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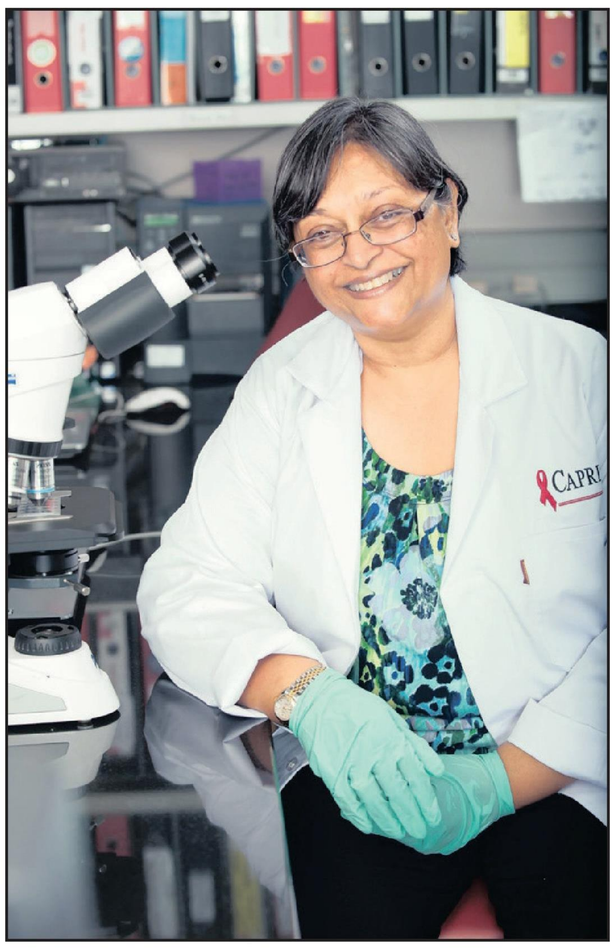
In 2016 receives the L'Oréal-UNESCO Award for Women in Science, for Africa and Arab States region.

Receiving the eThekwini Living Legends Award from SA Olympic swimming champion, Chad Le Clos.



Professor Karim in the CAPRISA laboratory.

A pioneer in the field of scientific research

OUR HERO

Quarraisha Salim Abdool Karim

MYRTLE RYAN

QUARRAISHA and Salim Abdool Karim are household names, in South Africa and internationally. Their research into finding medical solutions to the scourge of Aids needs no introduction. But while they work hand in glove, she certainly does not hover in her husband's shadow. She was already doing medical research when they first met.

Professor Quarraisha Abdool Karim is an epidemiologist. Her landmark study, which demonstrated that Tenofovir gel prevents both HIV and Herpes Simplex Virus Type 2 (HSV-2), had a profound global impact.

The finding, published in the leading scientific journal Science, heralded one of the most significant scientific breakthroughs in the fight against Aids, with acclaim coming from the World Health Organisation, UNAids and several leading international research organisations – and has over 1 500 citations.

In 1990, she undertook one of the first population-based surveys of the emerging, generalised Aids epidemic. Her key finding was that young women, especially teenage girls, were at highest risk (up to eight times higher than their male counterparts). Given that young girls found it difficult to insist on mutual monogamy or condom use, especially with older male partners, Abdool Karim began to focus her research into risk-reducing technologies for women. We shall not get technical, suffice to say that in 1994 hers was one of the earliest studies into microbicides.

A decade later, Abdool Karim changed her strategy – based on new data from studies into monkeys. The groundbreaking Caprisa (Centre for the Aids Programme of Research in South Africa) 2004 study followed, with her as the principal investigator.

The study of 889 urban and rural women in South Africa provided proof-of-concept that antiretrovirals can prevent sexually-acquired HIV infection in women. Her research, at the end of the 30-month study, showed that Tenofovir gel, applied before and after sex reduced HIV incidence by 50% after 12 months of gel use and by 39% overall. The protective effect of the Tenofovir gel against HIV reached 54% in women who used the gel consistently during the study. The study showed that using the gel also reduced the risk of genital herpes by 51% – one of the most common sexually transmitted infections worldwide.

Subsequent studies showed that the gel was only effective with consistent use, but its effectiveness and HIV risk was influenced by vaginal health.

Yet another challenge faced Abdool Karim: the timing of antiretroviral therapy initiation in patients who were TB-HIV co-infected. She and her colleagues were to prove that antiretroviral therapy initiation during TB treatment improved the survival rate by 56%.

Professor Abdool Karim is the Associate Scientific Director of Caprisa and Professor of Clinical Epidemiology at Columbia University in the USA.

She has written over 200 peer-reviewed articles for publications such as Science, Nature, New England Journal of Medicine and The Lancet. In recognition of her significant contributions to Aids research, she has received numerous awards and accolades from around the world, including the eThekwini Living Legends award in Durban. She is the UNAids Special Ambassador for Adolescents and HIV and serves as the vice-chairperson of the SA Medical Research Council Board.

Behind this scientific environment lies a woman who has always loved science but is clearly moulded by her family.

"My parents and grandparents instilled in me the importance of honesty, integrity, hard work and education," she says.

Her memories of growing up in Tongaat evoke images of "the simplicity of life, enjoying time with other children from the close-knit community which I was fortunate to grow up in".

"I enjoyed the richness of the various religious and traditional festivities in our community – it was diverse and there was respect for all cultures and traditions."

Abdool Karim and two of her close friends at high school, Surie and Divia, still stay in touch, even though they don't get enough time to spend together nowadays.

When she met her husband, they started doing Aids research together some 30 years ago.

"We continue to work together on about half of our projects," she says.

For her the International Aids Conference in Vienna in 2010 was the most memorable. "We released the results of the Tenofovir gel trial. The response – a standing ovation to the results – was amazing and unlike anything we had ever experienced," Abdool Karim recalls.

> **In science, you are more likely to fail than succeed so you need a lot of patience, fortitude and courage**

On her left is SA Minister of Health, Dr Aaron Motsoaledi.

Invited speaker at the 2016 Falling Walls conference in Berlin.

Salim and Quarraisha Abdool Karim with IHV director Dr Robert Gallo.

HER LIFE

NAME: Quarraisha Abdool Karim.
BORN: March 28, 1960, in Tongaat.
PARENTS: Zanib Saibe and Ahmed Abdulla Khan.
EDUCATION: Vishwaroop State Aided Primary School; Tongaat High School; University of Durban-Westville (BSc, microbiology and biochemistry); University of Witwatersrand BSc Hons (biochemistry); University of Natal (PhD medicine); University of Pretoria (Diploma in Public Service Management cum laude); Columbia University, USA (MS parasitology); University of South Africa (Higher Education Diploma, Post-Graduate).
SIBLINGS: Five sisters and three brothers – Zarina, Yasmin, Mehroon Nisa, Roshan Ara, Ismail, Farmidah, Hoosen and Mohammed.
MARRIED: Salim Abdool Karim on January 10, 1988.
CHILDREN: Safura, a legal clerk at the South African Constitutional Court; Aisha, who is completing her Masters in Journalism at the Pulitzer School of Journalism, Columbia University, USA; Wasim, a second-year student in the School of Engineering at the University of Cape Town.

HER WORDS

"My mentors were my parents, grandparents, teachers in primary and high school; Professors Hoosen (Jerry) Coovadia, Jack Moodley, Zena Stein, the late Mervyn Susser and Patricia Berjak.

"I admire the late Ahmed Kathrada for his selfless dedication to human rights and social justice.

"My treasured moments are spending quality time with my husband and three children, and the rare scientific discovery.

"When trying to work through a problem I do not like distractions.

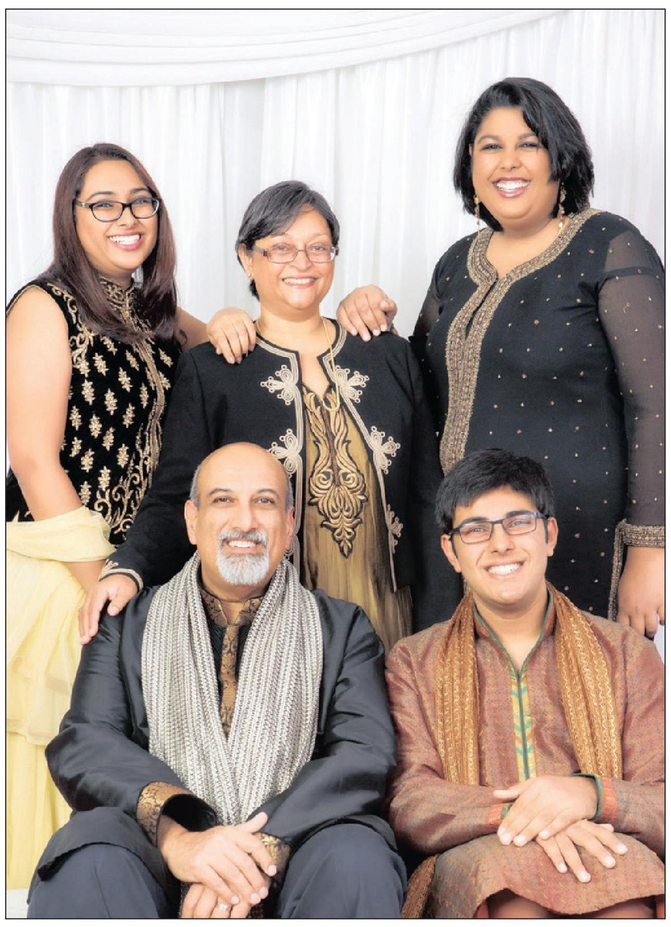
"I like quite a lot of space, stay focused and get the job done whatever it takes – with good cups of hot black tea.

"In science, you are more likely to fail than succeed so you need a lot of patience, fortitude and courage to persist in the face of repeated failure.

"Reflecting on those failures provides important lessons in moving forward and ensuring you don't make the same mistake twice.

"Some of my greatest achievements are my family and my scientific contribution to HIV prevention and science capacity building in South Africa.

"I would have liked to have had the opportunity to work with Francoise Barre-Sinoussi, the co-discoverer of HIV and a Nobel Laureate, who unfortunately has retired."



Aisha, Quarraisha, Safura. Seated: Salim and Wasim Abdool Karim.

Karim convened the inaugural March for Science, held in Durban in 2017.

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