Supplementary Material to the manuscript entitled

Cross-border emergence of clonal lineages of ST38 *Escherichia coli* producing the OXA-48-like carbapenemase OXA-244 in Germany and Switzerland

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Supplementary Table 1: Genotypic data of the OXA-244-expressing *E. coli* ST38 isolates. For the pMLST analysis, only those loci were taken in account that showed coverage 100%. N.A. Not applicable (no fimH present), * uncertain pMLST hit with identity between 90 and 100%. IncFIC plasmids are only mentioned, if present.

Isolate	Project	Lineage	*fimH*-Typ	Serotype	*Tn*51098	Plasmid incompatibility groups	pMLST summary
N11	NARA	II	H5	O102:H6	yes	IncFII(pRSB107), IncFIB(pB171),IncY	IncF[F1:A-:B23]
N293	NARA	I	N.A.	O86:H18	yes	IncFII, IncFIB(AP001918),IncFII(pHN7A8),IncFII(pCoo), Col(MG828)	IncF[F35:A-:B10]
N460	NARA	II	H5	O102:H6	yes	IncFII(pRSB107), IncFIB(pB171),IncY	IncF[F1:A-:B23]
N481	NARA	II	H5	:H30	yes	IncFII, IncFIB(AP001918),IncFII(pCoo), IncQ1, Col156	IncF[[F-:A-:B10]]
N511	NARA	II	H5variant	O2:H30	yes	IncFII(pRSB107), IncFIB(pB171),IncFII(pHN7A8), IncX1, IncQ1	IncF[F1:A-:B23]
N658	NARA	I	N.A.	O86:H18	no	IncFII, IncFIB(AP001918)	IncF[F-:A-:B10]
N816	NARA	II	H5	:H30	no	IncFII, IncFIB(AP001918), IncQ1, Col156	IncF[F51;A-:B10]
N832	NARA	I	N.A.	O86:H18	no	IncFII, IncFIB(AP001918),IncFII(pHN7A8), Col(MG828)	IncF[F-:A-:B-]
N861	NARA	II	H5	:H30	no	IncFII, IncFIB(AP001918), IncQ1, Col156	IncF[F51:A-:B10]
N871	NARA	-	N.A.	O86:H18	yes	IncFIC(FII), IncFIA, IncFIB(AP001918)	IncF[F18:A6:B26:C:4]
N888	NARA	I	N.A.	O86:H18	no	IncFII	IncF[F-:A-:B-]
N930	NARA	I	N.A.	:H18	no	IncFII, IncFIB(AP001918)	IncF[F-:A-:B10]
st38-1	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918)	IncF[F-:A-:B10]
SurvCARE133	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncFII(pCoo)	IncF[F35:A-:B10]
SurvCARE134	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncFII(pCoo)	IncF[F35:A-:B10]
SurvCARE140	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),Col(BS512),ColRNAI	IncF[F2:A-:B10]
SurvCARE303	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncX4,ColRNAI	IncF[F2:A-:B10]
SurvCARE318	SurvCARE	II	H5	:H30	yes	IncFII(pRSB107),IncFIA,IncFIB(AP001918),IncFII,Col(MGD2),Col156	IncF[F-:A20:B1]
SurvCARE319	SurvCARE	II	H5	:H30	no	IncFII,IncFIB(AP001918),IncQ1,Col156	IncF[F51:A-:B10]
SurvCARE335	SurvCARE	-	H5	O102:H6	yes	NA	none

Isolate	Project	Lineage	*fimH*-Typ	Serotype	*Tn*51098	Plasmid incompatibility groups	pMLST summary
SurvCARE377	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918)	IncF[F-:A-:B10]
SurvCARE378	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918)	IncF[F-:A-:B10]
SurvCARE382	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncFII(pHN7A8),Col(MG828)	IncF[F103:A-:B10*]
SurvCARE383	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncFII(pHN7A8),Col(MG828)	IncF[F103:A-:B10]
SurvCARE384	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncFII(pHN7A8),Col(MG828)	IncF[F103:A-:B10]
SurvCARE389	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncFII(pHN7A8),Col(MG828)	IncF[F103:A-:B10]
SurvCARE390	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918),IncFII(pHN7A8),Col(MG828)	IncF[F103:A-:B10]
SurvCARE392	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918)	IncF[F-:A-:B10]
SurvCARE393	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918)	IncF[F-:A-:B10]
SurvCARE421	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918)	IncF[F-:A-:B10]
SurvCARE438	SurvCARE	I	N.A.	O86:H18	no	IncFII,IncFIB(AP001918)	IncF[F-:A-:B10]

Supplementary Table 2: Antibiotic resistance determinants identified in OXA-244-expressing *E. coli* ST38 isolates. $bla_{OXA-244}$ is not included in the table, as it is present in all isolates.

Isolate	Project	Lineage	Other Beta-lactamase	Aminoglycoside	Macrolide	Sulphonamide	Tetracycline	Trimethoprim	Phenicol
N11	NARA	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1*	-	-	*tet(D)*	*dfrA1*	*catA1*
N293	NARA	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
N460	NARA	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1*	-	-	*tet(D)*	*dfrA1*	*catA1*
N481	NARA	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1, strA, strB, aph(3')-Ia*	-	*sul2*	*tet(D)*	*dfrA1*	-
N511	NARA	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1, strA, strB, aph(3')-Ia*	-	*sul2*	*tet(D)*	*dfrA1*	*catA1*
N658	NARA	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
N816	NARA	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1, strA, strB, aph(3')-Ia*	-	*sul2*	-	*dfrA1*	-
N832	NARA	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
N861	NARA	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1, strA, strB, aph(3')-Ia*	-	*sul2*	-	*dfrA1*	-
N871	NARA	NONE	bla_{TEM-1B}, bla_{CMY-2}	*strA, strB*	-	*sul2*	-	*dfrA8*	-
N888	NARA	I	-	-	-	-	-	-	-
N930	NARA	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
st38-1	SurvCARE	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE133	SurvCARE	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE134	SurvCARE	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE140	SurvCARE	I	$bla_{CTX-M-27}$	-	-	-	-	-	-
SurvCARE303	SurvCARE	I	$bla_{CTX-M-27}$	*strA, strB*	*mph(A)*	*sul2*	*tet(A)*	-	-
SurvCARE318	SurvCARE	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1, strA, strB*	-	*sul2*	*tet(A)*	*dfrA1*	*floR, catA1*
SurvCARE319	SurvCARE	II	$bla_{CTX-M-14b}$, bla_{TEM-1B}	*aadA1, strA, strB, aph(3')-Ia*	-	*sul2*	*tet(D)*	*dfrA1*	*catA1*
SurvCARE335	SurvCARE	NONE	bla_{TEM-1B}, bla_{CMY-2}	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE377	SurvCARE	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE378	SurvCARE	I	$bla_{CTX-M-27}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-

Isolate	Project	Lineage	Other Beta-lactamase	Aminoglycoside	Macrolide	Sulphonamide	Tetracycline	Trimethoprim	Phenicol
SurvCARE382	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE383	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE384	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE389	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE390	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE392	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE393	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE421	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, aph(3")-Ib, aph(6)-Id, mdf(A)*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-
SurvCARE438	SurvCARE	I	*bla*$_{\text{CTX-M-27}}$	*aadA5, strA, strB*	*mph(A)*	*sul1, sul2*	*tet(A)*	*dfrA17*	-

Supplementary Table 3: Antibiotic resistance profile of the OXA-244 producers. N.D., not determined.

Isolate	Ampicillin	Ampicillin + Sulbactam	Piperacillin	Piperacillin + Tazobactam	Cefepime	Cefpodoxime	Cefotaxim	Ceftazidime	Cefuroxime	Ertapenem	Imipenem	Meropenem	Aztreonam	Ciprofloxacin	Moxifloxacin	Ofloxacin	Gentamicin	Tobramycin	Tigecycline	Trimethoprim + Sulfamethoxazole	Kanamycin	Tetracycline
N11	R	R	R	R	R	R	R	I	R	R	S	S	I	S	S	S	S	S	S	R	S	R
N293	R	R	R	R	R	R	R	I	R	S	S	S	S	S	S	S	S	S	S	R	S	R
N460	R	R	R	R	R	R	R	I	R	R	S	S	R	S	S	S	S	S	S	R	S	R
N481	R	R	R	R	R	R	R	I	R	R	S	S	R	S	S	S	S	S	S	R	R	R
N511	R	R	R	R	R	R	R	I	R	S	S	S	S	S	S	S	S	S	S	R	R	R
N658	R	R	R	R	R	R	R	I	R	S	S	S	I	S	S	S	S	S	S	R	S	R
N816	R	R	R	R	R	R	R	R	R	R	S	S	R	S	S	S	S	S	S	R	R	S
N832	R	R	R	R	R	R	R	R	R	S	S	S	R	S	S	S	S	S	S	R	S	R
N861	R	R	R	R	R	R	R	I	R	S	S	S	I	S	S	S	S	S	S	R	R	S
N871	R	R	R	R	R	S	R	R	R	S	S	S	I	S	S	S	S	S	S	R	S	S
N888	R	R	R	R	S	R	S	S	I	R	S	S	S	S	S	S	S	S	S	S	S	S
N930	R	R	R	R	I	I	R	I	R	S	S	S	I	S	S	S	S	S	S	S	S	R
st38_1	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	N.D.	N.D.	S	N.D.	S	R	N.D..	N.D.
SurvCARE133	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE134	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE140	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE303	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE318	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE319	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE335	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE377	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE378	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.

Isolate	Ampicillin	Ampicillin + Sulbactam	Piperacillin	Piperacillin + Tazobactam	Cefepime	Cefpodoxime	Cefotaxim	Ceftazidime	Cefuroxime	Ertapenem	Imipenem	Meropenem	Aztreonam	Ciprofloxacin	Moxifloxacin	Ofloxacin	Gentamicin	Tobramycin	Tigecycline	Trimethoprim + Sulfamethoxazole	Kanamycin	Tetracycline
SurvCARE382	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE383	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE384	R	R	N.D.	R	N.D.	R	R	R	R	R	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE389	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE390	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE392	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE393	R	R	N.D.	R	N.D.	R	R	R	R	R	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE421	R	R	N.D.	R	N.D.	R	R	R	R	S	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.
SurvCARE438	R	R	N.D.	R	N.D.	R	R	R	R	R	S	S	N.D.	S	S	N.D.	S	N.D.	S	R	N.D.	N.D.

Supplementary Table 4: Minimal inhibitory concentration of the OXA-244 producers towards different antibiotics. N.D., not determined.

Isolate	Ampicillin	Ampicillin + Sulbactam	Piperacillin	Piperacillin + Tazobactam	Cefepime	Cefpodoxime	Cefotaxime	Ceftazidime	Cefuroxime	Ertapenem	Imipenem	Meropenem	Aztreonam	Ciprofloxacin	Moxifloxacin	Ofloxacin	Gentamicin	Tobramycin	Tigecycline	Trimethoprim + Sulfamethoxa	Kanamycin	Tetracycline
N11	>= 32	>= 32	>= 128	>= 128	64	>= 8	>32	3	>= 64	1.5	0.19	0.25	2	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	<1	0.5	>2
N293	>= 32	>= 32	>= 128	>= 128	32	>= 8	>32	2	>= 64	0.25	0.19	0.09	1	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	>4	0.5	>2
N460	>= 32	>= 32	>= 128	>= 128	64	>= 8	>32	3	>= 64	1.5	0.19	0.38	8	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	2	0.5	>2
N481	>= 32	>= 32	>= 128	>= 128	64	>= 8	>32	1.5	>= 64	0.38	1	0.75	8	<= 0.25	<= 0.25	<= 0.25	4	0.25	<= 0.5	>4	d	>2
N511	>= 32	>= 32	>= 128	>= 128	64	>= 8	>32	1.5	>= 64	0.38	2	1.5	1	<= 0.25	<= 0.25	<= 0.25	4	0.25	<= 0.5	>4	32	>2
N658	>= 32	>= 32	>= 128	>= 128	16	>= 8	>32	2	>= 64	0.38	0.25	0.12	4	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	>4	0.5	>2
N816	>= 32	>= 32	>= 128	>= 128	64	>= 8	>32	2	>= 64	>32	0.75	2	8	<= 0.25	<= 0.25	<= 0.25	4	0.25	<= 0.5	>4	32	0.3
N832	>= 32	>= 32	>= 128	>= 128	16	>= 8	>32	2	>= 64	0.38	0.2	0.12	2	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	>4	0.5	>2
N861	>= 32	>= 32	>= 128	>= 128	16	>= 8	>32	2	>= 64	0.75	0.25	0.25	2	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	>4	0.5	0.3
N871	>= 32	>= 32	>= 128	>= 128	1	>= 8	>32	16	>= 64	>32	0.5	1	4	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	>4	0.5	0.3
N888	>= 32	>= 32	>= 128	>= 128	1	>= 8	>32	1	>= 64	>32	0.5	1	1	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	<1	0.5	0.3
N930	>= 32	>= 32	>= 128	>= 128	8	>= 8	>32	1	>= 64	0.75	0.25	0.25	1	<= 0.25	<= 0.25	<= 0.25	0.5	0.25	<= 0.5	>4	0.5	>2
st38_1	>= 32	>= 32	N.D.	>= 128	N.D.	>= 8	>= 64	4	>= 64	0.5	0.38	0.064	N.D.	<= 0.25	N.D.	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE133	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.5	0.19	0.094	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE134	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.38	0.25	0.064	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE140	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.5	0.825	0.125	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE303	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.38	0.19	0.064	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE318	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.5	0.19	0.094	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE319	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	16	>= 64	0.5	0.19	0.064	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE335	>= 32	>= 32	N.D.	>= 128	N.D.	>= 8	>= 64	4	>= 64	0.25	1	0.125	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE377	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.5	0.25	0.047	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE378	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.5	0.25	0.064	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE382	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.25	0.125	0.047	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE383	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.5	0.19	0.064	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE384	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	6	4	3	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.

SurvCARE389	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.5	0.25	0.064	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE390	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.25	0.25	0.047	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE392	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.38	0.25	0.047	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE393	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.75	0.5	0.094	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D	<= 0,5	>= 320	N.D.	N.D.
SurvCARE421	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.25	0.19	0.047	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.
SurvCARE438	>= 32	>= 32	N.D.	>= 128	/	>= 8	>= 64	4	>= 64	0.75	0.38	0.064	N.D.	<= 0,25	<= 0,25	N.D.	<= 1	N.D.	<= 0,5	>= 320	N.D.	N.D.

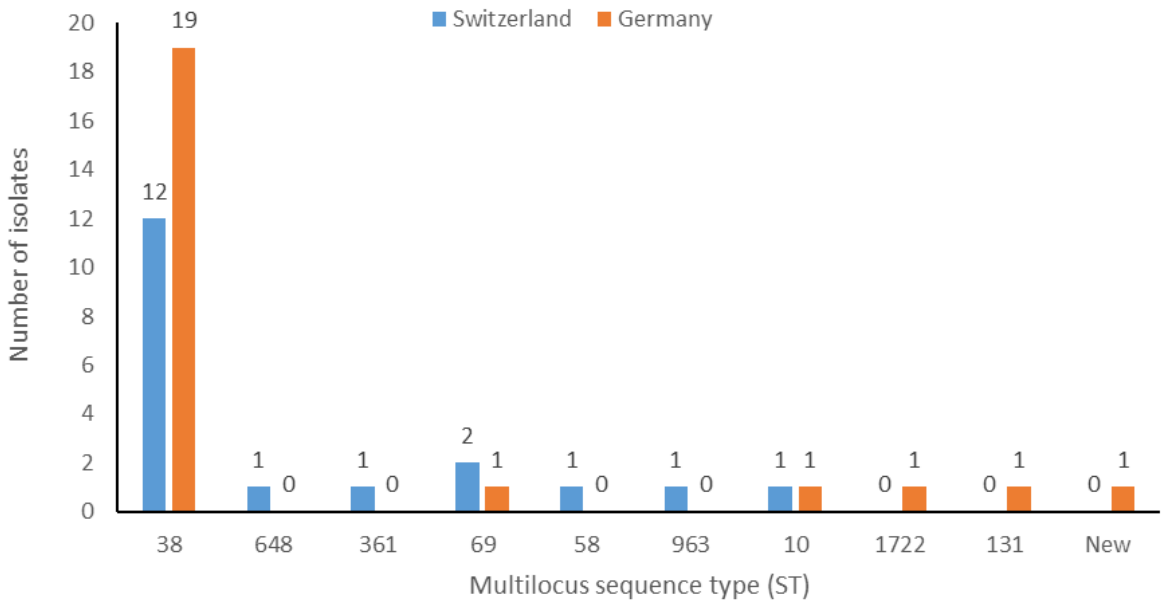
Supplementary Table 5: Functions of the virulence determinants depicted in Figure 2

Determinant	Function	Genes of operon
AAFs	Adherence	aafA, aafB, aafC, aafD, agg3A, agg3B, agg3C, agg3D, aggA, aggB, aggC, aggD, aggR
AcrAB	Efflux pump (antimicrobial peptides)	acrA, acrB
Aerobactin	Iron uptake	iucA, iucB, iucC, iucD, iutA
Afa/Dr family	afimbrial adhesion	afaE-I, afaE-III, daaE, draE, draE2
Agf	Adherence	csgA, csgB, csgC, csgE, csgF, csgG
Allantion utilization	degradation of allantoin	allA, allB, allC, allD, allR, allS
AslA	Invasion	aslA
Capsule	Immune evasion, Antiphagocytosis	cpsACP, galF, gmd, gnd, magA/wzy_K1, manB, manC, ugd, wcaG, wcaH, wcaI, wcaJ, wclY, wcsS, wcsT, wza, wzb, wzc, wzi, wzx
Chu	Iron uptake	chuA, chuS, chuT, chuU, chuV, chuW, chuX, chuY
Dispersin	Adherence	aap/aspU, aatA, aatB, aatC, aatD, aatP
Dr adhesins	Adherence	draA, draB, draC, draD, draE, draP
ECP	Adherence	yagV/ecpE, yagW/ecpD, yagX/ecpC, yagY/ecpB, yagZ/ecpA, ykgK/ecpR
Enterobactin	Iron uptake	entA, entB, entC, entD, entE, entF, fepA, fepB, fepC, fepD, fepE, fepG,
FdeC	Adherence	fdeC
Flagella	Motility, Invasion	flgA, flgB, flgC, flgD, flgE, flgF, flgG, flgH, flgI, flgJ, flgK, flgL, flgM, flgN, flhA, flhB, flhC, flhD, flhE, fliA, fliB, fliC, fliC, fliC, fliD, fliE, fliF, fliG, fliH, fliI, fliJ, fliK, fliL, fliM, fliN, fliO, fliP, fliQ, fliR, fliS, fliT, fliZ
K1 capsule	Invasion, Antiphagocytosis	kpsD, kpsM, kpsT
OmpA	Invasion, Serum resistance	ompA
P fimbriae	Adherence	papA, papB, papC, papD, papE, papF, papG, papH, papI, papJ, papK
RcsAB	Regulation of capsule synthesis	rcsA, rcsB
S fimbriae	Adherence	sfaA, sfaB, sfaC, sfaD, sfaE, sfaF, sfaG, sfaH, sfaS, sfaX, sfaY,
Sat	Protease, Autotransporter	sat
ShET2	Toxin, Enterotoxin	senB
Shu	Iron uptake	shuA, shuS, shuT, shuU, shuV, shuX, shuY

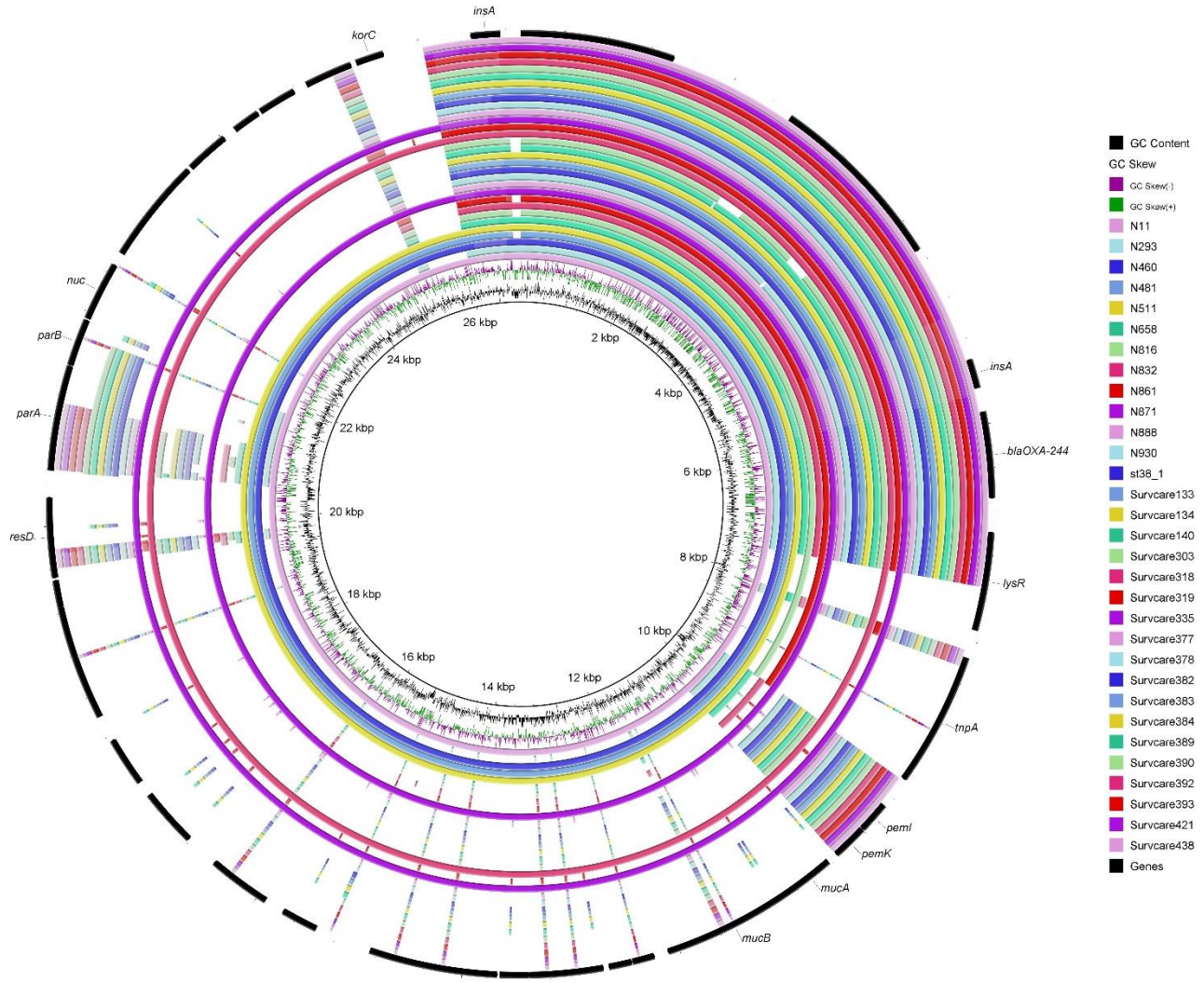
Determinant	Function	Genes of operon
T2SS	Secretion system	gspC, gspD, gspE, gspF, gspG, gspH, gspI, gspJ, gspK, gspL, gspM,
Type 1 fimbriae	Adherence, Invasion	fimA, fimB, fimC, fimD, fimE, fimF, fimG, fimH, fimI
Yersiniabactin	Iron uptake	fyuA, irp1, irp2, ybtA, ybtE, ybtP, ybtQ, ybtS, ybtT, ybtU, ybtX

Supplementary Figures

Supplementary Figure 1: Multilocus sequence types of OXA-244 producers collected in Switzerland and Germany.



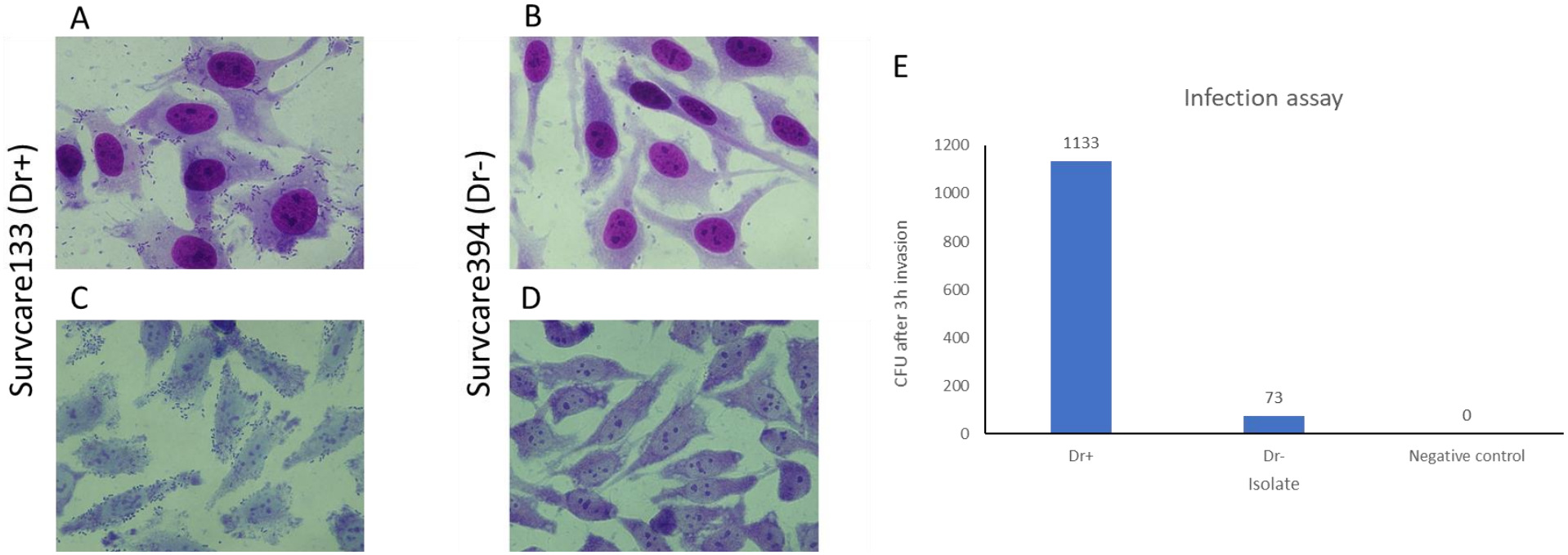
Supplementary Figure 2: Genetic map of the region harboring OXA-244 and its schematic structure on the *E. coli* ST-38 genome. The genomic sequence of the isolate VAL (Accession number KR364794.1) was used as reference.[1] The Figure was created using BRIG.[2]



Supplementary Figure 3: SNP differences of OXA-244 isolates (recombination events removed by Gubbins). Marked in red are SNP differences in lineage I isolates.

			28Eco12	N460	N11	N861	N481	Survcare319	N816	Survcare318	N871	st38-1	Survcare421	Survcare134	N888	Survcare133	Survcare438	Survcare140	Survcare377	N930	N832	Survcare392	Survcare384	Survcare303	N658	Survcare378	N293	Survcare390	Survcare383	Survcare393	Survcare389	Survcare382	Survcare335	N511
		Clinic	ND	CH-04	CH-04	CH-01	CH-05	GE-01	CH-04	GE-03	CH-06	GE-08	GE-05	GE-02	CH-07	GE-02	GE-04	GE-07	GE-09	CH-08	CH-05	GE-01	GE-05	GE-06	CH-05	GE-09	CH-03	GE-05	GE-05	GE-01	GE-05	GE-05	GE-10	CH-02
	Clinic	year of isolation	ND	2019	2017	2019	2019	2019	2019	2019	2019	2018	2019	2018	2019	2018	2019	2018	2019	2019	2019	2019	2019	2019	2019	2019	2018	2019	2019	2019	2019	2019	2019	2019
28Eco12	ND	ND		53	55	84	88	89	100	103	181	183	186	188	190	191	193	195	195	196	200	201	203	207	209	209	212	219	219	228	230	194	207	221
N460	CH-04	2019	53		43	121	121	128	136	142	216	218	223	223	229	226	228	230	226	231	235	234	236	242	248	246	251	256	256	257	265	229	244	258
N11	CH-04	2017	55	43		123	123	124	137	140	218	222	221	223	227	228	226	232	230	233	237	238	240	244	246	250	247	256	254	263	265	233	246	260
N861	CH-01	2019	84	121	123		88	119	56	105	191	193	198	198	200	201	205	207	207	204	212	213	213	217	223	221	224	231	229	238	236	206	221	225
N481	CH-05	2019	88	121	123	88		121	103	67	195	195	200	196	204	199	205	207	207	200	214	211	213	217	221	221	226	231	225	236	238	206	219	229
Survcare319	GE-01	2019	89	128	124	119	121		131	136	216	220	221	221	223	226	224	228	230	231	235	234	228	242	240	244	243	252	254	259	261	227	240	260
N816	CH-04	2019	100	136	137	56	103	131		117	209	209	210	212	214	217	219	215	219	222	228	221	227	235	233	237	236	241	243	247	250	219	232	237
Survcare318	GE-03	2019	103	142	140	105	67	136	117		212	216	215	215	219	220	224	224	224	227	231	230	234	238	238	240	241	250	248	259	257	223	236	244
N871	CH-06	2019	181	216	218	191	195	216	209	212		84	87	87	93	92	92	94	94	97	99	102	102	108	112	112	115	122	122	127	129	95	204	332
st38-1	GE-08	2018	183	218	222	193	195	220	209	216	84		25	25	15	28	24	32	32	35	33	36	36	46	46	46	55	56	56	61	63	31	206	334
Survcare421	GE-05	2019	186	223	221	198	200	221	210	215	87	25		16	30	21	29	29	19	38	40	31	43	49	51	53	54	61	61	58	70	34	205	335
Survcare134	GE-02	2018	188	223	223	198	196	221	212	215	87	25	16		32	5	31	27	23	38	40	25	43	47	49	49	54	61	59	52	66	34	205	335
N888	CH-07	2019	190	229	227	200	204	223	214	219	93	15	30	32		37	33	39	41	44	42	45	45	55	51	55	58	65	63	70	70	38	211	339
Survcare133	GE-02	2018	191	226	228	201	199	226	217	220	92	28	21	5	37		36	32	28	41	45	30	48	50	54	52	59	64	62	57	71	39	210	338
Survcare438	GE-04	2019	193	228	226	205	205	224	219	224	92	24	29	31	33	36		40	40	43	41	46	46	54	52	54	59	66	64	71	71	37	210	344
Survcare140	GE-07	2018	195	230	232	207	207	228	215	224	94	32	29	27	39	32	40		34	49	47	42	50	58	58	58	65	68	68	67	77	41	214	344
Survcare377	GE-09	2019	195	226	230	207	207	230	219	224	94	32	19	23	41	28	40	34		49	47	34	48	58	58	58	63	66	68	65	75	41	212	340
N930	CH-08	2019	196	231	233	204	200	231	222	227	97	35	38	38	44	41	43	49	49		54	53	55	57	65	63	66	73	73	78	80	48	213	345
N832	CH-05	2019	200	235	237	212	214	235	228	231	99	33	40	40	42	45	41	47	47	54		55	53	63	61	63	70	73	73	80	82	46	221	351
Survcare392	GE-01	2019	201	234	238	213	211	234	221	230	102	36	31	25	45	30	46	42	34	53	55		56	64	62	64	69	74	76	44	75	49	218	350
Survcare384	GE-05	2019	203	236	240	213	213	228	227	234	102	36	43	43	45	48	46	50	48	55	53	56		66	64	66	73	42	46	81	53	17	224	354
Survcare303	GE-06	2019	207	242	244	217	217	242	235	238	108	46	49	47	55	50	54	58	58	57	63	64	66		74	72	65	84	82	89	91	59	228	356
N658	CH-05	2019	209	248	246	223	221	240	233	238	112	46	51	49	51	54	52	58	58	65	61	62	64	74		70	77	82	80	89	89	55	226	358
Survcare378	GE-09	2019	209	246	250	221	221	244	237	240	112	46	53	49	55	52	54	58	58	63	63	64	66	72	70		77	82	80	91	89	55	228	358
N293	CH-03	2018	212	251	247	224	226	243	236	241	115	55	54	54	58	59	59	65	63	66	70	69	73	65	77	77		85	89	90	94	64	231	359
Survcare390	GE-05	2019	219	256	256	231	231	252	241	250	122	56	61	61	65	64	66	68	66	73	73	74	42	84	82	82	85		60	101	67	33	240	366
Survcare383	GE-05	2019	219	256	254	229	225	254	243	248	122	56	61	59	63	62	64	68	68	73	73	76	46	82	80	80	89	60		103	69	35	240	366
Survcare393	GE-01	2019	228	257	263	238	236	259	247	259	127	61	58	52	70	57	71	67	65	78	80	44	81	89	89	91	90	101	103		104	74	245	379
Survcare389	GE-05	2019	230	265	265	236	238	261	250	257	129	63	70	66	70	71	71	77	75	80	82	75	53	91	89	89	94	67	69	104		42	247	377
Survcare382	GE-05	2019	194	229	233	206	206	227	219	223	95	31	34	34	38	39	37	41	41	48	46	49	17	59	55	55	64	33	35	74	42		209	343
Survcare335	GE-10	2019	207	244	246	221	219	240	232	236	204	206	205	205	211	210	210	214	212	213	221	218	224	228	226	228	231	240	240	245	247	209		354
N511	CH-02	2019	221	258	260	225	229	260	237	244	332	334	335	335	339	338	344	344	340	345	351	350	354	356	358	358	359	366	366	379	377	343	354	

Supplementary Figure 4: Adhesion (A, B) and Invasion assay (C, D, E) for HeLa cells with Dr-Operon producers (A, C) and non-producers (B, D) and average number of CFU recovered after 3h invasion assay (E).



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