

## Identification and Characterization of Virulence Markers of *Streptococcus suis* type 2

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*Streptococcus suis* infections are a common cause of meningitis, arthritis and polyserositis in young pigs and also cause meningitis in humans. Strains can differ in virulence. We have identified two proteins which are associated with pathogenic strains. Strains that express a 136-kDa muramidase-released protein (MRP) and a 110-kDa extracellular protein (EF) are pathogenic and cause specific signs of disease in piglets after intranasal inoculations. Strains that do not express MRP and EF and strains that express MRP and an enlarged form of EF (EF\*) cause no or nonspecific signs of disease in piglets. The genes encoding MRP, EF and EF\* have been cloned and characterized. Using those genes, we have constructed mutants of *S. suis* type 1 and 2 by inactivating the *mrp* and *epf* genes. For this purpose we developed an efficient DNA transfer system for *S. suis* by the use of electroporation. The pathogenicity of the mutant strains was tested in pigs. Mutant strains of serotype 2 were as virulent as the wild type. However, preliminary data indicate that a mutant MRP-EF-strain of serotype 1 is less virulent than the wild type strain of serotype 1.

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