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Identification and characterization of a putative mega polysaccharide gene cluster in *Enterococcus faecium*

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Abstract

Enterococci have until recently been considered as harmless commensals. In last two decades *Enterococcus faeca*l is and *Enterococcus faecium* have emerged as important multi-resistant nosocomial pathogens causing bacteremia, endocarditis, surgical wound infections, urinary tract and device-related infections especially in debilitated patients. The bacterial cell wall is a complex structure allowing bacteria to interact with their environment and providing the factors needed for growth in their specific ecological niche. The enterococcal cell wall contains in addition to the peptidoglycan also proteins, lipids, and capsular polysaccharides. Cell-wall polysaccharides are key contributors to the virulence of many microorganisms. In *E. faecium* we found a larger locus which contains 32 genes using genome comparison of already sequenced strains. This locus has no homology to known capsule genes and the epa-locus but contains many genes coding for glycosyl transporters. For further analysis we created knock-out mutants in this putative polysaccharide locus. The aim of this study was to analyse this putative polysaccharide locus and its function during *E. faecium* infection because capsular polysaccharides have been used successfully as vaccines for many bacterial species for more than a century. The identification of a new specific polysaccharide in *E. faecium* will lead the way to the establishment of studies to assess the protective efficacy of this as vaccine candidates to treat and/or prevent enterococcal infections.

Biography

She studied chemistry and completed her PhD in Biochemistry and Medical Microbiology at Ruhr-University Bochum in Germany. She was the PI of several Staphylococcus projects for about 10 years at Ruhr-University Bochum. There she investigated the virulence factors of *S. saprophyticus*. She has long term teaching experience in medical microbiology and in molecular microbiology. From 2012 on she is assistant professor at the University Medical Centre and University of Freiburg. She has published more than 25 papers in peer reviewed journals.