

Whole genome sequencing of resistance, virulence and regulation genes in extremely resistant strains of *Pseudomonas aeruginosa*

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Table S1. Unique genes identified in the strains studied.

| Strain | Gene | Categor y | Subcateg ory | Group/System | Func tion | Antibiotic Resistance |
|--------|------------|-------------|-------------------|-----------------|---------------------------|-----------------------------------------|
| 637345 | mphE | Resistan ce | Modifying enzymes | Macrolides | Macrolide phosphorylation | Macrolides (Erythromycin, Azithromycin) |
| | APH(3')-VI | | | Aminoglycosides | Phosphotransferase | Aminoglycosides (Kanamycin, Amikacin) |
| | msrE | | | MSR | ABC efflux pump | Macrolides, Streptogramins |
| 547256 | pldA/tle5a | Virulence | Toxins | T6SS | Phospholipase D | — |
| | exoU | | | T3SS | Phospholipase | — |

| | | | | |
|---------|-----------------------|---------------------|-------------------------------|-----------------------------|
| | | pase A2 | | |
| rhsP2 | | T6SS | Rhs toxin | — |
| pvdIV | | | Nonribosomal peptide synthase | |
| pvdJ | Siderophores | Pioverdina | | — |
| cupC1 | Accession | Fimbrias Cup | Fimbrial subunit | — |
| pilA | Accession | Type IV Pili | Main sink | — |
| spcU | Secretion | T3SS | Chaperone | — |
| phzG2 | Secondary metabolites | Phenazines | Biosynthesis of phenazines | — |
| FosA | | Fosfomycin | Metallothioltransferase | Fosfomycin |
| arr-2 | Resistance | Modifyin g enzymes | ADP-ribosyltransferase | Rifampicin |
| PDC-385 | | β -lactamases | Class C Cephalosporinase | Cephalosporins, Penicillins |

| dfrA22 | | Resistance to trimethoprim | DHFR | Dihydrofolate reductase | Trimethoprim |
|--------------|---------|----------------------------|------|-------------------------|--------------|
| PA4541 | Unknown | — | — | Hypothetical protein | — |
| PLES_RS09940 | | | | | |

Table S2. Phenotype analysis with respect to the genotype of *Pseudomonas aeruginosa* strains.

| Class | Antibiotic | Related gene |
|------------------------------------------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Beta-lactam/betalactamase inhibitor | Piperacillin/Tazobactam | mexY, mexX, APH(3')-IIb, OpmH, MexB, mexM, OprM |
| | Ceftazidime/Avibactam | (Resistance:Efflux pump), OXA-395, bcr-1 (Resistance: Beta-lactamases), ArmR (Regulation) |
| Cephalosporins | Cefazolin | KPC-2, VIM-2 (Resistance: Beta-lactamases), MexB, OprJ, MexD, opmE, mexN (Resistance:Efflux pump) |
| | Ceftazidime | |
| | Cefepime | |
| Monobactam | Aztreonam | MuxC, MuxA (Virulence: Efflux pump), OpmB, MuxB (Resistance:Efflux pump) |
| Carbapenems | Meropenem | MexB, opmE, mexN (Resistance:Efflux pump) |
| Aminoglycosides | Amikacin | mexY, mexX, APH(3')-IIb, opmE, mexQ, mexN, mexP |
| | Gentamicin | (Resistance:Efflux pump) |
| Fluoroquinolones | Ciprofloxacin | MexA, MexE, OprN, MexW, MexV, MexC, MexF, MexI, MexB, MexG, mexM, OprJ, MexH, OprM, MexD, opmE, mexQ, mexN, mexP, MexL (Resistance:Efflux pump), ArmR (Regulation) |
| Glycylcyclines | Tigecycline | MexX, mexY, OprM (Resistance:Efflux pump) |
| Quaternary compounds | Benzalkonium chloride | emrE (Resistance:Efflux pump) |
| Inhibitor of bacterial protein synthesis | Chloramphenicol | catB7, MexI, MexB, OprM, mexQ, mexP, MexL (Resistance:Efflux pump) |

| | | |
|--------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Macrolides | Erythromycin | MexB, MexG, MexI, OprJ , MexH, OpmB, MexD, MuxB, OprM, mexQ, mexP, MexL, MexK, MexJ (Resistencia:Bomba de eflujo), MuxC, MuxA (Virulence: Efflux pump), ArmR (Regulation) |
| Polymyxins | Colistin | arnA (Resistance: Lipid A modification), ParS, basS (Resistance: Two-component systems) |
| Sulfonamides | Sulfamethoxazole, Sulfadiazine, Sulfisoxazole | sul1 (Resistance: Sulfonamines) |
| Antiseptic | Triclosan | TriB, TriA, TriC (Resistance:Efflux pump) |