Characterisation of methicillin resistant *Staphylococcus aureus* clinical isolates from animals in New Zealand, 2012–2013, and subclinical colonisation in dogs and cats in Auckland

A Karkaba^{*†}, J Benschop[†], KE Hill[‡] and A Grinberg^{*§}

* Institute of Veterinary, Animal and Biomedical Sciences, Infectious Diseases Group, Massey University, Private Bag 11222, Palmerston North 4442, New Zealand.

† Institute of Veterinary, Animal and Biomedical Sciences, mEpiLab, Massey University, Private Bag 11222, Palmerston North 4442, New Zealand.

‡ Current address: School of Veterinary Science, The University of Queensland, Gatton Campus Qld 4343, Australia.

§ Author for correspondence. Email: A.grinberg@massey.ac.nz

Supplementary Table 1. Summary of the DNA microarray and *spa* results of eight methicillin resistant *Staphylococcus aureus* clinical isolates.

Summary of the DNA microarray and <i>spa</i> results of the MRSA isolates						
Isolate	1	2 & 3	4	5 & 5.1	6	a
TYPING SUMMARY						
strain	CC5-MRSA-IV, AK3, or 'Paediatric clone'	ST5/ST225-MRSA-II, New York-Japan Clone	CC30-MRSA-IV [PVL+], Southwest Pacific Clone	CC22-MRSA-IV [fnbB-, sec/++], UK-EMRSA-15/Barnim EMRSA	CC8-MRSA-IV, USA500	CC1-MSSA [lukF-P83/lukM+]
strain synonyms	WA MRSA-03/25/50/71/74/82/105/111, USA800, Spanish PFGE type E7/8, Marseille CF clone	USA100, Canadian MRSA-2, Irish AR7.3/AR7.4, Finland E1, JH1/JH9	USA 1100, West Samoan Phage Pattern (WSPP) Clone	Irish AR06, Canadian MRSA-8, Spanish PFGE type E13, "ST22-A" clade of UK-ERMSA-15	WA MRSA-20/58	
MLST clonal complex affiliation	CC5	CC5	CC30	CC22	CC8	CC1
sequence types associated with this strain	ST5 (based on whole genome sequencing)	ST5 (based on whole genome sequencing)	ST30	ST22	ST8	
<i>spa</i> type associated with this strain	t045	t002	t019	t032	t064	t144
assignment score for CC identification	96.83%	97.66%	97.52%	96.97%	94.21%	95.04%
MRSA (mecA)	positive	positive	positive	positive	positive	negative
MRSA (mecC)	negative	negative	negative	negative	negative	negative
PVL	negative	negative	positive	negative	negative	negative
SPECIES MARKER						
Target Gene	Result	Result	Result	Result	Result	Result
rrnD1 (<i>S. aureus</i>)	positive	positive	positive	positive	positive	positive
gapA	positive	positive	positive	positive	positive	positive
katA	positive	positive	positive	positive	positive	positive
coA	positive	positive	positive	positive	positive	positive
nuc1	positive	positive	positive	positive	positive	positive
<i>spa</i>	positive	positive	positive	positive	positive	positive
<i>sbi</i>	positive	positive	positive	positive	positive	positive
REGULATORY GENES						
Target Gene	Result	Result	Result	Result	Result	Result
<i>sarA</i>	positive	positive	positive	positive	positive	positive
<i>saeS</i>	positive	positive	positive	positive	positive	positive

The content of this supplementary information has not been edited. All risk and liability rest with the authors.

Supplementary Information

vraS	positive	positive	positive	positive	positive	positive
agrI (total)	negative	negative	negative	positive	positive	negative
agrB-I	negative	negative	negative	positive	positive	negative
agrC-I	negative	negative	negative	ambiguous	positive	negative
agrD-I	negative	negative	negative	positive	positive	negative
agrII (total)	positive	positive	negative	negative	negative	negative
agrB-II	positive	positive	negative	negative	negative	negative
agrC-II	positive	positive	negative	negative	negative	negative
agrD-II	positive	positive	negative	negative	negative	negative
agrIII (total)	negative	negative	positive	negative	negative	positive
agrB-III	negative	negative	positive	negative	negative	positive
agrC-III	negative	negative	positive	negative	negative	positive
agrD-III	negative	negative	positive	negative	negative	positive
agrIV (total)	negative	negative	negative	negative	negative	negative
agrB-IV	negative	negative	negative	ambiguous	ambiguous	negative
agrC-IV	negative	negative	negative	negative	negative	negative
hld	positive	positive	positive	positive	positive	positive

METHICILLIN RESISTANCE GENOTYPE AND SCCmec TYPING

Target Gene	Result	Result	Result	Result	Result	Result
mecA	positive	positive	positive	positive	positive	negative
mecC	negative	negative	negative	negative	negative	negative
Isolate	1	2 & 3	4	5 & 5.1	6	a
delta_mecR	positive	positive	positive	positive	positive	negative
ugpQ	positive	positive	positive	positive	positive	negative
ccrA-1	negative	negative	negative	negative	negative	negative
ccrB-1	negative	negative	negative	negative	negative	negative
plsSCC (COL)	negative	negative	negative	negative	negative	negative
Q9XB68-dcs	positive	positive	positive	positive	positive	negative
ccrA-2	positive	positive	positive	positive	positive	negative
ccrB-2	positive	positive	positive	positive	positive	negative
kdpA-SCC	negative	positive	negative	negative	negative	negative
kdpB-SCC	negative	positive	negative	negative	negative	negative
kdpC-SCC	negative	positive	negative	negative	negative	negative
kdpD-SCC	negative	positive	negative	negative	negative	negative
kdpE-SCC	negative	positive	negative	negative	negative	negative
mecl	negative	positive	negative	negative	negative	negative
mecR	negative	positive	negative	negative	negative	negative
xylR	negative	positive	negative	negative	negative	negative
ccrA-3	negative	negative	negative	negative	negative	negative
ccrB-3	negative	negative	negative	negative	negative	negative
merA	negative	negative	negative	negative	negative	negative
merB	negative	negative	negative	negative	negative	negative
ccrAA (MRSZH47)_probe 1	negative	negative	negative	negative	negative	negative
ccrAA (MRSZH47)_probe 2	negative	negative	negative	negative	negative	negative
ccrC (85-2082)	negative	negative	negative	negative	negative	negative
ccrA-4	negative	negative	negative	negative	negative	negative
ccrB-4	negative	negative	negative	negative	negative	negative

RESISTANCE GENOTYPE : PENICILLINASE

Target Gene	Result	Result	Result	Result	Result	Result
blaZ	positive	positive	positive	positive	positive	positive
blaZ-SCCmec XI	negative	negative	negative	negative	negative	negative
blaI	positive	positive	positive	positive	positive	positive
blaR	positive	positive	positive	positive	positive	positive

RESISTANCE GENOTYPE : MLS-ANTIBIOTICS

Target Gene	Result	Result	Result	Result	Result	Result
erm(A)	negative	positive	negative	negative	negative	negative
erm(B)	negative	negative	negative	negative	negative	negative
erm(C)	negative	negative	negative	negative	positive	negative

Supplementary Information

lnu(A)	negative	negative	negative	negative	negative	negative
msr(A)	negative	negative	negative	negative	negative	negative
mef(A)	negative	negative	negative	negative	negative	negative
mph(C)	negative	negative	negative	negative	negative	negative
vat(A)	negative	negative	negative	negative	negative	negative
vat(B)	negative	negative	negative	negative	negative	negative
vga(A)	negative	negative	negative	negative	negative	negative
vga(A) (BM 3327)	negative	negative	negative	negative	negative	negative
vgB(A)	negative	negative	negative	negative	negative	negative
RESISTANCE GENOTYPE : AMINOGLYCOSIDES						
Target Gene	Result	Result	Result	Result	Result	Result
aacA-aphD	negative	negative	negative	negative	positive	negative
aadD	negative	negative	negative	negative	negative	negative
aphA3	negative	negative	negative	negative	negative	negative
RESISTANCE GENOTYPE : MISCELLANEOUS GENES						
Target Gene	Result	Result	Result	Result	Result	Result
sat	negative	negative	negative	negative	negative	negative
dfrS1	negative	negative	negative	negative	positive	negative
fusB	negative	negative	negative	negative	negative	negative
Isolate	1	2 & 3	4	5 & 5.1	6	a
fusC	negative	negative	negative	negative	negative	negative
mupA	negative	negative	negative	negative	negative	negative
tet(K)	negative	negative	negative	negative	negative	negative
tet(M)	negative	negative	negative	negative	positive	negative
cat (total)	negative	negative	negative	negative	negative	negative
cat (pC221)	negative	negative	negative	negative	negative	negative
cat (pc223)	negative	negative	negative	negative	negative	negative
cat (pMC524)	negative	negative	negative	negative	negative	negative
cat (pSBK203R)	negative	negative	negative	negative	negative	negative
cfr	negative	negative	negative	negative	negative	negative
fexA	negative	negative	negative	negative	negative	negative
fosB	positive	positive	positive	negative	positive	negative
fosB (plasmid)	negative	negative	negative	negative	negative	negative
RESISTANCE GENOTYPE : EFFLUX SYSTEMS						
Target Gene	Result	Result	Result	Result	Result	Result
qacA	negative	negative	negative	negative	negative	positive
qacC (total)	negative	negative	negative	negative	negative	negative
qacC (consensus)	negative	negative	negative	negative	negative	negative
qacC (equine)	negative	negative	negative	negative	negative	negative
qacC (SA5)	negative	negative	negative	negative	negative	negative
qacC (Ssap)	negative	negative	negative	negative	negative	negative
qacC (ST94)	negative	negative	negative	negative	negative	negative
sdrM	positive	positive	positive	negative	positive	positive
RESISTANCE GENOTYPE : GLYCOPEPTIDES						
Target Gene	Result	Result	Result	Result	Result	Result
vanA	negative	negative	negative	negative	negative	negative
vanB	negative	negative	negative	negative	negative	negative
vanZ	negative	negative	negative	negative	negative	negative
VIRULENCE: TOXIC SHOCK TOXIN						
Target Gene	Result	Result	Result	Result	Result	Result
tst1 (consensus)	negative	negative	negative	negative	negative	negative
tst1 ("human" allele)	negative	negative	negative	negative	negative	negative
tst1 ("bovine" allele, from RF122)	negative	negative	negative	negative	negative	negative
VIRULENCE: ENTEROTOXINS						
Target Gene	Result	Result	Result	Result	Result	Result
sea	negative	negative	negative	negative	negative	negative

Supplementary Information

sea (320E)	negative	negative	negative	negative	negative	negative
sea (N315)	positive	negative	negative	negative	negative	negative
seb	negative	negative	negative	negative	positive	negative
sec	positive	negative	negative	positive	negative	negative
sed	negative	positive	negative	negative	negative	negative
see	negative	negative	negative	negative	negative	negative
seg	positive	positive	positive	positive	negative	negative
seh	negative	negative	negative	negative	negative	positive
sei	positive	positive	positive	positive	negative	negative
sej	negative	positive	negative	negative	negative	negative
sek	negative	negative	negative	negative	positive	negative
sel	positive	negative	negative	positive	negative	negative
selm	positive	positive	positive	positive	negative	negative
seln (consensus)	positive	positive	positive	positive	negative	negative
seln (other than RF122)	positive	positive	positive	positive	negative	negative
selo	positive	positive	positive	positive	negative	negative
egc	positive	positive	positive	positive	negative	negative
seq	negative	negative	negative	negative	positive	negative
ser	negative	positive	negative	negative	negative	negative
selu	positive	positive	positive	positive	negative	negative
Isolate	1	2 & 3	4	5 & 5.1	6	a
ORF CM14_ probe1	negative	negative	negative	negative	negative	negative
ORF CM14_ probe2	negative	negative	negative	negative	negative	negative
VIRULENCE: HLG AND LEUKOCIDINS						
Target Gene	Result	Result	Result	Result	Result	Result
lukF	positive	positive	positive	positive	positive	positive
lukS	positive	positive	positive	ambiguous	positive	positive
lukS (ST22+ST45)	positive	positive	positive	positive	ambiguous	positive
hlgA	positive	positive	positive	positive	positive	positive
lukF-PV	negative	negative	positive	negative	negative	negative
lukS-PV	negative	negative	positive	negative	negative	negative
lukF-PV (P83)	negative	negative	negative	negative	negative	positive
lukM	negative	negative	negative	negative	negative	positive
lukD	positive	positive	negative	negative	positive	positive
lukE	positive	positive	negative	negative	positive	positive
lukX	positive	positive	positive	positive	positive	positive
lukY	positive	positive	negative	positive	positive	positive
lukY (ST30+ST45)	negative	negative	positive	negative	negative	negative
VIRULENCE: HAEMOLYSINS						
Target Gene	Result	Result	Result	Result	Result	Result
hl	positive	positive	positive	positive	positive	positive
hla	positive	positive	positive	positive	positive	positive
hlIII (consensus)	positive	positive	positive	negative	positive	positive
hlIII (other than RF122)	positive	positive	positive	negative	positive	positive
hlb_probe 1	positive	positive	positive	positive	positive	positive
hlb_probe 2	positive	positive	positive	positive	positive	positive
hlb_probe 3	ambiguous	positive	ambiguous	positive	positive	positive
un-disrupted hlb	negative	negative	negative	negative	positive	positive
VIRULENCE: HLB-CONVERTING PHAGES						
Target Gene	Result	Result	Result	Result	Result	Result
sak	positive	positive	positive	positive	negative	negative
chp	positive	positive	positive	positive	negative	negative
scn	positive	positive	positive	positive	negative	negative
VIRULENCE: EXFOLIATIVE TOXINS						
Target Gene	Result	Result	Result	Result	Result	Result
etA	negative	negative	negative	negative	negative	negative
etB	negative	negative	negative	negative	negative	negative
etD	negative	negative	negative	negative	negative	negative

Supplementary Information

VIRULENCE: EPIDERMAL CELL DIFFERENTIATION INHIBITORS						
Target Gene	Result	Result	Result	Result	Result	Result
edinA	negative	negative	negative	negative	negative	negative
edinB	negative	negative	negative	negative	negative	negative
edinC	negative	negative	negative	negative	negative	negative
VIRULENCE: ACME LOCUS						
Target Gene	Result	Result	Result	Result	Result	Result
ACME cluster	negative	negative	negative	negative	negative	negative
arcA-SCC	negative	negative	negative	negative	negative	negative
arcB-SCC	negative	negative	negative	negative	negative	negative
arcC-SCC	negative	negative	negative	negative	negative	negative
arcD-SCC	negative	negative	negative	negative	negative	negative
VIRULENCE: PROTEASES						
Target Gene	Result	Result	Result	Result	Result	Result
aur (consensus)	positive	positive	positive	positive	positive	positive
aur (other than MRSA252)	positive	positive	negative	negative	positive	positive
aur (MRSA252)	negative	negative	positive	positive	negative	negative
spIA	positive	positive	negative	negative	positive	positive
spIB	positive	positive	negative	negative	positive	positive
spIE	negative	negative	positive	negative	positive	positive
Isolate	1	2 & 3	4	5 & 5.1	6	a
sspA	positive	positive	positive	positive	positive	positive
sspB	positive	positive	positive	positive	positive	positive
sspP (consensus)	positive	positive	positive	positive	positive	positive
sspP (other than ST93)	positive	positive	positive	positive	positive	positive
VIRULENCE: STAPHYLOCOCCAL SUPERANTIGEN/ENTEROTOXIN-LIKE GENES (SET/SSL)						
Target Gene	Result	Result	Result	Result	Result	Result
setC/setx	positive	positive	negative	positive	positive	positive
ssl01/set6_probe1_11	positive	positive	negative	negative	positive	negative
ssl01/set6_probe2_11	negative	negative	positive	positive	negative	positive
ssl01/set6_probe1_12	positive	positive	positive	positive	negative	negative
ssl01/set6_probe2_12	negative	negative	negative	negative	negative	positive
ssl01/set6_probe4_11	positive	positive	positive	negative	positive	negative
ssl01/set6_probeRF122	negative	negative	negative	negative	negative	negative
ssl01/set6 (COL)	negative	negative	negative	negative	positive	negative
ssl01/set6 (Mu50+N315)	positive	positive	negative	negative	ambiguous	negative
ssl01/set6 (MW2+MSSA476)	negative	negative	negative	negative	negative	positive
ssl01/set6 (MRSA252)	negative	negative	positive	positive	negative	negative
ssl01/set6 (RF122)	negative	negative	negative	negative	negative	negative
ssl01/set6 (other alleles)	negative	negative	negative	negative	negative	negative
ssl02/set7	positive	positive	negative	ambiguous	positive	positive
ssl02/set7 (MRSA252)	negative	ambiguous	positive	positive	negative	negative
ssl03/set8_probe 1	positive	positive	negative	negative	positive	positive
ssl03/set8_probe 2	positive	positive	negative	negative	positive	positive
ssl03/set8 (MRSA252, SAR0424)	negative	negative	positive	negative	negative	negative
ssl04/set9	negative	positive	negative	negative	positive	positive
ssl04/set9 (MRSA252, SAR0425)	negative	negative	positive	positive	negative	negative
ssl05/set3_probe 1	positive	positive	negative	positive	positive	positive
ssl05/set3 (RF122, probe-611)	ambiguous	ambiguous	negative	negative	negative	ambiguous
ssl05/set3_probe 2 (612)	positive	positive	negative	negative	positive	positive
ssl05/set3 (MRSA252)	negative	negative	positive	positive	negative	negative
ssl06/set21	negative	negative	negative	negative	positive	positive
ssl06 (NCTC8325+MW2)	negative	negative	negative	negative	positive	positive
ssl07/set1	positive	positive	negative	ambiguous	positive	positive
ssl07/set1 (MRSA252)	ambiguous	ambiguous	positive	ambiguous	ambiguous	ambiguous
ssl07/set1 (AF188836)	negative	negative	negative	positive	negative	negative
ssl08/set12_probe 1	positive	positive	negative	negative	positive	positive

Supplementary Information

ssl08/set12_probe 2	positive	positive	negative	negative	positive	positive
ssl09/set5_probe 1	positive	positive	negative	positive	positive	positive
ssl09/set5_probe 2	positive	positive	negative	positive	positive	positive
ssl09/set5 (MRSA252)	negative	negative	positive	negative	negative	negative
ssl10/set4	positive	positive	ambiguous	positive	positive	positive
ssl10 (RF122)	negative	negative	negative	negative	negative	negative
ssl10/set4 (MRSA252)	ambiguous	ambiguous	positive	negative	ambiguous	ambiguous
ssl11/set2 (COL)	negative	negative	negative	negative	positive	negative
ssl11+set2(Mu50+N315)	positive	positive	negative	negative	negative	negative
ssl11+set2(MW2+MSSA476)	negative	negative	negative	negative	negative	positive
ssl11/set2 (MRSA252)	negative	negative	positive	negative	negative	negative
setB3	positive	positive	negative	negative	positive	positive
setB3 (MRSA252)	negative	negative	positive	negative	negative	negative
setB2	positive	positive	negative	negative	positive	positive
setB2 (MRSA252)	negative	negative	positive	negative	negative	negative
setB1	positive	positive	positive	negative	positive	positive
CAPSULE- AND BIOFILM-ASSOCIATED GENES						
Target Gene	Result	Result	Result	Result	Result	Result
cap 1 (total)	negative	negative	negative	negative	negative	negative
Isolate	1	2 & 3	4	5 & 5.1	6	a
Isolate	1	2 & 3	4	5 & 5.1	6	a
capH1	negative	negative	negative	negative	negative	negative
capJ1	negative	negative	negative	negative	negative	negative
capK1	negative	negative	negative	negative	negative	negative
cap 5 (total)	positive	positive	negative	positive	positive	negative
capH5	positive	positive	negative	positive	positive	negative
capJ5	positive	positive	negative	positive	positive	negative
capK5	positive	positive	negative	positive	positive	negative
cap 8 (total)	negative	negative	positive	negative	negative	positive
capH8	negative	negative	positive	negative	negative	positive
capI8	negative	negative	positive	negative	negative	positive
capJ8	negative	negative	positive	negative	negative	positive
capK8	negative	negative	positive	negative	negative	positive
icaA	positive	positive	positive	positive	positive	positive
icaC	positive	positive	positive	positive	positive	positive
icaD	positive	positive	positive	positive	positive	positive
bap	negative	negative	negative	negative	negative	negative
ADHAESION FACTORS / GENES ENCODING MICROBIAL SURFACE COMPONENTS RECOGNIZING ADHESIVE MATRIX MOLECULES (MSCRAMM GENES)						
Target Gene	Result	Result	Result	Result	Result	Result
bbp (total)	positive	positive	positive	positive	positive	positive
bbp (consensus)	positive	positive	positive	positive	positive	positive
bbp (COL+MW2)	negative	negative	negative	negative	positive	positive
bbp (MRSA252)	negative	negative	positive	negative	negative	negative
bbp (Mu50)	positive	positive	negative	negative	negative	negative
bbp (RF122)	negative	negative	negative	negative	negative	negative
bbp (ST45)	negative	negative	negative	negative	negative	negative
clfA (total)	positive	positive	positive	positive	positive	positive
clfA (consensus)	positive	positive	positive	positive	positive	positive
clfA (COL+RF122)	negative	negative	ambiguous	negative	positive	negative
clfA (MRSA252)	negative	negative	positive	negative	ambiguous	negative
clfA (Mu50+MW2)	positive	positive	negative	positive	ambiguous	positive
clfB (total)	positive	positive	positive	positive	positive	positive
clfB (consensus)	positive	positive	positive	positive	positive	positive
clfB (COL+Mu50)	positive	positive	negative	negative	positive	negative
clfB (MW2)	negative	negative	negative	negative	negative	positive

Supplementary Information

clfB (RF122)	negative	negative	negative	negative	negative	ambiguous
cna	negative	negative	positive	positive	negative	positive
ebh (consensus)	positive	positive	positive	negative	positive	positive
ebpS (total)	positive	positive	positive	positive	positive	positive
ebpS_probe 612	positive	positive	positive	positive	positive	positive
ebpS_probe 614	positive	positive	positive	positive	positive	positive
ebpS (01-1111)	negative	negative	negative	negative	negative	negative
ebpS (COL)	negative	negative	negative	positive	positive	negative
eno	positive	positive	positive	positive	positive	positive
fib	positive	positive	negative	negative	positive	positive
fib (MRSA252)	negative	negative	positive	positive	negative	negative
fnbA (total)	positive	positive	positive	positive	positive	positive
fnbA (consensus)	positive	positive	positive	positive	positive	positive
fnbA (COL)	negative	negative	negative	negative	positive	negative
fnbA (MRSA252)	negative	negative	positive	negative	negative	negative
fnbA (Mu50+MW2)	positive	positive	negative	positive	negative	positive
fnbA (RF122)	negative	negative	negative	negative	negative	negative
fnbB (total)	positive	positive	positive	negative	positive	positive
fnbB (COL)	negative	negative	negative	negative	positive	negative
fnbB (COL+Mu50+MW2)	positive	ambiguous	ambiguous	negative	ambiguous	ambiguous
fnbB (Mu50)	ambiguous	positive	positive	negative	negative	negative
fnbB (MW2)	negative	negative	negative	negative	negative	positive
Isolate	1	2 & 3	4	5 & 5.1	6	a
fnbB (ST15)	negative	negative	negative	negative	negative	negative
fnbB (ST45-2)	negative	negative	negative	negative	negative	negative
map (total)	positive	positive	positive	positive	positive	positive
map (COL)	ambiguous	positive	negative	negative	positive	negative
map (MRSA252)	negative	negative	positive	negative	negative	negative
map (Mu50+MW2)	positive	positive	negative	positive	negative	positive
sasG (total)	positive	positive	negative	positive	positive	positive
sasG (COL+Mu50)	positive	positive	negative	negative	positive	negative
sasG (MW2)	negative	negative	negative	positive	negative	positive
sasG (other than MRSA252+RF122)	positive	positive	negative	positive	positive	positive
sdrC (total)	positive	positive	positive	positive	positive	positive
sdrC (consensus)	positive	positive	positive	positive	positive	positive
sdrC (B1)	negative	negative	negative	negative	negative	negative
sdrC (COL)	negative	negative	negative	negative	positive	negative
sdrC (Mu50)	positive	positive	negative	positive	negative	negative
sdrC (MW2+MRSA252+RF122)	negative	negative	negative	negative	negative	positive
sdrC (other than MRSA252+RF122)	positive	positive	negative	positive	positive	positive
sdrD (total)	positive	positive	positive	positive	positive	positive
sdrD (consensus)	positive	positive	positive	positive	positive	positive
sdrD (COL+MW2)	negative	negative	negative	negative	positive	positive
sdrD (Mu50)	positive	positive	negative	negative	negative	negative
sdrD (other)	negative	negative	positive	positive	negative	negative
vwb (total)	positive	positive	positive	positive	positive	positive
vwb (consensus)	positive	positive	positive	positive	positive	positive
vwb (COL+MW2)	negative	negative	negative	negative	positive	positive
vwb (MRSA252)	negative	negative	positive	negative	negative	negative
vwb (Mu50)	positive	positive	negative	negative	negative	negative
vwb (RF122)	negative	negative	negative	positive	negative	negative
IMMUNODOMINANT ANTIGEN B						
Target Gene	Result	Result	Result	Result	Result	Result
isaB	positive	positive	negative	negative	positive	positive
isaB (MRSA252)	ambiguous	ambiguous	positive	positive	ambiguous	ambiguous
DEFENSIN RESISTANCE GENOTYPE						
Target Gene	Result	Result	Result	Result	Result	Result

Supplementary Information

mprF (COL+MW2)	ambiguous	ambiguous	ambiguous	ambiguous	positive	positive
mprF (Mu50+MRSA252)	positive	positive	positive	positive	ambiguous	ambiguous
TRANSFERRIN BINDING PROTEIN						
Target Gene	Result	Result	Result	Result	Result	Result
isdA (consensus)	positive	positive	positive	positive	positive	positive
isdA (MRSA252)	negative	negative	positive	negative	negative	negative
isdA (other than MRSA252)	positive	positive	negative	positive	positive	positive
PUTATIVE TRANSPORTER						
Target Gene	Result	Result	Result	Result	Result	Result
ImrP (other than RF122)_probe1	positive	positive	positive	positive	positive	positive
ImrP (other than RF122)_probe2	positive	positive	positive	positive	positive	positive
ImrP (RF122)_probe1	negative	negative	negative	negative	negative	negative
ImrP (RF122)_probe2	negative	negative	negative	negative	negative	negative
TYPE I RESTRICTION-MODIFICATION SYSTEM, SINGLE SEQUENCE SPECIFICITY PROTEIN						
Target Gene	Result	Result	Result	Result	Result	Result
hsdS1 (RF122)	negative	negative	negative	negative	negative	negative
hsdS2 (Mu50+N315+COL+USA300+NCTC 8325)	positive	positive	negative	positive	positive	negative
hsdS2 (MW2+MSSA476)	ambiguous	negative	negative	negative	negative	positive
hsdS2 (RF122)	negative	negative	negative	negative	negative	negative
hsdS2 (MRSA252)	negative	negative	positive	negative	negative	negative
hsdS3 (all other than RF122+ MRSA252)	positive	positive	negative	negative	negative	positive
Isolate	1	2 & 3	4	5 & 5.1	6	a
hsdS3 (COL+USA300+NCTC8325+MW2+ MSSA476+RF122)	negative	negative	negative	negative	negative	positive
hsdS3 (Mu50+N315)	positive	positive	negative	negative	negative	negative
hsdS3 (CC51+ MRSA252)	negative	negative	positive	negative	negative	negative
hsdS3 (MRSA252)	negative	negative	positive	negative	negative	negative
hsdSx (CC25)	positive	positive	positive	positive	ambiguous	positive
hsdSx (CC15)	negative	negative	negative	negative	negative	negative
hsdSx (etd)	negative	negative	negative	negative	negative	negative
MISCELLANEOUS GENES						
Target Gene	Result	Result	Result	Result	Result	Result
Q2FXC0	negative	negative	negative	negative	positive	positive
Q2YUB3	negative	negative	negative	negative	negative	positive
Q7A4X2	positive	positive	positive	positive	negative	negative
HYALURONATE LYASE						
Target Gene	Result	Result	Result	Result	Result	Result
hysA1 (MRSA252)	negative	negative	positive	negative	negative	negative
hysA1 (MRSA252+RF122) and/or hysA2 (consensus)	positive	positive	positive	positive	positive	positive
hysA1 (MRSA252+RF122) and/or hysA2 (COL+USA300)	negative	negative	positive	negative	positive	negative
hysA2 (all other than MRSA252)	positive	positive	negative	negative	positive	positive
hysA2 (COL+USA300+NCTC8325)	negative	negative	positive	negative	positive	negative
hysA2 (all other than COL+USA300+NCTC8325)_probe1	positive	positive	positive	positive	negative	positive
hysA2 (all other than COL+USA300+NCTC8325)_probe2	positive	positive	positive	positive	negative	positive
hysA2 (MRSA252)	negative	negative	positive	negative	negative	negative