

Biography

Salim S. Abdool Karim, M.D., Ph.D., FRS

Salim S. Abdool Karim, MBChB, MMed, MS(Epi), FFPHM, DipData, PhD, DSc(hc) is a public health physician and clinical infectious diseases epidemiologist who has played a leading role in the global HIV and Covid-19 pandemic response. He is Director of the Center for the AIDS Program of Research in South Africa (CAPRISA), Durban, and CAPRISA Professor of Global Health at Columbia University, New York.

He is an Adjunct Professor of Immunology and Infectious Diseases at Harvard University, Adjunct Professor of Medicine at Cornell University, and Pro Vice-Chancellor (Research) at the University of KwaZulu-Natal, Durban, South Africa. He is an Associate Member of The Ragon Institute of Massachusetts General Hospital (MGH), Massachusetts Institute of Technology (MIT) and Harvard University. He previously served as President of the South African Medical Research Council (MRC).

He is one of the nine members of the World Health Organization's Science Council. He has been actively contributing to the mitigation of the COVID-19 epidemic in Africa, serving as a Member of the Africa Task Force for Coronavirus. He served as the Chair of the South African Ministerial Advisory Committee on COVID-19 for the first year of the epidemic. He is a Commissioner of the Lancet Commission on COVID-19.

He graduated as a medical doctor in 1983 from the University of Natal's medical school in Durban, South Africa. While at medical school he concurrently studied computer science and statistics by correspondence at the University of South Africa. He joined the Department of Virology at the University of Natal in 1986, to start his doctoral research on hepatitis B viral infection. In mid-1987, he went to New York on a Rockefeller fellowship to pursue a Masters in Epidemiology at Columbia University. During 1988, he also studied health economics at London School of Hygiene and Tropical Medicine and methods of epidemic investigations at the Centers for Disease Control (CDC) in Atlanta, USA. He completed his Fellowship in Public Health Medicine with the College of Medicine, South Africa and simultaneously graduated with a Masters in Medicine degree in Community Health from the University of Natal in 1992. He then joined the MRC and in 1993, was appointed as Director of the MRC's Centre for Epidemiological Research in South Africa (CERSA) and completed his PhD in 1999.

His main research interests are in HIV prevention, treatment of HIV-TB co-infection as well as Covid-19 prevention and treatment. His most impactful research contribution in HIV prevention was the CAPRISA 004 tenofovir gel trial, that he co-led, which provided the first evidence for the concept of antiretroviral pre-exposure prophylaxis against HIV infection. The finding has been heralded by UNAIDS and WHO in 2010 as one of the most significant scientific breakthroughs in the fight against AIDS and has been ranked among "The Top 10 Scientific Breakthroughs of 2010" by *Science*. This study also discovered that tenofovir gel prevents herpes simplex virus type 2 infection in women, the first biological prevention agent against genital herpes. He also led the team that provided the empiric evidence for the "Cycle of HIV Transmission" where young girls are most often infected by men about 10 years older. These findings provided the evidence for the UNAIDS Report "Get on the Fast-Track - The Life-Cycle approach to HIV", which has influenced the HIV response in several African countries and is listed as the highest priority in the current South African National AIDS Plan. In the field of HIV vaccines, he is co-inventor on patents which are part of HIV vaccine candidates and CAP256-VRC26.25, a highly potent broadly neutralizing antibody that is being developed for passive immunization as a prelude to future HIV vaccine development. His research on HIV-TB treatment was adopted in the WHO treatment guidelines of this co-infection and has been implemented in most countries. These significant findings have had a marked impact on HIV prevention and TB-HIV treatment in Africa and globally.

His contributions in Covid-19 have focused on the epidemiology of SARS-CoV-2 variants, including their impact on vaccine and natural immunity. His research has also assessed the impact of Covid-19 on HIV and tuberculosis.

Professor Abdool Karim's scientific contributions include over 400 peer-reviewed journal publications, including original contributions and editorials in *Science journals* (14), *Nature journals* (10), *New England Journal of Medicine* (8), and *The Lancet* (35). He is co-editor of an Epidemiology textbook (Oxford University Press), a book on HIV/AIDS in South Africa (Cambridge University Press) and a book on HIV Clinical Trials (Springer).

He is one of the world's most highly cited researchers – being listed on the Web of Science's Clarivate Analytics annual list of the world's six thousand most influential researchers by citations in the sciences and social sciences since 2018. He has 79 papers with more than 50 citations, 42 of which have been cited over 100 times – an H-index of 63. His most highly cited journal article, jointly first-authored with Quarraisha Abdool Karim (*Science* 2010; 329: 1168-1174), exceeds 1900 citations.

He is a member of the Editorial Board of the New England Journal of Medicine. He serves on the International Advisory Boards of Lancet HIV and The Lancet - Global Health. He is also a member of the Editorial Boards of Journal of AIDS, AIDS Research and Human Retroviruses, HIV and Infectious Diseases, and AIDS Reviews. He also previously served as a member of the Board of Reviewing Editors of mBio, eLife, as Associate Editor for AIDS Clinical Care and Corresponding Editor for the International Journal of Infectious Diseases. He has served as a Reviewer for more than 40 scientific journals.

He is an elected Fellow of the Royal Society. He is an elected Member of the US National Academy of Medicine. In addition, he is a Member / Fellow of the American Academy of Microbiology, Association of American Physicians (AAP), The World Academy of Sciences (TWAS), African Academy of Sciences (AAS), Academy of Science in South Africa (ASSAf) and the Royal Society of South Africa (RSSAf).

Salim S. Abdool Karim has made major contributions to global HIV policy and is actively involved in a range of initiatives that promote evidence-based science amongst policy makers as well to students and the general public. He has advised governments and international agencies in AIDS and global health such as the WHO, UNAIDS, PEPFAR and the Global Fund to fight AIDS, TB and Malaria. He served as the Chair of the UNAIDS Scientific Expert Panel and as a member of the UNAIDS-Lancet Commission on "Defeating AIDS" and co-authored the report, published in June 2015 in the Lancet, that mapped out a future direction for the global AIDS response. He is currently the Chair of the WHO Strategic and Technical Advisory Committee for HIV and Hepatitis, and a member of the WHO HIV-TB Task Force. He is a Member of the Board of the Population Council. He is a member of the Scientific Advisory Board for Global Health at the Bill and Melinda Gates Foundation.

His contributions in AIDS have been recognized nationally and internationally through several prestigious awards. He received the most prestigious scientific award in Africa - the African Union's "Kwame Nkrumah Continental Scientific Award". His other international awards include Kuwait's "Al-Sumait Prize" for research contributing to African development, the John Dirks Canada Gairdner Health Award, the "Lifetime Achievement Award" from the Institute of Human Virology, the DIA - Drug Information Association's "President's Award for Outstanding Achievement in World Health", the African Academy of Science's "Olusegun Obasanjo Prize for Scientific Discovery and Technological Innovation", Columbia University's "Allan Rosenfield Alumni Award", the "Outstanding Senior African Scientist Award" from the European Union – Developing Countries Partnership, and the "TWAS Prize in Medical Sciences" from The World Academy of Sciences (TWAS). He has also been awarded the "Distinguished Scholar Award" from the Biomedical HIV Prevention Forum of Nigeria, and the USAID "Science and Technology Pioneers Prize" (awarded to the CAPRISA 004 team) from US Agency for International

Development. In South Africa, he has received the MRC's "Platinum Medal Lifetime Achievement Award", "Gold Medal Award for Fellowship in the Art & Science of Medicine" from the South African Medical Association, the "John F. W. Herschel Medal" from the Royal Society of South Africa and the "Science for Society Gold Medal Award" from the Academy of Science in South Africa. He has been ranked as being among the 50 all-time "Legends of South African Science" by the Academy of Science of South Africa.

He has also been recognized for his broader contributions to society beyond his research through the "Hero in Medicine" Award from the International Association of Physicians for AIDS Care (IAPAC) and the "Men's Health Award" in the Science & Technology category from Men's Health magazine.

With regard to Covid-19, he was the joint recipient, with Dr Anthony Fauci, of the 2020 Sir John Maddox Prize (by Nature and Sense about Science) in recognition of his "achievements as going beyond the line of duty of government advisors on health policy, to communicate accurate medical advice to the public and policymakers during the Covid-19 pandemic – a contribution to society that surpasses even his work on HIV." Together with Dr Fauci (USA) and Dr Anders Tegnell (Sweden), he was one of the three chief government scientific advisors on Covid-19 profiled in the journal, Nature. He was invited to deliver a Keynote presentation at the Opening Special Session of the 1st International Covid-19 Conference in July 2020.

In summary, Professor Abdool Karim has had a profound impact through his HIV scientific discoveries and his leadership in both AIDS and Covid-19 in South Africa, Africa and globally.