



## DRUG DISCOVERY AND DEVELOPMENT CENTRE (H3D)

UNIVERSITY OF CAPE TOWN (UCT)



### PhD position in the Department of Chemistry, Faculty of Science, University of Cape Town

Applications are invited from suitably qualified, highly motivated MSc graduates for a PhD position starting in the 2025 academic year under the joint supervision of Dr. Vinayak Singh and Prof. Kelly Chibale.

#### Requirements

- MSc degree in one of the following life science disciplines (Microbiology, Molecular Biology, Biochemistry, or related field).
- Skills in microbiology, molecular and cell biology, animal models, and BSL2/BSL-3 experience will be advantageous in addition to computer literacy and competency.
- Candidate must be willing to perform research involving *Mycobacterium tuberculosis* (*Mtb*), following suitable training and authorization.

#### Funding

- Funding is available for the first two years. The successful candidate will be expected to apply for funding for the remaining period of the project from other sources.

#### Project focus

This project involves a multi-pronged investigation designed to determine if nanocluster(s) can be developed into potential tuberculosis therapies. Antibacterial nanomaterials such as metals, metal oxides, carbon, quantum dots, peptides, and polymer-based nanostructures have provided novel opportunities for combating the bacterial infection crisis. Among antibacterial nanomaterials, nanoclusters comprised of a small number of metal atoms, have emerged as potential game-changers in this arena. Through our collaborators at the Carbon to Metal Coating Institute (C2MCI), Queen's University in Canada, we have identified a nanocluster library as a useful resource for focused whole-cell screening against replicating *Mtb*. Phenotypic approaches to tuberculosis drug discovery have successfully delivered drug-like molecules to the global pipeline. Nonetheless, finding the target of the 'hit' is critical to progressing the chemical class and predicting clinical outcomes. The project offers a great opportunity for the PhD candidate to contribute to tuberculosis drug discovery while conducting drug screening, hit-triaging, and mechanism of action deconvolution using various chemical-genetic approaches.

Interested candidates should send their application as a single PDF file which includes their CV, a letter of motivation, academic transcripts (including degree certificates) and contact details of at least two referees to Dr. Vinayak Singh (Vinayak.Singh@uct.ac.za) no later than Feb 28<sup>th</sup>, 2025.