

Table S2. Primers used for simplex and overlapping PCRs performed to investigate integron-, transposon- and insertion sequence common regions-related sequences. Primers used for resistance and virulence genes are as indicated in footnote references.

| Genetic element | Target gene/region Function | Primer name | Sequence (5'-3') | Fragment Size (bp) | Reference |
|---|--|----------------|---|--------------------|-------------------------|
| Integrons | | | | | |
| Class 1 | Integrase type 1 | intI1-F/R | GCCTTGCTGTTCTTCTAC/ GATGCCCTGCTTGTCTAC | 558 | S1 |
| | | intI-R2 | GATGCCCTGCTTGTCTAC | a | This work |
| | Variable region of conventional integrons | 5'CS/3'CS | GGCATCCAAGCAGCAAG/ AAGCAGACTTGACCTGA | variable | S1 |
| | R-quaternary ammonium 3'CS conventional integrons | qacEΔ1-F/R | ATCGCAATAGTTGGCGAAGT/ CAAGCTTTGCCATGAAGC | 250 | S1 |
| | Transposase of IS440 3'CS atypical integrons | tnpAIS440-F/R | GAAAGGAACGCCAGTTTAC/ CCATCCCGAAATGTATGTC | 323 | S1 |
| | R-quaternary ammonium gene cassette atypical integrons | qach-F/R | TGTGCCCTGACCTTGGATAG/ TCCATGGCCAGAAACTAGAC | 96 | S1 |
| | Hypothetical protein | orfF-F | AGCAAGCGCAAGCAGCTATC | a | S1 |
| | Putative esterase gene cassette atypical integrons | estX-F/R | CGGCTTGCAGATGCAGATCC/ ATAATCCTCGGCCAGTCTTC | 430 | S1 |
| | Phosphoserine phosphatase gene cassette atypical integrons | Psp-F/R | CTCTCGCACTCTTGACTTC/ CAACCTCTGCCACTGATAG | 585 | This work S1 |
| Class 2 | Integrase type 2 | intI2-F/R | CACGGATATGCGACAAAAAGGT/ GTAGCAAACGAGTGACGAAATG | 788 | S2 |
| Transposons and insertion sequences common regions | | | | | |
| Tn21 | Transposase <i>tnpA</i> | tnpA-F/R | AGAAAGTTCGTCCCTGGGCTG/ GGCCAAGGACAAGAACCTGT | 317 | S1 |
| | Resolvase <i>tnpR</i> | tnpR-F/R | GGCGACACCCTGGTGTGCATAGC/ CGGTAAGCCCCGCGTTGCTTGGC | 257 | S1 |
| | Putative regulator <i>tnpM</i> | tnpM-F/R | TGGAAACACCCGACTGCCCTGCG/ CGGCGCGAATACAAGCGTCGG | 318 | S3 |
| | Mercuric ion reductase <i>merA</i> | merA-F2/R | AAGGCGCACGTGTCACGCTGATC/ CCGCTGCCCTCTCAACCACCG | 1238 | S1 |
| Tn1,2,3 | Transposase <i>tnpA</i> | Th3-F/R | GTGCTGACTGGCAGGCAAATCGG/ GCCTGAAAATCAACCAGTCTGGC | 532 | S1 |
| | | RH401 | CAGTGCCAGTTGTTCC | a | S4 |
| | Resolvase <i>tnpR</i> | tnpRe-F | TCAGAAGGGCACTGGTGC | a | This work |
| | R-ampicillin, <i>bla</i> _{TEM-1} | bla | AACCCACTCGCACCCAAAC | a | This work |
| | | RH410 | AGCGTTCTGGGTGAGC | a | S4 |
| Tn1721 | Hypothetical protein | mpc1721-F/R | CAAATCGGCTTAGCGAACAC/ CCGGTCTGTACATTGGTATC | 736 | This work |
| | | orf1-R2 | TGCTCAGGTTCAGGCTTGGT | a | S3 |
| | Resolvase <i>tnpR</i> | LAF/LAR | GTTCGGGTCAAGCAGCTTGAC/ GAGGGTTCCCGGCTGATGT | 510 | S1 |
| | Transposase <i>tnpA</i> | tnpA1721-F/R | AGCTCTGCCTGCTGCCTAC/ ATGTGTTCCAGCATGTGCCG | 520 | S3 |
| | | tnpA1721-F2/R2 | ACTGGCTCAAAGTGGTGA/ TCCGTAAGGGCCAAACTTC | 360 | S3 |
| | TetR repressor of <i>tet(A)</i> | tetR1721-F3/R3 | TAGACGGTCTGACGACACG/ TCTCGGTCTTCAACGTTTC | 572 | S3 |
| | intergenic region | IG-F | TCGTAGCAGCAGCCTGGAC | a | S3 |
| | | IG-R | CGCCAAATCTCACCGTATCTCCC | a | S3 |
| Tn10 | Transposase <i>tnpA</i> | Is10-F/R2 | CTACCGAGTAACACCAACCGCTC/ AGCATCAGGGCGATTAGCAGC | 536 | S3 |
| | | IS10 | TTGAAAAGTCCTGCCTACG | a | S5 |
| | TetR repressor of <i>tet(B)</i> | tetR-F/R | ACAACCCGTAACTCGCC/ TTCCAATACGCAACCTAAAG | 366 | S6 |
| | | tetR-f1 | GCTTAATGAGGTGGAAATCG | a | Malorny, unpublished |
| | | tetR-r1 | ACGCCATTGTCAGCAAATTG | a | Malorny, unpublished |
| | <i>tetB</i> | tetB-Fseq | CGGTGTTATTGGCCCATTAC | a | Malorny, unpublished |
| | Hypothetical protein (TetC) | tetC-F/R | ATGCCTACATCACAAACAAAAACTGA/ TGCTGACAATGGCGTTACCT | 210 | S3 |
| | | dtetC-f1 | ACGCCATTGTCAGCAAATTG | a | Malorny, unpublished |
| | | dtetC | ATAGGCATCACTTCTGG | a | S5 |

| | | | | | |
|-------------------------------------|-----------------------|---|---|----------------------|----------------------|
| Hypothetical protein (TetD) | tetD-F/R | ATGTGGCGAATAAGCGGGT/CAAACGACGAGCACGAATATAGC | 108 | S3 | |
| Hypothetical protein (YbfA or GltS) | gltS | CGTTCCCTATGGTCGGTGC | a | S5 | |
| | gltS-r4 | TCCGGCATTACCATGACCAC | a | Malorny, unpublished | |
| | ybfA-F | TTGCCTGCTTGTACACCTTC | a | S3 | |
| Hypothetical protein (YbeA or YdjB) | ydjB-r1 | CAAGGGAGCGTAACAGATGC | a | Malorny, unpublished | |
| | ydjB-f1 | AGCGCTAGAGCAAGCTGGAC | a | Malorny, unpublished | |
| Hypothetical protein (YbdA or JemC) | ybdA-F | CGTACATGCCAAAGTTCCACG | a | S3 | |
| ISCR2 | rcr2 located in ISCR2 | ISVsa3-F/R | GGCGAAAGGTGTTCACTTG/GTTTCGGCTTGTGCTTCAG | 591 | S1 |
| | R-sulphonamides, sul2 | sul2f4 | CGATGGAGGCCGGTATCT | a | Malorny, unpublished |

^aFragments were generated in combination with primers indicated in Table S3. An overview of PCR-mapping strategy designed to establish the structure of the integrons and transposons is shown in Figure S1. Primers used for testing the presence of resistance and virulence genes were as previously reported [S7-S9].

- S1.** García P, Guerra B, Bances M, Mendoza MC, Rodicio MR (2011) IncA/C plasmids mediate antimicrobial resistance linked to virulence genes in the Spanish clone of the emerging *Salmonella enterica* serotype 4,[5],12:i:-. *J Antimicrob Chemother* 66: 543-549. doi: 10.1093/jac/dkq481.
- S2.** Mazel D, Dychinco B, Webb VA, Davies J (2000) Antibiotic resistance in the ECOR collection, integrons and identification of a novel *aad* gene. *Antimicrob Agents Chemoter* 44:1568-1574. doi: 10.1128/AAC.44.6.1568-1574.2000.
- S3.** Martínez N, Mendoza MC, Rodríguez I, Soto S, Bances M. (2007) Detailed structure of integrons and transposons carried by large conjugative plasmids responsible for multidrug resistance in diverse genomic types of *Salmonella enterica* serovar Brandenburg. *J Antimicrob Chemother*. 60:1227-1234. doi: 10.1093/jac/dkm336.
- S4.** Bailey JK, Pinyon JL, Anantham S, Hall RM. (2011) Distribution of the *bla_{TEM}* gene and *bla_{TEM}*-containing transposons in commensal *Escherichia coli*. *J Antimicrob Chemother*. 66:745-751. doi: 10.1093/jac/dkq529.
- S5.** Lucarelli C, Dionisi AM, Filetici E, Owczarek, Luzzi I, et al. (2012) Nucleotide sequence of the chromosomal region conferring multidrug resistance (R-type ASSuT) in *Salmonella Typhimurium* and monophasic *Salmonella Typhimurium* strains. *J Antimicrob Chemother* 67:111-114. doi: 10.1093/jac/dkr391.
- S6.** Morszeck C, Langendorfer D, Schierholz JM. (2004) A quantitative real-time PCR assay for the detection of *tetR* of Tn10 in *Escherichia coli* using SYBR Green and the Opticon. *J Biochem Biophys Methods* 59:217-227
- S7.** Beutlich J, Jahn S, Malorny B, Hauser E, Hühn S, et al. (2011) Antimicrobial resistance and virulence determinants in European *Salmonella* Genomic Island 1-positive *Salmonella enterica* isolates from different origins. *Appl Environ Microbiol* 77: 5655-5664. doi: 10.1128/AEM.00425-11.
- S8.** Hopkins KL, Wootton L, Day MR, Threlfall EJ. (2007) Plasmid-mediated quinolone resistance determinant *qnrS1* found in *Salmonella enterica* strains isolated in the UK. *J Antimicrob Chemother* 59:1071-1075.
- S9.** Rodríguez I, Guerra B, Mendoza MC, Rodicio MR. (2011) pUO-SeVR1 is an emergent virulence-resistance complex plasmid of *Salmonella enterica* serovar Enteritidis. *J Antimicrob Chemother* 66:218-220. doi: 10.1093/jac/dkq386.