

PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Biological Sciences
Supervisors	Primary supervisor: Dr Meng Huee Lee (Xi'an Jiaotong-Liverpool University) Co-supervisor: Dr Olga Mayans (University of Liverpool, UK); Dr Jian Liu (Xi'an Jiaotong-Liverpool University); Dr Yi Li (Xi'an Jiaotong-Liverpool University)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Structural Delineation of Kinases and Metalloproteinases Involved in Cancer Development

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in Biology, Chemistry or a closely-related discipline. Evidence of good spoken and written English is essential. The candidate should have an IELTS score of 6.5 or above, or an equivalent qualification, 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 3500 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:

Human diseases can often be linked to malfunctioning in the expression and modulation of proteins that regulate cellular functions. The regulating proteins include

molecules in signal transduction, cross-talk, receptors as well as proteolytic enzymes in extracellular matrix remodeling. In the majority of cases, the proteins are either over- or under-expressed or have lost their tertiary configuration due to mutation to the effect of damaging the system. In the majority of cases, the key proteins involved have not been structurally delineated. As a result, attempts to develop drugs against the diseases have met with little or no success due to our lack of understanding on their tertiary configuration. This PhD studentship is aimed at developing therapeutic agents for the treatment of these diseases by first delineating the tertiary structures of some of the key proteins.

The key proteins identified include:

1. Cell surface proteases of the ADAM family: ADAM-10 and ADAM-17
2. Kinases: IKKe, BMX, COT, TBK1, LRRK2
3. Molecules in neurodegenerative disease ALS: TDP-43, FUS/TLS and UBQLN2

The PhD studentship will require cloning, expression, purification and functional characterisation of a range of mammalian proteins using a combination of prokaryotic and baculovirus/insect cell expression techniques. Purified proteins will be subjected to structural and functional delineation by protein/protein binding, spectrofluorimetry as well as crystallography studies in the University of Liverpool. Structural information obtained from protein crystallography will be used for computer-aided drug design so that inhibitors of improved affinity can be developed by our organic chemist collaborator at XJTLU. The department of Biological Sciences is in the process of acquiring the most advanced "Surface Plasmon Resonance" (SPR, a.k.a. Biacore) workstation purpose-built for drug screening. Complement to our expansion, the department of Chemistry has a range of powerful, state-of-the-art analytical equipment (peptide synthesizer, mass spectrometer, SEM, NMR, X-ray crystallography) ideal for small molecule analysis. In short this is a project tailored towards intellectual property development.