

O23 THREE NOVEL VARIANTS OF THE ABAR3 RESISTANCE ISLAND IN MULTIDRUG-RESISTANT *ACINETOBACTER BAUMANNII* STRAINS OF EUROPEAN CLONE I

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Multidrug-resistant (MDR) strains of *Acinetobacter baumannii* often belong to one of three international clonal lineages termed European (EU) clones I, II and III. So far, five structurally related genomic resistance islands (AbaR) integrated into the ATPase gene have been described in MDR strains of EU clone I. These islands, i.e. AbaR1, AbaR3, AbaR5, AbaR6 and AbaR7 (sized 20-86 kb), share several conserved regions, e.g. transposon Tn6020 with the *aphA1* gene and class 1 integron with the *aacC1*-(orfP)₁₋₂-orfQ-*aadA1* gene cassette array.

In the present study, we describe three novel AbaR variants in EU clone I strains. MDR *A. baumannii* strains RUH 875 (isolated in Dordrecht, The Netherlands, 1984; a reference strain of EU clone I), RUH 3247 (Leuven, Belgium, 1990) and LUH 6125 (Krakow, Poland, 1998) were investigated. These strains were previously allocated to EU clone I and yielded resistance gene patterns different from those associated with the AbaR islands hitherto described in EU clone I. Strain HK302 (*Antimicrob Agents Chemother* 1982; 22:323) harboring AbaR3, was used as a positive control for the detection of the AbaR3-associated genes and PCR mapping.

The disruption of the ATPase gene was detected in all strains using PCR with primers derived from both ends of the gene. Of 20 AbaR3-associated genes tested, 18, 18 and 16 were identified in RUH 875, RUH 3247 and LUH 6125, respectively. PCR mapping followed by RFLP analysis and/or partial sequencing of amplicons revealed that individual strains harbored islands structurally mostly related to AbaR3. However, the three islands differed from each other in the regions identified in all hitherto known AbaR islands of EU clone I. A 53-kb island found in LUH 6125 lacked the Tn6020 transposon with *aphA1* and a part of transposon Tn3. The islands of RUH 3247 and RUH 875, sized 61.2 and 61.1 kb, respectively, differed from AbaR3 only in the structure of class 1 integrons. While RUH 3247 harbored integron with an *aacA4* cassette, RUH 875 carried integron with *dfrA1*.

In conclusion, three novel variants of AbaR3 were found in EU clone I strains, suggesting that structurally related resistance islands are common in strains of this clone. The diversification of AbaR3-like structures may have contributed to the heterogeneity of resistance patterns of EU clone I strains.