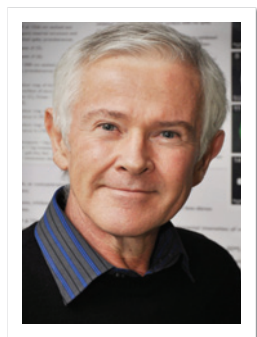




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Dr. Lodewyk Kock

University of the Free State, South Africa

A new nanotechnology for novel cell based assays

Research shows that sexual reproductive stages in yeast (asci) are characterised by increased levels of mitochondrial activity. We found that these asci and other fruiting structures are selectively inhibited by anti-mitochondrial drugs such as antimycin A, rotenone, and many more while the vegetative growth i.e. yeast cells and hyphae remained less affected. Consequently, bio-assays have been developed where yeast sexual stages are used as indicators to screen for new antifungal, anti-malarial and anticancer drugs or drugs that may pose mitochondrial liabilities. In this study we describe a new imaging nanotechnology for medical research i.e. Nano Scanning Auger Microscopy (NanoSAM) that can be used in conjunction with these bio-assays to gain more insight into the effects and metabolic fate of such drugs. With this nanotechnology cells can now be “dissected” into nanometre thin “slices” while at the same time the chemical composition and 3-D ultrastructure of each “slice”, are assessed.

Biography

Professor Lodewyk Kock is regarded as an internationally acclaimed researcher. He published 150 articles in reputed journals and was involved in many interviews on national radio, television as well as Voice of America and Reuters TV. He was appointed as Director: Industrial Biotechnology UNESCO MIRCEN since 1998 and is at present Commissioner of the International Commission on Yeasts (ICY). He received the President's Award for outstanding research from the National Research Foundation. Professor Lodewyk Kock (PhD) and Dr. Chantel Swart (PhD) is from the Department of Microbial, Biochemical and Food Biotechnology from the University of the Free State in South Africa.