Citation for Professor Ernesta Meintjes – College of Fellows, University of Cape Town

Ernesta Meintjes is Professor of Biomedical Engineering at the University of Cape Town's (UCT) Faculty of Health Sciences, a position she has occupied since 2015. From 2007 to 2021, she held the prestigious South African Research Chair in Brain Imaging, and currently serves as director for magnetic resonance imaging (MRI) at the Cape Universities Body Imaging Centre (CUBIC), and heads the Division of Biomedical Engineering. Professor Meintjes earned a BSc (Hons) and MSc degrees in physics from the University of KwaZulu Natal (UKZN), followed by an MSc and PhD degrees, also in physics, from Oregon State University (OSU) in the USA. Since joining UCT as a postdoctoral fellow in 1998, Professor Meintjes has built on her PhD research on magnetic resonance at OSU to establish herself as South Africa's preeminent medical scientist working in the field of MRI as applied to cardiac and brain function. She was a co-founder of, and key contributor to the establishment of the UCT's Medical Imaging Research Unit in 2000; and an inaugural director of CUBIC, a joint research facility with Stellenbosch University. With her training in nuclear magnetic resonance and pulse sequence programming, Professor Meintjes performed the first functional MRI studies in South Africa. She has investigated the effects of early life insults – such as maternal drinking during pregnancy, and the human immunodeficiency virus (HIV) – on brain development. This has been with a view to improving management strategies and evaluating target interventions. Certain high-risk communities in South Africa are significantly impacted by conditions such as foetal alcohol syndrome, HIV, and drug abuse. Since the long-term implications of these on brain development are not well understood, her research uses non-invasive MRI to examine the effects of these insults – and treatments such as antiretrovirals – on brain structure and function. Most recently, Professor Meintjes and her colleagues have demonstrated improved postnatal growth and cognitive function in newborns prenatally exposed to alcohol when their mothers have been administered choline supplementation during pregnancy. Professor Meintjes has trained a large cohort of MRI scientists, many of whom have taken up positions at prestigious universities and leading imaging companies around the world. She has supervised to completion 24 master's students, with another three in progress; 22 PhD candidates, with another six in progress; and served as mentor to 18 post-doctoral fellows. Her commitment to capacity building is further demonstrated in her efforts to improve MRI knowledge of clinicians. Under her leadership, CUBIC hosts hands-on basic MRI courses where radiographers, radiologists and cardiologists are given the opportunity to advance their

understanding of the principles of MRI. Through her leadership, CUBIC supports more than 30 projects at any given time, involving collaborations with 80 institutions worldwide, and currently generates more than 60 original publications per annum in international journals. In the past 25 years, Professor Meintjes and her colleagues have published 128 original articles in high impact journals such as Magnetic Resonance in Medicine and IEEE Transactions on Biomedical Engineering. To date, these papers have garnered 4 495 citations, while Professor Meintjes has an h-index = 39. She has been the principal investigator (PI) or local PI on 21 grants funded by the National Institutes of Health (NIH) in the United States, bringing in more than US$ 7.5 million to UCT, thus making a substantial contribution to the training and support of many students and post-doctoral fellows. Professor Meintjes is the recipient of a Fulbright Research Fellowship and last year was awarded a B2 rating by the National Research Foundation.