Distinct intensity of host-pathogen interactions in *Chlamydia psittaci*- and *Chlamydia abortus*-infected chicken embryos.

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Abstract

Factors and mechanisms determining the differences in virulence and host specificity between the zoonotic agents Chlamydia psittaci and Chlamydia abortus are still largely unknown. In the present study, two strains were compared for their invasiveness, virulence, and capability of eliciting an immune response in chicken embryos. On breeding day 10, embryonated chicken eggs were inoculated with 5 × 10(4) inclusion-forming units. As shown by immunohistochemistry and quantitative real-time PCR, C. psittaci displayed a significantly better capability of disseminating in the chorioallantoic membrane (CAM) and internal organs than C. abortus. The higher infectious potential of C. psittaci in birds was underlined by significantly higher mRNA expression rates of essential chlamydial genes, such as incA, groEL (in CAM, liver, and spleen), cpaf, and ftsW (in CAM). Although the immune responses to both pathogens were similar, C. psittaci elicited higher macrophage numbers and a stronger expression of a subset of immune-related proteins. The data imply that invasiveness of Chlamydia spp. and propagation in the host are not solely dependent on

the level of host immune response but, even to a greater extent, on the expression of bacterial factors related to virulence. The fact that C. psittaci has coped far better than C. abortus with the avian embryo's response by upregulating essential genes may be a key to understanding the mechanisms underlying host adaptation and etiopathology.

Beteiligte Forschungseinheiten

Zell- und Molekularbiologie Mehr erfahren

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