



CAPRISA

CENTRE FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA

Newsletter

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Advances in tuberculosis control during the past decade

In this Issue

On page 1 we feature the editorial by Prof Kogie Naidoo & Dr Rubeshan Perumal on the advances in TB over the past 10 years, published in the journal *The Lancet Respiratory Medicine*.

On page 2 we report on Profs Salim and Quarraisha Abdool Karim's visit to Japan as guests of the government of Japan and laureates of the 4th Hideyo Noguchi Africa Prize (medical research category).

CAPRISA's annual strategic planning meeting and long service awards feature on page 3.

On page 4 we report on the first-in-human clinical trials to test live biotherapeutic interventions containing multiple strains of *Lactobacillus crispatus*.

Page 5 highlights the profile of Prof Kogie Naidoo in *The Lancet Respiratory Medicine*; and visits by the new Ambassador of Japan to SA and KEMRI officials.

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The editorial titled: *Advances in tuberculosis control during the past decade* published in *The Lancet Respiratory Medicine* on 23 March, highlights the need for a multi-sectoral commitment, approach and strategies to end tuberculosis as a public health threat globally.

Authors Kogie Naidoo and Rubeshan Perumal outline the significant gains made over the past decade in understanding TB transmission dynamics, point of care diagnostics and shorter, efficacious treatment strategies. This despite the severe disruptions to health systems and accessibility to TB diagnosis and treatment during the Covid-19 pandemic.

"Nevertheless, the past decade has celebrated several major scientific breakthroughs that could advance the achievement of a tuberculosis-free world.

There is optimism around several major advances in the scientific understanding of tuberculosis transmission and pathogenesis, improved diagnostic assays for M tuberculosis detection and resistance profiling, and the implementation of shorter, safer, and more effective regimens for the treatment of tuberculosis."

The editorial highlights the importance of current and future research in identifying clinical and sub-clinical TB patients particularly in crowded settings using geospatial maps and targeted interventions to curb transmission. The incidence of drug resistance tuberculosis has increased globally highlighting the need for better diagnostics and accessibility to safe, effective, and shortened treatment regimens especially in resource constrained settings.

The authors point out that while BCG, which was first introduced in the 1920s, remains the only licensed tuberculosis vaccine, the past decade has seen significant advances in tuberculosis vaccine development.

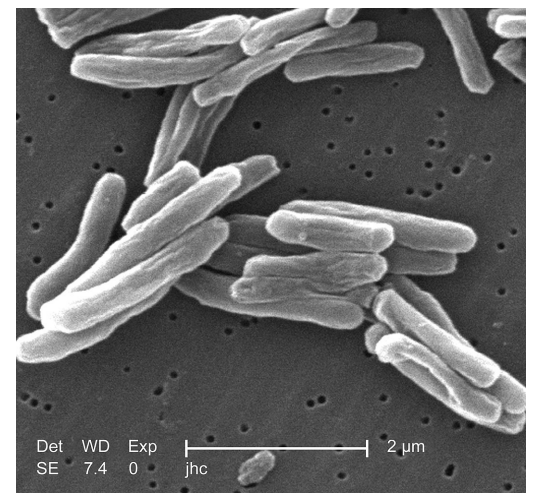
Ten vaccine candidates are currently undergoing clinical trial evaluation and clinical trials of mRNA-based tuberculosis vaccine candidates are currently in development.

"To achieve a tuberculosis-free world, however, more progress is needed in developing an effective tuberculosis vaccine, implementing coordinated multi-faceted tuberculosis control interventions, mitigating the socio-economic drivers of tuberculosis, and sustaining high levels of political support to bring new scientific advances to the field."

See here for further reading:

Naidoo K, Perumal R, *Advances in tuberculosis control during the past decade*, *Lancet Respir Med* 2023. [https://doi.org/10.1016/S2213-2600\(23\)00090-5](https://doi.org/10.1016/S2213-2600(23)00090-5)

Figure: *Mycobacterium tuberculosis*



Salim and Quarraisha Abdool Karim's visit to Japan as guests of the government's Cabinet Office

The government of Japan hosted Professors Salim and Quarraisha Abdool Karim, CAPRISA's Director & Associate Scientific Director, recipients of the Fourth Hideyo Noguchi Africa Prize (Medical Research category) from 12 – 17 March to introduce the laureates to engage with a range of high-level officials and key stakeholders in Japan.

The Abdool Karims and The Carter Centre (represented by Mr Adam Weiss) received their Prizes at TICAD8 attended by leaders from Africa on 28 August last year. TICAD is co-hosted by the Government of Japan, United Nations, United Nations Development Programme (UNDP), the World Bank and African Union Commission (AUC). "May this prize inspire our youth to pursue careers in science to improve lives in Africa and globally," said Prof Salim Abdool Karim.

The visit to Japan commemorated the Hideyo Noguchi Africa Prize with high level meetings, lecture sessions and symposiums hosted by organizations involved in Africa. The itinerary included events in Fukushima Prefecture, a courtesy call on the Governor, visits to Hideyo Noguchi Memorial Museum and the Tsuruga Castle, and engagement with high school students.

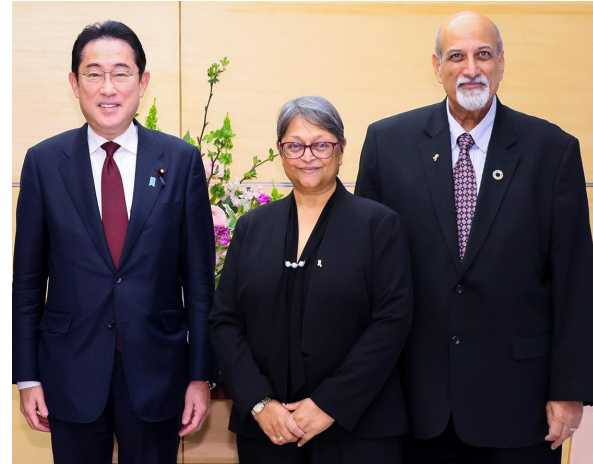
The Abdool Karims met with the Prime Minister of Japan, Mr Fumio Kishida and attended a dinner hosted by the Cabinet Office. They also met with the Emperor and Empress of Japan at the Royal Palace.

The Governor of Fukushima bestowed on both Abdool Karims the status of Goodwill Ambassadors of Fukushima. They delivered lectures at the Nippon Medical School and held discussions with President Akihiko Gemma of the school.

On 16 March the Abdool Karims joined a diverse group of experts in the Special Edition of AFRI CONVERSE, a dialogue series in the advocacy of TICAD, co-organized by Japan's Cabinet Office, the Japan International Cooperation Agency (JICA) and the United Nations Development Programme (UNDP).

The session focussed on the evolving development contexts and priorities on the continent, examined gaps and opportunities in human capital development, as well as successful models of investments pioneered by the laureates engaging multi-sectoral partners. The aim of the dialogue was to share good practices and lessons learned by the laureates to inspire a pathway for building health resilience in Africa. "It is only when our research changes the lives of the most vulnerable for the better that we

know that our research is having an impact," said Prof Quarraisha Abdool Karim. On 28 March they met with officials of the Ministry of Health in Singapore - see photo below.



Photos: **Top (L-R)** Prime Minister of Japan, Mr Fumio Kishida meets with Profs Salim & Quarraisha Abdool Karim. **Photo middle:** The Abdool Karims are welcomed by Okinashima elementary school students at the Hideyo Noguchi Memorial Hall, Inawashiro Town. **Photo bottom:** Prof Vernon Lee, Senior Director (Communicable Diseases), Singapore Ministry of Health, Profs Salim & Quarraisha Abdool Karim, Dr Derrick Heng, Deputy Director of Medical Services (Public Health Group), Singapore Ministry of Health meet in Singapore.



Young scientists present new ideas at the CAPRISA annual strategic planning meeting

The CAPRISA annual strategic planning meeting and long service held over two days in March at the Coastlands Musgrave hotel in Durban brought together senior scientists, collaborators, partners and fellows to present and interrogate new ideas in HIV prevention, TB treatment and Covid-19 research. The presentations structured in 5 sessions covered: Antibodies, HIV Vaccines and Pathogenesis; HIV and TB Treatment; Epidemiology and HIV Prevention, and Mucosal Immunology with 24 presentations on new ideas.

Presentations included: Immune predictors of mucosal bNAb distribution (Dr Aida Sivro); DisCoVER study: Diversity, Integrations and sequencing characteristics of viruses emerging from the reservoir (Ms Lynn Tyers); REPORT study: Resistance profiling and treatment of complex DR-TB (Dr Rubeshan Perumal); Sustainability of research care standards following trial exit to sustain HIV free maternal and child survival (Dr Zulaykha Sarally-Moideen), and Reducing the impact of oncogenic HPV on HIV acquisition (Prof Lenine Liebenberg).

Prof Salim Abdool Karim said it was incredible to have young scientists present innovative ideas and participate in new knowledge generation. Abdool Karim presented 29 long service awards to staff for their loyalty and commitment at a gala dinner.



At the Strategic Planning meeting. Photo top : (L-R): Mr Craig Heck, Professor Kogie Naidoo, Professor Quarraisha Abdool Karim and Professor Penny Moore

Photo above (L-R): Ms Lara Lewis, Professor Salim Abdool Karim, Dr Richard Lessells and Dr Rubeshan Perumal



10 Years of Service: (L-R): Ms Rosemary Gazu, Professor Nigel Garrett, Professor Derseree Archary, Ms Marietjie Geldenhuys, Dr Ishana Harkoo and Ms Nompumelelo Zungu



5 Years of Service: (L-R): Ms Martha Duma, Ms Yasmin Ismail, Ms Victoria Nxumalo and Ms Murielle Kbedi



5 Years of Service

Photo left: Sitting (L-R): Ms Thobile Mhlongo, Ms Lungile Maziya, Ms Princess Ndwandwe, Ms Bongekile Zuma, Ms Silindile Cele, Ms Patricia Shelembe, Ms Primrose Mthlana, Ms Amanda Khuzwayo, and Ms Zaida Juggernath

Standing (L-R): Mr Sphelele Nzimande, Mr Siyabonga Mbatha, Mr Elphas Ngcobo, Mr Thokozani Malinga, Mr Dominic Shange, Ms Nompumelelo Khoza, Mr Siboniso Zondi, and Ms Lungile Maphumulo



A first-in-human clinical trial to assess a live *Lactobacillus* insert on the vaginal microbiome

In early March, CAPRISA hosted officials from the Gates Foundation and the Vaginal Microbiome Research Consortium. In collaboration with the Bill and Melinda Gates Foundation, the CAPRISA Vulindlela Research site will be one of two global research sites – the other is Massachusetts General Hospital in the US conducting a first in human clinical trial assessing the safety, tolerability and colonisation kinetics of a vaginally administered, live biotherapeutic intervention containing multiple strains of *Lactobacillus crispatus*.

Preparations for the clinical trial, titled: “Vaginally Inserted Live Biotherapeutic Randomized Trial – VIBRANT”, are underway and is expected to commence in September 2023, led by Country PI and Vulindlela Research site Director, Dr Disebo Potloane.

The officials also visited the CAPRISA headquarters and met with Senior Scientist Dr Sinaye Ngcapu, and post docs Drs Andile Mtshali, and Gugulethu Mzobe. The delegation had an opportunity to visit the main laboratory where the first in human vaginal microbiome live biotherapeutic product will be tested. “The visit to the CAPRISA clinic and laboratories provided a unique opportunity to learn more about the research being conducted in South Africa, which is critical to advancing our understanding of the vaginal microbiome and developing new therapies that can benefit women worldwide,” explained Dr Ngcapu.



Photo left: officials from the Gates Foundation and the Vaginal Microbiome Research Consortium visited the CAPRISA Vulindlela Research site where the first in human clinical trial assessing a live biotherapeutic intervention will be conducted. The trial will be led by Site Director, Dr Disebo Potloane, third from the right in the front row.

Columbia University Ph.D. candidate aims to enhance public health research capacity



Mr Craig Heck (*left in the photo*), a PhD candidate in Epidemiology at Columbia University under the supervision of CAPRISA’s Associate Scientific Director, Professor Quarraisha Abdool Karim, is visiting CAPRISA for a three-month period from March to May 2023. During his visit, he will deliver a series of seminars on Epidemiology aimed at enhancing public health research capacity.

The first two sessions of the seminar held on 10 and 24 March covered the history of Epidemiology, epidemiological theories and concepts, classical epidemiological statistics, hypothesis testing, bias and confounding, and considerations for infectious disease outbreaks.

The seminars provide an opportunity for CAPRISA staff and researchers to enhance their knowledge and skills in Epidemiology, a crucial field for public health research. “My visit is also an excellent opportunity to learn more about ongoing research conducted at CAPRISA, a leading research institution in the field of HIV/AIDS and public health in South Africa and beyond,” said Heck.



TB expert is profiled in *The Lancet Respiratory Medicine*

Profile

Kogie Naidoo—when one condition leads to another

Kogie Naidoo grew up in Durban, South Africa, during some of the most intense years of apartheid. While politically things have moved on, poverty and disadvantage—which go hand-in-hand with tuberculosis and HIV—remain. Living in a disadvantaged community designated for people of Indian origin, under the apartheid government’s Group Areas Act, Naidoo’s parents made sure she and her three sisters knew the value of education. Today, she is deputy director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA) and head of CAPRISA Treatment Research Programme, Durban, SA—leading on specific programmes to tackle tuberculosis and HIV in communities just like the one she was raised in. Her driving force is trying to change the sometimes misleading statistics around tuberculosis and

that many of these women were dying of tuberculosis, and knew that if we didn’t address it, we could not stop the advancing HIV–AIDS pandemic—a disease caused by poverty and gross health inequities.”

In the early 2000s, Naidoo introduced a nurse-initiated antiretroviral treatment programme, and her research and service provision on treating HIV–tuberculosis co-infected patients was initiated simultaneously, initially through the START trial and subsequently through the CAPRISA SAPIT trial. Doctors across Africa were unsure how to treat co-infected patients due to the toxicity of drugs for each disease, many preferring to wait until tuberculosis treatment was completed before starting HIV treatment. However, many patients died during this wait. Naidoo’s PhD focussed on the integration of tuberculosis and HIV treatment for improving patient



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Prof Kogie Naidoo, Deputy Director and head of TB–HIV research featured in *The Lancet Respiratory Medicine*, published on 23 March commemorating a decade of advancements in TB research and treatment. Naidoo has worked over three decades in TB research with an interest in MDR TB treatment strategies to reduce toxicity. Her focus on TB diagnostics and health systems strengthening is well documented. Read her profile here: <https://bit.ly/3Kbkof1>

The new Ambassador of Japan and KEMRI officials visit

Professor Quarraisha Abdool Karim, Associate Scientific Director hosted the newly appointed Ambassador of Japan H.E. Mr. Shigeru USHIO on 6 March at CAPRISA’s headquarters. The Ambassador’s official visit included a tour of CAPRISA facilities and discussions with senior scientists to gain insights into core research studies and public health challenges facing South Africa.

On 22 March the newly appointed chair of the Board, of the Kenya Medical Research Institute (KEMRI), Dr Abdulahi Ali Ibrahim led a delegation from KEMRI and the Kenyan Parliament Departmental Committee team on a visit to draw on CAPRISA’s 20-year experience in HIV prevention, TB treatment and more recently Covid-19 research and leadership. Prof Nigel Garrett, head of Vaccine and Pathogenesis research hosted the delegation. The visitors engaged in discussions with senior scientists and visited the eThekweni Research Clinic.



Photo: Standing (L-R) Mr Takahiko SATO, Embassy of Japan; Senior Scientists Dr Tanuja Gengiah, Mrs Natasha Samsunder, Dr Sharana Mahomed; Mr. Tasuku NAKANISHI, Embassy of Japan, and Mr Patrick Mdletshe, Seated (L-R): Mr Maroti Letsoalo, H.E. Mr. Shigeru USHIO, Ambassador of Japan to the Republic of South Africa; Prof Quarraisha Abdool Karim; and Prof Nigel Garrett,



Photo left: Back row (L-R): Mr Edwin Bett (KEMRI); Hon. Anthony Kibagendi (Kenya Parliament); Dr Martin Bundi, (KEMRI)

Middle row (L-R): CAPRISA colleagues Dr Sinaye Ngcapu, Dr Sharana Mahomed, Ms Sunita Panday, Dr Gugulethu Mzobe, Dr Tanuja Gengiah, Dr Andile Mtshali, Dr Nonhlanhla Yende-Zuma; Dr Joseph Mwangangi (KEMRI); and Mr Martin Machira (KEMRI).

Front row (L-R): Ms Smita Maharaj (CAPRISA); Hon. Dr Robert Pukose, (Kenya DoH) Dr Abdulahi Ali Ibrahim, Chairperson KEMRI Board of Directors and Prof Nigel Garrett



A selection of scientific papers published in 2023

- *12 **Bodley N, Dorward J, Naidoo J**, Letsoalo M, Ramsaroop K, Sayed F, Sookrajh Y, Drain PK, **Garrett N**. Diagnostic accuracy of the Alere Afinion AS100 point-of-care assay to screen for non-communicable diseases amongst people living with HIV. *JAIDS* 2023; 92(1):e1-e3. doi: 10.1097/QAI.0000000000003098.
- 13 Xavier JS, Moir M, Tegally H, Sitharam N, Abdool Karim W, San JE, Linhares J, Wilkinson E, Ascher DB, **Baxter C**, Pires DEV, **de Oliveira T**. SARS-CoV-2 Africa dashboard for real-time COVID-19 information. *Nature Microbiology* 2023; 8(1):1-4. doi: 10.1038/s41564-022-01276-9.
- 14 Peebles K, Brown ER, Hendrix CW, Palanee-Phillips T, van der Straten A, **Harkoo I**, Reddy K, Mirembe BG, Jeenarain N, Hillier SL, Baeten JM, Barnabas RV; MTN-020/ASPIRE study team. Dapivirine ring HIV-1 prevention effectiveness for women engaged in vaginal and anal intercourse: insights from mathematical modeling. *JAIDS* 2023; 92(2):122-126. doi: 10.1097/QAI.0000000000003110.
- 15 Hwa SH, Snyman J, Bernstein M, Ganga Y, Cele S, Muema D, Tan CW, Khan K, Karim F, Hanekom W, Bernstein L, Kaufmann SHE, Wang LF, Ndung'u T, **Sigal A**. Association Between Human Immunodeficiency Virus Viremia and Compromised Neutralization of Severe Acute Respiratory Syndrome Coronavirus 2 Beta Variant. *Journal of Infectious Diseases* 2023; 227(2):211-220. doi: 10.1093/infdis/jjac343.
- 16 Jimoh AO, Balle C, Brown B, Feng C, Havyarimana E, **Konstantinus IN**, Gill K, Bekker LG, Passmore JS, Jaspan HB, Varsani A, Happel AU. Genome Sequences of Anelloviruses, a Genomovirus, Microviruses, Polyomaviruses, and an Unclassified Caudovirus Identified in Vaginal Secretions from South African Adolescents. *Microbiology Resource Announcements* 2023; 12(1):e0114322. doi: 10.1128/mra.01143-22.
- 17 Jassat W, Mudara C, Vika C, Welch R, Arendse T, Dryden M, Blumberg L, Mayet N, Tempia S, Parker A, Nel J, **Perumal R**, Groome MJ, Conradie F, Ndjeka N, Sigfrid L, Merson L, Cohen C. A cohort study of Post COVID-19 Condition across the Beta, Delta and Omicron waves in South Africa: 6-month follow up of hospitalised and non-hospitalised participants. *International Journal of Infectious Diseases* 2023; 128:102-111. doi: 10.1016/j.ijid.2022.12.036.
- 18 Butler CC, Hobbs FDR, Gbinigie OA, Rahman NM, Hayward G, Richards DB, **Dorward J**, et al. Molnupiravir plus usual care versus usual care alone as early treatment for adults with COVID-19 at increased risk of adverse outcomes (PANORAMIC): an open-label, platform-adaptive randomised controlled trial. *Lancet* 2023; 401(10373):281-293.
- 19 **Khumalo F, Passmore JS**, Manhanzva M, Meyer B, Duyver M, Lurie M, Tanko RF, Masson L. Shifting the power: scale-up of access to point-of-care and self-testing for sexually transmitted infections in low-income and middle-income settings. *Current Opinion in Infectious Disease* 2023; 36(1):49-56. doi: 10.1097/QCO.0000000000000895.
- 20 Manyana S, Pillay M, Gounder L, Khan A, Moodley P, **Naidoo K, Chimukangara B**. Affordable drug resistance genotyping of HIV-1 reverse transcriptase, protease and integrase genes, for resource limited settings. *AIDS Research and Therapy* 2023; 20(1):9. doi: 10.1186/s12981-023-00505-3.
- 21 Collie S, Saggars RT, Bandini R, Steenkamp L, Champion J, Gray G, Bekker LG, Goga A, **Garrett N**, Patricios J. Association between regular physical activity and the protective effect of vaccination against SARS-CoV-2 in a South African case-control study. *British Journal of Sports Medicine* 2023; 57(4):205-211. doi: 10.1136/bjsports-2022-105734.

* continuation from previous newsletter

For the complete list of publications see here: <http://bit.ly/3IRvjZd>



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