Biography:

Short Biography & Current Interests:

I have been involved in research centred mainly on the cardiovascular complications of the metabolic syndrome and diabetes for the past 28 years. In my quest to understand the changes occurring in the development of insulin resistance, I have utilized several animal models spanning both type 1 and type 2 diabetes as well as pre-diabetes and hypertension. These models were implemented in our laboratory and extensively characterized. My main focus has always been on the signalling elicited by insulin and the consequences of disrupting these pathways as is seen in the onset and development of insulin resistance.

In addition, I have tested the effects of different pharmaceutical substances used in clinical treatment of diabetes (e.g. AngIIR blockers, DPP-4 inhibitors, GSK-3 inhibitors) as well as plant-based remedies, on different pathologies associated with especially obesity-induced type 2 diabetes. These include studies on whole-body effects, skeletal muscle, cardiovascular, kidneys, liver as well as pancreatic effects. Because of the different animal models representing obesity, diabetes and/or hypertension that we have characterized and used in research, I have been approached on different occasions by companies marketing plant-based remedies to test the efficacy of these remedies on (i) insulin resistance and blood glucose handling (ii) cardiovascular effects (iii) anti-hypertensive effects and (iv) toxicity. This has resulted e.g. in a large study on Prosopis glandulosa and a study on the anti-diabetic potential of Agathosma (Buchu). The latter study was eventually compiled in a book published by AOSIS (2019). Currently, I am testing the effects of different extracts of Aspalathus Linearis (Rooibos) as supplied by Afriplex and the Rooibos Council of SA. In a project aimed at understanding the plethora of effects of insulin within the heart, I am also PI of a study investigating the role of ATM (Ataxia telangiectasia mutated) protein kinase. This project spans the processes of glucose utilization, mitochondrial functioning, auto- and mitophagy, protein synthesis and aging.

I have won numerous prizes for publications as well as both national and international presentations. In 2019, I was also awarded the Havenga Prize for Health Sciences by the SA Academy of Science and Arts.

I have been chairperson of the committee for the ethical use of animals in research at the Faculty of Health Sciences, Tygerberg (2005-2009) and member of the MRC committee for the ethical use of animals in research (2005-present). I have served on the MRC grants committee as well as on the NRF SARChi committee. I am a member of the Society for Heart and Vascular Metabolism, SEMDSA, and the SA Heart Association and executive member of the PSSA. I am currently an associate editor of Cardiovascular Drugs & Therapy.