



CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA



***DST-NRF
Centre of Excellence
in HIV Prevention***

Overview of the CoE's first biennium



**science
& technology**

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



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RESEARCH: IMPACTING POLICY & PRACTICE

The DST-NRF Centre of Excellence in HIV Prevention aims to understand and ameliorate the high risk of HIV in women, especially young women, in South Africa. The CoE focuses on research and development of new prevention technologies to protect women from acquiring HIV infection.

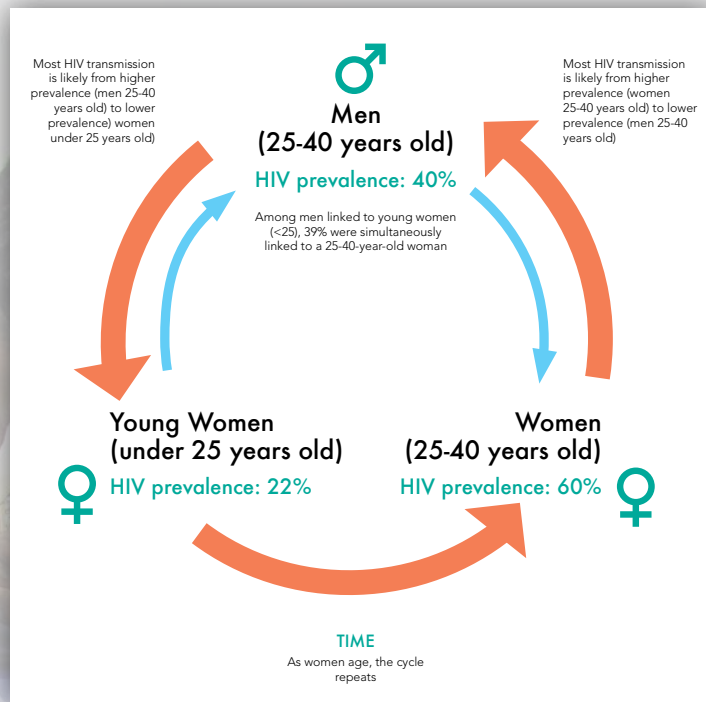
Transmission Networks and HIV Risk

A community-wide phylogenetic study of 9,812 rural people revealed a cycle of HIV transmission where teenage girls and young women had the highest incidence rates, largely as a result of transmission from older men in their 30's. Most of these men were unaware that they had recently acquired HIV, mostly from women in their 30's. These findings were published in *Lancet HIV* on World AIDS Day in 2016 and have already impacted on global policy, influencing the UNAIDS global strategy and shaping the global HIV response.



Transmission networks and risk of HIV infection in KwaZulu-Natal, South Africa: a community-wide phylogenetic study

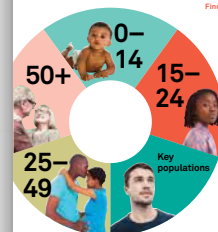
Tulio de Oliveira, Ayesha B M Kharsany*, Tiago Gräf, Cherie Cawood, David Khanyile, Anneke Grobler, Adrian Puren, Savathree Madurai, Cheryl Baxter, Quarraisha Abdool Karim, Salim S Abdool Karim.*



Get on the Fast-Track

The life-cycle approach to HIV

Finding solutions for everyone at every stage of life



UNAIDS | 2016

RESEARCH: IMPACTING POLICY & PRACTICE

Vaginal Bacteria Impact HIV Prevention in Women

One of the CoE's ground-breaking studies was published in the journal *Science* in June 2017 and presented to acclaim at the 2016 International AIDS conference, showing that HIV prevention in women is being compromised by vaginal bacteria (microbiome). It found that the anaerobic bacteria *Gardnerella vaginalis*, which predominate when the 'healthy' lactobacilli levels are low in the vagina, absorbs tenofovir and breaks it down thereby reducing the availability of this antiretroviral drug to prevent HIV infection in women. This evidence, based on state-of-the-art proteomics, is influencing new directions in topical prophylaxis for HIV prevention in women.



Vaginal bacteria modify HIV tenofovir microbicide efficacy in African women

Nichole R. Klatt^{1,*,†}, Ryan Cheu^{1,†}, Kenzie Birse^{2,3,†}, Alexander S. Zevin^{1,†}, Michelle Perner^{2,3,†}, Laura Noël-Romas^{2,3,†}, Anneke Grobler⁴, Garrett Westmacott⁵, Irene Y. Xie^{2,3}, Jennifer Butler^{2,3}, Leila Mansoor⁴, Lyle R. McKinnon^{3,4}, Jo-Ann S. Passmore^{6,4}, Quarraisha Abdool Karim^{4,7}, Salim S. Abdool Karim^{4,7}, Adam D. Burgener^{2,3,8,*†}



Above: Prof Salim Abdool Karim, Director of CAPRISA presented findings by a CAPRISA consortium of South African and North American researchers at a Special Session at the AIDS 2016 Conference in Durban shedding new light on why young women in South Africa have high rates of HIV infection. The session was chaired by Ambassador Deborah Birx US Global AIDS Coordinator and Dr Anthony Fauci Director NIAID (right in the photograph).

OVERVIEW

The DST-NRF Centre of Excellence (CoE) in HIV Prevention, established in April 2015, is hosted by the Centre for the AIDS Programme of Research in South Africa (CAPRISA) and co-hosted by the University of KwaZulu-Natal (UKZN). It includes the University of Cape Town (UCT), National Institute for Communicable Diseases (NICD), and the University of the Western Cape (UWC) as local partners. The international partners of the CoE are Columbia University and the Ragon Institute of MGH, MIT and Harvard University.



Above: Dr Naledi Pandor, Minister of Science and Technology launching the CoE in HIV Prevention at the Press Conference in Durban in April 2015. The press conference and announcement included senior officials of the NRF, UKZN, CAPRISA as well as two senior members of the CAPRISA Scientific Advisory Board - Professor Françoise Barré-Sinoussi (Nobel Laureate) and Professor Cate Hankins (ex-Chief Scientific Advisor: UNAIDS).

CoE LEADERSHIP



SS Abdool Karim
Director



Q Abdool Karim
Core Team Member:
CAPRISA



C Baxter
CoE Manager



K Mlisana
Core Team Member:
UKZN



L Morris
Core Team Member:
NICD



P Moore
Core Team Member:
NICD



J-A Passmore
Core Team Member:
CAPRISA & UCT



S Travers
Core Team Member:
UWC



C Williamson
Core Team Member:
UCT

INFORMATION BROKERAGE

Journal publications (April 2015 to July 2017):

- 136 journal publications, including:
 - 48% in journals with impact factor ≥ 5
 - 43% of the publications were in the top 10% of most cited worldwide, including:
 - ♦ 6 in the *New England Journal of Medicine* (Impact Factor: 72)
 - ♦ 15 in the *Lancet* group of journals, including *The Lancet* (IF: 44), *Lancet Global Health* (IF: 18) or *Lancet HIV* (IF: 10)
 - ♦ 2 in the *Science* group of journals, including *Science* (IF: 37) or *Science Translational Medicine* (IF: 17)
 - ♦ 5 in the *Nature* group of journals, including *Nature Medicine* (IF: 30), *Nature Reviews Genetics* (IF: 40) or *Nature Structural and Molecular Biology* (IF: 13)
 - ♦ 3 in the *Journal of Infectious Diseases* (IF: 6)
 - ♦ 9 in *AIDS* (IF: 5)
 - ♦ 6 in the *Journal of Virology* (IF: 5)



The NEW ENGLAND
JOURNAL of MEDICINE

Tenofovir Gel for the Prevention of Herpes Simplex Virus Type 2 Infection

Salim S. Abdool Karim, M.B., Ch.B., Ph.D., Quarraisha Abdool Karim, Ph.D., Ayesha B.M. Kharsany, Ph.D., Cheryl Baxter, Ph.D., Anneke C. Grobler, Ph.D., Lise Werner, M.Sc., Angela Kashuba, Pharm.D., Leila E. Mansoor, Ph.D., Natasha Samsunder, B.Tech., Adrian Mindel, M.D., and Tanuja N. Gengiah, Ph.D., for the CAPRISA 004 Trial Group*



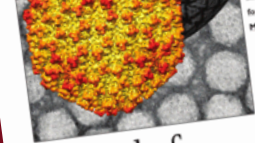
Genital Inflammation and the Risk of HIV Acquisition in Women

Lindi Masson,^{1,2a} Jo-Ann S. Passmore,^{1,2,3a} Lenine J. Liebenberg,^{1,a} Lise Werner,¹ Cheryl Baxter,¹ Kelly B. Arnold,⁴ Carolyn Williamson,^{1,2} Francesca Little,² Leila E. Mansoor,¹ Vivek Naranbhai,¹ Douglas A. Lauffenburger,⁴ Katharina Ronacher,⁶ Gerhard Walzl,⁶ Nigel J. Garrett,¹ Brent L. Williams,⁷ Mara Couto-Rodriguez,⁷ Mady Hornig,⁷ W. Ian Lipkin,⁷ Anneke Grobler,¹ Quarraisha Abdool Karim,^{1,a} and Salim S. Abdool Karim^{1,a}



Distinct genital tract HIV-specific antibody profiles associated with tenofovir gel

D Archary^{1,11}, KE Seaton^{2,11}, JS Passmore^{1,3,4}, L Werner¹, A Deal², LJ Dunphy⁵, KB Arnold⁵, NL Yates², DA Lauffenburger⁵, P Bergin⁶, LJ Liebenberg¹, N Samsunder¹, MW Mureithi⁷, M Altfeld⁸, N Garrett¹, Q Abdool Karim^{1,9}, SS Abdool Karim^{1,9}, L Morris^{1,4} and GD Tomaras^{2,10}



Journal of
Virology

Science

The NEW ENGLAND
JOURNAL of MEDICINE

nature
medicine

AIDS

The Journal of
Infectious
Diseases

THE LANCET

"The question for attendees in Rome, and the global community, is whether we have the political will to mobilise the resources needed to arrest the HIV epidemic 30 years after it first emerged."

EDUCATION & TRAINING

The DST-NRF CoE in HIV Prevention offers scholarships to postgraduate students at Honours, Masters, doctoral and post-doctoral levels. Research placements are also offered to undergraduate medical students to gain experience in research.



COE TRAINEES	
CoE training category	Number
Postgraduates	
Masters	46
PhD	42
Post-doctoral	27
Honours	5
% South African	78%
% Women	63%
Undergraduates	
Medical students	95

Above: Dr Sinaye Ngcapu, was a PhD student at CAPRISA under the supervision of Professor Q Abdool Karim and Professor JA Passmore. Dr Ngcapu was awarded the AIDS 2016 Women, Girls and HIV Investigator’s Prize at the AIDS 2016 conference for his winning abstract (selected from over 6700 abstracts submitted) entitled: “Effect of injectable hormonal contraceptives on vaginal epithelium thickness and genital HIV target cell density in women recently infected with HIV”. Dr Ngcapu has been awarded several grants for his post-doctoral research at CAPRISA focusing on the role of vaginal microbiome dybiosis in persistence and clearance of human papillomavirus (HPV) infections in women.

NETWORKING AND SERVICE RENDERING



UNAIDS

Chair – UNAIDS Scientific Expert Panel



PEPFAR

Scientific Advisory Board



WHO

Chair – Strategic & Technical Advisory Group for HIV & Hepatitis

WHO TB Task Force

WHO ARV Guidelines Committee



SAMRC

Medical Research Council Board

Note: Selected from a list of several local & international policy bodies

The scientists of the DST-NRF CoE in HIV Prevention participate and lead international policy and practice guidelines, especially for the Joint United Nations Program on AIDS (UNAIDS) and the World Health Organisation (WHO). CoE researchers are regularly called upon to provide advice and to serve on local, national and international committees influencing the future direction of HIV prevention. They have also delivered keynote addresses at several international scientific conferences and meetings.



Above: Participants at the 2016 HIV Prevention Workshop. The CoE collaborates with researchers throughout the world and hosts an annual HIV Prevention Workshop, attended by over 60 local & international scientists and students, jointly with the Ragon Institute of MGH, MIT & Harvard University and the UKZN HPP research group.



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About the DST-NRF CoE in HIV Prevention

The DST-NRF CoE in HIV Prevention was established in 2015 as a multi-institutional collaboration involving five South African partner institutions:

CAPRISA, University of KwaZulu-Natal, University of Cape Town, University of the Western Cape and the National Institute for Communicable Diseases.

Columbia University in New York and the Ragon Institute of MGH, MIT and Harvard University are the CoE's two key international partners.

Goal of the DST-NRF CoE in HIV Prevention

To undertake research aimed at understanding and ameliorating the high risk of HIV in women, especially young women, in South Africa

CoE Steering Committee

D Ramjugernath (Chair) • SS Abdool Karim • Q Abdool Karim • C Baxter • M Khati (NRF)
P Matutu (DST) • K Mlisana • P Moore • L Morris • JA Passmore • S Travis • C Williamson

CoE and CAPRISA Scientific Advisory Board

F Barré-Sinoussi (Chair, Nobel Laureate - 2008) • T Quinn (Vice Chair, Johns Hopkins - USA)
SM Dhlomo (KZNDoh - SA) • P Godfrey-Faussett (UNAIDS) • R Hayes (LSHTM - UK) • G Hirschall (WHO)
J Mascola (VRC-NIH) • Y Pillay (NDoH - SA) • S Swaminathan (ICMR - India)

Contact Details

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Website: www.caprisa.org • Email: caprisa@caprisa.org

CoE Partner
Institutions:



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

