

Biography: Dr Erna Marais (nee Tromp)

I matriculated in 1985 at Central High School, Beaufort West. I completed my B.Sc. and B.Sc. Hons. degrees (1988 and 1989, respectively) at Stellenbosch University and my M.Sc. degree (1997) under the supervision of Dr A.J.S. Benadé, Research Institute for Nutritional Diseases, MRC, Parow.

I have been part of the Cardiovascular Research team (currently the Centre for Cardio-metabolic Research in Africa, CARMA), in the Division of Medical Physiology, since 1993. I was first appointed as a Temporary Research Assistant (1993 – 1996), Temporary Technical Officer (1997-1999), Permanent Technical Officer (1999 – 2009), Lecturer (2009 – 2019) and currently Senior Lecturer for Stellenbosch University.

Our research has contributed significantly to and understanding of the mechanisms involved in the cardioprotection induced by ischaemic preconditioning (IPC). I was a main contributor to the ground-breaking work which identified the beta-adrenergic-cAMP and nitric oxide-cGMP pathways as essential triggers of cardioprotection during IPC. In 2002 I was awarded my PhD degree in Medical Biochemistry and Physiology under the supervision of Prof Amanda Lochner. I was evaluated by NRF as an Y2-Rated Researcher (2007 - 2013).

Currently we are focusing on role of the Exchange Protein directly Activated by cAMP (Epac) in cardioprotection in diet induced obese rats for which we received an NRF grant (2018-2020). We are also investigating the protective effects of Melatonin and Rooibos (grant from SA RBC 2018-2019) on cardiac and mitochondrial function and signalling pathways in conditions such as doxorubicin-induced cardiotoxicity, hypertrophy and ischaemia-reperfusion injury. Our work has been presented at 32 international and 55 national scientific meetings. We have published 29 peer-reviewed papers since 1995 in prestigious journals, like Journal of Pineal Research (impact factor of 7.812), Basic Res Cardiol (Impact factor of 6.128) and Circulation (Impact factor of 14.429). I have become an established researcher and my research outputs have both a national as well as an international impact. My H-index is 15 (Scopus) and my publications have received at least 838 citations (Google Scholar).

As educator I have been involved in postgraduate teaching since 1997 by tutoring of practical laboratory work to all new assistants and students and presented practical courses on High Pressure Liquid Chromatography (HPLC), Western Blotting Techniques and Perfusion of the Working Rat Heart. I have taught Physiology to undergraduates from 2003 in the MBChB 1 programme, from 2009 in AHS 2 and BChD2 programmes and from 2011 in the MBChB 2 and 3 programmes. Furthermore, as chairperson and secundus I was involved in compiling module frameworks and study guides for pre-clinical and clinical module in Digestive System (GIT271) for the MBChB2 (2012-present) and Haematological System (371) for the MBChB3 programme (2015-present). As secundus for Form and Function module in the MB,ChB Curriculum Renewal (2017-present), I am involvement in curriculum development.

I am married to Adriaan Marais since 1998 and we have two beautiful, inquisitive children. Adriaan enjoys windsurfing and the children “boogie-boarding” while mother keeps a watchful eye from a safe distance.