

AWARDS, HONOURS AND ACHIEVEMENTS

- Oettle Medal of the Cancer Association of South Africa for significant contributions to oesophageal cancer research (2009)
- South African Society for Biochemistry and Molecular Biology Gold Medal for Distinguished contributions to Biochemistry in South Africa (2005)
- National Science and Technology Award for Outstanding Contribution in Science, Engineering and Technology (2003)

DEFINING MOMENT

When Iqbal Parker returned to South Africa after completing a postdoctoral degree abroad, he received several offers from academia and the private sector. In the end, he chose the least financially rewarding – a second postdoctoral at the University of Cape Town (UCT) rather than tenured positions at other institutions. This let him really focus on the research he wanted to pursue and shaped the research trajectory of the rest of his career.

WHAT PEOPLE MIGHT NOT KNOW

"I love being able to fix things; I build furniture and I do all my own plumbing and home maintenance."

COMMITMENT TO OESOPHAGEAL CANCER RESEARCH REAPS ITS REWARDS

Iqbal Parker spent his first year at university commuting by ferry to Salisbury Island in Durban Harbour, where a naval base served as the University College for Indians, now part of the University of KwaZulu-Natal – the designated place of higher learning for Indians in South Africa during apartheid. So unpleasant was the facility and the overall experience that Parker changed academic paths to biochemistry so that he could move to UCT.

This was possible because the University College for Indians didn't offer a biochemistry degree, so he could apply for special permission from the government to study at a white university. Parker is a fighter – instead of complaining or giving in to the inequities of a racist and authoritarian government, he found ways to beat the system. Along the way he fell in love with biochemistry, completing a PhD in 1979 and heading overseas for a postdoctoral degree. "After completing the postdoc in the United States, I

returned to UCT," he says. "People have never stopped me from knowing what I want and pursuing that."

What he wanted was to delve into the complex genetics of cancer cells in a quest to better understand this devastating disease. He is particularly interested in oesophageal cancer, which he says is a major problem in South Africa: Black males in South Africa are more susceptible to oesophageal cancers than other population groups, and Parker would like to know why. For a long time, researchers thought that oesophageal cancers were principally caused by environmental factors, but Parker's research has been instrumental in showing that in fact, genetics play a role as well. Perhaps even more importantly, work in his group shows that genetic factors interact with environmental factors like smoking or drinking alcohol to increase susceptibility in individuals and certain population groups.

He says that one of the great successes of this work is the collaborations he has built with institutions like the University of the Witwatersrand (Wits), Walter Sisulu University, Jomo Kenyatta University of Agriculture and Technology in Kenya, and research giants like Kings College London and Cambridge University. He received a grant from the Newton Fund to continue building on these successful partnerships, and to make use of the expertise of the Wellcome Trust Sanger Institute in next generation sequencing (NGS) technology.

NGS has allowed Parker's group to study the genetics of cancer in new ways: Now they can use whole genome sequencing to look at all the genes that might play a role in cancer, rather than picking targets that may be interesting. The research group has 30 whole genome sequences to work with now – a formidable resource in the hunt for answers about the causes and disease patterns of oesophageal cancer. An important discovery that has come out of his work with whole genome sequencing is that viral Deoxyribonucleic acid (DNA) can be found in human genomes and the activity of these genes plays an important role in cancer. One virus stood out in particular – Human Endogenous Retrovirus (HERV113) – a group of genes that is often duplicated or rearranged within the human genome. His group has shown that this behaviour can disrupt gene expression and cause genetic instability that can eventually lead to cancer.



The Sanger Institute's algorithms help Parker and his colleagues detect the most common genes driving these genetic mutations. This information can then be compared with other data on the molecular pathways of cancer progression to help identify potential drug targets.

INTERNATIONAL CENTRE ESTABLISHED

Parker has also played an important part in bringing the International Centre for Genetic Engineering and Biotechnology (ICGEB) to South Africa. Established in 1987 under the auspices of the United Nations, the ICGEB is an international network that promotes research and training in genetic engineering and DNA-based technologies in the developing world. It currently has centres in Italy, India and South Africa. When South Africa became a part of the ICGEB in 2003, Parker was asked to sit on the Board of Governors to represent his country. Later, he would be the first Director of the ICGEB in Cape Town. "The ICGEB were struggling to attract interest in their training activities from African countries so they decided to set up a centre in Africa to improve the situation," says Parker. "South Africa applied to host the centre at UCT, and the Cape Town component of the ICGEB was established in 2007."

The Cape Town centre focuses on cancer and the major infectious diseases impacting the African continent – malaria, HIV and Tuberculosis, as well as several parasitic diseases. The centre has produced a number of world-class students and continues to be a source of high-quality research and international research cooperation.

The Academy of Science of South Africa (ASSAf) is fortunate to count Parker amongst its founding Members. He has served several terms in different leadership positions at the organisation over the last 20 years. "ASSAf's expert committees play an important role by providing valuable independent advice to policymakers in government," he says. Connecting researchers and government is one of the reasons ASSAf exists in the first place.

Parker is now an Emeritus Professor at UCT, as well as a Senior Research Scholar. This latter programme provides a way for retiring research leaders to pass their knowledge and experience on to the next generation of academics coming up through the system.

And he's busier than ever. "When people hear that you are retiring, they think you'll have more time, so they keep giving you more things to do." Nevertheless, he has made some concessions to taking it easier in his retirement – he no longer works six-day weeks, choosing these days to take Saturdays off like the rest of us.



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