Methods Utilising our human 3-D vaginal EC model, that more accurately recapitulates *in vivo* human vaginal tissue, we tested the hypothesis that IL-36γ induction in the vaginal epithelium is microbe-dependent by testing a panel of STI microbes and microbial products. To further investigate the induction and regulation of IL-36γ, 3-D vaginal EC were treated with poly (I:C), flagellin or FSL-1 for 24 h. Human 3-D cells were analysed by real-time qPCR analysis. Cell pellets and culture supernatants were also collected and analysed by IL-36γ ELISA, Western blot and cytometric bead array.

Results Following exposure to STI pathogens (herpes simplex virus and bacterial vaginosis (BV)-associated bacteria) and specific microbial products, IL-36γ expression was significantly increased relative to untreated and Lactobacilli spp. bacteria in the vaginal EC model. All microbial products tested significantly ($p < 0.05$) induced expression of IL-36γ in a dose- and TLR-dependent manner. Treatment with IL-36γ significantly ($p < 0.05$) induced proinflammatory cytokines and antimicrobial peptides (AMP). Recombinant IL-36γ treatment resulted in cytokine and AMP production, thereby promoting inflammation in the local microenvironment.

Conclusion We show that human 3-D vaginal EC express IL-36γ and this cytokine is elicited in a microbe-dependent manner at this mucosal site. Furthermore, we demonstrate that IL-36γ is an important driver for epithelial activation and inflammation following infection with STI-related pathogens and BV-associated bacteria, as such this novel cytokine may play an important role in host defense in the vaginal epithelium.

Disclosure of interest statement No pharmaceutical grants were received in the development of this study.

P06.13 INFLAMMATORY CYTOKINE BIOMARKERS IDENTIFY WOMEN WITH ASYMPTOMATIC GENITAL INFECTIONS THAT INCREASE THE RISK OF HIV INFECTION

[1,2]L Masson*, [3,4]J Deese, [5]KB Arnold, [6]F Little, [2,7]K Mlisana, [8,9,10]DA Lewis, [11]L Van Damme, [12]T Crucitti, [12]S Abdellati, [10]N Mkhize, [1]H Gamieldien, [2]S Ngcapu, [5]DA Lauffenburger, [2,13]Q Abdool Karim, [2,13]SS Abdool Karim, [1,2,14]JS Passmore. *[1]Institute of Infectious Diseases and Molecular Medicine, University of Cape Town Medical School, Cape Town, South Africa*; *[2]Centre for the AIDS Programme of Research in South Africa, University of KwaZulu Natal, Durban, South Africa*; *[3]FHI 360, Durham, NC, USA*; *[4]Department of Epidemiology, Gillings School of Global Public Health, The University of North Carolina at Chapel Hill, Chapel Hill, NC, USA*; *[5]Department of Biological Engineering, Massachusetts Institute of Technology, Cambridge, Massachusetts, USA*; *[6]Department of Statistical Sciences, University of Cape Town, Cape Town 7701, South Africa*; *[7]School of Laboratory Medicine and Medical Sciences, University of KwaZulu-Natal*; *[8]Western Sydney Sexual Health Centre, Parramatta, Australia*; *[9]Centre for Infectious Diseases and Microbiology & Marie Bashir Institute for Infectious Diseases and Biosecurity, Westmead Clinical School, University of Sydney, Sydney, Australia*; *[10]National Institute for Communicable Diseases, Sandringham, Johannesburg, South Africa*; *[11]The Bill & Melinda Gates Foundation, Seattle, Washington, USA (Formerly of FHI 360)*; *[12]Institute of Tropical Medicine, Antwerp, Belgium*; *[13]Columbia University, New York, New York, USA*; *[14]National Health Laboratory Services, South Africa*

10.1136/sextrans-2015-052270.314

Introduction Untreated sexually transmitted infections (STIs) and bacterial vaginosis (BV) cause genital inflammation and increased risk of HIV infection. WHO-recommended syndromic STI and BV management is limited as large numbers of women with asymptomatic infections go untreated. The purpose of this study was to evaluate genital cytokine profiles as a biomarker to identify women with asymptomatic, treatable infections.

Methods Luminex was used to measure the concentrations of 42 cytokines in cervicovaginal lavages (CVL) from 227 HIV-uninfected women from Durban, South Africa, and nine cytokines in endocervical swabs from 264 women from Bondo, Kenya and Pretoria, South Africa. Women were screened for BV and treatable STIs (*Chlamydia trachomatis*, *Neisseria gonorrhoeae*, *Trichomonas vaginalis*, *Mycoplasma genitalium*) using microscopy and molecular assays. Nonparametric receiver operating characteristic curves and logistic regression were used to identify cytokine profiles associated with STIs/BV.

Results In women from Durban, concomitant increased IL-1α and IL-1β and decreased IP-10 concentrations in CVLs predicted the presence of a treatable genital condition, correctly classifying 76% of women (sensitivity 72%, specificity 81%, PPV 86% and NPV 64%). In a separate validation cohort of women from Bondo and Pretoria, IL-1α, IL-1β and IP-10 concentrations in endocervical swabs correctly classified 72% of the participants according to STI/BV status. This approach performed substantially better than clinical signs in both cohorts from Durban (sensitivity 19%, specificity 92%, PPV 79% and NPV 40%) and Pretoria and Bondo (sensitivity 29%, specificity 78%, PPV 68%, NPV 39%).

Conclusion Across two cohorts of women residing in different regions in sub-Saharan Africa, genital IL-1α, IL-1β and IP-10 together was the best immunological predictor of the presence of an STI or BV. Supplementing syndromic management with point-of-care assessment of biomarkers of genital inflammation may improve STI/BV management for women, enabling more effective treatment of asymptomatic infections and potentially reducing their risk of HIV infection.

Disclosure of interest statement This work was supported by a Strategic Health Innovation Partnerships (SHIP) grant from the South African Medical Research Council and grants from the Poliomyelitis Research Foundation (PRF) of South Africa and European and Developing Countries Clinical Trials Partnership (EDCTP). The cohorts were supported by grants from the Comprehensive International Program of Research on AIDS (CIPRA) of the Division of AIDS (DAIDS); National Institute of Allergy and infectious Disease (NIAID); National Institutes of Health (NIH) and US Department of Health and Human Services (DHHS) [grant number U19 AI51794]. FEM-PrEP was conducted under two grants funded by the United States Agency for International Development (USAID): the Contraceptive and Reproductive Health Technologies and Research Utilisation Program (GPO-A-00–05–00022–00), and the Preventive Technologies Agreement (GHO-A-00–09–00016–00). Early support was also provided by the Bill and Melinda Gates Foundation. Gilead Sciences, Inc. donated Truvada® and placebo. LM was supported by the PRF; South African Medical Research Council (MRC); the Carnegie Corporation; the National Research Foundation (NRF) of South Africa and the UCT Clinical Infectious Diseases Research Initiative/Wellcome Trust. No pharmaceutical grants were received in the development of this study.

P06.14 THE EFFECT OF SEXUAL INTERCOURSE ON VAGINAL COLONISATION WITH CANDIDA

[1,2]CJ Watson*, [3]CK Fairley, [4]SM Garland, [5]S Myers, [1]M Pirotta. *[1]Department of General Practice, University of Melbourne, Melbourne*; *[2]Women's Health Clinics, Royal Women's Hospital, Melbourne*; *[3]School of Population Health, University of Melbourne; Melbourne Sexual Health Centre, Alfred Health, Melbourne*; *[4]Department Microbiology Infectious Diseases, Royal Women's Hospital; Department of Obstetrics and Gynaecology University of Melbourne, Melbourne*; *[5]NatMed-Research, Southern Cross University, Lismore*

10.1136/sextrans-2015-052270.315