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Professor Quarraisha Abdool Karim receives African Union Scientific Award

In November, Professor Quarraisha Abdool Karim received one of three awards presented by the African Union (AU) Kwame Nkrumah Scientific Awards Programme in its Women Scientist Regional category.

The winners were announced at the African Union Commission Award Ceremony held in early December during Science, Technology and Innovation Week at the AU Headquarters in Addis Ababa, Ethiopia. The ceremony was opened by His Excellency Demitu Hambisa, the Ethiopian Minister of Science and Technology, who discussed the huge potential of science and technology to bring growth and socio-economic growth to developing countries. Science, Technology and Innovation Week was among one of many events organised for the 50th anniversary celebration of the AU.

Professor Abdool Karim was presented with a plaque in recognition of her “great scientific achievement and contribution through science for the socio-economic development of



From left: African Union Kwame Nkrumah Women in Science Award recipients — Yvonne Bonzi-Coulibaly, Isabelle Glitho-Akueson and Quarraisha Abdool Karim

Africa.” Her services to society include her work in developing the first effective microbicide to prevent HIV transmission in women, participation in policy making groups, academic positions at leading institutions and involvement in training and development of the next generation of researchers.

The other Award recipients were Dr Yvonne Bonzi-Coulibaly from Burkina Faso, an organic chemist with a special interest in water contamination, and Professor Isabelle Glitho-Akueson from Togo, an entomologist studying the effect of insects on stored grain supplies.



Virus escape causes more potent antibodies against HIV

This study details the sequential development of three distinct broadly neutralizing antibody responses within a single HIV-1 infected individual over 4 and a half years of infection.

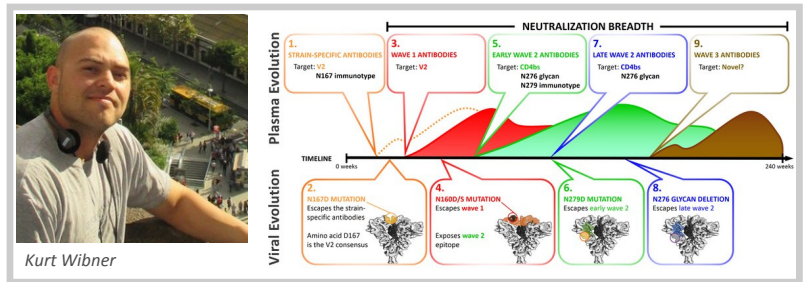
The study showed how escape from the first wave of antibodies targeting V2 exposed a second site that was the stimulus for a new wave of glycan-dependent broadly neutralizing antibodies against the CD4 binding site.

These data highlight how antibody evolution in response to viral escape mutations served to broaden the reactivity of antibodies to these two epitopes.

Another documented finding was a third wave of neutralization that targets an undefined

epitope that did not appear to overlap with the four sites of vulnerability on the HIV-1 envelope identified so far.

These data support the design of templates for sequential immunization strategies aimed at increasing neutralization breadth through the recognition of mul-



tiple epitopes and their immunotypes.

Further reading

Wibmer CK, Bhiman JN, Gray ES, Tumba N, Abdool Karim SS, Williamson C, Morris L, Moore PL. Viral Escape from HIV-1 Neutralizing 1 Antibodies 2 Drives Increased Plasma Neutralization Breadth through Sequential recognition of Multiple Epitopes and Immunotypes. *PLoS Pathog* 9(10): e1003738. doi:10.1371/journal.ppat.1003738

Necessity drives innovation: AIDS researchers ignite hope

Ahead of World AIDS Day 2013, leading HIV/AIDS researchers in Durban urged society to focus on insights, innovation and integrity in the journey into an HIV-free future – and to put people at the centre of health services

A discussion hosted by the UKZN Deputy Vice-Chancellor Professor Rob Slotow at the University of KwaZulu-Natal's College of Health Sciences on the theme 'Putting the "I" back into HIV – new approaches in developing person-centred interventions to fight the epidemic' included a distinguished panel of KwaZulu-Natal researchers.

Focusing on sexual transmission of HIV as the key driver of infection, Professor Salim Abdool Karim, head of CAPRISA, said that particularly over the last three years, there had been an explosion of research evidence compiled on HIV prevention using antiretroviral drugs as prophylaxis. This evidence has changed the global approach to HIV prevention methods, and offered real hope for reducing levels of incidence.

Professor Alan Whiteside of Health Economics and AIDS Research Division (HEARD) emphasised the financial burden of not curbing new HIV infections and the need for efficient spending in light of diminishing overseas donor aid. "The cost of drug supplies and staff will compromise



From left: The panelists: Tullio de Oliveira (Africa Centre), Thumbi Ndung'u (HPP), Rob Slotow (UKZN), Themba Moeti (Health Systems Trust), Salim Abdool Karim (CAPRISA) and Alan Whiteside (HEARD)

the health budget in some other area. ARVs have preventative effects, but we cannot treat our way out of AIDS.

Audience members called for the establishment of a local drug industry that could produce medicines for a broad range of infectious and non-communicable illnesses, questioned the standards of primary health care service delivery, and raised the issue of more radical programmes for behaviour change prevention messaging.

According to Professor Abdool Karim, necessity drives innovation, and because

of the sheer need to address HIV-related problems, we're now doing things differently for a number of diseases such as TB, asthma, hypertension and diabetes – we have home-based and point-of-care testing, as well as task-shifting to optimise our health worker capacity." On behaviour change, he noted that more studies are needed on behaviour change solutions for HIV prevention that focus on structural drivers – one example being a cash incentive for staying HIV-negative.

Speaking on the prospects of a viable HIV vaccine, Professor Thumbi Ndung'u of the KwaZulu-Natal Research Institute for TB and HIV (K-RITH) said that although research had not yet yielded a vaccine solution eligible for licencing, there was evidence that a vaccine is possible. "An HIV vaccine is an enormous challenge," he explained, "because the virus is a formidable enemy". Asked whether it was feasible to pursue an HIV vaccine in the context of funding shortages, Professor Ndung'u argued: "In 1935, no-one believed that a polio vaccine would work, but scientists persisted and eventually triumphed. We are doomed as a society if we don't keep trying to know more."

HIV genetic analysis and molecular evolution



“We all have a role in bringing about change in South Africa”

Angeline Zondo is a first-year medical student and CAPRISA medical research placement with a specific interest in vaccines.

With much of the global emphasis being placed on prevention strategies, Angeline believes that a vaccine is the only way to curb HIV infections amongst adolescents whose main social priorities are overcoming poverty, dealing with peer pressure, earning money and having fun.

She is currently conducting research on the CCR5 receptor and its mutant allele, looking into how immunity can be induced in people who do not have natural immunity against HIV.

So far, her term with CAPRISA has provid-



ed an enabling environment, captured in her words: “CAPRISA has given me a platform to find the answers I’ve always looked for and also to have a better understanding of the things I am interested in.

Angeline’s ambitious long term plans are in line with her desire to bringing about change and improving the state of health in South Africa. She plans to build her own specialisation hospital which is affordable and places patients’ needs first.

“If you are a curious, hardworking person and want to make your mark in the world, then this is the place to be. Your life and the way you think will be transformed.”

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Necessity drives innovation: AIDS researchers ignite hope

was presented by Professor Tulio de Oliveira, a researcher in genomics at the Wellcome Trust’s Africa Centre for Health and Population Studies. Using HIV genetic data and bioinformatics to examine the epidemiological patterns of HIV transmission, more can be understood about the direction of infection, which helps to guide treatment interventions. “We can also study drug resistance more closely with these techniques and characterise how the disease is spreading,” he said. “Rather than drive more stigma into the disease by terrifying people with harsh prevention messages, we should find out more about the linkages between and characteristics of transmission agents and targets. For instance, who is infecting young women?”

Dr Themba Moeti, CEO of Health Systems Trust, reminded the gathering access to the interventions and services is only possible and impactful once they are taken to scale and beyond the essential biomedical tools and political will needed to advance this, we need the commitment and involvement of citizens themselves. Dr Moeti added: “People are living longer with HIV and will succumb to non-communicable illnesses, and we have to ensure that all these diseas-

es can be managed efficiently.”

An audience member was concerned that despite the advances made in different scientific fields, implementation of basic prevention on the ground is still not as easy as one would suppose, citing a church-owned clinic in Lesotho that would not provide patients with male condoms. Moeti replied that any organisation having agency to serve their constituencies pragmatically and with compassion would be morally wrong to deprive people of simple protection from disease, and that we cannot stop educating and encouraging society to practise rights-based responses for health.

Closing the seminar, Professor Slotov noted that there had been clear recognition of the role of young, emerging researchers leading innovative responses to HIV and AIDS. He said that the discussion had compellingly drawn the roles of science and society together: “It is people – with our insights, activism, behaviour and responses – that will take all the science forward to create an AIDS-free future.”



Community vital to VMMC programme

In 2010, CAPRISA in partnership with a local NGO, Zimnandi Zonke, embarked on a voluntary adolescent male circumcision programme (VMMC) following funding in 2010 from the President’s Emergency Plan for AIDS Relief (PEPFAR). Together, CAPRISA and Zimnandi Zonke conducted stakeholder consultations and awareness sessions in 42 schools in the Vulindlela school circuit to bring VMMC to the community.

Three years later, in October 2013, CAPRISA and Zimnandi Zonke co-hosted a gala event for almost 100 representatives from the Department of Education District management, the Department of Health, school principals, teachers and Dr May Mashego-Mkhize.

Dr Janet Frohlich, Head of the CAPRISA Community Programme, presented an overview of the organisation and Ms Nelsiwe Ngcobo, Project Director for the VMMC, provided an overview of the programme.

A total of 6280 circumcisions were performed from June 2010 to September 2013. The majority of males who received the procedure were between 15 and 19 years of age. During the screening process, only 0.2 per cent of males tested positive for HIV which confirmed a very low prevalence of HIV in this target population.

The highlight of the evening was the awards ceremony whereby every school received a medal for their participation in the programme.

Four schools received trophies for their outstanding support of the programme—Siyanda, Msimude, Mconjwana and Asande Schools—and the floating trophy went to Phayiphini School for achieving the highest uptake of VMMC.

Mr Themba Mjilo of the Themba Mjilo Foundation presented Dr Carl Montague, the CAPRISA Vulindlela site director, with a trophy on behalf of the community for the impact CAPRISA has had in the Vulindlela community.

- Dr Janet Frohlich



Scientific papers published in 2013



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 Organisation

Registration Number: 2002/024027/08

37* **Naranbhai V**, Hill AVS, **Abdool Karim SS**, **Naidoo K**, **Abdool Karim Q**, Warimwe GM, Mc Shane H, Fletcher H. Ratio of Monocytes to Lymphocytes in Peripheral Blood Identifies Adults at Risk of Incident Tuberculosis Among HIV-Infected Adults Initiating Antiretroviral Therapy. *Journal of Infectious Diseases*. 2013; doi: 10.1093/infdis/jit494

38 Ajoge HO, **Yende-Zuma N**, Jatau ED, Ibrahim S, Olonitola SO, Shittu OS. Community-based intervention is necessary for the control of HIV in North-Central Nigeria. *Int J Infect Dis*. 2013;17(4):e234-9.

39 **Gengiah TN**, **Moosa A**, **Naidoo A**, **Mansoor LE**. Adherence challenges with drugs for pre-exposure prophylaxis to prevent HIV infection. *Int J Clin Pharm* 2013; DOI 10.1007/s11096-013-9861-1

40 Laeyendecker O, Kulich M, Donnell D, Komárek A, Omelka M, Mullis CE, Szekeres G, Piwowar-Manning E, Fiamma A, Gray RH, Lutalo T, Morrison C, Salata RA, Chipato T, Celum C, Kahle EM, Taha TE, Kumwenda NI, **Abdool Karim Q**, **Naranbhai V**, Lingappa J, Sweat MD, Coates T, Eshleman SH. Estimation of HIV Incidence in a Large, Community-Based, Randomized Clinical Trial: NIMH Project Accept (HIV Prevention Trials Network 043). *PLoS One* 2013; 8(7): e68349. doi:10.1371/journal.pone.0068349

41 **Wibmer CK**, Bhiman JN, Gray ES, Tumba N, **Abdool Karim SS**, **Williamson C**, **Morris L**, **Moore PL**. Viral Escape from HIV-1 Neutralizing 1 Antibodies 2 Drives Increased Plasma Neutralization Breadth through Sequential recognition of Multiple Epitopes and Immunotypes. *PLoS Pathog* 9(10): e1003738. doi:10.1371/journal.ppat.1003738

42 **Naidoo A**, **Naidoo K**, **Yende-Zuma N**, **Gengiah TN**, **Padayatchi N**, **Gray AL**, **Bamber S**, **Nair G**, **Abdool Karim SS**. Changes to antiretroviral drug regimens during integrated TB-HIV treatment: Results of the SAPIT trial. *Antiviral Therapy* 2013; doi: 10.3851/IMP2701

43 Watts DH, Brown ER, Maldonado Y, Herron C, Chipato T, **Reddy L**, **Moodley D**, Nakabiito C, Manji K, Fawzi W, George K, Richardson P, Zwierski S, Coovadia H, Fowler M. HIV disease progression in the first year after delivery among african women followed in the HPTN 046 clinical trial. *Journal of Acquired Immune Deficiency Syndromes* 2013; 64(3):299-306.

44 Baltussen R, Mikkelsen E, Tromp N, Hurtig A, Byskov J, Olsen T, Bærøe K, Hontelez JA, **Singh J**, Norheim OF. Balancing efficiency, equity and feasibility of HIV treatment in South Africa - development of programmatic guidance. *Cost Effectiveness and Resource Allocation* 2013; 11(1): Article number 26

45 Brust JCM, Berman AR, Zalta B, Haramati LB, Ning Y, Heo M, van der Merwe TL, **Bamber S**, Moll AP, Friedland GH, Shah NS, Gandhi NR. Chest Radiograph Findings and Time to Culture Conversion in Patients with Multidrug-Resistant Tuberculosis and HIV in Tugela Ferry, South Africa. *PLoS ONE* 2013; 8(9): e73975

46 Lavery JV, Green SK, Bandewar SVS, Bhan A, Daar A, Emerson CI, Masum H, Randazzo FM, **Singh JA**, Upshur REG, Singer PA. Addressing Ethical, Social, and Cultural Issues in Global Health Research. *PLoS Neglected Tropical Diseases* 2013; 7(8): e2227

47 **Shey MS**, Kongnyuy EJ, Alobwede SM, Wiysonge CS. Co-formulated abacavir-lamivudine-zidovudine for initial treatment of HIV infection and AIDS. *The Cochrane database of systematic reviews* 2013; 3: CD005481

48 Naidoo K, **Singh JA**, Lalloo UG. Survey of ethical dilemmas facing intensivists in South Africa in the admission of patients with HIV infection requiring intensive care. *Southern African Journal of Critical Care* 2013; 29(1): 28-32.

49 Chi BH, Stringer JSA, **Moodley D**. Antiretroviral drug regimens to prevent mother-to-child transmission of HIV: A review of scientific, program, and policy advances for sub-Saharan Africa. *Current HIV/AIDS Reports* 2013; 10(2): 124-133

50 **Singh JA**. Bigotry and Oppressive Laws in Africa Drive HIV in Men Who Have Sex with Men. *PLoS Medicine* 2013 10(6): e1001471

51 Gray GE, Metch B, Churchyard G, **Misana K**, Nchabeleng M, Allen M, Moodie Z, Kublin J, Bekker L-G. Does participation in an HIV vaccine efficacy trial affect risk behaviour in South Africa? *Vaccine* 2013; 31(16):2085-2096

52 Brust JCM, Shah NS, Van Der Merwe TL, **Bamber S**, Ning Y, Heo M, Moll AP, Loveday M, Lalloo UG, Friedland GH, Gandhi NR. Adverse events in an integrated home-based treatment program for MDR-TB and HIV in kwazulu-natal, South Africa. *Journal of Acquired Immune Deficiency Syndromes* 2013; 62(4):436-440.

53 **Abdool Karim SS**, **Baxter C**. Microbicides for Prevention of HIV Infection: Clinical Efficacy Trials. *Curr Top Microbiol Immunol*. 2013 May 22;DOI: 10.1007/82_2013_330

54 **Grobler, A.C**, Matthews, G, Molenberghs, G. The impact of missing data on clinical trials: a re-analysis of a placebo controlled trial of Hypericum perforatum (St Johns wort) and sertraline in major depressive disorder. *Psychopharmacology*, 2013, DOI 10.1007/s00213-013-3344-x

55 **Riou C**, **Burgers W**, **Misana K**, Koup R, Roederer M, **Abdool Karim S**, **Williamson C**, **Gray C**. Differential impact of magnitude, polyfunctional capacity and specificity of HIV-specific CD8+ T cell responses on HIV viral set point. *Journal of Virology*. 2013; DOI: 10.1128/JVI.02968-13

56 **Shey MS**, **Garrett N**, **McKinnon LR**, **Passmore J-AS**. Role of dendritic cells in driving genital tract inflammation and HIV-1 transmission risk: opportunities to intervene? *Innate Immunity* 2013; DOI: 10.1177/1753425913513815

*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 [^] |
| 3 | 304 | 2 | 176 | 2 | 52 |

for month, ^ since committee initiation