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*In our feature article this month we profile and congratulate CAPRISA Associate Scientific Director, Professor Quarraisha Abdool Karim, on her remarkable achievements.*

*We also profile CAPRISA Deputy Director, Dr Nesri Padayatchi, on her election as a member to the ASSAf.*

*On page 3 we report on the 5th HIV Prevention Workshop hosted by CAPRISA, the HIV Pathogenesis Programme and the Ragon Institute of MGH, MIT and Harvard.*



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## Global Recognition for Leading CAPRISA Scientist

**D**istinguished academic and renowned HIV researcher, Professor Quarraisha Abdool Karim has been awarded the 2014 TWAS-Lenovo Science Prize - the most prestigious annual prize of The World Academy of Sciences (TWAS), based in Trieste Italy. Professor Abdool Karim, Associate Director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA) and Professor of Epidemiology at Columbia University in New York, has been recognised for her ground-breaking research on HIV prevention in women.

The prize, which comprises a citation, medal and US\$100 000 was announced by Professor Chunli Bai, President of TWAS, on Sunday 26 October at a Prize Ceremony of the Annual TWAS Conference in Muscat, Sultanate of Oman.

Professor Abdool Karim said she is humbled by the award. "I feel very privileged and honoured to be the recipient of this award. AIDS is a major global challenge and in Africa, young women have the highest rates of HIV infection," she said. "By preventing HIV infection in women," said Prof Abdool Karim, "we have a chance to alter the course of the epidemic and save millions of lives."

We have a great admiration and respect for the Dr Karim, " said TWAS President Bai Chunli. "she has an exemplary record of high-impact science, and there is a deep humanity to her work. Just as important, she has helped to train hundreds of young Africa scientists who are expanding the research into HIV and tuberculosis. She really is a model scientist, and a tremendous inspiration to



**Professor Quarraisha Abdool Karim**

colleagues across the world."

This international award follows on two other medals that Professor Abdool Karim received in October 2014 in her home country South Africa. On 14 October she received the "Science-for-Society Gold Medal" for 2014 from the Academy of Science for South Africa (ASSAf). In conferring this award, Professor Daya Reddy, President of ASSAf commended her "profound impact on HIV prevention, advocacy and leadership". The third Gold Medal that Professor Abdool Karim re-



ceived in October was at the Annual Awards Dinner of the South African Medical Research Council (MRC) on 30 October, where she received the MRC's Gold Medal Scientific Achievement Award. "The Medical Research Council recognises and congratulates you as an outstanding South African scientist," said MRC Chairman, Professor Mike Sathekge, "for your contributions to raising the profile and impact of science in South Africa." In addition to the medal awards, Professor Abdool Karim was elected as a Foreign Associate Member of the prestigious Institute of Medicine (IOM) of the US National Academies of Science, also in October this year.

These awards recognize 25 years of research on HIV/AIDS by Professor Abdool Karim. She started her HIV research in 1989 with one of the first HIV community-based surveys in Africa. This 1990 study showed that young women had a disproportionately higher risk of HIV infection – a finding that defined the rest of her research. Since then, she has devoted all her research to finding solutions to help women protect themselves from HIV infection. Several initial attempts with films and gels were not successful. However, the breakthrough came twenty years later in 2010, when she announced the results of the CAPRISA 004 trial at the International AIDS Conference in Vienna that tenofovir gel reduced the risk of both HIV infection and genital herpes in women.

The tenofovir gel results were heralded as one of the Top 10 scientific breakthroughs of 2010 by the journal *Science* and has been cited by other scientist over 1000 times in the last 3 years. It was also among the top two articles for *The Lancet's* "Paper of the Year" in 2010. "Tenofovir gel could fill an important HIV prevention gap by empowering women who are unable to successfully negotiate mutual faithfulness or condom use with their male partners," said Abdool Karim. A confirmatory study, which is required for the gel to be licenced as a medicine, is currently underway by the Follow-on African Consortium for Tenofovir Studies (FACTS), led by Professors Helen Rees and Glenda Gray. When licensed, widespread use of tenofovir gel could prevent over half a million new HIV infections in South Africa alone over the next decade. Professor Abdool Karim's research on HIV/AIDS, particularly in rural South Africa and in young women in Africa, has had a profound impact in shaping HIV prevention, policy and programs in South Africa and at a global level.

She is a Vice-President of the African Academy of Sciences, a member of the UNAIDS Expert Science Panel and Chair of the Prevention of the Technical Task Team of the South African National AIDS Council. She is the recipient of several prestigious awards.

## Nesri Padayatchi elected member of ASSAf



Dr Nesri Padayatchi

**The Academy of Science of South Africa (ASSAf) inaugurated 23 new members at its Annual Awards and Inauguration Ceremony on 14 October 2014 increasing its numbers to 445, all of whom are recognised as among South Africa's top scholars.**

Respected as an authority on TB-HIV co-infection, Dr Nesri Padayatchi, Deputy Director of CAPRISA, was elected as a Member of ASSAf at the awards ceremony. "I am pleased to congratulate and welcome you as a newly elected member of ASSAf", said ASSAf General Secretary Professor Himla Soodya. "Your active membership of the Academy is vital to its success and we look forward to your contributions to its growth and development."

Dr Padayatchi's clinical and research experience in the management of TB and related problems span over 25 years. She serves on the

South African National Advisory Board for MDR-TB and in 2013 was appointed to the KwaZulu-Natal MDR-TB Technical Advisory committee.

Her significant scientific contribution has been as a co-investigator in the SAPIT and STRIDE (A5221) studies, which changed the South African, WHO and DHHS guidelines for the management of patients with TB-HIV co-infection.

Dr Padatatchi together with Jerome Singh, a CAPRISA ethicist, and Ross Upshur, a public health specialist from Toronto University, through their publication relating to the ethical and legal ramifications and public health consequences of inadequately controlled XDR-TB, stimulated global debate on the subject.

Dr Padayatchi was the Principal investigator in the Centres for Disease Control, Atlanta, Tuberculosis Trials Consortium in studies 27, 28, 29 and 30, which focused on treatment shortening regimens for TB. She was the CAPRISA Principal Investigator for ACTG and the CAPRISA site.

In the ACTG network, Dr Padayatchi participated in the following studies 5221, 5253, 5255, 5304, 5274 and served on the protocol development teams of 5300, 5289 and is Vice-Chair of 5319.

She is a member of the South African TB Vaccine Committee.



## Discussing mucosal immunity and HIV vaccine development

The 5<sup>th</sup> annual HIV Prevention Workshop, which is co-hosted by CAPRISA, the HIV Pathogenesis Programme (HPP) and the Ragon Institute of MGH, MIT and Harvard, was recently held at the Arabella Hotel & Spa in Hermanus from 24-26 October.



Session 1 of this two day workshop began with an introduction by Salim Abdool Karim from CAPRISA who reminded the workshop participants of the extraordinary high levels of HIV infection in South Africa and emphasised the importance of developing a safe and effective HIV vaccine. John Mascola from the NIH's Vaccine Research Center provided an overview of the challenges and opportunities for antibody-based immunity against HIV-1 and summarised the spectacular progress that has been made in recent years in identifying broadly neutralising antibodies (bNAbs), which have the potential to provide a scaffold for the design of prevention modalities. Some BNabs are already being tested in humans and will provide important information on correlates of protection for an HIV vaccine.

Prominent researchers in the HIV vaccine and mucosal immunology fields, including Lynn Morris, National Institute for Communicable Diseases, Gabriel Victora, Whitehead Institute for Biomedical Research; Alejandro Balazs, Doug Kwon, Todd Allen Ragon, Sylvie Le Gall, and Filippo Porichis, Ragon Institute of MGH, MIT and Harvard; Wendy Burgers, University of Cape Town, Bongwiwe Ndlovu and Zaza Ndlovu, HIV Pathogenesis Programme; Tom Hope, Northwestern University; Gustavo Doncel, CONRAD; Uli von Andrian, Harvard Medical School; Sinaye Ngcapu, Lyle McKinnon and Lenine Liebenberg, CAPRISA; Emily Wong K-RITH & Harvard Medical School; Darrell Irvine and Alex Shalek, Massachusetts Institute of Technology; Louis Picker, the Vaccine and Gene Therapy Institute/Oregon Health & Science University; Ashley Haase and Dave Masopust, University of Minnesota; Dan Barouch, Beth Israel Dea-

coness Medical Center; John Wherry, University of Pennsylvania; Jenniffer Maroa, K-RITH & HIV Pathogenesis Programme; and Mary Carrington, Center for Cancer Research/NCI & Ragon, presented their research in six additional sessions including: 1) Understanding, generating and delivering broadly neutralizing antibodies to HIV: how far are we?, 2) Advances in understanding mucosal immunity, 3) New technologies for understanding infection & immunity, 4) Perspectives on vaccines and correlates of protection, 5) Cellular immunity - T cells and B cells, and 6) Host-virus and virus-virus interactions.

The topics encouraged interactive debates and discussion among the attendees and prompted the formation of future collaborative efforts to address the unanswered questions. In addition to the stimulating scientific presentations, attendees also had the opportunity to participate in a very early morning whale watching excursion and take a scenic walk along the Hermanus coast to Bientang's Cave for dinner.





## Scientific papers published in 2014



63\* Pancera M, Zhou T, Druz A, Georgiev IS, Soto C, Gorman J, Huang J, Acharya P, Chuang G-Y, Ofek G, Stewart-Jones GBE, Stuckey J, Bailer RT, Joyce MG, Louder MK, Tumba N, Yang Y, Zhang B, Cohen MS, Haynes BF, Mascola JR, **Morris L**, Munro JB, Blanchard SC, Mothes W, Connors M, Kwong PD. Structure and immune recognition of trimeric pre-fusion HIV-1 Env. *Nature* 2014; doi:10.1038/nature13808

64 **Abdool Karim SS, Baxter C, Frohlich J, Abdool Karim Q.** The need for multipurpose prevention technologies in sub-Saharan Africa. *British Journal of Obstetrics and Gynecology* 2014; 121 (Suppl. 5): 27–34.

65 **Abdool Karim Q, Baxter C, Abdool Karim S.** Microbicides and their potential as a catalyst for multipurpose sexual reproductive health technologies. *British Journal of Obstetrics and Gynecology* 2014;121 (Suppl. 5): 53–61.

66 **Frohlich JA, Mkhize N, Dellar R, Mahlase G, Montague C, Abdool Karim Q.** Meeting the Sexual and Reproductive Health Needs of High School Students in South Africa: Experiences from rural KwaZulu-Natal. *SA.Med.J.* 2014; 104(9):687-690

67 **Abdool Karim S.** Mervyn W. Susser – His Contributions to the Acquired Immune Deficiency Syndrome Response in South Africa. *Paediatric and Perinatal Epidemiology*, 2014; doi: 10.1111/ppe.12158

68 Succop SM, MacQueen KM, van **Loggerenberg F, Majola N, Abdool Karim Q, Abdool Karim SS.** Trial participation disclosure and gel use behavior in the CAPRISA 004 tenofovir gel trial. *AIDS Care*. 2014; 26(12):1521-5

69 **Garrett N, Werner L, Naicker N, Naranbhai V, Sibeko S, Samsunder N, Gray C, Williamson C, Morris L, Abdool Karim Q, Abdool Karim SS.** HIV Disease Progression in Seroconvertors from the CAPRISA 004 Tenofovir Gel Pre-exposure Prophylaxis Trial. *JAIDS* 2014; doi: 10.1097/QAI.0000000000000367

70 **McKinnon L, Nyanga B, Kim C, Izulla P, Kwatampora J, Kimani M, Shahabi K, Mugo N, Smith J, Anzala AO, Kimani J, Kaul R.** Early HIV-1 infection is associated with reduced frequencies of cervical Th17 cells. *JAIDS* 2014; doi: 10.1097/QAI.0000000000000389

71 **Naranbhai V, Moodley D, Chipato T, Stranix-Chibanda L, Nakabaiito C, Kamateeka M, Musoke P, Manji K, George K, Emel LM, Richardson P, Andrew P, Fowler M, Fletcher H, McShane H, Coovadia HM, Hill AVS,** for the HPTN 046 protocol team. The association between the ratio of monocytes:lymphocytes and risk of tuberculosis(TB) amongst HIV infected postpartum women. *JAIDS* 2014; doi: 10.1097/QAI.0000000000000353

\*continuation from previous newsletter

CAPRISA is an official research institute of the University of KwaZulu-Natal and Columbia University.

CAPRISA was established in 2002 through a CIPRA grant from the NIH, as a multi-institutional collaboration, incorporated as an independent non-profit AIDS Research Organization

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## Scientific Reviews

Abstracts submitted for review		Manuscripts submitted for review		Ancillary studies submitted for review	
Total#	Cumulative <sup>^</sup>	Total#	Cumulative <sup>^</sup>	Total#	Cumulative <sup>^</sup>
0	326	1	203	1	54

# for month, <sup>^</sup> since committee initiation

## Conference & Workshop Reminders

Conference	Deadlines			
	Dates	Abstracts	Registration	Website
<b>8th IAS Conference on HIV Pathogenesis, Treatment and Prevention (IAS 2015)</b> - Vancouver, British Columbia, Canada	19-22 July 2015	27 Jan 2015	25 Feb 015	<a href="http://www.ias2015.org/">http://www.ias2015.org/</a>
<b>International Conference on HIV and AIDS</b> - London, United Kingdom May 25 - 26, 2015	25-26 May 2015	25 Nov 2014	25 Jan 2015	<a href="https://www.waset.org/conference/2015/05/london/ICHA">https://www.waset.org/conference/2015/05/london/ICHA</a>

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