3.5 Year PhD Studentship available for September 2019

**Department:** Chemistry

**Supervisors:** Dr Kogularamanan Suntharalingam

**Eligibility:** Home/EU only

**Project Title:** The development of new metallopharmaceuticals to target tumour subpopulations

**Project Description:** Applications are invited for highly motivated students wishing to undertake research towards a PhD in Bioinorganic Chemistry with Dr Kogularamanan (Rama) Suntharalingam at the University of Leicester.

The Suntharalingam group aims to use the structural, optical, redox, magnetic, and catalytic diversity offered by metal-containing small molecules to design and develop new generations of metallopharmaceuticals for the treatment of cancer and other diseases. The group also focuses on engineering new nano-material systems to deliver therapeutics to their site(s) of action. Recent recognitions include; Dalton Young Researchers Award (2014), 175 Faces of Chemistry (2016), and Rising Star in Coordination Chemistry Award (2018).

**About the project**

Cancer stem cells (CSCs) are a distinct subpopulation of tumour cells that have the ability to self-renew, differentiate, and form metastatic tumours. CSCs effectively evade conventional chemotherapy and radiotherapy as these treatments specifically target fast growing cancer cells, and CSCs, due to their stem cell-like properties, divide more slowly. After surviving treatment, CSCs are able to regenerate the original tumour and/or produce invasive cancer cells that are able to colonise distant organs. For these reasons, CSCs are widely thought to be responsible for cancer relapse. Therefore, to provide a durable response and prevent tumour recurrence, chemotherapeutics must have the ability to remove the entire population of cancer cells, including CSCs. Therapeutic strategies capable of selectively killing CSCs and disrupting the microenvironments (niches) supporting these cells are the focus of several research programmes. Potential CSC therapeutic targets such as cell surface markers and various deregulated signalling pathways have been identified, but there is still no clinically approved drug that specifically kills CSCs. Many academia- and pharmaceutical-led studies aimed at developing chemical or biological anti-CSC agents are ongoing. This project aims to use the chemical diversity offered by transition metals to develop CSC-selective metallo-drugs. The project is highly multidisciplinary, and will involve chemical synthesis and characterisation, biophysical methods, mono- and 3D-layer cell culture, and sophisticated biologicals techniques.

The successful candidate will join an established research team with excellent support (3 postdoctoral researchers), recently relocated to the University of Leicester from King’s College London. The successful candidate is expected to have excellent organisational and interpersonal skills.

**References:**
Selected, related publications from the Suntharalingam Group:


**Funding details:** Fully funded studentship with UKRI stipend and UK/EU fee waiver for 3.5 years

**Entry requirements:**

Applicants are required to hold/or expect to obtain a UK Bachelor Degree 2:1 or better in Chemistry. The University of Leicester English language requirements apply where applicable.

Knowledge of synthetic chemistry and experience of cell culture techniques is desirable, but adequate training will be provided.

**How to apply:**

You should submit your application using our online application system.

Apply for a PhD in Chemistry

In the funding section of the application please indicate you wish to be considered for a Sunt 2019 Studentship

In the proposal section please provide the name of the supervisor and project title. No proposal is required but please provide a personal statement.

**Project / Funding Enquiries to:** chempgr@le.ac.uk

**Application enquiries to** pgradmissions@le.ac.uk

**Closing date for applications 25th April 2019**