PGP3 is a Chlamydial Plasmid-Encoded Virulence Factor

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Abstract

Sexually transmitted infections with Chlamydia can lead ectopic pregnancy and tubal infertility. However, the precise pathogenic mechanisms remain unclear. The chlamydial cryptic plasmid is known to play a critical role in chlamydial pathogenesis in the genital tract. *C. muridarum* depleted of plasmid or deficient in the plasmid-encoded pGP3 protein was highly attenuated in ascending infection and inducing upper genital tract pathology, demonstrating that the plasmid-encoded pGP3 is a key virulence factor. pGP3 was found to neutralize the antichlamydial activity of the host antimicrobial peptides particularly the cathelicidin peptide LL-37 (human) or CRAMP (mice). This pGP3-mediated neutralization was dependent on Pgp3 to form stable complexes with LL-37. The complex formation was further mapped to the middle domain of pGP3. These observations suggest that Chlamydia may secrete Pgp3 for trapping antimicrobial peptides during chlamydial spreading from cell to cell in the genital tract mucosal tissue. The tertial (huma[illegible]found -[illegible]Pg-[illegible]ceink[illegible]the de-[illegible], w-[illegible]apt[illegible]P[illegible]

infection [10]. Since Chlamydiae complete their biosynthesis inside the inclusion body, any chlamydial proteins that are secreted outside the inclusion may be used by chlamydial organisms as virulence factors for

correlates with chlamydial induction of hydrosalpinx in the upper genital tract, it is reasonable to hypothesize that pGP3 may promote chlamydial pathogenicity in the upper genital tract by promoting chlamydial colonization in the GI tract. T us, investigating how Pgp3 promotes chlamydial colonization in the GI tract is medically relevant although Chlamydia is not a GI tract pathogen.

Since chlamydial colonization in the GI tract alone is not pathogenic in animals [48] and not associated with any pathologies in humans, the question whether chlamydia is a commensal species in the GI tract has been raised. T us, it is possible that Chlamydia may have

33.