

P0511 Rescue of *Chlamydia trachomatis* tryptophan depletion with indoleClaudio Foschi¹, Chiara Zalambani¹, Melissa Salvo¹, Christian Bergamini², Romana Fato², Antonella Marangoni*¹¹ DIMES, Microbiology, University of Bologna, Bologna, Italy, ² FaBit, University of Bologna, Bologna, Italy

Background: *Chlamydia trachomatis* (CT) is the agent of the most common bacterial sexually transmitted infection. This microorganism can infect different epithelial targets, such as the genital tract and the rectal mucosa. In particular stressful conditions, as the deprivation of tryptophan induced by IFN- γ , CT fails to successfully replicate inside the epithelial cells and switches to a persistence state. This condition can be reverted by the presence of indole, used by CT for tryptophan re-synthesis. In vivo, CT can find high levels of indole in the intestinal tract, thanks to enterobacteria, as *Escherichia coli*.

The aim of this study was to investigate the role played by indole in the rescue of a normal chlamydial cycle for two different CT serovars (D and L2), in an in-vitro model of intestinal cells pre-exposed to INF- γ .

Materials/methods: Intestinal cells (i407), grown normally for 24 hours in individual tubes, were exposed to INF- γ (10 ng/ml) for 24 hours before chlamydial infection. Afterwards, cells were infected with a total of 2500 elementary bodies of CT serovar D or L2 and incubated for 48h. A state of persistence was then confirmed by the presence of 'aberrant inclusions' and by the inability of chlamydiae to normally replicate.

Different doses of purified indole (1, 10 and 20 μ M) or different amounts of filtered supernatants (5 and 10 μ l, corresponding to 1.25 and 2.5 μ M indole concentrations, respectively) collected from a broth culture of *Escherichia coli*, were added to cell cultures, in order to evaluate the restoration of a normal CT cycle. The determination of indole levels in *E. coli* supernatants was carried out by a biochemical approach (hydroxylamine test).

Results: Both the purified indole and the *E. coli* supernatants significantly restored a normal chlamydial cycle, in a dose-dependent manner, compared to controls ($P < 0.05$). At equal indole concentrations, L2 serovar was significantly more responsive to 'indole restoration' compared to serovar D ($P < 0.05$).

Conclusions: This study can contribute to better understand the role played by indole and by the intestinal microbiota in the pathogenesis of CT rectal infections.

