



Investigations on the genomic diversity of OXA from isolated *Acinetobacter baumannii*

Z. Ma^{1,2}, L.Q. Zhou³, H. Wang⁴ and L.P. Luo¹

¹Department of Medical Imaging Center, The First Affiliated Hospital of Jinan University, Guangzhou, China

²Department of Respiratory Diseases, Shenzhen Longgang Central Hospital, Shenzhen, China

³Department of Neurosurgery, Shenzhen Longgang Central Hospital, Shenzhen, China

⁴Microbiology laboratory, Shenzhen Longgang Central Hospital, Shenzhen, China

Corresponding author: L.P. Luo

E-mail: luolp_jnu@163.com

Genet. Mol. Res. 14 (4): 14711-14716 (2015)

Received June 16, 2015

Accepted September 2, 2015

Published November 18, 2015

DOI <http://dx.doi.org/10.4238/2015.November.18.36>

ABSTRACT. We distinguished the four OXA-type carbapenemase subgroup alleles present in 120 strains of *Acinetobacter baumannii* by using polymerase chain reaction (PCR) and investigated the distributions of the OXA subgroups in clinically isolated samples. Amplification of the OXA genes *bla*OXA-23, *bla*OXA-24, *bla*OXA-51, and *bla*OXA-58 was performed by multiplex PCR. Antibiotics susceptibility test was conducted for determine the sensitivity of the *A. baumannii* to clinical common used antibiotics by Kirby-Bauer method. Results revealed that 46 (51.69%) of the samples were positive for only the *bla*OXA51 gene and 41 (46.07%) were positive for both the *bla*OXA51 and *bla*OXA58 genes in the 89 isolates of *A. baumannii*. Among these, 45 were carbapenem-resistant and 44 carbapenem-sensitive. Strains containing either *bla*OXA51 or *bla*OXA58 showed resistance or sensitivity to carbapenems, respectively. *A. baumannii* isolated from intensive care units showed significantly higher resistance rate to Cefepime, Piperacillin-tazobactam, Amikacin,

Ceftazidime, Cefotaxime, Sulfamethoxazole-trimethoprim, and Gentamicin than those isolated from other departments ($P < 0.05$). In conclusion, we found that the presence of blaOXA-51 and blaOXA-58 appears to convey a mechanism of resistance or sensitivity to carbapenems, respectively, in *A. baumannii* clinical isolates.

Key words: Genomic diversity; OXA; *Acinetobacter baumannii*