

NEWSLETTER

SOUTH AFRICAN IMMUNOLOGY SOCIETY



FEATURES

From Infection to Anomaly:
Understanding the Role of Pathogens in
Fetal Development

Snotsiekte: A Deadly Threat to
South African Cattle

AWARENESS

World Birth Defects Day 3 March

World Kidney Day 14 March

World TB Day 24 March

MESSAGE FROM THE EDITOR

Dear SAIS Members,

Welcome to the second edition of our SAIS newsletter!

In this issue, we wish to remind you of the upcoming World Veterinary Association Congress taking place in Cape Town in mid-April. For those of you who work with animals in your research, please tune in to Dr Bert Mohr's informative session on the ethical use and care of animals in research, scheduled for 24 April.

This year's exciting commemoration for the International Day of Immunology features the important theme of *Immunity Through the Ages*. A distinguished line-up of speakers will share their thoughts and expertise on the life of our immune systems. Please visit the [Day of Immunology page](#) as there are also awards for societies who launch excellent awareness campaigns - it could be you!

Our featured editorials for this month include glimpses of the devastating effects of infections in our everyday lives. We raise awareness for World Birth Defects Day and the contribution of infections during pregnancy to these conditions that affect millions of babies and their families worldwide. Our Veterinary Immunology Division also shares their insight on Bovine Malignant Catarrhal Fever and how this disease continues to ravage cattle farming communities despite the licensing of a successful vaccine three years ago.

As always, we hope you learn something new! Thank you for reading!



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

World Veterinary Association Congress:

Date: 16 - 19 April 2024

Location: Cape Town, South Africa

Venue: CTICC (Cape Town International Convention Centre), Convention Square, 1 Lower Long Street, Cape Town, South Africa



World Veterinary Association Congress (WVAC2024): 16 - 19 April 2024

BactiVac's 5th Annual Network Meeting 2024 hosted in collaboration with The Oxford University Clinical Research Unit (OUCRU)

Date: 4 - 7 November 2024

Location: Ho Chi Minh City, Vietnam

Venue: Sheraton Saigon Hotel & Towers, Ho Chi Minh City, Vietnam



YouTube introduction available [here](#)

Register to attend [here](#)
Abstract application form [here](#)
Travel bursary scheme [here](#)

BactiVac's 5th Annual Network Meeting: 4 - 7 November 2024



Click [here](#) to register

WEBINAR

WHAT'S NEW IN THE SANS 10386 (2021 EDITION) FOR ANIMAL RESEARCH AND ETHICS?



Speaker: Dr Bert Mohr PhD, Director: Scientific Veterinary Consulting. Dr Bert Mohr is a veterinary specialist with over 25 years experience. He provides training, policy review, independent audits, and supports the mental-emotional wellbeing of animal care personnel.



The South African National Standard for the Care and Use of Animals for Scientific Purposes: 24 April 2024

Immunity Through the Ages: Navigating the Science of Aging and Immunology

Organizers: Rita Carsetti (IUIS Vice President)
Federica Sallusto (EFIS President)
Chair: Nadja Bakocevic

April 29, 2024
14:00- 16:30 CET

Programme

2:00 PM Introduction to the Day of Immunology
CET by Rita Carsetti and Federica Sallusto

2:05 PM Introduction to the Webinar
CET by Nadja Bakocevic



2:10 PM
CET



Antibody-mediated immunity in the later years of life
by Michelle Linterman

2:35 PM
CET



Decoding the contribution of the Immune System to aging
by Maria Mittelbrunn

3:00 PM
CET



Value of maternal immunization and its influence on neonatal immune responses
by Christiane Eberhardt

3:25 PM
CET



Shaping of immune systems in human newborns by environmental exposures
by Petter Brodin

3:55 PM
CET



Panel Discussion and Closing remarks
Moderated by Nadja Bakocevic



AWARENESS



Kidney Health For All

Advancing equitable access to care and optimal medication practice



#WorldKidneyDay
#KidneyHealthforAll
#ShowYourKidneys

14 March 2024



#worldkidneyday
#kidneyhealthforall
www.worldkidneyday.org

World Kidney Day is a joint initiative of
ISN **CKF-WKA**
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75⁺
HEALTH FOR ALL



World Tuberculosis Day 2024

24 March

www.who.int/campaigns/world-tb-day/2024

The **End TB Channel** brings together courses designed to build strategic and operational knowledge. It provides critical training on essential skills to facilitate the implementation of WHO's End TB Strategy based on sound ethics principles and due protection of human rights. Through this interactive platform, you will learn about the latest WHO TB guidelines on TB diagnosis, prevention, treatment and care, and what practical steps can be taken to ensure equitable access to quality and timely care for those most in need.

<https://openwho.org/channels/end-tb>

END TB Channel

Training to combat one of the world's top infectious killers





From Infection to Anomaly: Understanding the Role of Pathogens in Fetal Development

3 MARCH 2024



World Birth Defects Day is recognized annually on March 3rd. Birth defects, otherwise known as congenital anomalies, affect babies regardless of birthplace, ethnicity, and race. Every year, 3 - 6% of infants worldwide are born with a life-altering, serious birth defect. This means that millions of babies and their families are affected, with many of these children passing away or surviving with lifelong disabilities.

While certain infections during pregnancy have long been known to cause congenital anomalies, the exact proportion of infections causing these anomalies is not well understood. Infection of the fetus from the mother (known as vertical transmission) is a major contributor to morbidity and mortality during pregnancy. Some of the devastating consequences of infections during pregnancy include teratogenic effects, growth restriction, miscarriage, stillbirth, premature birth, neonatal death, and maternal morbidity. Vertical transmission of pathogens across the placenta can cause fetal infection, further disrupting fetal organogenesis, which has been associated with congenital anomalies in every major organ system.

The acronym 'TORCH' (Toxoplasma gondii, other, rubella virus, cytomegalovirus, herpes simplex virus) refers to pathogens directly associated with adverse pregnancy outcomes and the development of congenital disease, and includes diverse bacteria, viruses and parasites. Despite the evolution of the placenta to defend against vertical transmission of pathogens, it's likely that many pathogens have adapted to bypass these defenses. Approximately 10 - 30% of all stillbirths are related to infection (which may be underestimated), and pregnancy loss in the context of TORCH pathogens may be pathogen- or placenta-mediated, or inflammation-induced pre-viable delivery. Moreover, some congenital anomalies only appear after delivery, such as hearing loss, vision problems, and developmental delays.

Other infections (eg. influenza) are not specifically recognized to cause birth defects; but fever has been associated with an increased risk of birth defects, including doubling the risk of neural tube defects such as spina bifida and anencephaly. Some infections are vertically transmitted but do not cause birth defects. In the absence of comprehensive studies, the risk of adverse pregnancy and birth outcomes associated with many other infections remains unclear.

For most infections, avoiding exposure is the primary prevention strategy. For some infections, early diagnosis and treatment can prevent congenital anomalies (eg. syphilis). The most successful program for prevention of birth defects that occur after infection during pregnancy is the rubella vaccination program. A single dose of the rubella vaccine offers lifelong protection against rubella, and 98/194 WHO countries have successfully eliminated rubella. Educating the public, policymakers and healthcare providers will improve the diagnosis, prevention and treatment of infections that lead to pregnancy loss or birth defects, so no parent ever suffers the thought "If I had only known..."





Snotsiekte: A Deadly Threat to South African Cattle

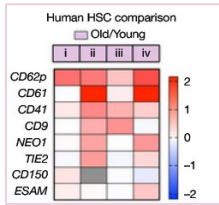
Bovine Malignant Catarrhal Fever (BMC), commonly known as “Snotsiekte”, is a fatal viral disease causing serious losses in the South African cattle farming community over the past few decades. BMC is a seasonal disease caused by alcelaphine herpesvirus-1 (AIVH-1) which is endemic to wildebeest. BMC results in the deaths of thousands of cattle annually, in South Africa as well as other eastern and southern African countries where wildebeest are found. BMC is predominantly transmitted by healthy black and blue wildebeest, which do not suffer from the disease but can excrete the virus onto pasture where it may be spread to cattle during co-grazing. Wildebeests shed the virus from their respiratory tract under conditions of suppressed immunity, which can be induced by stress during calving and weaning periods. Infected cattle cannot transmit the disease to other animals.

Infection in cattle results in a lymphoproliferative disease characterised by subepithelial lymphoid cell accumulations and infiltrations in many tissues, vasculitis, and tissue necrosis. Diagnosis is based on clinical signs and laboratory confirmation via PCR assays. Clinical signs of BMC include pyrexia, inappetence, lymphadenopathy, nasal/ocular discharges and corneal opacity. The acute form of BMC in cattle ultimately results in severe pneumonia, depression and pain, where affected cattle have difficulty in breathing and can eventually be suffocated by their own mucus. Cattle with advanced cases of snotsiekte are often euthanized, to prevent further suffering. The mortality of BMC in infected cattle is generally reported to be 100%, although it should be noted that this calculation is based on the survival of clinically-affected cattle and does not include PCR or seropositive cattle that did not develop BMC.

There is a dire need for control strategies for BMC in Africa. The only preventative strategy for BMC that is currently in place is the separation of the susceptible species, cattle, from the carrier species, wildebeest. The preferred method of future control would be via vaccination, but there is currently no commercially available vaccine for BMC. Moredun Institute in Scotland have been working on a protective vaccine for BMC for more than 15 years, and have conducted successful experimental and field trials of the vaccine in the UK, Kenya and South Africa that shows promising potential for the future control of BMC. For instance Cook *et al.* (2021) described the results of a randomised vaccine field trial in Kenya for the alcelaphine herpesvirus-1 C500 vaccine (an inactivated vaccine) which demonstrated 80% protection against BMC in cattle exposed to natural wildebeest challenge.

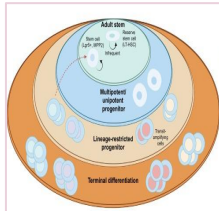
On the 4th of March 2021, Onderstepoort Biological Products (OBP) (South Africa) released a press statement announcing that they signed a licensing agreement with Moredun to acquire this technology to develop, register, and produce this BMC vaccine. Although to date this vaccine has not yet become available. This is of major concern, as this results in the uncontrolled spread of BMC between wildebeest and cattle herds in areas where there are less than 1km separating the two species. This subsequently affects food security and the livelihoods of both game rangers and cattle farmers, causing disputes and tension between the two industries.





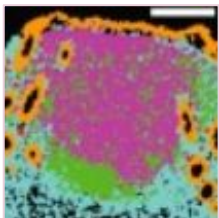
Depleting myeloid-biased haematopoietic stem cells rejuvenates aged immunity

Ross, *et al.*, 2024. *Nature*, 628, p. 162-170.
doi: 10.1038/s41586-024-07238-x



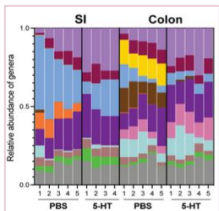
Durable CD4+ T cell immunity: cherchez la stem

Hughes *et al.*, 2024. *Trends in Immunology*, 3, p. 158-166.
doi: 10.1016/j.it.2024.01.004



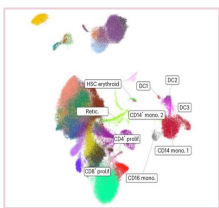
Gut-associated lymphoid tissue: a microbiota-driven hub of B cell immunity

Bemark *et al.*, 2024. *Trends in Immunology*, 3, p. 211-223.
doi: 10.1016/j.it.2024.01.006



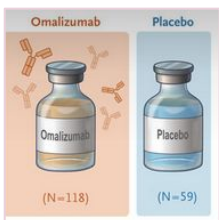
Gut bacteria-derived serotonin promotes immune tolerance in early life

Sanidad *et al.*, 2024. *Science Immunology*, 93.
doi: 10.1126/sciimmunol.adj4775



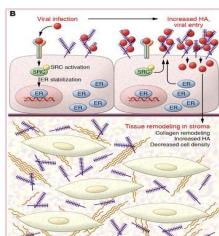
Iron dysregulation and inflammatory stress erythropoiesis associates with long-term outcome of COVID-19

Hanson *et al.*, 2024. *Nature Immunology*, 3, p. 471-482.
doi: 10.1038/s41590-024-01754-8



Omalizumab for the Treatment of Multiple Food Allergies

Wood *et al.*, 2024. *New England Journal of Medicine*, 10, p. 889-899.
doi: 10.1056/NEJMoa2312382.



Risks associated with viral infections during pregnancy

Racicot & Mor, 2017. *The Journal of Clinical Investigation*, 5, p. 1591-1599.
doi: 10.1172/JCI87490



SAIS MEMBERSHIP

The SAIS would like to thank all members for their ongoing support! We appreciate you! 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:



@michaelmina_lab



@JohnsHopkinsSPH



@OpportunityDesk

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

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