

PhD studentship (Full-time)



Institution	Xi'an Jiaotong-Liverpool University, China
School	School of Science
Supervisors	Principal supervisor: Dr. Chunmei Yue (XJTLU) Co-supervisor: Dr. Mingyan Wang (XJTLU) Co-supervisor: Dr. Massimiliano Stagi (UoL)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Modelling Alzheimer's Disease in patient iPSC-derived brain organoids upon A β O administration
Contact	Please email chunmei.yue@xjtlu.edu.cn (XJTLU principal supervisor's email address) and copy doctoralstudies@xjtlu.edu.cn with a subject line of the PhD project title

Requirements:

The candidate should have a first class or upper second class honours degree, or a master's degree (or equivalent qualification), in neuroscience (neurodegenerative diseases), molecular biology, biochemistry or a life-science related discipline. 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 5,000 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 six months, if this is required by the project.

Project Description:

Our lab is interested in understanding and treating a devastating neurodegenerative disorder, Alzheimer's Disease (AD), and has a long-standing interest in developing appropriate disease models for AD. Previously, we generated patient iPSC-based cellular models at 2-dimensional (2D) level, observed some key AD pathological features reproduced in the patient iPSC-derived live AD neurons, even more, assessed the therapeutic potential of an AD target gene in these 2D-cellular models. Besides establishing cellular models for AD, we have focused on modeling AD in big animals. Recently, we bilaterally delivered synthetic A β oligomers (A β Os) into the cerebral parenchyma of cynomolgus monkeys, which rapidly drove the cascade of pathologic events associated with AD in monkeys as occurred in patients at the early phase, including the formation of massive A β plaques, concomitant neurofibrillary tangles, extensive neuroinflammation and neurodegeneration. The co-occurrence of A β plaques and neurofibrillary tangles in A β O-monkeys are reminiscent of those in the brain of AD patients, which are hardly detected in the well-established AD animal models, such as AD mouse. Collectively, all these efforts should facilitate the development of promising disease models for human AD and advance our understanding of AD, which would finally help to develop novel therapeutic strategies for the treatments of AD.

Brain organoids, also called mini-brains, are three-dimensional (3D) neural tissues that are formed due to the self-organization of pluripotent stem cells. Brain organoids recapitulate the developmental process of human brain and display similar architecture of native neural tissue, allowing for the study of uniquely human brain disorders, including AD. This project specifically aims to generate pluripotent stem cell-derived organoids carrying AD genetic background, then to drive evident neuropathological features associated with AD in brain organoids, and to establish 3D-cellular models for AD. The outcome might pave the way for generating appropriate disease models that could authentically acquire neuropathological features of AD patients. This is a multifaceted and challenging basic research project that entails a large range of state-of-the-art biotechnologies and strategies in terms of stem cells, brain organoids, biochemistry, molecular biology, immunostaining, microscopy, and high throughput sequencing. Therefore, we are looking for an eager, enthusiastic and skilled individual with an MRes background and experience in neuroscience, stem cells, molecular biology and microscopy fluorescence imaging. This project will be supervised primarily by: Dr. Chunmei Yue (XJTLU) and Co-supervisors: Dr. Mingyan Wang (XJTLU), Dr. Massimiliano Stagi (UoL).

Selected relevant literatures:

Feng Yue, Chunling Lu, Su Feng, Ting Zhang, Guoxian Tao, Chunmei Yue*and Naihe Jing*. Synthetic amyloid-b oligomers drive early pathological progression of Alzheimer's disease in nonhuman primates. *iScience*, October 2021, 24: 103207-103229.

Ting Zhang, Ran Tao, Chunmei Yue*and Naihe Jing*. Protocol for generating human induced neural progenitor cells from immobilized adult peripheral blood. STAR Protocols. March 2021, 2 (1): 100346-100362.

Ran Tao, Rui Lu, Junfeng Wang, Shujun Zeng, Ting Zhang, Wenke Guo, Xiaobing Zhang, Qi Cheng, Chunmei Yue*, Yizheng Wang*, Naihe Jing*. Probing the therapeutic potential of TRPC6 for Alzheimer's disease in neurons from patient-specific iPSCs. JMCB, June 2020, published.

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

<https://www.xjtlu.edu.cn/en/admissions/global/entry-requirements/>

<https://www.xjtlu.edu.cn/en/admissions/global/fees-and-scholarship>

How to Apply:

Interested applicants are advised to email chunmei.yue@xjtlu.edu.cn (XJTLU principal supervisor's email address) 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)
- PDF copy of Master Degree dissertation (or an equivalent writing sample) and examiners reports available

Informal enquiries may be addressed to Dr. Chunmei Yue (chunmei.yue@xjtlu.edu.cn), whose personal profile is linked below,

<https://www.xjtlu.edu.cn/en/departments/academic-departments/biological-sciences/staff/chunmei-yue>