

# Curriculum Vitae: Erna Marais

## Personal Information

<b>Title:</b>	<b>DR</b>
<b>Surname</b>	<b>MARAIS (nee TROMP)</b>
<b>First names</b>	<b>ERNA</b>
<b>Nationality</b>	<b>SOUTH AFRICAN</b>
<b>Date of birth</b>	<b>11 JUNE 1967</b>
<b>Place of Birth (City, Country)</b>	<b>CAPE TOWN, SOUTH AFRICA</b>
<b>Gender</b>	<b>FEMALE</b>
<b>E-mail</b>	<b>et4@sun.ac.za</b>

## Professional Career and Positions held/employment history :

<b>1990-1992</b>	Temporary Research Assistant at Dr A.J.S. Benadé, Research Institute for Nutritional Diseases, Medical Research Council, Parow, South Africa
<b>1993-1996</b>	Temporary Research Assistant to Prof A. Lochner, Department of Medical Physiology and Biochemistry, Faculty of Medicine, Stellenbosch University, Tygerberg Campus, South Africa
<b>1997-1999</b>	Temporary Technical Officer to Prof A. Lochner, Department of Medical Physiology and Biochemistry, Faculty of Medicine, Stellenbosch University, Tygerberg Campus, South Africa
<b>1999-2009</b>	Permanent Technical Officer, Department of Medical Physiology and Biochemistry, Faculty of Medicine, Stellenbosch University, Tygerberg Campus, South Africa
<b>2009-2019</b>	Lecturer, Division of Medical Physiology, Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, Stellenbosch University, Tygerberg Campus, South Africa
<b>2019-present</b>	Senior Lecturer, Division of Medical Physiology, Centre for Cardio-metabolic Research in Africa (CARMA), Department of Biomedical Sciences, Faculty of Medicine and Health Sciences, Stellenbosch University, Tygerberg Campus, South Africa

## Tertiary Educational Qualifications:

<b>1985</b>	Matriculate at Central High School, Beaufort West, South Africa
<b>1988</b>	B.Sc. degree (Biochemistry and Physiology), Stellenbosch University, South Africa
<b>1989</b>	B.Sc. Hons. degree (Biochemistry), Stellenbosch University, South Africa
<b>1997</b>	M.Sc. degree (Biochemistry), Stellenbosch University, South Africa: Effect of gamma-linolenic acid (GLA) and eicosapentaenoic acid (EPA) supplementation on the structure and composition of low density lipoproteins (LDL) in African Vervet Monkeys
<b>2002</b>	Ph.D. degree (Medical Physiology and Biochemistry), Stellenbosch University, South Africa: Role of cyclic adenosine monophosphate (cAMP), cyclic guanosine monophosphate (cGMP) and p38 mitogen activated protein kinase (p38 MAPK) in preconditioning of the ischaemic myocardium.

## Continuing Professional Development, Courses and Other Qualifications

<b>1997</b>	SACI-Chrom SA course/workshop on High Pressure Liquid Chromatography, Stellenbosch University, South Africa
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- 2007** Education for the humane use and care of Laboratory animals and for promoting quality of experimental results accreditation course, Stellenbosch University, South Africa – 12 Lectures (1 hour each) – Completed - Attendance
- 2010** Professional Educational Development for Academics (PREDAC), Stellenbosch University, South Africa: Completed – Attendance
- 2012** The question of ‘doctorateness’: An International Workshop for Postgraduate Supervisors and Doctoral Candidates, Centre for Higher and Adult Education, Stellenbosch University, South Africa: Completed - Attendance
- 2014** Introduction to Teaching in the Health Professions (ITHP) Short Course Stellenbosch University, South Africa: Completed - Attendance
- 2014** Introduction to Blended Learning Design and Support, Stellenbosch University, South Africa: Completed - NQF level: 7 and Credits: 6
- 2016-present** SAVC (South African Veterinary Council) Authorization to perform research as laboratory animal technologist
- 2016** Publishing Workshop - International Presenter - Executive Editor BMC-Attendance
- 2016** Workshop for Postgraduate programme coordinators and administrative officers involved in processing postgraduate applications, 19 July 2016
- 2018** Camtasia Studio Workshop, presenter Thys Murray, 30 May 2018 - Attendance
- 2018** Understanding the Policies relevant to the Management of Research Contracts workshop, STIAS, 7 June 2018 – Attendance
- 2018** Occupational Health and Safety training, Dynamikos, 26 March 2018 - Fire Team Member
- 2019** Selected to attend the FMHS’s 6 day Leadership Development Programme (LDP) and personal professional coaching sessions - Completed - Attendance
- 2020** Good Laboratory Practice (GLP) Implementation According to OECD Principles, Quality First Academy (Pty) Ltd, 4 – 5 February 2020 - Completed – Attendance
- 2021** Project Management Programme, by Dr Joubert van Eeden, 6 May 2021 – Completed – Attendance
- 2021** Assessment Working Session, Prof S van Schalkwyk, CHPE, 23 Nov 2021 – Completed- Attendance

### **Field of Study, Major Research Topics and Scientific Interests**

Cardiovascular disease, Ischaemic/Reperfusion injury, Obesity, Cardioprotection; Vasculoprotection; Cardiovascular signal transduction, Cell signalling (Western blotting technology), Rat heart perfusion technology; Melatonin; Rooibos; Exchange protein directly activated by cAMP (Epac) signalling

### **Honours, Awards, Prizes, and Scientific, Teaching and Scholarly Recognition**

- 2000** Winner of the Young Investigators Award at the 1<sup>st</sup> Congress of the South African Heart Association, Stellenbosch, South Africa.
- 2001** Poster prize at the XVII World Congress of the International Society for Heart Research, Winnipeg, Canada (published in J Mol Cell Cardiol, 2001, 33; A70).
- 2002** Invited Oral Presentation at the European Society of Cardiology, Berlin, Germany (published in European Heart Journal: Journal of the European Society of Cardiology, 2002, 23; (Abstr Suppl): P244).
- 2003** Winner of the Young Investigators Award at the South African Heart Congress, Cape Town (published in Cardiovascular J of South Africa, 2003: 272).
- 2009** Co-supervisor of Mr Gerald Maarman (MSc) won the prize for the best Young Investigator presentation at the Annual Academic Day of the Faculty of Health Sciences at Tygerberg campus.
- 2012** Supervisor of Mr Ryan Jansen van Rensburg (Hons) received a Merit award for one of the top three Honours students at the nationally attended conference of the Physiological Society of Southern African.

**2015** Mentor/Supervisor of Mr Zibele Ndlovu (NRF-DST intern), received the Award for Best Oral Presentation at NRF-DST Research Day

#### **Grants and Research Funding received**

- 1998-2000** National Research Foundation (NRF) Grant-holder bursary for Doctoral studies
- 2002-2007** Co-investigator of the following main project: “Myocardial pathophysiology”. – Supported by the Foundation for Research Development (FRD)
- 2004-2006** Principal investigator of the following project: “Investigating the respective roles of exchange protein directly activated by cAMP (Epac), the enzyme protein kinase A (PKA) and cAMP response element binding protein (CREB) in ischaemic preconditioning mediated cardioprotection”. - Supported by Medical Research Council (MRC) and Harry/Dorris Crossley Trust
- 2007-2009** Principal investigator of the following project: “The significance of exchange protein directly activated by cAMP (Epac) in ischaemic preconditioning mediated cardioprotection”. - Supported by Medical Research Council (MRC) and Harry/Dorris Crossley Trust
- 2008-2012** National Research Foundation (NRF) Grant-holder in the Incentive Funding for Rated Researchers Programme.
- 2009-2013** National Research Foundation (NRF) Grant-holder in the Institutional Research Development Programme (IRDP) for the project titled “Epac mediated cardioprotection” as part of our Research Niche Area on Molecular and Cellular processes in Cardiovascular Degeneration: Strategies for Prevention and Protection.
- 2010-2013** Principal investigator of the following project: “The role of exchange protein directly activated by cAMP (Epac) in ischaemic heart disease and hypertrophy”. - Supported by Medical Research Council (MRC) and Harry/Dorris Crossley Trust
- 2014** Principal investigator of the following project: The role of exchange protein directly activated by cAMP (Epac) in mediating cardioprotection. - Supported by Harry/Dorris Crossley Trust
- 2018-2021** Principal investigator of the following project: “The role of Epac (exchange protein directly activated by cAMP) in obesity-induced cardiovascular” supported by National Research Foundation (NRF) 3-year grant for Competitive Support for Unrated Researchers.
- 2018-2021** Co-investigator (project leader: Dr G Maarman) of the following project: “Underlying mechanisms of Rooibos-induced cardioprotection in apoptosis and hypertrophy: Ascertaining signaling pathways involved and the roles of oxidative stress and mitochondrial efficiency” supported by SA Rooibos Council grant.
- 2018-2021** Co-investigator (project leader: Dr G Maarman) of the following project: “Rooibos-induced cardioprotection: Investigating the roles of mitochondrial antioxidant systems, metabolic processes and mitochondrial dynamics.” supported by MRC Self-Initiated Research (SIR) 3-year grant.
- 2023** Awarded the Erasmus+ Staff mobility grant from 23-27 January 2023 at Medical University in Graz (MUG), Austria

## **Membership of National and International Scientific and Teaching Societies, Associations, Bodies and Committees**

- 1993-present** Member of the Physiological Society of Southern Africa (PSSA)
- 2016-present** Member of the South African Heart Association (SAH) and joined special interest group, South African Society for Cardiovascular Research (SASCAR)
- 2011** Member of evaluation committee for approval of application for a PhD study – Ms Anjo Steyn (CSIR). Title: “Differential inhibition of adenylylated and deadenylylated Mycobacterium Tuberculosis glutamine synthetase at ATP scaffold-based inhibitors”, from the Faculty of Health Sciences at the Stellenbosch University.
- 2012** Member of evaluation committee for approval of application for a PhD study – Michelle Smit van Schalkwyk (13802135); Title: “Rooibos and melatonin: Putative modulation of the nicotine induced effects of vascular function”, from the Faculty of Health Sciences at the Stellenbosch University.
- 2012** Member of evaluation committee for approval of application for a PhD study – Margot Flint (14274205); Title: “Gamete proteomic profile of male patients suffering from sexually transmitted infections”, from the Faculty of Health Sciences at the Stellenbosch University.
- 2013** Member of evaluation committee for approval of application for a PhD study– Mr PV Dlodla; Title: Compounds specific to *Aspalathus linearis* protects the diabetic heart against oxidative stress: a mechanistic study, Diabetes Discovery Platform (DDP), MRC.
- 2017** Member of evaluation committee for approval of application for a PhD study– Dr YM Azar; Title: An investigation into the effects of prolonged exposure to a pathological micro-environment associated with diabetes mellitus in vivo on the regenerative potential of mesenchymal stem cells, from the Faculty of Health Sciences at the Stellenbosch University.
- 2018** Member of evaluation committee for approval of application for a PhD study NF Sangweni Titled: Prevention of Doxorubicin-induced cardiotoxicity: A mechanistic study from Biomedical Research and Innovation Platform, South African Medical Research Council
- 2021** Member of evaluation committee for approval of application for a PhD study– Danelle Botha (19198639); Title: Investigating a potential role for ATM protein kinase in the ER stress response in cardiovascular pathology from Stellenbosch University
- 2021** Chair of evaluation committee for approval of PhD proposal of Ngala Elvis Mbiydzonyuy (24467189-2021) Titled The Effects Of Intergenerational Epigenetics Of Traumatic Stress In A Sexual Defeat Rat Model from Stellenbosch University

## **Membership of Institutional Scientific and Teaching Committees and Academic Bodies**

- 2009-2011** Member of the Annual Academic Day Committee as Representative of Basic Sciences, Faculty of Health Sciences, Stellenbosch University.
- 2012-2014** Chairperson for the pre-clinical and clinical module in Digestive System (GIT271) for the MBChB2 programme.
- 2015-present** Secundus for the pre-clinical and clinical module in Digestive System (GIT271) for the MBChB2 programme.
- 2015** Secundus for the pre-clinical and clinical module in Haematological System (371) for the MBChB3 programme.
- 2016-present** Chairperson for the pre-clinical and clinical module in Haematological System (371) for the

	MBChB3 programme.
<b>2017 - 2020</b>	Secundus for Form and Function module in the MB,ChB Curriculum Renewal
<b>2017 - present</b>	Member of the Renewed Curriculum Programme Committee, Faculty of Medicine and Health Sciences.
<b>2019-present</b>	Member of Centre for Cardio-Metabolic Research in Africa (CARMA) Management Committee
<b>2019 - present</b>	Member of the Department of Biomedical Sciences Steering Committee
<b>2019 - present</b>	Member of the Division of Medical Physiology Steering Committee;
<b>2019 - present</b>	Member of the Division of Medical Physiology Committee for Postgraduate Research;
<b>2020 - present</b>	Member of Good Laboratory Practice (GLP) Task Team in the Division of Medical Physiology
<b>2020-present</b>	Member of Faculty Board of the Faculty of Medicine and Health Sciences for a 3 year term starting from 1 July 2020 – 1 July 2023
<b>2021 – present</b>	Chair of the Form and Function module (Year 1, Semester 2) of the renewed MBChB curriculum, Faculty of Medicine and Health Sciences

### Research Evaluation and Rating

<b>2007-2012</b>	Y2-Rated Researcher by National Research Foundation (NRF). A researcher in this group is recognized by reviewers (locally and internationally) as having the potential to establish him/herself as a researcher. The rating system recognizes researchers who produce quality research outputs and remain internationally competitive.
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### Research Outputs

#### Papers Published

1. Moolman, J.A., Genade, S., Tromp, E., Lochner, A. Ischaemic preconditioning: interaction with anti-adrenergic interventions. *J Mol Cell Cardiol* 27(6): A161, June **1995 (abstract)**
2. Lochner, A., Mouton, R., Tromp, E. "Cross-talk" between second messengers during myocardial ischaemia and reperfusion. *J Mol Cell Cardiol* 27(6), June **1995 (abstract)**
3. Lochner, A., Pentz, A., Williams, K., Tromp, E., Harper, I.S. Substrate effects on sarcolemmal permeability in the normoxic and hypoxic perfused rat heart. *Basic Res Cardiol* 91: 64-78, **1996. (cited 6)**
4. Moolman, J.A., Genade, S., Tromp, E., Lochner, A. No evidence for ischaemic preconditioning by alpha<sub>1</sub>-adrenergic signal transduction pathway or protein kinase C in the isolated rat heart. *Cardiovasc Drugs and Therapy* 10: 125-136, **1996. (cited 26)**
5. Moolman, J.A., Genade, S., Tromp, E., Lochner, A. A comparison between ischaemic preconditioning and anti-adrenergic interventions: cAMP, energy metabolism and functional recovery. *Basic Res Cardiol* 91: 219-233, **1996. (cited 12)**
6. Lochner, A., Tromp, E., Mouton, R. Signal transduction in myocardial ischaemia and reperfusion. *Mol Cell Biochem.*, 160/161: 129-136, **1996. (cited 4)**
7. Moolman, J.A., Genade, S., Tromp, E., Opie, L.H., Lochner, A. Ischaemic preconditioning does not protect hypertrophic myocardium against ischaemia. *SAMJ* 87 (Supplement 3): C151-156, **1997 (cited 21)**
8. Lochner, A., Genade, S., Tromp, E., Opie, L.H., Moolman, J.A., Thomas, S., Podzuweit, T. Reduction of cAMP by ischaemic preconditioning (IP): upstream and downstream mechanisms. *J Mol Cell Cardiol* 29:A66, **1997**

9. Genade, S., Tromp, E., Lochner, R.C., Lochner, A. Effects of halothane on postcardioplegic functional recovery: Role of cardioplegic solution. *SAMJ* 88 (Suppl. 2):C96-C98, **1998**
10. Lochner, A., Genade, S., Tromp, E., Theron, S., Trollip, G. Postcardioplegic myocardial recovery: Effects of halothane, nifedipine, HOE 694 and quinacrine. *Cardiovasc Drugs Ther.* 12: 267-277,1998 (cited 8; Impact factor = 3.098)
11. Lochner, A., Genade, S., Tromp, E., Page, C., Moolman, J.A., Thomas, S., Podzuweit, T. Role of cyclic nucleotide phosphodiesterases in ischaemic preconditioning. *Mol Cell Biochem*, 186: 169-175, **1998** (cited 42; Impact factor = 2.168)
12. Lochner, A., Genade, S., Tromp, E., Podzuweit, T., Moolman, J.A. Ischemic preconditioning and the beta-adrenergic signal transduction pathway. *Circulation* **1999**; 100: 958-966 (cited 135; Impact factor = 14.429)
13. Lochner A, Marais E, Genade S, Moolman JA. Nitric oxide: a trigger for classic preconditioning. *Am J Physiol* **2000**; 279: H2752 – H2765 (cited 166; Impact factor = 3.710)
14. Huisamen B., Marais E, Genade S, Lochner A. Serial changes in myocardial beta-adrenergic signalling system in two models of non-insulin dependent diabetes mellitus. *Mol Cell Biochem* **2001**; 219(1-2): 73-82. (cited 19; Impact factor = 2.168)
15. Marais E, Genade S, Huisamen B, Strijdom JG, Moolman JA, Lochner A. Activation of p38 MAPK induced by a multi-cycle ischaemic preconditioning protocol is associated with attenuated p38 MAPK activity during sustained ischaemia and reperfusion. *J Mol Cell Cardiol* **2001**; 33: 769-778 (cited 124; Impact factor = 5.499)
16. Marais, E., Genade, S., Strijdom, J.G., Moolman, J.A., Lochner, A. p38 MAPK activation triggers pharmacologically-induced beta-adrenergic preconditioning, but not ischaemic preconditioning. *J Mol Cell Cardiol* **2001**; 33: 2157-77 (cited 34; Impact factor = 5.499)
17. Lochner, A., Marais, E., du Toit, E.F., Moolman, J.A. Nitric oxide triggers classic ischaemic preconditioning. *Ann NY Acad Sci* **2002**; 962 (34): 402-414 (cited 94; Impact factor = 2.847).
18. Lochner, A., Genade, S., Hattingh, S., Marais, E., Huisamen, B., Moolman, J.A. Comparison between ischaemic and anisomycin-induced preconditioning: role of p38 MAPK. *J Cardiovasc Drugs & Therapy* **2003**: 17(3): 217-230 (cited 42; Impact factor = 3.098)
19. Marais, E., Genade, S., Salie R., Huisamen B., Maritz S., J., Moolman, J.A., Lochner, A. The temporal relationship between p38 MAPK and HSP27 activation in pharmacological and ischaemic preconditioning. *Basic Res Cardiol* **2005**; 100: 35-47 (cited 63; Impact factor = 6.128)
20. Moolman, J.A., Hartley S., Van Wyk, J., Marais, E., Lochner, A. Inhibition of myocardial apoptosis by ischaemic and beta-adrenergic preconditioning is dependent on p38 MAPK. *Cardiovasc Drugs Ther.* **2006** Feb;20(1):13-25 (cited 55; Impact factor = 3.098)
21. Marais, E., Genade, S., Lochner, A. CREB Activation and Ischaemic Preconditioning. *Cardiovasc Drugs Ther.* **2008** Feb;22(1):3-17 (cited 42; Impact factor = 3.098)
22. Lochner A, Marais E, Genade S, Huisamen B, du Toit EF, Moolman JA. Protection of the ischaemic heart: investigations into the phenomenon of ischaemic preconditioning: Review Article. *Cardiovasc J Afr.* **2009** Jan-Feb;20(1):43-51 (cited 87; Impact factor = 0.848)
23. Huisamen B., Genis A, Marais E, Lochner A. Pre-treatment with a DPP-4 Inhibitor is Infarct Sparing in Hearts from Obese, Pre-diabetic Rats. *Cardiovasc Drugs Ther* **2011**; 25:13–20 (cited 139; Impact factor = 3.130)
24. Maarman G, Marais E, Lochner A, du Toit EF. Effect of Chronic CPT-1 Inhibition on Myocardial Susceptibility to Ischemic-Reperfusion Injury in a Model of Diet-Induced Obesity. *Cardiovasc Drugs Ther* **2012**; 26 (3): 205-216, doi:10.1007/s10557-012-6377-1 (Editorial to this article: *Cardiovasc Drugs Ther* 2012, DOI 10.1007/s10557-012-6383-3) (cited 36; Impact factor = 3.130)

25. Govender J, Loos B, Marais E, Engelbrecht A-M. Mitochondrial catastrophe during doxorubicin-induced cardiotoxicity: A review of the protective role of melatonin. *Journal of Pineal Research*, **2014**; 57:367–380, Doi:10.1111/jpi.12176. (cited 136; Impact factor = 7.812)
26. Van Vuuren D, Marais E, Genade, S., Lochner, A. The differential effects of FTY720 on functional recovery and infarct size following myocardial ischaemia/reperfusion. *Cardiovasc J Afr* **2016**; 27: 375–386, DOI: 10.5830/CVJA-2016-039. (cited 6; Impact factor = 1.022)
27. Webster I., Salie R., Marais E, Fan W-J Maarman G., Huisamen B., Lochner A. Myocardial susceptibility to ischaemia/reperfusion injury on obesity: a re-evaluation of the effects of age. *BMC Physiology* **2017**; 17:3 DOI 10.1186/s12899-017-0030-y. (cited 16; Impact factor = 0.965)
28. Lochner A, Marais E, Huisamen B. Melatonin and cardioprotection against ischaemia/reperfusion injury: what's new? *J Pineal Res.* **2018**;e12490; DOI - 10.1111/jpi.12490 (cited 99; Impact factor = 7.812)
29. Govender J, Loos B, Marais E, Engelbrecht A-M. Melatonin improves cardiac and mitochondrial function during doxorubicin-induced cardiotoxicity: A possible role for peroxisome proliferator-activated receptor gamma coactivator 1-alpha and sirtuin activity? *Toxicology and Applied Pharmacology.* **2018**;358, 86-101 doi:10.1016/j.taap.2018.06.031 (cited 33; Impact factor = 3.75)
30. Salie R., Alsahlin A.K.H., Marais E, Lochner A. Cardioprotective effects of Beta3-Adrenergic Receptor ( $\beta$ 3-AR) pre-, per- and post-treatment in ischaemia-reperfusion, *Cardiovascular Drugs and Therapy*, **2019**; 1 -15; DOI 10.1007/s10557-019-06861-5 (cited 12; Impact factor = 4.181)
31. Lochner A, Genade S, Genis A, Marais E, Salie R. Long-chain free fatty acids inhibit ischaemic preconditioning of the isolated rat heart. *Molecular and Cellular Biochemistry*, June **2020**; 473, 111–132. <https://doi.org/10.1007/s11010-020-03812-9> (cited 9; Impact factor = 3.396)
32. Smit SE, Manirafasha C, Marais E, Johnson R, Huisamen B. Cardioprotective function of green rooibos (*Aspalathus linearis*) extract supplementation in *ex vivo* ischaemic pre-diabetic rat hearts. *Planta Med* **2022**; 88(01): 62-78, DOI: 10.1055/a-1239-9236. (cited 6; Impact factor = 3.352)
33. Salie R., Marais E, Lochner A. Beta 3-Adrenergic Receptor ( $\beta$ 3-AR) Activation at the End of Sustained Ischemia and / or Early Reperfusion may Prove to be a Valuable Cardioprotective Strategy. *J Clin Cardiol.* **2022**;3(2):47-50 (cited 0; Impact factor = 2.882)

#### **Book Chapters Published**

1. Lochner, A., Marais E, Genade, S., Huisamen B., Strijdom, J.G., Moolman, J.A. Ischaemic and pharmacological preconditioning is associated with attenuation of p38 MAPK activation during sustained ischaemia and reperfusion. In: *Myocardial ischaemia and Preconditioning*. Edit N S Dhalla *et al.* Kluwer Academic Publishers, Boston, USA 2002: 249-273.
2. Moolman, J.A., Marais E, Genade, S., Syanda Makaula, S., Lochner, A. The Role of the Beta-Adrenergic Signal Transduction Pathway in Myocardial Protection. In: *Signal transduction in health and disease*. Ed A&M Srivastava; Springer Verlag, Chapter 4, 2008: 67-87.

#### **Published Abstracts**

1. Lochner, A., Genade, S., Tromp E, Moolman, JA., Thomas, S., Podzuweit, T. Beta-adrenergic signal transduction in the ischaemic preconditioned heart. FEBS: Febs Special Meeting, Amsterdam 1997, abstracts P2-077
2. Lochner, A., Genade, S., Tromp E, Moolman, JA., Thomas, S., Podzuweit, T. Reduction of cAMP by ischaemic preconditioning (IP): upstream and downstream mechanisms. *J Mol Cell Cardiol*, XVII European Section meeting of the International Society for Heart Research, Paris 1997, 29; A66.

3. Moolman, J.A., Tromp, E., Genade, S., Lochner, A. Role of cGMP in eliciting ischaemic preconditioning (PC). J Mol Cell Cardiol: International Society of Heart Research, European Section, Rhodes 1998, 30; A20.
4. Marais, E., Genade, S., Moolman, JA., Lochner, A.  $\beta$ -adrenergic stimulation before sustained ischaemia mimics preconditioning (PC). J Mol Cell Cardiol: XX European Section meeting of the International Society for Heart Research, Maastricht, The Netherlands 1999, 31; Fr77.
5. Genade, S., Moolman, JA., Marais, E., Lochner, A. Ischaemic preconditioning (PC): Are the opioids involved? J Mol Cell Cardiol, XX European Section meeting of the International Society for Heart Research, Maastricht, The Netherlands 1999, 31; Fr78.
6. Van Rooyen, J., Marais, E., Benadé, A.J.S. The effect of type of diet and EPA supplementation on lipoprotein profile. J Mol Cell Cardiol, XX European Section meeting of the International Society for Heart Research, Maastricht, The Netherlands 1999, 31; Sa70.
7. Moolman JA, Tromp E, Genade S, Lochner A. Nitric oxide is a trigger for classic preconditioning in the isolated rat heart. Eur Heart J. XXII Congress of European Society of Cardiology, Amsterdam Aug 2000: 21 (Abstr suppl): 476
8. Lochner, A., Marais, E., Genade, S., Moolman, JA. Beta-adrenergic receptor-induced protection of the ischaemic myocardium: a putative role for p38 MAPK. J Mol Cell Cardiol, 17<sup>th</sup> World Congress of the International Society for Heart Research, Winnipeg, Canada, 2001, 33; A70.
9. Moolman, JA., Marais, E., Genade, S., Bailey L., Lochner, A. Beta-adrenergic mediated attenuation of p38 MAPK may be involved in the protective effect of preconditioning. Euro Heart J, The 23 Annual Congress of the European Society for Cardiology, Stockholm, Sweden, Sep 2001: 22 (Abstr Suppl): P296.
10. Marais, E., Genade, S., Moolman, JA., Lochner, A. Is Activation of p38 MAPK a trigger for ischaemic preconditioning? European Heart Journal: Journal of the European Society of Cardiology, The congress of the European Society of Cardiology, Berlin, Germany, 2002, 23; (Abstr Suppl): P244.
11. Marais E, van Wyk J., Moolman JA, Lochner, A. Preconditioning-induced cardioprotection: The role of cyclic AMP response element binding protein, CREB, activation. Cardiovascular J of South Africa, SA Heart Conference, Cape Town, 2003: 272.
12. Marais, E., Van Wyk J., Moolman, JA., Lochner, A. Temporal relationship between p38 MAPK and HSP27 activation in ischaemic preconditioning. Basic Res Cardiol, Heart Failure/ISHR-ES Meeting, Strassbourg, France, 2003; 98:1
13. Moolman, JA., Marais, E., Van Wyk J., Lochner, A. Ischaemic preconditioning activates HSP27 in cytosolic, mitochondrial and cell membrane fractions of the myocardium. European Heart J, European Society of Cardiology, Vienna, 2003, 24: 717.
14. Huisamen B, Van Wyk J, Marais E, Lochner A. Apoptosis in Type 2 diabetic heart. J of Endocrinology, Metabolism and Diabetes of South Africa, Champagne Castle Sports Resort, Champagne Castle, South Africa, 2003:36.
15. Lochner, A., Marais, E., Genade, S. Events downstream of p38 MAPK in ischaemic preconditioning : HSP27 and CREB. Cardiovascular J of South Africa, International Society for Heart Research, Satellite meeting on "Cellular injury in ischaemia", Kruger National Park, South Africa, 2004: 4-5.
16. Lochner, A., Marais, E., Genade, S., Moolman, JA. cAMP response element binding protein (CREB) activation : a trigger for ischaemic preconditioning. J Mol Cell Cardiol, International Society for Heart Research: European Section, Tromso, Norway, 2005, 38: (6): 1042.
17. Marais E, Genade, S., Lochner, A. Epac (exchange protein directly activated by cyclic AMP) mediated cardioprotection via ERK. 9<sup>th</sup> Annual South African Heart Association General Meeting Wild Coast Sun, Eastern Cape, Cardiovasc J Africa, 2008, 19 (5), S21.



18. Marais E, Ndlovu Z., Lochner, A. Selective Epac modulation mediates cardioprotection during ischaemia/reperfusion. 15<sup>th</sup> Annual South African Heart Association Congress, Durban, SA Heart Journal, Spring 2014 Vol 11, No 4, p189. DOI: <https://doi.org/10.24170/11-4-1741>
19. Huisamen B, Genis A, Marais E, Strijdom H. DPP-4 inhibition is cardioprotective and restores pancreatic function in obese, insulin resistant rats. Cardiovascular research 2014 vol 103, S93. <https://europepmc.org/abstract/med/25020888>
20. Huisamen B., Van Vuuren M., Espach Y., Marais E, Lochner A. Is low ATM protein responsible for myocardial insulin resistance associated with obesity? Frontiers in CardioVascular Biology, Cardiovascular Research July 2016 Vol. 111, pp. S88-S89 , DOI: 10.1093/cvr/cvw147
21. Ndlovu Z, Strijdom H, Lochner A, Marais E. Cardioprotection in hearts from obese rats is mediated via an Exchange protein directly activated by cyclic AMP (Epac) - ERK pathway. 18<sup>th</sup> Annual South African Heart Association Congress, Sandton Convention Centre, SA Heart Journal, 2017 Vol 14, No 4, p247.
22. Ndlovu Z, Strijdom H, Lochner A, Marais E. Vascular alterations in diet-induced obese rats: role of exchange protein directly activated by cyclic AMP (Epac). 15th Annual Society for Heart and Vascular Metabolism meeting, Weimar ,Germany, Sep 2017. P2.18
23. B Huisamen, M Van Vuuren, S Smit, S Kotzé, J Layman, S Windvogel, E Marais, A Lochner. Effects Of A Green Aspalathus Linearis Extract On Obesity-Related Co-Morbidities, 17th Annual Society for Heart and Vascular Metabolism meeting, Amsterdam, The Netherlands, 23-26 June 2019

#### **Oral and Poster Presentations at International Conferences**

1. Benadé, A.J.S., Van Rooyen, J., Tromp, E. The influence of diet on the metabolism of GLA and EPA in African Vervet monkeys. 3<sup>rd</sup> International Congress on Essential Fatty Acids and Eicosanoids. Adelaide, Australia, 1992
2. Moolman, J.A., Genade, S., Tromp, E, Lochner, A. Ischaemic preconditioning: interaction with anti-adrenergic interventions. XV World Congress of the International Society for Heart Research, Prague, 1995
3. Lochner, A., Mouton, R., Tromp, E. "Cross-talk" between second messengers during myocardial ischaemia and reperfusion. XV World Congress of the International Society for Heart Research, Prague, 1995
4. Marais E, Genade, S., Bailey L., Keyser AT, Huisamen B, Moolman JA, Lochner, A. Pharmacological attenuation of p38 mitogen activated protein kinase (MAPK) during ischaemia-reperfusion is associated with myocardial protection. Third International Congress of the African Association of Physiological Sciences/Quadrennial Official Regional Congress of the International Union of Physiological Sciences, Pretoria, South Africa, 2000.
5. Strijdom JG, Marais, E, Genade, S., Moolman, JA., Lochner, A. Ischaemic preconditioning and beta-stimulation protect against hypoxia in an isolated, adult cardiomyocyte model. Third International Congress of the African Association of Physiological Sciences/Quadrennial Official Regional Congress of the International Union of Physiological Sciences, Pretoria, South Africa, 2000.
6. Lochner, A., Marais, E, Genade, S., Moolman, JA. Nitric oxide pre-treatment protects against myocardial ischaemia. Third International Congress of the African Association of Physiological Sciences/Quadrennial Official Regional Congress of the International Union of Physiological Sciences, Pretoria, South Africa, 2000.
7. Moolman, JA., Marais, E, Genade, S., Strijdom JG, Huisamen B., Lochner, A. The protective effect of preconditioning (PC) is associated with attenuation of p38 MAPK during ischaemia. Fourth International Meeting Organised by the Working Group on Heart Failure of the European Society of Cardiology, Barcelona, Spain, 2001.

8. Marais, E., Genade, S., Van Wyk J., Huisamen B., Moolman, JA., Lochner, A. Activation of p38 Mitogen Activated Protein Kinase (p38 MAPK) is detrimental to the ischaemic heart. International Immunopharmacology Congress, Sun City, 2001.
9. Lochner A., Marais E. Myocardial protection against ischaemia: role of p38 mitogen activated protein kinase. XXXIV International Congress of Physiological Sciences, Christchurch, 2001.
10. Lochner, A., Marais, E., Van Wyk J., Moolman, JA. The temporal relationship between p38 MAPK and HSP27 activation in ischaemic preconditioning. Scientific conference on the molecular mechanisms of growth, death and regeneration of the myocardium, Snowbird, Utah, USA, 2003.
11. Marais E., Genade, S., Lochner, A. Epac (exchange protein directly activated by cyclic AMP) mediated cardioprotection via ERK. 9<sup>th</sup> Annual South African Heart Association General Meeting Wild Coast Sun, Eastern Cape, Cardiovasc J Africa, 2008, 19 (5), S21.
12. Marais E., Ndlovu Z., Lochner, A. Selective Epac modulation mediates cardioprotection during ischaemia/reperfusion. 15<sup>th</sup> Annual South African Heart Association Congress, Durban, SA Heart Journal, Spring 2014 Vol 11, No 4, p189.
13. Huisamen B., Van Vuuren M., Espach Y., Marais E., Lochner A. Is low ATM protein responsible for myocardial insulin resistance associated with obesity? Cardiovascular Research July 2016 Vol. 111, pp. S88-S89 , DOI: 10.1093/cvr/cvw147
14. Ndlovu Z, Strijdom H, Lochner A, Marais E. Cardioprotection in hearts from obese rats is mediated via an Exchange protein directly activated by cyclic AMP (Epac) - ERK pathway. 18<sup>th</sup> Annual South African Heart Association Congress, Sandton Convention Centre, SA Heart Journal, 2017 Vol 14, No 4, p247.
15. Ndlovu Z, Strijdom H, Lochner A, Marais E. Vascular alterations in diet-induced obese rats: role of exchange protein directly activated by cyclic AMP (Epac). 15th Annual Society for Heart and Vascular Metabolism meeting, Weimar ,Germany, Sep 2017. P2.18
16. B Huisamen, M Van Vuuren, S Smit, S Kotzé, J Layman, S Windvogel, E Marais, A Lochner. Effects Of A Green Aspalathus Linearis Extract On Obesity-Related Co-Morbidities. 17th annual Scientific Sessions (SHVM 2019) of the Society for Heart and Vascular Metabolism – Amsterdam, The Netherlands, 23-26 June 2019.

#### **Oral and Poster Presentations at National Conferences**

1. Tromp, E., Mouton, R., Lochner, A. Protein kinase C activity during myocardial ischaemia. Physiology Society of Southern Africa, 1993
2. Tromp, E., Mouton, R., Lochner, A. Communication between second messengers during myocardial ischaemia and reperfusion. 22nd Annual Congress of the Physiology Society of Southern Africa, 1994
3. Lochner, A., Tromp, E., Mouton, R. Cross-talk between alpha<sub>1</sub>- and beta-adrenergic signaling pathways during ischaemia and reperfusion. Biannual meeting of the South African Cardiology Society, 1994
4. Lochner, A., Tromp, E., Mouton, R. The effect of ischaemia on second messengers in the heart. Society for Endocrinology, Metabolism and Diabetes in Southern Africa, 1994
5. Tromp, E., Mouton R., Lochner, A. Tweede boodskappers tydens miokardiale isgemie en herperfusie. Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 1995
6. Lochner, A., Tromp, E., Genade, S., Moolman, JA. Prekondisionering beskerm die isgemiese miokardium deur inhibisie van die beta-adrenerge respons. Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 1995
7. Tromp, E., Hattingh, P.W., Lochner, A. Alpha<sub>1</sub>-adrenergic receptor stimulation provides inotropy in beta-and Ca<sup>2+</sup>-blocked isolated rat hearts after cardioplegic arrest. Physiology Society of Southern Africa, 1995

8. Genade, S., Moolman, J.A., Tromp, E., Lochner, A. The hypertrophic myocardium is not protected by ischaemic preconditioning. Physiology Society of Southern Africa, 1995
9. Lochner, A., Tromp, E., Genade, S., Moolman, JA. Ischaemic preconditioning: an anti-adrenergic phenomenon. Physiology Society of Southern Africa, 1996
10. Lochner, A., Tromp, E., Genade, S., Moolman, JA. Preconditioning reduces the beta-adrenergic response to myocardial ischaemia. Biannual meeting of the South African Cardiology Society, 1996
11. Genade, S., Tromp, E., Huisamen, B., Lochner, A. Preconditioning of the myocardium in pathophysiological conditions. Physiology Society of Southern Africa 1997
12. Tromp, E., Genade, S., Huisamen, B., Lochner, A. Ischaemic preconditioning of the myocardium: role for cyclic nucleotides. Physiology Society of Southern Africa 1997
13. Lochner, A., Genade, S., Tromp, E., Trollip, G. Postcardioplegic myocardial recovery: effects of halothane, nifedipine, HOE 694 and quinacrine. Physiology Society of Southern Africa 1997
14. Tromp, E., Genade, S., Moolman, JA., Lochner, A. Herhaalde beta-adrenerge stimulasie beskerm die hart teen daaropvolgende isgemiese beskadiging. 42ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 1998
15. Tromp, E., Genade, S., Moolman, JA., Lochner, A. Involvement of nitric oxide (NO) in ischaemic preconditioning. Physiology Society of Southern Africa, 1998
16. Moolman, JA., Tromp, E., Genade, S., Lochner, A. Role of the  $\beta$ -adrenergic signal transduction pathway in ischaemic preconditioning. Physiology Society of Southern Africa, 1998
17. Marais E, Moolman JA, Genade, S., Lochner, A.  $\beta$ -adrenergic stimulated protection against ischaemia may be related to activation of p38 mitogen activated protein kinase (MAPK) in the isolated rat heart. 2<sup>nd</sup> Annual Medical Research Day by AstraZeneca International 1999
18. Marais E, Genade, S., Moolman, JA., Lochner, A.  $\beta$ -adrenerge beskerming teen isgemie mag verband hou met die aktivering van p38 mitogeen geaktiveerde proteien kinase (MAPK). 43ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 1999
19. Marais E, Moolman JA, Genade, S., Lochner, A. The mechanism of  $\beta$ -adrenergic preconditioning is p38 MAP kinase dependent. 27<sup>th</sup> Annual Congress of the Physiology Society of Southern Africa, 1999
20. Moolman JA, Bailey L, Mattheyse M, Marais E, Lochner A. The role of stress-activated kinases in myocardial adaptation. 27<sup>th</sup> Annual Congress of the Physiology Society of Southern Africa, 1999
21. Marais E, Genade, S., Bailey L., Keyser AT, Huisamen B, Moolman JA, Lochner, A. Inhibisie van p38 mitogeen geaktiveerde proteien kinase (p38 MAPK) tydens miokardiale isgemie verbeter meganiese herstel tydens herperfusie. 44ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2000
22. Lochner, A. Marais E, Genade, S., Moolman JA. Rol van stikstofoksied in isgemiese precondisionering. 44ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2000.
23. Strijdom J.G., Marais E, Genade, S., Moolman JA, Lochner, A. Beskerming teen isgemie in volwasse, geïsoleerde kardiaale miosiete. 44ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2000.
24. Marais E, Genade, S., Bailey L., Keyser AT, Huisamen B, Moolman JA, Lochner, A. Ischaemic preconditioning: A p38 mitogen activated protein kinase (p38 MAPK) mediated event? 1<sup>st</sup> Congress of the South African Heart Association, Stellenbosch, South Africa, 2000.

25. Strijdom J.G., Marais E, Genade, S., Moolman JA, Lochner, A. Protection against ischaemia in isolated rat adult cardiac myocytes. 1<sup>st</sup> Congress of the South African Heart Association, Stellenbosch, South Africa, 2000.
26. Moolman JA, Genade, S., Marais E, Strijdom J.G., Huisamen B., Lochner, A. p38 MAP kinase is 'n belangrike mediator van isgemiese beskadiging van die miokardium. 45ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2001.
27. Lochner, A., Genade, S., Marais E. Ondersoek na die rol van p38 mitogeen-geaktiveerde proteïenkinase (p38 MAPK) in isgemiese prekondisionering (IP). 46ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2002.
28. Marais E, Genade, S., van Wyk J., Moolman JA, Lochner, A. Is p38 mitogen activated protein kinase (MAPK) activation a trigger in ischaemic preconditioning? 5<sup>th</sup> Annual Medical Research Day by AstraZeneca International, 2002.
29. Hartley S., Genade S., Marais E., Moolman J.A., Lochner A. Attenuation of p38 MAPK activation during myocardial ischaemia/reperfusion (I/R) is associated with a reduction in necrosis and apoptosis. Physiology Society of Southern Africa, Stellenbosch, 2002.
30. Marais E, van Wyk J., Moolman JA, Lochner, A. HSP27 in isgemiese prekondisionering. 47ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2003.
31. Marais E, van Wyk J., Moolman JA, Lochner, A. The role of cyclic AMP response element binding protein, CREB, in ischaemia preconditioning. Physiology Society of Southern Africa, 2003.
32. Marais E, Genade, S., Lochner, A. cyclic AMP response element binding protein (CREB) aktivering tydens isgemiese prekondisionering (IP). 49ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2005.
33. Marais E, Engelbrecht P., Genade, S., Lochner, A. Activation of cAMP response element binding protein (CREB): A trigger of ischaemic preconditioning. Physiology Society of Southern Africa, Sport Science Institute, Cape Town, 2005
34. Marais E, Lochner, A. The guanine nucleotide exchange factor Epac (exchange factor directly activated by cAMP) involvement in preconditioning. 50ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2006.
35. Marais E, Lochner, A. Altered beta-adrenergic signaling in preconditioning? Physiology Society of Southern Africa, University Of KwaZulu-Natal, Durban, 2006
36. Marais E, Lochner A. EPAC (exchange protein directly activated by cyclic AMP) medierer miokardiale beskerming via ERK. 51ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2007.
37. Fan W-J, Marais E, Moolman JA, Lochner A. Dexamethasone protects the heart against ischaemia-reperfusion injury via upregulation of the dual-specificity phosphatase MKP-1. 51ste Akademiese Jaardag, Fakulteit Geneeskunde en Tandheelkunde, Universiteit van Stellenbosch, Tygerberg, 2007.
38. Maarman GJ, du Toit EF, Marais E, Lochner A. Effects of oxfenicine on myocardial function & resistance to ischemia/reperfusion injury in rodent model of the metabolic syndrome. 53ste Akademiese Jaardag, Fakulteit Gesondheidswetenskappe, Universiteit van Stellenbosch, Tygerberg, 2009.
39. Marais E, Genade, S., Lochner, A. Epac (exchange protein directly activated by cyclic AMP) mediated cardioprotection via ERK and PI3K. Physiology Society of Southern Africa, Stellenbosch University, Tygerberg, 2009.
40. Maarman GJ, du Toit EF, Marais E, Lochner A. Effects of oxfenicine on myocardial function & resistance to ischemia/reperfusion injury in rodent model of the metabolic syndrome. Physiology Society of Southern Africa, Stellenbosch University, Tygerberg, 2009.

41. Marais E, Lochner A. The role of Epac (exchange protein directly activated by cAMP) in Hypertrophic Heart Disease. Physiology Society of Southern Africa hosted by Walter Sisulu University Eastern Cape, 2010
42. Fortuin M, Marais E, Lochner A. Intracellular signalling in the development of cardiac hypertrophy and susceptibility to ischaemia/reperfusion injury in obesity-induced insulin resistance. Physiology Society of Southern Africa hosted by University Western Cape, 2011.  
<http://www.academicjournals.org/sre/contents/2012Cont/4AprConf.htm> ;  
[http://www.academicjournals.org/journal/SRE/edition/4\\_April,\\_2012](http://www.academicjournals.org/journal/SRE/edition/4_April,_2012) ;  
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43. Jansen van Rensburg R.O., Marais E. Exchange Protein Directly Activated by cAMP (EPAC) Mediated Cardioprotection: Ischaemia Reperfusion Pre- & Post-treatment. Physiology Society of Southern Africa hosted by Stellenbosch University, 2012.
44. Adams L.J., Marais E. Optimization of the High Pressure Liquid Chromatography (HPLC) for High Energy Phosphates (HEPs). 57ste Akademiese Jaardag, Fakulteit Geneeskunde en Gesondheidswetenskappe, Universiteit van Stellenbosch, Tygerberg, 2013.
45. Ndlovu Z, Lochner A, Marais E. The cardioprotective potential of Exchange protein directly activated by cyclic AMP (Epac). NRF-DST Internship Programme Research Day at the Cape Peninsula University of Technology, 2015.
46. Salie R., Alsalhin A.K.H., Marais E, Lochner A. Beta-3 adrenergic receptor mediated cardioprotection. 59ste Akademiese Jaardag, Fakulteit Geneeskunde en Gesondheidswetenskappe, Universiteit van Stellenbosch, Tygerberg, 2015.
47. Salie R., Alsalhin A.K.H., Marais E, Lochner A., Beta-3 adrenergic receptor mediated cardioprotection. Physiology Society of Southern Africa hosted by the Departments of Physiology of the University of the Witwatersrand and the University of Johannesburg, 2015
48. Marais E, Mzezewa S, Webster I, Maarman G, Lochner A. Chronic obesity: An observational study of cardiac function and aortic signaling pathways. Physiology Society of Southern Africa hosted by the Departments of Physiology of the University of the Witwatersrand and the University of Johannesburg, 2015
49. Ndlovu Z., Strijdom H., A Lochner A., Marais E. High fat diet-induced obesity: the role of Epac (Exchange protein directly activated by cyclic AMP) in myocardial ischaemia/reperfusion of ex vivo rat hearts. South African Society for Cardiovascular Research (SASCAR) (2016)
50. Marais E, Ndlovu Z., A Lochner A., Strijdom H. The role of Epac (exchange protein directly activated by cAMP) in obesity-induced cardiovascular dysfunction. SA Heart Annual congress (2016)
51. Eldieb N., Bester D., Marais E. The effect of Rooibos treatment on vascular function in obese rat aorta. Physiology Society of South Africa (PSSA) (2016)
52. Ndlovu Z., Strijdom H., A Lochner A., Marais E. High fat diet-induced obesity: the role of Epac (Exchange protein directly activated by cyclic AMP) in myocardial ischaemia/reperfusion of ex vivo rat hearts. Physiology Society of South Africa (PSSA) (2016)
53. Eldieb N., Bester D., Marais E. The effect of Rooibos treatment on vascular function in obese rat aorta. 60th Annual Academic Day, Faculty of Medicine and Health Sciences, Stellenbosch University (2016)
54. Ndlovu Z., Strijdom H., A Lochner A., Marais E. High fat diet-induced obesity: the role of Epac (Exchange protein directly activated by cyclic AMP) in myocardial ischaemia/reperfusion of ex vivo rat hearts. 60th Annual Academic Day, Faculty of Medicine and Health Sciences, Stellenbosch University (2016)
55. Marais E, Ndlovu Z, Lochner A, Strijdom H. Exchange protein directly activated by cyclic AMP (Epac) activation improves vasorelaxation in a nitric oxide synthase (NOS)-dependent manner in both lean and diet-induced obese rats. CoBNeST 2018 | 7-10 October 2018- Spier Estate Stellenbosch, South Africa

56. Sithelo P, Marais E, Lopes J., Strijdom H., Maarman G. Investigating the efficacy and underlying mechanism of cardioprotection afforded by Rooibos (*Aspalathus linearis*) in Angiotensin-II induced cardiomyocyte hypertrophy & apoptosis. Dept of Biomedical Sciences Research Day, Stellenbosch University (2019).
57. Sithelo P, Marais E, Lopes J., Strijdom H., Maarman G. Investigating the efficacy and underlying mechanism of cardioprotection afforded by Rooibos (*Aspalathus linearis*) in Angiotensin-II induced cardiomyocyte hypertrophy & apoptosis. CARMA Quarterly Virtual Research Meeting – 2 July 2020
58. Parker K, Marais E, Kotzé SH, Ntamo Y, Chellan N, Muller CJF, Riedel S. Investigation of the intestinal immune status in diabetic db/db mice. Biomedical Research and Innovation Platform Symposium 2021
59. Parker K, Marais E, Kotzé SH, Kotze-Hörstmann LM, Sadie-van Gijzen H, Muller CJF, Riedel S. The effect of rooibos supplementation on intestinal Immunoglobulin A in Wistar rats fed a high fat or high sucrose diet. The Society for Endocrinology, Metabolism & Diabetes of South Africa will host their 2021 Congress On-Line
60. Shaboodien S, Marais E, Maarman G. Natural Products for Healthy Aging: from Molecular Targets to Therapy Symposium from 8 - 10 November 2021
61. Vlok C, Marais E, Maarman G. Natural Products for Healthy Aging: from Molecular Targets to Therapy Symposium from 8 - 10 November 2021
62. Rass A, Fourie C, Marais E, Engelbrecht A-M. The Tumour Microenvironment: The effect of Breast Cancer on the Endothelium. Physiology Society of South Africa (PSSA) (Sep 2022)
63. Willemse I, Windvogel S, Marais E, Huisamen B. An Investigation into the antihypertensive effects of Rooibos Extracts. Physiology Society of South Africa (PSSA) (Sep 2022)

#### **Organisational activities**

- 2009** Local Organizing Committee member of the 37th National PSSA Conference
- 2018** Member of the scientific committee for the 2018 annual conference of the Physiological Society of Southern Africa (PSSA), which is to be held in October 2018 as part of a multi-society joint meeting – the 1st Conference of Biomedical and Natural Sciences and Therapeutics (CoBNeST)
- 2015** Member of organizing committee for South African Society for Cardiovascular Research (SASCAR) workshop on Western blotting technology
- 2019-2020** Chairperson for Centre for Cardiometabolic Research in Africa (CARMA) Launch committee which successfully took place on the 4<sup>th</sup> of March 2020.

#### **Reviewer for Paper Manuscripts**

- 2016** Reviewed article for Cardiovascular Drugs and Therapy (Feb 2016) titled: The Impact Of Chronic Glycogen Synthase Kinase-3 Inhibition On Remodeling Of Normal And Pre-Diabetic Rat Hearts, authors: Barbara Huisamen, PhD Tandekile Lubelwana-Hafver, MSc; Dumisile Lumkwana, Msc; Amanda Lochner, PhD, DSc
- 2016** Reviewed article for Scandinavian Cardiovascular Journal (Jul 2016) titled: Adenosine A2A and A2B receptor substantially attenuate ischemia/reperfusion injury in septic rat hearts, authors: Hendrik Busse Diane Bitzinger; Klaus Höcherl; Timo Seyfried; Michael Gruber; Bernhard M. Graf; York Zausig
- 2016** Reviewed article for Cardiovascular Drugs and Therapy (May 2016) titled: Insulin and GSK3 $\beta$ -inhibition Interferes with the Infarct sparing-effect of Postconditioning, authors: Helgeland, Erik; Risa, Anita; Sandøy, Rune; Askeland, Maren; Breivik, Lars; Jonassen, Anne.
- 2019** Reviewed article for Fundamental & Clinical Pharmacology (Mar 2019) titled: Role of ATP sensitive potassium channel and endothelial nitric oxide synthase in mediating the cardioprotective effect of hemin in isoprenaline induced myocardial infarction, authors: M.M.M. Refaie, R.A. Rifaai, A.M.A. Bayoumi, S Shehata

### **Reviewer for Grant Proposals, Rating and Ethical applications**

- 2008** Referee in a Bursary application for Master's degree to the NRF by Ms DA McAlister for a project titled "Effect of ROS on Sperm" at Stellenbosch University
- 2008** Reviewer in Research Funding Application of M. Tech Biomedical Technology student, Ms ET Thamahane for a project titled "The effect of dietary supplementation of red palm oil (RPO) on the cellular Reperfusion Injury Salvage Kinase pathway in isolated perfused rat hearts subjected to ischemia and reperfusion", on behalf of the Cape Peninsula University of Technology, Faculty of Health and Wellness Sciences.
- 2009** Reviewed application for ethical clearance for the use of animals requested by Subcommittee B of the Research Committee, Stellenbosch University: Titled "A Skeletal Muscle Injury Model For Mice" by Dr F Macaluso, Department of Physiological Sciences, Stellenbosch University, March 2009
- 2009** Reviewed application for ethical clearance for the use of animals requested by Subcommittee B of the Research Committee, Stellenbosch University: Titled "Comparison of two NSAID treatment regimes for contusion injury: a study in rats" by Dr Carine Smith, Department of Physiological Sciences, Stellenbosch University, October 2009
- 2010** Reviewed application for ethical clearance for the use of animals requested by Subcommittee B of the Research Committee, Stellenbosch University: Titled "Comparison of two NSAID treatment regimes for contusion injury: a study in rats" by Dr Carine Smith, Department of Physiological Sciences, Stellenbosch University, October 2009
- 2011** Reviewed funding application for a D. Tech Biomedical Technology student, Mrs ETM Thamahane on the project titled "Effect of rooibos and red palm oil on oxidative stress induced cardiomyopathy and ischaemia-reperfusion injury", from the Faculty of Health and Wellness Sciences at the Cape Peninsula University of Technology.
- 2011** Reviewed funding application for a MTech Biomedical Technology student, Ms T Olivier on the project titled "Effects of dietary kolaviron supplementation on oxidative stress and associated pathology", from the Faculty of Health and Wellness Sciences at the Cape Peninsula University of Technology.
- 2014** Reviewer for five MRC self-initiated research grant applications:
- 2018** Assisted South Africa's National Research Foundation (NRF) in evaluating the quality of the research outputs and standing of Dr R Johnson
- 2019** Reviewer of application of Dr R Salie for funding in NRF Competitive Support for Unrated Researchers (CSUR) Programme
- 2019** Reviewer of application of Dr C Pheiffer for funding in NRF Competitive Support for Unrated Researchers (CSUR) Programme
- 2020** Reviewer of three Doctoral applications and two Extension-doctoral applications for NRF bursaries
- 2021** Reviewer of 12 Harry Crossley grant applications

### **Reviewer for Conference Abstracts**

- 2018** Member of the scientific committee and abstract reviewer for the 2018 annual conference of the Physiological Society of Southern Africa (PSSA), which is to be held in October 2018 as part of a multi-society joint meeting – the 1st Conference of Biomedical and Natural Sciences and Therapeutics (CoBNeST)

### **Examiner for courses, theses and dissertations**

- **Internal examiner**

- 2010** Internal examiner for a **MSc** student, Mashudu Mudau on the project titled "Endothelial Dysfunction In Cardiac Microvascular Endothelial Cells: An Investigation Into Cellular Mechanisms", from the Faculty of Health Sciences at the Stellenbosch University.

- 2012** Internal examiner for a **PhD** student, Me Margareta de Vos (14308-231-2004) on the project titled: "Identification Of Mechanisms Regulating The Intracellular Concentration Of Rifampicin In Mycobacterium Tuberculosis", from the Faculty of Health Sciences at the Stellenbosch University.
- 2013** Internal examiner for a **PhD** student, Me Gina Leisching on the project titled: "The manipulation of the autophagic pathway sensitises cervical cancer cells to cisplatin treatment", from Physiological Sciences at Stellenbosch University.
- 2014** Internal examiner for a **MSc** student, Me L Ehlers (14839911-2006) on the project titled "Investigation of the underlying molecular mechanisms of immune modulation by contraceptive Medroxyprogesterone acetate (MPA)". Faculty of Health Sciences at the Stellenbosch University.
- 2014** Internal examiner for a **PhD** student, Mr J Fan on the project titled: "A profile of kinase activation in relation to recovery of the hearts of obese pre-diabetic rats subjected to ischaemia/reperfusion", from the Faculty of Health Sciences at the Stellenbosch University
- 2015** Internal eksaminator vir **MSc** in Geneeskundige Wetenskappe (Geneeskundige Fisiologie) kandidaat Me R Kaskar (15381536-2008), from the Faculty of Health Sciences at the Stellenbosch University
- 2016** Internal examiner for a **MSc** student Ms Emilene Breedt on: "An evaluation of Trimetazidine as a therapeutic intervention in a newly established ex vivo mouse model of acute heart failure", from Physiological Sciences at Stellenbosch University
- 2016** Internal examiner for a **PhD** student, Ms Cara-Lesley Bartlett on the project titled: "The association between tissue non-specific alkaline phosphatase expression and differentiation of mesenchymal stromal cells" from Internal Medicine, Faculty of Health Sciences at the Stellenbosch University.
- 2016** Internal examiner for a **PhD** student, Mr P.V. Dludla on the project titled: "Compounds specific to *Aspalathus linearis* protect the diabetic heart against oxidative stress: a mechanistic study" from the Faculty of Health Sciences at the Stellenbosch University.
- 2018** Internal examiner for a **MSc** student Ms Zimvo Maqeda (16735129-2011): "Investigating the Modulating Effects of Afriplex™ GRT Extract on Vascular Function and Antioxidant Status in Obese Wistar Rats"; from the Faculty of Health Sciences at the Stellenbosch University.
- 2018** Internal examiner for a **PhD** student Ms Marguerite Blignaut (13813412): "An investigation into the role of the ATM protein in the mitochondrial defects associated with the cardiovascular pathology resulting from insulin resistance", from the Faculty of Health Sciences at the Stellenbosch University.
- 2019** Adjudicator for the best Student Intern assignment for **MB,ChB VI** (evaluated 11 scripts), from the Faculty of Health Sciences at the Stellenbosch University
- 2021** Adjudicator for the best Student Intern assignment for **MB,ChB VI** (evaluated 9 scripts), from the Faculty of Health Sciences at the Stellenbosch University
- 2022** Internal examiner for **MSc** student Ms Megan L. Cairns: "Exploring mechanisms underlying stress-related cardiometabolic complications", from Physiological Sciences at Stellenbosch University
- 2022** Internal examiner for **MSc** student Ms Caitlin McCaffrey: "Factors that Affect the Adipocytic Differentiation of Adipose-Derived Mesenchymal Stem Cells (AD-MSCs).", from the Faculty of Health Sciences at the Stellenbosch University.
- 2022** Internal examiner for **MSc** student Ms Michelle van der Merwe: "Melatonin Incorporation into Hormone Replacement Therapy: A Potential Strategy to Decrease Breast Cancer Risk?", from Physiological Sciences at Stellenbosch University
- 2022** Internal examiner for **MSc** student Ms Dintle Molopi: "The vascular and endothelial effects of HIV, antiretroviral therapy and rooibos functional effects and mechanism", from the Faculty of Health Sciences at the Stellenbosch University.
- 2022** Adjudicator for the best Student Intern assignment for **MB,ChB VI** (evaluated 5 scripts), from the Faculty of Health Sciences at the Stellenbosch University
- 2023** Internal examiner for **MSc** student Ms S Govender: "The Therapeutic Efficacy of Ascorbic Acid 2 Phosphate, N-Acetylcysteine and Metformin Against Diabetes Mellitus Associated Cellular Senescence", from the Faculty of Health Sciences at the Stellenbosch University.



- **External examiner**

- 2006** External examiner for a **MSc (Med)** student, Mr SJ Somers on the project titled “Role of nuclear factor kappa-B in TNFalpha – induced cytoprotection”, from the Faculty of Health Sciences at the University of Cape Town .
- 2010** External examiner for a **MTech** Biomedical Technology student, Wongama Given Pantsi on the project titled “The effect of dietary rooibos tea supplementation on cardiac function after an episode of oxidative stress in isolated rat heart”, from the Faculty of Health and Wellness Sciences at the Cape Peninsula University of Technology.
- 2014** External examiner for a **MTech** Biomedical Technology student, Ms Naledi Gape Nyepetsi (212288601) on the project titled “Dietary *Garcinia kola* supplementation protects the myocardium from ischaemia-reperfusion induced oxidative stress”, from the Faculty of Health and Wellness Sciences at the Cape Peninsula University of Technology.
- 2016** External examiner for **MSc(Med)** in Physiology student Ms Hala Araibi: “The Role of the Arterial Glycocalyx in Sphingosine-1- Phosphate (S1P) Induced Cardioprotection in the Isolated Heart of the Wistar Rat, Faculty Of Health Sciences, University Of Cape Town
- 2018** External examiner for **MSc(Med)** in Chemical Pathology student Patrick Diaba-Nuhoho (DBNPAT001): “Reduced-Alcohol Wine In A Rat Model Of Pulmonary Arterial Hypertension”, Faculty Of Health Sciences, University Of Cape Town
- 2019** External examiner for 18 **Hons** student scripts and presentations from the University of Kwazulu-Natal, College Of Health Science, School Of Laboratory Medicine And Medical Sciences.
- 2022** External examiner for **MSc** student Ms N Muvhulawa: “Effect of rutin on TNF- $\alpha$ -induced insulin resistance in 3T3-L1 adipocytes”, from the Faculty of Natural and Agricultural Sciences at the North-West University.

#### **Evaluator for Conference Presentations**

- 2010** Judge for young scientist poster competition at Physiology Society of Southern Africa hosted by Walter Sisulu University Eastern Cape, 2010
- 2011** Judge for young scientist oral presentation (Wyndham) competition at Physiology Society of Southern Africa hosted by University Western Cape, 2011
- 2017-2019** Biomedical Research and Innovation Platform (BRIP) invited as judge to the annual Research Symposium held at SAMRC conference centre, Western Cape, South Africa
- 2022** Chaired Sessions at 66<sup>th</sup> Annual Academic Day (Non-communicable Diseases) and at 49<sup>th</sup> Physiology Society of South Africa Congress

#### **Media Coverage: Radio**

- 2017** Two interviews on radio RSG with presenter Mari Hudson: Titels “Wat word van kos as jy dit eet?” en “Bloeding en Hoe herstel ’n wond?”
- 2022** Re-broadcast of interview with presenter Mari Hudson on radio RSG

#### **Current Postgraduate Student Supervision and Co-supervision:**

(Co-supervising 6 MSc and 2 PhD students)

- **MSc:**

- 2019-present** Co-supervisor for MSc student, Ms Atarah Rass (19142609) “The Tumour Microenvironment: Investigating the Influence of Breast Cancer on The Endothelium” (Supervisor: Prof Anna-mart Engelbrecht)
- 2020-present** Co-supervisor for MSc student, Ms Ilze Willemse (15171701) “Asphalthus linearis as a possible SGLT2-inhibitor: Investigating the anti- hypertensive effects of Green Rooibos Extracts” (Supervisor:

Prof Barbara Huisamen, Dr Shantal Windvogel)

- 2020-present** Co-supervisor for MSc student, Ms Kauthar Parker (20276028) “The role of the intestinal immune system and inflammation in the development and treatment of type 2 diabetes” (Supervisor: Sylvia Riedel-van Heerden, Sanet Kotze)
- 2022-present** Co-supervisor for MSc student, Ms Corné Grobler (Supervisor Prof B Huisamen, Dr M Blignaut)
- 2022-present** Co-supervisor for MSc student, Ms Sara Shaboodien “The novel effect of Aspalathus Linearis (Rooibos) on platelet derived growth factor-induced proliferation of rat pulmonary artery smooth muscle cells (RPASM)” (Supervisor: Gerald Maarman)
- 2022-present** Co-supervisor for MSc student, Ms Thato Mathapelo “Investigating the novel role of metallothioneins in Rooibos-induced cardioprotection, in a cardiomyoblast model of Angiotensin-II induced hypertrophy and apoptosis” (Supervisor: Gerald Maarman, prof R Johnson)
- **PhD:**
- 2022-present** Co-supervisor for PhD student, Dr Megan Rajah: “Investigating the patterns and pathophysiology of left ventricular remodelling in high-gradient, severe aortic stenosis” (Supervisor: Dr Phillip Herbst, Cardiology, co-supervisors: Profs AF Doubell and C Smith and Dr GJ Maarman)
- 2022-present** Co-investigator for PhD student, Ms Megan Cairns (Supervisor: Prof Faadiel Essop)

#### **Supervision and Co-supervision of Completed Postgraduate Degrees:**

(Supervised 9 Hons, 2MSc, 1 PhD and co-supervised 4 Hons, 5 MSc and 5 PhD students)

- **Hons:**
- 2011** Supervisor for Hons student, Ms M Fortuin on a research project titled: “Intracellular signalling in the development of cardiac hypertrophy and susceptibility to ischaemia/reperfusion injury in obesity-induced insulin resistance”.
- 2012** Supervisor for Hons student, Mr RO Jansen van Rensburg on a research project titled: “Exchange Protein Directly Activated by cAMP (EPAC) Mediated Cardioprotection: Ischaemia Reperfusion Pre- & Post-treatment.”
- 2013** Supervisor for Hons student, Mr LJ Adams on a research project titled: “Optimization of High Pressure Liquid Chromatography (HPLC) for High Energy Phosphates (HEPs)”.
- 2014** Supervisor for Hons student, Ms S Mzezewa on a research project titled: “Epac’s Role On Normal And Obesity Induced Cardiovasculature”.
- 2015** Supervisor for BScHons student, Ms R. Allanson. “The effect of acute administration of Rooibos tea on aortic function of obese rats”.
- 2019** Supervisor for BScHons student, Ms M Elliott. “Obesity and Endothelial Dysfunction: The Effect of Free Fatty Acids on Aortic Endothelial Cells”.
- 2020** Supervisor for BScHons student, Ms Dee-Lynn Carolus. “Epac activation in rat hearts exposed to ischaemia/reperfusion injury (I/R): A mechanistic approach”.
- 2021** Supervisor for BScHons student, Velmein Hendriks: “Characterization and optimisation of an ex vivo cardiomyoblast obese model” (Co-supervisors Dr A Genis, Dr M Blignaut)
- 2021** Co-supervisor for BScHons student, Ms Cornel Vlok: “Investigating the effects of Rooibos (Aspalathus linearis) on mitochondrial bioenergetics in a model of cardiac hypertrophy.” (Supervisor G Maarman)
- 2021** Co-supervisor for BScHons student, Ms Sara Shaboodien: “Investigating the involvement of

oxidative stress, and overall antioxidant status in Rooibos induced cardioprotection” (Supervisor G Maarman)

- 2022** Supervisor for Hons student, Mr Garth Wentley “Evaluation of cellular growth and ATM signalling pathways in response to E1CHA in male Wistar rat adipose tissue” (Co-supervisor Prof B Huisamen)
- 2022** Co- supervisor for Hons student, Ms Dinisha Giga (22964576) “Investigating the effects of Rooibos on mitochondrial bioenergetics in a H9C2 model of angiotensin-II induced hypertrophy & apoptosis.” (Supervisor: Gerald Maarman)
- 2022** Co- supervisor for Hons student, Ms Anique Wolmarans (Hons): Evaluation of muscle cellular growth and ATM signalling in response to a rooibos extract (E1CHA) in male wistar rats (Supervisor Prof B Huisamen)

- **MSc:**

- 2008-2010** Co-supervisor for MSc student, Mr GJ Maarman on a research project titled: “The effect of Acute and Chronic CPT-1 inhibition on myocardial tolerance to ischaemia and mitochondrial function in a rat model of obesity.”
- 2013-2015** Co-supervisor for M.Sc student, Dr A Assalhin on a research project titled: “The role of the  $\beta$ 3-aderenergetic receptor in cardioprotection”.
- 2015-2016** Supervisor for MSc student, Dr N Eldieb. “The treatment effect of Rooibos on vascular function and signalling pathways of aortas from diet induced obese rats.” (Co-supervisor: Dirk Bester)
- 2017** Mentor for MSc Intern, Ms P Sithelo, as part of DST-NRF Internship Programme 2017/2018
- 2017-2020** Co-supervisor for MSc student, Ms Dawn Mahlangu “Investigating the Modulating effects of Fermented Rooibos (*Aspalathus linearis*) and Fermented Honeybush (*Cyclopia intermedia*) on aortic endothelial function and antioxidant status in Streptozotocin (STZ) – induced diabetic Wistar rats”(Supervisors: S Windvogel, M. Smit-van Schalkwyk)
- 2018-2021** Supervisor for MSc student, Ms P Sithelo, “Underlying mechanisms of Rooibos-induced cardioprotection in apoptosis and hypertrophy: Ascertainig signaling pathways involved and the roles of oxidative stress and mitochondrial efficiency” (Co-supervisors: G. Maarman and J Lopes)
- 2019-2021** Co-supervisor for MSc student, Ms Michelle Maartens “Antioxidant supplementation as protective strategy against stem cell dysfunction in type 2 diabetes (Supervisor: Mari van de Vyver)
- 2019-2022** Co-supervisor for MSc student, Ms Nadia van Niekerk (19090064) “A mechanistic study on the mu-opioid receptor in human spermatozoa” (Supervisors: Prof Stefan du Plessis, Bonge Skosana)

- **PhD:**

- 2013-2016** Co-supervisor for PhD student, Ms Jenelle Yogeshi Govender on a research project titled: “Mitochondrial catastrophe during doxorubicin-induced cardiotoxicity: An evaluation of the protective role of melatonin.” from Physiological Sciences at Stellenbosch University.
- 2014** Mentor for PhD Intern, Mr Z Ndlovu, as part of DST-NRF Internship Programme 2014/2015
- 2016-2019** Co-supervisor for PhD student, Mr Sybrand Smit. “The cardioprotective abilities of green rooibos tea and an investigation into the correlating mechanisms involved.” (Supervisor: B Huisamen)
- 2015-2020** Supervisor for PhD student, Mr Z Ndlovu.. “Epac’s (exchange protein directly activated by cAMP) role in obesity-induced cardiovascular diseases”. (Co-supervisor: Prof H Strijdom)

- 2016-2020** Co-supervisor for PhD student, Ms Charlize White. "Protein phosphorylation in ischaemia and reperfusion of the heart: A focus on protein phosphatase 2A" (Supervisor: D v Vuuren)
- 2017-2021** Co-supervisor for PhD student, Ms Bongekile Skosana "A comprehensive investigation of obesity as an etiology of male infertility in a rat model" (Supervisors: Stefan du Plessis, Gerhard van der Horst, Yapo Guillaume Aboua)
- 2017-2021** Co-supervisor for PhD student, Ms Tracey Lee-Ann Jooste "Identification of novel DNA methylation signatures in the development of cardiac dysfunction" (Supervisor: Prof Rabia Johnson)

**Teaching Activities (curriculum building, compilation of study guides, modules / classes / courses presented, level, self-developed)**

**1. Undergraduate Student Teaching:**

I developed and employed different modes of teaching, like interactive presentations, e-learning activities and assessments via SUNLearn for teaching Physiology topics...

- 2003** Muscle Physiology to Medical students (MBChB 1)
- 2005** Cell Membrane Physiology to Medical students (MBChB 1)
- 2009** Hematology in the Physiology AGB278 program.
- 2010** Hematology, Neurology and Digestive System in the Physiology BChD2 program  
Digestive System in the Physiology AGB278 program
- 2011** Hematology, Neurology and Digestive System in the Physiology BChD2 and AGB278 programs  
Digestive System in the Physiology MBChB2 program  
Neurology in the Physiology MBChB3 program
- 2012-present** Neurophysiology MBChB3 and AGB278 programs  
Digestive System in the Physiology MBChB2, BChD2 and AGB278 programs  
Hematology in the Physiology MBChB3, BChD2 and AGB278 programs
- 2013-2015** Urogenital in MBChB2 program
- 2017-present** Digestive System and Haematology in the Fundamentals of Physiology 178 module
- 2020-present** Endocrinology to and AGB278

**2. Undergraduate Curriculum Planning and Development**

As chairperson and secundus, I am involved in subject specific teaching as well as developing learning outcomes and compiling module frameworks and study guides; planning time tables and managing students as well as lecturers...

- 2012-2014** Chairperson for the pre-clinical and clinical module in Digestive System (GIT271) for the MBChB2 programme.
- 2015-present** Secundus for the pre-clinical and clinical module in Digestive System (GIT271) for the MBChB2 programme.
- 2015-present** Secundus for the pre-clinical and clinical module in Haematological System (371) for the MBChB3 programme.
- 2016-2020** Chairperson for the pre-clinical and clinical module in Haematological System (371) for the MBChB3 programme.
- 2017-2021** Secundus for Form and Function Module in the MB,ChB Curriculum Renewal: Module planning

and development

**2021-present** Chairperson for Form and Function Module in the MB,ChB Curriculum Renewal: Module co-ordination and teaching

### **3. Undergraduate Student Supervision:**

**2014** Internal supervisor of Elective module of MBChB IV students (1 student)  
**2015** Internal supervisor of Elective module of MBChB IV students (4 students)  
**2016** Internal supervisor of Elective module of MBChB IV students (5 students);  
Internal supervisor of Elective module of MBChB V students (5 students)  
**2017** Internal supervisor of Elective module of MBChB IV students (6 students);  
Internal supervisor of Elective module of MBChB V students (5 students)  
**2018** Internal supervisor of Elective module of MBChB IV students (7 students);  
Internal supervisor of Elective module of MBChB V students (12 students)  
**2019** Internal supervisor of Elective module of MBChB IV students (5 students);  
Internal supervisor of Elective module of MBChB V students (5 students)  
**2020** Internal supervisor of Elective module of MBChB IV students (5 students);  
Internal supervisor of Elective module of MBChB V students (3 students)  
**2022** Internal supervisor of Elective module of MBChB IV students (6 students)

### **4. Postgraduate Student Teaching:**

**1997-2015** Presented practical courses on High Pressure Liquid Chromatography and Western Blotting Techniques to Honours Students.  
**2009-2015** Involved in Research Development and Support Division Training Courses: 1-Day Research Overviews in February and August, Lecturing on “ Tips For Research Presentations And Posters”.  
**2010** Lectured to M Clin Epi students on “Preparing an oral presentation (planning, communicating without words, the slide presentation)”  
**2011** Lectured to students from Interdisciplinary Health Sciences on “ Tips For Research Presentations And Posters”.  
**2003-present** Lectured to BSc Honours Students from Medical Physiology, Human Physiology and Medical Biochemistry on Signal Transduction Pathways.

### **5. Workshop/Training attended:**

**2007** Education for the humane use and care of Laboratory animals and for promoting quality of experimental results accreditation course, Stellenbosch University, South Africa – 12 Lectures (1 hour each) – Completed - Attendance  
**2010** Professional Educational Development for Academics (PREDAC), Stellenbosch University, South Africa: Completed – Attendance  
**2012** The question of ‘doctorateness’: An International Workshop for Postgraduate Supervisors and Doctoral Candidates, Centre for Higher and Adult Education, Stellenbosch University, South Africa: Completed - Attendance  
**2014** Introduction to Teaching in the Health Professions (ITHP) Short Course Stellenbosch University, South Africa: Completed - Attendance  
**2014** Introduction to Blended Learning Design and Support, Stellenbosch University, South Africa: Completed - NQF level: 7 and Credits: 6  
**2016-2018** SAVC (South African Veterinary Council) Authorization to perform research as laboratory animal technologist  
**2016** Publishing Workshop - International Presenter - Executive Editor BMC-Attendance  
**2016** Workshop for Postgraduate programme coordinators and administrative officers involved in

- processing postgraduate applications, 19 July 2016 - - Attendance
- 2017** MB,CHB curriculum renewal project workshop 10 – 11 August 2017, Houw Hoek Hotel - Participant
- 2018** Camtasia Studio Workshop, presenter Thys Murray, 30 May 2018 - Attendance
- 2018** Understanding the Policies relevant to the Management of Research Contracts workshop, STIAS, 7 June 2018 - Attendance
- 2019** Blended Brainstorm – Dr JP Bosman (12-6-2019) part of New Curr development -
- 2019** Podcasting – Darryl Pinetown (3-7-2019) part of Haematology Module
- 2019** Programmatic Assessment Workshop – by Professor Gilly Salmon (Pro Vice-Chancellor: Education Innovation, University of Western Australia) (2 to 4 Dec 2019) part of New Curr
- 2019** Nominated to attend FMHS Leadership Development Programme – Attendance (Sep-Oct 2019)
- 2020** MSc Neuroscience by Coursework and Dissertation Workshop II – collaborate in implementing a new Neuroscience program (coordinated by Chrisna Swart)
- 2021** Introduction to Project Management and Time Management presented by Joubert van Eeden, Division for Research Development (attendance)
- 2021** Assessment Working Session (23 Nov 2021) co-ordinated by Prof S van Schalkwyk (Director: Centre for Health Professions Education)
- 2023** Nominated and awarded the Erasmus+ Staff mobility grant from 23-27 January 2023 at Medical University in Graz (MUG), Austria

#### **Selected Collaborations**

- 2015-2016** Cape Peninsula University of Technology (Faculty Research Coordinator, Faculty of Health and Wellness Sciences): Dr Dirk J Bester; Co-Supervisor for MSc student, Dr N Eldieb. “The treatment effect of Rooibos on vascular function and signalling pathways of aortas from diet induced obese rats.”
- 2017-2018** South African Medical Research Council (Biomedical Research and Innovation Platform,): Dr Rabia Johnson - Co-supervisor for PhD student, Tracey Lee-Ann Jooste “Identification of novel DNA methylation signatures in the development of cardiac dysfunction”
- 2018-2020** Stellenbosch University (Desmond Tutu TB Center, Department of Pediatrics & Child Health, Faculty of Medicine & Health Sciences): Dr G. Maarman, Co-Supervisor for MSc student, Ms P Sithelo, “Underlying mechanisms of Rooibos-induced cardioprotection in apoptosis and hypertrophy: Ascertaining signaling pathways involved and the roles of oxidative stress and mitochondrial efficiency”
- 2019** Stellenbosch University (Physiological Sciences, Faculty of Science): prof Faadiel Essop -Assisted with perfusions, planning, training and analysis for MSc Student, Lukas Olivier
- 2020-present** University of the Western Cape (course convenor prof T Kohn) External moderator for course in Medical Biosciences 332.
- 2023** Medical University in Graz (MUG), Austria: Staff mobility training with prof Nandu Goswami at Division of Medical Physiology and Pathophysiology in Graz.
- 2022-present** SUNHEART, the Division of Cardiology of Stellenbosch University and Tygerberg Hospital: Co-supervisor for PhD student, Dr Megan Rajah (Supervisor: Dr Phillip Herbst, Cardiology, co-supervisors: Profs AF Doubell and C Smith and Dr GJ Maarman)

#### **Community Service, Outreach Projects and Membership of Community and Cultural Societies and Committees**

- 2000-2005** Participated in the Autumn School (GESOG) held by the Medical School, Stellenbosch University to specifically reach Grade 12 pupils from traditionally underprivileged schools, interested in a

medical career.

- 2010** Lectured on the Digestive system to teachers from disadvantaged schools in order for them to obtain the Advanced Certificate in Education: Life Sciences coordinated by IMSTUS (Institute for Mathematics and Science Teaching).
- 2011-2018** Lectured on the Neurophysiology and Digestive system to Cuban trained SA MBChB students
- 2011** Examiner for neurophysiology for Prim Exams of FCORL and FCMFOS
- 2013** Examiner for neurophysiology for Prim Exams of Dermatology
- 2014** Mentor for Intern, Mr Z Ndlovu, as part of DST-NRF Internship Programme 2014/2015
- 2017** Mentor for Intern, Ms P Sithelo, as part of DST-NRF Internship Programme 2017/2018
- 2018 - 2019** Organised and Presented a stand with posters, flyers and banner at Career Fair hosted by The Tygerberg Postgraduate Student Council (TPSC) in collaboration with the Golden Key Society, Tygerberg Campus.
- 2020** Examiner for neurophysiology in MMED/MChD Part I Physiology
- 2021** Examiner for neurophysiology in MMED/MChD Part I Physiology
- 2021-present** Member of the Division of Medical Physiology Social Impact Committee.

#### **Administrative, Leadership and Management Skills and Activities**

- 2011-2017** Internal moderator for Physiology 314 and 344 programs of Dept of Physiological Sciences, Stellenbosch University.
- 2012-2014** Chairperson for the pre-clinical and clinical module in Digestive System (GIT271) for the MBChB2 programme.
- 2013-2020** Administrator and coordinator of BScHons program for Division of Medical Physiology
- 2015-present** Secundus for the pre-clinical and clinical module in Digestive System (GIT271) for the MBChB2 programme.
- 2015, 2018-present** Secundus for the pre-clinical and clinical module in Haematological System (371) for the MBChB3 programme.
- 2016-2017** Chairperson for the pre-clinical and clinical module in Haematological System (371) for the MBChB3 programme.
- 2017-2020** Secundus during curriculum development for "Form Follows Function" module in the MB,ChB Curriculum Renewal
- 2021-present** Chairperson and co-ordinator for Form and Function module in the renewed MB,ChB Curriculum
- 2019 - present** Member of Centre for Cardio-Metabolic Research in Africa (CARMA) Management Committee
- 2019 - present** Member of Department of Biomedical Sciences Steering Committee
- 2020-present** Member of Good Laboratory Practice (GLP) Task Team in the Division of Medical Physiology
- 2020-present** Member of the Division of Medical Physiology Steering Committee
- 2020-present** Elected as C1 staff to serve as member on the Faculty Board of the Faculty of Medicine and Health Sciences for a 3 year term starting from 1 July 2020 - 2023

## REFEREES:

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