

22ND HFSP AWARDEES MEETING

6 – 8 December 2023 Cape Town International Convention Centre South Africa



Acknowledgments

HFSPO is grateful for the support of the organizing partners South African Medical Research Council and the South Africa National Research Foundation.

Programme Committee

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Practical Information

Meeting Venue

Cape Town International Convention Centre (CTICC)

Address: Convention Square, 1 Lower Long Street, Cape Town, 8001 The HFSP Event will be hosted at CTICC 2 on the second floor in Hall 8. Delegates can access CTICC 2 via CTICC 1 and walk over the sky bridge or access CTICC 2 at the entrance.





Security and Access

The Cape Town International Convention Centre (CTICC), has security throughout the venue. Additional security and medic have been arranged for our event within the convention centre.

A meeting badge is required to access Hall 8 in CTICC 2. Participants are advised to arrive well in advance of the scientific sessions to avoid queueing. The conference centre will open at 7 am.

Delegates are advised not to wear their name badges outside of the convention centre, just as an extra precaution.

Registration and Information Desk

Participants can collect their meeting badge from the HFSP stand next to the Sky Hotel reception on Tuesday, 5th December 2023 from 17:30 onwards.

Badges can also be picked up from the registration desk at CTICC 2, Hall 8 on 6th December 2023 from 7 am.

For any general information, delegates can make inquiries at the registration desk as well.

Printed programmes and other meeting materials can be collected at these desks.

Luggage Storage

Participants can leave their luggage at the registration desk.

Conference Hotels

Hotel Sky Cape Town, 9 Lower Long St, Foreshore, Cape Town, 8000

The Inns Cape Classic Hotel, Tulbagh St, Cape Town City Centre, Cape Town, 8001

The Westin Cape Town, Convention Square, Lower Long St, Cape Town City Centre, Cape Town, 8000

Plenary Lectures and Oral Sessions

A presentation desk will be available to all presenters. This desk will be set up in front of Hall 8, next to the registration desk.

All Presenters can load presentations at the Presentation desk or alternatively use their laptops to present via HTMI cable on stage. For those presenting from MAC, please ensure you have your converter available for the connection.

The presentation desk will be open each morning from 07:30 throughout the day.

PowerPoint presentations should be made in 16:9 screen format. Note that there are limited electrical sockets in the venue however, electrical sockets are available in the foyer as well. Participants are advised to recharge their computers before presenting.

Poster Sessions

The poster sessions will take place in the foyer of Hall 8. The posters required are Width 841 mm Height 1189 mm (A0) in portrait.

Participants should refer to the poster listing in the meeting programme for the number and day of their presentation.

Posters should be mounted on the poster board corresponding to the number in the programme on the first morning of the meeting and removed following the last onsite poster session on Friday.

A printing service is not available at the conference venue. We strongly advise presenters to bring their posters with them to Cape Town, as options to print locally are limited.

Lunch and Coffee Breaks

Coffee breaks, including a welcome coffee, and lunch will be served in the foyer of Hall 8.

Social Programme

Tuesday, 5th December 2023, 18:30 Welcome Cocktail at Sky on Long, Hotel Sky

Wednesday, 6th December 2023 at 19:00 Ice breaker at Roof Terrace venue, CTICC

Friday, 8th December 2023 at 19:00 Conference dinner at Gold Restaurant, 15 Bennett St, Green Point, Cape Town, 8005

WIFI

A free WIFI service is available at the venue. The network name and password will be provided during the meeting.

Photography

Many awardees show unpublished data. Therefore, HFSP reminds participants to not take photographs of slides with data during oral presentations or of posters without permission from the authors.

Social Media

We encourage participants to post content about the meeting on social media.

Please consider using the hashtags **#HFSPAwardeesMeeting2023 #HFSPAM2023 #HFSPmtg** in tweets. Please consider tagging the HFSP X page using the handle @hfsp

Since awardees often show unpublished data, do not broadcast results without permission from the authors.

Programme

Wednesday, 6 December

Cape Town International Convention Centre (CTICC), Hall 8.1, 8.2

Opening Remarks & Welcome

- 09.30-10.00 Shigekazu Nagata, HFSPO President Pavel Kabat, HFSPO Secretary-General Science Minister of South Africa (tbc) Co-Hosts: Glenda Gray, President SAMRC Fulufhelo Nelwamondo, CEO NRF
- 10.00 Keynote lecture: Thokozile Lewanika, South Africa
- 11.00-12.15HFSP Nakasone Award Medal Ceremony
Laudation by Pavel Kabat, HFSPO Secretary General
2023 HFSP Nakasone Award Laureate Lecture by Rotem Sorek, Israel

12.15-13.20 Lunch

12.15-13.00 HFSP Engagement Session: Getting to know the HFSP Fellowships & Research Grants Program Almut Kelber, HFSP Director of Research Grants CTICC, Room Orchid

13.20-15.00 **Oral Session 1**

FORGER, Daniel - University of Michigan, USA - 2018 Research Grant program

A whole brain understanding of sleep

ILLING, Nicola - University of Cape Town, South Africa – 2021 Research Grant Program *Genetic, cellular and ecological drivers of floral enantiostyly.*

WOOLLEY, Sarah - McGill University, Canada - 2021 Research Grant Program *Feathers as structures and sensors: understanding mechanosensing in bird flight*

JAKUSZEIT, Theresa – Institut Curie, Paris, France – 2021 Cross-Disciplinary Fellowship Different ways through the maze: immune cell chemotaxis in complex environments

15.00–15.30 Coffee Break

15.30–16.30 **Oral Session 2**

WUTTKE, Stefan – BCMaterials Ikerbasque Foundation, Spain – 2022 Research Grant Program

Reconstruction of non-covalent interactions and electric fields in enzymes within metal-organic frameworks (MOFs)

YU, Haopeng - John Innes Centre, UK - 2021 Long-Term Fellowship Unveiling the biological role of rna g-quadruplex through advanced high-throughput sequencing and AI techniques

STAPORNWONGKUL, Kristina Sukanya - EMBL Barcelona, Spain - 2021 Long-Term Fellowship *Metabolic control of germ layer proportions through regulation of Nodal and Wnt signalling*

16.30-18.45 **Poster Session 1**

Poster Numbers 1 – 20

19.00-21.00IcebreakerOpportunity for South African Scientists to meet the HFSP community
Cape Town International Convention Centre, Roof Terrace room CTICC

Thursday, 7 December

Cape Town International Convention Centre (CTICC), Hall 8.1, 8.2

09.00-10.20 **Oral Session 3**

STORM, Johan Frederik - University of Oslo, Norway - 2002 Research Grant Program (ALUMNUS) **An integrative, multiscale view on consciousness theories**

BOWAL, Kimberly – Harvard University, USA – 2021 Cross-Disciplinary Fellowship

Avoiding traffic jams: Investigating how collective behaviours emerge from individual actions in bidirectional ant trails

CHIBWE, Mary - Rhodes University, South Africa Human exposure to antibiotic-resistant Campylobacter in selected river systems in the Eastern Cape, South Africa

BAHAR, Ivet- Stony Brook University, USA- 2020 Research Grant Program

Influence of Point Mutations on Protein Conformational Adaptability: Insights from Nanoaperture Optical Tweezer Experiments and Molecular Simulations

10.20–10.50 Coffee Break

10.50-12.10 **Oral Session 4**

AMOA, Theodora - University of Cape Town, South Africa Ameliorating the foreign body response to polymeric implants using helminth-derived extracellular vesicles.

GLOVER, Beverley – University of Cambridge, UK – 2017 Research Grant Program

Universal surface patterning mechanisms in plants and animals: An integrative study of dynamics of materials properties, stress and size with relation to surface patterns

RINALDIN, Melissa - TU Dresden and Max Planck Institute of Molecular Cell Biology and Genetics, Germany - 2020 Cross-Disciplinary Fellowship

An intrinsic cytoskeletal instability is resolved by balancing microtubule aster growth and cell cycle time to achieve cytoplasmic partitioning KGASHA, Matete Olga - Sefako Makgatho Health Science University, South Africa

Molecular characterisation of Group A streptococcus isolates recovered from Limpopo Province, South Africa

12.15-13.20	Lunch
12.15 to 13.00	Workshop: How to write a successful HFSP proposal? Guntram Bauer, HFSP Director for Science Policy & Communications CTICC, Room Orchid
13.20-14.40	Oral Session 5
	RAUZI, Matteo – University Côte d'Azur, France – 2017 Career Development Award Mechanisms and mechanics at the cell surface driving epithelial
	tube formation
	OCHOLA, Lucy - Centre for Research and Therapeutics and Institute of Primate Research, Kenya – 2023 Research Grant Program Unravelling the mechanism of schistosome egg migration in a complex host environment
	AMEN, Triana - University of Southampton, UK – 2021 Long-Term Fellowship Measuring ER-peroxisome contact sites in live cells using lipid trafficking between the organelles.
	AGUZZI, Adriano - Institute of Neuropathology, University of Zurich, Switzerland – 2022 Research Grant Program Quadruple-Guide Arrayed CRISPR for Indexed Human Genome-Wide Activation, Deletion, and Silencing.
14.50-18.30	Poster Session 2
	Poster Numbers 21 – 40
Free Evening	

Friday, 8 December

Cape Town International Convention Centre (CTICC), Hall 8.1, 8.2

09.00-10.20 **Oral Session 6**

VALLEJO MARIN, Mario - Uppsala University, Sweden - 2022 Research Grant Program *Reconstructing a bee's buzz through micro-robots*

KITOKO, Jamil - Fundacao Calouste Gulbenkian, Portugal – 2022 Long-Term Fellowship

Heme induces a protective neurometabolic response to malaria

SINGH, Sumnima - Icahn School of Medicine at Mount Sinai, USA - 2021 Long-Term Fellowship *Effects of psychosocial stress on neuro-immune communication in atherosclerosis*

FRANKS, Peter - The University of Sydney, Australia - 2023 Research Grant Program

Redefining global heatwave projections with improved land surface conductance modelling

10.20-10.50 Coffee Break

10.50-12.10 **Oral Session 7**

ASHDOWN, George – WEHI, Australia – 2020 Cross-Disciplinary Fellowship Uncovering host-specific proteomic signatures of tuberculosis infection for targeted detection and clearance

VUSI, Mthombeni - Rhodes University, South Africa Evaluating perceptions of co-management on small-scale fisheries in the Wild Coast of South Africa

PARNANDI, Nishita - Francis Crick Institute, UK - 2021 Long-Term Fellowship

Using CoDAC-seq to simultaneously profile chromatin states and DNA double strand breaks

POLISHCHUK, Roman – TIGEM, Italy – 2021 Research Grant Program *The transcriptional program of golgi biogenesis*

12.15-13.20 Engagement Lunch for South African scientists to meet with members of the HFSPO Board & Council and with HFSP awardees.

13.20-15.00 **Oral Session 8**

WEINBERG SHUKRON, Ariella - University of Cambridge, UK - 2020 Long-Term Fellowship

Balanced gene dosage control rather than parental origin underpins genomic imprinting

HUTSON, Shane – Vanderbilt University, USA – 2007 Research Grant Program (ALUMNUS) Cellular tension is lost and then restored in a regulated wave around epithelial wounds

LEE, SangWook - Ewha Womans University, Republic of Korea - 2019 Research Grant Program

Graphene nano-electromechanical mass sensor with sub-zeptogram resolution; Toward single molecule protein sequencing

VALLEAU, Dylan - Whitehead Institute for Biomedical Research, USA - 2021 Long-Term Fellowship

Uncovering the determinants of host cell invasion by apicomplexan parasites

KAPADIA, Nitin - The Francis Crick Institute, United Kingdom - 2021 Long-Term Fellowship

Spatiotemporal Orchestration of Mitosis by Cyclin-Dependent Kinase

15.00-15.30 Coffee Break

15.30–15.45 Closing Session

Pavel Kabat, HFSPO Secretary General

15.45-18.30 **Poster Session 3**

Poster Numbers 41 – 62

19.30-21.30 Conference Dinner, Gold Restaurant, Cape Town

Poster List

- ALLANKI, Srinivas The Francis Crick Institute, United Kingdom Long-Term Fellowship, 2023
 Investigating the cell-matrix mechano-chemical feedback loops as determinants of tissue fate
- ARNONE, Maria Ina Stazione Zoologica Anton Dohrn, Italy Research Grant Program, 2019
 Studying sea urchin dermal photoreception to unravel principles of decentralized spherical vision
- BAHAR, Ivet Stony Brook University, United States of America Research Grant Program, 2020
 Tandem repeat proteins conformational mechanics are optimized to facilitate functional interactions and complexations
- BARBERO, Francesca University of Turin, Italy Research Grant Program, 2022
 Good vibes: how do plants recognise and respond to pollinator vibroacoustic signals?
- BLOCKER, Abby University of Cape Town, South Africa
 A classification framework for virtual clinics to support user-centered design and development
- BOWAL, Kimberly Harvard University, United States of America Cross-Disciplinary Fellowship, 2021
 Exploring the roles of activity and shape polydispersity in bacterial spatiotemporal patterning
- BOYS, Alexander University of Cambridge, United Kingdom Cross-Disciplinary Fellowship, 2020
 Bioelectronic recording of neural responses from the enteric nervous system of anaesthetized and freely-moving animals
- 8. BRECHT, Gadean University of Pretoria, South Africa Respiratory pathogens associated with sudden unexpected deaths post COVID-19 pandemic in Gauteng, South Africa.
- 9. CHEMLA, Yonatan MIT, United States of America Long-Term Fellowship, 2020
 Characterizing translation initiation modes of operons in bacteria
- DE LA CALLE ARREGUI, Celia UT Southwestern Medical Center, United States of America - Long-Term Fellowship, 2022
 Understanding the role of mtDNA alterations and electron transport chain function in thyroid cancer

- DE VIRGILIIS, Francesco University of Geneva, Switzerland Long-Term Fellowship, 2022
 Light regulates immunity via a retina-to-lymph node pathway
- DENEKE, Victoria Research Institute of Molecular Pathology, Austria Long-Term Fellowship, 2020
 A conserved fertilization complex bridges sperm and egg in vertebrates
- EISENBERG BORD, Michal Cambridge University, United Kingdom Long-Term Fellowship, 2022
 Macrophage mitochondrial dynamics during mycobacteria infection
- FUMASONI, Marco Instituto Gulbenkian de Ciencia, Portugal Research Grant - Early Career (formerly Young Investigator Grant), 2015
 Experimentally evolving budding yeast cell size to test scaling laws in cell biology
- GINTAMO, Tesfaye Tessema University of Zululand, South Africa
 GIS and remote sensing-based groundwater vulnerability modelling under climate and land use change: Cape Town, South Africa
- **16.** GUZZETTA, Katherine ETH Zurich, Switzerland Long-Term Fellowship, 2023 Investigating the mechanistic role of the gut microbiome in modulating depressive behavior in mice
- HESS, Henry Columbia University, United States of America Research Grant Program, 2021
 Structural damage to axons resulting from repetitive mechanical motion
- HIMMEL, Nathaniel University of Lausanne, Switzerland Long-Term Fellowship, 2022
 The mysterious origins of insect Odorant receptors; a case study for remote homolog detection in the protein folding age
- KAPADIA, Nitin The Francis Crick Institute, United Kingdom Long-Term Fellowship, 2021
 Spatiotemporal Orchestration of Mitosis by Cyclin-Dependent Kinase
- 20. KARA, Eleanna Rutgers University, United States of America Long-Term Fellowship, 2017
 Identification of genetic networks implicated in the pathogenesis of parkinson's disease through a high throughput screen
- KITOKO, Jamil --Fundacao Calouste Gulbenkian, Portugal Long-Term Fellowship, 2022
 Heme induces a protective neurometabolic response to malaria
- KORENHAUER, Shany -Princeton University, United States of America Long-Term Fellowship, 2020
 Identification of cell cycle dependent post-translational modifications of mammalian SWI/SNF chromatin remodeling complexes

- 23. LANDONI MARTIN, Juan Cruz EPFL, Switzerland Research Grant Program, 2021
 Mitochondrial pearling as a putative microdomain management mechanism
- 24. LEE, SangWook Ewha Womans University, Republic of Korea 2019 Research Grant Program
 Graphene nano-electromechanical mass sensor with sub-zeptogram resolution; Toward single molecule protein sequencing
- MACAMO, Engelinah D. University of KwaZulu-Natal, South Africa Telomere length in a South African population co-infected with HIV and helminths
- MADZAGA, Thizwilondi University of Venda, South Africa Prevalence, awareness, treatment and control of hypertension among pregnant women in Capricorn District, South Africa.
- MASONDO, Nkanyezi- University of KwaZulu Natal, South Africa
 In vitro selection, identification and in silico characterization of M.
 Tuberculosis epitopes binding to HLA-E peptide-binding groove for design of new multi-epitope TB vaccine.
- MAVHUNGU, M. University of the Witwatersrand, South Africa
 SARS-CoV-2 antibody kinetics in adults and pregnant women after natural infection
- 29. MBAMALI, Siphiwengesihle Kuhle Silindile, Durban University of Technology, South Africa
 Understanding pathogenicity and azole resistance in clinical aspergillus isolates using genomic tools
- METZL RAZ, Eyal Stanford University, United States of America Long-Term Fellowship, 2019
 Studying Chromatin Remodelers Role in Cardiogenesis Using Cardioids
- MEYER, Katrina Max Planck Institute for Molecular Genetics, Germany Long-Term Fellowship, 2020
 Condensation of ribosomal proteins in ribosome biogenesis
- 32. MIRAVET VERDE, Samuel ETH Zurich, Switzerland Long-Term Fellowship, 2023
 Charting the origin, diversity and biogeography of small proteins in the global ocean microbiome
- MOHALE, Tshwarelo University of Limpopo, South Africa The Momordica balsamina methanol extract inhibits the interleukin-6- induced metastasis in MDA-MB-231 breast cancer cells via the inhibition of the IL-6/JAK2/STAT3 pathway.

- 34. MOKKAPATI, Jaya Sravanthi The Pennsylvania State University, United States of America Research Grant Program, 2021 Integrating plant genetics and bee behaviour to understand how plant-pollinator networks are formed
- 35. MOLENAARS, Marte New York University School of Medicine, United States of America - Long-Term Fellowship, 2022
 Acute inhibition of iron-sulfur cluster biosynthesis disrupts metabolic flexibility in mice
- MUKHERJEE, Tina Institute for Stem Cell Science and Regenerative Medicine, India - Research Grant Program, 2023
 Olfaction
- **37.** NDLOVU, Nonhlanhla UKZN, South Africa *Ethanol-Based Plant Extract of Sutherlandia Frutescens Demonstrated Synergistic Antibacterial Activity against Methicillin Resistance Staphylococcus Aureus and Vancomycin Resistance Enterococcus when Combined with Vancomycin in an in vitro model*
- NDLOVU, Nosipho University of KwaZulu-Natal, South Africa
 The effect of H2O2 producing lactobacillus on gardnerella vaginalis biofilm
- 39. NEUBAUER, Cajetan University of Colorado Boulder, United States of America - Research Grant Program, 2023 Uncovering the real paleo diet: Novel isotope analytics of amino acids from fossil hominin teeth
- **40.** OELOFSE, Suzette University of Cape Town, South Africa Linezolid interruption in drug-resistant tuberculosis: a review of South African programmatic data from 2018 to 2020.
- **41.** OLADOKUN, Ajibola University Of Cape Town, South Africa Hyperspectral imaging for the segmentation of tuberculin skin test indurations
- 42. OYA, Satoyo University of California Davis, United States of America Long-Term Fellowship, 2023
 Towards understanding the molecular mechanisms behind genomic mutation bias
- PALATINI, Umberto The Rockefeller University, United States of America -Long-Term Fellowship, 2023
 Hijacking Mosquitos: how dengue virus manipulates its mosquito vectors behavior
- **44.** RAKAKI, Matshepo University of Pretoria, South Africa *Molecular and serological investigation of Shuni virus in South Africa*

- **45.** RAMASENYA, Gopotso University Of Limpipo, South Africa **The anti-inflammatory and anti-cancer effects of ozoroa paniculosa on mda-mb-231 breast cancer cells in an obesity microenvironment**
- 46. SHABANGU, B. University of the Witwatersrand, South Africa Genomic characterization of Acinetobacter baumannii associated with deaths in South African children ≤5 years of age: An observational study
- **47.** SIKOSANA, P.Y. Mangosuthu University of Technology, South Africa Investigating the antioxidant potential of South African medicinal plants used by KZN Herbalists in the treatment of lung cancer
- 48. STOCK, Jessica Marine Biological Laboratory, United States of America -Long-Term Fellowship, 2023
 Molecular and morphogenetic characterization of early neurogenesis in the squid Doryteuthis pealeii
- 49. SUZUKI, Miyuki Caltech, United States of America Long-Term Fellowship, 2022
 Contribution of neural crest cell to newt limb regeneration
- **50.** TOMANCAK, Pavel MPI CBG, Germany Research Grant Program, 2022 Bridging biophysics and evolution: impact of intermediate filament evolution on tissue mechanics
- TOPARLAK, Duhan University of Oxford, United Kingdom Long-Term Fellowship, 2022
 Cyclophospholipids enable a protocellular life cycle
- 52. TORTAROLO, Giorgio EPFL LEB, Switzerland Cross-Disciplinary Fellowship, 2022
 A Novel Platform for the Investigation of Mitochondrial Membrane Potential Dynamics
- 53. TSAO, Kelvin The University of Tokyo, Japan Cross-Disciplinary Fellowship, 2020
 Towards a new triggered fluorescent probe for calcium signal integration in neurons
- **54.** VASSEUR COGNET, Mireille Institute iEES of Paris and INSERM, France HFSP Alumni, 2018 *How do termite queens and kings stay healthy for decades?*
- 55. WHITTAKER, Joanna University of Groningen, Netherlands Cross-Disciplinary Fellowship, 2022
 Unravelling the enigma: 20s proteasome and vat ATPASE - partners in a molecular dance or solitary performers?

- 56. WOOLLEY, Sarah McGill University, Canada Research Grant Program, 2021 Developing a small songbird model to study behavioral kinematics and neural circuits during flight
- 57. ZOU, Yimin University of California San Diego, United States of America -Research Grant Program, 2022
 Mechanisms of glutamatergic synapse formation, maintenance and aging



Human Frontier Science Program Organization

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