

Supplementary Table 2.

Molecular Characterization of Methicillin- Resistant *Staphylococcus aureus* in a Tertiary Care hospital in Kuwait.

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Supplementary Table 2. Characteristics of MRSA isolates characterized by microarray

CC	MRSA genotypes (N)	Spa types (N)	Antibiogram	Antibiotic resistance genes	Toxins	Miscellaneous
CC1	CC1-MRSA-V+SCCfus [PVL+] (5)	*t127 (4), ND (1)	Gm (4), K (4), E (1), CC (1), Cm (1), Te (5), Tp (1), FD (5), Cip (1)	<i>ermC, aacA-aphD, aphA3, cat, fusC, sat</i>	PVL; sea, seh, sek, seq	<i>argIII; cap8; sak/scn; icaA/C/D</i>
	CC1-MRSA-V+SCCfus (2)	**t127 (2)	Gm, K, E, FD	<i>msr(A), mphC, aacA-aphD, aphA3, sat, fusC, qacC</i>	<i>sea, seb, seh, sek, seq</i>	<i>argIII; cap8; sak/scn; icaA/C/D</i>
	CC1-MRSA-[V/V _T +fus] (PVL+) (1)	t127 (1)	Gm, K, E, CC, FD, Cm	<i>ermC, aacA-aphD, fusC, cat</i>	PVL; sea, sed, seh, sek, seq	<i>argIII; cap8; sak/scn; icaA/C/D</i>
	ST772-MRSA-V [PVL+], Bengal Bay Clone (3)	t657 (1), t1839 (1), t5414 (1)	Gm (2), K (2), E (1), Te (1), Tp (3), Cip (2)	<i>msr(A), mphC, aacA-aphD, aphA3, tetK, sat, fosB</i>	PVL; sea, sec, seg, sei, sel, egc gene cluster	<i>agrII; cap5; scn; icaA/C/D</i>
CC5	CC5-MRSA-IV, [PVL+/edinA+], WA MRSA-121 (1)	t105	Tp	<i>fosB</i>	PVL; seg, sei, egc gene cluster	<i>agrII; cap5; sak/chp/scn; icaA/C/D; edinA</i>
	CC5-MRSA-IV, [PVL+] (3)	***t002 (3)	E (2), CC (2), FD (1), HLR-Mup	<i>ermC, fusB, mupA, fosB</i>	PVL; sea (N315), sed, seg, sei, sej, egc gene cluster	<i>agrII; cap5; sak/scn; icaA/C/D</i>

CC	MRSA genotypes (N)	Spa types (N)	Antibiogram	Antibiotic resistance genes	Toxins	Miscellaneous
	CC5-MRSA-IV, Paediatric clone [tst1+] (1)	t002	K, E, CC,	<i>ermC</i> , <i>msrA</i> , <i>mphC</i> , <i>aphA3</i> , <i>sat</i> , <i>fosB</i>	<i>tst1</i> ; <i>sec</i> , <i>seg</i> , <i>sei</i> , <i>sel</i> , <i>egc</i> gene cluster	<i>agrII</i> ; <i>cap5</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i> , <i>ednA</i>
	CC5-MRSA-V [sed/j/r+], WA MRSA-11/34/35/90/108 (2)	****t306, *****t688	Gm (1), K (1), E (1), CC (1), Cm (1), Te (1),	<i>ermC</i> , <i>tetK</i> , <i>fexA</i> , <i>fosB</i> , <i>aacA-aphD</i>	<i>sea</i> (N315), <i>sed</i> , <i>seg</i> , <i>sei</i> , <i>sej</i> , <i>egc</i> gene cluster	<i>agrII</i> ; <i>cap5</i> ; <i>sak/scn</i> ; <i>icaA/C/D</i>
	CC5-MRSA-V, WA MRSA-81/85/86/123 (1)	t311	E, CC, Te	<i>ermC</i> , <i>tetK</i> , <i>fosB</i>	<i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrII</i> ; <i>cap5</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
CC5	CC5-MRSA-V+SCCfus, WA MRSA-14/109 (5)	●t311 (4), ●●t16185 (1)	E (4), CC (4), Tp (4), FD (5), Cip (5)	<i>ermC</i> , <i>fusC</i> , <i>fosB</i>	<i>seb</i> , <i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrII</i> ; <i>cap5</i> ; <i>sak</i> ; <i>icaA/C/D</i>
	CC5-MRSA-VI, New Paediatric Clone (1)	t688	Cm, Te, FD	<i>dfrS1</i> , <i>tetM</i> , <i>fexA</i>	<i>sed</i> , <i>seg</i> , <i>sej</i> , <i>egc</i> gene cluster	<i>agrII</i> ; <i>cap5</i> ; <i>chp/scn</i> ; <i>icaA/C/D</i>
CC5	CC5-MRSA-VI+SCCfus (6)	t535 (2), t688 (4)	Cm (5), Te (6), Tp (6), FD (6), Cip (2)	<i>dfrS1</i> , <i>fusC</i> , <i>tetM</i> , <i>fexA</i> , <i>fosB</i>	<i>sea</i> (N315), <i>sed</i> , <i>seg</i> , <i>sei</i> , <i>sej</i> , <i>egc</i> gene cluster	<i>agrII</i> ; <i>cap5</i> ; <i>sak/scn</i> ; <i>icaA/C/D</i>

CC	MRSA genotypes (N)	Spa types (N)	Antibiogram	Antibiotic resistance genes	Toxins	Miscellaneous
	ST5/ST225-MRSA-II, Rhine-Hesse EMRSA/New York-Japan Clone (1)	t045	Gm, K, E, CC, Cip	<i>ermA</i> , <i>aadD</i> , <i>fosB</i>	<i>sea</i> (N315), <i>sed</i> , <i>seg</i> , <i>sei</i> , <i>sej</i> , <i>egc</i> gene cluster	<i>agrII</i> ; <i>cap</i> 5; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
CC6	CC6-MRSA-[IV+ <i>fus</i> + <i>ccrC</i>] (1)	t14700 (1)	Cm, FD	<i>fusC</i> , <i>fosB</i>	<i>Sea</i>	<i>agrI</i> ; <i>cap8</i> ; <i>sak/scn</i> ; <i>icaA/C/D</i>
	CC6-MRSA-IV, WA MRSA-51 (10)	t304 (6), t701 (1), t6845 (1), t8168 (1), ND (1)	E (3), CC (3), Te (1), Tp, (1), Cip (2)	<i>ermC</i> , <i>aadD</i> , <i>tetK</i> , <i>fosB</i>	<i>sea</i> , <i>seb</i>	<i>agrI</i> ; <i>cap8</i> ; <i>sak/scn</i> ; <i>icaA/C/D</i>
CC8	CC8-MRSA-IV [<i>sea</i> -N315+] (1)	t008	Tp	<i>fosB</i>	<i>sea</i> (N315), <i>seb</i> , <i>sej</i> , <i>ser</i>	<i>agrI</i> ; <i>cap5</i> ; <i>sak/scn</i> ; <i>icaA/C/D</i>
	CC8-MRSA-IV, UK-EMRSA-14/WA MRSA-5 (1)	t008	E	<i>msr(A)</i> , <i>mphC</i> , <i>fosB</i>	<i>seb</i>	<i>agrI</i> ; <i>cap5</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
	ST239-MRSA-III+ <i>ccrC</i> , Vienna/Hungarian/Brazilian Clone (1)	t037	Gm, K, E, CC, Cm, Te, FD, Cip	<i>ermC</i> , <i>aacA-aphD</i> , <i>aphA3</i> , <i>sat</i> , <i>tetK</i> , <i>tetM</i> , <i>cat</i> , <i>fosB</i>	<i>sea</i> , <i>sek</i> , <i>seq</i>	<i>agrI</i> ; <i>cap8</i> ; <i>icaA/C/D</i>
	ST239-MRSA-III+SCCmer, Vienna/Hungarian/Brazilian Clone (28)	t713 (1), t860 (16), t945 (10), t1247 (1)	Gm (28), K (27), E (27), CC (27), Cm (1), Te (26), FD (28), Cip (26), HLR-Mup (2)	<i>ermA</i> , <i>aacA-aphD</i> , <i>aadD</i> , <i>aphA3</i> , <i>sat</i> , <i>mupA</i> , <i>cat</i> , <i>tetM</i> , <i>fosB</i> , <i>qacA</i>	<i>sek</i> , <i>seq</i>	<i>agrI</i> , <i>cap8</i> , <i>Sak/chp/scn</i> / <i>icaA/C/D</i>
	ST239-MRSA-III+SCCmer+ <i>ccrC</i> , Vienna/Hungarian/Brazilian Clone (1)	t425	Gm, K, E, CC, Te, Tp, FD, Cip, HLR-Mup	<i>ermA</i> , <i>lnu(A)</i> , <i>aacA-aphD</i> , <i>aphA3</i> , <i>aadD</i> , <i>sat</i> , <i>dfrS1</i> , <i>mupA</i> , <i>tetK</i> , <i>tetM</i> , <i>fosB</i>	<i>sea</i>	<i>agrI</i> , <i>cap8</i> , <i>icaA/C/D</i>

CC	MRSA genotypes (N)	Spa types (N)	Antibiogram	Antibiotic resistance genes	Toxins	Miscellaneous
CC15	CC15-MRSA-V+SCCfus (3)	t084 (2), t7583 (1)	Gm (3), K (3), Te (3), FD (3)	<i>lnu(A)</i> , <i>aadD</i> , <i>aacA-aphD</i> , <i>fusC</i> , <i>tetK</i> , <i>fosB</i>	-	<i>agrII</i> ; <i>cap8</i> ; <i>chp/scn</i> ; <i>icaA/C/D</i>
CC22	CC22-MRSA-IV [fnbB-,sec/l-], UK-EMRSA-15/Barnim EMRSA (1)	t032	E, CC, Cip	<i>dfrS1</i> , <i>ermC</i>	<i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrI</i> ; <i>cap5</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
	CC22-MRSA-IV [fnbB+], UK-EMRSA-15/Barnim EMRSA (2)	t223, t790	Gm (1), K (1), E (1), CC (1), Te (1), Tp (1)	<i>ermC</i> , <i>aacA-aphD</i> , <i>aadD</i> , <i>dfrS1</i> , <i>tet(K)</i>	<i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrI</i> ; <i>cap5</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
	CC22-MRSA-IV [PVL+] (5)	t005 (1), t852 (3), t11836 (1)	Gm (5), K (5), E (2), CC (2), Tp (4), Cip (1),	<i>ermC</i> , <i>aacA-aphD</i> , <i>aadD</i> , <i>dfrS1</i>	PVL; <i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrI</i> ; <i>cap5</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
	CC22-MRSA-IV [tst1+], UK-EMRSA-15/Middle Eastern variant (3)	t005, t223, t16202	Gm (1), K (1), E (2), CC (2), Tp (3)	<i>ermC</i> , <i>dfrS1</i>	<i>tst1</i> ; <i>sea</i> , <i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrI</i> ; <i>cap5</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
CC30	CC30-MRSA-[VI+fus] (PVL+) (2)	t018 (2)	E (1), CC (1), FD (1)	<i>ermC</i> , <i>fusC</i> , <i>fosB</i>	PVL; TST1; <i>sea</i> , <i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrIII</i> ; <i>cap8</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>
	CC30-MRSA-IV [PVL+], Southwest Pacific Clone (5)	t019 (3), t021 (1), t363 (1)	Gm (1), K (3), E (2), Tp (2), Cip (2)	<i>msr(A)</i> , <i>mphC</i> , <i>aacA-aphD</i> , <i>aphA3</i> , <i>sat</i> , <i>fosB</i> ,	PVL; <i>seg</i> , <i>sei</i> , <i>egc</i> gene cluster	<i>agrIII</i> ; <i>cap8</i> ; <i>sak/chp/scn</i> ; <i>icaA/C/D</i>

CC	MRSA genotypes (N)	Spa types (N)	Antibiogram	Antibiotic resistance genes	Toxins	Miscellaneous
CC45	CC45-MRSA-[VI+fus] (1)	t362	FD	<i>fusC</i>	<i>seg, sei, egc</i> gene cluster	<i>agrI; cap8;</i> <i>sak/chp/scn;</i> <i>icaA/C/D</i>
CC59	ST59/952-MRSA-V(T) [PVL+], Taiwan Clone (1)	t437	K, E, CC, Cm	<i>ermB, aphA3, sat,</i> <i>cat</i>	<i>seb, sek, seq</i>	<i>agrI; cap8;</i> <i>chp/scn;</i> <i>icaA/C/D</i>
CC97	CC97-MRSA-V [fusC+] (4)	t267 (3), t359 (1)	Gm (4), K (4), E (1), CC (1), Te (1), FD (4), Cip (1)	<i>ermC, vgaA, aacA-aphD, fusC, tetK</i>	-	<i>agrI, cap5,</i> <i>Sak/scn,</i> <i>icaA/C/D</i>
CC80	CC80-MRSA-IV (1)	t8154	E, CC, Te	<i>ermC, tetK</i>	<i>etD; seb,</i> <i>sek, seq</i>	<i>agrIII; cap8;</i> <i>sak/chp/scn;</i> <i>icaA/C/D; edinB</i>
CC88	CC80-MRSA-IV [PVL+], European caMRSA Clone (7)	t042 (2), t044 (3), t376 (1), t16186 (1), t12398 (1)	Gm (3), K (7), E (1), CC (1), Te (3), FD (5), Cip (3)	<i>aacA-aphD, ermC, aphA3, sat, fusB, tetK</i>	<i>PVL; etD</i>	<i>agrIII; cap8;</i> <i>sak/scn;</i> <i>icaA/C/D; edinB</i>
	CC88-MRSA-IV [PVL+] (1)		-	-	<i>PVL; sea</i> (N315)	<i>agrIII, cap8;</i> <i>sak/chp/scn;</i> <i>icaA/C/D</i>
	CC88-MRSA-IV, WA MRSA-2 (1)	t690	E, CC, Te	<i>ermC, tetK</i>	<i>sea</i> (N315)	<i>agrIII, cap8;</i> <i>sak/chp/scn;</i> <i>icaA/C/D</i>
CC121	CC121-MRSA-[V/VT+fus] (PVL+) (1)	t314	Gm, K, FD	<i>aacA-aphD, fusC, fosB,</i>	<i>PVL; seb,</i> <i>sei, egc</i> gene cluster	<i>agrIV; cap8;</i> <i>sak/scn;</i> <i>icaA/C/D</i>
CC152	CC152-MRSA-[V+fus] (PVL+) (2)	t355 (1), t11206 (1)	Gm (1), K (1), Te (1), FD (2)	<i>aacA-aphD, fusc, tetK</i>	<i>PVL</i>	<i>agrI; cap5;</i> <i>sak/scn; icaA/D;</i> <i>edinB</i>
CC361	CC361-MRSA-IV, WA MRSA-29 (1)	t3841	K, Tp, Cip	<i>msr(A), mphC, aphA3, sat, fosB</i>	<i>seg, sei, egc</i> gene cluster	<i>agrI; cap8;</i> <i>sak/scn;</i> <i>icaA/C/D</i>

CC	MRSA genotypes (N)	Spa types (N)	Antibiogram	Antibiotic resistance genes	Toxins	Miscellaneous
	CC361-MRSA-V, WA MRSA-70 (1)	t003	Gm, K	<i>aacA-aphD, fosB</i>	<i>sea (N315), seg, sei, egc gene cluster</i>	<i>agrI; cap8; sak/scn; icaA/C/D</i>
CC2250 /2277	CC2250/2277-MRSA-IV, WA MRSA-114 (1)	ND	Tp	<i>fosB</i>	-	<i>sak/scn; icaA</i>
Singleton	ST2867-MRSA-V (1)	t148	-	<i>fosB</i>	-	<i>agrII; cap5; sak/scn; icaA/C/D; edinB</i>
	ST2867-MRSA-V/VT (1)	t148	-	<i>fosB</i>	-	<i>agrII; cap5; sak/scn; icaA/C/D; edinB</i>

Abbreviations: Cm, chloramphenicol; CC, clindamycin, Cip, ciprofloxacin; E, erythromycin; Fd, fusidic acid; Gm, gentamicin, Km, kanamycin; Te, tetracycline, Tp, trimethoprim; HLR-Mup, high-level mupirocin resistance.

*Two isolates (t127) each carried *ermC* and *sat* genes, while the one t127 isolate lacked *aphA3*.

**one isolate lacked *qacC*.

***one isolate carried *mupA* and *fusB* and lacked *ermC*.

****t306 isolate carried *aacA-aphD*, while t688 isolate carried *ermC*, *tetK*, *fexA*.

●one t311 isolate lacked *scn*.

●●t16185 isolate lacked *ermC*