

# WITSIE AT THE CUTTING EDGE: Researcher Profile

## Dr Kabamba Alexandre

### Who are you and what is your academic/scientific background?

I have a BSc degree in Microbiology and Biochemistry from University of South Africa (UNISA). I completed Microbiology with a distinction and was awarded the University of the Witwatersrand Postgraduate Merit Award to do an Honours degree in the Department of Molecular Medicine and Haematology. I then completed an MSc degree in Medicine in the Department of Chemical Pathology. I have won an award for best oral presentation at the Faculty of Health Sciences Research Day in 2006 and the Roche best oral presentation by a young researcher in 2008. I completed my PhD in Virology in 2011 at the NICD, AIDS Research Unit. In 2011 I was awarded the Faculty of Health Sciences Prestigious Postgraduate Degree Award for the best PhD student. In addition, I was recently awarded the James Gear Fellowship to do postdoctoral research at the NIH in the USA.



### What is the nature of the research that you are currently undertaking?

My recent investigations have focused on the ability of broadly cross neutralizing antibodies from HIV-positive patients to inhibit HIV-1 interaction with the DC-SIGN receptor. This receptor is believed by many scientists to play a key role in promoting the sexual transmission of HIV.

### What do you think is the most significant contribution you have made to research/science?

Thus far I would say that our most significant contribution has been the observation that the lectin griffithsin (GRFT) binding to HIV-1 gp120 exposes the CD4 binding sites (CD4bs) and renders it more vulnerable to CD4bs antibodies. One of the main implications of this work is that a combination of GRFT and CD4bs antibodies such as B12 in a microbicide formulation can be very useful.

### Did you have a particular mentor or supervisor who inspired you in research?

I am most grateful to my MSc degree supervisors, Professor Nigel Crowther and Miss Aletta Maria Smit of the Department of Chemical Pathology and my PhD supervisor, Professor Lynn Morris of the NICD AIDS Unit who all have contributed significantly to my academic development.

### What do you do when you're not busy at work and carrying out cutting-edge research?

Apart from my scientific background, I have a good eye for art and love painting. I try to convert scientific concepts and theories into "tableau d' arts" and currently have four of my paintings hanging in the NICD AIDS Research Unit. In 2004 four of my paintings were awarded the Merit Award at the Medical Student's Council Adcock Ingram Art and Photo Exhibition. I also read classic novels, listen to classical music and love watching BBC news, National Geographic, Formula 1 Grand Prix, Top Gear, Barcelona and Arsenal Football Clubs.

**Read one of Alexandre's papers:** Kabamba Bankoledi Alexandre, Elin Gray, Ralph Pantophlet, Penny L Moore, James B. McMahon, Barry R. O'Keefe, Rachel Chikwamba, and Lynn Morris. Binding of the mannose-specific lectin, griffithsin, to HIV-1 gp120 exposes the CD4-binding site. 2011. *Journal of Virology* 85 (17): 9039-9050.