Supplementary Material

Transmissible ST3-IncHI2 Plasmids Are Predominant Carriers of Diverse Complex IS*26*-Class 1 Integron Arrangements in Multidrug-Resistant *Salmonella*

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 **Table S1.** *Salmonella* isolates used in this study (n=74).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Strain** | **Serovar** | **Year** | **Region** | **Sample type** | **Plasmid replicon** |
| SJTUF10057 | Typhimurium | 2006 | Shanghai | Feces | HI2 |
| SJTUF10112 | Typhimurium | 2006 | Shanghai | Feces | HI2、N |
| SJTUF10155 | Typhimurium | 2006 | Shanghai | Feces | HI2、P、N、FIIs、FIC |
| SJTUF10157 | Typhimurium | 2006 | Shanghai | Feces | HI2 |
| SJTUF10169 | Typhimurium | 2006 | Shanghai | Feces | HI2、N |
| SJTUF10211 | Typhimurium | 2007 | Shanghai | Feces | HI2、P |
| SJTUF10231 | Typhimurium | 2007 | Shanghai | Feces | HI2 |
| SJTUF10233 | Typhimurium | 2007 | Shanghai | Feces | HI2、P、FIIs |
| SJTUF10236 |  Typhimurium |  2007 |  Shanghai |  Feces |  HI2 |
| SJTUF10250 | Typhimurium | 2007 | Shanghai | Feces | HI2 |
| SJTUF10327 | Typhimurium | 2007 | Shanghai | Feces | A/C |
| SJTUF10328 | Typhimurium | 2007 | Shanghai | Feces | HI2、P、N、FIIs |
| SJTUF10329 | Typhimurium | 2007 | Shanghai | Feces | HI2、P、N、FIIs |
| SJTUF10330 | Typhimurium | 2007 | Shanghai | Feces | HI2 |
| SJTUF10479 | Typhimurium | 2007 | Shanghai | Chicken | HI2 |
| SJTUF10484 | Typhimurium | 2007 | Shanghai | Clam | HI2、P、A/C |
| SJTUF10565 | Typhimurium | 2006 | Shanghai | Chicken | HI2 |
| SJTUF10567 | Typhimurium | 2006 | Shanghai | Pork | HI2、A/C |
| SJTUF10568 | Typhimurium | 2006 | Shanghai | Pork | HI2 |
| SJTUF10570 | Typhimurium | 2006 | Shanghai | Pork | HI2 |
| SJTUF10577 | Typhimurium | 2006 | Shanghai | Saury | HI2 |
| SJTUF10578 | Typhimurium | 2006 | Shanghai | Pork | HI2 |
| SJTUF10586 | Typhimurium | 2006 | Shanghai | Chicken | HI2、I1 |
| SJTUF10694 | Typhimurium | 2006 | Wuhan | Beef | HI2、P、FIIs |
| SJTUF10024 | Enteritidis | 2006 | Shanghai | Feces | P、N、FIIs |
| SJTUF10029 | Enteritidis | 2006 | Shanghai | Feces | P、N、FIIs |
| SJTUF10229 | Enteritidis | 2007 | Shanghai | Feces | FIIs |
| SJTUF10331 | Enteritidis | 2007 | Shanghai | Feces | P、FIIs |
| SJTUF10459 | Enteritidis | 2007 | Shanghai | Carrot | P、N、FIIs |
| SJTUF10462 | Enteritidis | 2007 | Shanghai | Chicken | P、N |
| SJTUF10491 | Enteritidis | 2007 | Shanghai | Chicken | P、N |
| SJTUF10571 | Enteritidis | 2006 | Shanghai | Chicken | P、FIIs |
| SJTUF10587 | Enteritidis | 2006 | Shanghai | Duck | P、FIIs |
| SJTUF10717 | Enteritidis | 2006 | Wuhan | Feces | P、FIIs、I1 |
| SJTUF10718 | Enteritidis | 2006 | Wuhan | Feces | FIIs |
| SJTUF10720 | Enteritidis | 2006 | Wuhan | Feces | P、FIIs |
| SJTUF10119 | Braenderup | 2006 | Shanghai | Feces | HI2、P、N |
| SJTUF10334 | Braenderup | 2007 | Shanghai | Feces | P、N、FIC |
| SJTUF10207 | Indiana | 2007 | Shanghai | Feces | P、N |
| **Strain** | **Serovar** | **Year** | **Region** | **Sample type** | **Plasmid replicon** |
| SJTUF10476 | Indiana | 2007 | Shanghai | Chicken | HI2 |
| SJTUF10566 | Indiana | 2006 | Shanghai | Chicken | P |
| SJTUF10584 | Indiana | 2006 | Shanghai | Chicken | HI2、I1 |
| SJTUF10585 | Indiana | 2006 | Shanghai | Chicken | HI2、I1 |
| SJTUF10702 | Indiana | 2006 | Wuhan | Chicken | P |
| SJTUF10713 | Heidelberg | 2006 | Wuhan | Chicken | FIA、FIB |
| SJTUF10740 | Heidelberg | 2006 | Wuhan | Chicken | P |
| SJTUF10772 | Heidelberg | 2006 | Wuhan | Feces | P |
| SJTUF10456 | Derby | 2007 | Shanghai | Pork | HI2、P、N、FIC |
| SJTUF10469 | Derby | 2007 | Shanghai | Pork | P、FIC |
| SJTUF10475 | Derby | 2007 | Shanghai | Pork | P、FIC、I1 |
| SJTUF10560 | Derby | 2006 | Shanghai | Pork | P |
| SJTUF10589 | Derby | 2006 | Shanghai | Pork | P、FIC |
| SJTUF10754 | Derby | 2006 | Wuhan | Feces | HI2、P |
| SJTUF10482 | Anatum | 2007 | Shanghai | Pork | I1 |
| SJTUF10580 | Anatum | 2006 | Shanghai | Pork | HI2 |
| SJTUF10762 | Anatum | 2006 | Wuhan | Feces | P |
| SJTUF10230 | Agona | 2007 | Shanghai | Feces | HI2、P、N |
| SJTUF10247 | Agona | 2007 | Shanghai | Feces | P、N |
| SJTUF10249 | Agona | 2007 | Shanghai | Feces | P、N、FIIs |
| SJTUF10725 | Agona | 2007 | Wuhan | Feces | P、N |
| SJTUF10750 | Manhattan | 2007 | Wuhan | Pork | N |
| SJTUF10213 | Thompson | 2007 | Shanghai | Feces | P |
| SJTUF10703 | Thompson | 2007 | Shanghai | Shrimp | A/C |
| SJTUF10051 | Aberdeen | 2006 | Shanghai | Feces | HI2、P |
| SJTUF10701 | Infantis | 2007 | Wuhan | Pork | P |
| SJTUF10782 | Kentucky | 2007 | Wuhan | Pork | P、N |
| SJTUF10768 | Litchfield | 2007 | Wuhan | Feces | P |
| SJTUF10483 | Mbandaka | 2007 | Shanghai | Pork | P |
| SJTUF10216 | Montevideo | 2007 | Shanghai | Feces | A/C |
| SJTUF10721 | Paratyphi A | 2007 | Wuhan | Feces | P |
| SJTUF10485 | Paratyphi B | 2007 | Shanghai | Pork | P |
| SJTUF10573 | Stanley | 2006 | Shanghai | Razor clam | P |
| SJTUF10700 | Virchow | 2007 | Wuhan | Orange juice | P |
| SJTUF10705 | Typhi | 2007 | Wuhan | Feces | P |

**Table S2.** Oligonucleotides primers for the detection of class 1 integrons and their genetic contexts associated with IS*26*

|  |  |  |  |
| --- | --- | --- | --- |
| **Target** | **Primer** | **Nucleotide sequence (5’→3’)** | **Reference** |
| *intI1* | *intI1*-F*intI1*-R | GCTTCGTGATGCCTGCTTGGCTGCGTTCGGTCAAGGT | This studyThis study |
| *qacE△1-sulI* | QS-FQS-R | TTCTGAAATCCATCCCTGTCGGTGTTGCCAAGGCTCGCTGGACCCAGATCCTTTA | This studyThis study |
| Variable region | 5’CS*qacE△1*R | GGCATCCAAGCAGCAAGCCAAGCTTTTGCCCATGAAGC | [Casella et al. (2015)](#_ENREF_2)[Casella et al. (2015)](#_ENREF_2) |
| Variable region | 5’CS3’CS | GGCATCCAAGCAGCAAGCAAGCAGACTTGACCTGAT | [Casella et al. (2015)](#_ENREF_2)[Casella et al. (2015)](#_ENREF_2) |
| Variable region | hep58hep59 | TCATGGCTTGTTATGACTGTGTAGGGCTTATTATGCACGC | [Malek et al. (2015)](#_ENREF_3)[Malek et al. (2015)](#_ENREF_3) |
| Variable region | 5’CShep59 | GGCATCCAAGCAGCAAGCGTAGGGCTTATTATGCACGC | [Casella et al. (2015)](#_ENREF_2)[Malek et al. (2015)](#_ENREF_3) |
| IS*26*-integron | HS1081*qacE△1R* | AATGCGCCTGGTAAGCAGAGCAAGCTTTTGCCCATGAAGC | [Betteridge et al. (2011)](#_ENREF_1)[Casella et al. (2015)](#_ENREF_2) |
| Integron-IS*26* | 5’CSIS*26*-F | GGCATCCAAGCAGCAAGCATGAACCCATTCAAAGGCCG | [Casella et al. (2015)](#_ENREF_2)[Rodríguez-Martínez et al. (2013)](#_ENREF_4) |
| Integron-IS*26* | 5’CSIS*26*-3-F | GGCATCCAAGCAGCAAGCGAATGCGATCATGGCAAACTGAAACG | [Casella et al. (2015)](#_ENREF_2)This study |

Betteridge, T., Partridge, S.R., Iredell, J.R., and Stokes, H.W. (2011). Genetic Context and Structural Diversity of Class 1 Integrons from Human Commensal Bacteria in a Hospital Intensive Care Unit. *Antimicrob. Agents Chemother.* 55(8)**,** 3939-3943. doi: 10.1128/AAC.01831-10.

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Malek, M.M., Amer, F.A., Allam, A.A., El-Sokkary, R.H., Gheith, T., and Arafa, M.A. (2015). Occurrence of classes I and II integrons in *Enterobacteriaceae* collected from Zagazig University Hospitals, Egypt. *Front. Microbiol.* 6**,** 601. doi: 10.3389/fmicb.2015.00601.

Rodríguez-Martínez, J.M., Díaz de Alba, P., Briales, A., Machuca, J., Lossa, M., Fernández-Cuenca, F., et al. (2013). Contribution of OqxAB efflux pumps to quinolone resistance in extended-spectrum-*β*-lactamase-producing *Klebsiella pneumoniae*. *J. Antimicrob. Chemother.* 68(1)**,** 68-73. doi: 10.1093/jac/dks377.