

SASBMB 2022

BIOCHEMISTRY MATTERS

originally SASBMB 2020



*The views expressed in presentations made at the SASBMB Conference 2022 are those of the speaker and not, necessarily, of SASBMB.

Sunday, 23 January 2022	
17:30 – 18:00	Opening Session Chairperson: Wolf-Dieter Schubert Opening and Welcome Address Paul Abidemi Kappo
18:00 – 18h45	Nobel Lecture Chairperson: Stephanie Burton Innovation by evolution: Bringing new chemistry to life Frances Arnold <i>Caltech, USA</i>

Monday, 24 January 2022	
08:30 – 08:55	Exhibitor Presentation
08:55 – 09:00	Break
09:00 – 10:35	Plenary Session Chair: Paul Abidemi Kappo
09:00 – 09:50	SASBMB Silver Medal Metabolomics and its applications in plant sciences Fidele Tuqizimana <i>University of Johannesburg, South Africa</i>
09:50 – 10:35	SASBMB Gold Medal Life at the edge: The biochemistry and applied microbiology of extreme environments Don Cowan <i>University of Pretoria, South Africa</i>
10:35 – 10:40	Break

10:40 - 12:25	Combatting Viral Diseases Chair: Ntombi Gama	Phytomedicine and Drug Development Chair: Moganavelli Singh	Understanding and Treating Cancer I Chair: Adrienne Edkins
10:40 - 11:10	The antibody response to SARS-CoV-2 – What have we learned in the last 2 years of this pandemic? Thandeka Moyo-Gwete <i>National Institute for Communicable Diseases, South Africa</i>	Biocontrol of <i>Fusarium</i> species utilising indigenous rooibos and honeybush extracts Beauty E. Omoruyi <i>Cape Peninsula University of Technology, South Africa</i>	Modulating cellular cholesterol for anticancer therapy Mandeep Kaur <i>University of the Witwatersrand, South Africa</i>
11:10 - 11:25	An investigation of the HIV Tat C31S and R57S mutation on peripheral immune marker levels in South African participants: A pilot study Monray Williams <i>North-West University, South Africa</i>	Developing proteolysis targeting chimera (PROTACs) for amyloid precursor protein modulation Alex Delport <i>University of KwaZulu-Natal, South Africa</i>	The c-Myc/TBX3 axis promotes cellular transformation of sarcoma-initiating cells Victoria Damerell <i>University of Cape Town, South Africa</i>
11:25 - 11:40	Production of secreted rotavirus VP6 by <i>Arxula adenivorans</i> as subunit vaccine candidate Corinne Fourie <i>University of the Free State, South Africa</i>	Evaluating the use of aqueous rooibos tea extracts as inhibitors of inflammation in UVB-irradiated skin keratinocytes Hapiloe Maranyane <i>Cape Peninsula University of Technology, South Africa</i>	Fluc-mRNA delivery to cervical cancer cells using Curcumin-Poly-L-lysine modified gold nanoparticles: A Proof of Principle Study Jeaneen Venkatas <i>University of KwaZulu-Natal, South Africa</i>
11:40 - 11:55	Management of paediatric patients with COVID-19 with a particular focus on Africa; findings and implications Marshall Gowere <i>University of Pretoria, South Africa</i>	Relevance of brown seaweed fucoidans as therapeutics for Type 2 diabetes mellitus (T2DM) and cancer progression Blessing Mabate <i>Rhodes University, South Africa</i>	The role of different Hsp70-Hsp90 Organising Protein (HOP) isoforms in cancer biology Kelly Schwarz <i>Rhodes University, South Africa</i>
11:55 - 12:10	Hop mediated regulation of PKM and cellular metabolism in KSHV infection Elisa Kirigin <i>Rhodes University, South Africa</i>	The hepatoprotective capacity of South African <i>Cyclopia intermedia</i> against selected ROS inducers Shanika Reddy <i>Nelson Mandela University, South Africa</i>	Analysis of Driver Gene Mutations in Oesophageal Squamous Cell Carcinoma Hendrina Shipanga <i>University of Cape Town, South Africa</i>
12:10 - 12:25	Computational evaluation of the inhibitory potential of phytocompounds from selected African botanicals against human host cell targets of SARS-CoV-2 John Omo-Osagie Uhomobhi <i>Durban University of Technology, South Africa</i>	The discriminatory metabolites and α -amylase and α -glucosidase inhibition of commercial green and purple teas [<i>Camellia sinensis</i> (L.) O Kuntze] Morne Tolmie <i>University of Pretoria, South Africa</i>	Investigating the interaction of RBBP6, p53 and MDM2 in normal and cancerous cell lines Bonnie Russell <i>UNISA, South Africa</i>
12:25 – 12:30	Break		
12:30 – 13:30	Lunch, Poster Presentations, Commercial Exhibits, Personal Meetings		
13:30 - 15:15	Molecular Structure and Function Chair: Carmien Tolmie	Hereditary and Degenerative Diseases Chair: Pontsho Moela	Environmental Biochemistry and Phytomedicine Chair: Ian Dubery
13:30 - 14:00	Single Molecule Spectroscopy Reveals Secret Dynamics of phycobilisomes Michal Gwizdala <i>University of Pretoria, South Africa</i>	Treatment of mitochondrial disease pathology in a Leigh syndrome mouse model by metallothionein 1 overexpression: is there still a role for redox active compounds? Francois van der Westhuizen <i>North-West University, South Africa</i>	Discovery of novel enzymes with potential of antimicrobial activity Sibongile Mtimka <i>CSIR, University of KwaZulu-Natal, South Africa</i>
14:00 - 14:15	Insight into somatic angiotensin-I converting enzyme structure and dynamics revealed by cryo-electron microscopy Lizelle Lubbe <i>University of Cape Town, South Africa</i>	Continuous data reveals distinct patterns in metabolite levels along a mitochondrial disease severity scale Marianne Venter <i>North-West University, South Africa</i>	Computational insights into phenolics as leads against bacterial penicillin-binding protein 3 Jamiu Olaseni Aribisala <i>Durban University of Technology, South Africa</i>
14:15 - 14:30	Effect of promoter usage on recombinant eCG expression levels in stably-transfected CHO-K1 cells Nkhasi Lekena <i>University of the Free State, South Africa</i>	Systemic and tissue-specific metabolic alterations in a mouse model of Leigh syndrome Karin Terburgh <i>North-West University, South Africa</i>	Exploring the mechanism of action of two tick derived antimicrobial peptides, Os and Os-C, against planktonic <i>Candida albicans</i> Mandelie Van der Walt <i>University of Pretoria, South Africa</i>

14:30 -14:45	Biochemical and structural characterization of ClpK from <i>Klebsiella pneumoniae</i> Tehrim Motiwala <i>University of KwaZulu-Natal, South Africa</i>	Genomic and metabolic evaluation of the HEK 293 cell line for use in genetic disease modelling of inherited fatty acid β -oxidation disorders Michelle Mereis <i>North-West University, South Africa</i>	The protective effect of Rooibos in LPS-induced skin inflammation Claudia Abrahams <i>Cape Peninsula University of Technology, South Africa</i>
14:45 - 15:00	Homology modelling of <i>Trypanosoma brucei</i> major surface proteases and molecular docking of variant surface glycoproteins and inhibitor ligands for drug design Lucky Marufu <i>University of KwaZulu-Natal, South Africa</i>	Cell compartment-specific metabolic alterations in a mouse model of Leigh syndrome Gunter Van der Walt <i>North-West University, South Africa</i>	<i>In silico</i> docking and in vitro studies, identified curcumin, 18 α -glycyrrhetic acid, rosmarinic acid, and quercetin as inhibitors of α -glucosidase and pancreatic α -amylase and lipid accumulation in HepG2 cells – important type 2 diabetes targets Kadima Tshiyoyo <i>University of Pretoria, South Africa</i>
15:00 - 15:15	Structural and functional characterization of the secreted adhesin EtpA of enterotoxigenic <i>Escherichia coli</i> Ntui Clifford Manyo <i>University of Pretoria, South Africa</i>	Biased signalling of the non-peptide luteinising hormone receptor agonist, LHR-Chap Monique Vermaak <i>University of Pretoria, South Africa</i>	Probing the limits of photosynthesis in the Namib Desert Tjaart Krüger (Michal Gwizdala) <i>University of Pretoria, South Africa</i>
15:15 – 15:20	Break		
15:20 – 16:55	Plenary Session Chair: Ed Sturrock		
15:20 – 16:10	Structural basis of protein synthesis in eukaryotes: From basic principles to translation in coronavirus infected cells Nenad Ban <i>Swiss Federal Institute of Technology, Switzerland</i>		
16:10 – 16:55	Implications of insulin resistance and mitochondrial dysfunction in the pathogenesis of type 2 diabetes: Assessing the potential therapeutic effects of natural compounds Sithandiwe Mazibuko-Mbeje <i>North-West University, South Africa</i>		
16:55 – 17:00	Break		
17:00	Special Event		

Tuesday, 25 January 2022			
08:30 – 08:55	Inqaba Bioscience Presentation		
08:55 – 09:00	Break		
09:00 – 10:35	Plenary Session Chair: Francois van der Westhuizen		
09:00 – 09:50	Findings from the women's health initiative randomized controlled dietary modification trial and the women's health study challenge the prescription of the low-fat high-carbohydrate "heart-healthy" prudent diet, at least in postmenopausal women with insulin resistance Timothy Noakes <i>The Noakes Foundation, South Africa</i>		
09:50 – 10:35	Mervin Meyer <i>University of the Western Cape, South Africa</i>		
10:35 – 10:40	Break		
10:40 - 12:25	Metabolism and Enzymology I Chair: Theresa Coetzer	Understanding and Treating Cancer II Chair: Karl Storbeck	Technical Biochemistry Chair: Samantha Gildenhuys
10:40 - 11:10	An analysis of the effect of the galactomannan binding ability of β -mannosidase, BtMan2A, on its activity and synergism with a β -mannanase Samkelo Malgas <i>University of Pretoria, South Africa</i>	Characterization of novel inhibitors for triple negative breast cancer: Four needles in a haystack Jo-Anne de la Mare <i>Rhodes University, South Africa</i>	CSIR synthetic nanobiotechnology and biofoundry program Deepak Balaji Thimiri Govindaraj <i>Council for Scientific and Industrial Research, South Africa</i>
11:10 - 11:25	Natural variation in the 'control loop' of BVMOAFL210 and its influence on regioselectivity and sulfoxidation Carmien Tolmie	Identification of colon cancer stage specific N glycoproteins that may serve as novel prognostic or diagnostic biomarkers Vivash Naidoo	The isolation of <i>plasmodium falciparum</i> haem species for detection by HPLC-UV-vis Keletso Maepa <i>University of Cape Town, South Africa</i>

	<i>University of the Free State, South Africa</i>	<i>University of the Witwatersrand, South Africa</i>	
11:25 - 11:40	Surface tethered xylosidase activity improves xylan conversion in engineered strains of <i>Saccharomyces cerevisiae</i> Francois Kruger <i>University of the Western Cape, South Africa</i>	The marine-derived antibiotic chromomycin A5 targets the oncogenic TBX2: a new strategy to treat breast cancer Claire Bellis <i>University of Cape Town, South Africa</i>	COVID-19 Pandemic: The importance of coordinated research and development efforts, multi-stakeholder relations and a need to support local innovation Daniel Ndima <i>CAPEBIO™, South Africa</i>
11:40 - 11:55	In silico docking and ADMET studies on clinical targets for type 2 diabetes correlated to <i>in vitro</i> inhibition of pancreatic alpha-amylase and alpha-glucosidase by rutin, caffeic acid, p-coumaric acid, and vanillin Jamie McMillan <i>University of Pretoria, South Africa</i>	The kisspeptin signaling pathway and its role in breast cancer biology Udochi Felicia Azubuikwe <i>University of Pretoria, South Africa</i>	Evaluation of the efficacy of ethanol leaf extract of <i>Helichrysum petiolare</i> Hilliard and B.L. Burtt against skin aging Jonas Sagbo <i>Cape Peninsula University of Technology, South Africa</i>
11:55 - 12:10	Identification and characterization of <i>Sorghum bicolor</i> heme oxygenase genes and their role in conferring abiotic stress tolerance Vivian Ikebudu <i>University of the Western Cape, South Africa</i>	Assessment of the anti-cancer effects of the herbal medicine <i>Dodonaea viscosa</i> - strong antiproliferative activity shown against lymphoma cells Aaliyah Saferdien <i>University of Cape Town, South Africa</i>	Plant-based production of highly potent anti-HIV antibodies with engineered post-translational modifications Advaita Singh <i>Council for Scientific and Industrial Research, South Africa</i>
12:10 - 12:25	Comparison of different derivatization techniques for LC-MS/MS analysis of urinary oxidative stress markers Shiné Volschenk <i>North-West University, South Africa</i>	Marine-derived chromomycin A5: a novel strategy to treat TBX2-driven rhabdomyosarcoma Mihlali Vuyo Mlaza <i>University of Cape Town, South Africa</i>	Characterising the immunometabolic profile of HIV/TB co-infection in cohorts untreated and treated for HIV Chandré Liebenberg <i>North-West University, South Africa</i>
12:25 – 12:30	Break		
12:30 – 13:30	Lunch, Poster Presentations, Commercial Exhibits, Personal Meetings		
13:30 - 15:15	Parasitic Diseases Chair: Jandeli Niemand	Molecular Cell Biology Chair: Raymond Hewer	Metabolism and Enzymology II Chair: Samkelo Malgas
13:30 - 14:00	Environmental effects on the gut microbiota of the <i>Anopheles gambiae</i> complex (Diptera: Culicidae) Shūné Oliver <i>University of the Witwatersrand, South Africa</i>	The transcriptional repressor Blimp1/PRDM1 regulates the maternal decidual response in mice Mubeen Goolam <i>University of Cape Town, South Africa</i>	Selective inhibition of the C-domain of angiotensin-converting enzyme combined with inhibition of neprilysin Ed Sturrock <i>University of Pretoria, South Africa</i>
14:00 - 14:15	Studying the digestive vacuole lumen in <i>Plasmodium falciparum</i> Larnelle Garnie <i>University of Cape Town, South Africa</i>	ROS-independent activity of the novel artemisinin WHN-11 towards growth inhibition and cellular dysfunction in triple-negative breast cancer (TNBC) cells Deborah Kajewole <i>Rhodes University, South Africa</i>	An investigation into the possible sources of free radical generation in synthetic hormone metabolism Elardus Erasmus <i>North-West University, South Africa</i>
14:15 - 14:30	Uncovering the effects of the immune system and treatments on metabolic pathologies in the malaria infected host Shade Horn <i>Stellenbosch University, South Africa</i>	<i>In vitro</i> effect of a sirtuin inhibitor and its possible synergistic effect with a potential tubulin inhibitor on breast cancer cell lines Sandisiwe Mahlangu <i>University of Pretoria, South Africa</i>	Formulation of a xylanase additive for efficient arabinoxylan hydrolysis in broiler feeds Lebogang Ramatsui <i>Rhodes University, South Africa</i>
14:30 - 14:45	Glycolytic flux control of glyceraldehyde-3-phosphate dehydrogenase in <i>Lactococcus lactis</i> and <i>Plasmodium falciparum</i> Tagwin Frantz <i>Stellenbosch University</i>	Association between inflammation and oxidative stress of white and brown adipose tissues in db/db mice: A longitudinal study Marakiya Moetlediwa <i>North-West University, South Africa</i>	11 β -Hydroxysteroid dehydrogenase type 1 modulates the activation of 11-oxygenated androgens by aldo-keto reductase 1C3 Imken Oestlund <i>Stellenbosch University, South Africa</i>
14:45 - 15:00	The biological interrogation of <i>Plasmodium falciparum</i> 's putative mitochondrial pyruvate carrier Shante Da Rocha <i>University of Pretoria, South Africa</i>	Identification and characterisation of small-molecule growth hormone-releasing hormone receptor antagonists Tarryn Radomsky <i>University of Pretoria, South Africa</i>	An analytical method to investigate the metabolites and co-factors of the methionine-homocysteine cycle in women using combined oral contraceptives and non-users Tarien Jacobs <i>North-West University, South Africa</i>

15:00 - 15:15	Expression and characterization of a <i>Plasmodium falciparum</i> copper-binding protein (Sco1) Javen Munsami <i>University of KwaZulu-Natal, South Africa</i>	
15:15 – 15:20	Break	
15:20 – 16:55	Plenary Session Chair: Pete Meissner	
15:20 – 16:10	How basic science research beat COVID Lynn Morris <i>University of the Witwatersrand, South Africa</i>	
16:10 – 16:55	Enzyme synergism for the bio-economy: Bioproducts and biomedicine Brett Pletschke <i>Rhodes University, South Africa</i>	
16:55 – 17:00	Break	
17:00	SASBMB AGM	

Wednesday, 26 January 2022			
08:30 – 08:55	The Scientific Group Presentation		
08:55 – 09:00	Break		
	Plenary Session Chair: Trudi O'Neill		
09:00 – 09:50	'Know thy enemy': Malaria parasite biology as a catalyst for antimalarial drug discovery Lyn-Marie Birkholtz <i>University of Pretoria, South Africa</i>		
09:50 – 10:35	Cellular recycling in health and disease – Molecular principle of autophagy Thomas Wollert <i>Pasteur Institute, France</i>		
10:35 – 10:40	Break		
10:40 - 12:25	Molecular Omics and Bioinformatics Chair: Riaan den Haan	Understanding and Treating Cancer II Chair: Mandeep Kaur	Metabolism, Enzymology and Structure Chair: Idowu Jonas Sagbo
10:40 - 11:10	FAIR enzymology: how STRENDA can help you to make your data findable, accessible, interoperable and reusable Johann Rohwer <i>Stellenbosch University, South Africa</i>	Probing the effects of Retinoblastoma Binding Protein 6 (RBBP6) knockdown on the sensitivity of cisplatin in cervical cancer cells Pontsho Moela <i>University of Pretoria, South Africa</i>	Characterizing marathon-induced metabolic changes using (1)H-NMR metabolomics Rachelle Bester <i>North-West University, South Africa</i>
11:10 - 11:25	Metabolomes as a Measure of the Phenotype: The Case for Barley Cultivar Identification Claude Yasmine Hamany Djande <i>University of Johannesburg, South Africa</i>	The molecular mechanisms of cholesteryl ester transfer protein (CETP) as a drug resistance in breast cancer (BC) Liang Gu <i>University of the Witwatersrand, South Africa</i>	Effect of novel hinge insertions on drug binding and structural stability of the South African HIV-1 subtype C protease Zaahida Sheik Ismail <i>University of the Witwatersrand, South Africa</i>
11:25 - 11:40	Metabolomics of plant defense: The <i>Pseudomonas coronafaciens</i> - <i>Avena sativa</i> interaction Chanel Joey Pretorius <i>University of Johannesburg, South Africa</i>	The roles of miRNAs in cholesterol-mediated drug resistance in breast cancer Gabriella Palma <i>University of the Witwatersrand, South Africa</i>	A systematic investigation into the quantitative effect of pH changes on the upper glycolytic enzymes of <i>Escherichia coli</i> and <i>Saccharomyces cerevisiae</i> Christiaan Johann Swanepoel <i>Stellenbosch University, South Africa</i>
11:40 - 11:55	In silico screening for β -haematin inhibitors active against <i>Plasmodium falciparum</i> Leah Amod <i>University of Cape Town, South Africa</i>	Repurposing drugs that target the interaction between HPV and TBX3 to treat cervical cancer Saif Feroz Khan <i>University of Cape Town, South Africa</i>	Exploring the host range of <i>Listeria monocytogenes</i> via the interaction of listerial internalin with E-cadherin domains from various mammalian hosts Linience Maposa <i>University of Pretoria, South Africa</i>

11:55 - 12:10	The use of machine learning for generation of <i>Plasmodium falciparum</i> hsp90 selective inhibitors Thato Matlodi <i>North-West University, South Africa</i>	Testosterone and 11-ketotestosterone are metabolized at different rates in prostate cancer cells leading to temporal differences in their androgenic response Shona Murray <i>Stellenbosch University, South Africa</i>	Mitigation of salinity stress in sorghum (<i>Sorghum bicolor</i> L. Moench) using phytohormones Gershwin Sias <i>University of the Western Cape, South Africa</i>
12:10 - 12:25	Rhizosphere exo-metabolite profiling of PGPR-treated wheat cultivars (<i>Triticum aestivum</i>), and the investigation of the effects rhizosphere PGPR inoculation on the metabolism of above ground tissue Manamele Dannies Mashabela <i>University of Johannesburg, South Africa</i>	Investigating the effect of cholesterol depletion on the epithelial to mesenchymal transition of breast cancer cells Shanen Perumal <i>University of the Witwatersrand, South Africa</i>	
12:25 – 13:00	Lunch, Commercial Exhibits, Personal Meetings		
13:00	Closing and Student Prizes Paul Abidemi Kappo, Wolf-Dieter Schubert, Ntombenhle Gama		



**The
Scientific
Group**

