

# NEWSLETTER

SOUTH AFRICAN IMMUNOLOGY SOCIETY



## FEATURES

First inactivated  
bluetongue vaccine in  
South Africa

## AWARENESS

Alzheimer's & Brain  
Awareness Month

## SAVE THE DATE

The Joint ALLSA and SAIS  
2023 Congress  
Open Abstract Submission

## MESSAGE FROM THE EDITOR

Dear SAIS members,

Welcome to the May 2023 edition of our newsletter.

We continue to provide updates on the IUIS Congress 2023. We encourage you to save the date, 27 November - 2 December 2023, for the 18th IUIS International Congress of Immunology, to be held in Cape Town, South Africa. This year's congress promises to be a landmark occasion for Africa and the global immunology community. It will be our first meeting in person in Africa after the start of the COVID-19 pandemic.

For us in the SAIS, it is an honour to join hands with the Federation of African Immunological Societies (FAIS) and the International Union of Immunological Society (IUIS) to host the world on home grounds in our beautiful city, Cape Town. Have a look at the impressive list of confirmed speakers and the faculty for the various streams of the workshop. We hope you submitted your abstract! If not, the late-breaking abstract submission will be opening in August 2023. Registration is still open.

Furthermore, registration for the joint ALLSA-SAIS conference is also open. The deadline for the submission of abstracts is 3 July 2023.

Join the GRASS study survey (Pg 7) and provide your views on allergy diagnosis, management and treatment, and share your thoughts to shape the training curriculum for Allergologists in South Africa. The SAIS newsletter team would also like to bring awareness to Alzheimer's and Brain Awareness month, in June (Pg 8).

Finally, we highlight our home-developed livestock vaccine, the **BLU-VAX (G4534)**. BLU-VAX is the first inactivated bluetongue vaccine in South Africa. We celebrate Dr Beate von Teichman and the team at the University of Pretoria's Faculty of Veterinary Science, Onderstepoort, for this milestone.



*Happy reading!*

With regards,  
Dr. Clement Gascua



## 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 20<sup>th</sup> of each month to be featured in our next newsletter.



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



South African Immunology Society  
(SAIS)



@SAImmunologySociety



@SAImmunology



South African Immunology Society



Welcome to ALLSA/SAIS 2023

**Bench and Bedside:**

**United for Best Progress and Practice**

We are very excited to be able to write this letter of invitation and welcome to the upcoming combined ALLSA/SAIS 2023 meeting. A long overdue combined meeting for the allergy and immunological societies, with the disciplines of allergy and clinical immunology combined in many countries; and almost all understanding of the immunopathology and treatments of allergic diseases underpinned by basic immunology. It is also an auspicious year for immunology meetings in South Africa, with Cape Town the host country for the International Union of Immunological Societies (IUIS) 2023 meeting, the pre-imminent global meeting in immunology occurring every three years. The theme for the IUIS meeting being: "Turning Discoveries into Treatments". Our theme for this combined congress is related, albeit perhaps a step closer to the patient given that most of us attending will be clinicians.

We hope that with all the restrictions of COVID-19 a thing of the past, and Cape Town less affected by load shedding compared to elsewhere, registrations will be high for what promises to be a fantastic meeting. Please also remember to submit your abstracts as we will be offering a number of travel fellowships for accepted abstract presenters.

See you soon in Cape Town for ALLSA/SAIS 2023.

**Jonny Peter and Theresa Rossouw**  
Co-Chairs 2023  
ALLSA/SAIS congress



**Century City Conference Venue**  
**28 September - 01 October 2023**

<https://allsa2023.co.za/online-registration/>



# IUIS

2023  
CAPE TOWN

TURN DISCOVERIES INTO TREATMENTS

27 November - 2 December 2023

Cape Town, South Africa

## WHERE IMMUNOLOGISTS MEET

The Congress is hosted by the IUIS, the Federation of African Immunological Societies (FAIS), and the South African Immunology Society (SAIS). The theme of IUIS 2023 will be “Turning Discoveries into Treatments” and we hope to leverage the connectivity between human health and basic immunology – in South Africa, Africa, and globally.

You can look forward to 5 days of enhanced scientific exchange including a series of keynote sessions by **world-renowned speakers**:

• **NOBEL LAUREATE JAMES P. ALLISON**

• **NOBEL LAUREATE EMMANUELLE CHARPENTIER**

• **LINDA-GAIL BEKKER**

• **HENRY MWANDUMBA**

• **VISHVA DIXIT**

• **LAURIE H. GLIMCHER**

• **ALAIN FISCHER**

• **SARAH GILBERT**

**LATE  
BREAKING  
ABSTRACT  
SUBMISSION  
OPENS  
AUGUST 30TH!**

[iuis2023.org](https://iuis2023.org)

## FUNDING CALLS, CONFERENCES, WEBINARS

### An African-Based Immunology Seminar Series



Prof. Petro Terblanche, PhD  
Chief Executive Officer  
Afrigen Biologics

31 May 2023

13:00-14:00

Building an End-to-End mRNA Vaccine Research, Development and Manufacturing Platform in Africa: Science with a Purpose

To register: <https://uct-za.zoom.us/meeting/register/tJlufu-tpjsuHdaQGoud6FyVazNPecDYoo3i#/registration>



Prof. Raveen Parboosing, MB BCh, PhD  
Principal Pathologist, NHLS  
Assoc. Professor of Virology, University of the Witwatersrand

June 2023

Date & Time TBA

Point-of-care assays for infectious diseases: Current state of the art



# Principles of Mucosal Immunology Course

June 27-29, 2023 - Virtual  
(FREE for URC & LMIC members)

To register: <https://www.socmucimm.org/meetings-events/2023-course/>



13<sup>th</sup> INTERNATIONAL VETERINARY  
IMMUNOLOGY SYMPOSIUM  
17-21 NOVEMBER, 2023



Abstract deadline: 30 June 2023. Register and submit abstracts online at: [ivis2023.org](http://ivis2023.org)



# LOCALLY MANUFACTURED VETERINARY VACCINE IN SOUTH AFRICA : A SPOTLIGHT ON BT

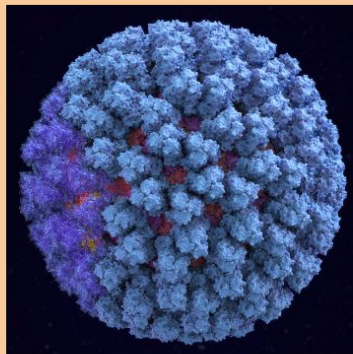
THE VETERINARY IMMUNOLOGY DIVISION

## Background

Bluetongue (BT) is a non-contagious, infectious viral disease of ruminants; such as sheep, goats, cattle, buffaloes, deer, antelope and camels. The severity of BT disease varies by species, with sheep being the most susceptible. The course of bluetongue infection in sheep can vary from pre-acute to chronic, with a mortality rate of 2%-90%. BT is caused by bluetongue virus (BTV) a non-enveloped dsRNA virus belonging to the family Reoviridae, genus Orbivirus which is transmitted from infected to uninfected host by *Culicoides* biting midges. 29 different serotypes of BTV (BTV-1 to BTV-29) with limited serological cross-reactivity, have been recognized worldwide. Of these, 21 serotypes are known to be circulating in South Africa.

BT is listed as a notifiable disease by World Organization for Animal Health (OIE) and causes huge socio-economic losses and hindrance to the international trade of animals and animal products. Restriction of animal movement, vector control through the use of insecticides, slaughter of infected animals and vaccination are employed for prevention and control of BT. Of these, vaccination is the most effective method of controlling BTV spread and preventing severe disease. However, despite the great body of work done on vaccine development, especially towards new-generation vaccines, such as subunit, virus-like particles, core-like particles and vectored vaccines. The conventional live-attenuated and inactivated whole cell BTV vaccine are the only licenced BT vaccines in use globally.

## Previous BT vaccines



OBP live-attenuated multi-serotype vaccines have been the only vaccines available locally, due to the number of circulating serotypes in South Africa. Protection by the live attenuated BT vaccine is serotype specific, with some cross neutralization. There is great success and widespread usage of the live attenuated BT vaccine locally and abroad. However, there are safety concerns, as vaccination induces viremia that is moderately high for uptake by midges, which might result in the spread of infection, reversion to virulence and virulent variants by reassortment.

To mitigate these risks, the inactivated BT vaccine has been used mainly in Europe and other endemic regions as an alternative to the live-attenuated vaccine, as it is recognized to be safer with no risks of reassortment of vaccine and wild isolates or reversion to virulence. In epidemic regions, inactivated monovalent BT vaccines have been widely used to control BT. Studies have shown that these vaccines induce serotype-specific neutralizing antibodies directed against outer capsid proteins VP2, that are highly correlated with protection. In addition, inactivated vaccine induced serotype specific antibodies have been shown to be present 5 to 7 years post vaccination (<https://doi.org/10.3390/v11060533>).



## EMERGENCY REGISTRATION OF THE FIRST INACTIVATED BLUETONGUE VACCINE IN SOUTH AFRICA

Design Biologix (DB), a proudly South African commercial animal health vaccine researcher, developer and manufacturer since 1994. They embarked on a project partially funded by TIA (Technology Innovation Agency) in collaboration with the Faculty of Veterinary Science Onderstepoort in 2016, to identify the prevalent bluetongue virus serotypes circulating in BT infected sheep in South Africa. The findings of this study, led to the development of a locally relevant bluetongue vaccine, by Dr Beate von Teichman, that was registered this month, amidst outcries from the livestock industry on the shortage or unavailability of key livestock vaccines on the market.

**BLU-VAX (G4534)** is an inactivated, adjuvanted polyvalent bluetongue virus (BTV) vaccine, formulated as an emulsion, for the active immunization of healthy sheep against bluetongue disease. BTV serotypes included in the formulation are serotypes 1, 2, 3, 4, 5, 7, 12, 13, 16, 17 and 24.

For more on BT visit: [Bluetongue | Monograph 20 \(dspace.direct.org\)](#) & [Bluetongue - WOA - World Organisation for Animal Health](#)

# GRASS STUDY

Global appRoAch for Severe cutaneous adverse reactions Survey

*Is the GRASS greener on the other side?*

**Dear Colleagues,**

Would you like to participate in our survey on allergy diagnosis, management and training in South Africa?

<https://portal.rimuhc.ca/cim/redcap/surveys/?s=3YJDFAT4AYEYC93A>

Severe cutaneous adverse drug reactions are a group of life-threatening conditions with high morbidity. The prevalence, phenotypes, and clinical context of these drug reactions vary across populations and are based on genetics, comorbidities, and local prescribing practice. In addition, the clinicians involved in the management of these conditions can include several specialists such as allergy/immunology, dermatology, infectious diseases, general internists or paediatricians, and others dealing with specific SCAR complications. The field is also developing, with the treatment algorithms based on a low-quality evidence base and consequently driven by expert opinion.

We are interested in understanding the details of this varied landscape of involved clinicians and local management approaches and, as a follow-on, understanding teaching exposures during clinical training.

Thank you for sharing your thoughts with us, which helps us to get a more comprehensive view.

**Regards,**



**Assoc. Professor**

Allergology and Clinical Immunology  
Department of Medicine | Groote Schuur Hospital |  
University of Cape Town Lung Institute

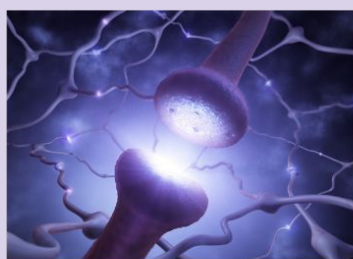


# ALZHEIMER'S DISEASE

June is Alzheimer's & Brain Awareness Month

## Background

Alzheimer's disease (also known as senile dementia) is an irreversible disorder that impairs memory, thinking, and behavior. It is the most prevalent cause of dementia, with symptoms that progressively increase. The condition is characterized by an accumulation of beta-amyloid proteins in the brain, leading to plaque formation that impair brain cell function. Individuals may experience confusion, disorientation, and poor judgment as the condition advances. Unfortunately, there is no cure for Alzheimer's disease at present, but there are therapies available to help regulate certain symptoms. Ongoing research is aimed at understanding the disease's fundamental causes and creating innovative medicines to reduce or prevent its progression.



## Resources

A Cdk5-derived peptide inhibits Cdk5/p25 activity and improves neurodegenerative phenotypes  
P Pao *et al.* Proc Natl Acad Sci USA  
2023 Apr 18;120(16):e2217864120.  
doi: 10.1073/pnas.2217864120

Alzheimer's Association:  
June is Alzheimer's and Brain Awareness Month

## A method to reverse neurodegeneration



Neuroscientists have discovered a method to reverse neurodegeneration and other Alzheimer's disease symptoms by blocking an overactive enzyme, CDK5, in the brains of Alzheimer's patients.

The CDK5 gene encodes the Cyclin-Dependent Kinase (CDK) enzyme. Unlike other CKDs that are involved in regulating cell division, CDK5 plays significant roles in central nervous system development, and helps to regulate synaptic function. CDK5 is activated through interaction with P35. The binding of P35 to CDK5 results in a structural change, which allows it to

phosphorylate its targets. However, in Alzheimer's and other neurodegenerative diseases, P35 is cleaved into a smaller protein called P25, which is also able to bind to CDK5 but has a longer half-life than P35. When bound to P25, CDK5 becomes hyperactive and phosphorylates molecules other than its usual targets, including the Tau protein. Hyperphosphorylated Tau proteins form the neurofibrillary tangles that are a characteristic feature of Alzheimer's disease.

Therapeutically, P25 has been traditionally targeted by small-molecule drugs, however, this tends to cause side effects since they also interfere with other CDKs. The research team targeted P25 differently. They used a peptide instead of a small molecule. The designed peptide has a sequence identical to that of the T loop of CDK5, which is critical to CDK5 binding to P25.

When the researchers treated mice with the peptide that blocks the hyperactive CDK5 from binding to P25, they found significant reductions in neurodegeneration, DNA damage, and improved cognitive abilities.

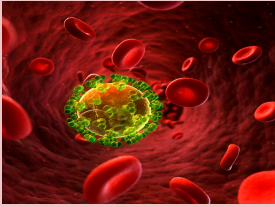
A separate mouse model with a mutant form of the Tau protein, which generates neurofibrillary tangles, also showed remarkable improvements after the peptide treatment. Both Tau pathologies and neuron loss were reduced in those mice, and behavioural improvements were noted.

The peptide has the potential to be used as a treatment for Alzheimer's disease and other forms of dementia such as frontotemporal dementia, HIV-induced dementia, and diabetes-linked cognitive impairment, without interfering with essential, structurally similar enzymes.





## PUBLICATIONS & INTERESTING READS



### **Mycobacterium tuberculosis disease associates with higher HIV-1-specific antibody responses**

B Adeoye *et al.* *iScience*. 2023 Apr 10;26(5):106631. doi: 10.1016/j.isci.2023.106631.



### **The single-cell transcriptional landscape of innate and adaptive lymphocytes in pediatric-onset colitis**

E Kokkinou *et al.* *Cell Rep Med*. 2023 May 16;4(5):101038. doi: 10.1016/j.xcrm.2023.101038.

### **Cross-reactive epitopes and their role in food allergy**

SD Kamath *et al.* *J Allergy Clin Immunol*. 2023 May;151(5):1178-1190. doi: 10.1016/j.jaci.2022.12.827.



### **Host-microbiome interactions in the holobiome of atopic dermatitis**

E Burger & RL Gallo. *J Allergy Clin Immunol*. 2023 May;151(5):1236-1238. doi: 10.1016/j.jaci.2022.11.019.

### **Please push the peanuts!**

JA Bird. *J Allergy Clin Immunol*. 2023 May;151(5):1246-1248. doi: 10.1016/j.jaci.2023.02.004.

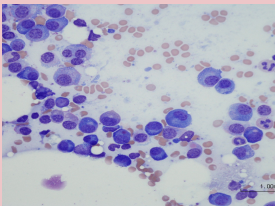


### **Primary vaccination imprint**

I Visan. *Nat Immunol*. 2023 May;24(5):732. doi: 10.1038/s41590-023-01515-z.

### **Single-Cell Profiling in Multiple Myeloma: Insights, Problems, and Promises**

MK Samur, R Szalat & NC Munshi. *Blood*. 2023 May 17;blood.2022017145. doi: 10.1182/blood.2022017145.



### **Probiotics boost immunotherapy**

NJ Bernard. *Nat Immunol*. 2023 May;24(5):732. doi: 10.1038/s41590-023-01512-2.

### **Recent advances in antigen targeting to antigen-presenting cells in veterinary medicine**

EA Melgoza-González, L Bustamante-Córdova & J Hernández. *Front Immunol*. 2023 Mar 10;14:1080238. doi: 10.3389/fimmu.2023.1080238.



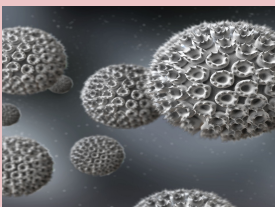
### **Immune response against lumpy skin disease after simultaneous vaccination of cattle with sheep pox and goat pox and foot and mouth disease vaccines**

B Sareyyüpoğlu *et al.* *Vet Microbiol*. 2023 Jun;281:109726. doi: 10.1016/j.vetmic.2023.109726.



### **An adenovirus-vectored RVF vaccine confers complete protection against lethal RVFV challenge in A129 mice**

M Hao *et al.* *Front Microbiol*. 2023 Feb 28;14:1114226. doi:10.3389/fmicb.2023.1114226.



### **Increased Clinical Signs and Mortality in IFNAR(-/-) Mice Immunised with the Bluetongue Virus Outer-Capsid Proteins VP2 or VP5, after Challenge with an Attenuated Heterologous Serotype**

H Attoui *et al.* *Pathogens*. 2023 Apr 15;12(4):602. doi: 10.3390/pathogens12040602.

## **JOBS & OPPORTUNITIES**

### **Assistant professor in metabolism - Université de Geneva, Switzerland**

The Department of Cell Physiology and Metabolism, Faculty of Medicine at the University of Geneva invites applications a faculty position in metabolism. The appointment will be at Swiss National Science Foundation (SNSF)-funded assistant professor level, with a possibility for tenure following the term. The appointment is linked to obtaining an SNSF (or equivalent) starting grant. We seek candidates who use in vivo models to study whole body metabolism in context of nutrition, health, and disease, with particular focus on obesity and diabetes. The successful candidate will be integrated into the Diabetes Centre of the Faculty of Medicine and will be expected to develop and coordinate highly original, innovative and interactive research. Applicants need to hold PhD or MD and have excellent scientific track record. To apply, please submit cover letter, a curriculum vitae including a publication list, and a concise, not more than 3 page-long statement of future research plans, along with the contacts of 3 referees who are ready to supply their letter of recommendation upon request to [tamara.bollmann@unige.ch](mailto:tamara.bollmann@unige.ch). Applications should be submitted preferentially before July 1st 2023.

### **Senior Lecturer: Department of Medicine - Stellenbosch University, South Africa**

The Centre for Medical Ethics and Law (CMELE) is uniquely positioned as the only WHO Collaborating Centre in Bioethics in Africa. As an interdisciplinary environment, we offer undergraduate and postgraduate bioethics programmes and conduct research. The Centre strongly advocates for stakeholder engagement and social justice issues. The Senior Lecturer would drive teaching and learning at undergraduate and postgraduate levels and contribute to research and social impact. Job Requirements: PhD (preferably in Bioethics); Work experience in a health sciences or related environment; Expertise and/or experience in empirical research in bioethics; Evidence of postgraduate research supervision; Experience in teaching and coordination of postgraduate programmes. Enquiries regarding remuneration/benefits, as well as technical assistance with the electronic application process: Human Resources Client Services Centre on 021 808 2753, or at [sun-e-hr@sun.ac.za](mailto:sun-e-hr@sun.ac.za)

### **Postdoctoral Scientist - Nationwide Children's Hospital, Ohio, USA**

The Bagaitkar lab in an NIH funded lab whose research interests broadly focus on understanding host specific and microbe specific factors that modulate immune homeostasis at the oral mucosal barrier. Projects in the are broadly focused on exploring how genetic deficiencies in neutrophil immune effector functions impact oral inflammation; oral epithelial cells and anti-viral responses; and the manipulation of neutrophil and macrophage inflammatory responses by specific periodontal pathogens. Applicants must have an MD, Ph.D., or MD/PhD Strong background in immunology and experience in advanced cellular and molecular immunology techniques, including multicolor flow cytometry and other relevant techniques. Prior knowledge and practical experience in murine models of inflammation and infection and conditional knockout mice. Candidates should be capable of designing and carrying out high-level, complex research experiments independently. Applicants with a good track record of publication are desirable, along with effective communication skills and scientific writing skills. To apply, please submit curriculum vitae, a cover letter indicating areas of expertise and a detailed statement of research interests, including scientific accomplishments, and a list of 3 references.

Contact [juhi.bagaitkar@nationwidechildrens.org](mailto:juhi.bagaitkar@nationwidechildrens.org) with questions.

### **Postdoctoral Research Associate - Georgia State University, Atlanta, USA**

Postdoctoral positions are available immediately at the Institute for Biomedical Sciences (IBMS), Georgia State University (GSU). IBMS at the GSU is a leading research and education institute with excellent research environment and advanced research facilities. Successful candidates will work on projects to study coronaviruses (including SARS-CoV-2) and flaviviruses (including Zika and Dengue viruses), and to develop vaccines and antiviral agents (antibodies and drugs) against these viruses. The positions are appropriate for highly motivated candidates with Ph.D. or an equipment degree in virology, immunology, molecular biology, cell biology, or a related field. To apply, please send a CV, a letter of research interest, and the names of three references to [ldu3@gsu.edu](mailto:ldu3@gsu.edu).



## COMMUNITY CORNER

**Selected inflammatory and coagulation biomarkers pre-viral suppression in people with human immunodeficiency virus (HIV) infection without overt cardiovascular disease: Is there a need to redefine reference indices?**



**Susan Louw, Elizabeth S. Mayne, Barry F. Jacobson**, Anthony L. Mayne

HIV infection causes morbidity and mortality despite antiretroviral therapy (ART). Non-communicable complications of HIV infection include cardiovascular disease (CVD) with thromboses throughout the vascular tree. Ongoing inflammation and endothelial dysfunction in people living with HIV (PLWH) probably contribute significantly to HIV-related CVD.

In this article, the researchers performed a systematic review (published on the PubMed database from 1994 to 2020) to inform interpretation of 5 biomarkers commonly measured in PLWH to attempt to define a range for these values in ART naïve PLWH without overt CVD or additional comorbid diseases.

They found that the number of publications that reported medians above the assay values was: 4/15 for D-dimer; 0/5 for TNF- $\alpha$ , 8/16 for IL-6, 3/6 for sVCAM-1, and 4/5 for sICAM-1. They report that the clinical utility of biomarkers is reduced by the lack of standardisation of the measurement of these parameters, absence of normal reference indices and the lack of uniformity of study protocols in different research centres. This review supports the ongoing use of D-dimers to predict thrombotic and bleeding events in PLWH since the weighted averages across study assays suggest that the median levels do not exceed the reference range. The role of inflammatory cytokine monitoring and measurement of endothelial adhesion markers is less clear.

### RESOURCES

allsa2023.co.za  
faisafrica.com  
immunopaedia.org  
iuis.org

### SOCIALS TO FOLLOW

@ImmunoHorizons  
@ISNI\_neuro  
@socmucimm

### MEMBERS

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>

Grab a hot cup of immuniTea and share your thoughts with us. We value your feedback!

*The SAIS Newsletter Editorial Team*

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