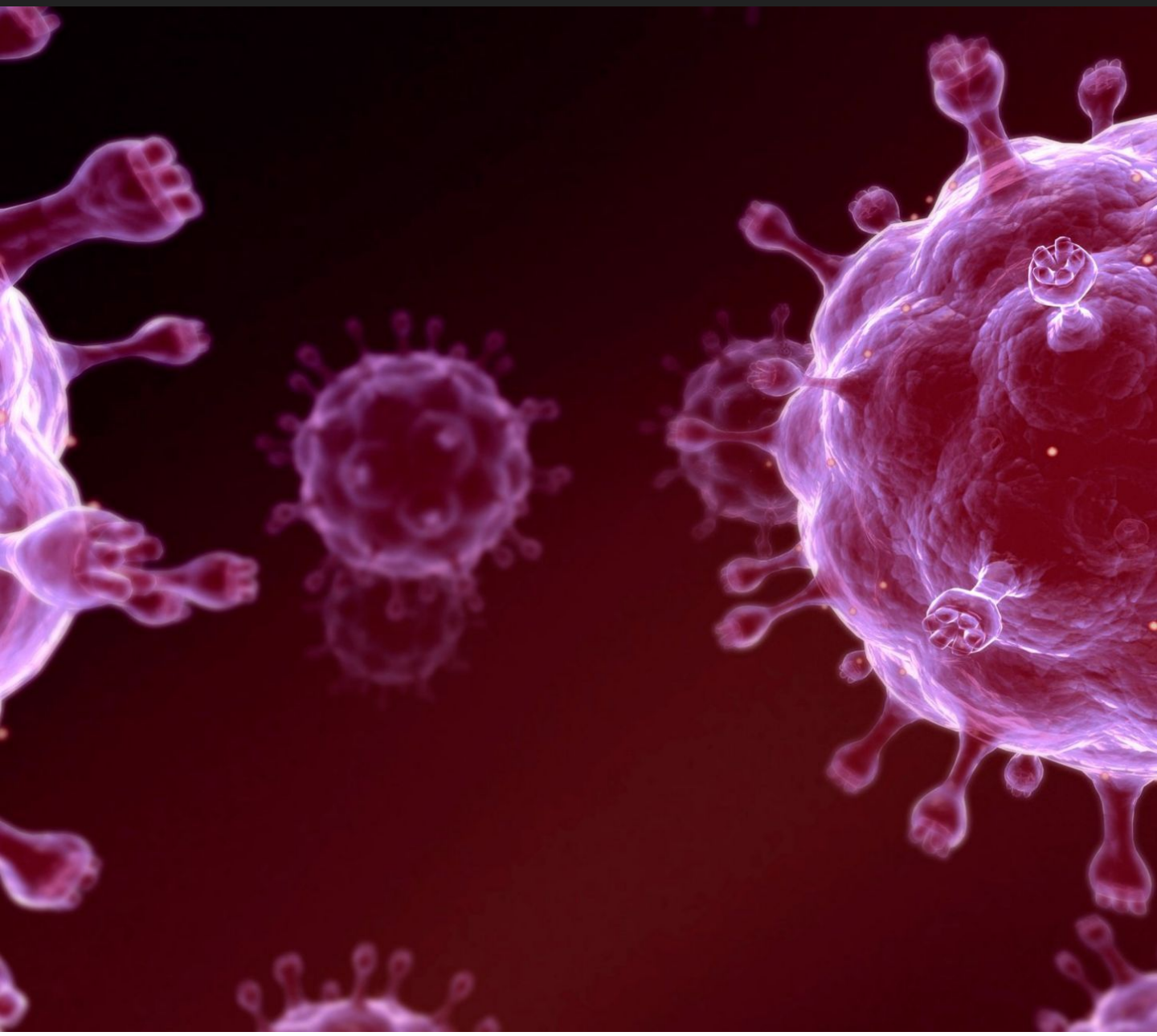
VOLUME V / EDITION 8 September 2023

NEWSLETTER

SOUTH AFRICAN IMMUNOLOGY SOCIETY



FEATURES

Are non-human primate models of HIV/AIDS research an accidental windfall?

Advancing the Quest for an HIV Vaccine: The VIR-1388 Clinical Trial

SAVE THE DATE

The Joint ALLSA and SAIS Congress

International Congress of Immunology (IUIS)

International Veterinary Immunology Symposium (IVIS)

MESSAGE FROM THE EDITOR

Dear SAIS Members,

Welcome to our Spring edition. In this issue, we converge all interesting news and updates on the IUIS Congress 2023, ALLSA/SAIS conference 2023 and the Union conference in Paris. IUIS is the world's leading conference in the field of immunology. This year, IUIS will assemble immunologists from universities, health providers, independent research organisations, and industry in Cape Town, South Africa. IUIS will cover many different areas of basic, translational, and clinical immunology through workshops, oral presentations, and plenaries. Watch immunologists from all over the world, in all areas united in the commitment to Turn Discoveries into Treatments. Additionally, this is the motto for IUIS 2023 alongside our promise that this congress will significantly extend the knowledge of all delegates – from those who are in the early stages of their career to globally renowned key opinion leaders.

We are very excited to remind you about the upcoming combined ALLSA/SAIS 2023 meeting. The conference will take place from 28th September to 1st October 2023, at the Century City Conference venue. As encapsulated by the congress theme, Bench and Bedside; the ALLSA/SAIS conference will see the unification of clinical and laboratory expertise and understanding. Presenters will be using case-based discussions as the starting point for explanations of basic science allergy and immunology concepts; while laboratory and basic science experts will present topics to aid a deeper understanding of the science that underpins practice.

Join an insightful webinar that delves into the world of lentiviral vectors, the preferred choice for efficient gene delivery. Discover the latest advancements in lentiviral vector technology that are shaping the future of gene therapy. Registration is still open on Xtalk. If you can't attend the live event, register now to get the webinar recording.

For 53 years, The Union World Conference on Lung Health has come together to present the latest scientific research in all aspects of lung health. But our work does not stop there. In November 2023, the Union will gather researchers and scholars across the globe to present evidence-based studies converted to practice. Registration is still open.

Why not test your skills in a realistic clinical scenario in allergy and immunology, and see how your choices compare with those of other healthcare professionals?

Remember to take part in our survey. You can win the ultimate prize of a well-illustrated immunology book.

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, 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 editors at **newsletter@saimmunology.org.za** by the 20th of each month to be featured in our next newsletter.

saimmunology.org.za

South African Immunology Society (SAIS)

@SAImmunologySociety

@SAImmunology

IUIS

2023
CAPE TOWN

WHERE IMMUNOLOGISTS MEET

The International Congress of Immunology (IUIS) is the world's leading conference in the field of immunology. Here are some thoughts from the SAIS, IUIS, and FAIS presidents on bringing IUIS 2023 to Africa.

IUIS 2023 Meeting President
Clive Gray

"We have an opportunity to showcase how Africa is grappling with a huge disease burden, communicable or non-communicable - we want to bring the world's immunologists to meet the disease burden. On the other hand, we offer a huge vibrancy, enthusiasm, and thirst for knowledge and doing science."

"We want to maintain collaboration within Africa and expand our collaboration outside Africa. We don't want to simply bring the IUIS to Africa, we want to leave a legacy that showcases Africa's rich culture."

FAIS President
Pa Tamba Ngom

SAIS President
Theresa Rossouw

"We knew that fewer people would attend the African conference, compared to if it was hosted in Europe. But, it was a principled decision to say that Africa cannot always be excluded. Africa has its problems, but we also have great opportunities and amazing talent."

COUNTDOWN TO IUIS 2023!

The Union

WORLD CONFERENCE ON LUNG HEALTH 2023

TRANSFORMING EVIDENCE INTO PRACTICE

Paris, France
November 15-18

conf2023.theunion.org

IVIS2023
SOUTH AFRICA

13TH INTERNATIONAL VETERINARY IMMUNOLOGY SYMPOSIUM
17-21 NOVEMBER, 2023

Abstract submissions are closed. Late registration is open 1 Sep- 3 Nov 2023.

ALLSA SAIS 2023 CONGRESS

28 SEPTEMBER - 01 OCTOBER
CENTURY CITY CONFERENCE CENTER
CAPE TOWN

Immuno Oncology 2023

4th Immuno-Oncology World Congress

Frankfurt, Germany

4-5 December, 2023

Best abstract to be awarded €500!

Abstract submission deadline: 10 October 2023

https://immuno-oncology2023.com/abstracts/

PRIME

Clinical Case Challenge

Test Your Knowledge and Earn CME

ALLERGY/IMMUNOLOGY

Personalizing Prophylactic Therapy Selection for Adult Patients With Hereditary Angioedema

Curious about how your skills in allergy and immunology compare with those of other health care professionals? You can find out by taking the challenge with this realistic clinical case scenario.

Precision Medicine and Alzheimer's Disease: Overcoming Biomarker Testing Barriers for Alzheimer's Disease Patients

Life Sciences, Medical Device, Biomarkers, Commercialization & HEOR, Medical Device Diagnostics

Tuesday, October 03, 2023 | 12pm EDT / 11am CDT / 9am PDT / 5pm BST (UK) / 6pm CEST (EU-Central)
60 min

https://xtalks.com/webinars/precision-medicine-and-alzheimers-disease-overcoming-biomarker-testing/

DISEASE OF THE MONTH
Advancing the Quest for an HIV Vaccine: The VIR-1388 Clinical Trial

Carl Dieffenbach, Ph.D., Director of NIAID's Division of AIDS, is available to discuss this research

In a groundbreaking Phase 1 clinical trial named HVTN 142, researchers have embarked on a crucial mission to evaluate the safety, reactogenicity, and immunogenicity of the VIR-1388 HIV vaccine in a cohort of healthy adults free of HIV. This extensive study is taking place concurrently in the United States and South Africa, encompassing 95 participants aged 18 to 55. These volunteers are being randomly assigned to one of three distinct doses of VIR-1388 or a placebo, thus forming the basis for assessing the vaccine's effectiveness. The pursuit of an effective HIV vaccine has been a long and challenging journey. Since the discovery of the virus in the early 1980s, researchers have strived to develop a vaccine that can halt the spread of HIV and protect individuals from acquiring the virus. Over the decades, various vaccine candidates have been tested, but the complex nature of the virus and its ability to mutate rapidly has posed significant obstacles. Despite numerous efforts, no vaccine has been successful in preventing HIV infection to date.

The VIR-1388 vaccine represents a new ray of hope in the quest for an HIV vaccine. This novel vaccine leverages a cytomegalovirus (CMV) vector to deliver the HIV vaccine material to the immune system without causing disease in the study participants. CMV is unique in that it has been present in much of the global population for centuries, with most people living with CMV experiencing no symptoms and remaining unaware of their infection. CMV remains detectable in the body for life, which suggests that it has the potential to deliver and safely help the body retain HIV vaccine material for an extended period. This could potentially address the challenge of waning immunity observed with more short-lived vaccine vectors. The National Institute of Allergy and Infectious Diseases (NIAID), a part of the National Institutes of Health (NIH), has been a steadfast supporter of HIV vaccine research. NIAID has been at the forefront, providing both scientific expertise and financial support throughout the lifecycle of the VIR-1388 vaccine concept. In collaboration with the Bill & Melinda Gates Foundation and Vir Biotechnology, based in San Francisco, NIAID is now funding this critical Phase 1 trial. The trial is sponsored by Vir Biotechnology and conducted through the NIAID-funded HIV Vaccine Trials Network (HVTN) as study HVTN 142. With a meticulous design and stringent safety protocols, the trial aims to provide reliable data on the vaccine's safety and its ability to induce an HIV-specific immune response in participants. Initial results are expected in late 2024, marking a crucial milestone in the ongoing battle against HIV.

In addition to the primary study, an optional long-term sub-study will continue to follow volunteers for up to three years after their first vaccine dose. This extended monitoring will provide valuable insights into the durability of the vaccine-induced immune response and its long-term safety profile. While the road to developing an effective HIV vaccine has been marked by challenges, the VIR-1388 clinical trial represents a significant step forward. It builds on decades of research and innovation, offering renewed hope that an HIV vaccine may one day become a reality. As researchers continue to explore novel approaches and collaborate across borders, the global community remains committed to the ultimate goal of ending the HIV/AIDS pandemic.

Click here for more information

THE VETERINARY IMMUNOLOGY DIVISION

Are non-human primate models of HIV/AIDS research an accidental windfall?

Dr Gerald Chege (BVM, PhD), Primate Unit & Delft Animal Centre (PUDAC), South African Medical Research Council (SAMRC)

The use of nonhuman primates (**NHPs**) as models for HIV/AIDS has resulted in tremendous achievements in our understanding of the disease & the development of prevention & treatment strategies. As illustrated in Fig. 1, infection of NHPs, such as rhesus macaques (**RMs**), with simian immunodeficiency virus (**SIV**), is pathogenic & recapitulates the fundamental virological, immunological, & clinical features of HIV infection in humans. In contrast, the infection of African NHPs, such as the African green monkeys & sooty mangabeys (**SMs**), with SIV is normally non-pathogenic & asymptomatic. Both the pathogenic & non-pathogenic SIV infections provide excellent animal models to investigate various aspect of HIV transmission, pathophysiological features and the mechanisms involved in viral control and disease progression or non-progression.

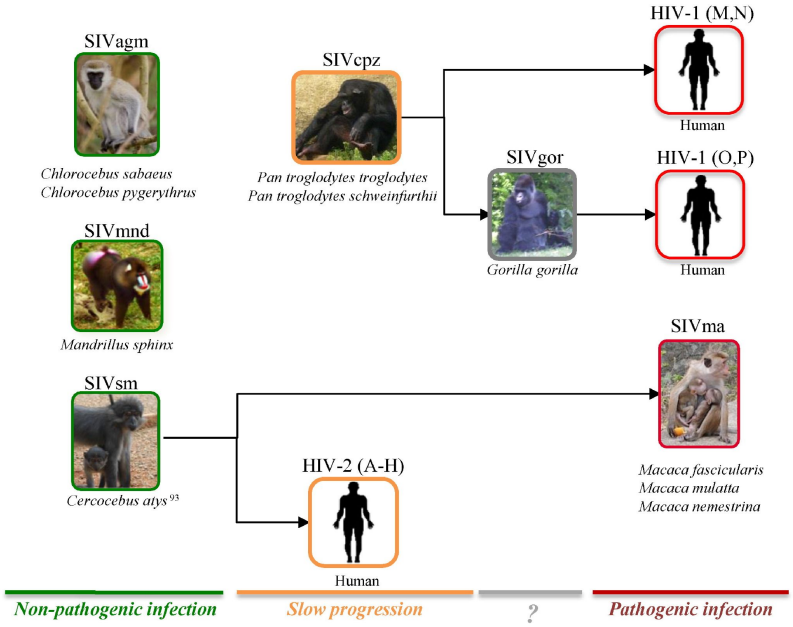


Fig. 1. Non-human primate models for the study of HIV infection (Garcia-Tellez et al. 2016). *Non-human primates can be divided into pathogenic (macaques) and non-pathogenic (sooty mangabeys, mandrills and African Green Monkeys) models for HIV research. The figure depicts the relationship between the HIV and SIV viruses and the type of infection caused by them.*

The remarkable pathway to NHPs HIV/AIDS experimental model

In 1979, a controlled SM (code-named A015), in dietary cholesterol study showed signs of leprosy and was transferred to the Delta Regional Primate Research Centre, **DRPRC** (now Tulane National Primate Research Center) were it was used as source of *Mycobacterium leprae* inoculum in several experimental studies involving captive-bred SM and RM monkeys. Unexpectedly, 3 of the 4 RMs that were inoculated with *M. leprae* from a single SM donor (code-named A022) developed a wasting syndrome similar to simian AIDS, which was caused by SIVmac, a newly described virus, at New England Regional Primate Research Center (**NERPRC**) in Massachusetts. Shortly thereafter, STLV-IIIDelta (now **SIVDelta**) was isolated from an asymptomatic SM, at DRPRC, and shown to be antigenically related to HIV-1 and the newly described SIVmac. Evidence showed that antibodies cross-reactive with SIVDelta antigens were present in asymptomatic SM monkeys including A022 (but not the original SM, monkey A015). Subsequently, A022 was identified as the source of SIV that infected the original RMs that received *M. leprae* inoculum.

SIVmac and SIVstm isolate from a stump-tailed macaque (**stm**) were retrospectively linked to a simian AIDS outbreaks resulting from studies at California Regional Primate Research Center (**CRPRC**). How? In the early 1960, stump-tailed and pig-tailed macaques were used in experimental studies of *Kuru* and Creutzfeldt–Jakob disease (**CJD**).

These studies entailed the passage of human brain extracts in healthy SMs, before serial passage in naïve macaques. An outbreak of B-cell lymphomas occurred in the residual macaque colony that were used for *Kuru* studies from 1968 to 1972. Five survivors of this outbreak, later known to have been healthy carriers of SIVmac, were sent to the NERPRC in 1970. Another outbreak of lymphomas and avian tuberculosis occurred in the stm left over from the CJD transmission experiments, from 1976 to 1978. A few healthy carriers of SIVstm, not then recognized as infected, were sent to Yerkes Regional Primate Research Center (**YRPRC**) where they may have seeded SIVstm, which caused lymphoma outbreak in macaques eight years later.

The above narratives suggest that both SIVmac and SIVstm (and other strains of SIVs infecting macaques) originated in SMs and are closely related to each other (Fig. 2).

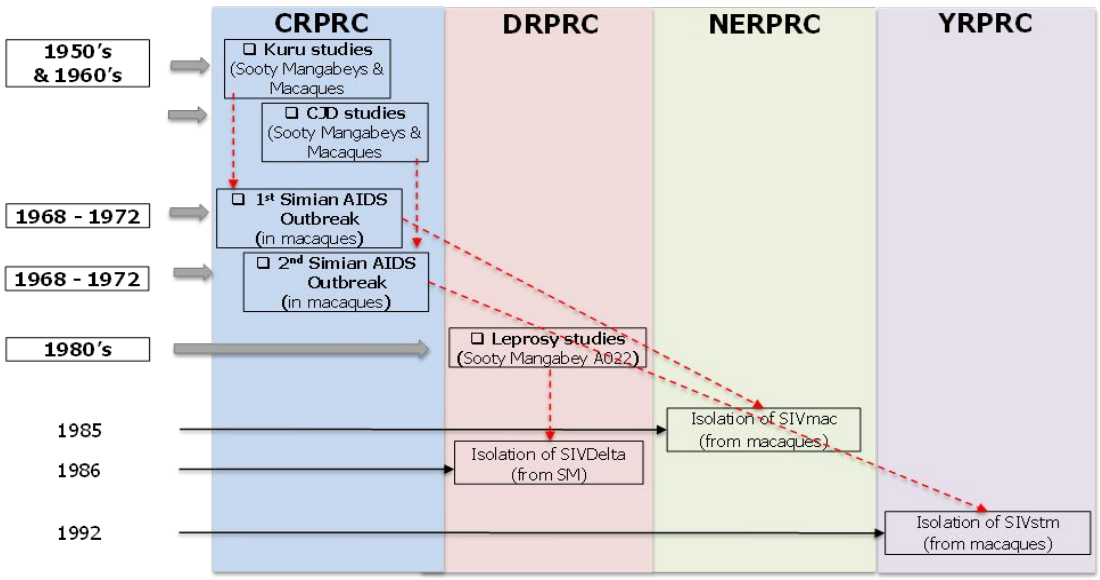


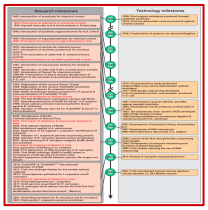
Fig. 2. Origin of SIVs viruses infecting Asian macaques. The first pathogenic SIV, SIVmac, was isolated from a rhesus macaque at NERPRC in 1985 and its origin was traced back to a simian AIDS outbreak at CRPRC. This SIV had a close phylogenetic relationship with SIV that was isolated from a stump-tailed macaque at YRPRC which was also traced to the simian AIDS outbreak at CRPRC. Retrospective phylogenetic analysis of these SIVs suggests that the emergence followed cross-species transmission of SIVsm from sooty mangabeys. Similarly, simian AIDS found in rhesus macaques at DRPRC was confirmed to have been transmitted from a sooty mangabey. SIVDelta was isolated from a healthy sooty mangabey and found to be linked to the simian AIDS in macaques. These SIV transmissions from healthy sooty mangabeys to macaques were associated with invasive experimental research (shown in dashed red lines).

The African origin of SIV

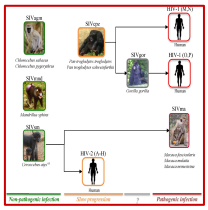
Although the origin of SIVmac and SIVstm can be traced back to Primate centers in the USA. It is not clear if the SIVDelta that infected macaques at DRPRC had a connection with the events at CRPRC, but it is likely this had a linkage with SMs originating directly from West Africa. The SMs used for the leprosy study at DRPRC were sourced (including monkey A022) from the captive-bred colony at YRPRC, which was previously established with SMs shipped from Africa.

The isolation of SIV led to the discovery of HIV-2 and a variety of SIVs infecting African NHPs. Today, more than 40 SIVs are known to naturally infect African NHPs in the wild. The list includes SIVagm infecting the African green monkeys, SIVsm in wild SM monkeys, SIVmnd in mandrills, SIVcpz in chimpanzees and SIVgor isolated from gorillas. In their natural hosts, these SIV infections are usually asymptomatic and non-pathogenic. In fact, their being named SIV, by analogy with HIV, is a misnomer, as they generally do not induce immune suppression in their natural hosts. In contrast, Asian macaques in the wild are SIV-free. However, their infection with SIVmac, SIVsm and some other strains of SIVs results in simian AIDS similar to that of HIV/AIDS in humans. The genetic closeness between SIVs, HIV-1 and HIV-2 has led to the hypothesis that HIV emerged in humans through cross-species transmissions of SIVs from their natural African NHP hosts, the SM monkey, the chimpanzee and the gorilla.

PUBLICATIONS & INTERESTING READS

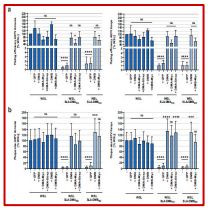


More than Three Decades of Bm86: What We Know and Where to Go
Bishop, LJ., *et al.,* Pathogens. 2023 Aug; 12 (9): 1071.
doi: 10.3390/pathogens12091071.



Non-human primates in HIV research: Achievements, limits and alternatives
Garcia-Tellez, T., *et al.,* Infection, Genetics and Evolution. 2016 Dec; 46: 24-332.
doi: 10.1016/j.meegid.2016.07.012.

Nonhuman Primate Models and Understanding the Pathogenesis of HIV Infection and AIDS
Veazey, RS. and Lackner, AL., ILAR Journal. 2017 Dec; 58 (2): 160-171.
doi: 10.1093/ilar/ilx032.



The non-classical major histocompatibility complex II protein SLA-DM is crucial for African swine fever virus replication
Pannhorst, K. *et al*., Scientific Reports. 2023 Aug; 13: 10342.
doi: 10.1038/s41598-023-36788-9.

COMMUNITY CORNER

Measuring indirect transmission-reducing effects in tuberculosis vaccine efficacy trials: why and how?

Kristin N Nelson, Gavin Churchyard, Frank Cobelens, **Willem A Hanekom**, Philip C Hill, Benjamin Lopman, Vidya Mave, Molebogeng X Rangaka, Johan Vekemans, Richard G White, Emily B Wong, Leonardo Martinez, Alberto L García-Basteiro

In this article, the authors describe the rationale for measuring indirect effects, in addition to direct effects, of tuberculosis vaccine candidates in pivotal trials and lay out several options for incorporating their measurement into phase 3 trial designs.

Seven promising vaccine candidates that aim to prevent tuberculosis disease in adolescents and adults are currently in late-stage clinical trials. Conventional phase 3 trials provide information on the direct protection conferred against infection or disease in vaccinated individuals, however they tell us little about possible indirect (ie, transmission-reducing) effects that afford protection to unvaccinated individuals. As a result, proposed phase 3 trial designs will not provide key information about the overall effect of introducing a vaccine programme. Information on the potential for indirect effects can be crucial for policy makers deciding whether and how to introduce tuberculosis vaccines into immunisation programmes.

THE LANCET
Microbe

Physician-Scientist Faculty Position at Baylor College of Medicine / Texas Children's Hospital - Full Time position - Texas Children's Hospital - Houston, Texas

Baylor College of Medicine and Texas Children's Hospital are recruiting multiple accomplished physician-scientists to develop their own independent research laboratories as tenure-track or tenured faculty members focused on research. Appointments may be in any Baylor College of Medicine department(s) associated with Texas Children's Hospital (e.g., Anesthesiology, Neurosurgery, OB/Gyn, Pathology, Pediatrics, Radiology, and Surgery, among others). Successful candidates will receive generous startup packages to establish or move their laboratories and competitive salaries and fringe benefits.

The ideal candidate is a physician-scientist (MD/PhD, MD) whose research relates to children's and/or women's health. S/he should demonstrate evidence of commitment to scholarly activity and proof of outstanding scientific accomplishments. Application Process: Qualified applicants should email the following documents to facultysearch@bcm.edu by **October 1, 2023**:

- PDF version of curriculum vitae.
- Cover letter including: Two-page summary of research interests. Contact information for three references. Applications will be reviewed in the order received, although late submissions may also be considered.

For more information, please click here.

Postdoctoral Associate: Preeclampsia - Baylor College of Medicine - Houston, Texas

We are recruiting a highly motivated postdoctoral researcher to study the role of complement activation in preeclampsia pathology. Our laboratory aims to understand, at the molecular level, how dysregulated complement activation during pregnancy contributes to 1) maternal complications associated with preeclampsia and 2) short- and long-term health and disease of fetus/offspring. We will employ in vitro, cell culture, and rodent animal models to understand the complex interplay between complement activation and maternal/fetal molecular physiology.

Application documents required: A cover letter stating research interests, updated resume, and contact details of 3 references. Minimum Qualifications: MD or Ph.D. in Basic Science, Health Science, or a related field. No experience required.

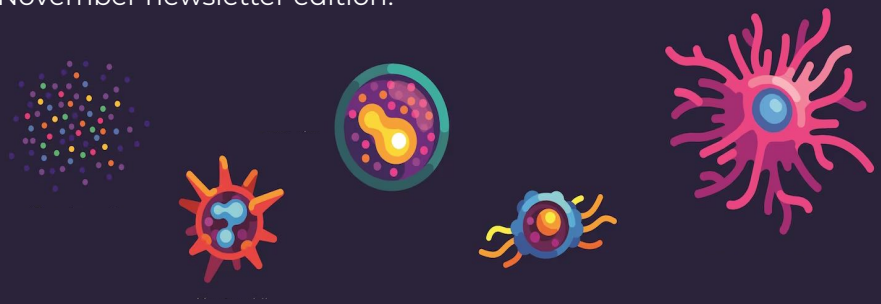
For more information, please click here.

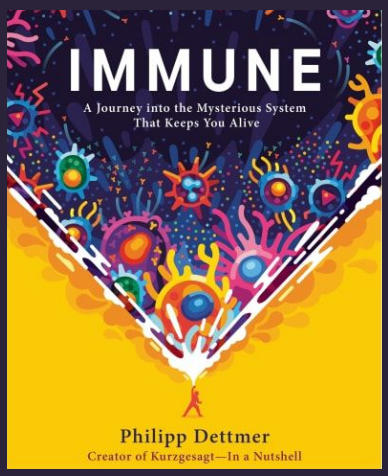
SAIS SEMINAR AND NEWSLETTER SURVEYS

And here we are again... the latest newsletter survey! If you're not sure what to do by now, here is a reminder: the SAIS Newsletter editorial team has set up a quick survey in every newsletter edition from June to October. All surveys consist of 3 simple questions that will take you less than 10 minutes of your time.

Please answer all survey questions every month, from the June to the October edition. You could be to be one of two winners for the grand prize - a copy of the beautifully illustrated book "*IMMUNE: A journey into the mysterious system that keeps you alive*", by Philipp Dettmer.

The two winners of this grand prize will be announced in the November newsletter edition!

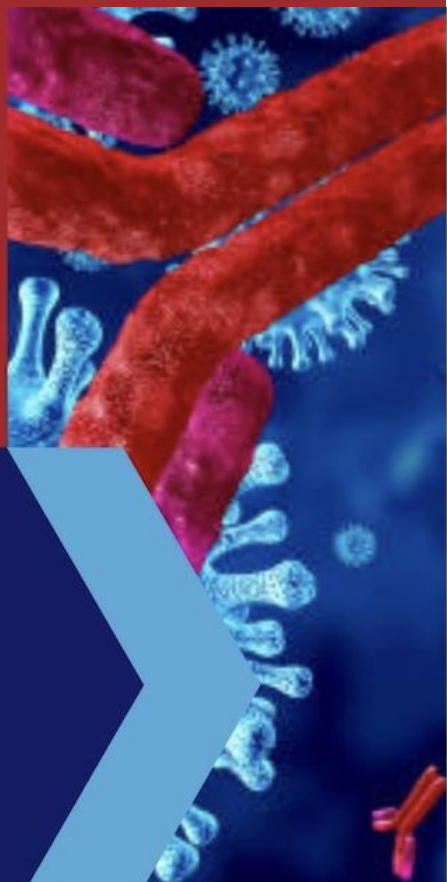




THE GRAND PRIZE!

Thank you for taking the time to respond to this survey. We aim to improve our seminars and this survey will help us do that.

The South African Immunology Society presents



An African-Based Immunology Seminar Series

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, please visit

https://saimmunology.org.za/membership/

RESOURCES TO FOLLOW

Check out these resources for more immunology-related information:

ALLSA
ALLERGY SOCIETY OF SOUTH AFRICA

FAIS

IUIS
International Union of Immunological Societies

immunopaedia.org
ADVANCING GLOBAL IMMUNOLOGY EDUCATION

SOCIALS TO FOLLOW

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

@ejvillablanca

@jonykipnis

@DelgoffeLab

Were our pieces on HIV thought-provoking? Let us know! Your feedback is invaluable to us.

The SAIS Newsletter Editorial Team

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