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The bacterial factors necessary for the survival of *Neisseria gonorrhoeae* in Neutrophils.

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Background

Infection with *Neisseria gonorrhoeae* results in a potent neutrophil (polymorphonuclear leukocyte, PMN)-driven inflammatory response. Despite a robust immune response, viable gonococci are recovered from neutrophil-rich patient exudates, indicating that these pathogens can survive the neutrophil attack in vivo. It is currently unclear how the bacteria survive within PMNs. Therefore, identifying specific bacterial factors facilitating survival is essential to get a mechanistic understanding of this critical host-pathogen interaction.

Aim/Methods

We made use of a complex *N. gonorrhoeae* transposon library to screen for bacterial factors that play a role in the interaction of gonococci with PMNs. Among the identified candidates was a cluster of genes organized in an operon and annotated to be involved in lactate metabolism

Results

Specific deletion of these genes in strain MS11 did not cause major growth defects in the culture medium but exhibited lower survival rates in neutrophils compared to the wild-type strain. As the genes involved in lactate metabolism are part of an operon, polar effects of the individual mutations were excluded. The function of these genes is currently being investigated.

Conclusions

These studies could reveal the importance of lactate metabolism in the biology of gonococci and its role in persistence in neutrophils.