

NEWSLETTER

SOUTH AFRICAN IMMUNOLOGY SOCIETY



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SAIS President's Welcome Message
Seven Autoimmune Diseases Biotechs are
Fighting to Treat
Foot and Mouth Disease

AWARENESS

RSV Season in South Africa
Rare Disease Day - 29 February

WELCOME MESSAGE FROM PROF THERESA RUSSOUW

Dear SAIS members,

We are still basking in the afterglow of the IUIS conference which was held on the African continent for the first time. Thank you to all the members who helped to make it a success. Delegates from across the world were blown away by the beauty of our country, the warmth and spirit of our people, as well as the high quality of science emerging from the continent. Congratulations to all our members who gave oral and poster presentations. I hope this event kickstarted fruitful collaborations around the globe.

The year ahead is filled with exciting changes and challenges. There has been some reshuffling of the executive and renewed focus on our strategic objectives. In this regard, we will strengthen the collaborations we started with other national societies, such as ALLSA, as well as patient groups, such as PiNSA and the Arthritis Foundation. We further plan to expand our involvement with international societies and federations, such as FAIS. We will also continue with the exciting project to develop modules for clinical immunology. Keep an eye on the website for updates on these developments!

Finally, we look forward to the International Day of Immunology, which is celebrated on 29 April 2024. This year we will focus our efforts on raising awareness about Inborn Errors of Immunity. Please get involved in our social media campaigns by liking, sharing, snapping, TikToking and X-ing about us!

We would also like to welcome all the new members to our society. This is your society, so please get involved.



Professor Theresa Rossouw

MBChB, MPH, DPhil, PhD

President: South African Immunology Society

theresa.rossouw@up.ac.za



MESSAGE FROM THE EDITOR

Dear SAIS Members,

Compliments of the new year! Welcome to our first SAIS newsletter edition for 2024. After the success of the IUIS conference hosted on our home shore, we hope the glow of that success will carry into this year.

In this issue, we raise awareness for RSV and rare diseases, and share some insight on Foot and Mouth Disease which has a devastating impact on agriculture in South Africa. As always, we hope you learn something new!

The editorial team would also like to share our heartfelt gratitude to Dr Clement Adu-Gyamfi, the editor of our newsletter for many years. Clement will be taking a step back from his role as editor, but of course will be sharing his wisdom and guidance to ensure that the newsletter continues to be a useful resource for all SAIS members.

Please share your publications with us so we can both shine the spotlight on you and broaden the horizons of our South African immunology community.

We hope you'll look forward to everything SAIS has to offer this year, and as always, we thank you for your support!



Happy reading!

With warm regards,
Thanusha Pillay



CONTACT US!

Feel free to send us your recent publications so that we can showcase them in our Community Corner. If you are hiring/recruiting, let us use our various platforms, the newsletter and our social media, to advertise for you. If you have any webinars, seminars, or conferences, we would be more than happy to add it to the newsletter. You can simply email the editorial team at newsletter@saimmunology.org.za by the 20th of each month to be featured in our next newsletter.



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South African Immunology Society
(SAIS)



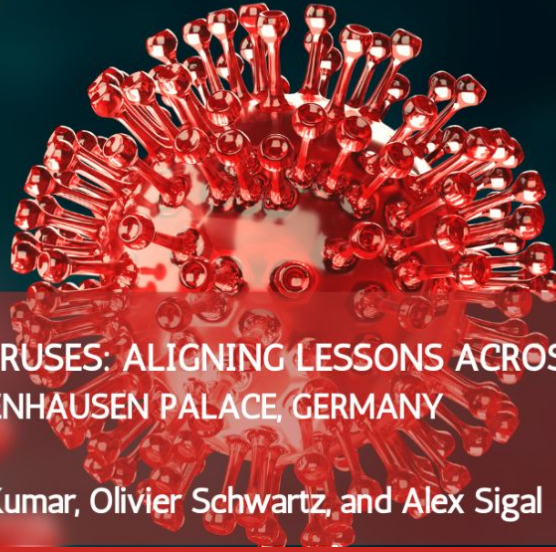
[@SAImmunologySociety](https://www.facebook.com/SAlmmunologySociety)



[@SAImmunology](https://twitter.com/SAlmmunology)



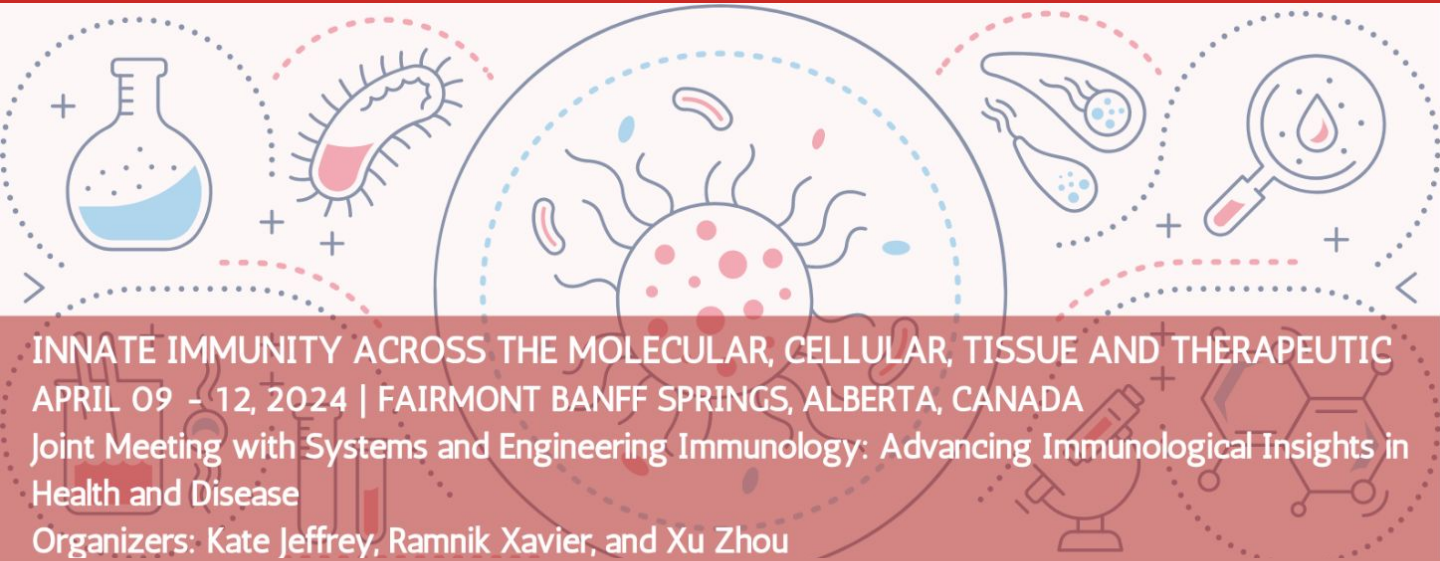
FUNDING CALLS, CONFERENCES, WEBINARS



HIV AND (RE)EMERGING VIRUSES: ALIGNING LESSONS ACROSS PANDEMICS
APRIL 08 - 11, 2024 | HERRENHAUSEN PALACE, GERMANY

Organizers: Melanie Ott, Priti Kumar, Olivier Schwartz, and Alex Sigal

<https://www.keystonesymposia.org/conferences/conference-listing/meeting?eventid=7044>



INNATE IMMUNITY ACROSS THE MOLECULAR, CELLULAR, TISSUE AND THERAPEUTIC
APRIL 09 - 12, 2024 | FAIRMONT BANFF SPRINGS, ALBERTA, CANADA
Joint Meeting with Systems and Engineering Immunology: Advancing Immunological Insights in Health and Disease

Organizers: Kate Jeffrey, Ramnik Xavier, and Xu Zhou

<https://www.keystonesymposia.org/conferences/conference-listing/meeting?eventid=7003>

WORLD IMMUNE REGULATION MEETING XVIII

13 - 16 March 2024
Congress Center Davos | Switzerland



Abstract Submission and
Early Bird Registration from 1 Nov - 1 Dec 2023

<https://www.wirm.ch/>



What to consider after an RSV infection

If your baby had RSV, you may have gone through a very intense and worrisome time and are now concerned about your baby's health and further development.

Stay educated, discuss your RSV risks. If a re-infection occurs, it is often milder with less severe symptoms. Stay vigilant and do not hesitate to raise concern with your physician, neonatal staff or healthcare provider ahead of time.

Trust your instincts. If your intuition tells you that something is not right, follow it, seek help immediately and see your paediatrician for a proper diagnosis.

Keep your distance. Try to keep other adults and children with cold-like symptoms from touching and cuddling your child. Physical distance and the proven hygiene measures will continue to help prevent re-infection, especially during winter months.

You are not alone. Ask others in your family or circle of friends for support, and feel free to share your experience, maybe also on social media, to raise awareness of your emotional journey and the warning signs of RSV infection.





Seven Autoimmune Diseases Biotechs are Fighting to Treat *Adapted from Alexander Burik, Labiotech*

Autoimmune diseases occur when the body's immune system wreaks havoc on its own tissues, causing various health issues. Some well-known rare autoimmune diseases include multiple sclerosis, type 1 diabetes, rheumatoid arthritis, and lupus. These conditions can have serious consequences and often coexist in patients.

Graves' disease is a rare autoimmune disorder that affects the thyroid gland, leading to hormonal imbalances. Treatment typically involves hormone replacement therapy, but new options like Tepezza have shown promising results in reversing associated complications like proptosis.

Uveitis is a rare autoimmune disease causing inflammation in the eye, often treated with corticosteroids. Emerging therapies like xipere and cell-based treatments show promise in managing the condition effectively.

Addison's disease affects hormone production in the adrenal glands, requiring regular hormone replacement therapy. Research into artificial adrenal gland generation could revolutionize treatment approaches.

Granulomatosis involves inflammation of blood vessels and can lead to weight loss and fatigue. Treatments like rituximab and Tavneos target inflammation and blood vessel damage, showing promising results.

Psoriasis is a dermatological condition causing serious skin damage during flare-ups, making patients vulnerable to infections. While current treatments include palliative care and biologics, newer options like Tapinarof and Deucravacitinib offer improved outcomes.

Sarcoidosis results in inflammatory cell buildup in tissues like the lungs, leading to various symptoms. New treatments like Efzofitimod and antibody therapies offer hope for managing the disease.

Vitiligo causes skin pigment loss and is commonly treated with corticosteroids, although they pose risks of side effects. Innovations like Opzelura and nanoparticle drug-delivery technology offer safer alternatives.

As more people are diagnosed with rare autoimmune diseases, developing new treatments becomes crucial for improving patients' quality of life. Biotechs are exploring various approaches, including antibody treatments and cell therapy, to address these challenging conditions.



Foot and Mouth Disease (FMD)

T Nefefe, Agricultural Research Council, Vaccine and Diagnostic Development

Foot and mouth disease (FMD) is a highly contagious disease of ruminants and swine caused by the Foot and Mouth Disease Virus (FMDV). This virus is transmitted by direct or indirect contact of infected objects via animals and their products, objects, and people. There are seven serologically different serotypes i.e. O, A, C, Asia 1 and the Southern African Territories (SAT) SAT1, SAT2, SAT3 based on their geographical location occurrence.

HOW TO DIAGNOSE FMD

Detect any symptoms in your cattle?
Isolate the animal immediately and seek help.

INITIAL SIGNS

- Drooling
- Excessive salivation
- Lip smacking
- Fever
- Lameness
- Depression

LESIONS

- Tongue
- Dental pad
- Muzzle

LESIONS

- Heels
- Coronary band (where hoof meets skin)
- Skin between hooves

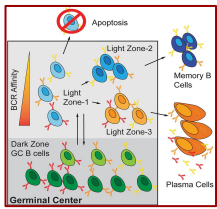
Source: FAO

The three SAT serotypes are endemic in South Africa. The disease has a devastating impact on smallholder and commercial farmers by decreasing draught power, milk production and hindering international markets. The control of the disease in endemic areas is through vaccination, fencing, and biosafety measures; however, a limitation is that available vaccines do not protect against all the serotypes and strains, and requires boosters over a certain period of time.

Activation of lymphocyte responses and the production of serotype-specific neutralizing antibodies are characteristics of FMDV immune responses. However, FMD viruses are able to overcome both the host innate and adaptive immune responses, which results in efficient virus multiplication and transmission to new hosts or, in some cases, the establishment of the FMDV carrier states. Leader protease (L^{pro}) is a papain-like proteinase that plays an important role in FMDV pathogenesis. It is believed that L^{pro} disrupts several cellular pathways linked to the host innate immune response leading to FMDV escaping the host's first line of defence. Also, FMDV viral replication is promoted by the interaction between VP1 protein with the host protein DNAJA3 which promotes its lysosomal degradation and interacts with the mitogen-activated protein kinase TPL2 to inhibit interferon regulatory factors 3 (IRF3)/IFN- β signalling. This results in FMDV causing acute infection and eventually a persistent infection in ruminants that fail to clear the infection.

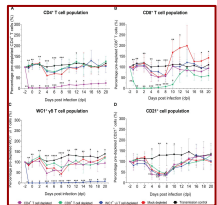
There is a need to study the host response to all serotypes and strains. Such knowledge will enable the design of a vaccine that will provide durable and broad protection. Elucidation of both the cellular and humoral immune responses as well as cytokine responses are believed to shed light in the understanding of the establishment and maintenance of FMDV persistent infection, as mechanisms of persistent infection are not fully understood. The study and understanding of global host response during infection is important for the development of improved recombinant vaccines that block persistent infection in ruminants.





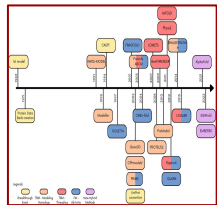
Lack of affinity signature for germinal center cells that have initiated plasma cell differentiation

Sutton, *et al.*, 2024. *Immunity*, 57, p. 245-255.
Doi: <https://doi.org/10.1016/j.immuni.2023.12.010>



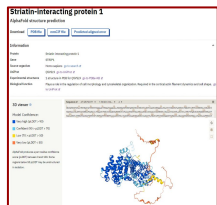
Specific T-cell subsets have a role in anti-viral immunity and pathogenesis but not viral dynamics or onwards vector transmission of an important livestock arbovirus

Newbrook, *et al.*, 2024. *Frontiers in Immunology*, 15, p. 1328820.
Doi: <https://doi.org/10.3389/fimmu.2024.1328820>



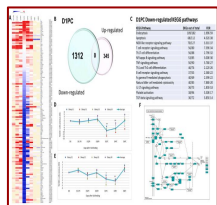
Before and after AlphaFold2: An overview of protein structure prediction

Bertoline, *et al.*, 2023. *Frontiers in Bioinformatics*, 3, p. 1120370.
Doi: <https://doi.org/10.3389/fbinf.2023.1120370>



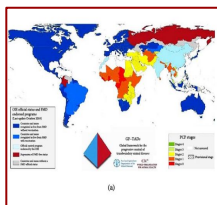
AlphaFold Protein Structure Database: massively expanding the structural coverage of protein-sequence space with high-accuracy models

Varadi, *et al.*, 2022. *Nucleic Acids Research*, 50, D439–D444.
Doi: <https://doi.org/10.1093/nar/gkab1061>



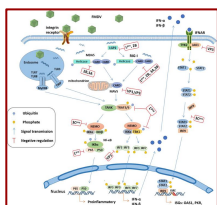
Screening for immune biomarkers associated with infection or protection against *Ehrlichia ruminantium* by RNA-sequencing analysis

Pretorius, *et al.*, 2024. *Microbial Pathogenesis*, 189, p. 106588.
Doi: <https://doi.org/10.1016/j.micpath.2024.106588>



Challenges of Controlling Foot-and-Mouth Disease in Pastoral Settings in Africa

Mashiagu, *et al.*, 2024. *Transboundary and Emerging Diseases*, 2024, p. 2700985.
Doi: <https://doi.org/10.1155/2024/2700985>



Molecular mechanisms of suppression of host innate immunity by foot-and-mouth disease virus

Li, *et al.*, 2023. *Veterinary Vaccine*, 2, p. 100015.
Doi: <https://doi.org/10.1016/j.vetvac.2023.100015>



Postdoctoral Fellowship in Cancer Genomics - University of the Witwatersrand, South Africa

Research host: Professor Christopher Mathew, Sydney Brenner Institute for Molecular Bioscience (SBIMB), University of the Witwatersrand, www.wits.ac.za/research/sbimb.

Job purpose summary: Contribute towards the aims and objectives of the project “Genetic risk factors for breast cancer in South Africa: A discovery, testing and counselling pathway”. This will involve the analysis of rare variant DNA sequence data in cases and controls and contributing to the analysis of genome-wide genotype data and tumor sequence data. The research fellow will also contribute to the preparation of manuscripts for publication and supervision of a postgraduate student.

Requirements: PhD graduate within the last 5 years, data analysis and management experience is required and experience in conducting systematic reviews is advantageous, and interest in applying big data analytics in healthcare.

Terms and conditions: The appointment is for a three-year duration. The postdoctoral fellowship comes with a competitive remuneration and benefits package.

How to apply: Send your CV (maximum of 5 pages), a cover letter (maximum of 2 pages) indicating how your knowledge and skills would align with the research areas, and what your expectations are, should you be successful. Include your academic record/transcript and certificates of all completed degrees, ID/Passport copy, contact details for three academic referees. Submit to: sbimb@wits.ac.za and ccjocelyn.gayenga@wits.ac.za. For technical information contact carl.chen@wits.ac.za and chris.g.mathew@wits.ac.za.

Postdoctoral Fellowship in Psychiatric Genetics - Stellenbosch University, South Africa

Research host: Professor Sian Hemmings, Psychiatric Genetics Research group, Department of Psychiatry, Stellenbosch University.

Job Purpose Summary: The research will focus on the investigation of the human microbiome and its association with neuropsychiatric disorders, including posttraumatic stress disorder and depression. The successful candidate will also be expected to analyse large-scale -omics data, in addition to microbiome data. The candidate is expected to have published in high-quality, peer-reviewed journals. Experience in one or more of the following areas/techniques is required: human microbiota analysis, next-generation sequencing (NGS), large-scale -omic data analysis (particularly GWAS analysis, DNA methylation analysis and RNA-seq analysis).

Requirements: PhD degree in Biochemistry, Microbiology, Molecular Biology, or related field, obtained within the last 5 years, strong written and oral communication skills, track record of publishing in peer-reviewed journals, track record of successfully performing appropriate bioinformatics analyses for a range of different projects, experience in computational and statistical analysis of high-dimensional and multivariate data.

Terms and conditions: The fellowship will be available for a minimum period of one year, with the possibility of renewal for a second year, dependent on satisfactory progress. Please note that postdoctoral fellows are not appointed as employees, and their fellowships are awarded tax-free. They are therefore not eligible for employee benefits.

How to apply: Send a letter of motivation for applying for this position, accompanied by a CV, including a list of publications and the names and contact details of at least two referees, to Prof Sian Hemmings: smjh@sun.ac.za.

Research Scientist, Gene Therapy - Calibr-Skaggs Institute for Innovative Medicines, USA

Job Purpose Summary: Calibr-Skaggs is seeking a talented Research Scientist in gene and cell therapy/immuno-oncology to join our effort to create a transformational gene and cellular therapy approach. This position will work as part of a small team of interdisciplinary scientists to translate innovative therapies for the treatment of cancer into first-in-human clinical trials. Specifically, projects will be focused on the development and translation of gene therapy approaches employing our proprietary CAR-T platform. BS in biology, chemical biology, biochemistry, or related field required.

Requirements: PhD is highly preferred. Minimum 2-5 years' experience in industry is preferred, but academic candidates with strong skills matching the qualifications above will be considered as well.

For more information, please visit <https://jobs.sciencecareers.org/job/655218/research-scientist-gene-therapy>.



SAIS MEMBERSHIP

The SAIS would like to thank all members for their ongoing support! It is highly appreciated. 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, follow the link below:



RESOURCES TO FOLLOW

Check out these resources for more immunology-related information:



SOCIALS TO FOLLOW

Social media is a great way to stay up-to-date with the immunology community! Why not check out these social media handles:



@SteveMuhi



@LSHTM



@EarlyImmunology

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

The SAIS Newsletter Editorial Team

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