LmF2170-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0080 | 0.0213 | Slow |
| LmF2176-17 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0108 | 0.0156 | Slow |
| LmF2299-15 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0095 | 0.0135 | Slow |
| LmF2365 | Dairy | CC1 | 1 | 4b,4d,4e | Absent | 0.0122 | 0.0132 | Slow |
| LmF340-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0118 | 0.0146 | Slow |
| LmF345-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0117 | 0.0136 | Slow |
| LmF347-16 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0173 | 0.0165 | Fast |
| LmF347-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0115 | 0.0146 | Slow |
| LmF348-17 | Environment | CC121 | ll | 1/2a,3a | Present | 0.0111 | 0.0120 | Slow |
| LmF365-16 | Meat | CC121 | ll | 1/2a,3a | Present | 0.0117 | 0.0146 | Slow |
| LmF671-16 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0100 | 0.0149 | Slow |
| LmF742-17 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0110 | 0.0134 | Slow |
| LmF991-16 | Environment | CC5 | 1 | 1/2b,3b,7 | Present | 0.0136 | 0.0136 | Slow |
| LmMQ130026 | Clinical | CC1 | 1 | 4b | Absent | 0.0125 | 0.0151 | Slow |
| LmMQ130029 | Clinical | CC1 | 1 | 4b | Absent | 0.0123 | 0.0151 | Slow |
| LmMQ130032 | Clinical | CC1 | 1 | 4b | Absent | 0.0148 | 0.0160 | Fast |
| LmMQ130033 | Clinical | CC54 | 1 | 4b | Absent | 0.0159 | 0.0179 | Fast |
| LmMQ130037 | Clinical | CC18 | ll | 1/2a | Present | 0.0148 | 0.0237 | Fast |
| LmMQ130042 | Clinical | CC1 | 1 | 4b | Absent | 0.0118 | 0.0156 | Slow |
| LmMQ130058 | Clinical | CC6 | 1 | 4b | Absent | 0.0139 | 0.0136 | Slow |
| LmMQ140011 | Clinical | CC101 | ll | 1/2a | Absent | 0.0141 | 0.0272 | Fast |
| LmMQ140012 | Clinical | CC101 | ll | 1/2a | Absent | 0.0143 | 0.0261 | Fast |
| LmMQ140025 | Clinical | CC1 | 1 | 4b | Absent | 0.0134 | 0.0206 | Slow |
| LmMQ140029 | Clinical | CC7 | ll | 1/2a | Absent | 0.0142 | 0.0211 | Fast |
| LmMQ140030 | Clinical | CC4 | 1 | 4b | Absent | 0.0081 | 0.0171 | Slow |
| LmMQ140031 | Clinical | CC1 | 1 | 4b | Absent | 0.0104 | 0.0162 | Slow |
| LmMQ140032 | Clinical | CC90 | ll | 1/2a | Absent | 0.0140 | 0.0237 | Fast |
| LmMQ140033 | Clinical | CC1 | 1 | 4b | Absent | 0.0144 | 0.0269 | Fast |
| LmMQ140034 | Clinical | CC121 | ll | 1/2a | Absent | 0.0139 | 0.0206 | Fast |
| LmMQ140035 | Clinical | CC121 | ll | 1/2a | Absent | 0.0079 | 0.0184 | Slow |
| LmMQ150001 | Clinical | CC37 | ll | 1/2a | Absent | 0.0146 | 0.0235 | Fast |
| LmMQ150004 | Clinical | CC54 | 1 | 4b | Absent | 0.0123 | 0.0159 | Slow |
| LmMQ150005 | Clinical | CC6 | 1 | 4b | Absent | 0.0123 | 0.0145 | Slow |
| LmMQ150007 | Clinical | CC101 | ll | 1/2a | Absent | 0.0125 | 0.0202 | Slow |
| LmMQ150008 | Clinical | CC101 | ll | 1/2a | Present | 0.0119 | 0.0205 | Slow |

| | | | | | | | | |
|------------|----------|------|----|------|---------|--------|--------|------|
| LmMQ150011 | Clinical | CC20 | 11 | 1/2a | Present | 0.0129 | 0.0211 | Slow |
| LmMQ150012 | Clinical | CC6 | 1 | 4b | Absent | 0.0119 | 0.0157 | Slow |
| LmMQ150013 | Clinical | CC2 | 1 | 4b | Absent | 0.0140 | 0.0164 | Slow |

Supplementary Figure S1. Rapid Alert System for Food and Feed (RASFF) food notifications in the EU for *L. Monocytogenes* from September 2020-March 2022 (available at <https://webgate.ec.europa.eu/rasff-window/screen/search>).



References

- [1] Borezee, E.; Pellegrini, E.; Berche, P. OppA of *Listeria Monocytogenes*, an Oligopeptide-Binding Protein Required for Bacterial Growth at Low Temperature and Involved in Intracellular Survival. *Infect. Immun.*, **2000**, *68* (12), 7069–7077. <https://doi.org/10.1128/IAI.68.12.7069-7077.2000>.
- [2] Angelidis, A. S.; Smith, G. M. Role of the Glycine Betaine and Carnitine Transporters in Adaptation of *Listeria Monocytogenes* to Chill Stress in Defined Medium. *Appl. Environ. Microbiol.*, **2003**, *69* (12), 7492–7498. <https://doi.org/10.1128/AEM.69.12.7492-7498.2003>.
- [3] Liu, S.; Graham, J. E.; Bigelow, L.; Morse, P. D.; Wilkinson, B. J. Identification of *Listeria Monocytogenes* Genes Expressed in Response to Growth at Low Temperature. *Appl. Environ. Microbiol.*, **2002**, *68* (4), 1697–1705. <https://doi.org/10.1128/AEM.68.4.1697-1705.2002>.
- [4] Brøndsted, L.; Kallipolitis, B. H.; Ingmer, H.; Knöchel, S. KdpE and a Putative RsbQ Homologue Contribute to Growth of *Listeria Monocytogenes* at High Osmolarity and Low Temperature. *FEMS Microbiol. Lett.*, **2003**, *219* (2), 233–239. [https://doi.org/10.1016/S0378-1097\(03\)00052-1](https://doi.org/10.1016/S0378-1097(03)00052-1).
- [5] Becker, L. A.; Evans, S. N.; Hutkins, R. W.; Benson, A. K. Role of ΣB in Adaptation of *Listeria Monocytogenes* to Growth at Low Temperature. *J. Bacteriol.*, **2000**, *182* (24), 7083–7087. <https://doi.org/10.1128/JB.182.24.7083-7087.2000>.
- [6] Christiansen, J. K.; Larsen, M. H.; Ingmer, H.; Søgaard-Andersen, L.; Kallipolitis, B. H. The RNA-Binding Protein Hfq of *Listeria Monocytogenes*: Role in Stress Tolerance and Virulence. *J. Bacteriol.*, **2004**, *186* (11), 3355–3362. <https://doi.org/10.1128/JB.186.11.3355-3362.2004>.
- [7] Knudsen, G. M.; Olsen, J. E.; Dons, L. Characterization of DegU, a Response Regulator in *Listeria Monocytogenes*, Involved in Regulation of Motility and Contributes to Virulence. *FEMS Microbiol. Lett.*, **2004**, *240* (2), 171–179. <https://doi.org/10.1016/j.femsle.2004.09.039>.
- [8] Schmid, B.; Klumpp, J.; Raimann, E.; Loessner, M. J.; Stephan, R.; Tasara, T. Role of Cold Shock Proteins in Growth of *Listeria Monocytogenes* under Cold and Osmotic Stress Conditions. *Appl. Environ. Microbiol.*, **2009**, *75* (6), 1621–1627. <https://doi.org/10.1128/AEM.02154-08>.
- [9] Zheng, W.; Kathariou, S. Differentiation of Epidemic-Associated Strains of *Listeria Monocytogenes* by Restriction Fragment Length Polymorphism in a Gene Region Essential for Growth at Low Temperatures (4°C). *Appl. Environ. Microbiol.*, **1995**, *61* (12), 4310–4314. <https://doi.org/10.1128/aem.61.12.4310-4314.1995>.
- [10] Markkula, A.; Mattila, M.; Lindström, M.; Korkeala, H. Genes Encoding Putative DEAD-Box RNA Helicases in *Listeria Monocytogenes* EGD-e Are Needed for Growth and Motility at 3°C. *Environ. Microbiol.*, **2012**, *14* (8), 2223–2232. <https://doi.org/10.1111/j.1462-2920.2012.02761.x>.
- [11] Arguedas-Villa, C.; Stephan, R.; Tasara, T. Evaluation of Cold Growth and Related Gene Transcription Responses Associated with *Listeria Monocytogenes* Strains of Different Origins. *Food Microbiol.*, **2010**, *27* (5), 653–660. <https://doi.org/10.1016/j.fm.2010.02.009>.

- [12] Pöntinen, A.; Markkula, A.; Lindström, M.; Korkeala, H. Two-Component-System Histidine Kinases Involved in Growth of *Listeria Monocytogenes* EGD-e at Low Temperatures. *Appl. Environ. Microbiol.*, **2015**, 81 (12), 3994–4004. <https://doi.org/10.1128/AEM.00626-15>.
- [13] Mattila, M.; Lindström, M.; Somervuo, P.; Markkula, A.; Korkeala, H. Role of FlhA and MotA in Growth of *Listeria Monocytogenes* at Low Temperatures. *Int. J. Food Microbiol.*, **2011**, 148 (3), 177–183. <https://doi.org/10.1016/j.ijfoodmicro.2011.05.022>.