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# 13<sup>TH</sup> ANNUAL BIOMEDICAL RESEARCH & INNOVATION PLATFORM SYMPOSIUM

16 & 17 October 2023

## SCIENTIFIC PROGRAMME

**Time:** 16<sup>th</sup> October 8:45 – 16:00  
17<sup>th</sup> October 8:45 – 15:30

**Venue:** SAMRC Conference Centre Auditorium & Virtual | MS Teams

For enquiries email: [BRIP.symposium@mrc.ac.za](mailto:BRIP.symposium@mrc.ac.za)

**Day 1**  
Monday, 16 October 2023

**8h15 – 8h45**

Registration

**8h45 – 9h00**

Opening Address by Professor Christo Muller,  
Chief Specialist Scientist, BRIP

## Session 1

### Session Chairs:

Dr Pritika Ramharack & Dr Dolly Seipone

9h00 – 9h45

### Keynote speaker:

Prof Vinesh Maharaj, Deputy Dean of Research and Postgraduate Education, University of Pretoria, “*African traditional medicine past, present, and future perspectives*”



9h45 – 10h00

Phytochemical evaluation and the in vitro (antihyperglycaemic and antibacterial) activities of methanolic extracts from a *Cyclopi* *genistoides* Kombucha

10h00 – 10h15

Investigating the effects of chloroform and methanol extract of *Dicerocaryum senecioides* and *Flaveria trinervia* on metastatic breast cancer cells

10h15 – 10h30

In vitro evaluation of anticancer potential of *Cotyledon orbiculata* crude extracts in human cervical cancer cells

10h30 – 10h45

The *Momordica balsamina* methanol extract inhibits the interleukin-6-induced invasive, migratory, and adhesive effects of MDA-MB-231 breast cancer cells via the inhibition of the IL-6/JAK2/STAT3 pathway

10h45 – 11h00

Chemical and antioxidant characterization and chemopreventive properties of fermented and unfermented rooibos tea in a keratinocyte UVB exposure model

11h00 – 11h30

Tea/coffee

Ewert Mthimunye (MSc),  
University of Zululand

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Tubake Theona Sebei (MSc),  
University of Limpopo

.....  
Thabang Marema (MSc),  
University of Limpopo

.....  
Tshwarelo Mohale (MSc),  
University of Limpopo

.....  
Danielle Davids (PhD),  
Cape Peninsula University  
of Technology

## Session 2

### Session Chairs:

Prof Rabia Johnson & Dr Sello Mikasi

11h30 – 12h15

### Keynote speaker:

Prof Ruan Kruger, North West University, “*The Early Detection and Prevention of Cardiovascular Disease in Africa: focus on cardiovascular disease development in children and young adults*”



12h15 – 12h30

Understanding the genetic basis of hypertension in a South African population

12h30 – 12h45

Dose-dependent effect of simvastatin on coenzyme Q<sub>9/10</sub> status in cultured cardiomyoblasts

12h45 – 13h00

Risk factors and biomarkers of heart failure with a preserved ejection fraction in black South African patients

13h00 – 13h15

Dapagliflozin reduced myocardial strain and diastolic dysfunction, and pro-hypertrophic biomarkers in diabetic patients with preserved ejection fraction

13h15 – 14h15

Lunch and MSc Poster Session 1

Hannah Fokkens (MSc),  
South African Medical  
Research Council

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Sinenhlanhla Xoliswa Happiness  
Mthembu (PhD), South African  
Medical Research Council

.....  
Marilet van Hoogland van  
Heerden (PhD), Sefako Makgatho  
Health Sciences University

.....  
Sacramento Martinez Albaladejo  
(MSc), Instituto de Investigacion  
Sanitaria Fundacion Jimenez  
Diaz UAM

## Session 3

### Session Chairs:

Dr Rianita van Onselen & Dr Kwazi Gabuza

14h15 – 15h00

### Keynote speaker:

Prof Olebogeng Harold Majane, Sefako Makgotho Health Sciences University, *"Synergistic effects of Hypertension, Obesity, and Diabetes on Cardiac structure and function"*



15h00 – 15h15

Coenzyme Q<sub>10</sub> as an antioxidant prophylactic, attenuates doxorubicin-induced cardiotoxicity in an in vitro H9c2 cell model

15h15 – 15h30

Semaglutide attenuated cardiac hypertrophy and fibrosis in obese/type-II diabetic mice via AMPK/AKT/mTOR axis

15h30 – 15h45

Expression of mammary developmental genes in dimethyl-benzanthracene (DMBA)-induced mammary tumours and role of maternal lipotropic nutrients

15h45 – 16h00

Chromomycin A5 is a novel inhibitor of the oncogenic TBX2 in breast cancer

Sharnay Naidoo (MSc),  
South African Medical  
Research Council

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Octavian Sergiu Parascinet  
(MSc), Instituto de Investigacion  
Sanitaria Fundacion Jimenez  
Diaz

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Anri Kotze (MSc), South African  
Medical Research Council

.....  
Claire Bellis (PhD), University  
of Cape Town

## Day 2

Tuesday, 17 October 2023

## Session 1

### Session Chairs:

Prof Carmen Pheiffer & Prof Julia Goedecke

8h45 – 9h30

### Keynote speaker:

Prof Louise Groth Grunnet, Steno Diabetes Centre, Copenhagen, Denmark, *"The impact of an adverse fetal environment on offspring health – can we prevent the unhealthy consequences?"*



9h30 – 9h45

Investigating neural tube development using a stem cell-based model of development

9h45 – 10h00

Evaluating the efficacy of curcumin derivatives on lipid metabolism in 3T3-L1 adipocytes

10h00 – 10h15

Evaluating the effect of synthetic curcumin derivatives on skeletal muscle metabolism

10h15 – 10h30

Longitudinal changes in sex hormone binding globulin and free testosterone in Black middle-aged African men living with and without HIV and their relationship with dysglycaemia, insulin secretion and sensitivity

10h30 – 10h45

Exploring time-restricted eating as a strategy to prevent weight gain in South Africans living with HIV (TESSA)

Alexa Rabeling (MSc),  
University of Cape Town

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Marakiya Moetlediwa (MSc),  
South African Medical  
Research Council

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Rudzani Ramashia (MSc),  
South African Medical  
Research Council

.....  
Ikanyeng Dolly Seipone  
(Postdoc), South African  
Medical Research Council

.....  
Fatima Hoosen (Postdoc),  
University of Cape Town

10h45 – 11h45

Tea/coffee and PhD Poster Session 2

## Session 2

**Session Chairs:**  
Dr Tarryn Willmer & Dr Jyoti Sharma

**11h45 – 12h00**

Design and synthesis of acyldepsipeptide-1 analogues: Antibacterial activity and cytotoxicity screening

Sinazo Cobongela (PhD),  
Mintek

**12h00 – 12h15**

Integration of molecular, spatial, and clinical data to understand Mtb transmission among people with subclinical TB in a rural South African population

Yumna Moosa (Postdoc),  
Africa Health Research Institute

**12h15 – 12h30**

Investigating the co-operation between the human papillomavirus (HPV) oncoproteins E6/E7 with the oncogenic T-box transcription factor 3 (TBX3) to promote cervical cancer

Carly Burmeister (PhD),  
University of Cape Town

**12h30 – 12h45**

The TBX3 transcription factor-3 (TBX3) sensitizes pancreatic cancer cells to the antifungal drug, piroctone olamine

Karabo Serala (PhD),  
University of Cape Town

**12h45 – 13h30**

**Keynote speaker:**  
Prof Bey Schmidt, Health Systems Research Unit,  
South African Medical Research Council,  
*"Translating scientific research"*



**13h30 – 15h30**

**Prize Giving, followed by a Closing Braai**  
Prizes presented by **Professor Johan Louw**, Senior Platform Director at the South African Medical Research Council

## POSTER PRESENTERS

Poster No.	Name	Title	Degree	Institution
1	<b>Didintle Tlhale</b>	Gender specific lifestyle cardiovascular risk factors and co-morbidities in heart failure with a preserved ejection fraction patients living in South Africa	MSc	Sefako Makgatho Health Sciences University
2	<b>Nompumelelo Malaza</b>	Obesity and diabetes in pregnancy: Association with maternal serum adiponectin	PhD	South African Medical Research Council
3	<b>Teboho Yvette Satekge</b>	Induction of apoptosis in cervical cancer cells using quinoxaline derivative LAM-21D	MSc	University of Limpopo
4	<b>Mabekane Rebecca Makgato</b>	Development of an irritant-induced allergy model to characterise the anti-inflammatory properties of honeybush ( <i>C. subternata</i> ) in skin in vitro	MSc	Cape Peninsula University of Technology
5	<b>Danelle Botha</b>	Investigating the importance of ATM protein kinase in the ER stress response underlying metabolic disease: an in vitro study	PhD	Stellenbosch University
6	<b>Lerato Diseko</b>	The relationship between host genetic make-up and Human Immunodeficiency Virus in a South African population	PhD	University of the Free State



Poster No.	Name	Title	Degree	Institution
7	<b>Nompilo Cele</b>	In vitro antidiabetic and antihyperlipidemic properties of the extracts from <i>Cyclopia genistoides</i>	PhD	University of Zululand
8	<b>Ayesha Shaik</b>	Investigating DNA methylation of metabolic and inflammatory genes with therapeutic potential for obesity: A cohort study in South African women	MSc	Stellenbosch University
9	<b>Jenske Didloff</b>	Bioassay-guided isolation and identification of an antimycobacterial compound from <i>Gymnopilus junonius</i>	PhD	Nelson Mandela University
10	<b>Leegan Govender</b>	Determining the role of differential expression of candidate microRNAs in cardiometabolic diseases among HIV infected South Africans	MSc	South African Medical Research Council
11	<b>Barend Jacobus Groenewald</b>	Establishment of a novel insulin resistant cardiomyoblast spheroid model	MSc	Stellenbosch University
12	<b>Lilian Makgoo</b>	The anticancer effect of HIV protease inhibitor on HPV-associated cervical cancer	PhD	University of Limpopo
13	<b>Madikadike Moshape</b>	The effects of a high fructose diet and glucocorticoid treatment on cardiac function in Sprague Dawley rats	MSc	Sefako Makgatho Health Science University
14	<b>Cassidy O'Brien &amp; Caitlin Odendaal</b>	Chronic stress elicits distinct sex-specific responses in rat cardiac respiratory function and vascular reactivity	MSc	Stellenbosch University
15	<b>Koketso Precious Maenetja</b>	Investigating the cytotoxic effect of various anticancer agents in cervical cancer cell lines.	MSc	University of Limpopo
16	<b>Donne Ashley Kritzinger</b>	Exploring the cosmeceutical properties of Tanzanian seaweeds	PhD	Nelson Mandela University
17	<b>Matladi Masete</b>	Optimisation of pyrosequencing-based DNA methylation analysis for validation of biomarkers in gestational diabetes mellitus	PhD	South African Medical Research Council
18	<b>Tanika Naidoo</b>	The effect of <i>Senecio serratuloides</i> and <i>Sarcophyte sanguinea</i> on the hepatic metabolism of anti-diabetic and lipid lowering drugs	MSc	University of Zululand
19	<b>Xolani Sibiya</b>	The effect of <i>Aloe marlothii</i> and <i>Catharanthus roseus</i> on the hepatic metabolism of anti-diabetic and lipid lowering drugs	MSc	University of Zululand
20	<b>Shana Edith De Bruyn Orr</b>	Indigenous <i>Aspalathus linearis</i> extracts as a natural alternative to standard treatment of gut-related inflammatory conditions	PhD	Cape Peninsula University of Technology
21	<b>Johara Khan</b>	Atypical masses in rat bone tissue: a green Rooibos tomography study	MSc	Stellenbosch University

## KEYNOTE SPEAKERS



### Prof Vinesh Maharaj

Prof Vinesh Maharaj currently leads the Biodiscovery Centre in the Department of Chemistry and is the Deputy Dean of Research and Post Graduate Education, Faculty of Natural and Agricultural Sciences. Prof Maharaj is a natural product chemist and is trained in the discovery of new drug leads based on biodiversity samples. His main aim is to create a unique repository of natural products comprising 10 000 plant samples which forms the basis for the library, the first of its kind in Africa. The samples are converted into high throughput screening formats ready for biological testing for various diseases such as HIV, malaria, cancer and COVID-19. He obtained funding from the Department of Science and Innovation (DSI) to establish this platform to make the resources available to the national system of innovation. The infrastructure includes high-end hyphenated analytical equipment for the chemical characterisation of the library. He also serves as the M2Bio Research Chair for natural product research that is being conducted at the university on behalf of M2Bio.



### Professor Ruan Kruger

Professor Ruan Kruger is a Research Professor of Physiology in the Hypertension in Africa Research Team (HART) at the Faculty of Health Sciences of the North-West University. His research focuses on the early development of hypertension and cardiovascular disease in children and early adulthood. He is the President of the Childhood Hypertension Consortium in South Africa (CHCSA), and held the DSI-NRF South African Research Chair (SARChI) in the Early Detection and Prevention of Cardiovascular Disease in Africa. He is the Volunteer Coordinator in SA Heart®, the Chair of the Next Generation Network of the Southern African Hypertension Society (SAHS), holds fellowship (ISHF) status with the International Society of Hypertension (ISH) and leads sections of the international Youth Vascular Consortium. He serves on several other national and international organising committees including the International Congress on Hypertension in Children and Adolescents (ICHCA), International Society of Hypertension (ISH) and the International Pediatric Hypertension Association (IPHA). He has published over 100 research outputs in international peer reviewed journals and supervised more than 50 postgraduate students and postdoctoral fellows. He leads several research studies such as the Swiss-collaborative Exercise, Arterial Modulation and Nutrition in Youth South Africa (ExAMIN Youth SA) study, and the National Blood Pressure Screening in Children to Improve Paediatric Healthcare in South Africa.



### Professor Olebogeng Harold I. Majane

Professor Olebogeng Harold I. Majane is an Associate Professor, Head of Department of Physiology (School of Medicine) and the chairperson of the Postgraduate Committee of Senate at Sefako Makgatho Health Science University. He holds a PhD from University of the Witwatersrand which is complemented by a Post Doctoral Fellowship from Ottawa Hospital, University of Ottawa, Canada, Ontario. He is the principal investigator of the Heart Failure Study at Dr George Mukhari Academic Hospital, Division of Cardiology at SMU. He has a wealth of knowledge and specializes in cardiovascular, respiratory and neurological pathophysiology. Throughout his illustrious career, Prof Majane has received numerous international accolades and recognitions, underscoring his dedication to excellence and his unwavering commitment to scientific wellness in the field of cardiovascular diseases. He supervised to completion 18 postgraduate students and published 54 research articles in international peer-reviewed journals with 903 citations.



### Professor Louise Groth Grunnet

Professor Louise Groth Grunnet is Senior Researcher and Team Leader heading the Health in Pregnancy and Childhood team within Clinical Prevention Research at Steno Diabetes Center Copenhagen. She has a Master's in biology and obtained her PhD in Health Sciences from University of Copenhagen in 2011. Her research focus is on fetal programming and the long-term consequences of fetal under- and over-nutrition, gestational diabetes, the pathophysiology of obesity, prediabetes, and type 2 diabetes. Furthermore, she focuses on development of new interventions that can reduce the risk of prediabetes and obesity among women and children at high risk.



### Professor Bey Schmidt

Professor Bey Schmidt is a public health researcher with an Honour's degree in Social and Medical Anthropology and a Master's and PhD degree in Public Health. Her expertise is in conducting qualitative and quantitative systematic reviews of public health and health system interventions. She is also interested in the implementation and evaluation of knowledge translation interventions that can enhance evidence-informed decision-making.