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MSc and PhD Opportunity for 2025

Project Title: Evaluation of hydroxybenzoic acid derivatives and corresponding liposomal conjugates in experimental models of neurodegenerative diseases.

Supervisors: Dr Sylvester Omoruyi and Dr Sharon Moeno

Applications from suitably qualified individuals are invited for full-time Master's (Two positions) and PhD (Two positions) in Neuroscience. The laboratory work will be conducted in the Department of Anatomical Sciences, Faculty of Health Sciences, University of the Witwatersrand

Background

Neurodegeneration is a complex process that triggers progressive neuronal death in the nervous system, leading to a loss of neuron function. This is evident in several neurodegenerative diseases (NDDs), including Parkinson's, Alzheimer's, and Huntington's diseases, which are characterised by the accumulation of misfolded proteins that lead to neurotoxicity. Thus, resulting in behavioural, motor, and cognitive deficits in patients suffering from these diseases. Treatment for NDDs is challenging as they do not clearly alter disease progression, and several promising new drugs have failed in phase 3 clinical trials. Considering this, it is imperative to identify affordable and more effective therapeutic strategies for preventing and delaying the onset of NDDs. The project under offer is focused on the characterisation of hydroxybenzoic acid derivatives as potential neuroprotective agents. In the same vein, liposomes and polymeric nanoparticles will be formulated and used as drug delivery vehicles for the derivates to assess their applicability as neuroprotective agents in *in vitro* cellular models of Parkinson's and Alzheimer's diseases as well as in Zebra Fish models of neurodegeneration.

Minimum requirements

- A completed BSc (Hons) degree for MSc and a completed MSc degree for PhD in any relevant biomedical field. Cell culture and laboratory experience will be advantageous.
- Focused, and dedicated to their work as well as good written and oral communication skills.

Funding

- Funding is available for the research component of the project.
- Students are to secure their personal funds or apply to the NRF and other funding bodies for a bursary.

Application Requirements

- A cover letter of motivating suitability for the position.
- Academic transcripts.
- A full curriculum vitae,
- Names and contact details of 2 academic referees.

All completed applications (as a single PDF document) and queries should be submitted to Dr Sylvester Omoruyi (sylvester.omoruyi@wits.ac.za).

Closing date: **7th April 2025**