

Volume 144, Issue 14

October 2016, pp. 2967-2970

Colistin-resistant *Escherichia coli* clinical isolate harbouring the *mcr-1* gene in Ecuador

D. ORTEGA-PAREDES ^(a1), P. BARBA ^(a1) and J. ZURITA ^(a1) (a2)DOI: <https://doi.org/10.1017/S0950268816001369>

Published online: 22 June 2016

Abstract

Colistin resistance mediated by the *mcr-1* gene has been reported worldwide, but to date not from the Andean region, South America. We report the first clinical isolate of *Escherichia coli* harbouring the *mcr-1* gene in Ecuador. The strain was isolated from peritoneal fluid from a 14-year-old male with acute appendicitis, and subjected to molecular analysis. The minimum inhibitory concentration of colistin for the strain was 8 mg/ml and it was susceptible to carbapenems but resistant to tigecycline. The strain harboured *mcr-1* and *bla*_{CTX-M-55} genes and was of sequence type 609. The recognition of an apparently commensal strain of *E. coli* harbouring *mcr-1* serves as an alert to the presence in the region of this recently described resistance mechanism to one of the last line of drugs available for the treatment of multi-resistant Gram-negative infections.

Request permission (<https://s100.copyright.com/AppDispatchServlet?publisherName=CUP&publication=HY resistant%20%3Cspan%20class=%22italic%22%3EEscherichia%20coli%3C/span%3E%20clinical%20isolate%20 PAREDES,%20P.%20BARBA,%20J.%20ZURITA©right=COPYRIGHT:%20%C2%A9%20Cambridge%20Univer>)

Copyright

COPYRIGHT: © Cambridge University Press 2016

Corresponding author

*Author for correspondence: Dr J. Zurita, Zurita & Zurita Laboratorios, Av. De la Prensa N49-221 y Manuel Valdiviezo, Quito, Ecuador. (Email: jzurita@zuritalaboratorios.com)

Linked references

[Hide All](#)

This list contains references from the content that can be linked to their source. For a full set of references and notes please see the PDF or HTML where available.

2. YYLiu , Emergence of plasmid-mediated colistin resistance mechanism MCR-1 in animals and human beings in China: a microbiological and molecular biological study. *Lancet Infectious Diseases* 2016; 16: 161–168.
3. LFalgenhauer , Colistin resistance gene *mcr-1* in extended-spectrum β -lactamase-producing and carbapenemase-producing Gram-negative bacteria in Germany. *Lancet Infectious Diseases* 2016; 16: 282–283.
5. JJYan , Prevalence of SHV-12 among clinical isolates of *Klebsiella pneumoniae* producing extended-spectrum beta-lactamases and identification of a novel AmpC enzyme (CMY-8) in Southern Taiwan. *Antimicrobial Agents and Chemotherapy* 2000; 44: 1438–1442.
6. DCosta , Detection of *Escherichia coli* harbouring extended-spectrum beta-lactamases of the CTX-M, TEM and SHV classes in faecal samples of wild animals in Portugal. *Journal of Antimicrobial Chemotherapy* 2006; 58: 1311–1312.
8. TWirth , DFalush , R Lan . Sex and virulence in *Escherichia coli*: an evolutionary perspective. *Molecular Microbiology* 2006; 60: 1136–1151.
9. IJamborova , Plasmid-mediated resistance to cephalosporins and fluoroquinolones in various *Escherichia coli* sequence types isolated from rooks wintering in Europe. *Applied and Environmental Microbiology* 2015; 81: 648–657.
10. JHernandez , Globally disseminated human pathogenic *Escherichia coli* of O25b-ST131 clone, harbouring blaCTX-M-15, found in Glaucous-winged gull at remote Commander Islands, Russia. *Environmental Microbiology Reports* 2010; 2: 329–332.
11. PDamborg , CTX-M-1 and CTX-M-15-producing *Escherichia coli* in dog faeces from public gardens. *Acta Veterinaria Scandinavica* 2015; 57: 83.
13. HDu , Emergence of the *mcr-1* colistin resistance gene in carbapenem-resistant Enterobacteriaceae . *Lancet Infectious Diseases* 2016; 16: 287–288.
14. MDoumith , Detection of the plasmid-mediated *mcr-1* gene conferring colistin resistance in human and food isolates of *Salmonella enterica* and *Escherichia coli* in England and Wales. *Journal of Antimicrobial Chemotherapy*. Published online: 18 April 2016. doi:10.1093/jac/dkw093.
15. KZurfuh , Occurrence of the plasmid-borne *mcr-1* colistin resistance gene in extended-spectrum- β -lactamase-producing Enterobacteriaceae in river water and imported vegetable samples in Switzerland. *Antimicrobial Agents and Chemotherapy* 2016; 60: 2594–2595.
16. MSArcilla , Dissemination of the *mcr-1* colistin resistance gene. *Lancet Infectious Diseases* 2016; 16: 147–149.
17. MRapoport , *mcr-1*-mediated colistin resistance in human infections caused by *Escherichia coli*: First description in Latin America. *Antimicrobial Agents and Chemotherapy*. Published online: 18 April 2016. doi:10.1128/AAC.00573-16.