

Table S1: drug class resistance, resistance mechanism induced by antibiotic resistance genes and AMR gene family of the genes found in *S. aureus* isolates of NPDIB.

Gene	Drug class	Resistance Mechanism	AMR gene family
<i>ant(9)-Ia</i>	aminoglycoside antibiotic	antibiotic inactivation	ANT(9)
<i>ant(6)-Ia</i>	aminoglycoside antibiotic	antibiotic inactivation	ANT(6)
<i>aadD1</i>	aminoglycoside antibiotic	antibiotic inactivation	ANT(4')
<i>aph(3')-IIa</i>	aminoglycoside antibiotic	antibiotic inactivation	APH(3')
<i>aac(6')-Ie/aph(2'')-Ia</i>	aminoglycoside antibiotic	antibiotic inactivation	aminoglycoside bifunctional resistance protein
<i>aac(6')-Ie</i>	aminoglycoside antibiotic	antibiotic inactivation	AAC(6')
<i>aph(2'')-I</i>	aminoglycoside antibiotic	antibiotic inactivation	APH(2'')
<i>apmA</i>	aminoglycoside antibiotic	antibiotic inactivation	apm acetyltransferase
<i>spd</i>	aminoglycoside antibiotic	antibiotic inactivation	ANT(9)
<i>Abc-f</i>	antibiotics targeting protein synthesis	ribosomal antibiotic target protection	ABC-F subfamily ATP-binding cassette ribosomal protection
<i>dfrG</i>	diaminopyrimidine antibiotic	antibiotic target replacement	trimethoprim resistant dihydrofolate reductase dfr
<i>dfrS1</i>	diaminopyrimidine antibiotic	antibiotic target replacement	trimethoprim resistant dihydrofolate reductase dfr
<i>dfrB</i>	diaminopyrimidine antibiotic	antibiotic target replacement	trimethoprim resistant dihydrofolate reductase dfr
<i>dfrF</i>	diaminopyrimidine antibiotic	antibiotic target replacement	trimethoprim resistant dihydrofolate reductase dfr
<i>dfr(K)</i>	diaminopyrimidine antibiotic	antibiotic target replacement	trimethoprim resistant dihydrofolate reductase dfr
<i>parC</i>	fluoroquinolone antibiotic	antibiotic target alteration	fluoroquinolone resistant parC
<i>gyrA</i>	fluoroquinolone antibiotic	antibiotic target alteration	fluoroquinolone resistant gyrA
<i>parE</i>	fluoroquinolone antibiotic	antibiotic target alteration	fluoroquinolone resistant parE
<i>fusC</i>	fusidane antibiotic	antibiotic target protection	Target protecting FusB-type protein conferring resistance to Fusidic acid
<i>fus(A)</i>	fusidane antibiotic	antibiotic target alteration	antibiotic resistant fusA

<i>fusB</i>	fusidane antibiotic	antibiotic target alteration	Target protecting FusB-type protein conferring resistance to Fusidic acid
<i>bleO</i>	glycopeptide antibiotic	antibiotic inactivation	Bleomycin resistant protein
<i>vanA</i>	glycopeptide antibiotic	antibiotic target alteration	glycopeptide resistance gene cluster, Van ligase
<i>vanH-A</i>	glycopeptide antibiotic	antibiotic target alteration	vanH
<i>vanR-A</i>	glycopeptide antibiotic	antibiotic target alteration	vanR
<i>vanS-A</i>	glycopeptide antibiotic	antibiotic target alteration	vanS
<i>vanX-A</i>	glycopeptide antibiotic	antibiotic target alteration	vanX
<i>vanY-A</i>	glycopeptide antibiotic	antibiotic target alteration	vanY
<i>vanZ-A</i>	glycopeptide antibiotic	antibiotic target alteration	vanZ
<i>lnu(A)</i>	lincosamide antibiotic	antibiotic inactivation	lincosamide nucleotidyltransferase (LNU)
<i>mph(C)</i>	macrolide antibiotic	antibiotic inactivation	macrolide phosphotransferase (MPH)
<i>mup(A)</i>	mupirocin-like antibiotic	antibiotic target alteration	antibiotic-resistant isoleucyl-tRNA synthetase (ileS)
<i>ileS</i>	mupirocin-like antibiotic	antibiotic target alteration	antibiotic-resistant isoleucyl-tRNA synthetase (ileS)
<i>sat4</i>	nucleoside antibiotic	antibiotic inactivation	streptothricin acetyltransferase (SAT)
<i>rpIC_G152D</i>	oxalidinone antibiotic	ribosomal antibiotic target protection	<i>rplC</i> point mutation
<i>cfr</i>	oxazolidinone antibiotic, lincosamide antibiotic, streptogramin antibiotic, phenicol antibiotic	antibiotic target alteration	Cfr 23S ribosomal RNA methyltransferase
<i>mec C</i>	penam	antibiotic target replacement	methicillin resistant PBP2
<i>blaI</i>	penam (penicillins)	antibiotic inactivation	BlaZ beta-lactamase
<i>blaR1</i>	penam (penicillins)	antibiotic inactivation	BlaZ beta-lactamase
<i>mecA</i>	penam (penicillins)	antibiotic target replacement	methicillin resistant PBP2
<i>blaZ</i>	penam (penicillins)	antibiotic inactivation	BlaZ beta-lactamase
<i>mecR1</i>	penam (penicillins)	antibiotic target replacement	methicillin resistant PBP2
<i>mecI</i>	penam (penicillins)	antibiotic target replacement	methicillin resistant PBP2
<i>blaPC1</i>	penam (penicillins)	antibiotic inactivation	BlaZ beta-lactamase
<i>mprF</i>	peptide antibiotic	antibiotic target alteration	defensin resistant mprF
<i>walK</i>	peptide antibiotic	antibiotic target alteration	daptomycin resistant walK

<i>fex(A)</i>	phenicol antibiotic	antibiotic efflux	major facilitator superfamily (MFS) antibiotic efflux pump
<i>catA</i>	phenicol antibiotic	antibiotic inactivation	chloramphenicol acetyltransferase (CAT)
<i>cat-TC</i>	phenicol antibiotic	antibiotic inactivation	chloramphenicol acetyltransferase (CAT)
<i>fos(B)</i>	phosphonic acid antibiotic	antibiotic inactivation	fosfomycin thiol transferase
<i>murA</i>	phosphonic acid antibiotic	antibiotic inactivation	antibiotic-resistant murA transferase
<i>glpT</i>	phosphonic acid antibiotic	antibiotic inactivation	antibiotic-resistant glpT
<i>fosD</i>	phosphonic acid antibiotic	antibiotic inactivation	fosfomycin thiol transferase
<i>fosY</i>	phosphonic acid antibiotic	antibiotic inactivation	fosfomycin thiol transferase
<i>rpoB</i>	rifamycin antibiotic	antibiotic target alteration, antibiotic target replacement	rifamycin-resistant beta-subunit of RNA polymerase (rpoB)
<i>msr(A)</i>	streptogramin antibiotic, macrolide antibiotic, streptogramin B antibiotic	antibiotic target protection	msr-type ABC-F protein
<i>erm(A)</i>	streptogramin antibiotic, macrolide antibiotic, streptogramin B antibiotic, streptogramin A antibiotic, lincosamide antibiotic	antibiotic target alteration	Erm 23S ribosomal RNA methyltransferase
<i>erm(C)</i>	streptogramin antibiotic, macrolide antibiotic, streptogramin B antibiotic, streptogramin A antibiotic, lincosamide antibiotic	antibiotic target alteration	Erm 23S ribosomal RNA methyltransferase
<i>erm(B)</i>	streptogramin antibiotic, macrolide antibiotic, streptogramin B antibiotic, streptogramin A antibiotic	antibiotic target alteration	Erm 23S ribosomal RNA methyltransferase

	antibiotic, lincosamide antibiotic		
<i>vga(A)</i>	streptogramin antibiotic, streptogramin A antibiotic, lincosamide antibiotic, pleuromutilin antibiotic	antibiotic target protection	vga-type ABC-F protein
<i>erm(T)</i>	streptogramin antibiotic, streptogramin B antibiotic, macrolide antibiotic, lincosamide antibiotic, streptogramin A antibiotic	antibiotic target alteration	Erm 23S ribosomal RNA methyltransferase
<i>tet (38)</i>	tetracycline antibiotic	antibiotic efflux	major facilitator superfamily (MFS) antibiotic efflux pump
<i>Tet(K)</i>	tetracycline antibiotic	antibiotic efflux	major facilitator superfamily (MFS) antibiotic efflux pump
<i>tet(M)</i>	tetracycline antibiotic	antibiotic target protection	tetracycline-resistant ribosomal protection protein
<i>tet(L)</i>	tetracycline antibiotic	antibiotic efflux	major facilitator superfamily (MFS) antibiotic efflux pump
<i>tet(C)</i>	tetracycline antibiotic	antibiotic efflux	major facilitator superfamily (MFS) antibiotic efflux pump
<i>mepA</i>	tetracycline antibiotic, glycylcycline	antibiotic efflux	multidrug and toxic compound extrusion (MATE) transporter