Methods We used "Reverse Vaccinology" approach using available bioinformatics tools to identify chlamydial proteins eliciting humoral and/or cell-mediated immunity and selected effective antigen vaccine combinations.
Results Reverse vaccinology technique has helped us to identify putative antigens that could serve as vaccine candidates for different strains of *C. trachomatis*, prevalent in India. This approach has led to the identification of novel and highly conserved protein antigens that are either secreted or expressed on the bacterial surface and demonstrate protection *in silico*. Notably, each of these identified putative antigens, can be produced as a soluble recombinant protein in *Escherichia coli*, a property that is a considerable asset for the commercial production of a vaccine. The Reverse vaccinology approach thus could help reduce the time and cost required for the identification of novel and suitable antigen candidates and subsequent vaccine production.
Conclusion The successful integration of genome screening method, coupled with the use of various bioinformatics tools has facilitated us to identify better vaccine candidates.
Disclosure of interest statement No conflict interest.

P08.04 PATHOGENICITY OF PLASMID POSITIVE AND NEGATIVE *CHLAMYDIA TRACHOMATIS* IN A MACAQUE MODEL OF OCULAR AND GENITAL TRACT DISEASES

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Introduction Previous studies demonstrated that a *Chlamydia trachomatis* plasmid negative ocular strain (A/P-) resulted in attenuation of infection and pathology, paired with immune stimulation that produced protective immunity in a monkey ocular model. Expanding upon these findings, we assessed a plasmid negative genital strain (D/P-) in the pigtailed macaque model of chlamydial reproductive tract infection. Infection and pathology were compared to a plasmid positive genital strain (D/P+).
Methods Groups of six macaques were cervically challenged with *C. trachomatis* D/P+ or D/P-. All animals were followed for infection, circulating antibody, local immunity, and tissue inflammation. Upon spontaneous clearance of cervical infection, each animal underwent repeated challenges with matched strains to drive upper reproductive tract disease. The same strains were similarly compared in the macaque ocular infection model.
Results Similar rates and duration of chlamydial genital infection were documented in both the P+ and P- challenged macaques. Likewise serum and local antibodies were similar. Tissue inflammation graded by gross observation during laparoscopic procedures and by tissue histology yielded no discernible patterns to disease pathology between P+ and P- strains.

Because A/P+ and A/P- ocular strains in macaques exhibited dramatic differences in infectivity and pathology in the eye, we ocularly challenged animals with D/P+ and D/P-. Unexpectedly, no differences in infectivity or pathology were observed between the D/P+ and D/P- strains; each produced similar infection kinetics with ocular disease characterised by conjunctival hyperemia and follicle formation.
Conclusions Unlike the ocular strain, the plasmid negative genital strain is not attenuated in either genital or ocular macaque infection models. This suggests that genetic determinants unrelated to the plasmid play a dominant role in the pathogenesis of urogenital strains.
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P08.05 *CHLAMYDIA TRACHOMATIS* AND *TRICHOMONAS VAGINALIS* CO-INFECTION IN THE MACAQUE MODEL

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Introduction We have used the pigtailed macaque model to individually study chlamydia (bacteria) and trichomonal (parasite) infections. To increase utility of the model, we explored infection potential for both chlamydia and trichomoniasis, when delivered simultaneously to macaques. This co-infection model will be useful for testing the efficacy of developing multi-purpose technologies.
Methods Twelve female Macaca nemestrina were challenged by cervical inoculation with *C. trachomatis* E (CT: 5E6 IFU in 0.5 mL volume), immediately followed by vaginal exposure to *T. vaginalis* ATCC 50148 (TV: 5E5 trichomonads in 0.5 mL volume). For five weeks, infection status, chlamydia-specific serum antibody, and tissue responses were followed. Nucleic acid amplification tests were employed to detect each organism; cervical swabs were also cultured for chlamydia detection. Cervicovaginal tissues were monitored by colposcopy. Each animal completed a five day regimen of oral azithromycin plus metronidazole followed by test of clearance.
Results Nine of twelve macaques tested positive for infection with both pathogens on at least three weekly visits. One animal was positive for chlamydial infection only (TV negative) for two weeks. These ten animals developed chlamydial IgG antibody titers of at least 1:16. The two remaining animals had limited, self-clearing infections; CT positive for one week, plus TV positive for one or two weeks. Neither of these macaques developed serum antibody to CT. During five weeks of secretion sampling, chlamydia positivity ranged from 1 to 5 weeks (median 5 weeks) and TV positivity ranged 0–5 weeks (median 5 weeks) as well. Colposcopy revealed blisters on the cervix of three co-infected animals. Neither infection could be correlated to changes in vaginal pH, exudate or polymorphonuclear cell presence.
Conclusion We have demonstrated that co-infection with *Chlamydia trachomatis* and *Trichomonas vaginalis* is achievable in the pigtailed macaque model. Infections are individually detectable and concurrent treatments are effective in clearing both organisms.
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