



CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

Newsletter

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Is the Softcup® better than a vaginal swab for genital cytokine assays?

Cytokines are important mediators of immunity in the female genital tract, and their levels may be associated with various reproductive health outcomes. However, the measurement of cytokines and chemokines in vaginal fluid samples may be influenced by a variety of factors, each with the potential to affect the sensitivity and accuracy of the assay, including the interpretation and comparison of data.

This study compared the cytokine milieu in samples collected either by Softcup® menstrual cups or vulvovaginal swabs from the CAP088 and CAP016 cohorts of pregnant women. Through multiplexing, the concentrations of 28 cytokines were measured and compared. Results indicated that all cytokines were found to be detectable in each of the methods, however, Softcup supernatants showed consistently higher detectability, expression ratios, and mean concentrations of cytokines than vulvovaginal swabs. While mean concentrations differed, most cytokines correlated between Softcup supernatants and vulvovaginal swabs.

Additionally, there were no significant differences in several participants between the two sampling methods for the classification of genital inflammation. The study findings suggest that Softcup supernatants and vulvovaginal swab samples are suitable for the collection of genital specimens to study biological markers of genital inflammatory response. However, the Softcup menstrual cup performs better for the detection and quantification of soluble biomarkers that are found in low concentrations in cervicovaginal fluid.

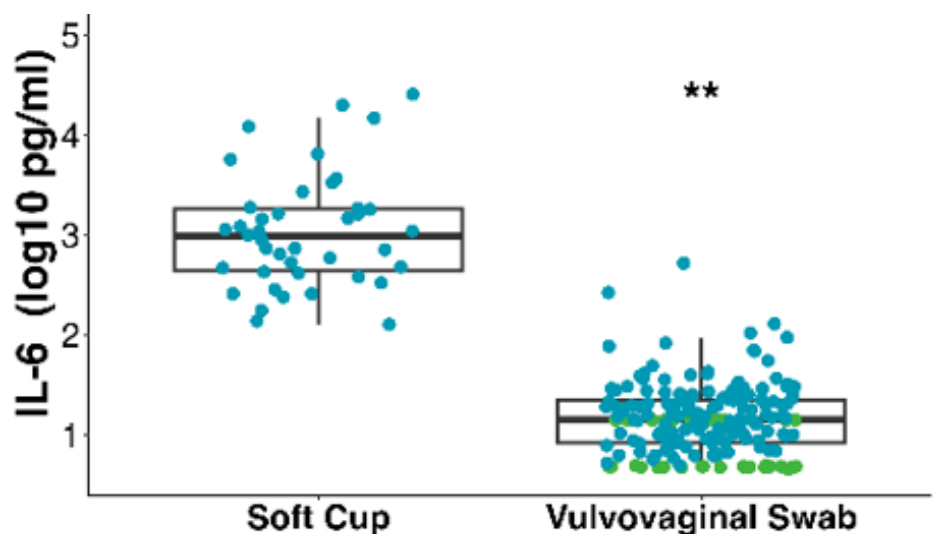


Figure 1. Cytokine concentration of IL-6 (1/28 cytokines) by biological sample type in pregnant women. A t-test was used to compare cytokine concentrations (pg/mL) in SoftCup supernatants versus vulvovaginal swabs. Additionally significant differences in concentrations were seen in 26/28 cytokines and blue dots represent concentrations above the threshold of detection, whilst green dots represent concentrations below the threshold of detection. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

For further reading: <https://doi.org/10.1016/j.jim.2024.113656>



Dr Razia Hassan-Moosa Contributes to the ATI Consensus Workshop in Nairobi

Dr Razia Hassan-Moosa, a research clinician in CAPRISA's Vaccines and Pathogenesis Programme, participated in the 2024 Analytical Treatment Interruption (ATI) Consensus Workshop organised by SANthe and the US Military HIV Research Program (MHRP) in Nairobi, Kenya, from May 8 to May 10.

The workshop's objective was to review and update guidance on analytical treatment interruption trials, aiming to enhance participant safety, protect sexual partners, and advance HIV cure research. The outcome will be a set of updated consensus guidelines for ATI trials, reflecting the latest study design elements.

eThekwini Vaccine Scientists at the HVTN Full Group Meeting, Washington DC



The HIV Vaccine Trials Network (HVTN) Full Group Meeting convened at the Omni Shoreham Hotel in Washington, DC, from May 1st to May 3, 2024, saw robust representation from the CAPRISA eThekwini Clinical Research Site staff. Notable participants included Prof Nigel Garrett (CoVPN 3008 Protocol co-chair), Dr Nivashnee Naicker (HVTN 305 Protocol co-chair), Ms Bongekile Zuma (CRS Coordinator), Ms Ivy Kaunda (Community Liaison Officer), Ms Sazi Jali (Community Advisory Board member), and Mr Sibusiso Mngadi (Global Community Advisory Board member).

During the meeting, Dr Naicker delivered presentations on Non-Therapeutic Leukapheresis in the HVTN 305 HIV Vaccine Trial in South Africa, which garnered significant interest in the trial's preliminary safety and immunogenicity data. Ms Sazi Jali made substantial contributions to the Community Session, emphasising successful relationships between clinical research sites and the CAB, using CAPRISA as an exemplar. Professor Carolyn Williamson was honoured with the Gita Ramjee Lifetime Achievement Award in recognition of her enduring contributions to HIV pathogenesis research.



Dr Govender Reflects on His Journey with CAPRISA

Dr Kumeren Govender's involvement with CAPRISA began ten years ago during his first year of medical school at UKZN. After hearing a talk from Professor Salim Abdool Karim about ground-breaking HIV and TB research conducted at the centre, Dr Govender decided to join CAPRISA when he was a first-year medical student. This provided him with early exposure to innovation and high-impact research, shaping his future career in medical science.

His academic achievements demonstrate his dedication and passion for the field. After graduating with 12 distinctions in Matric at Star College, Dr Govender went on to excel in his medical studies, graduating cum laude and earning the Vice-Chancellor's Award. Simultaneously completing a Master of Health Science in a dual-track programme, he then practised medicine at Somerset Hospital in Cape Town before receiving the prestigious Rhodes Scholarship to pursue a DPhil (PhD) in Clinical Medicine at the University of Oxford.

At Oxford, Dr Govender focused on Clinical Metagenomics, a pioneering field with significant implications for patient diagnostics, public health surveillance, and biosecurity. His research, utilising novel laboratory techniques, advanced bioinformatics, and machine learning, has resulted in seminal papers on complex genetic species and antimicrobial resistance determination.

In addition to his research, Dr Govender founded Neurolytic Healthcare, the first online personalised migraine clinic in the United States. Offering LDT-approved pharmacogenomic testing to improve treatment, the company was acquired after raising over \$3.2 million in investment. Currently serving as the Chief Science Officer at the Global Pathogen Analysis Service (GPAS), Dr Govender collaborates with the University of Oxford to provide sequencing and bioinformatic tools to public health agencies and researchers worldwide. His work focuses on global disease monitoring and prevention, including the detection of novel pandemics and antimicrobial-resistant pathogens. He also contributes to the Tony Blair Institute, co-authoring policy documents on vaccination access, clinical trials, and pathogen surveillance, and holds an honorary visiting researcher position at the University of Oxford.

Dr Govender credits his mentorship at CAPRISA for career path that sees him graduating from Oxford University. His dedication to excellence and innovation continues to drive his impactful work in the field of medical science, making a difference in global health and beyond.

CAPRISA Honours iSpotU Awardees



CAPRISA proudly recognised Kynesha Moopanar, Senzo Ndlovu, and Lindiwe Ngcobo with the iSpot U Award for their exceptional contributions to the ECRS Treatment Team. The handover ceremony on May 10, 2024, celebrated their innovative approach, which established a robust communication network among team members, participants, and sponsors.

This strategy enhanced participation, engagement, and e-diary compliance while serving as an early warning system for abnormal values. Their collaborative efforts propelled the ECRS site to the forefront, ranking highest in e-diary compliance within the BNT 164-02 study. The dedication and ingenuity of these awardees exemplify CAPRISA's commitment to recognising excellence and fostering impactful contributions in research and healthcare.



Building Collaboration for HIV and Youth Initiatives

The CAPRISA Community team organised a stakeholder engagement at Umlazi D Hall on May 16, 2024. Attendees included various community organisations based in Umlazi, particularly those focused on HIV, TB, and youth. The meeting aimed to establish trust and credibility, understand the services provided by other Umlazi stakeholders, and investigate potential collaboration opportunities for community initiatives. Mr. Patrick Mdletshe, Head of Community at CAPRISA, presented new studies being conducted by CAPRISA in the region, with a focus on initiatives to reduce the risk of young women contracting HIV in South Africa, such as PrEP studies.

During the meeting, stakeholders raised concerns about patriarchal dominance within Black communities, where men predominantly influence decisions about sexual activities. This prompted CAPRISA to question the prevalent male leadership in determining the nature of sexual interactions. The engagement was well-received by all stakeholders, as it presented an opportunity for organisations to collaborate and collectively address the challenge of reducing the risk of HIV among young women.

Gethwana Mahlase Obtains Harvard Certificate



Ms Gethwana Mahlase, who has been part of the CAPRISA community programme team since CAPRISA's inception, has been determined to overcome technological challenges. It paid off as her hard work led to her earning a certificate from Harvard University. Originally from Mafakatini, where the CAPRISA Vulindlela clinic is based, Mahlase will be graduating with a Certificate in Effective Writing. The graduation will take place in July in the United States of America.

Speaking to The Witness Newspaper, Mahlase said she started furthering her studies late in life but did not let that discourage her from pursuing her goals. Mahlase had always wanted to be a doctor growing up but never had the opportunity due to her background. "I only completed my Master's in 2018 because I already had my nursing degree. In 2019, I decided to register for a PhD, but it was difficult as I did not have a good grounding. I was then informed by CAPRISA's Professor Quarraisha Abdool Karim about an intake at Harvard University for people who want to improve their writing skills for their PhD grades. She told me that I could always complete my PhD after this course. I was excited and decided to take the opportunity and register for the one-year course. But it was not easy, especially for someone my age. I never let that put me down, though; I needed to prove to myself that I could do it," she said. Mahlase believes that no matter where you come from, once given an opportunity, you need to take it with both hands and use it. Mahlase said she is excited and hopes that her journey can inspire everyone, both young and old.

Celebrating our Most Recent PhD Graduates



Dr Santhuri Rambaran, under the guidance of supervisors Dr Aida Sivro and Professor Kogieleum Naidoo, conducted groundbreaking research on immune biomarkers of pulmonary tuberculosis treatment response and disease severity among HIV-infected and uninfected individuals in KwaZulu-Natal, South Africa. Given that South Africa bears the highest burden of both TB and HIV, the need for accurate and easily detectable non-sputum-based biomarkers to correlate with TB activity or burden is urgent. Dr Rambaran's study focused on characterising soluble and cellular phenotypes during active, recurrent TB, and TB/HIV co-infection. The results of this study have been significant, leading to the publication of two papers in the following journals: "Frontiers in Microbiology" and "BMC Immunology." Additionally, the findings from this research were presented as a poster at the Keystone eSymposia meeting on Tuberculosis: Science Aimed at Ending the Epidemic. An oral presentation based on this study is also scheduled for the 8th South African TB Conference on June 5, 2024. Dr Rambaran's research provides important information on crucial aspects of pulmonary tuberculosis in a high-burden setting, contributing useful insights that may have implications for the treatment and management of TB, especially in regions heavily impacted by this disease.

Dr Natasha Samsunder's PhD, titled Evaluation of laboratory tests for COVID-19 in South Africa, was supervised by Prof. Ayesha Kharsany and Dr Aida Sivro. Her research focused on evaluating diagnostic tests for rapid diagnosis, validating test performance, and determining turnaround time, which assisted in the management of SARS-CoV-2 infections in South Africa, a country with a high HIV/Tb burden. One examiner commented, "Thanks to the candidate for spotting an opportunity and using it to evaluate the diagnostics that were coming into South Africa during the heights of the pandemic. The innovativeness in combining many projects to answer the research question is acknowledged."

Dr Nomusa Zondo's PhD study was titled Drug Transporter Expression and Genetic Polymorphisms in HIV Endemic Settings and was supervised by Professor Dersere Archary and co-supervised by Dr Parveen Sobia. This study aimed to understand how host biological factors such as drug transporter proteins, single nucleotide polymorphisms, and genital inflammations undermine PrEP efficacy in South African women taking the oral PrEP drug, Truvada®. Findings from this study will ultimately inform effective and safe PrEP dosage for HIV prevention, especially in vulnerable and at-risk African women. Dr Zondo's examiners congratulated her for her outstanding work, with two examiners accepting her thesis without any revisions.

Dr Adenike Soogun's PhD study was titled, "Statistical Modelling and Spatial Analysis Towards Achieving UNAIDS Indicators in an HIV Hyperendemic Area of KwaZulu-Natal South Africa". This study addressed challenging statistical methodological research questions in identifying the spatially correlated risk factors towards achieving the UNAIDS 95-95-95 target. Her novel work contributes to Bayesian Trivariate Copula modelling, spatial statistics, machine learning and epidemiology of HIV by providing insights on the predictors of each of the UNAIDS 95-95-95 targets. Her research showed that unsuppressed HIV viral load among men and women in rural KwaZulu-Natal areas contribute to sustaining the HIV epidemic. Through simulation of the HIV data and using the best copula function and estimator for multivariate joint modeling, her research highlighted the need for intensified HIV prevention and intervention strategies towards achieving the goal of ending the epidemic by the year 2030. Dr Soogun was supervised by Professor Temesgen Zewotir Temesgen and Professor Delia North and through the support and mentorship of Professor Ayesha Kharsany, she has published her research in BMC Medical Research Methodology, Tropical Medicine, and Infectious Diseases and IntechOpen. Her fellowship in CAPRISA was supported through the South African Department of Science and Innovation and the National Research Foundation's Centre of Excellence in HIV Prevention (Grant 96354).

A SELECTION OF PUBLISHED SCIENTIFIC PAPERS

- 24 Ramboarina S, Crucitti T, Gill K, Bekker LG, Harding-Esch EM, van de Wijgert JHHM, Huynh BT, Fortas C, Harimanana A, Mayouya Gamana T, Randremanana RV, Mangahasimbola R, Dziva Chikwari C, Kranzer K, Mackworth-Young CRS, Bernays S, Thomas N, Anderson D, **Tanko FR**, Manhanzva M, Lurie M, **Khumalo F**, Sinanovic E, Honda A, Pidwell T, Francis SC, Masson L, **Passmore JA**; GIFT study group. Novel point-of-care cytokine biomarker lateral flow test for the screening for sexually transmitted infections and bacterial vaginosis: study protocol of a multicentre multidisciplinary prospective observational clinical study to evaluate the performance and feasibility of the Genital Inflammation Test (GIFT). *BMJ Open*. 2024 May 1;14(5):e084918. doi: 10.1136/bmjopen-2024-084918. PMID: 38692732; PMCID: PMC11086546.
- 25 Reis K, Wolf A, **Perumal R**, **Seepamore B**, Guzman K, Ross J, Cheung K, Amico KR, Brust JCM, **Padayatchi N**, Friedland G, **Naidoo K**, **Daftary A**, Zelnick J, **O'Donnell M**. Brief Report: Differentiated Service Delivery Framework for People With Multidrug-Resistant Tuberculosis and HIV Coinfection. *J Acquir Immune Defic Syndr*. 2024 Feb 6. 10.96(1):p 34-39, May 1, 2024. doi: 1097/QAI.0000000000003394. PMID: 38323838.
- 26 **Hanley S**, **Moodley D**, Naidoo M, Brummel SS. The Impact of Regular Screening and Lifestyle Modification on Cardiovascular Disease Risk Factors in South African Women Living With HIV. *J Acquir Immune Defic Syndr*. 2024 May 1;96(1):23-33. doi: 10.1097/QAI.0000000000003387. Epub 2024 Apr 10. PMID: 38427932; PMCID: PMC11008438.
- 27 **Pillay N**, **Mzobe GF**, **Letsoalo M**, **Kama AO**, **Mtshali A**, **Magini SN**, **Singh N**, **Govender V**, **Samsunder N**, **Naidoo M**, **Moodley D**, **Baxter C**, **Archary D**, **Ngcapu S**. Performance of Softcup® menstrual cup and vulvovaginal swab samples for detection and quantification of genital cytokines. *J Immunol Methods*. 2024 May;528:113656. doi: 10.1016/j.jim.2024.113656. Epub 2024 Mar 5. PMID: 38447801.
- 28 Cross GB, O' Doherty J, **Chang CC**, Kelleher AD, Paton NI. Does PET-CT Have a Role in the Evaluation of Tuberculosis Treatment in Phase 2 Clinical Trials? *J Infect Dis*. 2024 Apr 12;229(4):1229-1238. doi: 10.1093/infdis/jjad425. PMID: 37788578; PMCID: PMC11011169.
- 29 Naidoo L, Arumugam T, **Ramsuran V**. HLA-B and C Expression Contributes to COVID-19 Disease Severity within a South African Cohort. *Genes (Basel)*. 2024 Apr 22;15(4):522. doi: 10.3390/genes15040522. PMID: 38674456; PMCID: PMC11050528.
- 30 Naidoo L, Arumugam T, **Ramsuran V**. Narrative Review Explaining the Role of HLA-A, -B, and -C Molecules in COVID-19 Disease in and around Africa. *Infect Dis Rep*. 2024 Apr 18;16(2):380-406. doi: 10.3390/idr16020029. PMID: 38667755; PMCID: PMC11049896.
- 31 Mühlemann B, Wilks SH, Baracco L, Bekliz M, Carreño JM, Corman VM, Davis-Gardner ME, Dejnirattisai W, Diamond MS, Douek DC, Drosten C, Eckerle I, Edara VV, Ellis M, Fouchier RAM, Frieman M, Godbole S, Haagmans B, Halfmann PJ, Henry AR, Jones TC, Katzelnick LC, Kawaoka Y, Kimpel J, Krammer F, Lai L, Liu C, Lusvardi S, Meyer B, Mongkolsapaya J, Montefiori DC, Mykytyn A, Netzl A, Pollett S, Rössler A, Srean GR, Shen X, **Sigal A**, Simon V, Subramanian R, Supasa P, Suthar MS, Türelil S, Wang W, Weiss CD, Smith DJ. Comparative analysis of SARS-CoV-2 neutralization titers reveals consistency between human and animal model serum and across assays. *Sci Transl Med*. 2024 May 15;16(747):ead11722. doi: 10.1126/scitranslmed.ad11722. Epub 2024 May 15. PMID: 38748773.
- 32 Chen EC, Owaisi R, Goldschmidt L, Maimets IK, **Daftary A**. Patient perceptions of video directly observed therapy for tuberculosis: a systematic review. *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases*. 2024 May;35.
- 33 Inghels M, Kim HY, Mathenjwa T, Shahmanesh M, Seeley J, Wyke S, Matthews P, Adeagbo O, Gareta D, McGrath N, Yapa HM, Blandford A, Zuma T, Dobra A, Bärnighausen T, **Tanser F**. Population impacts of conditional financial incentives and a male-targeted digital decision support application on the HIV treatment cascade in rural KwaZulu Natal: findings from the HITS cluster randomized clinical trial. *J Int AIDS Soc*. 2024 May;27(5):e26248. doi: 10.1002/jia2.26248. PMID: 38695099; PMCID: PMC11063775.

* continuation from previous newsletter

For the complete list of publications see here: <http://bit.ly/3IRvjZd>



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