The immune response against *Chlamydia suis* partially protects against re-infection

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The aim of the present study was to reveal the characteristic features of genital C. suis infection and re-infection in sows by studying the immune response, pathological changes, replication of chlamydial bacteria in the genital tract and excretion of viable bacteria. Gilts were intravaginally infected and re-infected with *Chlamydia suis* strain S45, the type strain of this species. We demonstrated that S45 is pathogenic for the female urogenital tract. Chlamydia replication occurred throughout the urogenital tract, causing inflammation and pathology. Furthermore, genital infection elicited both cellular and humoral immune responses. Compared to the primo-infection of gilts with Chlamydia suis, reinfection was characterized by less severe macroscopic lesions and less Chlamydia elementary bodies and inclusions in the urogenital tract. This indicates the development of a certain level of protection following the initial infection. Protective immunity against re-infection associated with higher Chlamydia-specific IgG and IgA antibody titers in sera and vaginal secretions, higher proliferative responses of peripheral blood mononuclear cells (PBMC), higher percentages of blood B lymphocytes, monocytes and CD4⁻CD8⁺ T cells and upregulated production of IFN-γ and IL-10 by PBMC.