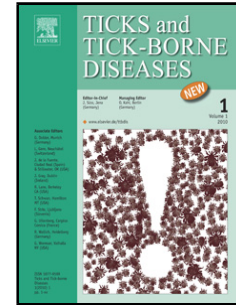


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**The Oligopeptide ABC transporter OppA4 negatively regulates the virulence factor OspC
production of the Lyme disease pathogen**

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Running Title: OppA4 negatively regulates *ospC* expression

ABSTRACT

Borrelia burgdorferi sensu lato, the agent of Lyme disease, exists in nature through a complex enzootic life cycle that involves both ticks and mammals. The *B. burgdorferi* genome encodes five Oligopeptide ABC transporters (Opp) that are predicted to be involve in transport of various nutrients. Previously, it was reported that OppA5 is important for the optimal production of OspC, a major virulence factor of *B. burgdorferi*. In this study, possible role of another Oligopeptide ABC transporter, OppA4 in *ospC* expression was investigated by construction of an *oppA4* deletion mutant and the complemented

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