

## **Project Title**

New Formulations of Anticancer Drugs for Targeted Treatment of Triple Negative Breast Cancers

## **About This PhD Project**

Institute of Cancer Research

Supervised by Prof. Alexandra Porter and Prof. Spiros Linardopoulos

The student will be registered at Imperial College, leading to the award of a PhD from Imperial College, London

## **Project Description**

Triple negative breast cancer accounts for approximately 15% of breast cancers and, once metastatic, is incurable. The ICR are developing preclinical drugs that can regress triple negative breast cancer tumours and although this approach is very promising, concerns remain about the drugs' systemic side-effects, such as neutropenia, due to the nature of the target. With this PhD studentship, the student will develop a targeted nanoparticle system that delivers these drugs directly to the triple negative breast cancer cells to increase their potency and reduce side effects. The nanomaterials will also be designed so that they can be imaged deep inside the breast cancers using new ultrabright fluorescent-based imaging techniques.

Within this PhD studentship, the student will be trained in state-of-the-art nanomaterials synthesis and characterisation techniques to design and optimise the nanomaterials delivery/imaging technology using facilities within Dr. Xie and Prof. Porter's group in the Dept. Materials, Faculty of Engineering. The student will work on identifying targets to the cancers with Dr. Robert Krypta (Division of Cancer and Surgery, Imperial). At the ICR the student will perform cell-based assays and in vivo efficacy studies in the already established models in laboratory of Target Discovery and Apoptosis. The multidisciplinary team of supervisors will train an ambitious and pro-active student towards the goal of treating more aggressive breast cancers and avoiding unwanted systemic side effects of the new chemotherapy. This project, funded by the ICR-CRUK-Imperial convergence science PhD scheme will enable a graduate with an excellent honour's degree in Chemistry, Pharmacy or Chemical Engineering to undertake a 4 year training programme. The program includes a PhD dissertation plus training in related research topics (cancer, imaging and nanomaterials) and transferable key skills, leading to the submission of a doctoral thesis and the award of a PhD.

## **Keywords /Subject Areas**

Nanomedicine  
Drug formulation  
Breast cancer  
Bioimaging

## **Candidate profile**

Candidates must have a first class or upper second class honours BSc Honours/MSc in Bioengineering, Biology, Biochemistry, Chemistry or a degree relevant to the post.

## **How to apply**

Full details about these studentship projects, and the online application form, are available on our website, at: [www.icr.ac.uk/phds](http://www.icr.ac.uk/phds) Applications for all projects should be made online <https://apply.icr.ac.uk/> . Please ensure that you read and follow the application instructions carefully.