CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

GLOBALLY RELEVANT AND LOCALLY RESPONSIVE HIV PREVENTION AND TREATMENT RESEARCH

CAPRISA hosts a DST-NRF Centre of Excellence in HIV Prevention

CAPRISA is the UNAIDS Collaborating Centre for HIV Research and Policy

CAPRISA hosts a MRC HIV-TB Pathogenesis and Treatment Research Unit

Partner Institutions:

University of KwaZulu-Natal, Inyuvesi YaKwaZulu-Natali

Columbia University Mailman School of Public Health

National Institute for Communicable Diseases

University of Cape Town, Iyunivesithi yaseKapa · Universiteit van Kaapstad

University of the Western Cape

RESEARCH PROGRAMMES

Prevention and Epidemiology

PREVENTION AND EPIDEMIOLOGY

Quarraisha Abdool Karim • *Head: Prevention and Epidemiology Research*

To develop and test new prevention modalities, CAPRISA is undertaking studies to understand the evolving HIV epidemic in South Africa, identify biological, behavioural and sociological risk factors associated with HIV acquisition in young women and unravel the transmission dynamics of HIV within a community setting. This lays the foundation for CAPRISA to conduct trials of new HIV interventions to reduce the risk of HIV infection in young women.

Microbicides

MICROBICIDES

Salim S. Abdool Karim • *Head: Microbicide Research*

Women, especially young women, have a disproportionately high burden of HIV infection in Africa. CAPRISA is studying young women's vulnerability and risk factors for HIV infection, including the role of genital tract immunity in influencing the risk of HIV transmission in young women. At the same time, CAPRISA is conducting trials of new generation microbicides as there is an urgent need for a safe and effective technology that women can use to reduce their risk of HIV acquisition.

Vaccine and Pathogenesis

VACCINE AND PATHOGENESIS

Nigel Garrett • *Head: Vaccine and Pathogenesis Research*

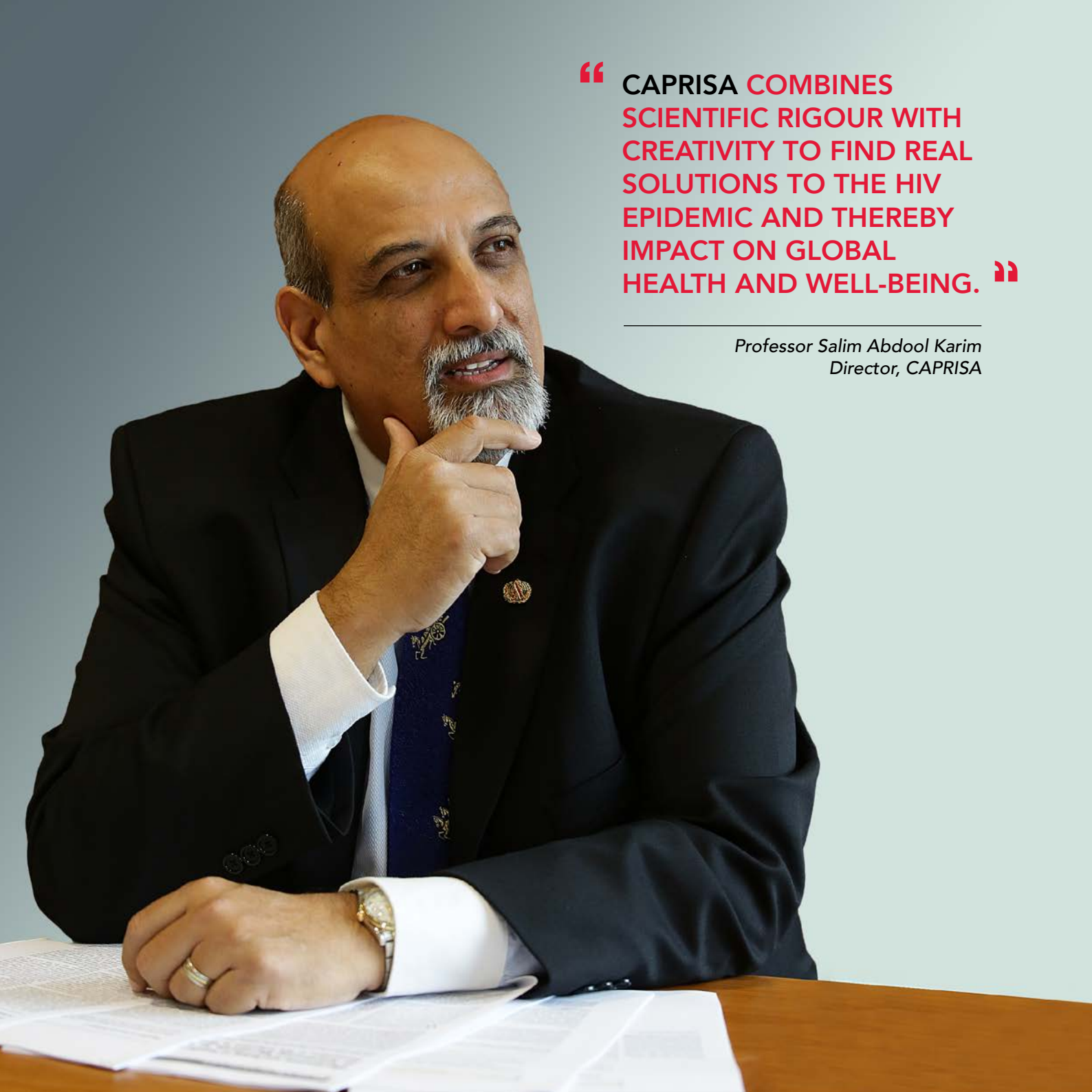
CAPRISA's studies of HIV pathogenesis include the elucidation of early viral and immunological events in acute infection as well as host genetic factors associated with HIV transmission, establishment of HIV infection and containment of virus replication in humans. This has enabled CAPRISA to study the ontogeny of broadly neutralising antibodies. CAPRISA is also involved in HIV vaccine development and clinical trials.

HIV and TB Treatment

HIV AND TB TREATMENT

Kogieleum Naidoo • *Head: HIV and TB Treatment Research*

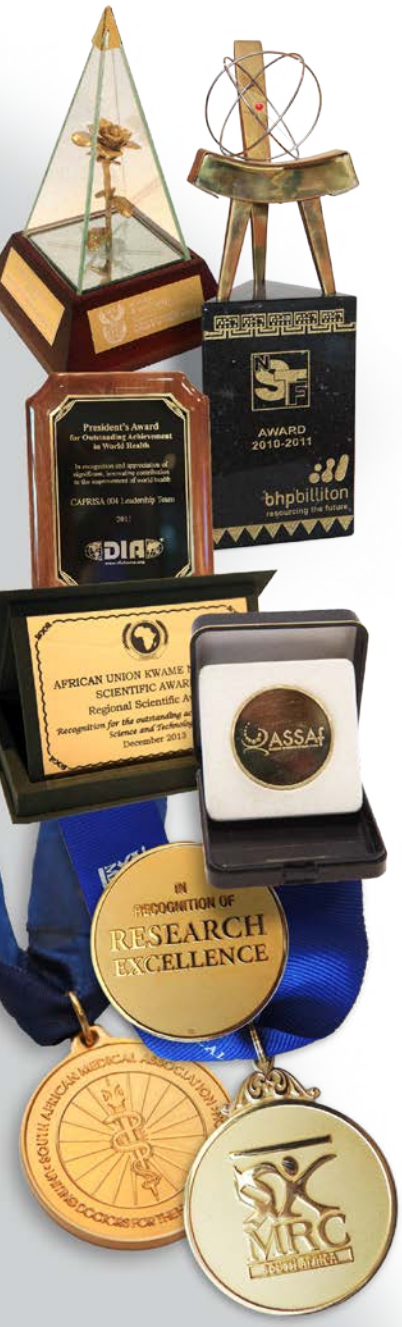
TB is the most common cause of HIV-related mortality in most of Africa. CAPRISA's TB-HIV research focuses on optimal care strategies to reduce morbidity and mortality in co-infected patients. Studies have aimed to elucidate the full spectrum of risks and benefits of integration of antiretroviral therapy with TB treatment as well as the optimisation of the treatment regimens in co-infected patients, especially for drug-resistant forms of TB. Operational effectiveness of HIV-TB Treatment integration, and strategies for improving adherence to both AIDS and TB drugs are being studied.



> CAPRISA COMBINES SCIENTIFIC RIGOUR WITH CREATIVITY TO FIND REAL SOLUTIONS TO THE HIV EPIDEMIC AND THEREBY IMPACT ON GLOBAL HEALTH AND WELL-BEING.

Professor Salim Abdool Karim
Director, CAPRISA

AWARDS TO CAPRISA RESEARCHERS



2011

Allan Rosenfield M.D. Alumni Award
- from the Columbia University Alumni Association

President's Award for Outstanding Achievement in World Health
- from the DIA (Drug Information Association)

NSTF - BHP Billiton Award
- from the National Science & Technology Forum in partnership with BHP Billiton

Distinguished Women in Science Award
- from the Department of Science and Technology, Republic of South Africa

Medicine Award: Fellowship in Art and Science of Medicine Gold Medal
- from the South African Medical Association

Outstanding Senior African Scientist Award
- from the European and Developing Countries Clinical Trials Partnerships

Chancellor's Calabash Award
- from the University of South Africa (UNISA)

Inaugural Olusegun Obasanjo Prize
- from the African Academy of Sciences

2012

TWAS Prize in Medical Sciences
- from The World Academy of Sciences (TWAS)

Minara Academic Excellence Award
- from the Minara Chamber of Commerce

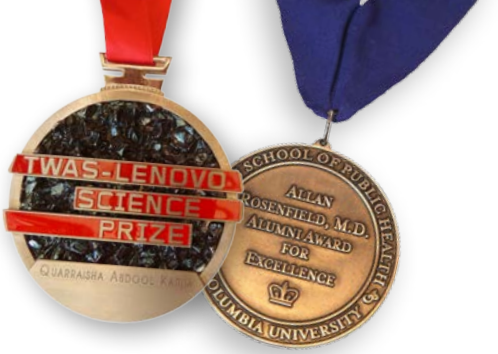
N'Galy-Mann Award
- from the Conference for Retroviruses and Opportunistic Infections

2013

John F. W. Herschel Medal
- from the Royal Society of South Africa

The 2013 Scientific Prize
- from the International Union Against Tuberculosis and Lung Disease

African Union Kwame Nkrumah Scientific Regional Award
- from the African Union



2014

Order of Mapungubwe
- from the Presidency of the Republic of South Africa

Annual Service Excellence Award
- from the KwaZulu-Natal Department of Health

The Mayor's Award for Excellence
- from eThekwini Municipality

Lifetime Achievement Award
- from the India HIV Congress 2014

Science-for-Society Gold Medal
- from the Academy of Science of South Africa (ASSAf)

US Science and Technology Pioneers Prize
- from the United States Agency for International Development

TWAS Lenovo Science Prize
- from The World Academy of Sciences (TWAS)

Gold Medal Scientific Achievement Award
- from the South African Medical Research Council

Lifetime Achievement Award
- from the AIDS Society of India

2015

African Union Kwame Nkrumah Continental Scientific Award
- from the African Union

eThekwini Living Legends Award
- from the eThekwini Municipality

Platinum Lifetime Achievement Award
- from the South African Medical Research Council

2016

L'Oréal-UNESCO Women in Science Award
- from the L'Oréal Foundation and UNESCO

MAJOR RESEARCH STUDIES

THE CAPRISA 002 STUDY ON ACUTE HIV INFECTION

has contributed to unravelling the way in which HIV escapes the body's immune response and how this impacts on when patients will progress to AIDS disease. This research has led to CAPRISA identifying two women who naturally developed rare broadly neutralizing antibodies, which are able to kill up to 88% of the HIV types found across the world. The CAPRISA team made the discovery that these special antibodies were elicited by the movement of a sugar, known as a glycan, on the outer covering of the virus. This discovery has been hailed for its potential contribution to the development of HIV vaccines.

- Moore PL, et al. Evolution of an HIV glycan-dependent broadly 1 neutralizing antibody 2 epitope through immune escape. *Nature Medicine 2012*; 18(11):1688-92
- Doria-Rose NA, et al. Developmental pathway for potent V1V2-directed HIV-1-neutralizing antibodies. *Nature 2014*; 509(7498):55-62

THE CAPRISA 003 TB-HIV TREATMENT STUDY

showed that deaths in TB-HIV co-infected patients could be substantially reduced with integrated antiretroviral therapy and TB treatment. The findings have impacted in the revision of the World Health Organization (WHO), US-Department of Health and Human Sciences and South African guidelines on the treatment of patients with TB-HIV co-infection. The results of this CAPRISA study have shaped the global approach to treatment of TB-HIV co-infected patients.

It is estimated that the implementation of this approach to TB-HIV treatment in South Africa could prevent about 10 000 deaths each year.

- Abdool Karim SS, et al. Timing of Initiation of Antiretroviral Drugs during Tuberculosis Therapy. *New England Journal of Medicine 2010*, 362:697-706.
- Abdool Karim SS, et al. Integration of Antiretroviral Therapy with Tuberculosis Treatment. *New England Journal of Medicine 2011*, 365(16):1492-1501

RESEARCH CLINICS

The **eThekwini CAPRISA Research Clinic** adjoins the Prince Cyril Zulu Communicable Disease Centre, which is the largest government out-patient TB and sexually transmitted diseases treatment facility in Durban. This clinic is in the Durban city centre transport hub next to the main train station, bus rank and taxi station.

The **Springfield CAPRISA Research Clinic** at the King Dinuzulu Hospital, which is the largest TB referral hospital in the province of KwaZulu-Natal. As several hundred patients with drug resistant TB are treated at this hospital each year, CAPRISA's research here focuses on clinical studies on MDR-TB and XDR-TB.

The **Vulindlela CAPRISA Research Clinic** adjoins the Mafakatini Primary Health Care Clinic in the rural Vulindlela district in KwaZulu-Natal. This research facility, which hosts an adolescent-friendly clinic, has a close working relationship with the local community to study new approaches to HIV prevention and treatment.

THE CAPRISA 004 TRIAL

THE GROUNDBREAKING RESULTS OF THE CAPRISA 004 TENOFOVIR GEL STUDY provided the evidence that antiretroviral drugs can prevent sexual transmission of HIV. Tenofovir gel reduced the risk of HIV infection by 39% in women who used it before and after sex. In addition, tenofovir gel was 51% effective in preventing genital herpes.

- Abdool Karim Q, et al. Effectiveness and Safety of Tenofovir Gel, an Antiretroviral Microbicide, for the Prevention of HIV Infection in Women. *Science 2010*; 329: 1168-1174.
- Abdool Karim SS, et al. Drug concentrations following topical and oral antiretroviral pre-exposure prophylaxis: Implications for HIV prevention in women. *Lancet 2011* 378: 279-281

CAPRISA ARTICLES AND CITATIONS

(2010-2016)

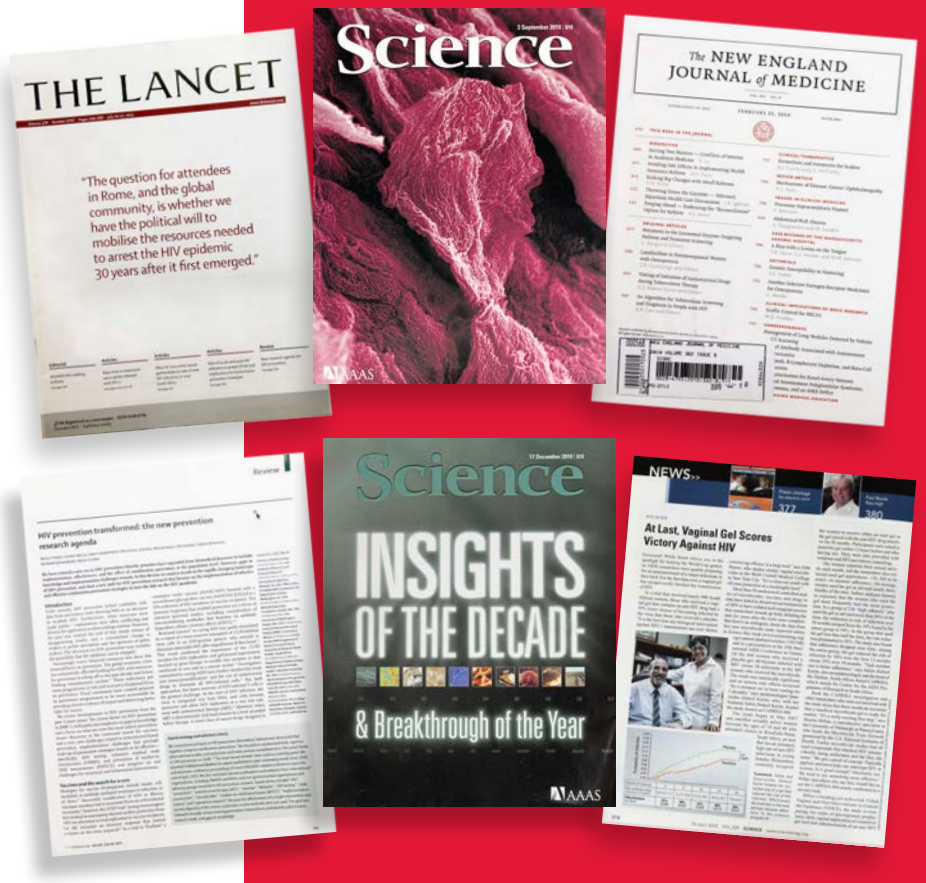
>1500
– the number of times the CAPRISA 004 article in *Science* has been cited

>50
– the average number of CAPRISA peer reviewed journal articles per year

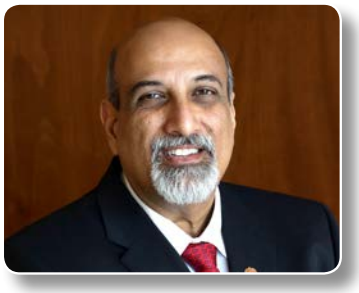
>33%
– the proportion of CAPRISA articles in journals with an impact factor >5

>5
– articles that are highly cited per year

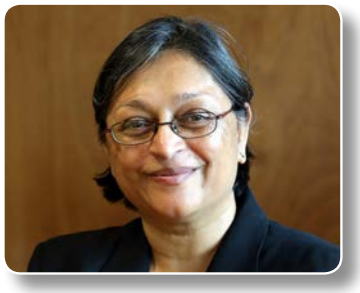
The CAPRISA 004 Trial was ranked among the **Top 10 scientific breakthroughs** in 2010 by the Journal ***Science***



CAPRISA EXECUTIVE



Salim Abdool Karim
Director



Quarraisha Abdool Karim
Associate Scientific Director

Nesri Padayatchi
Deputy Director

RESEARCH PARTNERS

1 Acute Infection and Vaccine Partners

- HIV Pathogenesis Programme and K-RITH – Thumbi Ndung'u
- UCT – Wendy Burgers, Clive Gray, Carolyn Williamson
- National Institute of Communicable Diseases – Penelope Moore, Lynn Morris
- NHLS & UKZN – Koleka Mlisana
- Ragon Institute & HIV Pathogenesis Programme – Bruce Walker, Dan Barouch, Christina Thobagkale
- Adrian Mindel

2 Epidemiology and Prevention Partners

- UWC – Simon Travers
- Epicentre – Cherie Cawood
- COMOSAT – Gethwana Makhaye
- UKZN – Tulio de Oliveira
- Africa Centre – Frank Tanser

3 Mother-to-Child Transmission Partners

- Women's Health Unit, UKZN – Dayendre Moodley
- MatCH – Hoosen Coovadia

4 Microbicides and Mucosal Immunology Partners

- CONRAD – Gustavo Doncel, David Friend
- Ragon Institute – Doug Kwon
- NHLS & UCT – Jo-Ann Passmore, Lindi Masson
- SAMRC – Gita Ramjee

5 TB-HIV Treatment and Pathogenesis Partners

- Ragon Institute and Harvard University – Sarah Fortune
- SAMRC – Marian Loveday
- Columbia University – Max O'Donnell, Barun Mathema
- UCT – Thomas Scriba
- Yale University – Gerald Friedland
- UKZN – Andy Gray, Nombulelo Magula, Yunus Moosa
- University of Toronto – Amrita Daftary
- Vivek Naranbhai
- SATVI – Mark Hatherill

PRINCIPAL FUNDERS

South Africa and the United States working in partnership

NIH National Institutes of Health

National Institute of Allergy and Infectious Diseases

UNAIDS

CDC Centers for Disease Control and Prevention

USAID From the American People

science & technology Department: Science and Technology Republic of South Africa

NRF

saMRC

MAC AIDS FUND

CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

UNAIDS

CAPRISA is the UNAIDS Collaborating Centre for HIV Research and Policy

CAPRISA was established in 2002 through a Comprehensive International Program of Research on AIDS (CIPRA) grant from the National Institutes of Health (NIH), as a multi-institutional collaboration, incorporated as an independent non-profit AIDS Research Organisation. The five major partner institutions are: University of KwaZulu-Natal, University of Cape Town, University of the Western Cape, National Institute for Communicable Diseases and Columbia University in New York. CAPRISA has diverse expertise in basic and molecular epidemiology, virology, immunology, infectious disease medicine, bioinformatics, statistics, ethics and health policy. CAPRISA is an official research institute of the University of KwaZulu-Natal and Columbia University.

CAPRISA GOALS

To undertake globally relevant and locally responsive research that contributes to understanding HIV Pathogenesis, Prevention and Epidemiology, as well as the links between Tuberculosis and AIDS care.

CAPRISA hosts a DST-NRF Centre of Excellence (CoE) in HIV Prevention and a MRC HIV-TB Pathogenesis and Treatment Research Unit

CONTACT DETAILS

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