Class 1 integrons in Acinetobacter baumannii: a weak expression of gene cassettes to counterbalance the lack of LexA-driven integrase repression

Titre	Class 1 integrons in Acinetobacter baumannii: a weak expression of gene cassettes to counterbalance the lack of LexA-driven integrase repression
Type de publication	Article de revue
Auteur	Couvé-Deacon, Elodie [1], Jové, Thomas [2], Afouda, Pamela [3], Barraud, Olivier [4], Tilloy, Valentin [5], Scaon, Erwan [6], Hervé, Bastien [7], Burucoa, Christophe [8], Kempf, Marie [9], Yugueros Marcos, Javier [10], Ploy, Marie-Cecile [11], Garnier, Fabien [12]
Editeur	Elsevier
Type	Article scientifique dans une revue à comité de lecture
Année	2018
Langue	Anglais
Date	23 Nov. 2018
Titre de la revue	International journal of antimicrobial agents
ISSN	1872-7913
Mots-clés	Acinetobacter baumannii [13], Cassette promoter [14], Integrase [15], Integron [16], PcS [17], regulation [18]
Résumé en anglais	Integrons are able to recruit resistance genes through integrase-driven recombination events that are regulated by the bacterial SOS response and require the repressor LexA. Class 1 integrons genes are expressed from a common promoter, Pc, of which at least 5 predominant variants, classified from weak to strong, have been described. In Escherichia coli, there is an intertwined regulation between gene cassette expression and integrase activity: the stronger the promoter is, the weaker the integrase is. Class 1 integrons have been frequently described in Acinetobacter baumannii. However, Acinetobacter spp. lack the LexA repressor suggesting that the integrase is constitutively expressed. We characterized the integron content of 83 clinical and environmental A. baumannii strains. We found a predominance of Pc variants described as strong in E. coli. The Pc expression level was 2 to 4-fold lower in A. baumannii than in E. coli, and the diversity of the gene cassette array was low. In A.baumannii integrons with a PcS promoter might have been selected to allow a sufficient resistance level while avoiding the toxicity of a highly active integrase. Furthermore, a transcriptional interference between PcS and PintI1 (as shown in E.coli) may limit the expression of the integrase and thus counterbalance the lack of LexA-driven integrase repression to prevent the cost of the integrase.
URL de la notice	http://okina.univ-angers.fr/publications/ua18628 [19]
DOI	10.1016/j.ijantimicag.2018.11.012 [20]
Lien vers le document	https://www.sciencedirect.com/science/article/pii/S0924857918303376?via%... [21]

Titre abrégé	Int. J. Antimicrob. Agents
Identifiant (ID) PubMed	30476570 [22]

Liens
[1] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32937
[2] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32938
[3] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32939
[4] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32940
[5] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32941
[6] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32942
[7] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32943
[8] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=19705
[9] http://okina.univ-angers.fr/marie.kempf/publications
[10] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32945
[11] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=8078
[12] http://okina.univ-angers.fr/publications?f%5Bauthor%5D=32946
[13] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=9266
[14] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=26888
[15] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=26890
[16] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=26887
[17] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=26889
[18] http://okina.univ-angers.fr/publications?f%5Bkeyword%5D=10508
[19] http://okina.univ-angers.fr/publications/ua18628
[20] http://dx.doi.org/10.1016/j.ijantimicag.2018.11.012
[21] https://www.sciencedirect.com/science/article/pii/S0924857918303376?via%3Dihub
[22] http://www.ncbi.nlm.nih.gov/pubmed/30476570?dopt=Abstract