

## PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Biological Sciences
Supervisors	Principle supervisor: Professor Mu Wang (XJTLU, Department of Biological Sciences) Co-supervisor: Professor Sonia Rocha (University of Liverpool, Institute of Integrative Biology, Department of Biochemistry)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Mechanism of Cancer Therapeutic Resistance
Contact	Please email <a href="mailto:mu.wang@xjtlu.edu.cn">mu.wang@xjtlu.edu.cn</a> with a subject line of the PhD project title.

### **Requirements:**

The candidate should have a first class or upper second class honours degree (or equivalent to this UK system), or a master's degree (or equivalent qualification), in biochemistry, molecular biology, or related fields. Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above, if the first language is not English. This position is open to all qualified candidates irrespective of nationality.

### **Degree:**

The student will be awarded a PhD degree from the University of Liverpool (UK) upon successful completion of the program.

### **Funding:**

The PhD studentship is available for three years subject to satisfactory progress by the student. The award covers tuition fees for three years (currently equivalent to RMB 80,000 per annum) and provides a monthly stipend of 3,500 RMB as a contribution to living expenses. It also provides up to RMB 16,500 to allow participation at international conferences during the period of the award. It is a condition of the award that holders of XJTLU PhD scholarships carry out 300-500 hours of teaching assistance work per year. The scholarship holder is expected to carry out the major part of his or her research at XJTLU in Suzhou, China. However, he or she is eligible for a research study visit to the University of Liverpool of up to three months, if this is required by the project.

### **Project Description:**

Limitations of current therapeutic options and acquired drug resistance cause hundreds and thousands of cancer patients to die each year. Better understanding of the mechanism underlying chemo-therapeutic drug resistance and development of a novel and effective therapeutic agent against drug resistance hold a great promise to improve cancer treatment, risk assessment, and risk management. To achieve this goal, a more effective and precise strategy is needed to identify, characterize, and modulate the potential therapeutic target. The ability to rationally design a therapeutic agent against a specific target will no doubt create excellent opportunities for the development of a new anti-cancer therapeutic and thus improved patient survival rate.

In this study, we will develop a novel therapeutic agent using a combination of RNAi and nanotechnology to knockdown a specific therapeutic target of platinum resistance, superoxide dismutase 1 (SOD1), for effective sensitization of platinum resistant ovarian cancer cells. The major goal of this study is to use nanoparticle-mediated siRNA to assess the potential therapeutic effect on chemosensitization of platinum resistant cells using both cell-based assays and a pre-clinical xenograft model. 1), we propose to design, synthesize, and characterize SOD1 specific siRNA containing nanoparticles; 2), we will test the effectiveness of these nanoparticles in knocking down SOD1 expression and in killing platinum resistant cancer cells when combining them with a platinum chemodrug using cell-based assay; and 3), we will develop a xenograft model and test these nanoparticles' therapeutic efficacy *in vivo*. We chose this strategy because nanoparticle-mediated siRNA agent is more specific than most small-molecule-based drugs and nanoparticles stabilize siRNA, leading to better therapeutic efficacy and reduced adverse drug reactions (ADRs).

Our research goal is to develop a clinically useful chemosensitizer to overcome chemodrug resistance in cancer. We hope that, through this study, we will be able to move the siRNA containing nanoparticles into clinical trials for the treatment of chemo-resistant cancer patients.

For more information about doctoral scholarship and PhD programme at Xi'an Jiaotong-Liverpool University (XJTLU): Please visit

<http://www.xjtlu.edu.cn/en/study-with-us/admissions/entry-requirements>

<http://www.xjtlu.edu.cn/en/admissions/phd/feescholarships.html>

### **How to Apply:**

Interested applicants are advised to email [mu.wang@xjtlu.edu.cn](mailto:mu.wang@xjtlu.edu.cn) the following documents for initial review and assessment (please put the project title in the subject line).

- CV
- Two reference letters with company/university letterhead
- Personal statement outlining your interest in the position
- Proof of English language proficiency (an IELTS score of 6.5 or above)

- Verified school transcripts in both Chinese and English (for international students, only the English version is required)
- Verified certificates of education qualifications in both Chinese and English (for international students, only the English version is required)

**Informal enquiries** may be addressed to Professor Mu Wang (mu.wang@xjtlu.edu.cn), whose personal profile is linked below,

<http://www.xjtlu.edu.cn/en/departments/academic-departments/biological-sciences/staff/mu-wang>