to go for clinical collection. Aim of this study was to evaluate the performance of a new Home-based Self Vaginal FLOQSwab™ (HBV SF - COPAN Italia, Brescia) in combination with a commercially available real-time PCR assay, Anplex II STI-7 (Seegene, Seoul, Korea) which detects seven major pathogens in a single reaction (Chlamydia trachomatis - CT, Neisseria gonorrhoeae - NG, Trichomonas vaginalis - TV, Mycoplasma hominis - MH, Mycoplasma genitalium - MG, Ureaplasma urealyticum - UU, and Ureaplasma parvum - UP).

**Methods** A total of 78 asymptomatic donors, employees of a private industry (aged 18 to 45 years) were voluntarily enrolled to STIs screening. The subjects answered to a standardised anonymized questionnaire regarding the ease of use of self vaginal collection. The new HBV swab was collected in a domestic context by following the detailed “how to use it” instructions. After collection, the HBV swabs were shipped at room temperature to the laboratory in Pievevesentina and processed within five weeks. The threshold cycle value (Ct) of a human genomic target (internal control, IC) and Ct of pathogens (CT, NG, TV, MH, MG, UU, UP) were taken as parameters to assess respectively, the efficiency of self-sampling and presence of any inhibitor effects, the stability of nucleic acids on dry swabs.

**Results** No failure results have been observed, the IC of all samples were amplified (average Ct 30). The real time PCR assay was able to identify 2/78 CT, 4/78 UU, 40/78 UP, 6/78 MH, 1/78 TV positive patients. No MG and NG positive patients have been detected. Women reported self-collection with HBV easy and comfortable (100%).

**Conclusion** The new HBV device showed excellent recovery and stability of nucleic acid of STI pathogens up to 5 weeks at room temperature. The HBV is suitable for screening of STIs with real-time PCR assay.

---

**P1.58 LACTIC ACID EXERTS ANTI-CHLAMYDIA TRACHOMATIS ACTIVITY ON THE EPITHELIUM BY REDUCING HOST CELL PROLIFERATION**

1Vonetta Edwards, 2Elias Mccomb, 3Steven Smith, 4Patrick Bavil, 5Jacques Rawel. 1University of Maryland School of Medicine, Baltimore, USA; 2Institute for Genome Sciences, Baltimore, USA; 3University of Maryland – College Park, College Park, USA; 4University of Maryland – School of Dentistry, Baltimore, USA; 5University of Maryland – School of Medicine, Baltimore, USA

**Introduction** Epidemiological studies have demonstrated that the vaginal microbiota can significantly impact the risk of acquiring sexually transmitted infections. The human vagina often contains Lactobacillus spp., which produce lactic acid and create an acidic environment (pH 3.5–4) thought to reduce vaginal STIs. Unlike high d-lactate producers, Lactobacillus spp. that produce low amounts or no d-lactate, while achieving low pH do not reduce Chlamydia trachomatis infectivity. Further, exposure to culture supernatants from d-lactate producing Lactobacillus spp. reduces epithelial cell proliferation. We tested if low proliferation affects infection.

**Methods** A 3D model of A2EN cervical epithelial cells was exposed to lactic acid (D, L or D/L) at concentrations that produce pH 7, 5.5 and 4 or to several Lactobacillus spp. conditioned media (LCM) and infected with C. trachomatis serovar L2. Lysates from these A2EN cells were used to infect HeLa cells, and IFUs counted to determine infectivity. 2D A2EN cells were exposed to lactic acid, proliferation chemical inhibitors or LCM followed by infection with C. trachomatis L2. Proliferation and infectivity were evaluated by microscopy.

**Results** At pH 4, d-lactate and LCMs from high d-lactate producing vaginal Lactobacillus spp. afforded maximal protection compared to l-lactate. Interestingly, high infectivity was observed with HCl at pH 4, indicating that pH alone is not responsible for this protection. Exposure to d-lactate or LCMs reduced cell proliferation. Chemical cell proliferation inhibitors dramatically reduced C. trachomatis infectivity.

**Conclusion** These results suggest a differential role for vaginal Lactobacillus spp. in protecting against C. trachomatis infections and potentially other STIs. This protection is driven by the production of d-lactate, which acts on epithelial cells by inhibiting cell proliferation, which appears to be required for infection.