



# CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA



CAPRISA IS A UNAIDS COLLABORATING CENTRE FOR HIV PREVENTION RESEARCH

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Cover story—Researchers uncover the unique feature in HIV and its effect on immune response, providing valuable information in the quest to find an AIDS vaccine

On page 2 is an update on the Siyayifuna Advocacy Group.

On page 3 CAPRISA hosts several visits from partners and academics



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## Antibodies breakthrough may hold clue for vaccine development

**Nature Medicine publishes research results that identify a unique feature in HIV that enables infected people to make antibodies capable of killing a wide range of human immunodeficiency viruses**

Unique changes in the virus of two HIV infected women enabled them to produce potent antibodies which are able to kill up to 88% of human immunodeficiency virus (HIV) types found throughout the world. This ground-breaking discovery by a CAPRISA consortium of scientists was announced at a media conference on 22 October 2012 attended by the international press and the South African National Ministers of Health and Science and Technology.

Until now, it was not known by which mechanism the human body is able to make broadly neutralizing antibodies. Commenting on the complex relationship between these antibodies and HIV, Dr Penny Moore, a virologist from the National Institute for Communicable Diseases of the National Health Laboratory Services, who made the discovery, said: "Understanding this elaborate game of 'cat and mouse' between HIV and the immune response of the infected person has provided valuable insights into how broadly neutralizing antibodies arise".

Through follow-up studies on two HIV infected women from the CAPRISA



Dr Penny Moore from the National Institute of Communicable Diseases led the research team that made the discovery

002 acute infection study and CAPRISA 004 tenofovir gel trial, the researchers discovered that the evolution of the human immunodeficiency virus shapes the types of antibodies that are produced over time. These so-called broadly neutralizing antibodies are able to recognise, target and bind themselves to the small pieces



## Siyayifuna support grows

*Siyayifuna*, the advocacy group for HIV prevention methods aimed at women, convened a meeting with the Vulindlela community on 5 October 2012 to feedback developments in the months following the launch of the group and its protest march in KwaZulu Natal earlier in the year.

Invited speaker, Professor Quarraisha Abdool Karim, updated the women on the subsequent approval and initiation of the CAPRISA 008 study, which gives CAPRISA 004 participants post trial access to tenofovir gel through partnerships with two public health clinics or CAPRISA clinical research sites.

Since the launch of *Siyayifuna* in April, founder Gethwana Mahlase has linked



Left to right: Dr May Mkhize, KwaZulu Natal Province First Lady, and Siyayifuna Honorary Patron and Ms Gethwana Mahlase address Siyayifuna attendees



Vulindlela women show their support for female-controlled HIV prevention tools

up with other civil society groups across South Africa to grow support for HIV prevention tools that can

empower women to reduce their risk of HIV infection.

"We have received support from women, health care workers and the community generally and currently have around 30 000 signatures on our petition. We will continue to rally support until we achieve one million signatures on our petition," according to Gethwana.

*Siyayifuna* aims to deliver the petition to the Medicines Control Council and to high-ranking politicians as evidence that there exists an urgent need for biomedical interventions that will enable women to be able to protect themselves from HIV acquisition.

**For further information:**

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*Continued from front page:*

of a sugar-coated protein on the virus and then block it from infecting healthy cells in the body.

These types of antibodies are considered to be essential for an effective vaccine, but they are relatively rare, eventually developing in approximately a fifth of HIV-infected people.

The study was conducted by a consortium of South Africa's leading laboratory researchers in AIDS that includes CAPRISA, the National Institute for Communicable Diseases (NICD) in Johannesburg, the University of KwaZulu-Natal, University of Cape Town, with partners from the University of North Carolina and Harvard University in the USA.



Left to right: CAPRISA Director: Professor Salim Abdool Karim, Minister of Health: Dr Aaron Motsoaledi and Minister of Science and Technology: Mr Derek Hanekom

This research was funded by the South African government's Department of Science and Technology (through its Technology Innovation Agency), the US National Institutes for Health (through the NIAID-funded Centre for HIV/AIDS Vaccine Immunology) and the Bill & Melinda Gates

Foundation (through its Collaboration for AIDS Vaccine Discovery). The long-term follow-up studies of the women in KwaZulu-Natal were additionally funded by USAID (through CONRAD) and CDC as part of PEPfAR. Fellowships from the Fogarty International Center and the Wellcome Trust played a key role in enabling this research.

**For further reading:**

Moore PL, Gray ES, Wibmer CK, Bhiman JN, Nonyane M, Sheward DJ, Hermanus T, Bajimaya S, Tumba NL, Abrahams M-R, Lambson BE, Ranchobe N, Ping L, Ngandu N, Abdool Karim Q, Abdool Karim SS, Swanstrom RH, Seaman MS, Williamson C, Morris L. Evolution of an HIV glycan-dependent broadly 1 neutralizing antibody 2 epitope through immune escape. *Nature Medicine* 2012 Oct 21. doi: 10.1038/nm.2985.



## New branch chief visits Vulindlela

The Centers for Disease Control's new Branch Chief for Care and Treatment based in Pretoria, Dr Thomas Warne, visited CAPRISA's Vulindlela site for discussions on the current site programmes, including the CAPRISA AIDS treatment programme, voluntary medical male circumcision, the pilot sexual reproductive health programme in schools and CAPRISA 007 (Reducing HIV in Adolescents).



Left to right: Dr Paul Kocheleff, Ms Fanele Ntombela, Dr Janet Frohlich, Ms Michelle Upfold, Ms Neli Ngcobo, Dr Thomas Warne, Dr Carl Montague, Mr Bonginkosi

## Guest lecture: Lalita Ramakrishnan

"Macrophage induced bacterial efflux pumps as an unexpected mechanism of antibiotic tolerance in tuberculosis" was the topic of a popular guest lecture delivered at CAPRISA by Lalita Ramakrishnan, Professor of Microbiology, Medicine and Immunology at the University of Washington.



Professor Lalita Ramakrishnan

## HVTN & PHRU site visits

In October, the HIV Vaccine Trial Network (HVTN) and the Perinatal Health Research Unit (PHRU) visited CAPRISA's eThekweni and Vulindlela Clinical Research Sites in preparation for large scale vaccine trials.

Hosted by project directors, Dr Kathy Mngadi and Dr Carl Montague, the visitors toured facilities and were briefed on the sites' capacity to conduct multiple large scale trials, from accrual and retention rates in current and previous protocols, to staff experience and qualifications.



Left to right: John Hural (HVTN), Constance Ducar (HVTN) Carrie Schonwald (HVTN), Niles Eaton (HVTN), Genevieve Meyer, (HVTN), Kathy Mngadi, Tamra Madenwald (HVTN), Kate Cerwensky (HVTN), Tebogo Magopane (PHRU), Fatima Mayat (PHRU), Anusha Nana (PHRU)

## Kerry's biostats feat

CAPRISA biostatistician, Dr Kerry Leask, was awarded second place by the international Society for Clinical Biostatisticians (ISCB) for her presentation on over-dispersed data arising from a Wadley's problem setting and included an application of the model to data from an antimalarial drug study.



Dr Kerry Leask

The award included attendance at the ISCB annual conference in Norway and an opportunity to deliver her presentation to delegates.

## Kalendri receives MTN award

Kalendri Naidoo, network study coordinator based at CAPRISA's eThekweni Clinical Research Site, was the proud recipient of the MTN "Outstanding Coordinator Award". The award was presented at the MTN Regional Meeting held in October 2012 in Cape Town.



Mrs Kalendri Naidoo with her award

Commenting on this recognition, Kalendri said: I am truly honoured and we plan to achieve outstanding performances in ASPIRE".



## Research papers published in 2012

- 40\* Dezzutti CS, Richardson BA, Marrazzo JM, Tugetman J, Ramjee G, Taha T, Chirenje ZM, **Abdool Karim SS**, Hillier SL, Herold BC, on behalf of the MTN Biomedical Sciences Working Group and the HPTN 035 Protocol Team. Mucosal Escherichia coli Bactericidal Activity and Immune Mediators Are Associated With HIV-1 Seroconversion in Women Participating in the HPTN 035 Trial. *Journal of Infectious Disease* 2012; [Oct 8. [Epub ahead of print]
- 41 **Moore PL**, Gray ES, Wibmer CK, Bhiman JN, Nonyane M, Sheward DJ, Hermanus T, Bajimaya S, Tumba NL, Abrahams M-R, Lambson BE, Ranchohe N, Ping L, Ngandu N, **Abdool Karim Q**, **Abdool Karim SS**, Swanstrom RH, Seaman MS, **Williamson C**, **Morris L**. Evolution of an HIV glycan-dependent broadly 1 neutralizing antibody 2 epitope through immune escape. *Nature Medicine* 2012 Oct 21. doi: 10.1038/nm.2985. [Epub ahead of print]
- 42 **Naidoo K**, **Yende-Zuma N**, **Padayatchi N**, **Naidoo K**, **Jitho N**, **Nair G**, **Bamber S**, **Gengiah S**, El-Sadr W, Friedland G, Abdool Karim SS The Immune Reconstitution Inflammatory Syndrome After Antiretroviral Therapy Initiation in Patients With Tuberculosis: Findings From the SAPIT Trial. *Annals of Internal Medicine*. 2012;157:313-324
- 43 **Archary, D.**, Rong, R., Gordon, M.L., Boliar, S., Madiga, M., Gray, E.S., Dugast, A.-S., Hermanus, T., Goulder, P.J.R., Coovadia, H.M., **Werner, L.**, **Morris, L.**, Alter, G., Derdeyn, C.A., **Ndung'u, T.** Characterization of anti-HIV-1 neutralizing and binding antibodies in chronic HIV-1 subtype C infection. *Virology* 2012; 433 (2012): 410-420.
- 44 Hanifa, Y., Fielding, K.L., Charalambous, S., Variava, E., Luke, B., **Churchyard, G.J.**, Grant, A.D. Tuberculosis among adults starting antiretroviral therapy in South Africa: The need for routine case finding. *International Journal of Tuberculosis and Lung Disease* 16 (9): 1252-1259
- 45 Taylor DJ, **Grobler A.**, **Abdool Karim SS**. An adaptive design to bridge the gap between Phase 2b/3 microbicide effectiveness trials and evidence required for licensure. *Clinical Trials*, 2012 9 (4): 377-384
- 46 Coggon J, Madden B, Cockburn T, Stewart C, **Singh JA**, Bhan A, Upshur RE, Richards B. Organ Donation, Discrimination After Death, Anti-Vaccination Sentiments, and Tuberculosis Management. *Journal of Bioethical Inquiry* 2012; 9 (2): 125-133.
- 47 Johnston, V., Fielding, K., Charalambous, S., Mampho, M., **Churchyard, G.**, Phillips, A., Grant, A.D. Second-line antiretroviral therapy in a workplace and community-based treatment programme in South Africa: Determinants of virological outcome. *PLoS ONE*; 2012; 7 (5): art. no. e36997
- 48 **Iddriss A**; **Padayatchi N**; Reddy D et al. Pulmonary Resection for Extensively Drug Resistant Tuberculosis in Kwazulu-Natal, South Africa. *Annals of Thoracic Surgery* 2012; 94(2): 381-386
- 49 Mosam, A., **Shaik, F.**, Uldrick, T.S., Esterhuizen, T., Friedland, G.H., Scadden, D.T., Aboobaker, J., Coovadia, H.M. A randomized controlled trial of highly active antiretroviral therapy versus highly active antiretroviral therapy and chemotherapy in therapy-naive patients with HIV-associated Kaposi sarcoma in South Africa. *Journal of Acquired Immune Deficiency Syndromes* 2012; 60 (2) , pp. 150-157
- 50 **Padayatchi N**, Mac Kenzie WR, Hirsch-Moverman Y, Feng PJ, Villarino E, Saukkonen J, Heilig CM, Weiner M, El-Sadr WM. Lessons from a randomised clinical trial for multidrug-resistant tuberculosis. *International Journal of Tuberculosis and Lung Diseases* 2012; 16(12):1582-7
- 51 **O'Donnell MR**, Zelnick J, Werner L, Master I, Loveday M, Horsburgh RC, **Padayatchi N**. Women with drug-resistant tuberculosis are at increased risk for extensively drug resistant tuberculosis (XDR-TB) in KwaZulu-Natal, South Africa: A retrospective hospital-based study. *Emerging Infectious Diseases*. In press DOI: <http://dx.doi.org/10.3201/eid1710.110105>
- 52 Mayosi BM, Lawn JE, van Niekerk A, Bradshaw D, **Abdool Kairm SS**, **Coovadia H**. Health in South Africa: 4 Colliding Epidemics, 4 Changes and 4 Challenges. *Lancet* 2012;dx.doi.org/10.1016/S0140-6736(12)61997-7
- 53 van der Straten A, Montgomery E, **Pillay D**, Cheng H, **Naidoo A**, **Cele Z**, **Naidoo K**, Hartmann M, Piper J, **Nair G**. Feasibility, Performance, and Acceptability of the Wisebag™ for Potential Monitoring of Daily Gel Applicator Use in Durban, South Africa. *AIDS Behav* 2012 DOI 10.1007/s10461-012-0330-y

\* continued from previous issue



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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[www.caprisa.org](http://www.caprisa.org)

## Scientific Reviews

Abstracts submitted for review		Manuscripts submitted for review		Ancillary studies submitted for review	
Total <sup>#</sup>	Cumulative <sup>^</sup>	Total <sup>#</sup>	Cumulative <sup>^</sup>	Total <sup>#</sup>	Cumulative <sup>^</sup>
4	283	2	222	1	41

# for month, ^ since committee initiation

## Conference & Workshop Reminders

Conference	Dates	Deadlines		Website
		Abstracts	Registration	
<b>Keystone Symposium: HIV Vaccines</b> Colorado, USA	10-15 Feb 2013		10 Dec 2012 (early)	<a href="https://www.keystonesymposia.org/index.cfm?e=web.Meeting.Program&amp;meetingid=1223">https://www.keystonesymposia.org/index.cfm?e=web.Meeting.Program&amp;meetingid=1223</a>
<b>CROI</b> Atlanta, USA	3-7 Mar 2013		1 Feb 2013	<a href="http://retroconference.org">http://retroconference.org</a>
<b>Keystone Symposia: Host Response in Tuberculosis - Understanding the Enemy</b> Whistler, Canada	13-18 Mar 2013		14 Jan 2013	<a href="http://www.keystonesymposia.org/index.cfm?e=web.Meeting.Program&amp;meetingid=1227">http://www.keystonesymposia.org/index.cfm?e=web.Meeting.Program&amp;meetingid=1227</a>
<b>6th SA AIDS Conference</b> Durban, South Africa	18-22 Jun 2013	19 Sep 2012	From 2 Sep 2012	<a href="http://www.saaids.co.za">www.saaids.co.za</a>

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