

Call for Applications: MSc studentship

Imaging and therapy for cancer and other diseases using radioisotopes of rhenium and technetium compounds linked to biologically active molecules

Abstract:

Current challenges towards the advancement of the next generation of rhenium and technetium radiopharmaceuticals include target specificity and binding affinity to malignant tumours [1]. Pivotal to the development of target-specific rhenium and technetium radiopharmaceuticals is the inclusion of biologically relevant moieties which can fine-tune the biodistribution patterns of the formulated radiopharmaceuticals [2, 3]. To date, the synthesis, characterisation and selected DNA interaction studies of non-radioactive rhenium compounds with Schiff bases encompassing various biologically active moieties have been done and the next step towards commercialisation of the technology would include the $^{99\text{m}}\text{Tc}$ and $^{186/188}\text{Re}$ radiolabelling of the biologically relevant Schiff bases as well as evaluating the *in vivo* radiotherapeutic and – diagnostic capabilities of the resultant radiopharmaceuticals. The radiopharmaceuticals that meets the stringent medical requirements for human cancer treatment and diagnostics will be patented and we envisage that these radiopharmaceuticals will be commercially utilised at national and international hospitals; while research studies conducted on other radiopharmaceuticals will be published in various international journals.

References:

1. S. Jürgens, W.A. Herrmann and F. Kühn, J. Organomet. Chem., 2014, **751**, 83.
2. M.E. Tejería, J. Giglio, S. Dematteis and A. Rey, J. Label. Compd. Radiopharm., 2017, **11**, 521.
3. M. Sagnou, S. Tzanopoulou, C.P. Raptopoulou, V. Psycharis, H. Braband, R. Alberto, I.C. Pirmettis, M. Papadopoulos and M. Pelecanou, Eur. J. Inorg. Chem., 2012, **27**, 4279.

Core character attributes:

The ideal candidate must be meticulous, self-motivated and dedicated. In addition, the candidate must show a high level of integrity as confidentiality is of utmost importance. Furthermore, the candidate must be a dynamic individual who can work effectively in a team-orientated environment.

Core skills:

The candidate must be competent in common Microsoft software packages and have good communication and writing skills. In addition, theoretical or experimental experience in computational, bioinorganic and/ or radiochemistry will be beneficial.

Subsistence bursary:

A subsistence bursary of R 150 000 is available for the full duration of the MSc project.

How to apply?

Candidates to submit their detailed CV to Prof. I. Booysen (Booysemi@ukzn.ac.za) by 30/04/2020. Three contactable references must be included in the CV and certified copies of degree certificates must be attached. No late applications will be considered. If you are not contacted by the 05/05/2020 for an interview, please consider your application unsuccessful.

Disclaimer:

The stakeholders reserve the right to not award the MSc studentship.