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Our feature story this month highlights recent research from the Mucosal Immunology team that shows that IL-17 production in the female genital tract may be induced in response to bacterial but not viral STIs.

On page 2 we congratulate Prof Quarraisha Abdool Karim on her induction as a new International associate member of the National Academy of Sciences and congratulate the ASPIRE and Laboratory teams for their recent awards at the Microbicide Trials Network meeting.

We also congratulate CAPRISA's Director on receiving the SAMRC Platinum Lifetime Achievement award and report on the DST-NRF Centres of Excellence meeting held in Johannesburg on page 3.



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Bacterial STIs induce production of mucosal interleukin-17

Research conducted by the mucosal immunology team at CAPRISA was recently published in the journal *Immunology*. Their findings suggest that interleukin-17 (IL-17) production in the female genital tract may be induced in response to bacterial but not viral sexually transmitted infections (STIs).

Although T helper type 17 (Th17) cells have been shown to play an important part in regulating immunity against fungal and bacterial pathogens at other mucosal surfaces, including the gut and the lung, their role in the female genital tract is not well understood. This study aimed to improve our understanding of the role of Th17 cells in the female genital tract in immunity to common pathogens.

The concentrations of 42 cytokines, including IL-17, were measured from cervicovaginal lavages from CAPRISA 002 study participants from Durban, and the frequencies of Th17 cells (CD3+ CD4+ IL-17a+) were measured from cervical cytobrushes and blood from women from Cape Town.

Women were screened for common female genital tract infections and bacterial vaginosis (BV). Women with bacterial STIs, specifically *Chlamydia trachomatis* and *Neisseria gonorrhoeae*, had higher genital IL-17 concentrations than women with no STI or BV (Figure 1). In contrast, women with candidal pseudohyphae/spores had lower IL-17 concentrations compared with women without candidal infections, suggesting that candida may actively suppress IL-17 production or women with dampened IL-17 responses may be more susceptible to candidal outgrowth.

Viral STIs (HSV-2 and HIV), BV and *Trichomonas vaginalis* were not associated with significant changes in genital IL-

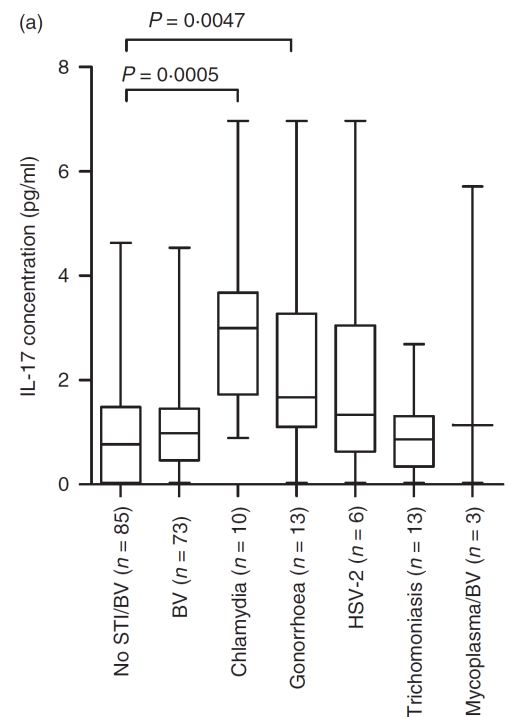


Figure 1: Relationships between IL-17 concentrations in cervicovaginal lavages and bacterial, candidal and viral

17 concentrations. Genital IL-17 concentrations correlated strongly with other inflammatory cytokines and growth factors. Although Th17 cells were depleted from blood during HIV infection, cervical Th17 cell frequencies were similar in HIV-uninfected and HIV-infected women. Cervical Th17 cell frequencies were also not associated with STIs or candida, although few women had a STI.

For further reading see:

Masson L, Set al Relationship between female genital tract infections, mucosal IL-17 production and local Th17 cells. *Immunology*. 2015 Aug 24. doi: 10.1111/imm.12527.



US National Academy of Medicine induction

Professor Quarraisha Abdool Karim was inducted as a new International Associate Member of the National Academy of Medicine at the Academy's annual meeting held in October in Washington. President Dr Victor J. Dzau (in the photo) said that membership was "on the basis of professional achievement and of demonstrated interest, concern and involvement with problems and critical issues that affect the health of the public". Professor Abdool Karim is a leading African scientist in HIV prevention for women and led the studies which showed that antiretrovirals prevent sexually transmitted HIV and genital herpes in women.



Plaudits for CAPRISA's ASPIRE and laboratory teams



L-R: Dr Gina Brown Coordinator, Microbicides and Women and Girls Research NIH; Dr Lulu Nair, Ms Kalendri Naidoo Study Coordinator & Dr Sharon Hillier PI MTN studies

CAPRISA's ASPIRE study team and the CAPRISA Laboratory team were recognized for exceptional performance at the MTN regional meeting, held in Cape Town in October. The ASPIRE team received three awards for the implementation of the ASPIRE study which began in September 2012 and ended in June 2015.

The eThekweni ASPIRE team received a *Certificate of Achievement for outstanding performance in the MTN 020*, the *MTN Regulatory Rigour Award* for the efficient turnaround response to regulatory requests from the MTN, and the Community Engagement program team received a *Certificate of Excellence* in recognition of their collaboration with local NGOs to engage male partners in the ASPIRE study.

Site Principal Investigator of the CAPRISA ASPIRE study, Dr Lulu Nair, said that "the awards

were a testament to the dedication and commitment of a skilled and enthusiastic team who ensured that the highest standards were maintained throughout the implementation of the study."

The CAPRISA Laboratory team was also recognised and received the "Outstanding Laboratory Performance" award for MTN studies. The award was specifically in "recognition of the outstanding quality assurance that the laboratory employed during the conduct of multiple MTN Trials, and also for the exceptional shipment records that we had for this network with an exceptionally low number of errors.", said Ms Natasha Samsunder, Head of the CAPRISA Laboratory. The recent audit by SANAS and DAIDS attests the exceptionally high level of service in all aspects of the laboratory's operations. "The award and good audits are a testament of a dedicated and highly professional team", said Samsunder.



The CAPRISA Laboratory Team includes: Back Row: L-R: Jacqueline Kasavan, Damien Sookoo, Ashley Singh, Lyle Mckinnon, Cara Mia Corris, Zanele Mchunu, Panji Pillay, Jessica Naidoo, Front: L-R Phindile Tshabalala, Shannie Kamal, Natasha Samsunder & Norman Kanni.



Platinum Award for leading AIDS researcher



Prof Salim Abdool Karim

Professor Salim Abdool Karim, Director of CAPRISA and respected as one of the foremost AIDS scientists globally, was awarded the South African Medical Research Council's (SAMRC) Platinum Lifetime Achievement Award for "excellence in research" at the SAMRC's Merit awards held on 29th October in Cape Town.

The merit awards are regarded as the premier science award for the country. According to the SAMRC, the Platinum Medal is a Lifetime Achievement Award for an outstanding scientist who has contributed substantially to improving health through research and helped build the foundations of health research in the country for future generations. Professor Mike Sathekge, Chairperson of the SAMRC Board, paid tribute to Abdool Karim, saying that the Medical Research Council "recognises and congratulates you as an outstanding South African scientist who has contributed enormously to raising the profile of science in South Africa." An accomplished scientist who has dedicated over 30 years to social justice, human rights activism and scientific research, Abdool Karim has made several important breakthroughs ranging from treatment for HIV-TB co-infected people to new approaches to prevent HIV infections. Commenting on his current research, which focuses mainly on innovative technologies to prevent HIV, he said, "we won't stop HIV in young women tomorrow.... but it has to be part of our long-term vision".

DST-NRF CoE Annual Director's Forum

Prof Quarraisha Abdool Karim and Dr Carl Montague, CAPRISA's Chief Operations Officer, attended the DST-NRF Centres of Excellence (CoE) Annual Director's Forum which took place at University of Johannesburg. One of the main discussion topics was the measurement of the socio-economic impact of CoE's and ways of increasing science engagement.

Dr Cassius Lubisi, Director-General: The Presidency, who also gave the Keynote Address at the meeting, visited the CoE exhibits that were part of the forum, including the CAPRISA stand. Learners from local schools were also invited to tour the exhibition where they were encouraged to pursue careers in the are-

as of science, technology, engineering, and mathematics (STEM) .

In 2016 the DST-NRF CoE Annual Director's Forum will be hosted in Durban by CAPRISA.



Dr Carl Montague at the CAPRISA exhibit with Ms Jinal Bhiman & Ms Simone Richardson of the NICD



Scientific papers published in 2015

59 Riou C, Tanko RF, Soares AP, Masson L, **Werner L, Garrett NJ, Samsunder N, Abdool Karim Q, Abdool Karim SS**, Burgers WA. Restoration of CD4+ responses to co-pathogens in HIV-infected individuals on antiretroviral therapy is dependent on T cell memory phenotype. *Journal of Immunology* 2015, Jul 20. pii: 1500803.

60 **Kharsany AB, Frohlich JA, Yende-Zuma N, Mahlase G, Samsunder N, Dellar RC, Zuma-Mkhonza M, Abdool Karim SS, Abdool Karim Q**. Trends in HIV prevalence in pregnant women in rural South Africa. *J Acquir Immune Defic Syndr*. 2015; 70(3): 289–295.

61 Gornalusse G, Mummid S, Gaitan AA, Jimenez F, **Ramsuran V**, Picton ACP, Rogers K, Manoharan M, Avadhanam N, Murthy KK, Martinez H, Murillo AM, Chykarenko ZA, Hutt R, Daskalakis D, Shostakovich-Koretskaya L, **Abdool Karim SS**, Martin JN, Deeks SG, Hecht F, Sinclair E, Clark RA, Okulicz J, Valentine FT, Martinson N, Tiemessen CT, **Ndung'u T**, Hunt PW, He W, Ahuja SK. Epigenetic mechanisms, T-cell activation, and CCR5 genetics interact to regulate T-cell expression of CCR5, the major HIV-1 coreceptor. *PNAS* 2015; doi: 10.1073/pnas.1423228112

62 Zumla A, Chakaya J, Hoelscher M, Ntouni F, Rustomjee R, Vilaplana C, Yeboah-Manu D, Rasolof V, Munderi P, Singh N, Akillu E, **Padayatchi N**, Macete E, Kapata N, Mulenga M, Kibiki G, Mfinanga S, Nyirenda T, Maboko L, Garcia-Basteiro A, Rakotosamimanana N, Bates M, Mwaba P, Reither K, Gagneux S, Edwards S, Mfinanga E, Abdulla S, Cardona P-J, Russell JBW, Gant V, Noursadeghi M, Elkington P, Bonnet M, Menendez C, Dieye TN, Diarra B, Maiga A, Aseffa A, Parida S, Wejse C, Petersen E, Kaleebu P, Oliver M, Craig G, Corrah T, Tientcheu L, Antonio M, Rao M, McHugh TD, Sheikh A, Ippolito G, Ramjee G, Kaufmann SHE, Churchyard G, Steyn A, Grobusch M, Sanne I, Martinson N, Madansein R, Wilkinson RJ, Mayosi B, Schito M, Wallis RS, Maeurer M. Towards host-directed therapies for tuberculosis. *Nature Reviews* 2015, 14: doi:10.1038/nrd4696

63 **Masson L, Salkinder AL, Olivier AJ, McKinnon LR, Gamielien H, Mlisana K, Scriba TJ, Lewis DA, Little F, Jaspan HB, Ronacher K, Denny L, Abdool Karim SS, Passmore JS**. Relationship between female genital tract infections, mucosal IL-17 production and local Th17 cells. *Immunology*. 2015 Aug 24. doi: 10.1111/imm.12527. [Epub ahead of print]

64 Drain PK, **Garrett NJ**. The arrival of a true point-of-care molecular assay—ready for global implementation? *The Lancet Global Health* 2015; e2663

65 Bhiman JN, Anthony C, Doria-Rose NA, Karimanzira O, Schramm CA, Khoza T, Kitchin D, Botha G, Gorman J, **Garrett NJ, Abdool Karim SS**, Shapiro L, **Williamson C**, Kwong PD, Mascola JR, **Morris L, Moore PL**. Viral variants that initiate and drive maturation of V1V2-directed HIV-1 broadly neutralizing antibodies. *Nature Medicine*; 2015 doi:10.1038/nm.396

*continuation from previous newsletter

Scientific Reviews

Abstracts submitted for review		Manuscripts submitted for review		Ancillary studies submitted for review	
Total#	Cumulative [^]	Total#	Cumulative [^]	Total#	Cumulative [^]
0	330	5	219	0	64

for month, ^ since committee initiation

Conference & Workshop Reminders

Conference	Dates	Deadlines		Website
		Abstracts	Registration	
46th Union World Conference on Lung Health - Cape Town, South Africa	2-6 Dec 2015	24 Apr 2015	20 Aug 2015	http://capetown.worldlunghealth.org/
International Conference on AIDS & STI in Africa (ICASA) - Hammamet, Tunisia	8-13 Nov 2015	May 2015	29 Oct 2015	http://icasa2015tunisia.org/
Conference on Retroviruses and Opportunistic Infections - Boston, Massachusetts, USA	22-25 Feb 2016	30 Sept 2015	26 Jan 2016	http://www.croiconference.org/

<p>CAPRISA is the UNAIDS Collaborating Centre for HIV Research and Policy</p>	<p>CAPRISA hosts a DST-NRF Centre of Excellence in HIV Prevention</p>	<p>CAPRISA hosts a MRC HIV-TB Pathogenesis and Treatment Research Unit</p>
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