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Oral Presentation O2.2

**THE CONTRIBUTION OF COPB IN THE FUNCTION OF THE TYPE III
SECRETION APPARATUS FOUND WITHIN *CHLAMYDIA TRACHOMATIS***

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Chlamydia trachomatis is an obligate intracellular parasite that exists in two major forms during its developmental cycle: as an infectious particle known as an Elementary Body (EB) and *Chlamydia trachomatis* is an obligate intracellular parasite that exists in two forms during as a metabolically active, yet noninfectious Reticulate Body (RB). RBs replicate within an intracellular vacuole termed an inclusion. Gram-negative bacteria use a type III secretion system (TTSS) to export bacterial proteins into the extracellular environment or directly into eukaryotic cells (Hueck, CJ. 1998). The chlamydial genome contains genes encoding a type III secretion apparatus and it has been shown that TTSS is functional in *C. trachomatis* (Fields, KA. 2000). It is speculated that the TTSS is utilized by *Chlamydia* to deploy proteins that modulate host-cell pathways in order to maximize full virulence and to maintain the integrity of its intracellular niche. CopB (chlamydial outer protein B) may be the earliest protein exported by the TTSS, embedding itself into the eukaryotic membrane. This would suggest that CopB plays an important structural role in the initiation of the secretion pathway by creating a pore between cellular environments. The current paradigm of the TTSS illustrates that secretion is contact-dependent, indicating that only when bacteria come into contact with a host cell are effector proteins injected directly into the host cell cytoplasm (Hueck, CJ. 1998). However, expression studies have confirmed by immunoblot analysis that CopB is translocated from the cytoplasm of the bacteria into the eukaryotic membrane approximately 2 hours post-infection. This implies that the TTSS is independent and regulated by a mechanism other than contact in *C. trachomatis*. Furthermore, the data suggest that the protein apparatus is established prior to invasion and functions early in infection.