Correspondence

Sir,

We recently published a paper describing the distribution of OXA and IMP β-lactamases in Acinetobacter spp. from Singapore. Since that manuscript was submitted, there has been accumulating evidence suggesting that OXA-51-type β-lactamases are ubiquitous in Acinetobacter baumannii sensu stricto.

To resolve the identity of isolates from our original study that were identified using biochemical tests as A. baumannii, but were negative for blaOXA-51-type genes, we used PCR to re-test all 12 strains using a new set of universal blaOXA-51-type primers. We also sequenced the 16S rDNA gene (first 500 bp) using primer 8FPL described by Relman and in-house primer 515R (5'-TTA CCG CGG CAG CTG GCA C-3'), and the 16–23S rRNA gene intergenic spacer using the primers described by Chang et al. In addition, we tested for the presence of the efflux genes adeB, adeE and adeY using the primers described by Chu et al. Since it has been shown that the AdeABC multidrug efflux pumps are intrinsic to A. baumannii, whereas the AdeDE and AdeXY pumps are found predominantly in Acinetobacter genomospecies 3.

The final definition of strains to species level was based primarily on the 16–23S rRNA gene intergenic spacer sequences but also took into consideration the results of all the other tests (Table 1). Five strains were positive for blaOXA-51-type genes with the new primer set and remain identified as A. baumannii. Another five strains were re-identified as either Acinetobacter genomospecies 3 or Acinetobacter genomospecies 13TU. Conflicting results did not allow us to discriminate within the Acinetobacter calcoaceticus–Acinetobacter baumannii complex for two isolates.

The segregation of carbapenemase genes between the different Acinetobacter genomospecies is striking (Table 1). Of particular note, the IMP-4 metallo-β-lactamase is found in either Acinetobacter genomospecies 3 or Acinetobacter genomospecies 13TU but not in A. baumannii. Our data do support the hypothesis that blaOXA-51-type genes are intrinsic to A. baumannii. The distribution of efflux genes is also consistent with that reported by Chu et al. The A. calcoaceticus–A. baumannii complex is composed of four closely related species (A. calcoaceticus, A. baumannii, Acinetobacter genomospecies 3 and Acinetobacter genomospecies 13TU), which are difficult to differentiate phenotypically using traditional laboratory biochemical tests and commercial kits. In routine clinical practice, this distinction between the species is not usually clinically relevant and is rarely attempted. However, it may be important to define members of the A. calcoaceticus–A. baumannii complex to species level when describing the presence of β-lactamases and other resistance determinants. As Turton et al. suggest, β-lactamase-gene-specific PCR may be a good way to speculate Acinetobacter spp.

The 16S rDNA and 16–23S rRNA gene intergenic spacer sequences were deposited in GenBank under the following accession numbers EU030630–EU030641 and EU030647–EU030658.

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Transparency declarations

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References

8. IMS HEALTH Midas database; 1 April 2002 to 31 March 2007.

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Carbapenemase and efflux pump genes in Acinetobacter calcoaceticus–Acinetobacter baumannii complex strains from Singapore

Tse Hsien Koh,† Li-Hwei Sng, Grace Chee Yeng Wang, Li-Yang Hsu† and Yi Zhao†

1Department of Pathology, Singapore General Hospital, Outram Road, Singapore 169608, Singapore; 2Department of Internal Medicine, Singapore General Hospital, Outram Road, Singapore 169608, Singapore; 3Department of Clinical Research, Singapore General Hospital, Outram Road, Singapore 169608, Singapore

Keywords: metallo-β-lactamase, IMP, OXA

*Corresponding author. Tel: +65-6321-4275; Fax: +65-6222-6826; E-mail: koh.tse.hsien@sgh.com.sg

†Present address. Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore, 5 Lower Kent Ridge Road, Singapore 119074, Singapore.
Correspondence

Table 1. Resistance genes found in A. calcoaceticus–A. baumannii complex strains

<table>
<thead>
<tr>
<th>Strain</th>
<th>( \text{bla}_{\text{OXA-23}} )</th>
<th>( \text{bla}_{\text{OXA-58}} )</th>
<th>( \text{bla}_{\text{OXA-51-type}} )</th>
<th>( \text{bla}_{\text{IMP-4}} )</th>
<th>( \text{adeB} )</th>
<th>( \text{adeE} )</th>
<th>( \text{adeY} )</th>
<th>Species</th>
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<tr>
<td>DU32993/01</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>A. baumannii</td>
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<tr>
<td>DM19034/01</td>
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<td>−</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>A. baumannii</td>
</tr>
<tr>
<td>DR25612/96</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>Acinetobacter genomospecies 13TU</td>
</tr>
<tr>
<td>DR32226/96</td>
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<td>+</td>
<td>−</td>
<td>+</td>
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<td>−</td>
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<tr>
<td>DB30014/96</td>
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<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
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<tr>
<td>DM169/96</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>+</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>Acinetobacter genomospecies 3</td>
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<tr>
<td>DM21785/01</td>
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<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
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<td>−</td>
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<td>−</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>A. baumannii</td>
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</table>

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None to declare.

References


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Panresistant extended-spectrum β-lactamase
SHV-5-producing Acinetobacter baumannii from New York City

Thierry Naas1*, Fatemeh Namdari1, Hélène Réglie-Poupet2, Claire Poyart2 and Patrice Nordmann1

1Service de Bactériologie-Virologie, Hôpital de Bicêtre, Assistance Publique/Hôpitaux de Paris, Faculté de Médecine Paris Descartes, Université Paris V, 75014 Paris, France
2Service de Bactériologie-Virologie, Hôpital de Bicêtre, Assistance Publique/Hôpitaux de Paris, Faculté de Médecine Paris Sud, Université Paris XI, 78 rue du Général Leclerc, 94275 K-Bicêtre, France

Keywords: ESBLs, inter-country spread, multidrug resistance, carbapenem resistance

*Corresponding author. Tel: +33-1-45-21-29-86; Fax: +33-1-45-21-63-40; E-mail: thierry.naas@bct.ap-hop-paris.fr

Sir,
Over the last decade, nosocomial infections of Acinetobacter baumannii have been described with an increasing trend towards multidrug resistance, mostly in intensive care units.1 The main mechanisms of resistance to extended-spectrum cephalosporins in A. baumannii are the overexpression of chromosome-encoded cephalosporinases and plasmid-encoded Ambler class A, B and D β-lactamases.1 A. baumannii producing extended-spectrum β-lactamases (ESBLs) have also been reported: PER-1 from Turkey, Korea, Russia, Romania, Belgium and France; VEB-1 from France and Belgium; TEM-116 and SHV-12 from China and the Netherlands; and CTX-M-2 from Korea.2,3 However, ESBL-producing A. baumannii strains remain susceptible to carbapenems.1,2 Recently, a carbapenem-resistant PER-1-producing strain from Russia has been described.2 Here, we report the first ESBL-producing A. baumannii isolate from the USA being susceptible only to colistin and rifampicin.

An 80-year-old man with a 5 year history of prostatic carcinoma and metastasis was admitted at the Cochon Hospital in Paris for acute urine retention in the right nephrostomy in February 2005. The bilateral nephrostomy was performed in December 2004 at a New York City hospital. Between his stay in New York and his emergency hospitalization in Paris, no hospitalization or antibiotic treatment is known. This patient also had urine and blood cultures with Klebsiella pneumoniae YC producing the plasmid-encoded class A carbapenemase KPC-2.4 At the day of his admission, cultures from rectal swabs revealed a carbapenem-resistant A. baumannii strain YC. During the same period of time, no other A. baumannii isolate with a