

SOUTH AFRICAN IMMUNOLOGY SOCIETY

NEWSLETTER

MESSAGE FROM THE EDITOR

Dear SAIS members,

Welcome to our April edition of the Newsletter. We invite all SAIS members and networks to join us via Zoom or Youtube on the International Day of Immunology. The theme this year is: VACCINES. Reserve April 29th as the day to discuss immunology with everyone you know! It will be an asset to publicizing your immunological society and the importance of immunology to global health. For our special collage page, we encourage all members to take photos of your immunology team and labs and send them to us via newsletter@saimmunology.org.za.

We also invite all SAIS members to submit abstracts and register for the 2023 International Union of Immunological Societies (IUIS) Congress from November 27th to December 2nd in Cape Town, South Africa. The IUIS Congress is the world's leading event in the field of immunology, covering all hot topics related to the field of Immunology.

Abstract submission is open until May 2nd, 2023. Early bird registration is also available until August 30th, 2023. Be sure to register early to take advantage of discounted rates! To learn more about registration for individuals and groups, please visit our website at www.iuis2023.org. We're excited to see you at IUIS 2023.



CONTACT US!

Please send us your recent publications so we can showcase them in our Community Corner. If you are hiring/recruiting, we would be more than happy to advertise for you in the newsletter and on our social media platforms. You can email the editors at newsletter@saimmunology.org.za by the 20th of each month to be featured in our next newsletter.



<https://www.saimmunology.org.za/>



@SAImmunologySociety



South African Immunology Society (SAIS)



@SAImmunology

IMMUNOLOGY

TALKS TO

PUBLIC HEALTH



**International day of
immunology**

APRIL 29, 2023



IUIS



#ThankYouImmunology
dayofimmunology.org

JOIN IN THE GLOBAL EFFORT

IUIS & EFIS invites you to join this two-part webinar on April 29th 2023

The Day of Immunology is here again! Join IUIS and EFIS, in collaboration with Frontiers in Immunology, on April 29th at 1 pm CEST for a live panel discussion at no charge.

The first topic is COVID-19 in 2023: the Immunology and Public Health perspective. Join Andrea Carfi, Andreas Radbruch, Franco Locatelli, Alessandro Sette, Qihui Wang, and Ursula Wiedermann-Schmidt as they discuss their research.

In the afternoon, hear Cristina Casseti, Erik Jongert, Annateresa Palamara, Bali Pulendran, Rino Rappuoli, Ginaluca Rotta, and Linqi Zhang as they discuss how to make better vaccines for respiratory infections.

**PANEL DISCUSSION
BROADCAST LIVE ON
ZOOM AND YOUTUBE**

**TO REGISTER CLICK
HERE:**

**2023 INTERNATIONAL
DAY OF IMMUNOLOGY
- IMMUNOLOGY TALKS
TO PUBLIC HEALTH**

REGISTER NOW!

**RESERVE
YOUR SPOT
TODAY**

LESS THAN ONE WEEK LEFT TO SUBMIT AN ABSTRACT!

Abstract Submission Deadline: Tuesday 2 May 2023, 23:59 CEST

WHERE IMMUNOLOGISTS MEET

The International Congress of Immunology (IUIS) is the world's leading conference in the field of immunology. It assembles immunologists from universities, health providers, independent research organisations and industry.

Immunology covers many different areas of basic, translational and clinical immunology. What immunologists all over the world, in all areas unite is the commitment to:

TURN DISCOVERIES INTO TREATMENTS

Additionally, this is the motto for IUIS 2023 alongside our promise that this congress will significantly extend the knowledge of all delegates – from those who are in the early stages of their career to globally renowned key opinion leaders.

**ABSTRACT
SUBMISSION &
REGISTRATION
OPEN!**

<https://iuis2023.org/abstracts/>



**5000
IMMUNOLOGISTS**



**6 DAYS OF
SCIENTIFIC EXCHANGE**



**145 SCIENTIFIC
SESSIONS**

FUNDING CALLS, CONFERENCES, WEBINARS



Federation of African Immunological Societies



International Union of Immunological Societies

IUIS/AAI TRAVEL AWARDS SUMMER COURSES in IMMUNOLOGY

IUIS/AAI Travel Awards: Summer Courses in Immunology

The IUIS Education (EDU) and Gender Equality and Career Development (GEC) Committees and the American Association of Immunologists (AAI) announced their continued co-sponsorship of 8 awards (4/course) for trainees from LMICs to attend the AAI Summer Courses in IMMUNOLOGY:

1. The Introductory Course in Immunology will be held July 11-16, 2023 at the UCLA Luskin Conference Center, Los Angeles, CA.
2. The Advanced Course in Immunology will be held July 23-28, 2023 at The Westin Copley Place, Boston, MA.
- 3.

For more information visit:

<https://www.faisafrica.com/news/iuis-aa-awards-summer-courses-in-immunology>

IUIS/AAI Travel Awards: Courses in Immunology, USA, July 2023



FOCIS
Federation of Clinical Immunology Societies

European Advanced Course & Conference on Immunology

August 27-31, 2023 Rouen, Normandy - France

European Advanced Course - Rouen - FOCIS (focisnet.org)



International
Vaccine
Institute



Ministry of Health
and Welfare

Empowering local biomanufacturing:

How to equip countries for current and future
infectious disease outbreaks

A SIDE EVENT OF THE 76TH WORLD HEALTH ASSEMBLY

Date

May 23, 2023

Time (CET)

14:00-15:30 Side event
15:30-16:30 Reception

Location

Room Apollon,
Hotel President Wilson
Geneva, Switzerland

Co-hosted by

- International Vaccine Institute
- Ministry of Health and Welfare of the Republic of Korea

Co-sponsored by

- Brazil
- Kenya
- Rwanda
- Sweden
- Thailand

For more information and registration, visit:

<https://www.ivi.int/wha76-side-event-empowering-local-biomanufacturing-how-to-equip-countries-for-current-and-future-infectious-disease-outbreaks/>



THE VETERINARY IMMUNOLOGY DIVISION

A focus on African Horse Sickness Virus

By Dr Erika Faber and Dr Alri Pretorius



Background and Introduction

African horse sickness (AHS) is an insect-transmitted, infectious but non-contagious disease of equids that can cause more than 90% mortality in susceptible horses. AHS is regarded as one of the most lethal diseases of equids and a serious threat to the horseracing and companion animal industries in South Africa. African horse sickness virus (AHSV), a dsRNA virus of the genus Orbivirus, family Reoviridae, causes this disease. While AHS is not zoonotic, a neurotropic AHSV vaccine strain caused encephalitis and retinitis in humans, demonstrating zoonotic potential under certain circumstances. Additionally, the possible risk of transmission to humans in the future due to climate change related factors is currently unknown.

There are no specific antiviral treatments for horses suffering from AHS. The disease is controlled by preventative vaccination of susceptible horses in endemic areas with the commercially available polyvalent AHSV live attenuated vaccine, produced at Onderstepoort Biological Products (OBP). Since attenuated vaccines are not compatible with DIVA (differentiate infected from vaccinated animals) and due to various bio-safety concerns, many studies are trying to develop safer new generation AHS vaccines; but none has been commercialized to date. The development of new generation AHS vaccines and antiviral treatments have proven to be complex, which is in part due to the lack of knowledge of the global immune responses induced by attenuated and virulent AHSV strains and the various factors that are involved in the pathogenesis of the virus.

The Agricultural Research Council - Onderstepoort Veterinary Research Team

To gain knowledge about the host immune response and the immune evasion strategies the virus employs, our team at the ARC-OVR used transcriptome analysis of RNA sequences to characterize the global immune responses induced by AHSV. This part of the study focussed on characterizing the innate immune responses activated during the attenuated AHSV serotype 4 (attAHSV4) (*in vivo*) and the virulent AHSV4 (virAHSV4) (*in vitro*) primary and secondary immune responses in horse peripheral blood mononuclear cells (PBMC) after 24 h. The pro-inflammatory cytokine and chemokine responses were negatively regulated by anti-inflammatory cytokines, whereas the parallel type I and type III IFN responses were maintained downstream of nucleic acid sensing pattern recognition receptor (PRR) signalling pathways during the attAHSV4 primary and secondary immune responses. It appeared that after translation, virAHSV4 proteins were able to interfere with the C-terminal IRF association domain (IAD)-type 1 (IAD1) containing IRFs, which inhibited the expression of type I and type III IFNs downstream of PRR signalling during the virAHSV4 primary and secondary immune responses. Viral interference resulted in an impaired innate immune response that was not able to eliminate virAHSV4-infected PBMC and gave rise to prolonged expression of pro-inflammatory cytokines and chemokines during the virAHSV4 induced primary immune response. This indicated that virAHSV4 interference with the innate immune response might give rise to an excessive inflammatory response that causes immunopathology, which could be a major contributing factor to the pathogenesis of AHS in a naïve horse. In contrast, viral interference was overcome by the fast kinetics and increased effector responses of innate immune cells due to trained innate immunity and memory T cells and B cells during the virAHSV4 secondary immune response.

Continued in:

Faber E, Tshilwane SI, van Kleef M, Pretorius A. Virulent African horse sickness virus serotype 4 interferes with the innate immune response in horse peripheral blood mononuclear cells *in vitro*. *Infect Genet Evol.* 2021;91:104836. doi: 10.1016/j.meegid.2021.104836.

22-29 April 2023**Turning real-world data into knowledge for better Primary Immunodeficiency (PID) care**

Improving access to diagnosis, treatment and care for PID patients through collaborative & real-world data use

#WorldPIWeek

Spotlight: Primary Immunodeficiencies

The 22nd - 29th of April 2023 marks World Primary Immunodeficiency (PI) Week. World PI Week is a global campaign that aims to raise awareness and improve diagnosis and treatment of primary immunodeficiencies. Primary immunodeficiencies are rare, genetic diseases where a person's immune system is absent or dysfunctional.

There are over 450 primary immunodeficiencies (PIs), which range in presentation and severity. PIs often present as "common" infections, leading physicians to treat the infection and miss the underlying cause. This leaves patients vulnerable to recurrent infections, organ damage, disability, and death. It is estimated that around 10 million people worldwide live with a PI, however 70 - 90% of these individuals remain undiagnosed.

Various signs and symptoms provide clues to the presence of a PI, including severe, persistent and/or recurring infections such as ear, sinus, or skin infections, as well as inflammation in the lungs, liver and intestines. The frequency of these symptoms should raise suspicion for the treating physician to refer the patient for further medical testing.

The first step of diagnosing the PI is an in-depth evaluation of the patient's immune system, including various blood tests and a review of the patient's family medical history. Genetic testing is usually required to diagnose the specific PI and the appropriate treatment, however this facility is often not available in underprivileged communities.

Access to treatment and care prevents the often serious and life-threatening complications of PIs. Treatment is dependent on the PI and other factors, but common treatments include immunoglobulin therapies, haematopoietic stem cell transplantation, gene therapy, granulocyte-colony stimulating factor, and other advanced treatments such as antifungals, prophylactic antibiotics, interleukins, Gamma interferon or PEG adenosine deaminase, among others.

As a result of new therapies, greater public awareness, and better access to information, many patients can finally experience normal, happy lives. Raising awareness among the patients' social environment, general public, medical professionals and policy makers helps improve understanding of the disease in support of people with primary immunodeficiency.

For more information on primary immunodeficiencies, please visit
<http://www.worldpiweek.org/>

PUBLICATIONS & INTERESTING READS

Human

Are repeat COVID infections dangerous? What the science says

Willyard C. *Nature News*. 2023. <https://www.nature.com/articles/d41586-023-01371-9>

Digital adherence technologies to improve tuberculosis treatment outcomes in China: a cluster-randomised superiority trial

Liu MS, Thompson J, Dong H et al. *Lancet Glob. Health*. 2023 May;11(5):e693-e703.
doi: 10.1016/S2214-109X(23)00068-2.

Genetics and epigenetics of chronic rhinosinusitis

Lal D, Brar T, Ramkumar SP, Li J, Atsushi K, Zhang L. *J Allergy Clin Immunol*. 2023 Apr;151(4):848-868.
doi: 10.1016/j.jaci.2023.01.004.

Treating asthma in the time of COVID

Carr TF, Fajt ML, Kraft M et al. *J Allergy Clin Immunol*. 2023 Apr;151(4):809-817.
doi: 10.1016/j.jaci.2022.12.800.

Untangling the CD4 T cell response to the microbiota

Mayassi T, Xavier R. *Proc Natl Acad Sci U S A*. 2023 Apr 18;120(16):e2303351120.
doi: 10.1073/pnas.2303351120.

Use of point-of-care C-reactive protein testing for screening of tuberculosis in the community in high-burden settings: a prospective, cross-sectional study in Zambia and South Africa

Ruperez M, Shanaube K, Mureithi L et al. *Lancet Glob Health*. 2023 May;11(5):e704-e714.
doi: 10.1016/S2214-109X(23)00113-4.

Vitamin D: 100 years of discoveries, yet controversy continues

Gallagher J, Rosen C. *Lancet Diabetes Endocrinol*. 2023 May;11(5):362-374.
doi:10.1016/S2213-8587(23)00060-8.

Weekly rifapentine plus isoniazid for 3 months is safe for latent TB infection

Stong C. *TB Online*. 2023.
<https://www.tbonline.info/posts/2023/4/12/weekly-rifapentine-plus-isoniazid-3-months-safe-la/#>

Veterinary

African horse sickness: a review of current understanding and vaccine development.

Dennis SJ, Meyers AE, Hitzeroth II, Rybicki EP. *Viruses*. 2019; 11 (9): 844. doi:10.3390/v11090844. Review.

Apoptosis versus survival of African horse sickness virus serotype 4-infected horse peripheral blood mononuclear cells.

Faber E, Tshilwane SI, Van Kleef M, Pretorius A. *Virus Res*. 2022 Jan 2; 307: 198609.
doi: 10.1016/j.virusres.2021.198609.

Pathological features of African horse sickness virus infection in IFNAR^{-/-} mice

Jones Luke M., Hawes Phillippa C., Salguero Francisco J., Castillo-Olivares Javier. *Frontiers in Vet. Sci*. 2023. Vol 10. doi:10.3389/fvets.2023.1114240

Th1 and Th2 epitopes of Cowdria polymorphic gene 1 of Ehrlichia ruminantium

Ngoepe, T. A., Pretorius, A., Steyn, H. C., & Van Kleef, M. *The Onderstepoort journal of veterinary research*. 2023., 90(1), e1–e15. doi.org/10.4102/ojvr.v90i1.2070

JOBS & OPPORTUNITIES

Bioinformatics Data Scientist - Carlysle Human Capital, Durban, KwaZulu-Natal

For this position, knowledge in immunology, genomics, genetics and sequencing will be an advantage. Interested applicants should apply on Carlysle Human capital website.

Faculty Position in Human Immunology - New York City, New York, US

The Department of Pathology and the Translational Immunology Center (TrIC) at the NYU Grossman School of Medicine (NYU Langone Health) invite applications for tenure-track positions in Immunology at the assistant, associate or full professor level. Applicants should have an M.D., Ph.D. or M.D./Ph.D. degree and an exceptional record of achievements, and pursue innovative research with direct application to human immunology. Candidates who are interested in collaborations with clinical and translational researchers using advanced experimental and computational methods are particularly encouraged to apply. For consideration, please format an application as a single PDF document containing the following: 1) Cover letter; 2) Curriculum Vitae; 3) Brief Description of Research Accomplishments; 4) Brief description of Research Objectives; and 5) Names and contact information of 3 referees, and submit it via the following link: <http://apply.interfolio.com/120811> Closing date: May 4, 2023.

Global Head, Immunology Translational Medicine - Novartis, Basel, Switzerland

Immunology is a key area for Novartis, and one where we have a long tradition. From the launch of Sandimmune (cyclosporin) 30 years ago to enable solid organ transplantation, to the current blockbusters Ilaris (anti-IL-1) and Cosentyx (anti-IL-17), Novartis has long had a focus on treating immunological diseases in rheumatology, dermatology, organ transplant, and autoimmune diseases. Education: MD or MD/PhD, or MD with doctoral thesis in relevant field (Rheumatology, Allergy & Immunology, Transplantation, or related field). Apply on company's website. Closing date: May 4, 2023.

Postdoctoral Research Fellow - Africa Health Research Institute, Durban, KwaZulu-Natal

This position is based in the AHRI Durban site laboratory of Henrik Kloverpris through NIH grants, with an initial 24-month term and the potential for extension. You will be responsible for contributing to experimental design, training and overseeing students, and supporting more junior members of the lab. A proven track record of published papers in international peer-reviewed journals, good written and oral communication skills, and the ability to work collaboratively as part of a team are also essential. Experience in flow cytometry and flow cytometry data analysis, clinical samples and human primary cells, and be proficient in preparing results and draft manuscripts for publication. Minimum Qualifications: PhD degree in immunology, virology, biochemistry or related or related fields. To apply, please email a cover letter and CV (which highlights at least three references) in PDF format to education@ahri.org and henrik.kloverpris@ahri.org with the subject line 'Postdoctoral scientist/Kloverpris Group/Immunology'. Applications Closing Date: 19 May 2023.

Post-Doctoral Fellow - Tumor Immunology, Immunotherapy - Center for Cancer Research, National Cancer Institute, NIH - Bethesda, Maryland

The Center for Immuno-Oncology (CIO) Translational Research area at the National Cancer Institute functions as a multidisciplinary and interdisciplinary translational research programmatic effort with the goal of developing novel immunotherapies and immunotherapeutic strategies for cancer. As Co-Director of the CIO, Dr. Jeffrey Schlom directs the Translational Research area of investigation. The program takes advantage of the uniqueness of the NCI intramural program in that it spans high-risk basic discovery research in immunology genomics and tumor biology, through preclinical translational research, to paradigm-shifting clinical trials. A major strength of the program is the rapid translation of preclinical studies to hypothesis-generating clinical trials. We are looking for post-doctoral fellows interested in learning immunology and immunotherapy. This full-time training position is available immediately. The appointment duration is up to 5 years. The job requires an Ph.D., M.D., or equivalent in immunology, molecular/cell biology or experimental pathology. Stipends are commensurate with education and experience. Please send a cover letter describing your research experience and interests, CV including bibliography, and contact information for three references to: Jeffrey Schlom, Ph.D., via e-mail: js141c@nih.gov. Please write "Postdoctoral application" in the subject heading. No calls, please. If we are interested, you will be contacted by Dr. Schlom. Stipends are commensurate with education and experience. Closing date: Jul 6, 2023



Myocardial extracellular volume fraction is positively associated with activated monocyte subsets among cART-treated persons living with HIV in South Africa.

Tess E Peterson, **Muki Sheny**, Nomawethu Masina, Lye-Yeng Wong, Scott R Shuldiner, Julian Wolfson, Stephen Jermy, Hadil Saad, Mbalabu A J Lumbamba, Achita Singh, Graeme Meintjes, Ntobeko A B Ntusi, Mpiko Ntsekhe, Jason V Baker

Background. Despite treatment with combination antiretroviral therapy (cART), persons living with HIV (PLWH) are at higher risk of cardiac structural abnormalities that may presage clinical heart failure, including myocardial fibrosis. In this study, the researchers assessed whether circulating cellular and soluble protein markers of immune activation cross-sectionally associated with myocardial fibrosis among cART-treated PLWH in South Africa.

Methods. Participants were enrolled in Khayelitsha township near Cape Town, SA. Cardiac magnetic resonance imaging was performed. Plasma protein biomarkers were measured using enzyme-linked immunoassays and monocyte phenotypes were evaluated using flow cytometry. Associations were assessed using multivariable linear and logistic regression.

Results. Among 69 cART-treated PLWH, mean (SD) age was 48 (10) years, 71% were female, and time since HIV diagnosis was 9 (6) years. Evidence of left ventricular fibrosis by late gadolinium enhancement was present in 74% of participants and mean (SD) extracellular volume fraction (ECV) was 30.9 (5.9)%. Degree of myocardial fibrosis/inflammation measured by ECV was positively associated with percentages of circulating non-classical and intermediate monocyte phenotypes reflecting inflammation and tissue injury.

Conclusion. These data generate hypotheses on possible immune mechanisms of HIV associated non-ischemic myocardial disease, specifically among cART-treated PLWH in sub-Saharan Africa, where the majority of the HIV burden exists globally.

SUPERSCIENTIST OF THE MONTH

Dr Mohlopheni Jackson Marakalala

TOP TIP
NEVER SURRENDER IN THE FACE OF CHALLENGES, HAVE FAITH IN YOUR ABILITIES AND PASSION

MY HEROES
WOMEN OF STRENGTH IN RURAL AREAS

IMMUNOLOGIST
BIOMARKERS ARE THE CHEMICAL SIGNATURE OF AN INFECTION - FIND NEW TB BIOMARKERS. DISCOVER NOVEL WAYS TO STOP TB.

What is the most important role science can play in developing countries, like South Africa?

I believe investing in science, technology, engineering, mathematics and innovation will result in economic growth and development. We will also be able to counteract brain drain and see a pool of home-based scientists driven by a desire to invent solutions tailor-made for local challenges.

What piece of advice would you offer a budding African scientist?

Pursue research questions with a potential to solve local problems. There is nothing as fulfilling as seeing your work translated into positive impact among those in need. In pursuing such excellence, however, things may be difficult sometimes. That is normal and character-building, even if it may not seem so at the time. Never surrender in the face of challenges but have faith in your abilities and passion.

<https://www.superscientists.org/superscientists/marakalala>

<https://www.news.uct.ac.za/article/-2018-10-29-5-questions-with-mohlopheni-jackson-marakalala>

RESOURCES

<https://www.faisafrica.com>
<https://immunopaedia.org>
<https://iuis.org>
<https://www.stemcell.com/>

SOCIALS TO FOLLOW

@DayofImmunology
@J_Immunol
@NatImmunol
@AHRI_News

SAIS would like to thank all members for their ongoing support! To continue being a part of our growing community, please keep up to date with your membership. To update your membership and familiarise yourself with the new renewal process, please visit <https://www.saimmunology.org.za/membership.htm>

**As always, feedback and suggestions are highly appreciated.
Thanks for reading!**

The SAIS Newsletter Editorial Team

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