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The Widespread Multidrug-Resistant Serotype O12 *Pseudomonas aeruginosa* Clone Emerged through Concomitant Horizontal Transfer of Serotype Antigen and Antibiotic Resistance Gene Clusters.

Thrane SW, **Taylor VL**, Freschi L, Kukavica-Ibrulj I, Pirnay JP, Lévesque RC, **Lam JS**, Jelsbak L. MBio. 2015; 6(5)

Pseudomonas aeruginosa is a ubiquitous γ -proteobacterium that thrives worldwide in soil and aquatic habitats. Being an opportunistic pathogen, *P. aeruginosa* has become the worldwide most common Gram-negative pathogen for severe nosocomial infections. Some *P. aeruginosa* clone types, however, have a low pathogenic potential for mammalian hosts because they lack the required genetic repertoire to establish a niche and to combat the host defense.

Thrane et al. now demonstrate that these avirulent clone types are not innocuous: in the 1980s, serotype switching occurred in the multi locus sequence type ST111 by horizontal transfer of a genomic island from a lowly pathogenic taxonomic outlier. The introduction of serotype O12 was accompanied by the acquisition of an antibiotic resistance determinant. Thus, sequence type ST111 became multidrug resistant and is increasingly widespread in hospital settings in Europe.

This case demonstrates that recombination and horizontal gene transfer can rapidly modify fitness and niche adaptation of individual clones and thereby continuously change the structure of the *P. aeruginosa* population.

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