

TITLE: THE NEW *lnu*(G)-CARRYING TRANSPOSON Tn6371 IN ST710 AND ST330 *Enterococcus faecalis* FROM FOOD-PRODUCING ANIMALS IN BRAZIL.

AUTHORS: LIMA, L.F.S.¹; SANTOS, C.S.¹; SILVA, N.C.¹; SILVA, A.T.¹; CAVALCANTE JÚNIOR, J.C.G.; CALUMBY, R.J.N.¹; FILSNER, P.²; MORENO, A.M.²; GRILLO, L.A.M.¹; ALMEIDA, L.M.¹

INSTITUTION: ¹UNIVERSIDADE FEDERAL DE ALAGOAS (UFAL), CAMPUS A.C SIMÕES (AV. LOURIVAL MELO MOTA, S/N TABULEIRO DO MARTINS, MACEIÓ, AL, BRASIL) E ²UNIVERSIDADE DE SÃO PAULO (USP), CIDADE UNIVERSITÁRIA (AV. PROFESSOR LINEU PRESTES, 580, SÃO PAULO, SP, BRASIL).

ABSTRACT:

The lincosamides lincomycin, clindamycin and pirlimycin are highly important veterinary antimicrobial agents. Resistance to lincosamides in bacteria from food-producing animals, including zoonotic pathogens, has emerged due to multidrug resistance genes coding for 23S rRNA methylases, ATP-binding cassette transporters, and lincosamide nucleotidyltransferase *lnu* genes coding enzymes that inactivate the antibiotic by adenylation. Here we report a new *lnu*(G)-carrying transposon (Tn6371) in five *Enterococcus faecalis* multidrug resistant strains (ST710 and ST330) isolated from healthy nursery pigs from two unrelated piggeries located in the states of São Paulo and Paraná, Brazil. Genomic DNA was sequenced (Illumina Miseq), assembled (CLC 8.0.3) and annotated (NCBI's PGAP). Minimum inhibitory concentration (MIC) was determined by broth microdilution testing (CLSI). All *E. faecalis* strains exhibited elevated MICs for lincosamides. The 4738-bp Tn6371 DNA segment was found to be inserted at the chromosomal *radC* gene. Tn6371 is a Tn554 family transposon carrying an 804 bp-*lnu*(G) gene (lincosamide inactivation nucleotidylation). The upstream region of Tn6371 was composed of a 453-bp beta-phosphoglucosyltransferase gene, while downstream a 201-bp cold shock protein *cspA* gene was detected. Tn6371 was inserted into the chromosome, but we confirmed by PCR and Sanger that it could be circularized in these 5 *E. faecalis* strains. Tn6371 carried variants of the transposase genes *tnpA*, *tnpB* and *tnpC* from Tn554, showing, respectively, 97.8%, 91.7%, and 82% DNA identity, and the *lnu*(G) gene sequence showed 100% DNA identity with various *lnu*(G) sequences from *Staphylococcus aureus*, *Enterococcus faecalis*, *Enterococcus faecium*, *Salmonella enterica*, and uncultured bacteria. The characterization of new mobile genetic elements is important for understanding the dissemination of resistance and evolution of multidrug resistant bacterial pathogens. A new mobile element (Tn6371) carrying the lincosamide nucleotidyltransferase gene *lnu*(G), which was recently found in China, was identified and described in *E. faecalis* from swine in Brazil.

Keywords: lincosamides, resistance, *Enterococcus faecalis*.

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