EV0462
ePoster Viewing
Diagnostic bacteriology – culture based

Specificity of the OXA-48 immunochromatographic K-SeT for the detection of OXA-48 like in Shewanella spp.

Pierre Bogaerts*[1], Stéphanie Evrard[2], Gaelle Cuzon[3], Te-Din Huang[4], Thierry Naas[5], Youri Glupczynski[2]

[1]*Chu Dinant-Godinne Ucl Namur, National Reference Center for Antimicrobial Resistance in Gram, Yvoir, Belgium*

[2]*Centre National de Référence de la Résistance Aux Antibiotiques, Chu Dinant-Godinne Ucl Namur, Yvoir, Belgium*

[3]*Chu Bicetre, Cnr Resistance Aux Antibiotiques, Ea7361, Université Paris Sud, Service de Bacteriologie, Le Kremlin-Bicêtre, France*

[4]*Chu Ucl Namur (Université Catholique de Louvain), Site Godinne, Laboratory of Microbiology, Yvoir, Belgium*

[5]*Ea7361, Upsud, Hôpital de Bicêtre, Aphp, Le Kremlin Bicêtre, France*

Background: Carbapenemase-producing Enterobacteriaceae (CPE) represent a growing health concern worldwide. In this context, their timely and accurate detection constitute one of the priority core action. We recently developed and evaluated an immunochromatographic assay (ICA, OXA-48 *K*-SeT) aiming to detect OXA-48-like-producing Enterobacteriaceae from culture. Chromosome-encoded beta-lactamases of *Shewanella* spp have been recognized as progenitors of $bla_{\text{OXA-48-like}}$ genes and some of these species may transiently colonize the digestive tract, and occasionally also be responsible of infections in humans. We therefore aimed to challenge the specificity of the OXA-48 K-SeT against *Shewanella* spp isolates.

Material/methods: Fifteen environmental and clinical isolates of *Shewanella* spp (*S. algae* [n=6], *S. putrefaciens* [n=5], *S. xianemensis* [n=2], *S. oinodensis*, [n=1] and *Alishewanella fetalis* [n=1] were grown on TSA sheep blood for 24 hours at 35 °C. The antimicrobial susceptibility testing was performed by disc diffusion method on Mueller-Hinton agar. The presence of $bla_{\text{OXA-48}}$ was detected according to in house ISO15189 end-point PCR followed by sequencing. Finally, all isolates were then tested with the OXA-48 ICA according to the manufacturer's protocol.

Results: 13 out of the *Shewanella/Alishewanella* spp. isolates were found susceptible to most antimicrobial classes including carbapenems. Two strains (*S. xiamenensis* and *S. putrefaciens*) displayed decreased susceptibility or resistance to carbapenems, but remained susceptible to temocillin. By means of the OXA-48 K-SeT, 5 out of the 15 strains yielded a positive OXA-48 result (*S. xiamenensis* [n=2] and *S. putrefaciens* [n=3]). All five OXA-48 K-SeT positive isolates yielded positive PCR results for OXA-48-like carbapenemase. The 10 *Shewanella*/*Alishewanella* spp isolates that were negative for OXA-48 K-SeT results displayed a wild type highly susceptibility profile and were PCR negative for OXA-48. Our results suggest that OXA-48/OXA-181 coding genes may sufficiently be expressed in certain *Shewanella* spp as they are detected by the ICA eventhough these isolates mostly remain fully susceptible to carbapenems.

Conclusions: Cross-reactivity with OXA-48 harbouring *Shewanella* spp can be observed with the OXA-48 K-SeT. Based on these observations, it is advised not to test *Shewanella* spp for the presence of OXA-48-like proteins by the OXA-48 K-SeT, also taking into account that this group of organisms does not belong to Enterobacteriaceae and is not relevant when screening CPE by culture methods (absence of growth of *Shewanella* spp on selective carbapenem-containing media).