VOLUME 08 / EDITION 06 JULY 2026

NEWSLETTER

SOUTH AFRICAN IMMUNOLOGY SOCIETY

FEATURES

Your Tooth is Screaming and so is Your Immune System

SAIS Member Spotlight: Dr Michael Z. Zulu

The Liver Under Attack: Viral Hepatitis and Chronic Inflammation

Faces of FAIS: Prof Theresa Rossouw

Women in Science: Dr Ramona Hurdayal

...and much more!

AWARENESS

National Science Month
July 2026

World Zoonoses Day
6 July 2026

International Nelson Mandela Day
18 July 2026

World Hepatitis Day
28 July 2026

SAVE THE DATE

SAIS: An African-based Immunology Seminar Series
30 July 2026

To vaccinate or not to vaccinate: Ethical considerations in pandemic times
31 July 2026

The Heart of Integrated Immunity: Advancing African Solutions for Global Health
1-3 December 2026

MESSAGE FROM THE EDITORS

Dear SAIS members,

Welcome to the July 2026 edition of the SAIS Newsletter. As **National Science Month** gets underway, this issue brings together a rich mix of immunology research, clinical insight, and opportunities to connect with the immunological community across South Africa and the continent.

Our *Editorial* this month asks you to think twice about that nagging toothache while we unpack the surprisingly complex immunological response behind dental pulpitis and abscesses, and why oral health is so closely tied to systemic disease.

Our *Hotzone* highlights the need for continuous surveillance of significant public health concerns such as diphtheria, so that we remain alert even when a disease appears to be of the past.

In our *Disease of the Month* feature, marking **World Hepatitis Day on 28 July**, we explore the delicate balance between protective and pathological immunity in chronic viral hepatitis, and why CD8+ T cell dysfunction remains such a stubborn challenge in HBV infection.

Our *One Health Immunology* section turns to Central Africa, where an ongoing Bundibugyo virus outbreak offers important lessons on filovirus preparedness and the value of prototype-pathogen vaccine strategies. In *Community Corner*, we showcase local research investigating pre-existing immunity to adenoviral vectors in South African and Zimbabwean cohorts, with important implications for the development of the GRAd32-based HIV vaccine candidate.

We're also proud to celebrate our community. In *SAIS Member Spotlight* we hear from **Dr Michael Z. Zulu** on viral and maternal-fetal immunology. In *Faces of FAIS* we profile **Prof Theresa Rossouw**, whose career bridges immunology and bioethics, and in our *Women in Science* feature we recognise **Dr Ramona Hurdayal's** pioneering work on leishmaniasis.

Finally, we invite you to explore the many ***Jobs, Opportunities, Funding Calls, and Conferences*** listed in this issue for the latest opportunities and deadlines, both locally and internationally.

A heartfelt thank you to all of our contributors who made this edition possible. We hope this issue sparks curiosity and conversations within our community. As always, let us know what you think at newsletter@saimmunology.org.za!

Happy reading!

With warm regards,
Jayde polley
On behalf of the SAIS newsletter editorial team

CONTACT US!

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admin@saimmunology.org.za
newsletter@saimmunology.org.za

South African Immunology Society (SAIS)

@SAImmunologySociety

@SAImmunology

SAIS WEBINARS

WEBINAR

ELIGIBLE FOR CPD CPD POINTS

JOIN OUR FREE ON-DEMAND WEBINAR

The webinar will be available to watch until 31 July 2026

Presented by

PROF. THERESA ROSSOUW

Professor in the Department of Immunology at the University of Pretoria and President of SAIS

To vaccinate or not to vaccinate: ethical considerations in pandemic times

This webinar will examine the ethical tensions that arise during vaccination efforts in pandemics, specifically focusing on the dichotomies of autonomy versus solidarity, national interest versus global equity, speed versus safety, andfreedom versus responsibility. Historical instances, such as the smallpox and polio outbreaks, will be utilized to elucidate why pandemics present distinct ethical challenges.

The discussion will address vaccination as both an individual health decision and a public health intervention. Core ethical principles, including autonomy, beneficence/non-maleficence, justice, solidarity, transparency, and trust, will be thoroughly explored.

Attention will then be directed towards ethical priority-setting and distribution through the lens of global justice and solidarity. The presentation will further investigate ethical arguments for and against mandatory vaccination, the threshold for restricting autonomy in the interest of public health, and alternatives such as incentives, education, and voluntary uptake.

Finally, it will address the balance between individual rights and collective responsibility. The talk will conclude with practical insights into principles for ethical decision-making under uncertainty, alongside considerations of fairness, responsibility, and trust.

sais

South African Immunology Society

JOIN US

An African-Based Immunology Seminar Series

30 JULY 2026

4PM SAST; 7AM PST

Rethinking Colorectal Cancer in Africa

Dr Meryl Oyomno

Head of Surgical Domain

Nelson Mandela University

Dr Meryl Oyomno, Head of the Surgical Domain at Nelson Mandela University, is a Specialist General and Colorectal Surgeon. She previously headed the Lower GIT Unit at the University of Pretoria's Steve Biko Academic Hospital. Her research focuses on the molecular profiling of colorectal cancer and its association with HIV, as well as surgical outcomes, health systems strengthening, and equitable access to surgical care in low- and middle-income countries.

A WomenLift Health Leadership Global Fellow and Secretary General of the South African Colorectal Society, she is currently leading initiatives to advance a National Colorectal Cancer Screening Programme and strengthen specialist surgical services across the Eastern Cape. She is passionate about improving access to high-quality surgical care and developing the next generation of surgical leaders across Africa.

UPCOMING FAIS CONFERENCE

Dear Fellow Immunologists,

It is with great pleasure and anticipation that I invite you to attend the FAIS 2026 Congress, to be held from 1–3 December 2026 in the vibrant and cosmopolitan city of Cape Town, South Africa. Renowned for its breathtaking natural beauty, rich cultural heritage, and world-class conference facilities, Cape Town provides an inspiring setting for meaningful scientific exchange and collaboration.

FAIS 2026 will bring together leading researchers, clinicians, policymakers, and emerging scientists from across Africa and around the world. Convened under the theme **"The Heart of Integrated Immunity: Advancing African Solutions for Global Health**", the Congress will serve as a dynamic platform to explore cutting-edge scientific advances, share innovative ideas, and strengthen collaborative networks within our diverse immunology community.

Delegates can look forward to a stimulating and contemporary scientific programme featuring keynote lectures by distinguished international and African experts, interactive symposia and panel discussions, and a vibrant industry exhibition. The Congress is intentionally designed to foster knowledge exchange, encourage interdisciplinary collaboration, and support the continued growth and visibility of immunology research, clinical practice, and policy across the African continent and beyond.

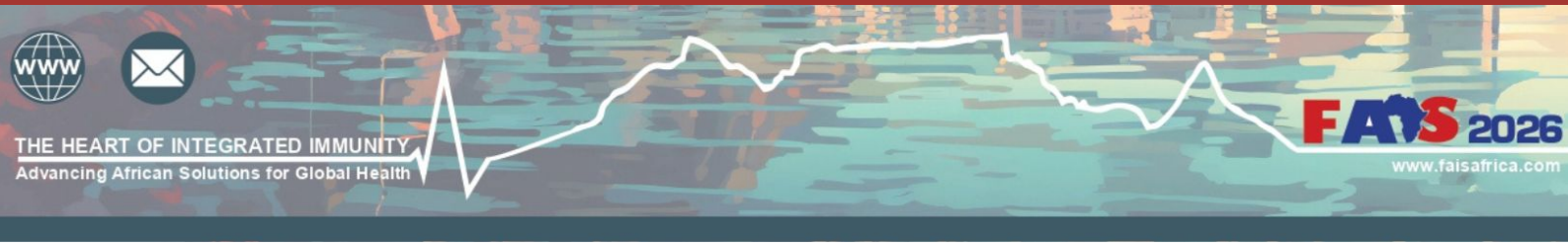
As we gather in Cape Town, we will also reflect on our shared responsibility to address pressing global and regional health challenges, including infectious diseases, emerging immunological conditions, health inequities, and the growing impact of environmental and ecological change on human health. FAIS 2026 aims to highlight African-led science and solutions that contribute meaningfully to integrated global health.

On behalf of the Federation of African Immunological Societies, I warmly invite you to join us for what promises to be an engaging, impactful, and memorable Congress.

We look forward to welcoming you to Cape Town in December 2026.

Warm regards,
Professor Clive Gray
President, Federation of African Immunological Societies (FAIS)

Early registration deadline | 30 July 2026



EDITORIAL

YOUR TOOTH IS SCREAMING AND SO IS YOUR IMMUNE SYSTEM - THE IMMUNOLOGICAL FIRESTORM HIDING BEHIND A SIMPLE TOOTHACHE

Dr T. Mokhantso

A toothache is not always just a toothache. Under that throbbing pain lies a sophisticated and sometimes catastrophically self-defeating immune response. Dental infections are among the most common infectious conditions globally, yet their immunological complexity remains underappreciated. In South Africa, where oral health burdens disproportionately affect low-income communities, understanding the biology of dental pain is both clinically and socially urgent.

BY THE NUMBERS

3.5 billion people worldwide are affected by **oral diseases** (WHO, 2022)

Dental caries affects ~2.3 billion people with permanent tooth decay globally

In South Africa, **60–80%** of adults show signs of **periodontitis; 43%** of children under 5 have untreated decay (SADJ, 2020)

Dental abscesses account for an **estimated 1 in 2,600 emergency department visits** in high-income countries, yet remain largely untracked in sub-Saharan Africa

Odontogenic infections can lead to life-threatening **Ludwig's angina** or **cavernous sinus thrombosis** in ~10% of untreated severe cases

From cavity to cytokine storm

Dental pulpitis is a **painful inflammation** of the **dental pulp**, which is the soft, innermost part of your tooth containing nerves and blood vessels. When *Streptococcus mutans* and other oral pathogens breach the enamel, in-house pulp macrophages and dendritic cells immediately engage pattern-recognition receptors (PRRs), particularly TLR2 and TLR4. This triggers NF-κB signalling, causing a surge in pro-inflammatory cytokines, IL-1β, IL-6, TNF-α, which are responsible for much of that throbbing pain. Importantly, COX-2-mediated prostaglandin E2 (PGE2) sensitises peripheral nociceptors, which lowers the pain threshold. This explains why why dental pain can feel disproportionately intense, your immune system is amplifying the alarm signal.

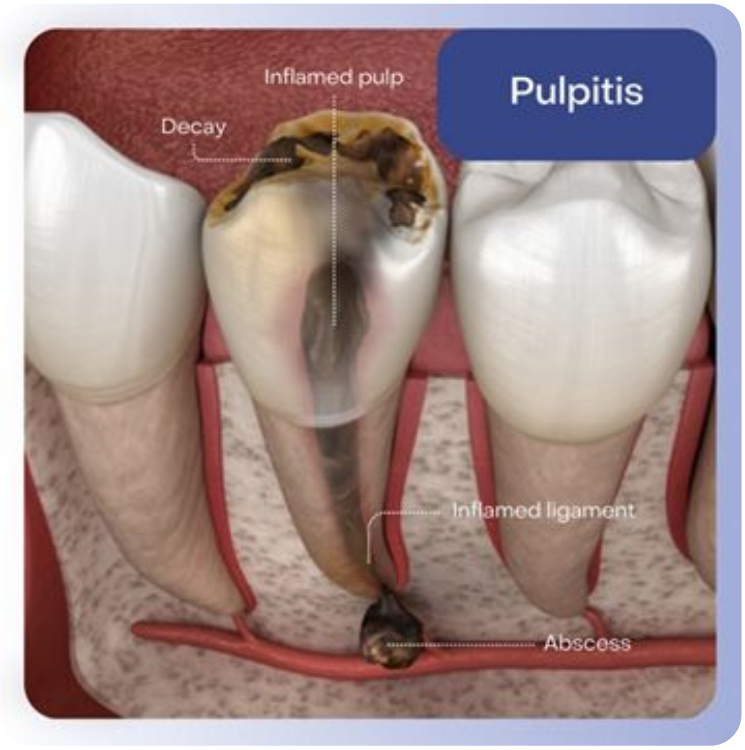
The abscess: immunity's double-edged sword

If pulpitis is left untreated, the infection progresses apically, forming a **periapical abscess.** Here, the adaptive immune system joins the fray. Neutrophils are rapidly recruited to the site via IL-8 mediated chemotaxis, forming pus, which is a graveyard of dead immune cells, bacterial debris and proteolytic enzymes. Concurrently, T-helper 17 (Th17) cells drive IL-17 production, promoting RANKL-mediated osteoclast activation; a process through which the host immune response contributes to dissolving the surrounding alveolar bone.

This osteolytic destruction is a key reason dental infections spread rapidly. Without physical anatomical barriers, bacteria, particularly anaerobes such as *Fusobacterium nucleatum* and *Prevotella intermedia*, can track along fascial planes to the neck, mediastinum, or intracranial spaces, turning a toothache into a life-threatening emergency.

When the mouth talks to the rest of the body

The systemic implications of chronic dental infection are no longer speculative. **Periodontal disease,** characterised by sustained Th1/Th17 inflammation, has been mechanistically linked to **cardiovascular disease, type 2 diabetes, adverse pregnancy outcomes and rheumatoid arthritis.** Circulating LPS from gram-negative oral bacteria contributes to systemic endotoxaemia and insulin resistance. In people living with HIV, oral infections are further complicated by CD4+ T-cell depletion, creating immunological blind spots that allow polymicrobial consortia to flourish unchecked. The mouth is not a separate organ, it is an immunological window into systemic health. A toothache left untreated is an immune system left unanswered.



Source: My New Jersey Dentist (https://mynidentist.com/conditions/pulpitis/)

Figure 1: Pulpitis – inflammation of the dental pulp following bacterial invasion.

Regulatory immunity: the healing side

Not all dental immunology is destructive. Regulatory T cells (Tregs) and IL-10-producing M2 macrophages play critical roles in resolving periapical inflammation following root canal treatment or tooth extraction. Mesenchymal stem cells within the dental pulp also secrete anti-inflammatory mediators and contribute to tissue regeneration, a finding that has sparked interest in pulp-derived stem cell therapies for broader regenerative medicine applications.

What immunologists should know

- NSAIDs don't just mask pain, they interrupt PGE2-mediated synthesis, directly dampening the immune-pain loop.
- Empirical antibiotic use, without drainage, targets planktonic bacteria but fails against biofilm-associated pathogens. There is growing antimicrobial resistance concern within the oral cavity.
- Immunocompromised patients (People living with HIV, transplant recipients, individuals with diabetes) require heightened vigilance, as impaired neutrophil function significantly compromises abscess containment and resolution.
- Periodontal disease should be co-managed in patients with cardiovascular disease or diabetes, because of the bidirectional relationship between systemic inflammation and oral dysbiosis.

5th World Congress On Advances In IMMUNOLOGY & INFECTIOUS DISEASES

Jul 06 - 07, 2026 at Rome, Italy (Hybrid Event)

Register now!

ISESSAH 2026

International Society for Economics and Social Sciences of Animal Health

Shaping the Future of Animal Health:
Economic and Social Strategies to Tackle One Health, Biosecurity, Animal Welfare, and Climate Challenges

Bangkok, Thailand

Pre-conference workshop: 26 August 2026
Conference: 27 – 28 August 2026

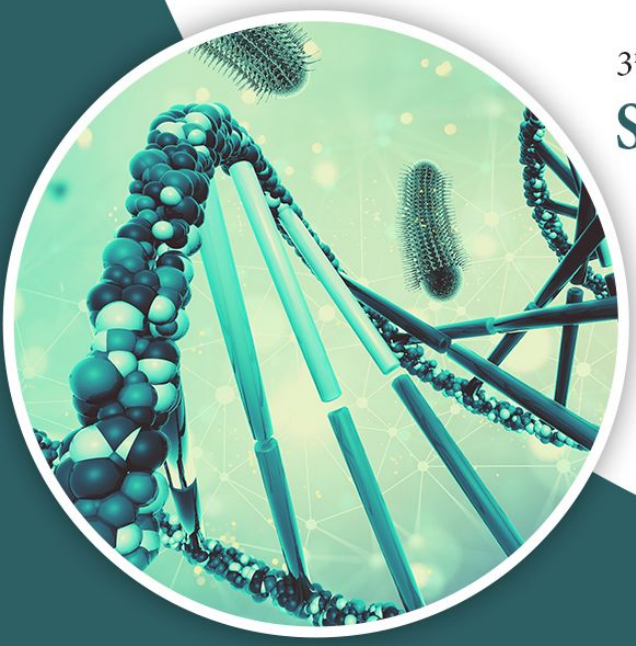
Registration deadline | 15 August 2026

VIROLOGY Africa Congress 2026

Skukuza
Kruger National Park
Mpumalanga
15 - 18 September 2026

Virology Without Borders: Integrating Human, Animal and Plant Health in Africa

Standard registration deadline | 15 July 2026



Structural Biology Summit
OCT 26-27, 2026 | SWITZERLAND

3rd Global Summit on

Structural Biology and Protein Science

October 26-27, 2026
IntercityHotel Zürich Airport, Switzerland

Theme: *Emerging Directions in Biomolecular Structure Research*

Abstract Submission Open Now

https://structuralbiology.c2pforum.com/

Mid-term registration deadline | 31 July 2026

22ND BIENNIAL MEETING OF
THE EUROPEAN SOCIETY FOR IMMUNODEFICIENCIES

MAASTRICHT, THE NETHERLANDS 14-17 OCTOBER 2026

ESID

IPOPI INTERNATIONAL PATIENT ORGANISATION FOR PRIMARY IMMUNODEFICIENCIES

International Nursing Group for Immunodeficiencies

SAVE 20%

Early bird registration deadline | 13 July 2026

WCI 2026
September, 8-12
Foz do Iguaçu, Brazil

17th World Congress of Inflammation – IAIS

11th Inflamma – Brazilian Society of Inflammation

50th Meeting of the Brazilian Society of Immunology – ImmunoFoz

Register now!

FUNDING CALLS, CONFERENCES & WEBINARS

14th IDA Symposium & 11th Flow Cytometry Workshop

Cutting-edge immune strategies for HIV, TB, and Malaria prevention

African Flow Cytometry Workshop: 9 – 14 November 2026
(Cape Town, South Africa)

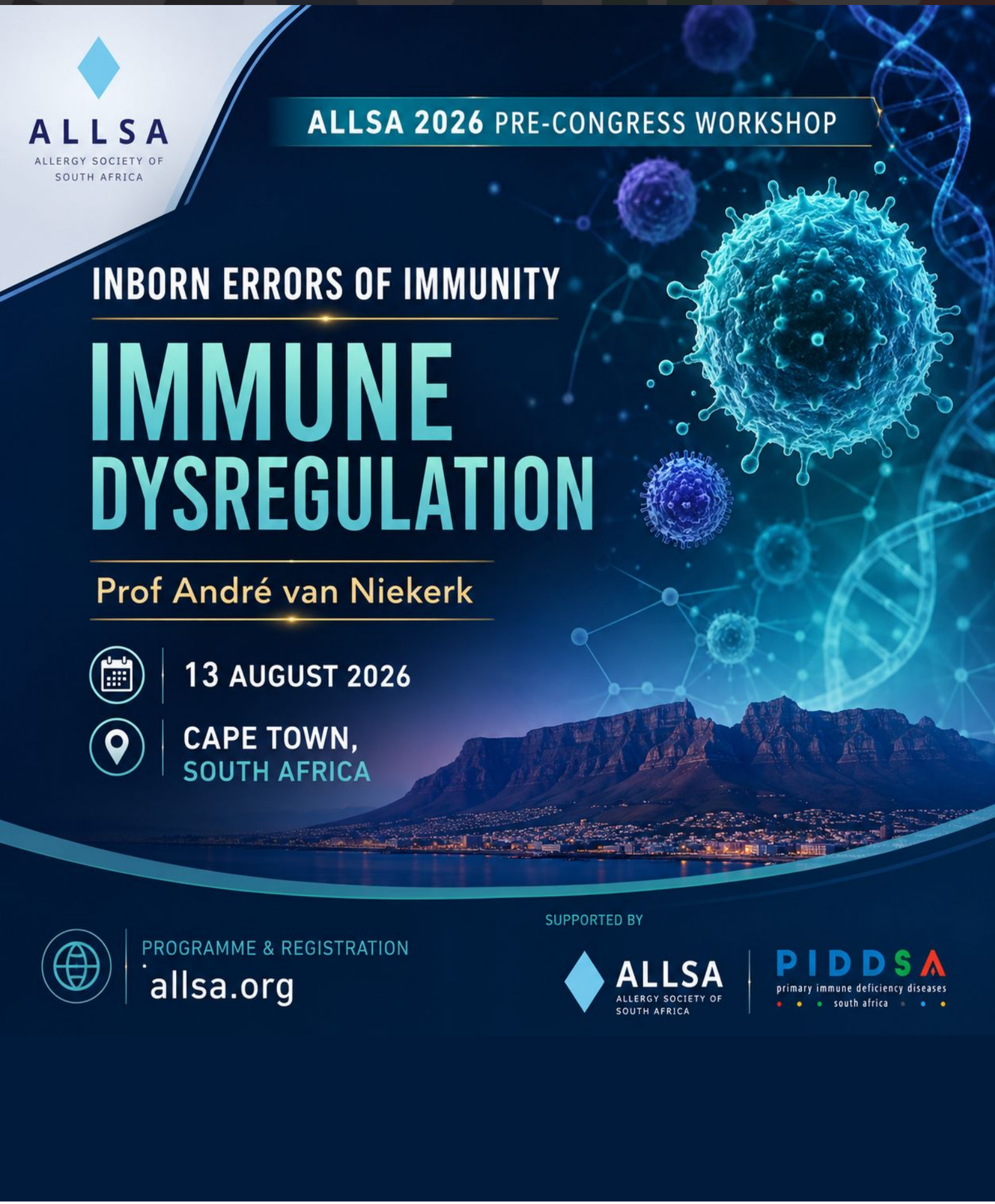
Infectious Diseases in Africa Symposium: 16 – 21 November 2026
(Stellenbosch, South Africa)

Application Deadline: 31 July 2026
bit.ly/14thIDA-11thFlow

Application deadline | 31 July 2026

Abstract submission deadline | 7 August 2026

Early bird registration deadline | 3 July 2026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ALLERGY SOCIETY OF SOUTH AFRICA
ALLSA 2026 PRE-CONGRESS WORKSHOP
INBORN ERRORS OF IMMUNITY
IMMUNE DYSREGULATION
Prof André van Niekerk
13 AUGUST 2026
CAPE TOWN, SOUTH AFRICA
PROGRAMME & REGISTRATION
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ALLERGY SOCIETY OF SOUTH AFRICA
PIDDSA
primary immune deficiency diseases
south africa

KEYSTONE SYMPOSIA

Hormonal Influences on Immunity and Cancer Across the Lifespan

Oct 05–08, 2026 | Beaver Run Conference Center, Breckenridge, CO, United States
Scientific Organizers: Suzanne D. Conzen, Amy Moran, and James DeGregori

Short talk abstract & scholarship submission deadline | 7 July 2026

AIRU Online Seminar

HPCSA CPD Accredited

30 July 2026
3pm SAST
(UTC+2).

Zoom Meeting ID:
84758203535

Non-Human Primate Models for Accelerating Tuberculosis Vaccine Development and Understanding Vaccine-Mediated Immune Responses

Elizabeth Tchaiwe Chimbayo, BSc (Hons), MSc, PhD.
Postdoctoral Research Associate
Department of Microbiology and Molecular Genetics
Centre for Vaccine Research, University of Pittsburgh, Pennsylvania, USA

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

AIRU
SAMRC Antibody Immunity Research Unit

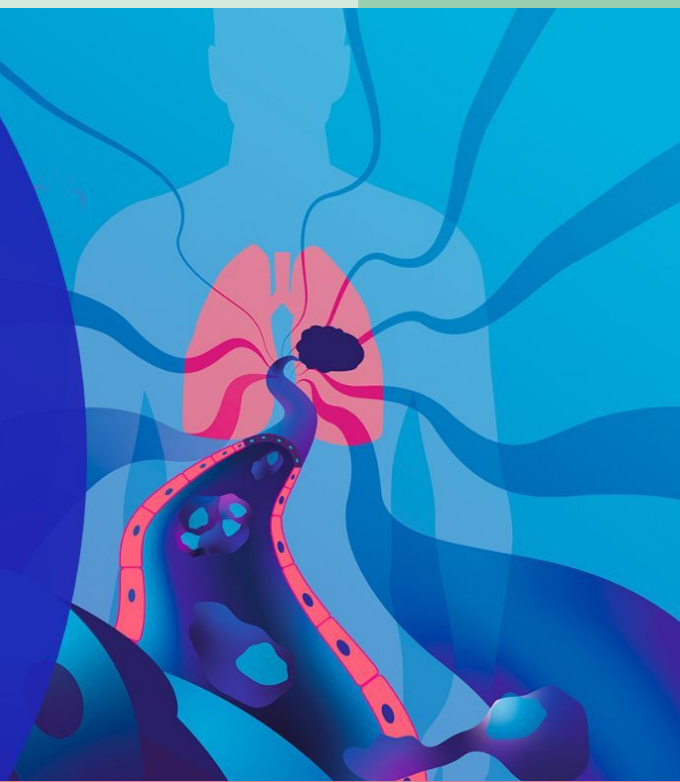
UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

EMBO | EMBL Symposium

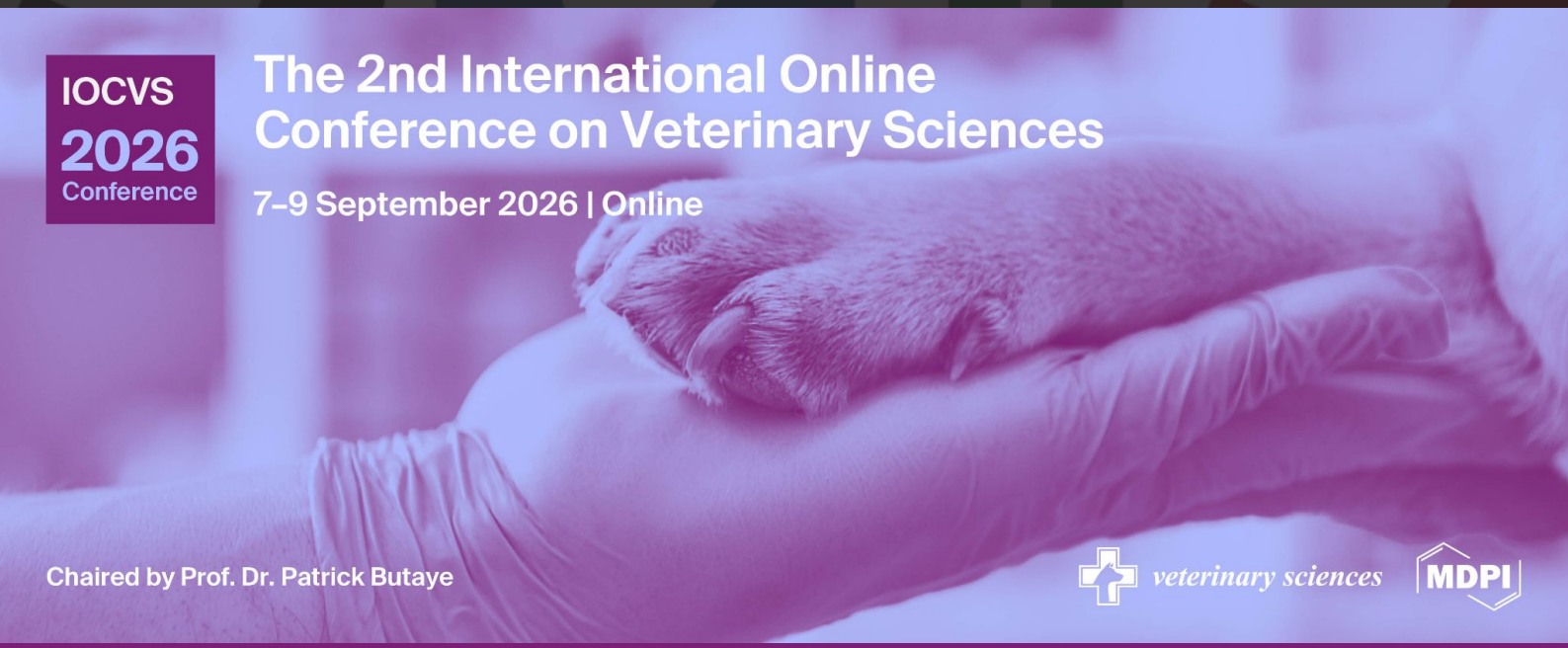
Defining and defeating metastasis: from plasticity to immune evasion to therapy resistance

10 – 13 November 2026

EMBL Heidelberg and Virtual



Abstract submission deadline | 18 August 2026



Registration deadline | 1 September 2026

ISID

21ST INTERNATIONAL CONGRESS ON INFECTIOUS DISEASES (ICID) 2026

10-13 NOV, MADRID, SPAIN

Early registration deadline | 30 July 2026

ICPA XVI Montréal 2026

August 16-21

SAVE $120

Regular registration deadline | 13 July 2026

GIOH 2026
London, UK | 21-23 September

Global Infectious Diseases & One Health Conference

Standard registration deadline | 21 July 2026

INTEGRATIVE VETERINARY MEDICINE
CONFERENCE 2026
STELLENBOSCH·SOUTH AFRICA
31 JULY-2 AUGUST 2026

Late registration deadline | 21 July 2026

ICLE
6TH INTERNATIONAL CONFERENCE ON LYMPHOCYTE ENGINEERING
15-17 JULY 2026
MILAN, ITALY
ADVANCING IMMUNE-GENE THERAPY ACROSS DISEASES

Register now!

9th world one health CONGRESS
LISBON
PORTUGAL
4-7 SEPTEMBER 2026

Late breaker abstract submission deadline | 17 July 2026

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Neuroscience Institute

CLINICAL OMICS AND INFORMATICS (COIN) UNIT

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- Focus on "*hard-to-solve*" cases
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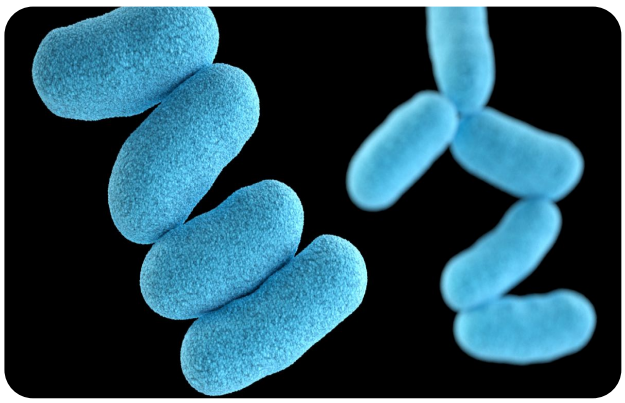
DIPHTHERIA ISN'T HISTORY: WHY SOUTH AFRICAN CLINICIANS SHOULD BE PAYING ATTENTION AGAIN

Dr A. Abdul Habib

South Africa's latest National Institute for Communicable Diseases (NICD) surveillance data serves as a timely reminder that diphtheria remains a significant public health concern. Between 29 December 2025 and 21 June 2026, the country recorded 32 confirmed cases of respiratory diphtheria, 5 probable cases, 7 asymptomatic carriers identified through contact tracing, and eight deaths. While most confirmed cases occurred in the Western Cape, the recent cases and fatalities in Limpopo highlight the potential for wider spread. The overall case-to-fatality ratio of 22% among confirmed and probable respiratory cases underscores the life-threatening nature of diphtheria despite the availability of effective prevention and treatment.



https://www.cdc.gov/diphtheria/about/index.html

Figure 2: Corynebacterium diphtheriae

Although uncommon in routine clinical practice, diphtheria should remain an important differential diagnosis in patients presenting with severe pharyngitis, fever, cervical lymphadenopathy, and the characteristic adherent grey pseudomembrane, particularly when vaccination status is uncertain. Unlike many bacterial respiratory infections, disease severity is driven primarily by the potent diphtheria exotoxin rather than bacterial invasion. Following infection, the toxin inhibits host protein synthesis, resulting in tissue necrosis and systemic complications, most notably myocarditis and peripheral neuropathy.

The current outbreak reinforces important immunological principles: protective immunity is directed against the diphtheria toxin rather than the organism itself and depends on neutralising antibodies generated by diphtheria toxoid vaccination. As antibody levels decline over time, booster doses are required to maintain protection throughout life. Importantly, natural infection does not reliably confer lasting immunity, and individuals recovering from diphtheria should still receive vaccination. The World Health Organization (WHO) recommends a primary diphtheria-containing series followed by booster doses in later childhood and adolescence to maintain protection.

Early recognition and treatment remain essential as diphtheria antitoxin only neutralises circulating toxins and cannot reverse established tissue injury. While antibiotic administration eradicates the organism, halting further toxin production and reducing transmission, it should never delay antitoxin therapy while awaiting laboratory confirmation in cases with a high degree of suspicion.

Encouragingly, NICD surveillance to date suggests preserved susceptibility to penicillin and macrolides among tested isolates, supporting current treatment recommendations. Genomic analysis has further shown that most Western Cape isolates belong to sequence type ST906, suggesting ongoing circulation of a locally established lineage rather than repeated importation.

South Africa's experience is a reminder that vaccine-preventable diseases remain a clinical reality. Sustaining high vaccination coverage, ensuring timely booster doses, maintaining a high index of suspicion, and rapidly initiating public health interventions remain the cornerstones of preventing severe disease and limiting transmission. As surveillance continues to identify new cases, clinicians should remain alert to diphtheria even when it appears to be a disease of the past.

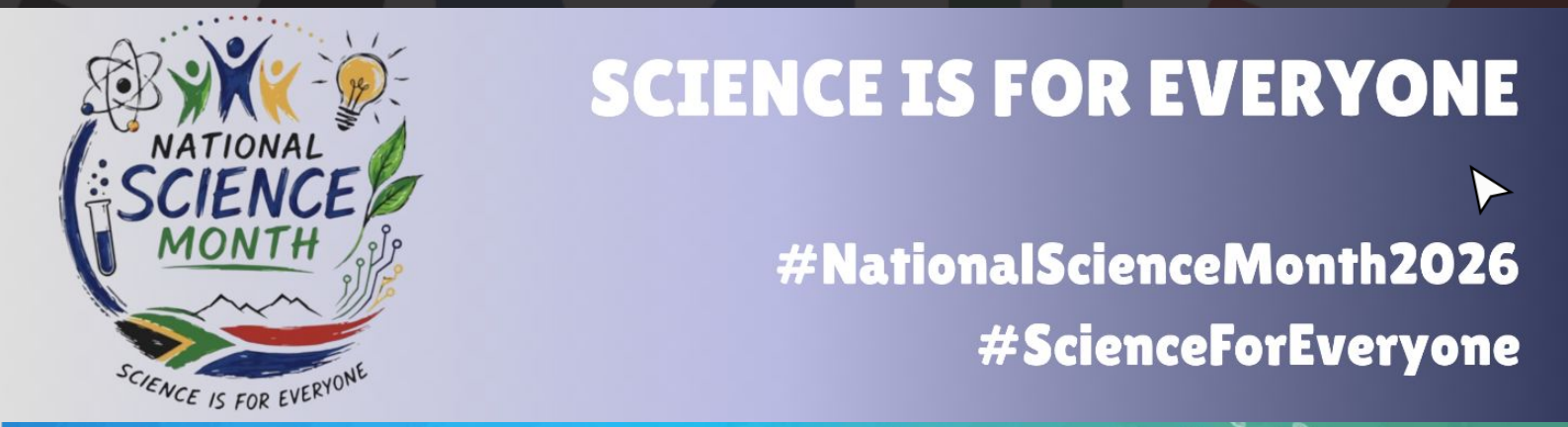
NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

NIH

CDC

World Health Organization

AWARENESS DAYS



THE LIVER UNDER ATTACK: VIRAL HEPATITIS AND CHRONIC INFLAMMATION

N.N. Shusha

World Hepatitis Day is recognized each year on the 28th of July to raise awareness of viral hepatitis and its impact on millions of people worldwide. Hepatitis refers to the inflammation of the liver and is commonly caused by infection with hepatitis viruses. Hepatitis viruses are classified into five major types: hepatitis A, B, C, D, and E. Infections with B, C and D viruses can result in chronic infections that may persist for years and are known to be major contributors to liver cirrhosis (extensive scarring that disrupts the liver's structure and function) and liver cancer. Chronic hepatitis B and C are also known to be preventable, treatable, and in the case of hepatitis C, curable. However, 304 million people are living with chronic hepatitis B and C while, 1.3 million death cases were attributed to hepatitis B and C globally in 2022.

One of the challenges in combating hepatitis is the **'silent'** nature of this infection. Most individuals experience few or no symptoms until advanced liver disease develops. The mode of transmission differs among hepatitis viruses. Hepatitis A and E are generally transmitted through contaminated food and water. Hepatitis B is transmitted through contact with infected blood and bodily fluids, including sexual transmission, unsafe injections, and mother-to-child transmission during birth. Hepatitis C is primarily transmitted through blood exposure, particularly through unsafe injection practices and contaminated medical equipment. Hepatitis D can only infect individuals who are already infected with hepatitis B.

The liver plays a critical role in metabolism, detoxification, nutrient storage, and immune regulation. During hepatitis infection, viral replication within hepatocytes (the main functional liver cells) triggers an immune response aimed at eliminating infected cells. In acute infections, the coordinated innate and adaptive immune responses can successfully clear the virus. In contrast, during chronic hepatitis B and C infections, the immune system often fails to completely eliminate the virus, resulting in persistent inflammation and progressive liver injury.

While the liver is known for its role in maintaining immune tolerance, given its exposure to gut antigens, a key feature of chronic hepatitis is ongoing liver damage caused by the response towards the virus. **Cytotoxic CD8+ T cells, natural killer (NK) cells, and inflammatory cytokines such as interferon-gamma (INF- γ) and tumour necrosis factor-alpha (TNF- α)** help target and destroy infected liver cells, and inhibit viral replication. However, the constant immune activation promotes fibrosis, cirrhosis, and eventually hepatocellular carcinoma which is the most common form of liver cancer. This highlights that the immune system can both protect and harm the body during a long-term viral infection.

Past studies have shown that unlike many other chronic infections, in which T cells follow the classic model of exhaustion, **CD8+ T cells often become dysfunctional**, limiting their ability to control the virus effectively. The loss of function is observed mostly for the hepatitis B virus (HBV)-specific CD8+ T cells and this is influenced not only by overexpression of inhibitory receptors, but is also shaped by long-term exposure to the virus, unique liver-specific factors, the way in which immune cells present the viral proteins, and the complex regulation of the immune system.

Fortunately, effective prevention and treatment strategies exist, including vaccination and antiviral therapies. Vaccination against hepatitis B and antiviral therapy remain the most successful public health interventions, with vaccination against hepatitis B also being protective against hepatitis D. Direct-acting antiviral drugs can achieve cure rates exceeding 95% against hepatitis C, making it one of the few chronic viral infections that can be completely cured. However, access to testing, treatment and vaccination remains a significant barrier especially in low- and middle-income countries.

World Hepatitis Day serves as a reminder that viral hepatitis remains a major but preventable global health challenge. By understanding both the virological and immunological aspects of hepatitis, we can better appreciate the importance of early diagnosis, prevention, and continued research efforts aimed at reducing the burden of liver disease worldwide.

SAIS MEMBER SPOTLIGHT

DR MICHAEL Z. ZULU

Interviewed by E.C. Rabie

Dr Michael Z. Zulu is a lecturer and researcher in the Division of Virology, School of Pathology at the University of the Witwatersrand. His research interests include viral immunology, maternal-fetal immunology and the pathogenesis of non-communicable diseases. He obtained his PhD in Clinical Science and Immunology from the University of Cape Town. He also is a recipient of the SAMRC Research Capacity Development (RCD) Early Investigator Programme (EIP) Award, 2025 - 2027.

Q1: How were you introduced to immunology and what/who inspired you to pursue a career in this field?
I had an amazing lecturer named Dr. Dave Muir as a 2nd year Biomedical Science student at UKZN whom I credit for being the first person to introduce me to the field of Immunology or Immunology of infectious disease, specifically. From then, I knew I wanted to work in infectious disease research. My main inspiration for wanting to pursue a career in this field was the communities (rural areas and informal settlements in the townships) where I grew up. I witnessed first-hand in my own family and community the devastating effects of HIV and TB. As a young man, I wanted to contribute to solutions to help alleviate this massive problem.

Q2: You have recently joined the University of the Witwatersrand as a lecturer and researcher in the Division of Virology. As the head of your own research group, what are the biggest questions your research is trying to answer?
What is the role of myeloid cells in the pathogenesis of viral infections, homeostasis and immune regulation of complicated pregnancies?

Q3: What do you find most rewarding about being an immunologist?
Seeing researchers from all over the world cite my research papers or publications I contributed to. I also really enjoy lecturing, so I always bring my passion to my lectures so I can inspire students to fall in love with immunology, which is very rewarding when it happens.

Q4: What is the most valuable advice you have received that you have returned to over the years?
To always be curious and teachable. I have learnt and continue to learn so much because of these. The field of immunology evolves very quickly, especially the research techniques and approaches used to answer very complex research questions. It helps to always be curious and willing to learn.

Q5: What is one of the biggest obstacles researchers in South Africa are currently facing and how do you think we can overcome it?
Funding! Immunology research specifically is very expensive and South African researchers, especially early to mid-career researchers do not have enough funding support for their ideas. I think the government should be doing more to support schemes that fund researchers at these levels; given the importance of immunology in the fight against infectious disease on the continent.

Q6: How do you think researchers can help bridge the gap left by the public's distrust of science in the wake of the SARS-CoV-2 pandemic in the context of conspiracies on social media?
A multidisciplinary approach is required to communicate our science and research findings. As scientists we fail to communicate our findings to the broader community and I think that a multidisciplinary approach involving community leaders, social scientists, and different mediums of communication, such as radio, can help bridge this gap. We should not only aim to publish our findings in prestigious journals that the broader public does not have access to, but should explore other means of communication to increase our reach and hopefully increase public awareness and trust in our work.

Michael Z. Zulu
Lecturer and Researcher
University of the Witwatersrand

LOW SEROPREVELANCE OF NEUTRALIZING ANTIBODIES TO GORILLA ADENOVIRUS 32 (GRAD32) IN SOUTHERN AFRICAN POPULATIONS SUPPORTS EVALUATION OF THIS VECTOR PLATFORM FOR HIV VACCINE DEVELOPMENT

Nonhlanhla N. Mkhize, Anna Patjane, Nomcebo Shusha, Ashleigh Welsh, Tandile Hermanus, Prudence Kgagudi, Thopisang Motlou, Linda-Gail Bekker, Glenda E. Gray, Nigel Garrett, Lee Fairlie, Alex Sigal, **Wendy A. Burgers**, Takudzwa Magwaku, Tariro Makadzange, Stefano Colloca, Antonella Folgori, Thandeka Moyo-Gwete, Michela Gentile, Stefania Capone, **Penny L Moore.**

Reviewed by S.J. van Graan

Adenoviral vectors are widely used in vaccines against major infectious diseases including Ebola, HIV, and SARS-CoV-2. They require less stringent cold-chain requirements, making them very useful in resource limited settings. Seroepidemiological studies have found high prevalence (>70%) of Ad5 neutralising antibodies in Africa, Asia, and South-America. Previous studies have found that Ad5 titers between 200-1000 have been associated with reduced immunogenicity. Prior to the SARS-CoV-2 pandemic, Ad26 immunity was not common worldwide. In prior studies, Ad26 antibodies were found in <10% of adults in developed regions, but in 31% and 66% of Brazilian and South African adults respectively. The Ad26.COV2.S (Johnson & Johnson) was one of the vaccines used to combat the COVID-19 pandemic in South Africa, and although the vaccine did fail to boost antibody titers in a Southern Africa trial, this could not be attributed to anti-vector immunity.

This study investigated participants from a South-African cohort vaccinated and boosted with Ad26.COV2.S, and a Zimbabwean cohort, which included unvaccinated and vaccinated participants who received the inactivated Sinopharm/Sinovac vaccines. Neutralising antibody titers in human sera were assessed and evaluated against each of the adenoviral vectors (GRAd32, Ad5, and Ad26) in collaboration with ReiThera Srl (Rome, Italy).

The highest pre-existing immunity in unvaccinated adults in South-Africa and Zimbabwe was against Ad5, with more than 68% of participants having neutralising antibody titers exceeding 200 regardless of geographic location. Secondly, for Ad26, 32% of the South-African and 42% of Zimbabwean participants had titers > 200. Importantly, for further vaccine trials using GRAd32, <22% of both sets of participants had pre-existing titers higher than 200.

The researchers further investigated the effect of Ad26 vaccination on antibody titers. The vaccination resulted in a 10-fold increase in anti-Ad26 titers and a comparatively small 1.7-fold increase in anti-Ad5 responses. No significant effect of vaccination on GRAd32 titers was detected. The results show that interfering titers to GRAd32 were detected in < 20% of the participants from South-Africa and Zimbabwe. Importantly, the researchers found there was no significant difference in anti-vector antibody titers between people living with and without HIV.

The results show low neutralising titers to GRAd32 within South-African and Zimbabwean cohorts even after vaccination. GRAd32 is the novel vector currently used in the GRAdHIVNE1 vaccine in a first-in-human Phase 1 clinical trial, IAVI C114 to address the ongoing HIV epidemic.

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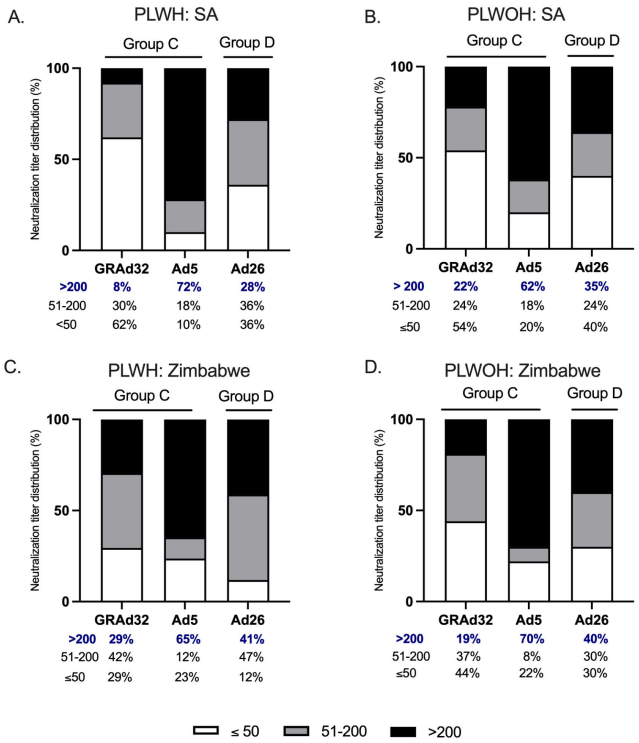


Figure 2: Titers to GRAd32 and other clinically relevant adenoviruses are similar in unvaccinated PLWH and PLWOH.

FACES OF FAIS

PROF THERESA ROSSOUW

Profiled by N. Manana

Professor Theresa Rossouw is a clinician-scientist, immunologist, and internationally recognised leader in HIV research, whose career bridges medicine, ethics, and scientific discovery. She is a Professor in the Department of Immunology at the University of Pretoria, where she also heads the HIV Immunopathology Laboratory and serves as Director of the Centre for Innovative Immunology Research and Education (IINSPIRE).

Her academic journey is as remarkable as it is multidisciplinary. After qualifying as a medical doctor, she went on to earn a Master's degree in Biomedical Ethics, a Master of Public Health in Epidemiology and Biostatistics, and two PhDs - one in Immunology and another in Philosophy (Ethics). This unique combination of scientific and ethical expertise has shaped her approach to research, clinical practice, and leadership.

As an NRF-rated scientist, Professor Rossouw's research focuses primarily on HIV and related infections, with interests in HIV-associated drug resistance, systemic immune activation, and improving outcomes for people living with HIV. Her current work includes studies investigating the health outcomes of HIV-exposed but uninfected children, as well as research exploring the clinical and immunological differences between HIV-infected and HIV-uninfected patients hospitalised with COVID-19.

Beyond her research, Professor Rossouw is deeply involved in shaping both scientific policy and research ethics. She serves on the World Health Organization's HIVResNet Research and Innovation Working Group, contributes to several national and international scientific committees - including the Southern African HIV Clinicians Society - chairs the Human Sciences Research Council's Research Ethics Committee, and is Deputy Chairperson of the Faculty of Health Sciences Research Ethics Committee at the University of Pretoria.

Professor Rossouw also plays a leading role in advancing immunology across South Africa and the African continent. She is the immediate past President of the South African Immunology Society (SAIS) and has **recently been elected Treasurer of the Federation of African Immunological Societies (FAIS) and serves as a Congress Co-chairperson**, where she is helping strengthen collaboration between African immunology societies and support the growth of immunology research across the continent.

Driven by a passion for immunology and its potential to transform the treatment of disease, Professor Rossouw continues to combine scientific excellence, ethical leadership, and clinical expertise to improve patient care while inspiring the next generation of clinician-scientists.

Theresa Rossouw

Director
Innovative Immunology Research and Education (IINSPIRE)
Professor
Department of Immunology, University of Pretoria

BUNDIBUGYO VIRUS: A RARE FILOVIRUS OUTBREAK WITH IMPORTANT PREPAREDNESS LESSONS

Reviewed by S. Fischart

A growing outbreak in Central Africa

An outbreak of Ebola disease caused by Bundibugyo virus was declared in the Democratic Republic of Congo (DRC) and Uganda in May 2026. Although Bundibugyo virus has caused only two previously recognised outbreaks, in Uganda in 2007 and the DRC in 2012, the current outbreak has already exceeded the scale of these earlier events. Reported cases have been confirmed in affected provinces of the DRC, with cases also reported in Kampala, Uganda.

Why early detection is difficult

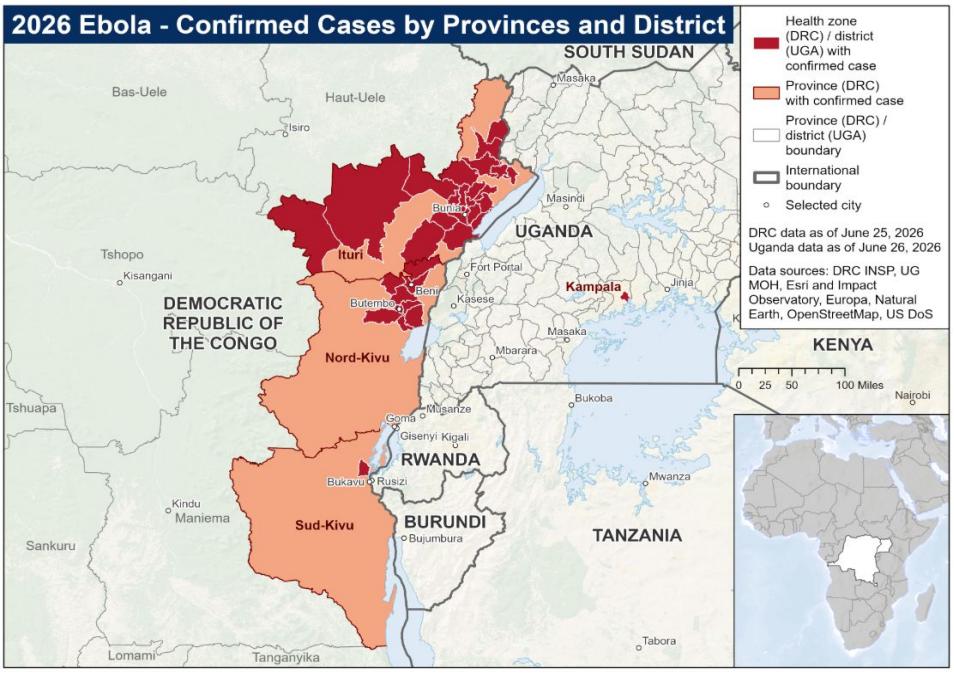
Like other filovirus infections, Bundibugyo virus disease can initially resemble many other febrile illnesses, including malaria, typhoid fever and bacterial sepsis. This makes early clinical recognition difficult, particularly in resource-limited settings where laboratory testing may be delayed. The current outbreak highlights how delays in sample transport, molecular confirmation and diagnostic capacity can slow public health action at the very stage when rapid isolation and contact tracing are most important.

Immunology and medical countermeasures

There are currently no licensed vaccines or approved therapeutics specifically for Bundibugyo virus disease. However, studies in nonhuman primates, human sera and monoclonal antibody research suggest that immune responses generated against Ebola virus may provide some cross-protective activity against Bundibugyo virus. This supports a prototype-pathogen approach, where vaccines and therapeutics developed for one representative virus may help guide responses to related viruses.

Preparedness beyond the laboratory

Successful outbreak control depends on more than diagnostics and vaccines alone. Rapid case identification, infection prevention, protection of healthcare workers, supportive clinical care, contact tracing, safe burial practices and community trust remain central to controlling filovirus outbreaks. The 2026 Bundibugyo virus outbreak is therefore a timely reminder that outbreak preparedness requires both scientific innovation and strong public health systems.



Centers for Disease Control and Prevention (CDC), 2026

Figure 3: Geographic distribution of confirmed 2026 Ebola disease cases in the Democratic Republic of Congo and Uganda.

WOMEN IN SCIENCE

DR RAMONA HURDAYAL

Interviewed by R. Maine-Helms

Dr Ramona Hurdayal is a highly accomplished South African infectious disease researcher and molecular immunologist, whose research focuses on understanding host immune responses to disease and drug discovery. Dr Hurdayal currently serves as Principal Investigator of the SA Leishmaniacs group, which maintains the only systematic *in vivo Leishmania* infection model in South Africa, and Senior Lecturer at the Department of Molecular and Cell Biology, University of Cape Town. Dr Hurdayal also serves as Chair of the Faculty of Science Animal Research Ethics Committee and as a member of the Senate Animal Ethics Committee, Deferred Exams Committee and Health and Safety Committee.

Dr Hurdayal's academic journey began at the University of KwaZulu Natal where she completed a MSc in research, focusing on evaluating diagnostic targets for malaria infection. She subsequently moved to the University of Cape Town and completed her PhD in Clinical Sciences and Immunology. For her PhD, she decided to explore neglected tropical disease research, which disproportionately affect low- and middle-income countries and often has the highest burden of disease globally, but remains understudied. Her PhD and post-doctoral research established novel roles for interleukin 4 (IL-4) signalling on dendritic cells and B cells during cutaneous leishmaniasis; findings which have contributed to a research portfolio currently exceeding 931 citations across more than 20 peer-reviewed research articles spanning leishmaniasis, allergy, schistosomiasis, tuberculosis, and listeriosis research. Dr. Hurdayal also serves as Guest Topic Editor and reviewer for various international research journals.

Notably, Dr Hurdayal serves as the only female Principal Investigator of *Leishmania* research in Southern Africa. Over the years, Dr Hurdayal has worked in collaboration with local and international researchers, to assist in the strategic global effort to understand how immune systems respond to infection. Dr Hurdayal's scientific contributions have earned her research grant awards, including the National Research Fund (NRF) Y-rating, NRF Thuthuka Poliomyelitis Research Foundation Award and numerous University of Cape Town Research Funding schemes. Collectively, these research grants and awards highlight the outstanding contribution that Dr Hurdayal has made to basic infectious disease research in Africa.

Dr Hurdayal's research is primarily focused on identifying host-directed immunological pathways that can be targeted for therapeutic intervention against cutaneous and visceral leishmaniasis. Dr Hurdayal's research is advancing on multiple fronts; her research utilises murine and human models to delve into mechanisms in innate lymphoid cell and extracellular vesicles regulation, cytokine secretion signalling, lipid receptor signalling and pre-clinical drug discovery strategies to understand host-parasite interaction in the context of leishmaniasis.

Extending beyond her research activities, Dr Hurdayal has shown unwavering commitment to strengthening scientific capacity in Africa. She serves as student advisor to undergraduate students in the Faculty of Science and has successfully supervised several local and international Honours, MSc and PhD students, providing them with opportunities to contribute to leishmaniasis research globally. Although South Africa is not endemic for leishmaniasis, it is prevalent in several African, South American and Asian countries. Dr Hurdayal's work is driven by the principle that in the era of globalisation, diseases are no longer confined by geographical locations; therefore African Scientists have the responsibility and opportunity to contribute to research in neglected tropical diseases.

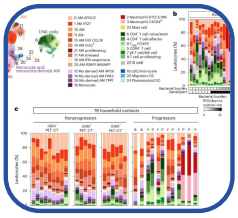
With all immunologists she shares this message: **"Build something that only you can build, in the place where you are. The gaps are real, and they are yours to fill. That is not a consolation, it is an opportunity."** Through her research excellence and mentorship, Dr Hurdayal continues to drive parasite immunology research globally.

Ramona Hurdayal

Principal Investigator
SA Leishmaniacs Group

PUBLICATIONS & INTERESTING READS

A blood test for dementia may tell you if you have more than one type
Howerton, 2026. Science News.
https://www.sciencenews.org/article/experimental-blood-test-dementia-types



Airway immune signatures of protection and disease progression in recent human tuberculosis household contacts
Branchett, 2026. Nature Immunology.
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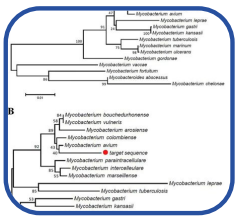

A rare case report: The impact of *Mycobacterium colombiense* localized infections in a person living with HIV/AIDS
Berisha *et al.*, 2026. The Journal of Immunology.
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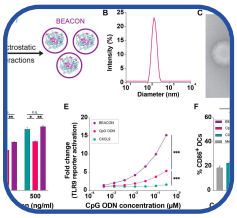

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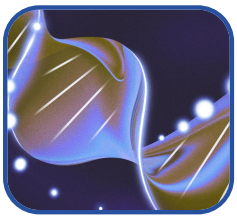

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Khamsi, 2026. Nature News.
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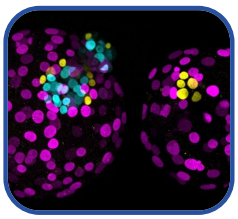
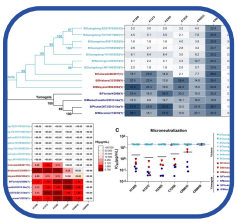


'Edited' human embryos reveal secrets of our development - and fuel ethical debate
Ledford, 2026. Nature News.
doi: 10.1038/d41586-026-02027-0



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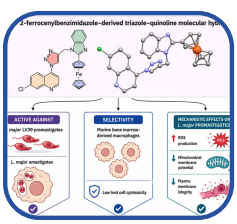

The development of novel ferrocenyl quinoline-benzimidazole molecular hybrids against cutaneous leishmaniasis
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doi: 10.1016/j.ejmech.2026.119086

POSTDOCTORAL RESEARCH FELLOW

Position: Hillel-Friedland Postdoctoral Fellowship - "Mechanistic and Therapeutic Targeting of miRNA-Regulated Transcription Factor Networks in Neurodevelopmental and Immune Disease"

Location: University of the Witwatersrand, Johannesburg

Research Environment and Opportunities:
The successful fellow will join a vibrant and collaborative research environment with expertise in transcription factor biology, protein structure-function relationships and molecular mechanisms of disease. The project combines molecular biology, biophysics, structural biology and computational approaches to address fundamental questions in gene regulation while maintaining a clear translational focus on therapeutic development.
This highly interdisciplinary environment provides a unique opportunity to work across multiple levels of biological organisation, from molecular mechanisms and biomolecular interactions to cellular function and disease relevance. The Fellow will be exposed to advanced experimental and computational methodologies and will be encouraged to integrate these approaches to develop innovative solutions to complex biomedical problems.
Beyond technical training, the Fellowship is designed to support the development of an independent researcher. The successful candidate will have the opportunity to publish in leading international journals, present research at national and international conferences, contribute to the supervision of postgraduate students, establish collaborative networks and develop independent research directions within the broader theme of transcriptional regulation and RNA therapeutics. The position therefore offers the opportunity to participate in a cutting-edge research programme while also building the scientific, leadership and research skills necessary for a successful long-term career in academia or the biotechnology sector.

Candidate Requirements:
We are seeking an outstanding and highly motivated early-career researcher with a demonstrated commitment to excellence in biomedical research. Candidates must hold a PhD awarded within the past five years and should have an emerging track record of high-quality research outputs relative to career stage. Applicants should possess strong intellectual curiosity, excellent communication skills, and a desire to tackle challenging scientific questions at the interface of molecular biology, gene regulation and human disease.
Experience in biochemistry, biophysics and/or structural biology is preferred. Additional experience in molecular biology, RNA biology, gene regulation, cancer biology or computational biology would be advantageous; however, we particularly welcome candidates who can demonstrate scientific excellence, creativity and the potential to become future leaders in their field.
The successful candidate will be expected to contribute intellectually to the development of the project, drive research activities with a high degree of independence, and actively participate in the broader academic life of the research group through publication, collaboration, mentorship and scientific engagement.

Application Procedure:
- A detailed *curriculum vitae*
- A cover letter outlining research interests and suitability for the position
- A full publication list
- A letter of recommendation from previous host or supervisor
- Contact details of an additional two academic referees
- A brief statement of future research interests (maximum one page)

To Apply:
Click here: https://forms.gle/a8jjLnfC18gpBd7s7
Submit queries to Professor Sylvia Fanucchi: sylvia.fanucchi@wits.ac.za

Application Deadline: 10 July 2026

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG 100 1922 2022

JOBS & OPPORTUNITIES

SALES MANAGER

Position: Sales Manager - Stem Cell & Biotech

Location: CryoSave, Pretoria

Seeking a high-performing, sales-driven Sales Manager with proven experience in healthcare/biotech sales to lead revenue growth across our stem cell and biotech portfolio. This role is focused on closing deals, driving revenue, and exceeding sales targets.

Key Focus Areas:

- Develop and execute winning sales strategies to achieve and exceed revenue targets
- Drive client acquisition through strong product presentations and consultative selling
- Generate leads and close deals via workshops, demos, and direct engagement
- Expand into new markets and build distribution partnerships
- Track pipeline, conversions, and performance to maximise sales results

Experience and Skills:

- 3–5 years in healthcare/biotech sales with a proven track record of hitting or exceeding targets
- Strong closing, negotiation, and relationship-building skills
- Solid understanding of stem cell and biotech products
- Ability to drive sales performance and deliver measurable results

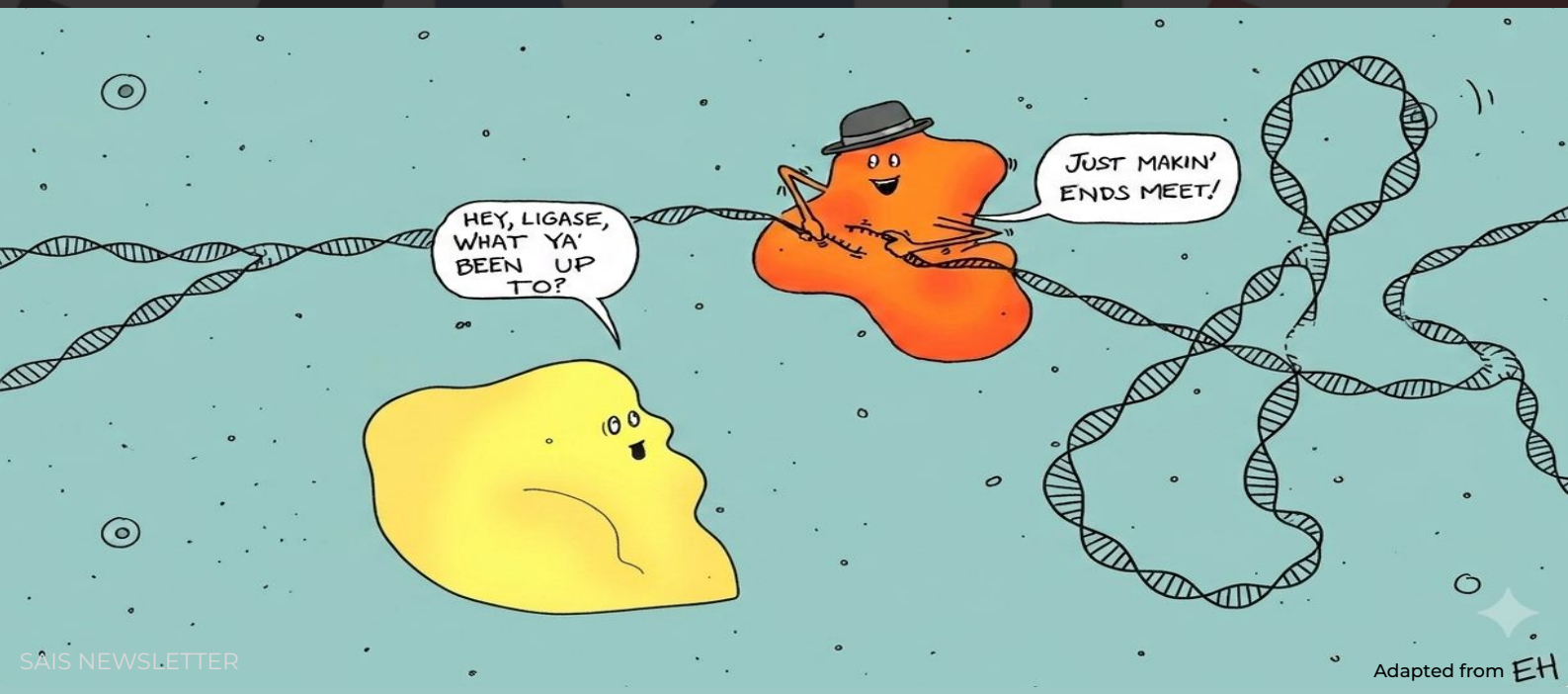
What We're Looking For:

- A results-driven sales professional who thrives under targets
- Someone who can consistently close deals and grow revenue
- Strong ability to build and maintain client relationships in healthcare and biotech.

To Apply: Send your CV to info@cryosave.co.za

Application Deadline: 15 July 2026

SCIENCE MEME OF THE MONTH



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SAIS MEMBERSHIP

RESOURCES

ALLSA
ALLERGY SOCIETY OF SOUTH AFRICA

FAIS

IUIS
International Union of Immunological Societies

immunopaedia.org
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SCIENCE SOCIALS

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The Immunology Podcast

The Naked Scientist

Grab a hot cup of ImmuniTea, and let us know what you think!

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