# Supplementary Materials: Validation strategy of a bioinformatics whole genome sequencing workflow for Shiga Toxin-producing *Escherichia coli* using a reference collection extensively characterized with conventional methods

## Supplementary Tables

### Table S1

**Table S1.** Overview of validation dataset samples. This first and second columns list the sample name and species, respectively. The third column indicates whether the sample passed quality control (QC) criteria. The fourth column lists the origin of the *E. coli* samples. The fifth column lists the SRA accession number for each sample. (*) Sample EH2038 passed all QC checks and was included in the validation but showed strong indications of a low-level within species contamination. Abbreviations: Not Available (NA).

| Sample | Species | Passes QC | Origin | Accession |
|---|---|---|---|---|
| EH1227 | *E. coli* | TRUE | Human feces | SRR11816066 |
| EH1236 | *E. coli* | TRUE | Human feces | SRR11816065 |
| EH1239 | *E. coli* | TRUE | Human feces | SRR11816089 |
| EH1260 | *E. coli* | TRUE | Human feces | SRR11816063 |
| EH1273 | *E. coli* | TRUE | Human feces | SRR11816064 |
| EH1348 | *E. coli* | TRUE | Human feces | SRR11816067 |
| EH1380 | *E. coli* | TRUE | Human feces | SRR11816069 |
| EH1389 | *E. coli* | TRUE | Human feces | SRR11816068 |
| EH1533 | *E. coli* | TRUE | Human feces | SRR11816083 |
| EH1624 | *E. coli* | TRUE | Human feces | SRR11816087 |
| EH1641 | *E. coli* | TRUE | Human feces | SRR11816085 |
| EH1648 | *E. coli* | TRUE | Human feces | SRR11815973 |
| EH1667 | *E. coli* | TRUE | Human feces | SRR11816091 |
| EH1671 | *E. coli* | TRUE | Human feces | SRR11816086 |
| EH1717 | *E. coli* | TRUE | Human feces | SRR11816082 |
| EH1733 | *E. coli* | TRUE | Human feces | SRR11815971 |
| EH1757 | *E. coli* | TRUE | Human feces | SRR11815970 |
| EH1766 | *E. coli* | TRUE | Human feces | SRR11816084 |
| EH1771 | *E. coli* | TRUE | Human feces | SRR11815969 |
| EH1782 | *E. coli* | TRUE | Human feces | SRR11815968 |
| EH1783 | *E. coli* | TRUE | Human feces | SRR11816071 |
| EH1785 | *E. coli* | TRUE | Human feces | SRR11815967 |
| EH1811 | *E. coli* | TRUE | Human feces | SRR11816080 |

|  |  |  |  |  |
|---|---|---|---|---|
| EH1813 | *E. coli* | TRUE | Human feces | SRR11815966 |
| EH1815 | *E. coli* | TRUE | Human feces | SRR11816079 |
| EH1819 | *E. coli* | TRUE | Human feces | SRR11816078 |
| EH1823 | *E. coli* | TRUE | Human feces | SRR11816077 |
| EH1829 | *E. coli* | TRUE | Human feces | SRR11816076 |
| EH1831 | *E. coli* | TRUE | Human feces | SRR11816075 |
| EH1836 | *E. coli* | TRUE | Human feces | SRR11815965 |
| EH1839 | *E. coli* | TRUE | Human feces | SRR11816074 |
| EH1846 | *E. coli* | TRUE | Human feces | SRR11816073 |
| EH1847 | *E. coli* | TRUE | Human feces | SRR11816072 |
| EH1858 | *E. coli* | TRUE | Human feces | SRR11815964 |
| EH1861 | *E. coli* | FALSE | Human feces | SRR11815990 |
| EH1873 | *E. coli* | TRUE | Human feces | SRR11815972 |
| EH1882 | *E. coli* | TRUE | Human feces | SRR11816100 |
| EH1923 | *E. coli* | TRUE | Human feces | SRR11816099 |
| EH1965 | *E. coli* | TRUE | Human feces | SRR11816098 |
| EH1979 | *E. coli* | TRUE | Human feces | SRR11816088 |
| EH2015 | *E. coli* | TRUE | Human feces | SRR11816097 |
| EH2038 | *E. coli* | TRUE* | Human feces | SRR11816096 |
| EH925 | *E. coli* | TRUE | Human feces | SRR11815974 |
| TIAC1181 | *E. coli* | TRUE | Beef carcass | SRR11815993 |
| TIAC1182 | *E. coli* | TRUE | Beef carcass | SRR11815992 |
| TIAC1185 | *E. coli* | TRUE | Beef carcass | SRR11816056 |
| TIAC1186 | *E. coli* | TRUE | Beef carcass | SRR11816045 |
| TIAC1188 | *E. coli* | TRUE | Beef carcass | SRR11816034 |
| TIAC1192 | *E. coli* | TRUE | Minced beef | SRR11816052 |
| TIAC1193 | *E. coli* | TRUE | Minced beef | SRR11816051 |
| TIAC1218 | *E. coli* | TRUE | Ground pork | SRR11816023 |
| TIAC1220 | *E. coli* | FALSE | Beef carcass | SRR11816012 |
| TIAC1221 | *E. coli* | FALSE | Beef carcass | SRR11816001 |
| TIAC1223 | *E. coli* | FALSE | Beef carcass | SRR11815986 |
| TIAC1226 | *E. coli* | FALSE | Beef carcass | SRR11815975 |
| TIAC1227 | *E. coli* | FALSE | Beef carcass | SRR11815991 |
| TIAC1228 | *E. coli* | TRUE | Beef carcass | SRR11816092 |
| TIAC1240 | *E. coli* | TRUE | Beef carcass | SRR11816081 |
| TIAC1241 | *E. coli* | TRUE | Beef carcass | SRR11816070 |
| TIAC1242 | *E. coli* | TRUE | Beef carcass | SRR11816062 |
| TIAC1243 | *E. coli* | TRUE | Beef carcass | SRR11816061 |
| TIAC1244 | *E. coli* | TRUE | Beef carcass | SRR11816060 |
| TIAC1245 | *E. coli* | TRUE | Beef carcass | SRR11816059 |
| TIAC1246 | *E. coli* | TRUE | Beef carcass | SRR11816058 |
| TIAC1247 | *E. coli* | TRUE | Minced beef | SRR11816050 |
| TIAC1248 | *E. coli* | TRUE | Beef carcass | SRR11816057 |
| TIAC1354 | *E. coli* | TRUE | Beef carcass | SRR11816054 |

| | | | | |
|---|---|---|---|---|
| TIAC1356 | *E. coli* | TRUE | Beef carcass | SRR11816049 |
| TIAC1369 | *E. coli* | TRUE | Beef carcass | SRR11816048 |
| TIAC1372 | *E. coli* | TRUE | Beef carcass | SRR11816047 |
| TIAC1382 | *E. coli* | TRUE | Beef carcass | SRR11816046 |
| TIAC1398 | *E. coli* | TRUE | Beef carcass | SRR11816044 |
| TIAC1399 | *E. coli* | TRUE | Beef carcass | SRR11816043 |
| TIAC1400 | *E. coli* | TRUE | Beef carcass | SRR11816042 |
| TIAC1402 | *E. coli* | TRUE | Beef carcass | SRR11816031 |
| TIAC1408 | *E. coli* | TRUE | Raw milk cheese | SRR11816053 |
| TIAC1411 | *E. coli* | TRUE | Beef carcass | SRR11816030 |
| TIAC1419 | *E. coli* | TRUE | Meat | SRR11816000 |
| TIAC1420 | *E. coli* | TRUE | Meat | SRR11815999 |
| TIAC1426 | *E. coli* | TRUE | Steak tartare | SRR11816041 |
| TIAC1428 | *E. coli* | TRUE | Beef carcass | SRR11816029 |
| TIAC1433 | *E. coli* | TRUE | Beef carcass | SRR11816014 |
| TIAC1434 | *E. coli* | TRUE | Beef carcass | SRR11816013 |
| TIAC1435 | *E. coli* | TRUE | Beef carcass | SRR11816028 |
| TIAC1440 | *E. coli* | TRUE | Beef carcass | SRR11816027 |
| TIAC1442 | *E. coli* | TRUE | Meat | SRR11815998 |
| TIAC1448 | *E. coli* | TRUE | Beef carcass | SRR11816040 |
| TIAC1449 | *E. coli* | TRUE | Beef carcass | SRR11816026 |
| TIAC1454 | *E. coli* | TRUE | Beef carcass | SRR11816025 |
| TIAC1460 | *E. coli* | TRUE | Minced beef | SRR11816039 |
| TIAC1463 | *E. coli* | TRUE | Beef carcass | SRR11816024 |
| TIAC1464 | *E. coli* | TRUE | Beef carcass | SRR11816022 |
| TIAC1472 | *E. coli* | TRUE | Beef carcass | SRR11816021 |
| TIAC1475 | *E. coli* | TRUE | Beef carcass | SRR11816020 |
| TIAC1477 | *E. coli* | TRUE | Beef carcass | SRR11816019 |
| TIAC1478 | *E. coli* | TRUE | Beef carcass | SRR11816018 |
| TIAC1479 | *E. coli* | TRUE | Beef carcass | SRR11816017 |
| TIAC1484 | *E. coli* | TRUE | Beef carcass | SRR11816011 |
| TIAC1507 | *E. coli* | TRUE | Beef carcass | SRR11815997 |
| TIAC1520 | *E. coli* | TRUE | Meat | SRR11815996 |
| TIAC1521 | *E. coli* | TRUE | Meat | SRR11815995 |
| TIAC1522 | *E. coli* | TRUE | Meat | SRR11815994 |
| TIAC1523 | *E. coli* | TRUE | Meat | SRR11815989 |
| TIAC1526 | *E. coli* | TRUE | Meat | SRR11815988 |
| TIAC1527 | *E. coli* | TRUE | Meat | SRR11815987 |
| TIAC1528 | *E. coli* | TRUE | Minced beef | SRR11816033 |
| TIAC1544 | *E. coli* | TRUE | Minced beef | SRR11816032 |
| TIAC1546 | *E. coli* | TRUE | Beef carcass | SRR11815985 |
| TIAC1550 | *E. coli* | TRUE | Meat | SRR11815984 |
| TIAC1551 | *E. coli* | TRUE | Meat | SRR11815983 |
| TIAC1552 | *E. coli* | TRUE | Meat | SRR11815982 |

|  |  |  |  |  |
|---|---|---|---|---|
| TIAC1553 | *E. coli* | TRUE | Meat | SRR11815981 |
| TIAC1558 | *E. coli* | TRUE | Beef carcass | SRR11816016 |
| TIAC1559 | *E. coli* | TRUE | Beef carcass | SRR11816015 |
| TIAC1562 | *E. coli* | TRUE | Beef carcass | SRR11815980 |
| TIAC1567 | *E. coli* | TRUE | Meat | SRR11815979 |
| TIAC1568 | *E. coli* | TRUE | Meat | SRR11815978 |
| TIAC1617 | *E. coli* | TRUE | Minced beef | SRR11816038 |
| TIAC1631 | *E. coli* | TRUE | Minced beef | SRR11816035 |
| TIAC1641 | *E. coli* | TRUE | Minced beef | SRR11816036 |
| TIAC1642 | *E. coli* | TRUE | Minced beef | SRR11816037 |
| TIAC1653 | *E. coli* | TRUE | Beef carcass | SRR11815977 |
| TIAC1664 | *E. coli* | TRUE | Meat | SRR11815976 |
| TIAC1878 | *E. coli* | TRUE | Beef carcass | SRR11816010 |
| TIAC1880 | *E. coli* | TRUE | Beef carcass | SRR11816009 |
| TIAC1881 | *E. coli* | TRUE | Beef carcass | SRR11816008 |
| TIAC1883 | *E. coli* | TRUE | Beef carcass | SRR11816007 |
| TIAC1884 | *E. coli* | TRUE | Beef carcass | SRR11816006 |
| TIAC1885 | *E. coli* | TRUE | Beef carcass | SRR11816005 |
| TIAC1886 | *E. coli* | TRUE | Milk | SRR11816004 |
| TIAC1887 | *E. coli* | TRUE | Beef carcass | SRR11816003 |
| TIAC1888 | *E. coli* | TRUE | Beef carcass | SRR11816002 |
| TIAC1893 | *E. coli* | TRUE | Milk | SRR11816055 |
| TIAC1946 | *E. coli* | TRUE | Milk product (ice cream) | SRR11816094 |
| TIAC1947 | *E. coli* | TRUE | Milk product (ice cream) | SRR11816095 |
| TIAC1951 | *E. coli* | TRUE | Beef carcass | SRR11816090 |
| TIAC1953 | *E. coli* | TRUE | Minced beef | SRR11816093 |
| cj_SRR11799713 | *C. jejuni* | TRUE | NA | SRR11799713 |
| cj_SRR11799714 | *C. jejuni* | TRUE | NA | SRR11799714 |
| lm_SRR11790964 | *L. monocytogenes* | TRUE | NA | SRR11790964 |
| lm_SRR11798770 | *L. monocytogenes* | TRUE | NA | SRR11798770 |
| nm_Z1001 | *N. meningitidis* | TRUE | NA | SRR6953924 |
| nm_Z1035 | *N. meningitidis* | TRUE | NA | SRR6953925 |
| se_SRR11799638 | *S. enterica* | TRUE | NA | SRR11799638 |
| se_SRR11799644 | *S. enterica* | TRUE | NA | SRR11799644 |
| ye_SRR10949351 | *Y. enterocolitica* | TRUE | NA | SRR10949351 |
| ye_SRR11088743 | *Y. enterocolitica* | TRUE | NA | SRR11088743 |

## Table S2

**Table S2.** Overview of antimicrobial resistance determined by phenotypic testing. The first column lists the name of the sample, the remaining columns list the phenotypically determined resistance against the corresponding antibiotics. Antibiotics are listed below the corresponding antibiotic group listed in the top row. Abbreviations: intermediate (I), sensitive (S), resistant (R).

| Group | aminoglycosides | | | beta-lactamases | | fluoroquinolones | | phenicols | sulphonamides | tetracyclines | trimethoprims |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Antibiotic** | **gentamycin** | **kanamycin** | **streptomycin** | **ampicillin** | **cefotaxim** | **ciprofloxacin** | **nalidixic acid** | **chloramphenicol** | **sulphonamide** | **tetracycline** | **trimethoprim** |
| EH1236 | S | S | S | S | S | S | S | R | S | S | S |
| EH1239 | S | S | S | S | S | S | S | S | S | S | S |
| EH1260 | I | R | R | S | S | S | R | R | R | R | S |
| EH1273 | S | S | I | S | S | S | S | S | S | S | S |
| EH1348 | S | S | R | S | S | S | S | S | S | S | S |
| EH1380 | S | R | S | S | S | S | S | S | S | R | S |
| EH1389 | S | S | S | S | S | S | S | S | S | R | S |
| EH1533 | S | R | S | S | S | S | S | S | S | R | S |
| EH1624 | S | S | R | R | S | S | S | S | R | R | S |
| EH1641 | R | R | R | R | S | S | S | S | R | R | R |
| EH1648 | S | S | S | S | S | S | S | S | S | S | S |
| EH1667 | S | S | S | S | S | S | S | S | S | S | S |
| EH1671 | S | S | R | R | S | S | S | S | R | S | S |
| EH1717 | S | S | S | S | S | S | S | S | S | S | S |
| EH1733 | S | R | R | R | S | S | R | R | R | R | R |
| EH1757 | S | S | R | S | S | S | S | S | R | S | S |
| EH1766 | S | R | R | R | S | S | R | R | R | R | R |
| EH1771 | S | S | S | S | S | S | S | S | S | S | S |
| EH1782 | S | S | S | S | S | S | S | S | S | S | S |
| EH1783 | S | S | R | S | S | S | S | S | R | R | R |
| EH1785 | S | S | R | R | S | S | S | R | R | R | R |
| EH1811 | S | S | R | R | S | S | R | S | R | R | R |
| EH1813 | S | S | R | R | S | S | S | S | R | S | S |
| EH1815 | S | S | R | S | S | S | S | S | R | S | S |
| EH1819 | S | S | S | S | S | S | S | S | S | S | S |
| EH1823 | S | S | S | S | S | S | S | S | S | S | S |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EH1829 | S | S | R | R | S | S | S | R | R | R | S |
| EH1831 | S | S | R | S | S | S | S | S | R | S | S |
| EH1836 | S | S | S | S | S | S | S | S | S | S | S |
| EH1839 | S | S | R | S | S | S | S | S | R | S | S |
| EH1846 | S | S | S | S | S | S | S | S | S | S | S |
| EH1847 | S | S | S | S | S | S | S | S | S | R | S |
| EH1858 | S | S | S | I | S | S | S | S | S | S | S |
| EH1861 | S | S | S | S | S | S | S | S | S | S | S |
| EH1873 | S | S | S | S | S | S | S | S | S | S | S |
| EH1882 | S | S | S | S | S | S | S | S | S | S | S |
| EH1923 | S | S | I | I | S | S | S | R | R | S | S |
| EH1965 | S | S | S | S | S | S | S | S | S | U | S |
| EH1979 | R | S | R | R | R | R | S | S | S | U | S |
| EH2015 | S | S | S | S | S | S | S | S | S | S | U |
| EH2038 | S | S | S | S | S | S | S | S | S | S | U |

## Table S3

**Table S3.** PCR-based detection of virulence genes. Primers and conditions used for testing presence/absence of virulence genes using PCR. The suffixes ‘FP’ and ‘RP’ in the primer name refer to the forward and reverse primer, respectively.

| Primer name | Target gene | Sequence 5’-3’ | Amplicon size (bp) | Annealing temperature (°C) | Primer concentration (nM) | Reference |
|---|---|---|---|---|---|---|
| stx1&2_FP | *stx1* and *stx2** | TTTGTYACTGTSACRGCWGAAGCYTTACG | 128-131 | 50.0 | 320 | [1] |
| stx1&2_RP | | CCCCAGTTCARWGTRAGRTCMACRTC | | | 600 | [1] |
| stx2_FP | *stx2f* | GTTTCCATGACRACGGACAGCAG | 122 | 50.0 | 80 | [1] |
| stx2_RP | | CTGAACTCCATTAAMKCCAGATATG | | | 400 | Barbau-Piednoir, E. et al., unpublished |
| stx1_FP | *stx1* | GTCACAGTAACAAACCGTAACA | 95 | 50.0 | 250 | [2] |
| stx1_RP | | TCGTTGACTACTTCTTATCTGGA | | | 250 | [2] |
| sth_FP | *sth* | TTCACCTTTCGCTCAGGATG | 170 | 50.0 | 80 | [3] |
| sth_RP | | AGCACCCGGTACAAGCAG | | | 400 | [3] |
| lt_FP | *lt* | TTCCCACCGGATCACCAA | 62 | 50.0 | 200 | [3] |
| lt_RP | | CAACCTTGTGGTGCATGATGA | | | 1000 | [3] |
| bfpA_FP | *bfpA* | AATGGTGCTTGCGCTTGCTGC | 117 | 50.0 | 400 | [4] |
| bfpA_RP | | GCAGACGTTGCGCTCATTAC | | | 400 | Barbau-Piednoir, E. et al., unpublished |
| ipaH_FP | *ipaH* | CCTTTTCCGCGTTCCTTGA | 64 | 50.0 | 200 | [3] |
| ipaH_RP | | CGGAATCCGGAGGTATTGC | | | 1000 | [3] |
| aaiC_FP | *aaiC* | TGGTGACTACTTTGATGGACATTGT | 313 | 50.0 | 80 | [5] |
| aaiC_RP | | GACACTCTCTTCTGSGGTAAACGA | | | 400 | [5] |
| aggR_FP | *aggR* | GCCTAAAGGATGCCCTGATG | 70 | 50.0 | 200 | [6] |
| aggR_RP | | GACCAATTCGGACAACTGCAA | | | 1000 | [6] |
| nleF_FP | *nleF* | TGAGGTGAGAAATGAAAATACTGATG | 75 | 50.0 | 200 | [7] |
| nleF_RP | | ATCCCTRTCMTCTATCGTCAT | | | 1000 | Adapted from[7] |
| espP_FP1 | *espP* | GATTACAGCACGCATTCATGGTAT | 73 | 62.5 | 600 | [8] |
| espP_RP1 | | TCCAGGCATCCTCAGTGACA | | | 600 | [8] |
| espP_FP2* | *espP* | TAATACGACTCACTATAGGG<br>AAACAGCAGGCACTTGAACG | 1869 | 74.0 | 250 | Adapted[9] |
| espP_RP2* | | GGAAACAGCTATGACCATGG<br>GAGTCGTCAGTCAGTAGAT | | | 250 | Adapted from[9] |
| eae_FP | *eae* | CATTGATCAGGATTTTTCTGGTGATA | 102 | 60.0 | 80 | [8] |

| | | | | | | |
|---|---|---|---|---|---|---|
| eae_RP | | CTCATGCGGAAATAGCCGTTA | | | 400 | [8] |
| ehxA_FP | *ehxA* | CGTTAAGGAACAGGAGGTGTCAGTA | 142 | 60.0 | 80 | [8] |
| ehxA_RP | | ATCATGTTTTCCGCCAATGAG | | | 400 | [8] |
| katP_FP | *katP* | GAAGTCATATATCGCCGGTTGAA | 73 | 60.0 | 80 | [8] |
| katP_RP | | GTCATTTCAGGAACGGTGAGATC | | | 400 | [8] |
| saa_FP | *saa* | TGCCGCTGGTATAATTTTTCG | 85 | 60.0 | 80 | [8] |
| saa_RP | | AACGCCTGTTCCATGTTGTG | | | 400 | [8] |
| subA_FP | *subA* | AGTGGCTTCCGCATCGG | 88 | 60.0 | 80 | [10] |
| subA_RP | | ATCATTACCCACTGCCGC | | | 400 | [10] |
| ent/espL2_FP | *ent/espL2* | CCTRGATTATTTTCTGCATTTMA | 76 | 60.0 | 200 | Adapted from[7] |
| ent/espL2_RP | | ACTATTGCCAAGTACGYCACAA | | | 1000 | Adapted from[7] |
| terB_FP | *terB* | GCCAGGTTGGCCGTTTC | 82 | 60.0 | 80 | [6] |
| terB_RP | | CCGTCACTCGATACGGCAAT | | | 400 | [6] |
| nleA_FP | *nleA* | AGATAACYCTAATACTAAATATGCC | 137 | 60.0 | 200 | [7] |
| nleA_RP | | GCCCAACCATTGCRCCGATATGAGG | | | 1000 | [7] |
| nleB_FP | *nleB* | CATRTTGAAGGCTGGAASTTTGT | 72 | 60.0 | 200 | Adapted from[7] |
| nleB_RP | | CGYTACAGGRCGATATGTT | | | 1000 | Adapted from[7] |
| nleE_FP | *nleE* | AGAAGCGTTTGAACCTATTTCCA | 83 | 60.0 | 80 | [7] |
| nleE_RP | | TTGGGCGTTTTCCGGATAT | | | 400 | [7] |
| nleH1-2_FP | *nleH*1-2 | ACAAGAGAGARAGTCATAGTGGWTG | 69 | 60.0 | 200 | [7] |
| nleH1-2_RP | | ATCTCYCCCTTAGGCCATCCCA | | | 1000 | Adapted from[7] |

* ‘f’ variant not included

## Table S4

**Table S4.** Overview of virulence genes detected with PCR-based methods in validation samples. The first column lists the sample name, the remaining columns list the origin of the sample, and the presence or absence of the corresponding virulence genes. ‘1’ denotes that the gene is present according to PCR-based methods, ‘0’ denotes that the gene is not present according to PCR-based methods. ‘-1’ denotes that a gene was not tested with PCR-based methods. Underlined values in bold were confirmed or updated based on conventional PCR results. *Gene was determined to be present with PCR-based method, but further investigation (due to missed detection with WGS) highlighted that this detection was aspecific, i.e. related to a highly similar gene, which was confirmed through Sanger sequencing. The use of another specific primer set (see Supplementary table S3) resolved this aspecific detection. Primer sequences are listed in Supplementary Table S3.

| Sample | Origin | *stx1* | *stx2* | *aaiC* | *aggR* | *bfpA* | *eae* | *ehxA* | *ent espL2* | *espP* | *ipaH* | *katP* | *lt* | *nleA* | *nleB* | *nleE* | *nleF* | *nleH1-2* | *saa* | *sth* | *stp* | *subA* | *terB* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EH1227 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1236 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 |
| EH1239 | Human feces | 1 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | **0** | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 |
| EH1260 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1273 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 |
| EH1348 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1380 | Human feces | 1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1389 | Human feces | 1 | 0 | -1 | -1 | -1 | 0 | -1 | 0 | -1 | -1 | -1 | -1 | 0 | 0 | 0 | -1 | 1 | 1 | -1 | -1 | -1 | 1 |
| EH1533 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | 1 | 1 | 0 | -1 | 0 | -1 | 0 | 1 | 1 | -1 | 1 | 0 | -1 | -1 | 0 | 1 |
| EH1624 | Human feces | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | -1 | 0 | **1** |
| EH1641 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH1648 | Human feces | 1 | 0 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| EH1667 | Human feces | 0 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1671 | Human feces | 1 | 1 | -1 | -1 | -1 | 0 | 1 | 0 | 1 | -1 | 0 | -1 | 0 | 0 | 0 | -1 | 0 | 1 | -1 | -1 | 1 | 0 |
| EH1717 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1733 | Human feces | 0 | 0 | -1 | -1 | -1 | 1 | 0 | 0 | 0 | -1 | 0 | -1 | 1 | 0 | 0 | -1 | 1 | 0 | -1 | -1 | 0 | 1 |

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| EH1757 | Human feces | 1 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| EH1766 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH1771 | Human feces | 0 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| EH1782 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH1783 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1785 | Human feces | 0 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | **0** | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| EH1811 | Human feces | 1 | 1 | -1 | -1 | -1 | 1 | 1 | -1 | **0*** | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1813 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH1815 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1819 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1823 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1829 | Human feces | 1 | 1 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1831 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1836 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | **0** |
| EH1839 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1846 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1847 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| EH1858 | Human feces | 1 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH1861 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH1873 | Human feces | 0 | 0 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| EH1882 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| EH1923 | Human feces | 0 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 |
| EH1965 | Human feces | 0 | 1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH1979 | Human feces | 1 | 0 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH2015 | Human feces | 0 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH2038 | Human feces | 1 | 0 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 |
| EH925 | Human feces | 0 | 1 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 |
| TIAC1181 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1182 | Food | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1185 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1186 | Food | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1188 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1192 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |

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| TIAC1193 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1218 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1220 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1221 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1223 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1226 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 0 | -1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | -1 | 0 | 1 |
| TIAC1227 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | -1 | 0 | 1 | -1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1228 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 0 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1240 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1241 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | -1 | 0 | 1 | -1 | **1** | **1** | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1242 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | -1 | 0 | 1 | -1 | **1** | **1** | **1** | 0 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1243 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | -1 | 0 | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1244 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | -1 | 0 | 1 | -1 | **1** | **1** | **1** | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1245 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | **1** | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1246 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | **1** | 0 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1247 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1248 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1354 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | **1** | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1356 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | **1** | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1369 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1372 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | **1** | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1382 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | 1 | -1 | **1** | **1** | **1** | 1 | 1 | 0 | 0 | -1 | 0 | **1** |
| TIAC1398 | Food | 0 | 1 | 0 | 0 | **0** | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1399 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1400 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1402 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1408 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1411 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1419 | Food | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1420 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1426 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1428 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1433 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |

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| TIAC1434 | Food | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1435 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | **1** | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1440 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | **1** | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1442 | Food | 1 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | **1** | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1448 | Food | 1 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | **1** | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1449 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1454 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1460 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | **1** | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1463 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1464 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1472 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1475 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1477 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1478 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1479 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | 1 | -1 | **1** | **1** | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1484 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | 1 | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1507 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1520 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | **1** | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1521 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 0 | 1 | **0** | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1522 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 0 | 1 | **0** | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1523 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 0 | 1 | **0** | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1526 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | 0 |
| TIAC1527 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 0 |
| TIAC1528 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1544 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1546 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | **1** | **0** | 1 | -1 | **1** | -1 | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1550 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1551 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1552 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1553 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1558 | Food | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | 1 | **1** | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1559 | Food | 0 | 1 | 0 | 0 | **0** | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1562 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |

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| TIAC1567 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1568 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 0 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1617 | Food | 1 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1631 | Food | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | -1 | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1641 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1642 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | 0 | 1 | -1 | **1** | -1 | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1653 | Food | 1 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 1 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1664 | Food | 0 | 1 | 0 | 0 | 0 | 1 | **1** | 1 | 1 | **0** | 1 | -1 | **1** | -1 | **1** | 0 | **1** | 0 | 0 | -1 | 0 | **1** |
| TIAC1878 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 0 | **1** | 1 | **1** | 1 | 0 | 0 | -1 | 0 | 0 |
| TIAC1880 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 1 | **1** | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1881 | Food | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | -1 | 0 | 0 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1883 | Food | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | -1 | 0 | **0** | -1 | **1** | **1** | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1884 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 0 | 1 | 1 | **1** | 1 | 0 | 0 | -1 | 0 | 0 |
| TIAC1885 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | 0 | **1** | 1 | **1** | 1 | 0 | 0 | -1 | 0 | 0 |
| TIAC1886 | Food | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | **1** | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1887 | Food | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | **0** | -1 | **1** | **0** | 1 | 1 | 1 | 0 | 0 | -1 | 0 | 1 |
| TIAC1888 | Food | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | -1 | 0 | 1 | -1 | **1** | **1** | 1 | 1 | **1** | 0 | 0 | -1 | 0 | 1 |
| TIAC1893 | Food | 0 | 1 | 0 | 0 | 0 | **1** | 1 | 0 | -1 | 0 | 0 | -1 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 1 |
| TIAC1946 | Food | 0 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |
| TIAC1947 | Food | 0 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -1 | -1 |
| TIAC1951 | Food | 0 | 1 | -1 | 1 | -1 | 0 | -1 | -1 | -1 | 0 | -1 | 0 | -1 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -1 | -1 |
| TIAC1953 | Food | 0 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 1 | -1 | **1** | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 |

## Table S5

**Table S5.** PCR-based detection of serotyping genes. This table lists the primers used for the PCR-based detection of the O- and H-type determining genes. The first and second columns lists the primer name and target gene, respectively. The suffixes ‘FP’ and ‘RP’ in the primer name refer to the forward and reverse primer, respectively. The third fourth, fifth and sixth columns lists the primer sequence, amplicon size, annealing temperature and primer concentration, respectively. The last column contains the literature references for the primers.

| **Primer name** | **Target gene** | **Sequence 5’-3’** | **Amplicon size (bp)** | **Annealing temperature (°C)** | **Primer concentration (nM)** | **Reference** |
|---|---|---|---|---|---|---|
| O25-wzy_FP | *wzy*-O25 | AGAGATCCGTCTTTTATTGTTCGC | 230 | 63.5 | 500 | [11] |
| O25-wzy_RP | | GTTCTGGATACCTAACGCAATACCC | | | 500 | |
| O26-wzx_FP | *wzx*-O26 | TTTTATCTGGCGTGCTATCG | 248 | 52.0 | 200 | [12] |
| O26-wzx_RP | | CGGGGTTGCTATAGACTGAA | | | 1000 | [12] |
| O45-wzy_FP | *wzy*-O45 | TACGATTTCACAAGCTTCCA | 255 | 52.0 | 200 | [12] |
| O45-wzy_RP | | TGCAATCGCATAAGGAAATA | | | 1000 | [12] |
| O55-wbgN_FP | *wgbN*-O55 | TGTAATTCGATGCACCAATTCAG | 69 | 52.0 | 80 | [1] |
| O55-wbgN_RP | | CGCTTCGACGTTCGATACATAA | | | 400 | [1] |
| O90/127-_FP | *wzy*-O90/127 | TTCATCTCCGCTGGGAATACA | 451 | 58.0 | 160 | [13] |
| O90/127-_RP | | AATTGGTGACGCTGGAATGA | | | 160 | |
| O91-wzx_FP | *wzx*-O91 | CATGCTGCTCATTCTTCTCA | 135 | 52.0 | 80 | [12] |
| O91-wzx_RP | | TGGAGTTTGCAACAAACAAA | | | 400 | [12] |
| O103-wzx_FP | *wzx*-O103 | GGGCTTGTATTGTTGTACCG | 170 | 52.0 | 80 | [12] |
| O103-wzx-RP | | AGTGGCAAACAGCCAACTAC | | | 400 | [12] |
| O104-wzx_FP | *wzx*-O104 | TGCGGGATTAATATCCTTTG | 284 | 52.0 | 80 | [14] |
| O104-wzx_RP | | ACGCCCTAGAAACCTGACTT | | | 400 | [14] |

| | | | | | | |
|---|---|---|---|---|---|---|
| O111-wzx_FP | *wzx*-O111 | CAATCCAATTTGCATCTTCA | 240 | 52.0 | 200 | [12] |
| O111-wzx_RP | | ACCGCAAATGCGATAATAAC | | | 1000 | [12] |
| O113-wzx_FP | *wzx*-O113 | TGACCTTACTTCCTGCGAAT | 246 | 52.0 | 200 | [12] |
| O113-wzx_RP | | AGCACCACGATAGGATTGAA | | | 1000 | [12] |
| O118-wzy_FP | *wzy*-O118/151 | ATATTTGCACGATTTACAGATGT | 127 | 52.0 | 120 | [10] |
| O118-wzy_RP | | AAAATATGAAGCAAAATAACAGCC | | | 600 | [10] |
| O121-wzy_FP | *wzy*-O121 | TGGATGGCATTCCTCAGTAT | 255 | 52.0 | 200 | [12] |
| O121-wzy_RP | | AGCAAGCCAAAACACTCAAC | | | 1000 | [12] |
| O128-wzx_FP | *wzx*-O128 | TCGATCGTCTTGTTCAGGTT | 196 | 52.0 | 80 | [12] |
| O128-wzx_RP | | GAATGCAATGGGCAATTAAC | | | 400 | [12] |
| O145-wzy_FP | *wzy*-O145 | TGTTCCTGTCTGTTGCTTCA | 292 | 52.0 | 80 | [12] |
| O145-wzy_RP | | ATCGCTGAATAAGCACCACT | | | 400 | [12] |
| O157-wzx_FP | *wzx*-O157 | ATAATCCAGCCAGCAAAGTG | 136 | 52.0 | 80 | [12] |
| O157-wzx_RP | | GGTGCTGCTCTGACATTTTT | | | 400 | [12] |
| O174-wzy_FP | *wzy*-O174 | CGGAAGTCGGACTGCTATTTT | 541 | 58.0 | 80 | [13] |
| O174-wzy_RP | | TATGTGACCTAGCACACCCAA | | | 80 | |
| fliCH2_FP | *fliC*-H2 | TTACAGCTACAGTTAAAGGCACTACGA | 94 | Touchdown 70.0-60.0°C (decrease 1.0°C/cycle for 10 cycles) | 80 | [15] |
| fliCH2_RP | | CCGGCAACTTTAACGTACAACTT | | | 400 | [15] |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| fliCH4_FP | *fliC*-H4 | GATTTCAGCGCGGCGAAACT | 150 | 64.0 | 500 | [16] |
| fliCH4_RP |  | GGTTGCAGAATCAACGACCG |  |  | 500 |  |
| fliCH7_FP | *fliC*-H7 | CCACGACAGGTCTTTATGATCTGA | 96 | Touchdown 70.0-60.0°C (decrease 1.0°C/cycle for 10 cycles) | 80 | [15] |
| fliCH7_RP |  | CAACTGTGACTTTATCGCCATTCC |  |  | 400 | [15] |
| fliCH8_FP | *fliC*-H8 | GCTGACAAAGGCTCCATTGAA | 61 | Touchdown 70.0-60.0°C (decrease 1.0°C/cycle for 10 cycles) | 80 | [15] |
| fliCH8_RP |  | GCTCTGCGCCAGTGTTGTTA |  |  | 400 | [15] |
| fliCH11_FP | *fliC*-H11 | TTTTTGTTAGTGCAGCAGATGGTT | 69 | Touchdown 70.0-60.0°C (decrease 1.0°C/cycle for 10 cycles) | 80 | [15] |
| fliCH11_RP |  | CAATCCCTGTACCAGCTATGTTTG |  |  | 400 | [15] |
| fliCH19_FP | *fliC*-H19 | AATGACCATCACTTCTGCTGG | 80 | Touchdown 70.0-60.0°C (decrease 1.0°C/cycle for 10 cycles) | 80 | [10] |
| fliCH19_RP |  | TAATTGAGGTCGCATATGCGGC |  |  | 400 | [10] |
| fliCH21_FP | *fliC*-H21 | TACTAGTGCAACCGTTGCC | 102 | Touchdown 70.0-60.0°C (decrease 1.0°C/cycle for 10 cycles) | 80 | [10] |
| fliCH21_RP |  | AGATCAGATAGTGTCGCTGC |  |  | 400 | [10] |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| fliCH25_FP | *fliC*-H25 | CACAACATYCTTGATAAAGATGG | 80 | 59.0 | 300 | [17] |
| fliCH25_RP |  | AACAGAAGCAGCATAGAAGTC |  |  | 300 |  |
| fliCH28_FP | *fliC*-H28 | TGGTAACCTCACTCAAAACAATGCT | 81 | Touchdown 70.0-60.0°C (decrease 1.0°C/cycle for 10 cycles) | 80 | [15] |
| fliCH28_RP |  | CCTGTTGTATGCCAGTTTTTAGTCA |  |  | 400 | [15] |
| fliCH28 (O145)_FP | *fliC*-H28 (O145) | AGACTACACCTACAATAAAGCTACAAATGATT | 83 | 64.0 | 300 | [17] |
| fliCH28 (O145)_RP |  | ATGGTGCTGTTGTTAATGCTAGCA |  |  | 300 |  |

## Table S6

**Table S6.** PCR-based verification of serotyping genes. This table lists the primers that were used for re-evaluation of the serotype determining genes in case of discrepant results. Per target gene, the first and second lines list the forward and reverse primer, respectively.

| Target gene | Sequence 5'-3' | Amplicon size (bp) | Annealing temperature (°C) | Primer concentration (nM) | Reference |
|---|---|---|---|---|---|
| *wzy*-O17/44/73/77/106 | GAGGGGCGGATACATTTGTA | 849 | 62.0 | 500 | [13] |
| | ATACCACAGCGGGATGAAGTT | | | 500 | [13] |
| *wzx*-O113 | TGACCTTACTTCCTGCGAAT | 246 | 60.5 | 200 | [12] |
| | AGCACCACGATAGGATTGAA | | | 1000 | [12] |
| *fliC*-H2 | TTACAGCTACAGTTAAAGGCACTACGA | 94 | 63.5 | 80 | [15] |
| | CCGGCAACTTTAACGTACAACTT | | | 400 | [15] |
| *fliC*-H18 | ACGGAGGCAGATGTTGGTTT | 305 | 64.0 | 500 | [16] |
| | TGAGTATCAGTGCCTGCGTT | | | 500 | [16] |
| *fliC*-H28 | CTGGCATACAACAGGCACAC | 285 | 62.0 | 300 | [10] |
| | TCAGCTTTGGTGTAAGCGTC | | | 300 | [10] |
| *fliC*-H40 | GGTGCAGTCAAGGATAAAGA | 202 | 59.0 | 500 | [16] |
| | CATCAAATGCAGTACCACTC | | | 500 | [16] |

## Table S7

**Table S7.** Serotypes determined with PCR-based methods for validation samples. The first column lists the sample name. The second and third columns contain the results of the additional verification with conventional PCR that was performed in case of discrepant results with the WGS workflow, '-' indicates that no additional PCR was performed. Primers sequences, concentrations and PCR conditions used-for re-evaluation are listed in Supplementary Table S6. The last column contains the final serotype that was used as the reference information in the validation.

| Sample | Result O-type conventional PCR verification | Result H-type conventional PCR verification | Final serotype |
|---|---|---|---|
| EH1227 | - | H28 | O145:H28 |
| EH1236 | - | - | O103:H2 |
| EH1239 | - | - | O111:H8 |
| EH1260 | - | - | O26:H11 |
| EH1273 | - | - | O157:H7 |
| EH1348 | - | - | O26:H- |
| EH1380 | - | - | O157:H7 |
| EH1389 | - | - | O103:H- |
| EH1533 | - | - | O26:H11 |
| EH1624 | - | H28 | O145:H28 |
| EH1641 | - | - | O111:H8 |
| EH1648 | - | - | O103:H- |
| EH1667 | - | - | O157:H7 |
| EH1671 | - | - | O157:H7 |
| EH1717 | - | - | O157:H7 |
| EH1733 | - | - | O157:H7 |
| EH1757 | - | - | O157:H7 |
| EH1766 | - | - | O157:H7 |
| EH1771 | - | - | O157:H7 |
| EH1782 | - | - | O157:H7 |
| EH1783 | - | - | O157:H7 |
| EH1785 | - | - | O157:H7 |
| EH1811 | - | - | O157:H7 |
| EH1813 | - | - | O157:H7 |
| EH1815 | - | - | O157:H7 |
| EH1819 | - | - | O157:H7 |
| EH1823 | - | - | O157:H7 |
| EH1829 | - | - | O157:H7 |
| EH1831 | - | - | O145:H28 |
| EH1836 | - | - | O26:H11 |
| EH1839 | - | - | O145:H28 |
| EH1846 | - | - | O26:H11 |
| EH1847 | - | - | O111:H8 |

|  |  |  |  |
|---|---|---|---|
| EH1858 | - | - | O26:H11 |
| EH1861 | - | - | O157:H7 |
| EH1873 | - | - | O157:H7 |
| EH1882 | - | - | O157:H7 |
| EH1923 | - | - | O157:H7 |
| EH1965 | - | - | O157:H7 |
| EH1979 | - | - | O157:H7 |
| EH2015 | - | - | O157:H7 |
| EH2038 | - | - | O157:H7 |
| EH925 | - | - | O157:H7 |
| TIAC1181 | O174 | - | O174:H- |
| TIAC1182 | - | - | O55:H- |
| TIAC1185 | - | - | O-:H- |
| TIAC1186 | - | - | O118:H- |
| TIAC1188 | - | - | O118:H- |
| TIAC1192 | - | - | O-:H- |
| TIAC1193 | O25 | H40 | O25:H40 |
| TIAC1218 | - | - | O128:H- |
| TIAC1220 | - | - | O91:H- |
| TIAC1221 | - | H25 | O-:H25 |
| TIAC1223 | - | - | O-:H- |
| TIAC1226 | - | - | O-:H- |
| TIAC1227 | - | - | O-:H- |
| TIAC1228 | - | - | O-:H- |
| TIAC1240 | - | - | O-:H- |
| TIAC1241 | O17/43/44/77/106 | H18 | O17/43/44/77/106:H18 |
| TIAC1242 | - | - | O-:H- |
| TIAC1243 | - | H4 | O-:H4 |
| TIAC1244 | - | - | O121:H19 |
| TIAC1245 | - | - | O55:H- |
| TIAC1246 | - | - | O-:H28 |
| TIAC1247 | - | - | O-:H- |
| TIAC1248 | - | - | O103:H2 |
| TIAC1354 | - | - | O26:H11 |
| TIAC1356 | - | - | O26:H11 |
| TIAC1369 | - | - | O111:H8 |
| TIAC1372 | - | - | O103:H2 |
| TIAC1382 | - | - | O103:H2 |
| TIAC1398 | - | - | O26:H11 |
| TIAC1399 | - | - | O111:H8 |
| TIAC1400 | - | - | O157:H7 |
| TIAC1402 | - | - | O-:H- |
| TIAC1408 | - | - | O-:H- |

| | | | |
|---|---|---|---|
| TIAC1411 | - | - | O-:H- |
| TIAC1419 | - | - | O-:H- |
| TIAC1420 | - | - | O45:H- |
| TIAC1426 | - | - | O-:H- |
| TIAC1428 | - | - | O157:H7 |
| TIAC1433 | - | - | O157:H7 |
| TIAC1434 | - | - | O157:H7 |
| TIAC1435 | - | - | O157:H7 |
| TIAC1440 | - | - | O157:H7 |
| TIAC1442 | - | - | O157:H7 |
| TIAC1448 | - | - | O157:H7 |
| TIAC1449 | - | - | O157:H7 |
| TIAC1454 | - | - | O157:H7 |
| TIAC1460 | - | - | O157:H7 |
| TIAC1463 | - | - | O157:H7 |
| TIAC1464 | - | - | O157:H21/H7 |
| TIAC1472 | - | - | O157:H7 |
| TIAC1475 | - | - | O157:H7 |
| TIAC1477 | - | - | O157:H7 |
| TIAC1478 | - | - | O157:H7 |
| TIAC1479 | - | - | O157:H7 |
| TIAC1484 | - | - | O-:H- |
| TIAC1507 | - | - | O157:H7 |
| TIAC1520 | - | - | O157:H7 |
| TIAC1521 | - | - | O157:H7 |
| TIAC1522 | O90/127 | - | O90/127:H- |
| TIAC1523 | - | - | O157:H7 |
| TIAC1526 | - | - | O157:H7 |
| TIAC1527 | - | - | O157:H7 |
| TIAC1528 | - | - | O157:H7 |
| TIAC1544 | - | - | O157:H7 |
| TIAC1546 | - | - | O157:H7 |
| TIAC1550 | - | - | O157:H7 |
| TIAC1551 | - | - | O157:H7 |
| TIAC1552 | - | - | O157:H7 |
| TIAC1553 | - | - | O157:H7 |
| TIAC1558 | - | - | O157:H7 |
| TIAC1559 | - | - | O157:H7 |
| TIAC1562 | - | - | O157:H7 |
| TIAC1567 | - | - | O157:H7 |
| TIAC1568 | - | - | O157:H7 |
| TIAC1617 | - | - | O157:H7 |
| TIAC1631 | - | - | O157:H7 |

|  |  |  |  |
|---|---|---|---|
| TIAC1641 | - | - | O157:H7 |
| TIAC1642 | - | - | O157:H7 |
| TIAC1653 | - | - | O157:H7 |
| TIAC1664 | - | - | O157:H7 |
| TIAC1878 | - | - | O157:H7 |
| TIAC1880 | - | - | O-:H- |
| TIAC1881 | - | - | O157:H7 |
| TIAC1883 | - | - | O157:H7 |
| TIAC1884 | - | - | O-:H- |
| TIAC1885 | - | - | O-:H- |
| TIAC1886 | - | - | O-:H- |
| TIAC1887 | - | - | O157:H7 |
| TIAC1888 | - | - | O-:H- |
| TIAC1893 | - | - | O157:H7 |
| TIAC1946 | - | - | O157:H7 |
| TIAC1947 | - | - | O157:H7 |
| TIAC1951 | - | - | O157:H7 |
| TIAC1953 | - | - | O-:H- |

## Table S8

**Table S8.** Confusion matrix. Represents classification of results, where ‘Actual’ corresponds to the reference standard in the validation and ‘Predicted’ corresponds the output of the bioinformatics workflow.

| | | **Actual** | |
|---|---|---|---|
| | | **+** | **-** |
| **Predicted** | **+** | True positive (TP) | False positive (FP) |
| | **-** | False negative (FN) | True negative (TN) |

## Table S9

**Table S9.** Primers and conditions used for PCRs detecting AMR genes. AMR genes that were detected with the WGS workflow were also evaluated with PCR, using the primer sets listed in the table. The suffixes ‘FP’ and ‘RP’ in the primer name refer to the forward and reverse primer, respectively. The third fourth, fifth and sixth columns lists the primer sequence, amplicon size, annealing temperature and primer concentration, respectively. The last column contains the literature references for the primers.

| Primer name | Gene | Sequence (5'-3') | Product size (bp) | Annealing temperature (°C) | Primer concentration (nM) | Reference |
|---|---|---|---|---|---|---|
| aph(3'')-Ib_FP | *aph(3’’)-Ib* | GGTTGCCTGTCAGAGGCGG | 750 | 58 | 200 | [18] |
| aph(3'')-Ib_RP | | GTCAGAGGGTCCAATCGC | | | 200 | |
| aph(6)-Id_4FP | *aph(6)-Id* | GACTCCTGCAATCGTCAAGG | 560 | 58 | 200 | [19] |
| aph(6)-Id_4RP | | GCAATGCGTCTAGGATCGAG | | | 200 | |
| sul2_2FP | *sul2* | TGTGCGGATGAAGTCAGCTCC | 626 | 60 | 200 | [20] |
| sul2_2RP | | AGGGGGCAGATGTGATCGAC | | | 200 | |
| sul3_2FP | *sul3* | GAGCAAGATTTTTGGAATCG | 789 | 54 | 200 | [21] |
| sul3_2RP | | CTAACCTAGGGCTTTGGA | | | 200 | |
| aadA1_3FP | *aadA1* | GTGGATGGCGGCCTGAAGCC | 525 | 64 | 250 | [22] |
| aadA1_3RP | | ATTGCCCAGTCGGCAGCG | | | 250 | |
| sul1_2FP | *sul1* | GTGACGGTGTTCGGCATTCT | 780 | 60 | 250 | [23] |
| sul1_2RP | | TCCGAGAAGGTGATTGCGCT | | | 250 | |
| bla$_{TEM}$_FP | *bla*$_{TEM}$ | ATGAGTATTCAACATTTCCGTG | 841 | 55 | 250 | [24] |
| bla$_{TEM}$_RP | | TTACCAATGCTTAATCAGTGAG | | | 250 | |
| tetB_FP | *tetB* | TTGGTTAGGGGCAAGTTTTG | 659 | 58 | 250 | [25] |
| tetB-RP | | GTAATGGGCCAATAACACCG | | | 250 | |
| tetA_FP | *tetA* | GCTACATCCTGCTTGCCTTC | 210 | 58 | 250 | [25] |
| tetA_RP | | CATAGATCGCCGTGAAGAGG | | | 250 | |
| aac(3)-IV_FP | *aac(3)-IV* | GTTACACCGGACCTTGGA | 674 | 58 | 250 | [26] |
| aac(3)-IV_RP | | AACGGCATTGAGCGTCAG | | | 250 | |
| dfrA17_FP | *dfrA17* | GATTTCTGCAGTGTCAGA | 384 | 50 | 250 | [27] |
| dfrA17_RP | | CTCAGGCATTATAGGGAA | | | 250 | |
| catA1_FP | *catA1* | CCACCGTTGATATATCCC | 623 | 54 | 250 | [26] |
| catA1_RP | | CCTGCCACTCATCGCAGT | | | 250 | |
| floR_FP | *floR* | CACGTTGAGCCTCTATAT | 868 | 50 | 250 | [26] |
| floR_RP | | ATGCAGAAGTAGAACGCG | | | 250 | |
| blaOXA-1_FP | *blaOXA-1* | TTTTCTGTTGTTTGGGTTTT | 427 | 54 | 250 | [28] |
| blaOXA-1_RP | | TTTCTTGGCTTTTATGCTTG | | | 250 | |
| tet31_FP | *tet31* | CAATCACGCCCAAAAGAA | 564 | 54 | 250 | [29] |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| tet31_RP |  | TGTGCCATCCCAGTTTGT |  |  | 250 |  |
| ant(2")-Ia_FP | *ant(2’’)-Ia* | GCTCACGCAACTGGTCCA GA | 719 | 60 | 250 | [30] |
| ant(2")-Ia_RP |  | GGCACGCAAGACCTCAACCT |  |  | 250 |  |
| aph(4)-Ia_FP | *aph(4)-Ia* | CTGAACTCACCGCGACGTCT | 977 | 58 | 250 | [30] |
| aph(4)-Ia_RP |  | TCCACTATCGGCGAGTACTT |  |  | 250 |  |
| dfrA1_FP | *dfrA1* | GGAGTGCCAAAGGTGAACAGC | 376 | 60 | 250 | [31] |
| dfrA1_RP |  | GAGGCGAAGTCTTGGGTAAAAAC |  |  | 250 |  |
| cmlA1_FP | *cmlA1* | AGGAAGCATCGGAACGTTGA | 101 | 60 | 250 | [32] |
| cmlA1_RP |  | ACAGACCGAGCACGACTGTTG |  |  | 250 |  |
| aph(3')-Ia_FP | *aph(3’)-Ia* | ATGGGCTCGCGATAATGTCG | 734 | 54 | 250 | [33] |
| aph(3')-Ia_RP |  | AGAAAAACTCATCGAGCATC |  |  | 250 |  |
| T7-gyrA_FP | *gyrA* | TAATACGACTCACTATAGGGGGTACACCGTCGCGTACTTT | 350 | 57 | 400 | Adapted from [34] |
| M13-gyrA_RP |  | GGAAACAGCTATGACCATGCAACGAAATCGACCGTCTCT |  |  | 400 |  |
| T7-parE_FP | *parE* | TAATACGACTCACTATAGGGGTCAACCTTATCCCAACGA | 887 | 59 | 250 | Adapted from [35] |
| M13-parE_RP |  | GGAAACAGCTATGACCATGTGCTCAAGTACGCCCTCT |  |  | 250 |  |

## Table S10

**Table S10.** Overview of custom virulence gene database. The first column lists the gene name. The second and third columns lists the source of the sequence and the corresponding NCBI accession number(s), respectively.

| Gene name | Source | Accession number(s) |
|---|---|---|
| *aaiC* | VirulenceFinder – *E. coli* | CP003301 |
| *aggR* | VirulenceFinder – *E. coli* | 55989 |
| *bfpA* | VirulenceFinder – *E. coli* | AB024946 |
| *eae* | VirulenceFinder – *E. coli* | AB647560, AB647609, FJ609827, AF116899, AJ303141, AB647400, AJ877229, AY223510, AJ877230, AY696839, AJ705052, AB647369, AB647607, FJ609811, FM872421, AJ876652, AB647460, AJ705051, DQ523610, AF022236, FM180568, AB647391, FJ609822, AB647569, AJ705050, AJ876651, AB647610, GU944692, AF530555, AJ271407, AJ744865, AF449417, FJ609810, FJ609831, AB647440, AJ876649, AB647555, AB647368, FJ609833, AB647573, AF530554, AF071034, FM872418, EF204930, ECU59503 |
| *ehxA* | VirulenceFinder – *E. coli* | AB011549 |
| *ent_espl2* | NCBI | AE005174.2 |
| *espP* | VirulenceFinder – *E. coli* | AB011549 |
| *ipaH* | NCBI | CP000034 |
| *katP* | VirulenceFinder – *E. coli* | AB011549 |
| *lt (ltcA)* | VirulenceFinder – *E. coli* | V00275 |
| *nleA* | VirulenceFinder – *E. coli* | AP019761.1, NZ_AIFB01000023.1, CP043539.1 |
| *nleB* | NCBI | AP019761.1 |
| *nleE* | NCBI | AP019761.1 |
| *nleF* | NCBI | AP018802.1 |
| *nleH1-2* | NCBI | CP043539.1, CP028379.1, CP041623.1 |
| *saa* | VirulenceFinder – *E. coli* | AF399919 |
| *sth* | NCBI | CP025858.1 |
| *stp* | VirulenceFinder – *E. coli* | AJ555214 |
| *subA* | VirulenceFinder – *E. coli* | AF399919 |
| *terB* | NCBI | AP019708.1 |

## Table S11

**Table S11.** Overview of read trimming statistics for the validation dataset. The first, second and third columns list the sample name, species, and total number of read pairs, respectively. The fourth, fifth, sixth and seventh columns list the number of read pairs where both reads passed trimming, the number of read pairs where only the forward read passed trimming, the number of read pairs where only the reverse read passed trimming and the number of read pairs where both reads were dropped, respectively.

| Sample | Species | Total read pairs | Both surviving | Forward read only surviving | Reverse read only surviving | Both dropped |
|---|---|---:|---:|---:|---:|---:|
| EH1227 | *E. coli* | 510346 | 475918 | 30415 | 1390 | 2623 |
| EH1236 | *E. coli* | 583703 | 544108 | 35257 | 1502 | 2836 |
| EH1239 | *E. coli* | 738158 | 691068 | 38271 | 3914 | 4905 |
| EH1260 | *E. coli* | 620731 | 576416 | 39429 | 1521 | 3365 |
| EH1273 | *E. coli* | 748018 | 701370 | 40753 | 2344 | 3551 |
| EH1348 | *E. coli* | 758723 | 721960 | 30690 | 3065 | 3008 |
| EH1380 | *E. coli* | 761267 | 715724 | 40187 | 1998 | 3358 |
| EH1389 | *E. coli* | 672251 | 628009 | 38666 | 2229 | 3347 |
| EH1533 | *E. coli* | 656761 | 603402 | 48280 | 1416 | 3663 |
| EH1624 | *E. coli* | 618394 | 574225 | 38523 | 1882 | 3764 |
| EH1641 | *E. coli* | 680573 | 632249 | 43502 | 1574 | 3248 |
| EH1648 | *E. coli* | 947999 | 891427 | 48629 | 2704 | 5239 |
| EH1667 | *E. coli* | 781936 | 746753 | 28679 | 3107 | 3397 |
| EH1671 | *E. coli* | 600353 | 565184 | 29997 | 2187 | 2985 |
| EH1717 | *E. coli* | 592852 | 553077 | 34845 | 1564 | 3366 |
| EH1733 | *E. coli* | 1156207 | 1095453 | 52365 | 3346 | 5043 |
| EH1757 | *E. coli* | 888788 | 836772 | 45284 | 2602 | 4130 |
| EH1766 | *E. coli* | 614650 | 569337 | 40775 | 1450 | 3088 |
| EH1771 | *E. coli* | 795102 | 743264 | 45092 | 2272 | 4474 |
| EH1782 | *E. coli* | 1157265 | 1098537 | 49306 | 4317 | 5105 |
| EH1783 | *E. coli* | 758862 | 712513 | 40599 | 2183 | 3567 |
| EH1785 | *E. coli* | 814224 | 755510 | 52279 | 2177 | 4258 |
| EH1811 | *E. coli* | 696949 | 648944 | 43157 | 1570 | 3278 |
| EH1813 | *E. coli* | 846621 | 795054 | 45459 | 2300 | 3808 |
| EH1815 | *E. coli* | 621662 | 584874 | 31572 | 1885 | 3331 |
| EH1819 | *E. coli* | 757745 | 712100 | 40351 | 1965 | 3329 |
| EH1823 | *E. coli* | 600619 | 564287 | 29470 | 3869 | 2993 |
| EH1829 | *E. coli* | 821932 | 771233 | 44336 | 2617 | 3746 |
| EH1831 | *E. coli* | 699914 | 658133 | 36086 | 2359 | 3336 |
| EH1836 | *E. coli* | 794966 | 747140 | 40865 | 2884 | 4077 |
| EH1839 | *E. coli* | 712804 | 653673 | 53476 | 1578 | 4077 |
| EH1846 | *E. coli* | 681047 | 632319 | 43292 | 1603 | 3833 |
| EH1847 | *E. coli* | 669379 | 618004 | 46348 | 1379 | 3648 |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| EH1858 | *E. coli* | 954835 | 882644 | 65052 | 2163 | 4976 |
| EH1861 | *E. coli* | 817719 | 759970 | 51556 | 1993 | 4200 |
| EH1873 | *E. coli* | 950555 | 881150 | 62058 | 2268 | 5079 |
| EH1882 | *E. coli* | 765435 | 715597 | 43394 | 2480 | 3964 |
| EH1923 | *E. coli* | 544475 | 503907 | 35009 | 2340 | 3219 |
| EH1965 | *E. coli* | 898362 | 837238 | 49275 | 6711 | 5138 |
| EH1979 | *E. coli* | 873968 | 816811 | 47927 | 3921 | 5309 |
| EH2015 | *E. coli* | 900982 | 834815 | 59364 | 2117 | 4686 |
| EH2038 | *E. coli* | 655424 | 598954 | 50248 | 1934 | 4288 |
| EH925 | *E. coli* | 745992 | 681230 | 58822 | 1600 | 4340 |
| TIAC1181 | *E. coli* | 763456 | 696969 | 58623 | 2643 | 5221 |
| TIAC1182 | *E. coli* | 609346 | 551869 | 50783 | 2105 | 4589 |
| TIAC1185 | *E. coli* | 497744 | 438393 | 53847 | 1155 | 4349 |
| TIAC1186 | *E. coli* | 996487 | 903236 | 83066 | 2963 | 7222 |
| TIAC1188 | *E. coli* | 856532 | 765919 | 82091 | 2275 | 6247 |
| TIAC1192 | *E. coli* | 666052 | 610842 | 48383 | 2377 | 4450 |
| TIAC1193 | *E. coli* | 613418 | 575723 | 30247 | 3770 | 3678 |
| TIAC1218 | *E. coli* | 774292 | 703332 | 62719 | 2547 | 5694 |
| TIAC1220 | *E. coli* | 691883 | 642479 | 40673 | 2752 | 5979 |
| TIAC1221 | *E. coli* | 1086334 | 1009301 | 63831 | 5191 | 8011 |
| TIAC1223 | *E. coli* | 823806 | 756082 | 57458 | 3260 | 7006 |
| TIAC1226 | *E. coli* | 725157 | 680516 | 35303 | 3568 | 5770 |
| TIAC1227 | *E. coli* | 847327 | 799812 | 35134 | 4974 | 7407 |
| TIAC1228 | *E. coli* | 941444 | 860672 | 67171 | 6239 | 7362 |
| TIAC1240 | *E. coli* | 650467 | 590713 | 52537 | 2310 | 4907 |
| TIAC1241 | *E. coli* | 432093 | 360319 | 61677 | 5147 | 4950 |
| TIAC1242 | *E. coli* | 883499 | 826361 | 46688 | 4903 | 5547 |
| TIAC1243 | *E. coli* | 715677 | 660674 | 46820 | 2954 | 5229 |
| TIAC1244 | *E. coli* | 701342 | 648752 | 44115 | 3377 | 5098 |
| TIAC1245 | *E. coli* | 540111 | 495152 | 39175 | 1748 | 4036 |
| TIAC1246 | *E. coli* | 704863 | 652135 | 44257 | 3303 | 5168 |
| TIAC1247 | *E. coli* | 680663 | 638886 | 34151 | 3807 | 3819 |
| TIAC1248 | *E. coli* | 777009 | 717897 | 50473 | 3225 | 5414 |
| TIAC1354 | *E. coli* | 611014 | 546945 | 57660 | 1694 | 4715 |
| TIAC1356 | *E. coli* | 527291 | 490588 | 30760 | 2597 | 3346 |
| TIAC1369 | *E. coli* | 502000 | 463457 | 32652 | 2425 | 3466 |
| TIAC1372 | *E. coli* | 564193 | 528289 | 29471 | 2459 | 3974 |
| TIAC1382 | *E. coli* | 532671 | 494175 | 33100 | 1997 | 3399 |
| TIAC1398 | *E. coli* | 578430 | 542164 | 29943 | 2932 | 3391 |
| TIAC1399 | *E. coli* | 755998 | 694805 | 53791 | 2375 | 5027 |
| TIAC1400 | *E. coli* | 1041211 | 955202 | 75751 | 3366 | 6892 |
| TIAC1402 | *E. coli* | 652868 | 602180 | 42524 | 3330 | 4834 |
| TIAC1408 | *E. coli* | 778097 | 696301 | 73803 | 2151 | 5842 |

| | | | | | | |
|---|---|---|---|---|---|---|
| TIAC1411 | *E. coli* | 680896 | 611639 | 60495 | 2983 | 5779 |
| TIAC1419 | *E. coli* | 640336 | 597478 | 38162 | 1339 | 3357 |
| TIAC1420 | *E. coli* | 516176 | 480602 | 31178 | 1626 | 2770 |
| TIAC1426 | *E. coli* | 540260 | 497310 | 37443 | 2032 | 3475 |
| TIAC1428 | *E. coli* | 667892 | 601408 | 57902 | 2822 | 5760 |
| TIAC1433 | *E. coli* | 493961 | 460291 | 29308 | 1619 | 2743 |
| TIAC1434 | *E. coli* | 382324 | 338147 | 40377 | 754 | 3046 |
| TIAC1435 | *E. coli* | 850846 | 780566 | 58145 | 4784 | 7351 |
| TIAC1440 | *E. coli* | 753511 | 708597 | 34531 | 5544 | 4839 |
| TIAC1442 | *E. coli* | 827093 | 758077 | 62858 | 1700 | 4458 |
| TIAC1448 | *E. coli* | 664040 | 605275 | 52047 | 2175 | 4543 |
| TIAC1449 | *E. coli* | 447282 | 401958 | 39067 | 2103 | 4154 |
| TIAC1454 | *E. coli* | 646369 | 588810 | 49861 | 2674 | 5024 |
| TIAC1460 | *E. coli* | 497994 | 467542 | 24195 | 3101 | 3156 |
| TIAC1463 | *E. coli* | 1060628 | 975413 | 69867 | 7305 | 8043 |
| TIAC1464 | *E. coli* | 581159 | 520781 | 53482 | 2236 | 4660 |
| TIAC1472 | *E. coli* | 611879 | 548941 | 55437 | 2398 | 5103 |
| TIAC1475 | *E. coli* | 528886 | 470767 | 51660 | 1834 | 4625 |
| TIAC1477 | *E. coli* | 783977 | 708062 | 65026 | 3891 | 6998 |
| TIAC1478 | *E. coli* | 568134 | 524952 | 35278 | 3790 | 4114 |
| TIAC1479 | *E. coli* | 382431 | 341009 | 35959 | 1726 | 3737 |
| TIAC1484 | *E. coli* | 424587 | 398133 | 21921 | 2327 | 2206 |
| TIAC1507 | *E. coli* | 657811 | 611285 | 42099 | 1205 | 3222 |
| TIAC1520 | *E. coli* | 559708 | 516407 | 39264 | 1134 | 2903 |
| TIAC1521 | *E. coli* | 578742 | 532688 | 41795 | 1106 | 3153 |
| TIAC1522 | *E. coli* | 461176 | 425331 | 32305 | 987 | 2553 |
| TIAC1523 | *E. coli* | 547461 | 505596 | 37907 | 1076 | 2882 |
| TIAC1526 | *E. coli* | 574587 | 525490 | 44648 | 1133 | 3316 |
| TIAC1527 | *E. coli* | 528396 | 488806 | 35955 | 1016 | 2619 |
| TIAC1528 | *E. coli* | 492335 | 446106 | 39713 | 2395 | 4121 |
| TIAC1544 | *E. coli* | 526355 | 482961 | 35672 | 3631 | 4091 |
| TIAC1546 | *E. coli* | 535473 | 492376 | 39525 | 910 | 2662 |
| TIAC1550 | *E. coli* | 613521 | 580890 | 28146 | 1692 | 2793 |
| TIAC1551 | *E. coli* | 582923 | 544453 | 34979 | 1011 | 2480 |
| TIAC1552 | *E. coli* | 694648 | 656561 | 33721 | 1441 | 2925 |
| TIAC1553 | *E. coli* | 529209 | 485053 | 40511 | 858 | 2787 |
| TIAC1558 | *E. coli* | 347525 | 311123 | 33184 | 743 | 2475 |
| TIAC1559 | *E. coli* | 503525 | 468003 | 30705 | 1253 | 3564 |
| TIAC1562 | *E. coli* | 659308 | 622358 | 32477 | 1582 | 2891 |
| TIAC1567 | *E. coli* | 601363 | 565167 | 32478 | 1253 | 2465 |
| TIAC1568 | *E. coli* | 557189 | 522816 | 30953 | 1066 | 2354 |
| TIAC1617 | *E. coli* | 537441 | 493224 | 38844 | 1757 | 3616 |
| TIAC1631 | *E. coli* | 528938 | 479754 | 41368 | 2843 | 4973 |

| | | | | | | |
|---|---|---|---|---|---|---|
| TIAC1641 | *E. coli* | 372611 | 340442 | 28166 | 1373 | 2630 |
| TIAC1642 | *E. coli* | 387768 | 344932 | 38727 | 1071 | 3038 |
| TIAC1653 | *E. coli* | 608671 | 565844 | 38605 | 1278 | 2944 |
| TIAC1664 | *E. coli* | 566003 | 516864 | 44531 | 1192 | 3416 |
| TIAC1878 | *E. coli* | 623383 | 576016 | 42166 | 1409 | 3792 |
| TIAC1880 | *E. coli* | 595120 | 556155 | 34576 | 1350 | 3039 |
| TIAC1881 | *E. coli* | 1587692 | 1479376 | 36647 | 7677 | 63992 |
| TIAC1883 | *E. coli* | 598195 | 564007 | 24784 | 2386 | 7018 |
| TIAC1884 | *E. coli* | 502521 | 470786 | 27961 | 1221 | 2553 |
| TIAC1885 | *E. coli* | 580150 | 543278 | 32612 | 1453 | 2807 |
| TIAC1886 | *E. coli* | 631376 | 593471 | 33510 | 1448 | 2947 |
| TIAC1887 | *E. coli* | 703426 | 668289 | 30208 | 2093 | 2836 |
| TIAC1888 | *E. coli* | 585083 | 552719 | 28081 | 1633 | 2650 |
| TIAC1893 | *E. coli* | 755353 | 683970 | 63254 | 2465 | 5664 |
| TIAC1946 | *E. coli* | 649341 | 586752 | 56826 | 1555 | 4208 |
| TIAC1947 | *E. coli* | 594586 | 542347 | 45990 | 2014 | 4235 |
| TIAC1951 | *E. coli* | 627701 | 575243 | 46594 | 1824 | 4040 |
| TIAC1953 | *E. coli* | 741315 | 674262 | 60287 | 1874 | 4892 |
| cj_SRR11799713 | *C. jejuni* | 236470 | 231497 | 3 | 0 | 4970 |
| cj_SRR11799714 | *C. jejuni* | 271703 | 267666 | 5 | 0 | 4032 |
| lm_SRR11790964 | *L. monocytogenes* | 1137562 | 1109001 | 1 | 0 | 28560 |
| lm_SRR11798770 | *L. monocytogenes* | 1024819 | 1008167 | 1 | 0 | 16651 |
| nm_Z1001 | *N. meningitidis* | 366005 | 362476 | 18 | 0 | 3511 |
| nm_Z1035 | *N. meningitidis* | 412030 | 408096 | 22 | 0 | 3912 |
| se_SRR11799638 | *S. enterica* | 786467 | 770633 | 14 | 0 | 15820 |
| se_SRR11799644 | *S. enterica* | 540579 | 522396 | 12 | 0 | 18171 |
| ye_SRR10949351 | *Y. enterocolitica* | 953355 | 923130 | 10 | 0 | 30215 |
| ye_SRR11088743 | *Y. enterocolitica* | 842106 | 822366 | 11 | 0 | 19729 |

## Table S12

**Table S12.** Overview of assembly statistics for the validation dataset. The first and second columns list the sample name and species, respectively. The third, fourth and fifth columns list the N50, number of contigs (after filtering on a kmer coverage of ≥10 and length ≥1000 bases) and total cumulative assembly length, respectively.

| Sample | Species | N50 | Number of contigs | Total length |
|---|---|---:|---:|---:|
| EH1227 | *E. coli* | 115089 | 177 | 5657184 |
| EH1236 | *E. coli* | 192591 | 126 | 5253348 |
| EH1239 | *E. coli* | 344753 | 56 | 5106611 |
| EH1260 | *E. coli* | 103260 | 194 | 5752781 |
| EH1273 | *E. coli* | 116273 | 134 | 5411553 |
| EH1348 | *E. coli* | 210106 | 113 | 5385533 |
| EH1380 | *E. coli* | 115097 | 161 | 5618952 |
| EH1389 | *E. coli* | 156633 | 72 | 5311241 |
| EH1533 | *E. coli* | 148067 | 128 | 5510819 |
| EH1624 | *E. coli* | 250771 | 66 | 5146893 |
| EH1641 | *E. coli* | 105048 | 169 | 5579208 |
| EH1648 | *E. coli* | 263613 | 110 | 5394558 |
| EH1667 | *E. coli* | 91489 | 137 | 5327808 |
| EH1671 | *E. coli* | 239937 | 65 | 5038526 |
| EH1717 | *E. coli* | 136706 | 109 | 5282171 |
| EH1733 | *E. coli* | 160353 | 106 | 5279968 |
| EH1757 | *E. coli* | 140830 | 120 | 5639701 |
| EH1766 | *E. coli* | 89301 | 191 | 5589007 |
| EH1771 | *E. coli* | 100555 | 142 | 5354769 |
| EH1782 | *E. coli* | 109629 | 107 | 5160306 |
| EH1783 | *E. coli* | 184280 | 121 | 5380400 |
| EH1785 | *E. coli* | 185637 | 74 | 5117137 |
| EH1811 | *E. coli* | 108228 | 158 | 5491256 |
| EH1813 | *E. coli* | 97480 | 153 | 5203452 |
| EH1815 | *E. coli* | 118052 | 173 | 5478369 |
| EH1819 | *E. coli* | 156978 | 125 | 5396860 |
| EH1823 | *E. coli* | 124308 | 180 | 5409798 |
| EH1829 | *E. coli* | 187855 | 105 | 5342525 |
| EH1831 | *E. coli* | 229653 | 116 | 5292039 |
| EH1836 | *E. coli* | 284599 | 69 | 4927160 |
| EH1839 | *E. coli* | 114262 | 176 | 5387307 |
| EH1846 | *E. coli* | 194744 | 123 | 5252914 |
| EH1847 | *E. coli* | 105287 | 146 | 5341319 |
| EH1858 | *E. coli* | 282935 | 106 | 5808747 |
| EH1861 | *E. coli* | 12689 | 1204 | 8639924 |
| EH1873 | *E. coli* | 299695 | 36 | 4941813 |

|  |  |  |  |  |
|---|---|---|---|---|
| EH1882 | *E. coli* | 248941 | 64 | 4926214 |
| EH1923 | *E. coli* | 144984 | 108 | 5329363 |
| EH1965 | *E. coli* | 134860 | 138 | 5242722 |
| EH1979 | *E. coli* | 144368 | 93 | 5154906 |
| EH2015 | *E. coli* | 160417 | 126 | 5445194 |
| EH2038 | *E. coli* | 115660 | 122 | 5202054 |
| EH925 | *E. coli* | 320378 | 40 | 4908160 |
| TIAC1181 | *E. coli* | 172177 | 127 | 5326515 |
| TIAC1182 | *E. coli* | 151020 | 133 | 5353786 |
| TIAC1185 | *E. coli* | 205777 | 120 | 5297789 |
| TIAC1186 | *E. coli* | 168801 | 131 | 5353603 |
| TIAC1188 | *E. coli* | 187956 | 134 | 5302247 |
| TIAC1192 | *E. coli* | 269174 | 122 | 5321413 |
| TIAC1193 | *E. coli* | 246116 | 109 | 5312824 |
| TIAC1218 | *E. coli* | 189294 | 139 | 5424061 |
| TIAC1220 | *E. coli* | 2703 | 32 | 77297 |
| TIAC1221 | *E. coli* | 2865 | 33 | 73906 |
| TIAC1223 | *E. coli* | 2435 | 30 | 69331 |
| TIAC1226 | *E. coli* | 3016 | 33 | 77310 |
| TIAC1227 | *E. coli* | 1976 | 36 | 69013 |
| TIAC1228 | *E. coli* | 114681 | 188 | 5576167 |
| TIAC1240 | *E. coli* | 159004 | 119 | 5306564 |
| TIAC1241 | *E. coli* | 145618 | 153 | 5269762 |
| TIAC1242 | *E. coli* | 205777 | 124 | 5305189 |
| TIAC1243 | *E. coli* | 248645 | 118 | 5343937 |
| TIAC1244 | *E. coli* | 184473 | 135 | 5340864 |
| TIAC1245 | *E. coli* | 184501 | 110 | 5322510 |
| TIAC1246 | *E. coli* | 184472 | 133 | 5362721 |
| TIAC1247 | *E. coli* | 182925 | 147 | 5317888 |
| TIAC1248 | *E. coli* | 241370 | 122 | 5326780 |
| TIAC1354 | *E. coli* | 205763 | 119 | 5340414 |
| TIAC1356 | *E. coli* | 200619 | 119 | 5384962 |
| TIAC1369 | *E. coli* | 188380 | 106 | 5315917 |
| TIAC1372 | *E. coli* | 157480 | 119 | 5342286 |
| TIAC1382 | *E. coli* | 167260 | 110 | 5228826 |
| TIAC1398 | *E. coli* | 148894 | 125 | 5351844 |
| TIAC1399 | *E. coli* | 146807 | 115 | 5344817 |
| TIAC1400 | *E. coli* | 160593 | 106 | 5346299 |
| TIAC1402 | *E. coli* | 207716 | 121 | 5248079 |
| TIAC1408 | *E. coli* | 188565 | 117 | 5296221 |
| TIAC1411 | *E. coli* | 150086 | 116 | 5259417 |
| TIAC1419 | *E. coli* | 205777 | 125 | 5307686 |
| TIAC1420 | *E. coli* | 148372 | 119 | 5290133 |

| | | | | |
|---|---|---|---|---|
| TIAC1426 | *E. coli* | 205777 | 112 | 5343840 |
| TIAC1428 | *E. coli* | 205777 | 112 | 5351970 |
| TIAC1433 | *E. coli* | 184471 | 120 | 5425134 |
| TIAC1434 | *E. coli* | 112596 | 147 | 5258823 |
| TIAC1435 | *E. coli* | 170941 | 92 | 5291167 |
| TIAC1440 | *E. coli* | 148488 | 131 | 5331865 |
| TIAC1442 | *E. coli* | 172405 | 125 | 5368285 |
| TIAC1448 | *E. coli* | 171787 | 106 | 5282681 |
| TIAC1449 | *E. coli* | 148495 | 115 | 5342541 |
| TIAC1454 | *E. coli* | 179675 | 122 | 5568684 |
| TIAC1460 | *E. coli* | 205777 | 118 | 5340636 |
| TIAC1463 | *E. coli* | 187802 | 113 | 5346078 |
| TIAC1464 | *E. coli* | 169030 | 113 | 5342808 |
| TIAC1472 | *E. coli* | 182286 | 129 | 5345204 |
| TIAC1475 | *E. coli* | 215633 | 117 | 5311355 |
| TIAC1477 | *E. coli* | 142690 | 120 | 5357549 |
| TIAC1478 | *E. coli* | 148495 | 109 | 5321689 |
| TIAC1479 | *E. coli* | 184162 | 113 | 5325127 |
| TIAC1484 | *E. coli* | 183182 | 121 | 5285258 |
| TIAC1507 | *E. coli* | 181106 | 112 | 5316499 |
| TIAC1520 | *E. coli* | 168980 | 128 | 5352884 |
| TIAC1521 | *E. coli* | 122284 | 157 | 5377600 |
| TIAC1522 | *E. coli* | 111854 | 155 | 5385562 |
| TIAC1523 | *E. coli* | 148366 | 125 | 5392994 |
| TIAC1526 | *E. coli* | 116865 | 153 | 5249810 |
| TIAC1527 | *E. coli* | 193431 | 97 | 5264033 |
| TIAC1528 | *E. coli* | 188786 | 131 | 5292055 |
| TIAC1544 | *E. coli* | 238327 | 130 | 5346330 |
| TIAC1546 | *E. coli* | 160591 | 114 | 5336117 |
| TIAC1550 | *E. coli* | 122334 | 141 | 5302985 |
| TIAC1551 | *E. coli* | 111606 | 145 | 5305782 |
| TIAC1552 | *E. coli* | 160591 | 115 | 5342119 |
| TIAC1553 | *E. coli* | 184471 | 113 | 5341828 |
| TIAC1558 | *E. coli* | 183744 | 119 | 5301580 |
| TIAC1559 | *E. coli* | 184164 | 115 | 5311652 |
| TIAC1562 | *E. coli* | 146782 | 129 | 5422179 |
| TIAC1567 | *E. coli* | 182924 | 126 | 5325026 |
| TIAC1568 | *E. coli* | 115053 | 153 | 5325170 |
| TIAC1617 | *E. coli* | 172399 | 124 | 5350973 |
| TIAC1631 | *E. coli* | 167879 | 126 | 5337312 |
| TIAC1641 | *E. coli* | 205763 | 137 | 5375053 |
| TIAC1642 | *E. coli* | 185943 | 113 | 5307524 |
| TIAC1653 | *E. coli* | 190123 | 114 | 5348408 |

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|---|---|---|---|---|
| TIAC1664 | *E. coli* | 185920 | 98 | 5323803 |
| TIAC1878 | *E. coli* | 119500 | 130 | 5232283 |
| TIAC1880 | *E. coli* | 114262 | 184 | 5483026 |
| TIAC1881 | *E. coli* | 74099 | 240 | 5903385 |
| TIAC1883 | *E. coli* | 104319 | 181 | 5328305 |
| TIAC1884 | *E. coli* | 117809 | 141 | 5236506 |
| TIAC1885 | *E. coli* | 165614 | 131 | 5247335 |
| TIAC1886 | *E. coli* | 103270 | 219 | 5475862 |
| TIAC1887 | *E. coli* | 105392 | 162 | 5418395 |
| TIAC1888 | *E. coli* | 188787 | 124 | 5340532 |
| TIAC1893 | *E. coli* | 102520 | 140 | 5315371 |
| TIAC1946 | *E. coli* | 136862 | 90 | 4968279 |
| TIAC1947 | *E. coli* | 100178 | 112 | 5103691 |
| TIAC1951 | *E. coli* | 120419 | 106 | 5323176 |
| TIAC1953 | *E. coli* | 73317 | 162 | 5037614 |
| cj_SRR11799713 | *C. jejuni* | 56310 | 98 | 1788597 |
| cj_SRR11799714 | *C. jejuni* | 73670 | 53 | 1709213 |
| lm_SRR11790964 | *L. monocytogenes* | 475478 | 17 | 2868808 |
| lm_SRR11798770 | *L. monocytogenes* | 1432376 | 14 | 2838303 |
| nm_Z1001 | *N. meningitidis* | 18473 | 179 | 2080124 |
| nm_Z1035 | *N. meningitidis* | 17322 | 196 | 2105933 |
| se_SRR11799638 | *S. enterica* | 73635 | 113 | 4656783 |
| se_SRR11799644 | *S. enterica* | 58529 | 156 | 4655641 |
| ye_SRR10949351 | *Y. enterocolitica* | 71690 | 130 | 4545798 |
| ye_SRR11088743 | *Y. enterocolitica* | 43036 | 173 | 4536597 |

## Table S13

**Table S13.** Overview of quality control statistics for the validation dataset. The first and second columns list the sample and species. The remaining columns lists the value and the status for the quality metrics, for which an overview is provided in Table 1 (main manuscript). Abbreviations used: Status ('Stat.').

| **Sample** | **Species** | **Contaminants** | | **Median coverage against assembly** | | **% cgMLST genes identified** | | **Average read quality (forward)** | | **Average read quality (reverse)** | | **GC content deviation (forward)** | | **GC content deviation (reverse)** | | **N-fraction (%) (forward)** | | **N-fraction (%) (reverse)** | | **Per base sequence content (forward)** | | **Per base sequence content (reverse)** | | **Minimum read length (forward)** | | **Minimum read length (reverse)** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** | **Value** | **Stat.** |
| EH1227 | *E. coli* | 0.00% | OK | 32.00x | OK | 99.44% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.26% | OK | 0.57% | OK | 100.00% | OK | 94.42% | OK |
| EH1236 | *E. coli* | 0.00% | OK | 43.00x | OK | 99.40% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.18% | OK | 0.44% | OK | 100.00% | OK | 94.42% | OK |
| EH1239 | *E. coli* | 0.00% | OK | 59.00x | OK | 98.29% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.02 | OK | 0 | OK | 0.20% | OK | 0.29% | OK | 100.00% | OK | 100.00% | OK |
| EH1260 | *E. coli* | 0.00% | OK | 39.00x | OK | 98.33% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.17% | OK | 0.54% | OK | 100.00% | OK | 94.42% | OK |
| EH1273 | *E. coli* | 0.00% | OK | 53.00x | OK | 99.36% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.19% | OK | 0.63% | OK | 100.00% | OK | 92.43% | OK |
| EH1348 | *E. coli* | 0.00% | OK | 56.00x | OK | 99.80% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.20% | OK | 0.39% | OK | 100.00% | OK | 94.42% | OK |
| EH1380 | *E. coli* | 0.00% | OK | 52.00x | OK | 99.52% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.18% | OK | 0.54% | OK | 100.00% | OK | 92.43% | OK |
| EH1389 | *E. coli* | 0.00% | OK | 40.00x | OK | 99.44% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.22% | OK | 0.57% | OK | 100.00% | OK | 94.42% | OK |
| EH1533 | *E. coli* | 0.00% | OK | 49.00x | OK | 99.68% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.27% | OK | 0.69% | OK | 100.00% | OK | 92.43% | OK |
| EH1624 | *E. coli* | 0.00% | OK | 49.00x | OK | 99.44% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.21% | OK | 0.55% | OK | 100.00% | OK | 94.42% | OK |
| EH1641 | *E. coli* | 0.00% | OK | 48.00x | OK | 99.12% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.16% | OK | 0.53% | OK | 100.00% | OK | 92.43% | OK |
| EH1648 | *E. coli* | 1.57% | Warn | 64.00x | OK | 97.73% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.18% | OK | 0.36% | OK | 100.00% | OK | 98.41% | OK |

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| EH1667 | *E. coli* | 0.00% | OK | 61.00x | OK | 99.72% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.22% | OK | 0.35% | OK | 100.00% | OK | 100.00% | OK |
| EH1671 | *E. coli* | 0.00% | OK | 49.00x | OK | 95.82% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.24% | OK | 0.50% | OK | 100.00% | OK | 96.41% | OK |
| EH1717 | *E. coli* | 0.00% | OK | 44.00x | OK | 98.93% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.19% | OK | 0.53% | OK | 100.00% | OK | 92.43% | OK |
| EH1733 | *E. coli* | 0.00% | OK | 86.00x | OK | 99.20% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.16% | OK | 0.42% | OK | 98.41% | OK | 92.43% | OK |
| EH1757 | *E. coli* | 0.00% | OK | 62.00x | OK | 95.98% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.21% | OK | 0.35% | OK | 100.00% | OK | 96.41% | OK |
| EH1766 | *E. coli* | 0.00% | OK | 44.00x | OK | 99.72% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.16% | OK | 0.52% | OK | 100.00% | OK | 94.42% | OK |
| EH1771 | *E. coli* | 1.72% | Warn | 50.00x | OK | 99.01% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.32% | OK | 0.40% | OK | 100.00% | OK | 96.41% | OK |
| EH1782 | *E. coli* | 0.00% | OK | 91.00x | OK | 99.76% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.20% | OK | 0.34% | OK | 100.00% | OK | 96.41% | OK |
| EH1783 | *E. coli* | 0.00% | OK | 58.00x | OK | 99.84% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.21% | OK | 0.66% | OK | 100.00% | OK | 94.42% | OK |
| EH1785 | *E. coli* | 0.00% | OK | 67.00x | OK | 99.24% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.22% | OK | 0.25% | OK | 100.00% | OK | 100.00% | OK |
| EH1811 | *E. coli* | 0.00% | OK | 52.00x | OK | 99.20% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.24% | OK | 0.60% | OK | 100.00% | OK | 92.43% | OK |
| EH1813 | *E. coli* | 0.00% | OK | 60.00x | OK | 98.45% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.25% | OK | 0.33% | OK | 100.00% | OK | 98.41% | OK |
| EH1815 | *E. coli* | 0.00% | OK | 43.00x | OK | 99.56% | OK | 37 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.21% | OK | 0.62% | OK | 100.00% | OK | 94.42% | OK |
| EH1819 | *E. coli* | 0.00% | OK | 57.00x | OK | 99.80% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.23% | OK | 0.56% | OK | 100.00% | OK | 94.42% | OK |
| EH1823 | *E. coli* | 0.00% | OK | 42.00x | OK | 99.32% | OK | 36 | OK | 35 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.34% | OK | 0.85% | OK | 100.00% | OK | 88.45% | OK |
| EH1829 | *E. coli* | 0.00% | OK | 63.00x | OK | 99.28% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.21% | OK | 0.58% | OK | 100.00% | OK | 92.43% | OK |
| EH1831 | *E. coli* | 1.42% | Warn | 53.00x | OK | 99.12% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.23% | OK | 0.50% | OK | 100.00% | OK | 94.42% | OK |
| EH1836 | *E. coli* | 1.23% | Warn | 65.00x | OK | 99.56% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.29% | OK | 0.31% | OK | 100.00% | OK | 98.41% | OK |
| EH1839 | *E. coli* | 0.00% | OK | 51.00x | OK | 99.48% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.18% | OK | 0.70% | OK | 100.00% | OK | 92.43% | OK |

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| EH1846 | *E. coli* | 0.00% | OK | 51.00x | OK | 99.76% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.19% | OK | 0.49% | OK | 100.00% | OK | 92.43% | OK |
| EH1847 | *E. coli* | 0.00% | OK | 50.00x | OK | 99.52% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.25% | OK | 0.56% | OK | 100.00% | OK | 92.43% | OK |
| EH1858 | *E. coli* | 0.00% | OK | 69.00x | OK | 93.83% | Warn | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.21% | OK | 0.40% | OK | 100.00% | OK | 98.41% | OK |
| EH1861 | *E. coli* | 0.00% | OK | 34.00x | OK | 34.22% | Fail | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.28% | OK | 0.40% | OK | 100.00% | OK | 98.41% | OK |
| EH1873 | *E. coli* | 0.00% | OK | 81.00x | OK | 99.48% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.20% | OK | 0.37% | OK | 100.00% | OK | 98.41% | OK |
| EH1882 | *E. coli* | 1.14% | Warn | 64.00x | OK | 99.56% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.17% | OK | 0.32% | OK | 100.00% | OK | 98.41% | OK |
| EH1923 | *E. coli* | 0.00% | OK | 39.00x | OK | 94.43% | Warn | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.22% | OK | 0.43% | OK | 100.00% | OK | 98.41% | OK |
| EH1965 | *E. coli* | 0.00% | OK | 63.00x | OK | 99.08% | OK | 36 | OK | 35 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.39% | OK | 0.62% | OK | 96.41% | OK | 82.47% | OK |
| EH1979 | *E. coli* | 0.00% | OK | 68.00x | OK | 99.04% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.02 | OK | 0 | OK | 0.19% | OK | 0.25% | OK | 100.00% | OK | 98.41% | OK |
| EH2015 | *E. coli* | 0.00% | OK | 65.00x | OK | 99.56% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.25% | OK | 0.45% | OK | 100.00% | OK | 96.41% | OK |
| EH2038 | *E. coli* | 0.00% | OK | 50.00x | OK | 99.40% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.28% | OK | 0.42% | OK | 100.00% | OK | 98.41% | OK |
| EH925 | *E. coli* | 0.00% | OK | 63.00x | OK | 97.37% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.21% | OK | 0.44% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1181 | *E. coli* | 4.32% | Warn | 50.00x | OK | 99.40% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.28% | OK | 0.58% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1182 | *E. coli* | 3.63% | Warn | 40.00x | OK | 99.40% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.31% | OK | 0.44% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1185 | *E. coli* | 3.77% | Warn | 33.00x | OK | 99.52% | OK | 37 | OK | 35 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.29% | OK | 0.47% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1186 | *E. coli* | 4.51% | Warn | 63.00x | OK | 99.16% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.38% | OK | 0.46% | OK | 100.00% | OK | 90.44% | OK |

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| TIAC1188 | *E. coli* | 4.46% | Warn | 53.00x | OK | 99.76% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.28% | OK | 0.52% | OK | 100.00% | OK | 86.45% | OK |
| TIAC1192 | *E. coli* | 14.01% | Fail | 31.00x | OK | 99.40% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.57% | OK | 0.70% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1193 | *E. coli* | 4.41% | Warn | 41.00x | OK | 98.05% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.28% | OK | 0.34% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1218 | *E. coli* | 13.48% | Fail | 31.00x | OK | 98.89% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.60% | OK | 0.65% | OK | 100.00% | OK | 90.44% | OK |
| TIAC1220 | *E. coli* | 31.16% | Fail | 100.00x | OK | 0.00% | Fail | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 1.39% | OK | 1.42% | OK | 86.45% | OK | 76.49% | OK |
| TIAC1221 | *E. coli* | 33.78% | Fail | 224.00x | OK | 0.00% | Fail | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 1.58% | OK | 1.52% | OK | 86.45% | OK | 76.49% | OK |
| TIAC1223 | *E. coli* | 35.71% | Fail | 220.00x | OK | 0.00% | Fail | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 1.53% | OK | 1.61% | OK | 98.41% | OK | 82.47% | OK |
| TIAC1226 | *E. coli* | 34.95% | Fail | 205.00x | OK | 0.00% | Fail | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 1.57% | OK | 1.41% | OK | 92.43% | OK | 82.47% | OK |
| TIAC1227 | *E. coli* | 33.72% | Fail | 201.00x | OK | 0.00% | Fail | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 1.28% | OK | 1.29% | OK | 86.45% | OK | 80.48% | OK |
| TIAC1228 | *E. coli* | 9.45% | Fail | 42.00x | OK | 98.69% | OK | 36 | OK | 35 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.54% | OK | 0.75% | OK | 98.41% | OK | 82.47% | OK |
| TIAC1240 | *E. coli* | 9.58% | Fail | 35.00x | OK | 99.36% | OK | 36 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.43% | OK | 0.42% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1241 | *E. coli* | 9.36% | Fail | 16.00x | Warn | 99.36% | OK | 36 | OK | 34 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 1.03% | OK | 1.96% | OK | 88.45% | OK | 64.54% | Warn |
| TIAC1242 | *E. coli* | 8.37% | Fail | 50.00x | OK | 99.48% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.38% | OK | 0.48% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1243 | *E. coli* | 12.87% | Fail | 33.00x | OK | 99.44% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.56% | OK | 0.59% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1244 | *E. coli* | 12.68% | Fail | 31.00x | OK | 98.81% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.52% | OK | 0.60% | OK | 98.41% | OK | 90.44% | OK |
| TIAC1245 | *E. coli* | 7.76% | Fail | 32.00x | OK | 99.40% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.38% | OK | 0.40% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1246 | *E. coli* | 10.16% | Fail | 37.00x | OK | 99.64% | OK | 36 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.50% | OK | 0.44% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1247 | *E. coli* | 14.23% | Fail | 29.00x | OK | 99.72% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.02 | OK | 0 | OK | 0.57% | OK | 0.78% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1248 | *E. coli* | 11.49% | Fail | 35.00x | OK | 99.68% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.55% | OK | 0.58% | OK | 100.00% | OK | 88.45% | OK |

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| TIAC1354 | *E. coli* | 0.00% | OK | 44.00x | OK | 98.97% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.28% | OK | 0.44% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1356 | *E. coli* | 0.00% | OK | 37.00x | OK | 99.08% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.25% | OK | 0.39% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1369 | *E. coli* | 0.00% | OK | 36.00x | OK | 99.68% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.27% | OK | 0.39% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1372 | *E. coli* | 1.68% | Warn | 37.00x | OK | 99.60% | OK | 37 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.25% | OK | 0.39% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1382 | *E. coli* | 3.57% | Warn | 34.00x | OK | 99.40% | OK | 37 | OK | 36 | OK | 2.50% | Warn | 2.50% | Warn | 0.01 | OK | 0 | OK | 0.36% | OK | 0.42% | OK | 100.00% | OK | 100.00% | OK |
| TIAC1398 | *E. coli* | 0.00% | OK | 44.00x | OK | 99.44% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.24% | OK | 0.32% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1399 | *E. coli* | 0.00% | OK | 56.00x | OK | 99.40% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.22% | OK | 0.33% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1400 | *E. coli* | 0.00% | OK | 78.00x | OK | 99.44% | OK | 37 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0.02 | OK | 0 | OK | 0.17% | OK | 0.32% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1402 | *E. coli* | 0.00% | OK | 48.00x | OK | 99.60% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.24% | OK | 0.43% | OK | 98.41% | OK | 92.43% | OK |
| TIAC1408 | *E. coli* | 0.00% | OK | 56.00x | OK | 99.68% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.27% | OK | 0.63% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1411 | *E. coli* | 0.00% | OK | 49.00x | OK | 99.72% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.27% | OK | 0.40% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1419 | *E. coli* | 0.00% | OK | 49.00x | OK | 99.76% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.53% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1420 | *E. coli* | 0.00% | OK | 39.00x | OK | 99.72% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.20% | OK | 0.47% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1426 | *E. coli* | 0.00% | OK | 40.00x | OK | 99.44% | OK | 37 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.28% | OK | 0.36% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1428 | *E. coli* | 0.00% | OK | 48.00x | OK | 99.76% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.28% | OK | 0.41% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1433 | *E. coli* | 5.88% | Fail | 32.00x | OK | 99.12% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.37% | OK | 0.47% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1434 | *E. coli* | 5.80% | Fail | 23.00x | OK | 99.84% | OK | 37 | OK | 35 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.35% | OK | 0.59% | OK | 100.00% | OK | 88.45% | OK |
| TIAC1435 | *E. coli* | 0.00% | OK | 64.00x | OK | 99.32% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.21% | OK | 0.41% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1440 | *E. coli* | 0.00% | OK | 56.00x | OK | 99.60% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.23% | OK | 0.41% | OK | 98.41% | OK | 94.42% | OK |

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| TIAC1442 | *E. coli* | 0.00% | OK | 60.00x | OK | 98.89% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.25% | OK | 0.61% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1448 | *E. coli* | 0.00% | OK | 49.00x | OK | 99.68% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.23% | OK | 0.42% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1449 | *E. coli* | 0.00% | OK | 32.00x | OK | 99.36% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.23% | OK | 0.33% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1454 | *E. coli* | 0.00% | OK | 43.00x | OK | 99.16% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.20% | OK | 0.35% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1460 | *E. coli* | 0.00% | OK | 36.00x | OK | 99.44% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.24% | OK | 0.29% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1463 | *E. coli* | 0.00% | OK | 76.00x | OK | 99.32% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.18% | OK | 0.45% | OK | 98.41% | OK | 94.42% | OK |
| TIAC1464 | *E. coli* | 0.00% | OK | 41.00x | OK | 99.32% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.21% | OK | 0.43% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1472 | *E. coli* | 0.00% | OK | 44.00x | OK | 98.93% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.24% | OK | 0.42% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1475 | *E. coli* | 0.00% | OK | 38.00x | OK | 99.72% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.20% | OK | 0.35% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1477 | *E. coli* | 0.00% | OK | 56.00x | OK | 99.44% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.17% | OK | 0.32% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1478 | *E. coli* | 0.00% | OK | 40.00x | OK | 99.60% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.23% | OK | 0.43% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1479 | *E. coli* | 0.00% | OK | 27.00x | OK | 99.56% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.24% | OK | 0.56% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1484 | *E. coli* | 3.26% | Warn | 29.00x | OK | 99.56% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.35% | OK | 0.61% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1507 | *E. coli* | 0.00% | OK | 49.00x | OK | 99.44% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.20% | OK | 0.56% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1520 | *E. coli* | 0.00% | OK | 42.00x | OK | 99.68% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.16% | OK | 0.43% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1521 | *E. coli* | 0.00% | OK | 44.00x | OK | 99.64% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.17% | OK | 0.73% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1522 | *E. coli* | 0.00% | OK | 35.00x | OK | 99.60% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.20% | OK | 0.48% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1523 | *E. coli* | 0.00% | OK | 41.00x | OK | 99.64% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.50% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1526 | *E. coli* | 0.00% | OK | 44.00x | OK | 98.89% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.18% | OK | 0.55% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1527 | *E. coli* | 0.00% | OK | 42.00x | OK | 98.85% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.48% | OK | 100.00% | OK | 94.42% | OK |

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| TIAC1528 | *E. coli* | 4.57% | Warn | 32.00x | OK | 99.52% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.28% | OK | 0.35% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1544 | *E. coli* | 5.22% | Fail | 32.00x | OK | 99.01% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.34% | OK | 0.37% | OK | 98.41% | OK | 94.42% | OK |
| TIAC1546 | *E. coli* | 0.00% | OK | 39.00x | OK | 99.36% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.24% | OK | 0.63% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1550 | *E. coli* | 0.00% | OK | 47.00x | OK | 99.60% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.20% | OK | 0.50% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1551 | *E. coli* | 0.00% | OK | 45.00x | OK | 99.60% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.64% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1552 | *E. coli* | 0.00% | OK | 52.00x | OK | 99.48% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.20% | OK | 0.49% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1553 | *E. coli* | 0.00% | OK | 40.00x | OK | 99.48% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.68% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1558 | *E. coli* | 3.41% | Warn | 23.00x | OK | 99.52% | OK | 37 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.29% | OK | 0.51% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1559 | *E. coli* | 4.53% | Warn | 32.00x | OK | 99.56% | OK | 37 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.27% | OK | 0.43% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1562 | *E. coli* | 0.00% | OK | 48.00x | OK | 98.89% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.44% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1567 | *E. coli* | 0.00% | OK | 45.00x | OK | 99.56% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.25% | OK | 0.48% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1568 | *E. coli* | 0.00% | OK | 42.00x | OK | 99.56% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.18% | OK | 0.49% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1617 | *E. coli* | 0.00% | OK | 38.00x | OK | 99.04% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0.01 | OK | 0 | OK | 0.23% | OK | 0.26% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1631 | *E. coli* | 9.38% | Fail | 25.00x | OK | 99.80% | OK | 36 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.01 | OK | 0 | OK | 0.53% | OK | 0.50% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1641 | *E. coli* | 0.00% | OK | 27.00x | OK | 99.04% | OK | 37 | OK | 36 | OK | 1.50% | OK | 1.50% | OK | 0.02 | OK | 0 | OK | 0.24% | OK | 0.32% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1642 | *E. coli* | 0.00% | OK | 26.00x | OK | 99.08% | OK | 37 | OK | 36 | OK | 1.50% | OK | 2.50% | Warn | 0.01 | OK | 0 | OK | 0.31% | OK | 0.39% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1653 | *E. coli* | 0.00% | OK | 46.00x | OK | 98.97% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.51% | OK | 100.00% | OK | 96.41% | OK |
| TIAC1664 | *E. coli* | 0.00% | OK | 42.00x | OK | 99.32% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.51% | OK | 100.00% | OK | 92.43% | OK |

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| TIAC1878 | *E. coli* | 12.92% | Fail | 31.00x | OK | 98.01% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.53% | OK | 0.76% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1880 | *E. coli* | 9.46% | Fail | 32.00x | OK | 98.81% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.39% | OK | 0.44% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1881 | *E. coli* | 11.51% | Fail | 30.00x | OK | 99.04% | OK | 37 | OK | 37 | OK | 1.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.91% | OK | 0.78% | OK | 48.61% | Warn | 48.61% | Warn |
| TIAC1883 | *E. coli* | 9.84% | Fail | 27.00x | OK | 99.12% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.46% | OK | 0.52% | OK | 98.41% | OK | 86.45% | OK |
| TIAC1884 | *E. coli* | 10.55% | Fail | 27.00x | OK | 98.05% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.46% | OK | 0.61% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1885 | *E. coli* | 13.36% | Fail | 29.00x | OK | 99.72% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.52% | OK | 0.52% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1886 | *E. coli* | 17.52% | Fail | 24.00x | OK | 98.73% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.67% | OK | 0.77% | OK | 100.00% | OK | 92.43% | OK |
| TIAC1887 | *E. coli* | 10.10% | Fail | 38.00x | OK | 99.24% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.41% | OK | 0.49% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1888 | *E. coli* | 9.45% | Fail | 32.00x | OK | 99.44% | OK | 37 | OK | 36 | OK | 0.50% | OK | 1.50% | OK | 0 | OK | 0 | OK | 0.43% | OK | 0.49% | OK | 100.00% | OK | 94.42% | OK |
| TIAC1893 | *E. coli* | 10.44% | Fail | 37.00x | OK | 92.00% | Warn | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.56% | OK | 0.54% | OK | 100.00% | OK | 90.44% | OK |
| TIAC1946 | *E. coli* | 7.47% | Fail | 39.00x | OK | 92.92% | Warn | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.39% | OK | 0.36% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1947 | *E. coli* | 5.12% | Fail | 40.00x | OK | 99.68% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.29% | OK | 0.31% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1951 | *E. coli* | 0.00% | OK | 48.00x | OK | 99.52% | OK | 36 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.19% | OK | 0.35% | OK | 100.00% | OK | 98.41% | OK |
| TIAC1953 | *E. coli* | 1.57% | Warn | 59.00x | OK | 99.56% | OK | 37 | OK | 36 | OK | 0.50% | OK | 0.50% | OK | 0 | OK | 0 | OK | 0.18% | OK | 0.32% | OK | 100.00% | OK | 98.41% | OK |
| cj_SRR11799713 | *C. jejuni* | 87.65% | NA | 28.00x | OK | 0.00% | NA | 37 | OK | 37 | OK | 18.50% | NA | 18.50% | NA | 0 | OK | 0 | OK | 0.38% | OK | 0.38% | OK | 100.00% | OK | 100.00% | OK |
| cj_SRR11799714 | *C. jejuni* | 85.60% | NA | 34.00x | OK | 0.00% | NA | 37 | OK | 37 | OK | 18.50% | NA | 18.50% | NA | 0 | OK | 0 | OK | 0.39% | OK | 0.39% | OK | 100.00% | OK | 100.00% | OK |
| lm_SRR11790964 | *L. monocytogenes* | 96.87% | NA | 79.00x | OK | 0.00% | NA | 36 | OK | 36 | OK | 12.50% | NA | 12.50% | NA | 0 | OK | 0 | OK | 0.52% | OK | 0.52% | OK | 94.42% | OK | 94.42% | OK |

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| lm_SRR11798770 | *L. monocytogenes* | 96.59% | NA | 82.00x | OK | 0.00% | NA | 37 | OK | 37 | OK | 12.50% | NA | 12.50% | NA | 0 | OK | 0 | OK | 0.42% | OK | 0.42% | OK | 100.00% | OK | 100.00% | OK |
| nm_Z1001 | *N. meningitidis* | 90.92% | NA | 42.00x | OK | 0.00% | NA | 36 | OK | 36 | OK | 1.50% | NA | 1.50% | NA | 0.01 | OK | 0.01 | OK | 0.27% | OK | 0.27% | OK | 91.03% | OK | 91.03% | OK |
| nm_Z1035 | *N. meningitidis* | 89.10% | NA | 45.00x | OK | 0.00% | NA | 36 | OK | 36 | OK | 1.50% | NA | 1.50% | NA | 0.01 | OK | 0.01 | OK | 0.45% | OK | 0.45% | OK | 91.03% | OK | 91.03% | OK |
| se_SRR11799638 | *S. enterica* | 63.66% | NA | 38.00x | OK | 10.39% | NA | 36 | OK | 36 | OK | 2.50% | NA | 2.50% | NA | 0 | OK | 0 | OK | 0.20% | OK | 0.20% | OK | 100.00% | OK | 100.00% | OK |
| se_SRR11799644 | *S. enterica* | 60.07% | NA | 24.00x | OK | 10.90% | NA | 35 | OK | 35 | OK | 2.50% | NA | 2.50% | NA | 0 | OK | 0 | OK | 0.34% | OK | 0.34% | OK | 100.00% | OK | 100.00% | OK |
| ye_SRR10949351 | *Y. enterocolitica* | 95.20% | NA | 43.00x | OK | 0.00% | NA | 36 | OK | 36 | OK | 2.50% | NA | 2.50% | NA | 0 | OK | 0 | OK | 0.26% | OK | 0.26% | OK | 98.41% | OK | 98.41% | OK |
| ye_SRR11088743 | *Y. enterocolitica* | 94.66% | NA | 40.00x | OK | 0.00% | NA | 37 | OK | 37 | OK | 2.50% | NA | 2.50% | NA | 0 | OK | 0 | OK | 0.22% | OK | 0.22% | OK | 100.00% | OK | 100.00% | OK |

## Table S14

**Table S14.** Overview of validation samples with reads classified as *Bos taurus*. The first and second columns lists the sample name and the percentage of reads classified as *Bos taurus* in case Kraken2 indicated a failure for the QC check. The third column lists the percentage of reads classified as *E. coli* using the Kraken database described in the main manuscript. The last columns lists whether the sample was retained or removed from the validation. Classification was performed using Kraken2 as explained in the Materials and Methods, on a database containing the reference sequences of: *Bos taurus* (GCF_000003055), *Capra hircus* (GCF_001704415), *Chlorocebus sabaeus* (GCF_000409795), *Mesocricetus auratus* (GCF_000349665), *Cavia porcellus* (GCF_000151735), *Equus caballus* (GCF_000002305), *Mus musculus* (GCF_000001635), *Rattus norvegicus* (GCF_000001895), *Ovis aries* (GCF_000298735), and *Sus scrofa* (GCF_000003025).

| Sample | Reads classified as *Bos taurus* (%) | Reads classified as *E. coli* (%) | Kept / removed |
|---|---:|---:|---|
| EH1648 | 5.40 | 48.16 | Kept |
| EH1771 | 5.59 | 49.71 | Kept |
| TIAC1181 | 11.68 | 58.66 | Kept |
| TIAC1182 | 8.85 | 60.49 | Kept |
| TIAC1185 | 9.16 | 62.28 | Kept |
| TIAC1186 | 11.40 | 57.64 | Kept |
| TIAC1188 | 11.24 | 56.95 | Kept |
| TIAC1192 | 33.17 | 41.57 | Kept |
| TIAC1193 | 12.08 | 58.72 | Kept |
| TIAC1218 | 36.57 | 39.46 | Kept |
| TIAC1220 | 84.91 | 1.82 | Removed |
| TIAC1221 | 86.01 | 0 | Removed |
| TIAC1223 | 87.34 | 0 | Removed |
| TIAC1226 | 86.95 | 0 | Removed |
| TIAC1227 | 84.75 | 0 | Removed |
| TIAC1228 | 28.29 | 33.15 | Kept |
| TIAC1240 | 23.63 | 49.71 | Kept |
| TIAC1241 | 30.53 | 41.92 | Kept |
| TIAC1242 | 21.48 | 50.09 | Kept |
| TIAC1243 | 33.53 | 42.34 | Kept |
| TIAC1244 | 33.69 | 39.94 | Kept |
| TIAC1245 | 18.94 | 54.72 | Kept |
| TIAC1246 | 27.31 | 47.65 | Kept |
| TIAC1247 | 34.54 | 41.3 | Kept |
| TIAC1248 | 31.55 | 41.89 | Kept |
| TIAC1433 | 14.94 | 60.08 | Kept |
| TIAC1434 | 14.56 | 60.35 | Kept |
| TIAC1484 | 8.67 | 65.24 | Kept |
| TIAC1528 | 12.04 | 58.9 | Kept |

| | | | |
|---|---|---|---|
| TIAC1544 | 15.05 | 56.13 | Kept |
| TIAC1558 | 9.35 | 65.48 | Kept |
| TIAC1559 | 13.10 | 59.69 | Kept |
| TIAC1631 | 26.59 | 46.53 | Kept |
| TIAC1878 | 32.91 | 33.33 | Kept |
| TIAC1880 | 23.52 | 40.26 | Kept |
| TIAC1881 | 40.35 | 14.85 | Kept |
| TIAC1883 | 28.65 | 32.43 | Kept |
| TIAC1884 | 27.88 | 35.15 | Kept |
| TIAC1885 | 32.24 | 33.05 | Kept |
| TIAC1886 | 41.87 | 28.22 | Kept |
| TIAC1887 | 25.22 | 37.52 | Kept |
| TIAC1888 | 26.13 | 49.33 | Kept |
| TIAC1893 | 28.81 | 31.58 | Kept |
| TIAC1946 | 20.65 | 40.54 | Kept |
| TIAC1947 | 13.30 | 43.06 | Kept |

## Table S15

**Table S15.** PCR detection of AMR genes. Results of the PCRs as described in Supplementary Table S9. All AMR genes in the positive set of the validation were tested. The first and second columns list the sample and AMR gene, respectively. The third, fourth and fifth column contain the results for the different bioinformatics approaches. The last column contains the results for the conventional PCR tests. Presence of the gene is indicated with ‘1’. Absence of the gene is indicated with ‘0’.

| Sample | Gene | BLAST+ | SRST2 | KMA | PCR |
|---|---|---|---|---|---|
| EH1227 | *aac(3)-IV* | 1 | 1 | 1 | 1 |
| | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(4)-Ia* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| EH1236 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *floR* | 1 | 1 | 1 | 1 |
| EH1260 | *aadA1* | 1 | 1 | 1 | 1 |
| | *ant(2'')-Ia* | 1 | 1 | 1 | 1 |
| | *aph(3')-Ia* | 1 | 1 | 1 | 1 |
| | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *catA1* | 1 | 1 | 1 | 1 |
| | *sul1* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1273 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| EH1348 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| EH1380 | *aph(3')-Ia* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1389 | tetA | 1 | 1 | 1 | 1 |
| EH1533 | *aph(3')-Ia* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1641 | *aac(3)-IV* | 1 | 1 | 1 | 1 |
| | *aadA1* | 1 | 1 | 1 | 1 |
| | *aph(3')-Ia* | 1 | 1 | 1 | 1 |
| | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(4)-Ia* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *dfrA1* | 1 | 1 | 1 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| | *sul1* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| | *tet31* | 1 | 1 | 1 | 1 |
| EH1671 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| EH1733 | *aadA1* | 1 | 1 | 1 | 1 |
| | *aph(3')-Ia* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *catA1* | 1 | 1 | 1 | 1 |
| | *dfrA1* | 1 | 1 | 1 | 1 |
| | *sul1* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1757 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| EH1766 | *aadA1* | 1 | 1 | 1 | 1 |
| | *aph(3')-Ia* | 1 | 1 | 1 | 1 |
| | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *catA1* | 1 | 1 | 1 | 1 |
| | *dfrA1* | 1 | 1 | 1 | 1 |
| | *sul1* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1783 | *aadA1* | 1 | 1 | 1 | 1 |
| | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *dfrA1* | 1 | 1 | 1 | 1 |
| | *sul1* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1785 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *catA1* | 1 | 1 | 1 | 1 |
| | *dfrA17* | 1 | 1 | 1 | 1 |
| | *tetB* | 1 | 1 | 1 | 1 |
| EH1811 | *aadA1* | 1 | 1 | 1 | 1 |
| | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |

| | | | | | |
|---|---|---|---|---|---|
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *dfrA1* | 1 | 1 | 0 | 1 |
| | *sul1* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1813 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| EH1815 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| EH1829 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaTEM* | 1 | 1 | 1 | 1 |
| | *catA1* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH1831 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| EH1839 | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *sul2* | 1 | 1 | 1 | 1 |
| EH1847 | *tetA* | 1 | 1 | 1 | 1 |
| EH1923 | *aadA1* | 1 | 1 | 1 | 1 |
| | *cmlA1* | 1 | 1 | 1 | 1 |
| | *sul3* | 1 | 1 | 1 | 1 |
| EH1979 | *aadA1* | 1 | 1 | 1 | 1 |
| | *aph(3')-Ia* | 1 | 1 | 1 | 1 |
| | *blaOXA-1* | 1 | 1 | 1 | 1 |
| | *sul1* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |
| EH925 | *aadA1* | 1 | 1 | 1 | 1 |
| | *aph(3'')-Ib* | 1 | 1 | 1 | 1 |
| | *aph(6)-Id* | 1 | 1 | 1 | 1 |
| | *blaOXA-1* | 1 | 1 | 1 | 1 |
| | *sul1* | 1 | 1 | 1 | 1 |
| | *tetA* | 1 | 1 | 1 | 1 |

## Table S16

**Table S16.** Detected AMR point mutations and Sanger sequencing confirmation. This table lists the point mutations that were included in the validation of the AMR prediction assay. The first column lists the sample name. The second and third columns list the gene and mutations, respectively. The last column indicates if the mutation was confirmed through Sanger sequencing.

| Sample | Gene | Mutation | Confirmed by Sanger sequencing |
|---|---|---|---|
| EH1733 | *gyrA* | S83L | Yes |
| EH1766 | *gyrA* | S83L | Yes |
| EH1811 | *gyrA* | S83L | Yes |
| EH2015 | *parE* | I355T | Yes |
| EH1260 | *gyrA* | S83L | Yes |

## Table S17

**Table S17.** Overview of plasmid replicons detected by the online PlasmidFinder tool in the validation samples. The first and second columns list the sample and whether or not the sample is included in the validation, respectively. The next columns list all detected plasmid replicons according to the name in the column header. A ‘1’ denotes that the corresponding plasmid replicon is detected by PlasmidFinder, a ‘0’ denotes that the plasmid replicon is not detected.

| Sample | Passes QC | Col156 | Col(MG828) | Col(MP18) | ColpVC | IncFIA | IncFIB | IncFII | IncHI2 | IncHI2A | IncI1 / IncB/O/K/Z | IncI2 | IncQ1 | IncX1 | IncY | p0111 | pEC4115 | pKPC-CAV1193 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EH1227 | TRUE | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| EH1236 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1239 | TRUE | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1260 | TRUE | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1273 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1348 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1380 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1389 | TRUE | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| EH1533 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| EH1624 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1641 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1648 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1667 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1671 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1717 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1733 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| EH1757 | TRUE | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1766 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |
| EH1771 | TRUE | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1782 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1783 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1785 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| EH1811 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| EH1813 | TRUE | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1815 | TRUE | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| EH1819 | TRUE | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1823 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1829 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| EH1831 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1836 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EH1839 | TRUE | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1846 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1847 | TRUE | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| EH1858 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1861 | FALSE | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1873 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1882 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1923 | TRUE | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1965 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH1979 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH2015 | TRUE | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH2038 | FALSE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EH925 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1181 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1182 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1185 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1186 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1188 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1192 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1193 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1218 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1220 | FALSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1221 | FALSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1223 | FALSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1226 | FALSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1227 | FALSE | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1228 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| TIAC1240 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1241 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1242 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1243 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1244 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1245 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1246 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1247 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1248 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1354 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1356 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1369 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1372 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1382 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIAC1398 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1399 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1400 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1402 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1408 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1411 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1419 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1420 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1426 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1428 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1433 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1434 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1435 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1440 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1442 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1448 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1449 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1454 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| TIAC1460 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1463 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1464 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1472 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1475 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1477 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1478 | TRUE | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1479 | TRUE | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1484 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1507 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1520 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1521 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| TIAC1522 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| TIAC1523 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| TIAC1526 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1527 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1528 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1544 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1546 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1550 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1551 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1552 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1553 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TIAC1558 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1559 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1562 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1567 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1568 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1617 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1631 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1641 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1642 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1653 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1664 | TRUE | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1878 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1880 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1881 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1883 | TRUE | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1884 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1885 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1886 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1887 | TRUE | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| TIAC1888 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1893 | TRUE | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| TIAC1946 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1947 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1951 | TRUE | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIAC1953 | TRUE | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

## Table S18

**Table S18.** Example of FN result for plasmid replicon detection with SRST2. This table lists the plasmid replicons detected by SRST2 in sample EH1831. The first and second columns list the replicon variant and cluster name. The remaining columns lists the statistics extracted from SRST2. In this example, the green hit was selected as the best hit for cluster 90 by the BLAST-based workflow, and the orange hit by SRST2. Due to the higher number of mismatches in the orange hit, the divergence is above the 5% threshold and the hit is subsequently removed, resulting in a FN result for this cluster of replicons. If the green hit would be selected instead, the divergence would be below the threshold and the cluster of replicons would be correctly identified.

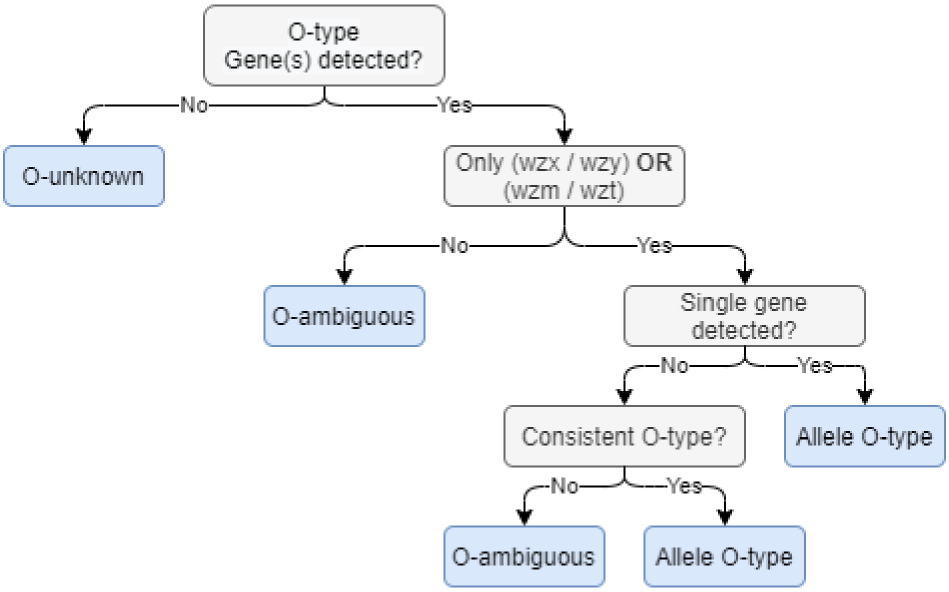
| Allele | Cluster | Score | Avg depth | Edge1 depth | Edge2 depth | Coverage (%) | Size | Mismatches | Indels |
|---|---|---|---|---|---|---|---|---|---|
| IncFIB(AP001918)_1 | 30 | 8.60 | 21.98 | 26 | 4 | 100.00 | 682 | 21 | 0 |
| IncB/O/K/Z_1 | 90 | 13.20 | 21.98 | 20 | 19 | 100.00 | 151 | 6 | 0 |
| IncB/O/K/Z_3 | 90 | 7.36 | 7.94 | 7 | 5 | 98.68 | 152 | 10 | 3 |
| IncB/O/K/Z_2 | 90 | 15.02 | 21.86 | 19 | 0 | 96.25 | 160 | 6 | 1 |
| IncB/O/K/Z_4 | 90 | 6.93 | 8.06 | 7 | 5 | 100.00 | 149 | 11 | 0 |
| ColRNAI_1 | 96 | 448.98 | 209.39 | 220 | 4 | 100.00 | 130 | 11 | 1 |
| Col(pHAD28)_1 | 96 | 489.14 | 292.37 | 217 | 297 | 100.00 | 131 | 10 | 0 |
| Col440I_1 | 97 | 417.08 | 221.38 | 226 | 33 | 99.12 | 114 | 8 | 2 |

# Supplementary Figures

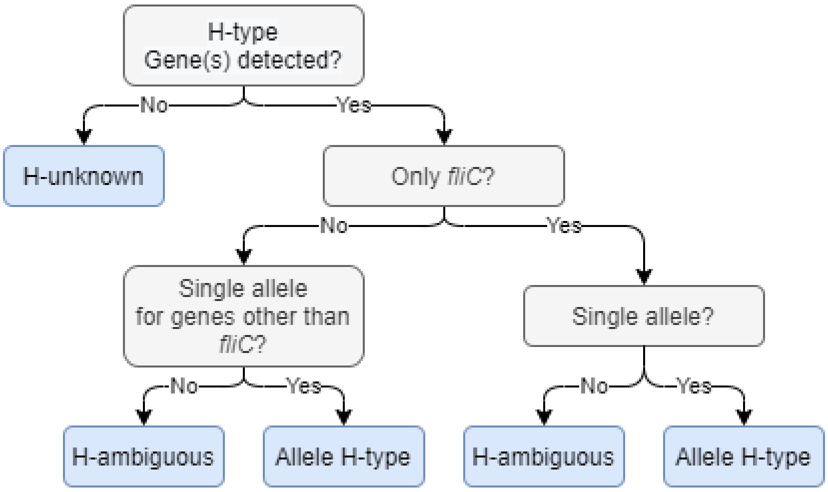
## Figure S1

**Figure S1.** Decision trees for the serotype determination assays. Grey boxes indicate the criteria that are checked, blue boxes denote the resulting serogroup.

**O-type**

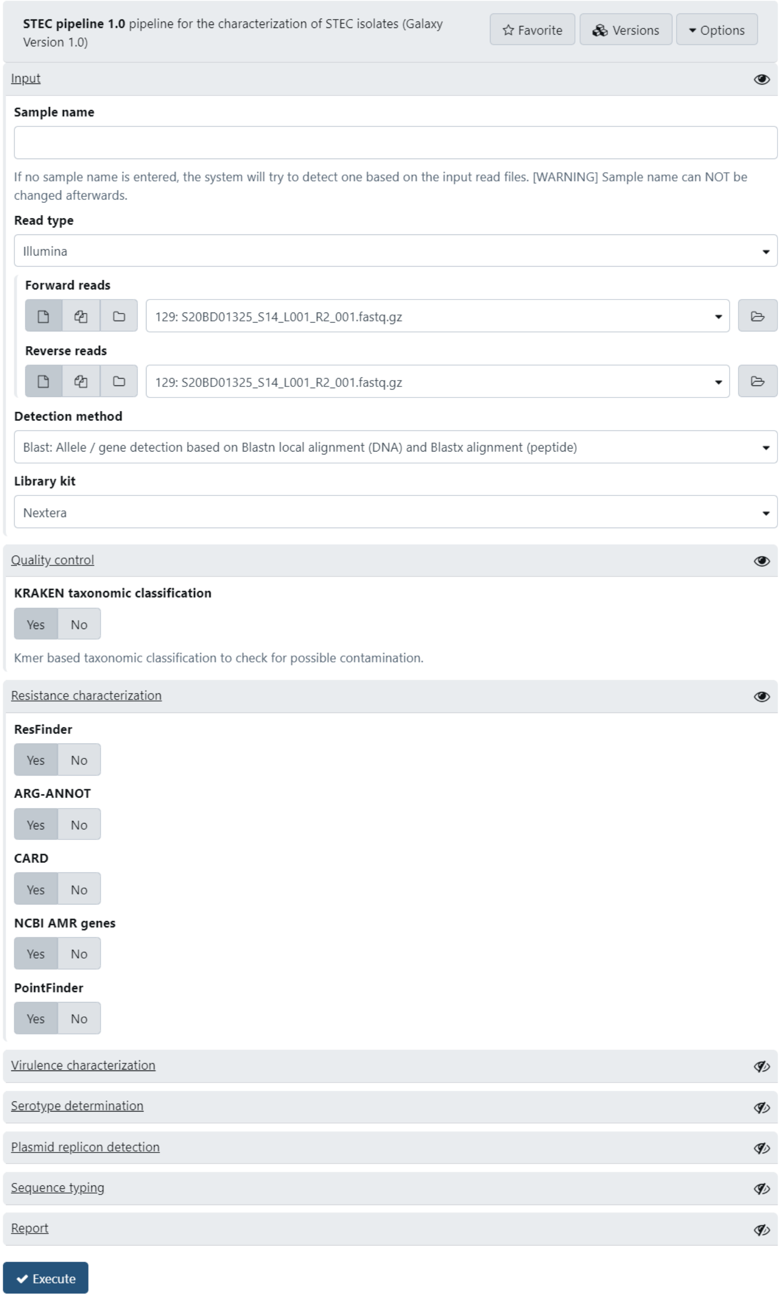


**H-type**



## Figure S2

**Figure S2.** Pipeline interface in Galaxy. The interface is divided in different sections. In the first section, the sample name, read-type (sequencing technology), forward and reverse reads, detection method (BLAST+, SRST2, or KMA), and library kit used for data generation need to be selected. The following sections, 'quality control', 'resistance characterization', 'virulence characterization', 'serogroup determination', 'plasmid replicon detection' and 'sequence typing' each contain different analyses that can be either turned on or off (see Material and methods). By default, all analyses are put on, but users can turn off certain analyses. The last section ('report') contains options to include or exclude certain files in the output report. Note that for the sequencing technology, both Illumina and IonTorrent are supported but only Illumina has been validated (see main manuscript).



**STEC pipeline 1.0** pipeline for the characterization of STEC isolates (Galaxy Version 1.0)

Input

**Sample name**

If no sample name is entered, the system will try to detect one based on the input read files. [WARNING] Sample name can NOT be changed afterwards.

**Read type**: Illumina

**Forward reads**: 129: S20BD01325_S14_L001_R2_001.fastq.gz

**Reverse reads**: 129: S20BD01325_S14_L001_R2_001.fastq.gz

**Detection method**: Blast: Allele / gene detection based on Blastn local alignment (DNA) and Blastx alignment (peptide)

**Library kit**: Nextera

Quality control

**KRAKEN taxonomic classification**: Yes No

Kmer based taxonomic classification to check for possible contamination.

Resistance characterization

**ResFinder**: Yes No

**ARG-ANNOT**: Yes No

**CARD**: Yes No

**NCBI AMR genes**: Yes No

**PointFinder**: Yes No

Virulence characterization

Serotype determination

Plasmid replicon detection

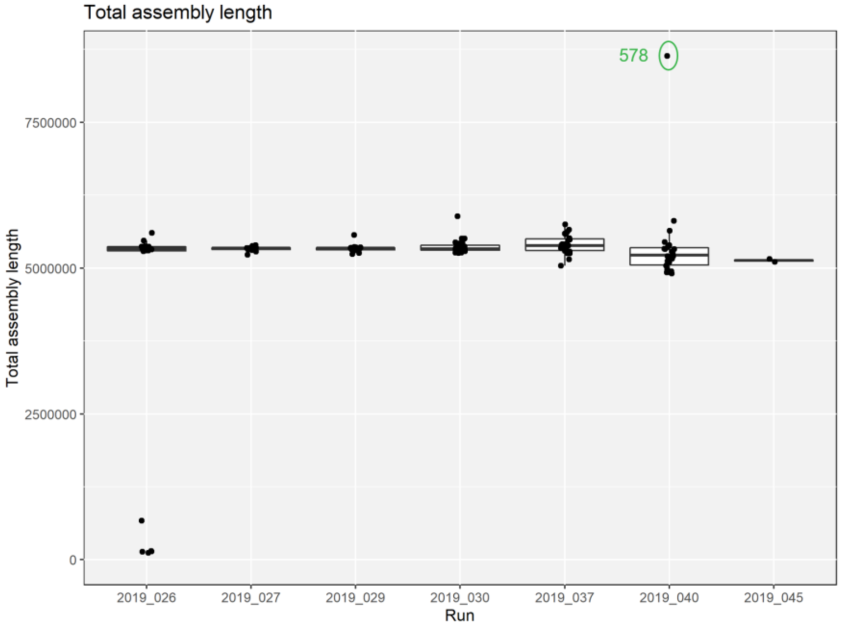
Sequence typing

Report

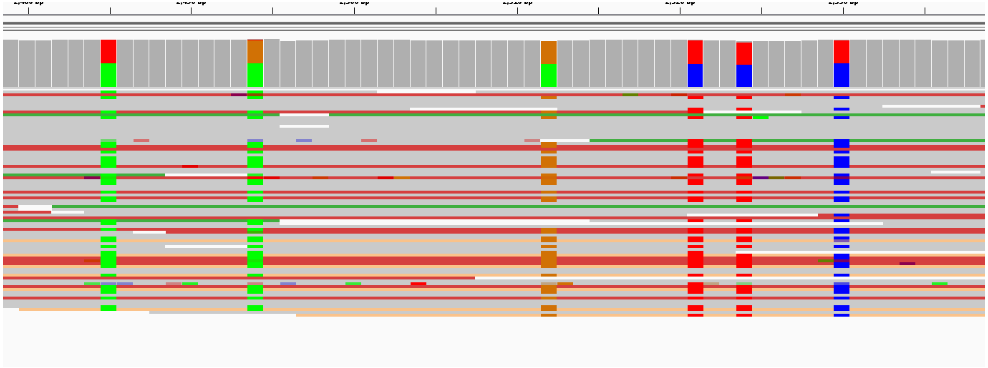
## Figure S3

**Figure S3.** Within-species contamination of sample EH1861. In subplot A, the sample is a clear outlier in terms of total assembly length, with an assembly length far greater than all other samples (the y-axis refers to the sequencing run in which the samples were sequenced). Subplot B shows a part of the mapping of the processed reads against the Sakai O157:H7 reference genome. The X-axis represents the genomic position, the colored bars in the histogram represent positions where the reads differ from the reference sequence, and the bottom of the plot visualizes individual reads mapped to this region. Nucleotides that do not match the reference base are colored (T: red, C: blue, A: green, G: orange). This plot illustrates that the indicated variants are present in ~50% of reads. Subplot C shows the results of the serogroup determination assay, where two different O- and H-types were detected. Subplot D shows the results of the taxonomic classification by Kraken2, with the large majority of reads assigned as *E. coli*. All of these observations support the hypothesis that this sample contains a mix of two different *E. coli* strains.

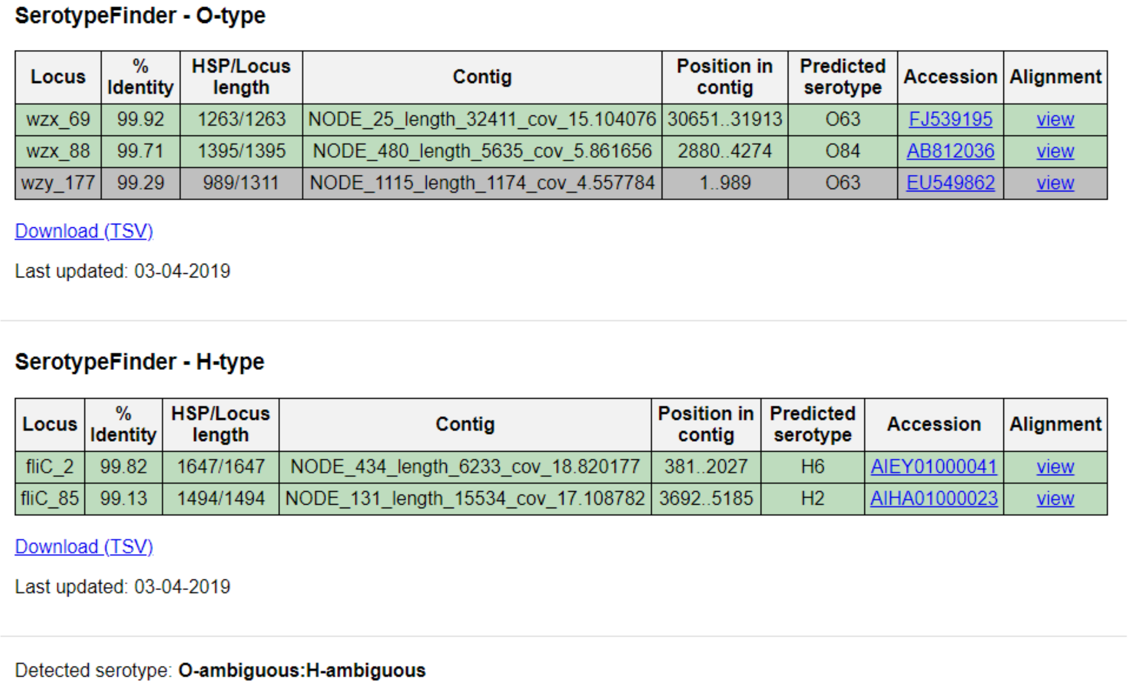
**A) Total assembly length**



**B) Variant calling**



**C) Serotype determination**



### SerotypeFinder - O-type

| Locus | % Identity | HSP/Locus length | Contig | Position in contig | Predicted serotype | Accession | Alignment |
|---|---|---|---|---|---|---|---|
| wzx_69 | 99.92 | 1263/1263 | NODE_25_length_32411_cov_15.104076 | 30651..31913 | O63 | FJ539195 | view |
| wzx_88 | 99.71 | 1395/1395 | NODE_480_length_5635_cov_5.861656 | 2880..4274 | O84 | AB812036 | view |
| wzy_177 | 99.29 | 989/1311 | NODE_1115_length_1174_cov_4.557784 | 1..989 | O63 | EU549862 | view |

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Last updated: 03-04-2019

### SerotypeFinder - H-type

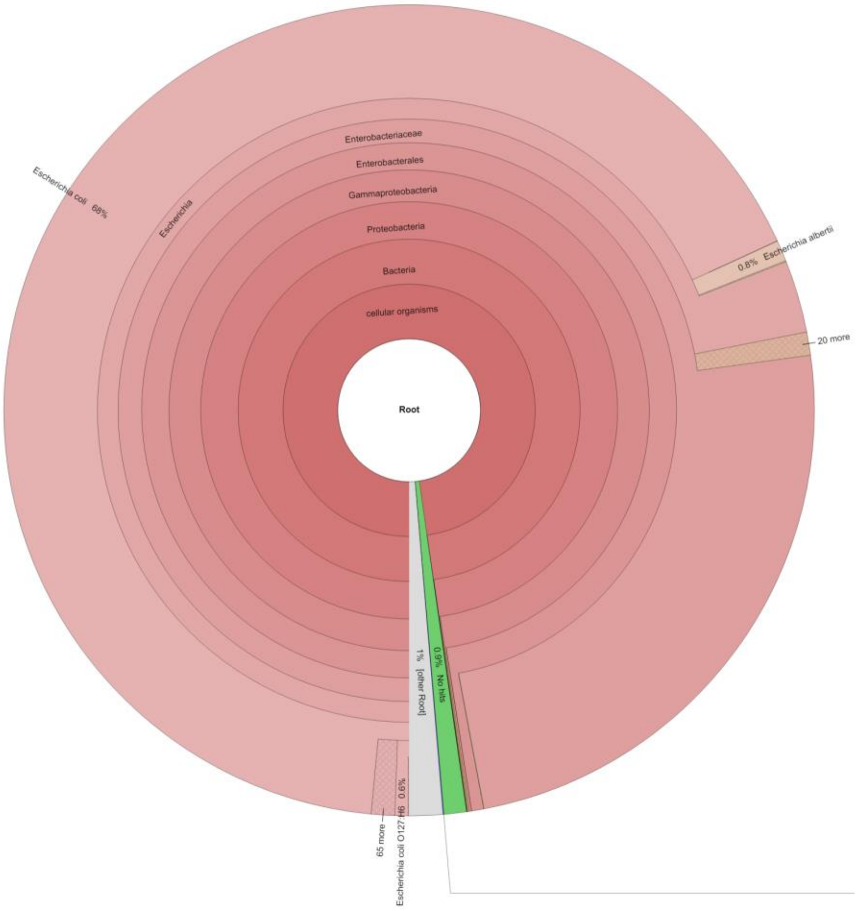
| Locus | % Identity | HSP/Locus length | Contig | Position in contig | Predicted serotype | Accession | Alignment |
|---|---|---|---|---|---|---|---|
| fliC_2 | 99.82 | 1647/1647 | NODE_434_length_6233_cov_18.820177 | 381..2027 | H6 | AIEY01000041 | view |
| fliC_85 | 99.13 | 1494/1494 | NODE_131_length_15534_cov_17.108782 | 3692..5185 | H2 | AIHA01000023 | view |

Download (TSV)

Last updated: 03-04-2019

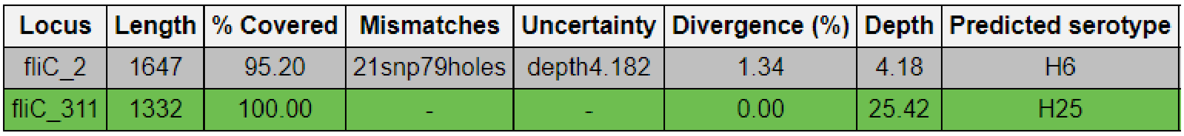
Detected serotype: **O-ambiguous:H-ambiguous**

## D) Kraken2 taxonomic classification

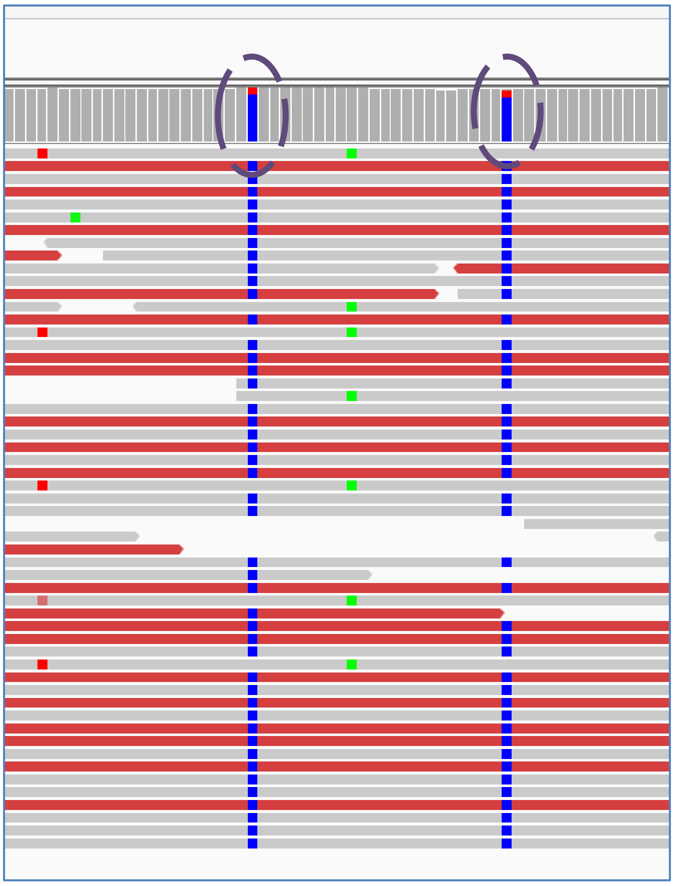


## Figure S4

**Figure S4.** Within-species contamination of sample EH2038. The table at the top shows two *fliC* genes detected in the sample, of which only the perfect match with high depth corresponded to the results from conventional methods (H25). The plot in the bottom shows the reads mapped against the Sakai reference genome and shows variants that are present in circa 10% of the reads. Both observations support the hypothesis that this sample contains a low-level contamination of an *E. coli* sample with a different serotype.



| Locus | Length | % Covered | Mismatches | Uncertainty | Divergence (%) | Depth | Predicted serotype |
|---|---|---|---|---|---|---|---|
| fliC_2 | 1647 | 95.20 | 21snp79holes | depth4.182 | 1.34 | 4.18 | H6 |
| fliC_311 | 1332 | 100.00 | - | - | 0.00 | 25.42 | H25 |



## Figure S5

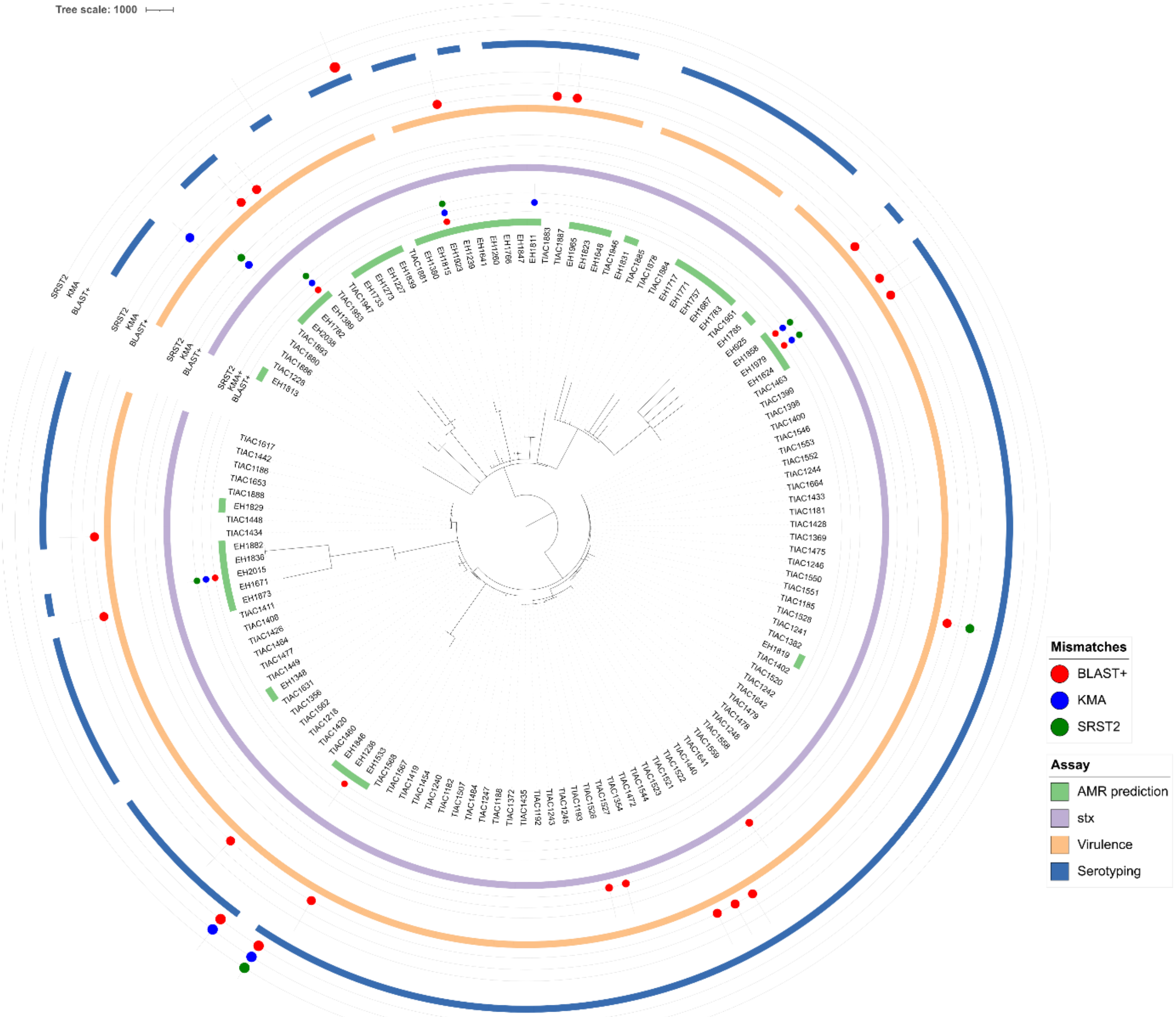


**Figure S5.** Mismatches for the BLAST+-based detection imposed on the core genome MLST phylogeny containing all isolates included in the validation. Branch lengths correspond to the number of core genome MLST allele differences between samples. The colored strips represent the isolates that were included in the performance evaluation for the corresponding assay. The colored dots represent samples that contained at least one mismatch with the corresponding detection method. A single dot can correspond to multiple mismatches in case of assays where more than one observation is evaluated per sample. Sequence typing mismatches were omitted for clarity, but they occurred in all samples for both BLAST+- and KMA-based detection.

# Supplementary Information

## Evaluation of dataset quality

Raw and trimmed read counts are listed in Supplementary Table S11, with a median number of 652,868 reads for the in-house sequenced STEC samples. An overview of assembly statistics is provided in Supplementary Table S12. Assembly was problematic for five samples (TIAC1220, TIAC1221, TIAC1223, TIAC1226, and TIAC1227) where the total assembly length was only a small fraction of the expected genome size. One additional sample (EH1861) failed the 'percent cgMLST genes identified' check. Further investigation indicated that this sample contained an approximately equal mix of two *E. coli* strains with a different serotype, resulting in a large fraction of multi-hits for cgMLST loci and a substantially larger total assembly length (see Supplementary Figure S3). These six samples were consequently removed from the validation dataset. Assembly statistics for the remaining samples indicated high quality, with a median total assembly length of 5,328,834 bp and N50 of 167,570 bp. Coverage of the remaining 131 STEC samples varied between 16x and 91x, with a median of 44x. These samples passed all quality control checks (a full overview of all quality control (QC) checks is provided in Supplementary Table S13), except for 34 samples for which Kraken2 classified more than 5% of reads as *Actinoalloteichus* sp. AHMU CJ021. Further investigation indicated that this was a false positive identification caused by a bovine genomic region wrongly incorporated in the corresponding reference genome of this strain (see Supplementary Methods) because for 45 samples a latent presence of *Bos taurus* was present that was originally not detected as this genome is not present in the Kraken database (see Supplementary Table S14), resulting in reads falsely being classified as *Actinoalloteichus* sp. AHMU CJ021 (with 34 of them above the 5% threshold). This most likely originated from the original sample preparation or DNA extraction for this dataset, but, except for the aforementioned five samples, enough *E. coli* reads remained for incorporation in the validation dataset. The dataset for this validation was created based on stored DNA that was extracted for other research projects, some years ago. *B. taurus* was not targeted and thus not detected when the samples were previously characterized by conventional methods [36], highlighting the added value of WGS because of its higher resolution and universal approach. Presence of DNA originating from unexpected species is a re-occurring issue with NGS data, possibly affecting many publicly available datasets and stored and re-used DNA collections [37–39]. However, we did not observe any impact on the performance of the evaluated bioinformatics assays, except for the five aforementioned samples that did not pass the QC checks due to a heavily reduced *E. coli* read yield (see Supplementary Table S14). One sample (EH2038) passed all quality checks, but manual investigation revealed a low-level contamination of an *E. coli* with a different serotype (see Supplementary Figure S4). Since this sample was not flagged by our QC checks, it was nevertheless included in the performance evaluation. In total, 131 out of 137 sequenced STEC samples were retained for validation. Failed quality checks for contaminants, percentage cgMLST genes identified and GC-content deviation were discarded for negative control samples because these checks are tailored specifically to *E. coli*.

## Contamination check *Actinoalloteichus* sp. AHMU CJ021

For 34 samples, the Kraken2 contamination check threw a failure indicating that more than 5% of reads were identified for another species than *E. coli* (see Supplementary Table S12), namely *Actinoalloteichus* sp. AHMU CJ021. Further investigation with Kraken2 using the mammalian database however also indicated that for those samples a *Bos taurus* contamination might be present (see Supplementary Table S14). This issue was therefore investigated by mapping trimmed reads against three reference genomes: *Bos taurus* (NCBI accession: NC_037328.1), *E. coli* (NC_002695.2) and *Actinoalloteichus* sp. AHMU CJ021 (accession: CP025990.1) as described in the main manuscript (section 2.1.1). A custom script was then used to determine the overlap between the generated BAM files. This analysis revealed that over 99% of reads mapped to *Actinoalloteichus* also mapped to *Bos taurus*. All reads mapped to the *Actinoalloteichus* reference genome were limited to two genomic regions (CP025990.1:4650000-4651200, CP025990.1:3943000-3943350). Alignment of the sequence of these regions against the NCBI nucleotide (*nt)* database returned several hits for cattle (unpublished results). Visual inspection of the alignment against the *Bos taurus* genome showed that the large majority of reads were approximately randomly distributed, as expected with a regular contamination. The identified contamination with Kraken2 for *Actinoalloteichus* sp. AHMU CJ021 can therefore most likely be explained by a bovine genomic region that was falsely incorporated in the *Actinoalloteichus* sp. AHMU CJ021 reference genome.

| **Sample** | **Total read pairs** | **Pairs mapped to *Actinoalloteichus*** | **Pairs mapped to *Bos taurus*** | **Pairs mapped to *E. coli*** | **Pairs overlap *Bos taurus - Actinoalloteichus*** | **Pairs overlap *E. coli - Actinoalloteichus*** | **Pairs overlap *E. coli – Bos taurus*** | **% Of *Actinoalloteichus* pairs common to *Bos taurus*** |
|---|---|---|---|---|---|---|---|---|
| EH1227 | 475918 | 11 | 11 | 325639 | 0 | 11 | 4 | 0.00 |
| EH1236 | 544108 | 30 | 21 | 461732 | 7 | 23 | 2 | 23.33 |
| EH1239 | 691068 | 23 | 10 | 560032 | 0 | 23 | 4 | 0.00 |
| EH1260 | 576416 | 11 | 14 | 408040 | 0 | 11 | 4 | 0.00 |
| EH1273 | 701370 | 24 | 19 | 542022 | 1 | 23 | 7 | 4.17 |
| EH1348 | 721960 | 28 | 21 | 683077 | 0 | 28 | 20 | 0.00 |
| EH1380 | 715724 | 36 | 10 | 543554 | 0 | 36 | 6 | 0.00 |
| EH1389 | 628009 | 15 | 12 | 365415 | 0 | 15 | 4 | 0.00 |
| EH1533 | 603402 | 156 | 408 | 523978 | 124 | 32 | 5 | 79.49 |
| EH1624 | 574225 | 298 | 2100 | 456255 | 264 | 33 | 2 | 88.59 |
| EH1641 | 632249 | 47 | 68 | 507550 | 19 | 28 | 4 | 40.43 |
| EH1648 | 891427 | 10478 | 55940 | 626847 | 10439 | 29 | 4 | 99.63 |
| EH1667 | 746753 | 359 | 904 | 587594 | 327 | 32 | 1 | 91.09 |
| EH1671 | 565184 | 182 | 450 | 439888 | 153 | 29 | 3 | 84.07 |
| EH1717 | 553077 | 3398 | 11950 | 467977 | 3369 | 29 | 6 | 99.15 |
| EH1733 | 1095453 | 739 | 5560 | 879267 | 664 | 75 | 3 | 89.85 |
| EH1757 | 836772 | 343 | 844 | 615535 | 309 | 34 | 5 | 90.09 |
| EH1766 | 569337 | 30 | 75 | 465646 | 10 | 20 | 4 | 33.33 |
| EH1771 | 743264 | 9466 | 49661 | 493753 | 9434 | 24 | 3 | 99.66 |
| EH1782 | 1098537 | 299 | 617 | 926123 | 245 | 54 | 3 | 81.94 |
| EH1783 | 712513 | 38 | 7 | 600156 | 0 | 38 | 5 | 0.00 |
| EH1785 | 755510 | 106 | 204 | 608569 | 77 | 29 | 3 | 72.64 |
| EH1811 | 648944 | 35 | 27 | 549429 | 7 | 28 | 4 | 20.00 |
| EH1813 | 795054 | 154 | 468 | 626411 | 131 | 22 | 0 | 85.06 |
| EH1815 | 584874 | 4459 | 14813 | 459403 | 4434 | 23 | 4 | 99.44 |
| EH1819 | 712100 | 39 | 13 | 681371 | 0 | 39 | 12 | 0.00 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| EH1823 | 564287 | 29 | 19 | 462938 | 0 | 29 | 4 | 0.00 |
| EH1829 | 771233 | 43 | 10 | 745131 | 0 | 41 | 9 | 0.00 |
| EH1831 | 658133 | 38 | 14 | 552190 | 0 | 38 | 5 | 0.00 |
| EH1836 | 747140 | 151 | 336 | 554408 | 113 | 38 | 1 | 74.83 |
| EH1839 | 653673 | 27 | 10 | 527233 | 0 | 27 | 7 | 0.00 |
| EH1846 | 632319 | 2648 | 8333 | 555430 | 2623 | 23 | 6 | 99.06 |
| EH1847 | 618004 | 28 | 6 | 515214 | 0 | 28 | 3 | 0.00 |
| EH1858 | 882644 | 178 | 371 | 694925 | 142 | 36 | 2 | 79.78 |
| EH1861 | 759970 | 158 | 335 | 609063 | 134 | 24 | 1 | 84.81 |
| EH1873 | 881150 | 300 | 627 | 744210 | 263 | 36 | 1 | 87.67 |
| EH1882 | 715597 | 112 | 211 | 548137 | 73 | 39 | 1 | 65.18 |
| EH1923 | 503907 | 70 | 143 | 367662 | 46 | 24 | 0 | 65.71 |
| EH1965 | 837238 | 76 | 12 | 721632 | 0 | 76 | 4 | 0.00 |
| EH1979 | 816811 | 30 | 5 | 645170 | 0 | 30 | 3 | 0.00 |
| EH2015 | 834815 | 2077 | 7487 | 591214 | 2049 | 28 | 2 | 98.65 |
| EH2038 | 598954 | 544 | 2141 | 499509 | 523 | 21 | 2 | 96.14 |
| EH925 | 681230 | 146 | 304 | 568242 | 129 | 17 | 0 | 88.36 |
| TIAC1181 | 696969 | 18461 | 94235 | 581842 | 18424 | 24 | 10 | 99.80 |
| TIAC1182 | 551869 | 12824 | 56225 | 479850 | 12798 | 19 | 7 | 99.80 |
| TIAC1185 | 438393 | 10553 | 46174 | 380526 | 10538 | 11 | 4 | 99.86 |
| TIAC1186 | 903236 | 26327 | 120874 | 755190 | 26281 | 36 | 9 | 99.83 |
| TIAC1188 | 765919 | 22163 | 101105 | 643914 | 22130 | 29 | 8 | 99.85 |
| TIAC1192 | 610842 | 54606 | 232808 | 365765 | 54566 | 17 | 2 | 99.93 |
| TIAC1193 | 575723 | 15483 | 81358 | 478009 | 15454 | 22 | 5 | 99.81 |
| TIAC1218 | 703332 | 56807 | 295975 | 365710 | 56765 | 14 | 10 | 99.93 |
| TIAC1220 | 642479 | 132727 | 611289 | 16141 | 132672 | 3 | 4 | 99.96 |
| TIAC1221 | 1009301 | 223441 | 988396 | 256 | 223336 | 2 | 9 | 99.95 |
| TIAC1223 | 756082 | 173718 | 742664 | 671 | 173670 | 1 | 6 | 99.97 |
| TIAC1226 | 680516 | 151746 | 665912 | 820 | 151679 | 2 | 8 | 99.96 |
| TIAC1227 | 799812 | 178672 | 778831 | 2925 | 178596 | 0 | 3 | 99.96 |
| TIAC1228 | 860672 | 50432 | 283836 | 472824 | 50377 | 33 | 8 | 99.89 |
| TIAC1240 | 590713 | 35395 | 160272 | 407230 | 35366 | 16 | 7 | 99.92 |
| TIAC1241 | 360319 | 22676 | 123854 | 226638 | 22649 | 24 | 10 | 99.88 |
| TIAC1242 | 826361 | 43883 | 204978 | 596085 | 43835 | 22 | 17 | 99.89 |
| TIAC1243 | 660674 | 51837 | 254124 | 389641 | 51803 | 10 | 7 | 99.93 |
| TIAC1244 | 648752 | 51126 | 255303 | 370636 | 51073 | 22 | 6 | 99.90 |
| TIAC1245 | 495152 | 24570 | 107569 | 374342 | 24548 | 16 | 5 | 99.91 |
| TIAC1246 | 652135 | 40003 | 204947 | 427765 | 39971 | 18 | 9 | 99.92 |
| TIAC1247 | 638886 | 56368 | 251293 | 347511 | 56332 | 12 | 5 | 99.94 |
| TIAC1248 | 717897 | 51892 | 263190 | 419094 | 51850 | 18 | 10 | 99.92 |
| TIAC1354 | 546945 | 36 | 58 | 509763 | 15 | 21 | 4 | 41.67 |
| TIAC1356 | 490588 | 21 | 32 | 432949 | 9 | 11 | 3 | 42.86 |
| TIAC1369 | 463457 | 15 | 6 | 429976 | 0 | 14 | 6 | 0.00 |
| TIAC1372 | 528289 | 20 | 10 | 459815 | 0 | 18 | 10 | 0.00 |
| TIAC1382 | 494175 | 13 | 5 | 391122 | 0 | 12 | 3 | 0.00 |
| TIAC1398 | 542164 | 16 | 9 | 516993 | 0 | 14 | 4 | 0.00 |
| TIAC1399 | 694805 | 27 | 2 | 654876 | 0 | 27 | 1 | 0.00 |
| TIAC1400 | 955202 | 47 | 9 | 898572 | 1 | 44 | 7 | 2.13 |
| TIAC1402 | 602180 | 45 | 6 | 569691 | 0 | 41 | 4 | 0.00 |
| TIAC1408 | 696301 | 40 | 89 | 649280 | 9 | 32 | 7 | 22.50 |
| TIAC1411 | 611639 | 38 | 5 | 571730 | 0 | 38 | 4 | 0.00 |
| TIAC1419 | 597478 | 34 | 19 | 567014 | 3 | 31 | 5 | 8.82 |
| TIAC1420 | 480602 | 23 | 57 | 451281 | 6 | 17 | 10 | 26.09 |
| TIAC1426 | 497310 | 20 | 5 | 467983 | 0 | 18 | 3 | 0.00 |
| TIAC1428 | 601408 | 27 | 9 | 570903 | 0 | 26 | 8 | 0.00 |
| TIAC1433 | 460291 | 16929 | 76671 | 370288 | 16900 | 21 | 10 | 99.83 |
| TIAC1434 | 338147 | 12334 | 57722 | 270995 | 12326 | 7 | 7 | 99.94 |
| TIAC1435 | 780566 | 28 | 9 | 743677 | 0 | 28 | 7 | 0.00 |
| TIAC1440 | 708597 | 28 | 5 | 667403 | 0 | 28 | 2 | 0.00 |
| TIAC1442 | 758077 | 29 | 29 | 693928 | 4 | 25 | 10 | 13.79 |
| TIAC1448 | 605275 | 32 | 60 | 566380 | 15 | 16 | 8 | 46.88 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| TIAC1449 | 401958 | 18 | 19 | 377470 | 0 | 18 | 3 | 0.00 |
| TIAC1454 | 588810 | 15 | 17 | 515371 | 0 | 14 | 10 | 0.00 |
| TIAC1460 | 467542 | 17 | 6 | 435716 | 0 | 17 | 5 | 0.00 |
| TIAC1463 | 975413 | 52 | 22 | 913846 | 2 | 48 | 8 | 3.85 |
| TIAC1464 | 520781 | 37 | 6 | 491961 | 0 | 33 | 5 | 0.00 |
| TIAC1472 | 548941 | 33 | 8 | 512746 | 0 | 33 | 6 | 0.00 |
| TIAC1475 | 470767 | 24 | 4 | 445433 | 1 | 24 | 4 | 4.17 |
| TIAC1477 | 708062 | 24 | 7 | 665224 | 0 | 24 | 7 | 0.00 |
| TIAC1478 | 524952 | 25 | 5 | 475393 | 0 | 25 | 5 | 0.00 |
| TIAC1479 | 341009 | 13 | 4 | 308856 | 0 | 13 | 1 | 0.00 |
| TIAC1484 | 398133 | 8300 | 38039 | 349944 | 8279 | 19 | 9 | 99.75 |
| TIAC1507 | 611285 | 20 | 23 | 565540 | 4 | 16 | 13 | 20.00 |
| TIAC1520 | 516407 | 8 | 14 | 468436 | 1 | 7 | 5 | 12.50 |
| TIAC1521 | 532688 | 34 | 62 | 494530 | 14 | 21 | 8 | 41.18 |
| TIAC1522 | 425331 | 22 | 27 | 398011 | 5 | 18 | 5 | 22.73 |
| TIAC1523 | 505596 | 19 | 44 | 463061 | 8 | 11 | 3 | 42.11 |
| TIAC1526 | 525490 | 33 | 122 | 501685 | 17 | 16 | 5 | 51.52 |
| TIAC1527 | 488806 | 12 | 10 | 469893 | 0 | 12 | 4 | 0.00 |
| TIAC1528 | 446106 | 12340 | 61852 | 367774 | 12319 | 15 | 6 | 99.83 |
| TIAC1544 | 482961 | 15142 | 84491 | 382917 | 15120 | 13 | 1 | 99.85 |
| TIAC1546 | 492376 | 23 | 24 | 466596 | 5 | 18 | 3 | 21.74 |
| TIAC1550 | 580890 | 28 | 39 | 551775 | 7 | 21 | 8 | 25.00 |
| TIAC1551 | 544453 | 21 | 27 | 517956 | 5 | 16 | 5 | 23.81 |
| TIAC1552 | 656561 | 22 | 17 | 613562 | 1 | 21 | 6 | 4.55 |
| TIAC1553 | 485053 | 26 | 52 | 460524 | 10 | 17 | 11 | 38.46 |
| TIAC1558 | 311123 | 6327 | 31469 | 266720 | 6316 | 8 | 8 | 99.83 |
| TIAC1559 | 468003 | 13398 | 71585 | 371289 | 13369 | 21 | 6 | 99.78 |
| TIAC1562 | 622358 | 23 | 10 | 563319 | 1 | 22 | 3 | 4.35 |
| TIAC1567 | 565167 | 19 | 17 | 522776 | 2 | 18 | 4 | 10.53 |
| TIAC1568 | 522816 | 20 | 27 | 485966 | 4 | 16 | 5 | 20.00 |
| TIAC1617 | 493224 | 20 | 7 | 443612 | 0 | 16 | 6 | 0.00 |
| TIAC1631 | 479754 | 27869 | 147297 | 304126 | 27830 | 23 | 6 | 99.86 |
| TIAC1641 | 340442 | 4 | 4 | 315644 | 0 | 4 | 3 | 0.00 |
| TIAC1642 | 344932 | 8 | 12 | 300374 | 1 | 8 | 9 | 12.50 |
| TIAC1653 | 565844 | 13 | 23 | 528568 | 3 | 10 | 6 | 23.08 |
| TIAC1664 | 516864 | 64 | 224 | 489297 | 34 | 31 | 14 | 53.13 |
| TIAC1878 | 576016 | 45762 | 214721 | 302870 | 45736 | 7 | 9 | 99.94 |
| TIAC1880 | 556155 | 32957 | 146403 | 337416 | 32929 | 12 | 4 | 99.92 |
| TIAC1881 | 1479376 | 123402 | 927422 | 380433 | 123249 | 63 | 11 | 99.88 |
| TIAC1883 | 564007 | 36185 | 201793 | 297285 | 36136 | 27 | 8 | 99.86 |
| TIAC1884 | 470786 | 31079 | 148208 | 265681 | 31046 | 16 | 5 | 99.89 |
| TIAC1885 | 543278 | 45696 | 195066 | 296892 | 45663 | 21 | 8 | 99.93 |
| TIAC1886 | 593471 | 65728 | 277245 | 257463 | 65694 | 12 | 7 | 99.95 |
| TIAC1887 | 668289 | 42067 | 187797 | 396513 | 42025 | 21 | 6 | 99.90 |
| TIAC1888 | 552719 | 31869 | 164018 | 374846 | 31846 | 12 | 7 | 99.93 |
| TIAC1893 | 683970 | 43163 | 231800 | 373517 | 43121 | 21 | 5 | 99.90 |
| TIAC1946 | 586752 | 26003 | 140660 | 360355 | 25975 | 15 | 2 | 99.89 |
| TIAC1947 | 542347 | 17164 | 84007 | 361228 | 17148 | 8 | 2 | 99.91 |
| TIAC1951 | 575243 | 464 | 2712 | 455724 | 448 | 16 | 1 | 96.55 |
| TIAC1953 | 674262 | 142 | 294 | 531865 | 109 | 33 | 2 | 76.76 |

## Detection issues of the IncFIA plasmid replicon with mapping based approaches.

The SRST2 scoring method initially selected the shorter FIA(pBK30683) (295 bp) over the InfFIA_1 replicon variant (388 bp) detected by BLAST, which was in a second stage filtered out due to not making the divergence cutoff. This phenomenon was not observed in the other assays that perform gene detection because genes in the same cluster typically have (approximately) the same length. For KMA, the IncFIA mismatches could be traced back to the percent identity calculation that, in contrast to BLAST, considers the whole gene length causing hits to be filtered when falling <95% percent identity.

## Verification detected AMR genes

Predicted resistances (i.e. all FP and TP results) were verified with conventional methods through PCR amplification of the detected AMR genes and regions containing the point mutations. Applied PCR primer sequences, primer concentrations, and PCR conditions are provided in Supplementary Table S9. PCR products were visualized with the TapeStation 4200 instrument, using the D1000 ScreenTape and Reagent kits (Agilent Technologies, Santa Clara, CA) as indicated by the manufacturer's instructions. For verification of AMR point mutations, the respective PCR product was purified using ExoSAP-it PCR Product Cleanup (Applied Biosystems, Foster City, CA), and sequenced using the T7 universal and M13 reverse primers and the BigDye Terminator sequencing kit on a ABI3500 Genetic Analyzer (Applied Biosystems, Foster City, CA). The sequencing results were interpreted using Sequence Scanner Software v1.0 (Applied Biosystems, Foster City, CA).

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