



Introduction:

The concept behind this newsletter is that anyone with 15 minutes to spare can learn about the work of SATuRN

The newsletter is presented as a PDF document with links to complete articles at the bioafricanet website. In our last issue of 2013 our newsletter we focus on our **capacity building programme**. We also advertise 7 PhDs and 4 MScs positions in this issue!

We have also included interesting news, blogs, reports, tweets, publications and training information produced by our network

Produced by: Tulio de Oliveira, Tobias Rinke de Wit, Justen Manasa, Vitor Szortika, Inez Rossouw, Ava Avalos, Deenan Pillay & Chris Seebregts

Highlights:

News: Heroes in the battle for health, Sunday Times

Publication: Implementing HIV-1 Genotypic Resistance Testing in Antiretroviral Therapy Programs in Africa: Needs, Opportunities, and Challenges

Publication : An Investigation of Classification Algorithms for Predicting HIV Drug Resistance without Genotype Resistance Testing

Videos: SATuRN Data Curation & Affordable SATuRN/Life Technologies Genotyping Assay

Workshop: Bioinformatics in the Tropics - Uganda 2014, 7th to 10th April 2014, Uganda Virus Research Institute, Entebbe, Uganda

Brief: Blogs, reports and news on our work



News: DNA sequencer launched at the University of Free State

UFS news, date: 2013-11-25

“The University of the Free State (UFS) can now collect immensely valuable data on drug resistance in HIV/Aids and TB with the new DNA sequencer that was launched recently at the International workshop on HIV/AIDS and TB drug resistance at the Bloemfontein Campus”

Link: <http://www.bioafrica.net/news.php?id=89>

News: The SA Medical Research Council announces funding of R190 million for high impact research projects

MRC- 2013-10-31

“The MRC has established a new high-profile R190 million funding opportunity for Medical Schools and Universities to undertake 'Flagship Projects' aimed at addressing South Africa's key health problems. The winning projects, led by some of South Africa's most accomplished scientists, were announced at the MRC in Cape Town”



Link: <http://www.bioafrica.net/news.php?id=85>



Deenan Pillay: virologist in HIV's heartlands

The Lancet - 2013-12-14

“Last month Deenan Pillay, an expert on HIV drug resistance and Professor of Virology at University College London (UCL), was seconded to the directorship of the Wellcome Trust Africa Centre. In taking up this post he's located himself at the geographical heart of the disease he's been studying for two decades...”

Link: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)62647-1/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)62647-1/fulltext)

News: Heroes in the battle for health

Sunday Times - 2013-12-01

“There have been major successes in the fight against the disease since it was first identified in 1983. Bianca Capazorio speaks to some young South Africans at the forefront of work in the field”

Sunday Times

Link: <http://www.bioafrica.net/news.php?id=94>



News: 'An HIV-1 free future is possible' says Prof Thumbi Ndung'u at UKZN AIDS Day 2013

K-RITH - 2013-11-29

“Ahead of World AIDS Day 2013, leading HIV/AIDS researchers in Durban have urged society to focus on insights, innovation and integrity in the journey into an HIV-free future and to put people at the centre of health services”

Link: <http://www.bioafrica.net/news.php?id=91>

SATURN-PASER unites international minds & reveals potential resistance free HIV drug



Dr Cloete Van Vuuren (UFS), Prof Tobias Rinke de Wit (AIGHD), Dr Silvia Bertagnolio (WHO), Prof Vernon Louw, (UFS) Dr Dominique Goedhals (UFS), Prof Tulio de Oliveira (Africa Centre/UKZN) & Ronald Goldberg (EKN) at the 8th Southern African HIV & TB Drug Resistance & Monitoring Workshop, Bloemfontein, South Africa, 20-22 November 2013. Photo by Victor Szortika (Sweat.ws)

Dolutegravir, a drug aimed against the human immunodeficiency virus (HIV), might not elicit any resistance to it. This was revealed at the Southern African HIV/TB drug resistance and monitoring workshop hosted by the Southern African Treatment and Resistance Network (SATuRN) at the Medical School of the University of the Free State.

Prof Mark Wainberg from the McGill University AIDS Centre in Montreal, Canada, unravelled data gained from three studies (called SPRING, SINGLE and FLAMINGO) indicating that no mutations developed against dolutegravir over a period of 2 years of treatment. Furthermore, the virus did not develop resistance against any other drugs used in combination with dolutegravir to make up the highly active trio needed to effectively treat HIV infection. This was only seen in patients started on dolutegravir as part of first line treatment and not when used as second or third line treatment as mutations already induced by other drugs negated this effect.

Prof Tulio de Oliveira from the Africa Centre for Health and Population Studies, University of KwaZulu-Natal and director of SATuRN responded: 'It is very exciting that a drug of this potential is currently being investigated, but similar expectations were held for another group of HIV drugs, the protease inhibitors. Not all of those were met. We should be cautious and await more evidence'.

For two days the hallways of the medical school sizzled with heated discussions in foreign languages. Delegates from around the globe were attracted to the 8th workshop of this kind. HIV resistance cases, new treatment regimens, approaches to the problem of non-adherence among patients, were passionately debated and thought through...

Author: Inez Rossouw, 26 Nov 2013, Bloemfontein, South Africa

Links: <http://www.bioafrica.net/news.php?id=93>

Videos & Radio interviews @ our YouTube Channel!



Links:

<http://www.bioafrica.net/videos.php>

<http://www.youtube.com/bioafricaSATURN>

In these new sections of the bioafrica.net and YouTube websites, we disseminate videos of our work and its application in everyday life



An Affordable HIV-1 Drug Resistance Monitoring Method for Resource Limited Settings

Authors: Manasa J, Danaviah S, Pillay S, Padayachee P, Mthiyane H, Seebregts C, Rinke De Wit TF, Viljoen J, Katzenstein D, De Oliveira T - Date: 2013-10-18

“SATuRN/Life Technologies open access and affordable drug resistance genotyping system This is a video that accompan a peer-reviewed manuscript”

Link: <http://www.bioafrica.net/videos.php?id=17>

SATuRN RegaDB Data Curation Process

Justen Manasa – 2013-11-29

“This is a short interview about the SATuRN datacuration manuscript, which has been published at DATABASES (Oxford) journal. This video describes access to the database, biocuration process and highlight examples of biological discoveries”

Link: <http://www.bioafrica.net/videos.php?id=19>



SAFM Radio Interview about HIV Drug Resistance and Transmission Research and Award

SAFM- 2013-11-03

“Radio interview by Sisanda Jonas at SAfm weekend pmlive show 3 Nov 2013. Listen to the 5 minutes interview by Prof Tulio de Oliveira ”

Link: <http://www.bioafrica.net/news.php?id=87>

Publication: Implementing HIV-1 Genotypic Resistance Testing in Antiretroviral Therapy Programs in Africa: Needs, Opportunities, and Challenges

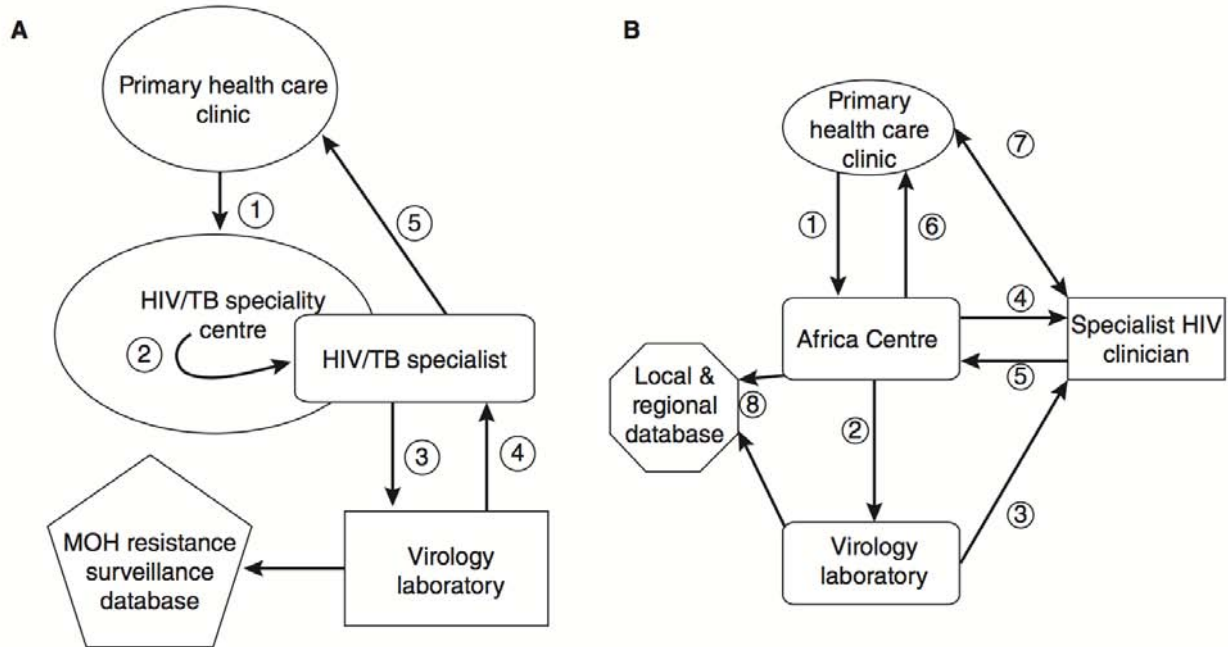


Figure: Models for the implementation of HIV-1 genotypic resistance testing for routine clinical management: Botswana national model (A) and a primary healthcare HIV program in Hlabisa sub-district, KwaZulu-Natal, South Africa (B)

Tremendous progress has been made with the scale-up of antiretroviral therapy in Africa, with an estimated seven million people now receiving antiretroviral therapy in the region. The long-term success of antiretroviral therapy programs depends on appropriate strategies to deal with potential threats, one of which is the emergence and spread of antiretroviral drug resistance.

Whilst public health surveillance forms the mainstay of the World Health Organization approach to antiretroviral drug resistance, there is likely to be increasing demand for access to drug resistance testing as programs mature and as HIV clinical management becomes more complex. African-owned research initiatives have helped to develop affordable resistance testing appropriate for use in the region, and have developed delivery models for resistance testing at different levels of the public health system.

Some upper-middle-income countries such as Botswana and South Africa have introduced drug resistance testing for selected patient groups to guide clinical management. The scale-up of resistance testing will require substantial expansion of clinical and laboratory capacity in the region, but the expertise and resources exist in Africa to support this. The long-term population health impact and cost-effectiveness of resistance testing in the region will also require further investigation.

Citation: Lessells RJ, Avalos A, de Oliveira T Implementing HIV-1 Genotypic Resistance Testing in Antiretroviral Therapy Programs in Africa: Needs, Opportunities, and Challenges *AIDS Reviews*,15:221-229 (2013)

Link: <http://www.bioafrica.net/publications.php?pubid=94>



The causes and consequences of HIV transmission and drug resistance PhD and MSc studentships available at UKZN for the MRC Flagship project

“MRC Flagship projects, which are inter-disciplinary in scope, are an institution’s highest impact and most prestigious research project They are essentially big ideas, big science for big impact!” MRC President, November 2013

In total, we are advertising 7 PhDs and up to 4 MScs fellowships that can be taken in different departments at UKZN to study HIV transmission and drug resistance. These positions will work as a team and we expect to appoint at least one student in each of the following disciplines:

- *Clinical Infectious Diseases*
- *Computer Science*
- *Epidemiology*
- *HIV Pathogenesis,*
- *Human Genetics,*
- *Genomics & Bioinformatics*
- *Social & Economical Sciences*

PhD and MSc fellows will be awarded a scholarship that will cover their tuition costs in addition to a competitive stipend salary. Interested students should send an application, which should contain a CV and a motivation letter (max 500 words) **by 30 January 2014** to Mrs Xolile Kineri @ email: xkineri@afriacentre.ac.za, Tel: 035 550 7500, Fax: 035 550 7565. **More info: www.bioafrica.net**

THE PREMIER UNIVERSITY OF AFRICAN SCHOLARSHIP

Bioinformatics in the Tropics - Uganda 2014



This is a series of four workshops, which will be presented in Brazil (2013 & 2014), South Africa (2013) and Uganda (2014) as part of a south to south capacity building programme to develop the next generation of bioinformaticians in Africa and Latin America. The objective is to train post-doctoral researchers to become trainers and post-graduate students to use bioinformatics and phylogenetic software applications needed for their research.

Workshop topics and who should apply?

The workshop involves theoretical lectures and practical sessions on the usage and interpretation of bioinformatics applications for the study of viruses and TB drug resistance, molecular epidemiology and immunology. This workshop is targeted at scientists and post-graduate students working in research projects in Africa and Latin America.

Invited Presenters:

Luiz Carlos Alcantara, Alison Elliott, Pontiano Kaleebu, Justen Manasa, Eduan Wilkinson, Siva Danaviah, Deo Ssemwanga, Jonathan Kayondo, Olivier Gascuel, Francois Chevenet, Tulio de Oliveira, Marco Salemi, Josh Herbeck, Manon Ragonnet and Andrew J. Leigh Brown

Organizing Institutions:

The Wellcome Trust Africa Centre for Health and Population Studies, South Africa, the Wellcome Trust MUII program at Makerere University & Uganda Virus Research Institute (UVRI), the Medical Research Council (MRC)/UVRI Uganda Research Unit on AIDS, and the Brazilian Scientific Foundation (CNPq) at the FioCruz Foundation, Salvador, Brazil.

Workshop Series Organizers:

Tulio de Oliveira, Alison Elliott, Pontiano Kaleebu and Luiz Carlos Alcantara.

7th to 10th April 2014, Uganda Virus Research Institute, Entebbe, Uganda.

(Deadline for application: 31st January 2014)

Application form can be obtained at <http://www.muii.org.ug/> & <http://www.bioafrica.net>

Registration for the workshop is free of charge: Workshop includes lectures, lunch and coffee-break. However, applicants need to fund their travel and accommodation costs.



SATuRN's partners featured publications!



Implementing HIV-1 Genotypic Resistance Testing in Antiretroviral Therapy Programs in Africa: Needs, Opportunities, and Challenges

Lessells RJ, Avalos A, de Oliveira T. AIDS Reviews (2013), 15:221-229



An Affordable HIV-1 Drug Resistance Monitoring Method for Resource Limited Settings

Manasa J, Danaviah S, Pillay S, Padayachee P, Mthiyane H, Seebregts C, Rinke De Wit TF, Viljoen J, Katzenstein D, De Oliveira T. Journal of Visualized Experiments (JoVE) (2013), in press:



An Investigation of Classification Algorithms for Predicting HIV Drug Resistance without Genotype Resistance Testing

Brandt P, Moodley D, Pillay AW, Seebregts CJ, de Oliveira T. Lecture Notes in Computer Science (LNCS) (2013), 8315:236-253



Outcomes of the Botswana national HIV/AIDS treatment programme from 2002 to 2010: a longitudinal analysis

Farahani M, Vable A, Lebelonyane R, Seipone K, Anderson M, Avalos A, Chadborn T, Tilahun H, Roumis D, Moeti T, Musuka G, Busang L, Gaolathe T, Malefho KCS, Marlink R. Lancet Global Health; 2: e44-50 (2014)

Training course title, location and date

- Apr 2014** **Bioinformatics in the Tropics - Uganda 2014**, Uganda Virus Research Institute, Entebbe, Uganda, 7th to 10th April 2014 (Deadline for application: 31st January 2014)
- Sep 2014** **19th International Bioinformatics Workshop on Virus Evolution and Molecular Epidemiology**
National Institute for Infectious Diseases "L Spallanzani", Rome, Italy, September 7-12, 2014

For more information on how to participate in SATuRN activities please contact:

Prof Tulio de Oliveira, Wellcome Trust Africa Centre for Health and Population Studies, UKZN, South Africa
Tel : +27 35 550 7500, Fax: +27 35 550 7565, e-mail : tdeoliveira@afriacentre.ac.za

Prof Chris Seebregts, Jembi Health Systems, South Africa
Tel: +27 21 701 0939, Fax: +27 21 701 1979, e-mail: chris@jembi.org

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