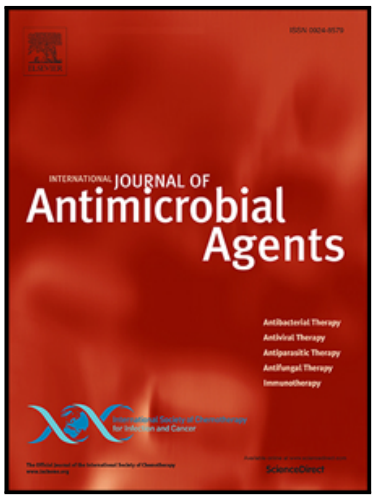

Sequencing of pT5282-CTXM, p13190-KPC and p30860-NR, and comparative genomics analysis of IncX8 plasmids

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PII: S0924-8579(18)30114-6
DOI: 10.1016/j.ijantimicag.2018.04.012
Reference: ANTAGE 5427

To appear in: *International Journal of Antimicrobial Agents*

Received date: 21 November 2017
Revised date: 8 April 2018
Accepted date: 11 April 2018

Please cite this article as: Haihong Fang , Jiao Feng , Yuanhong Xu , Ying Zhang , Zhe Zhan , Zhe Yin , Xiongbo Duan , Bo Gao , Yigang Tong , Jinglin Wang , Yanping Luo , Erhei Dai , Dongsheng Zhou , Sequencing of pT5282-CTXM, p13190-KPC and p30860-NR, and comparative genomics analysis of IncX8 plasmids, *International Journal of Antimicrobial Agents* (2018), doi: 10.1016/j.ijantimicag.2018.04.012

Highlights

- A replicon-based scheme for typing IncX into nine separately clustering subgroups, including IncX1α, IncX1β and IncX2–8, was proposed.
- The complete nucleotide sequences of three IncX8 plasmids, namely pT5282-CTXM, p30860-NR and p13190-KPC, were determined and compared with all the other two previously sequenced IncX8 plasmids pCAV1043-58 and pCAV1741-16.
- These five plasmids possessed conserved IncX8 backbones with limited genetic variations with respect to gene content and organization, and each of them carried one or three accessory modules that harbored resistance markers and metabolic gene clusters as well as transposons, insertion sequence (IS)-based transposition units and miniature inverted repeat transposable elements, indicating that the relatively small IncX8 backbones were able to integrate various foreign genetic contents.
- The resistance genes $bla_{\text{CTX-M-3}}$ and $bla_{\text{TEM-1}}$, $bla_{\text{KPC-2}}$ and $\Delta bla_{\text{TEM-1}}$, and *tet*(A) and *mph*(E) were found in pT5282-CTXM, p13190-KPC, and pCAV1741-16, respectively, while p30860-NR and pCAV1043-58 carried no resistance genes.