Results Compared to unimmunized, treponemal burden by DF in lesion aspirates at Day 19 was significantly lower in animals that received both Natural and Synthetic adjuvant groups. By qPCR, treponemal burden was significantly lower in the Natural group. At day 19 and 30, respectively, the proportion of lesions ulcerating was significantly lower in the Natural group, compared to Unimmunized. At day 30, the proportion of lesions ulcerating in the Natural group was significantly lower than in the Synthetic group. Mean lesion volume was smaller in immunized groups versus unimmunized on days 10–25 post-challenge. RIT indicated the lowest number of disseminated *T. pallidum* in rabbit tissues from the Natural group, followed by the Synthetic group, then the unimmunized group.
Conclusion Immunization with the three-antigen cocktail significantly attenuates syphilis infection: enhancing *T. pallidum* clearance, promoting lesion healing, and reducing dissemination. In rabbits, Natural adjuvant was more effective than Synthetic adjuvant in inducing protective immunity.
Disclosure No significant relationships.

S12.3 THERAPEUTIC VACCINATION TO TREAT HPV DISEASE: LESSONS LEARNED FROM HIGH GRADE INTRAEPITHELIAL LESIONS

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Malignancies caused by HPV represent a model clinical setting in which to test principles of immunotherapies, and to discover the consequences of interactions between tumors and their attendant immune milieu. A tumor-specific, non-'self' antigenic target is known, as HPV cancers are driven by constitutive and functionally obligate expression of the E6 and E7 viral oncoproteins, which bind and inactivate p53 and pRb, respectively. HPV disease can also be immunogenic; a growing body of evidence demonstrates that HPV-specific T-cell responses can mediate concomitant histologic regression and clearance of detectable virus in subsets of patients who have cervical HSILs. However, HPV researchers are faced with issues common to the development of effective immune-based therapies for every solid tumor, including determining the mechanisms that shape how a tissue microenvironment renders immune cells dysfunctional, deciphering the immunomodulatory effects of other treatment modalities such as targeted therapies, chemotherapy, and radiation, and identifying contributions to immune functional polarization mediated by tissue-specific microbiota. Insights gained from deconvolution of the cervical lesional microenvironment will be discussed.

S12.4 A MUCOSAL *CHLAMYDIA TRACHOMATIS* VACCINE STIMULATES PROTECTIVE MEMORY T CELLS

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Many non-mucosal vaccines are poorly protective against mucosal pathogens, presumably because they do not generate mucosa-tropic memory cells. Few mucosal vaccines are in clinical use because live vaccine vectors pose safety risks and killed or molecular antigens (Ags) are weak immunogens when applied to intact mucosa. Adjuvants can potentially overcome this poor immunogenicity, however, conventional mucosal adjuvants possess unfavorable safety profiles. We have developed an adjuvanted vaccine against *Chlamydia trachomatis*. Genital *Ct* infection induced protective immunity that depended on interferon-γ (IFN-γ) producing CD4 T-cells, whereas mucosal exposure to UV-inactivated *Ct* (UV-*Ct*) generated tolerogenic *Ct*-specific regulatory T-cells, resulting in exacerbated bacterial burden upon *Ct* challenge. However, mucosal immunization with UV-*Ct* complexed with charge-switching synthetic adjuvant particles (cSAP) did not exert the tolerogenic effect of UV-*Ct* alone but elicited long-lived protection. This differential effect of UV-*Ct*-cSAP versus UV-*Ct* was because the former was presented by immunogenic $CD11b^{+}CD103^{-}$dendritic cells (DCs), while the latter was acquired by tolerogenic $CD11b^{-}CD103^{+}$ DCs. Genital protection was achieved after intrauterine or intranasal, but not subcutaneous vaccination and was inducible in conventional and humanized mice. Regardless of vaccination route, UV-*Ct*-cSAP induced robust systemic memory cells. However, only mucosal vaccination induced a wave of *Ct*-specific effector T-cells that seeded the mucosa during the first week and established resident memory T cells (T_{RM}). Without T_{RM}, mice were suboptimally protected, even when circulating memory cells were abundant. For optimal *Ct* clearance, both early seeding by T_{RM} and infection-induced recruitment of a second wave of circulating memory cells were required. Thus, using a novel mucosal vaccine platform, we demonstrate that protection against *Ct* depends on synergistic actions of two memory T cell subsets with distinct migratory properties.

S13 – CONTROVERSIES IN CLINICAL STI CARE

Tuesday, July 16, 2019 4:15 PM – 5:45 PM

S13.1 DOES AZITHROMYCIN HAVE A FUTURE IN THE TREATMENT OF GONORRHOEA AND CHLAMYDIAL INFECTION?

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Azithromycin, a second generation macrolide antimicrobial, has been widely used as a first line treatment for chlamydia and non-gonococcal urethritis and as part of dual treatment with ceftriaxone for gonorrhoea. Its unique pharmacokinetic properties including its extensive tissue distribution and long half-life, have enabled it to be administered as single dose treatment making it preferred for many STIs, particularly when there are any concerns about treatment adherence. A single dose regimen of azithromycin gives a larger maximum tissue concentration and has more rapid bacterial clearance than longer courses of the same overall dose suggesting that shorter durations of larger doses (>1g) will increase treatment efficacy and reduce the induction of resistance. However, the evidence suggests that the efficacy of azithromycin may vary by site of infection, particularly for chlamydia infection, with observational data finding that it might not be as effective for