

Institution	Xi'an Jiaotong-Liverpool University, China
Department	Department of Biological Sciences
Supervisors	Principle supervisor: Dr. Ferdinand Kappes (XJTLU, Department of Biological Sciences) Co-supervisor: Professor Claire Evers (UoL, Institute of Integrative Biology)
Application Deadline	Open until the position is filled
Funding Availability	Funded PhD project (world-wide students)
Project Title	Tumor-promoting roles of the chromatin-associated DEK oncogene in metastatic melanoma 染色质相关 DEK 基因在转移性黑色素瘤中的促肿瘤作用
Contact	Please email <a href="mailto:Ferdinand.Kappes@xjtlu.edu.cn">Ferdinand.Kappes@xjtlu.edu.cn</a> and copy <a href="mailto:doctoralstudies@xjtlu.edu.cn">doctoralstudies@xjtlu.edu.cn</a> with a subject line of the PhD project title

**Requirements:**

The candidate should have a master's degree (or equivalent qualification) in biochemistry, cell biology 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 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:**

Our laboratory is interested in understanding the role of non-histone chromatin proteins in tumorigenesis, in particular aspects relating to structure and function of cellular chromatin. Specifically, we have a long-standing interest in the human DEK oncogene, a highly conserved and abundant biochemically distinct nuclear protein, which is now discussed as a novel biomarker for a number of human solid tumors. Besides having elucidated the basic biochemistry of this factor, we are currently detailing its mechanistic role in a variety of cancer types, including its cellular and genomic interactions. Recently, we have identified that DEK participates in global chromatin integrity, at least in part, via targeting of Heterochromatin Protein 1 (HP1 $\alpha$ ) to the repressive histone mark H3K9Me3 (histone H3 tri-methylated at lysine 9) – a prominent cellular chromatin silencing mechanism. As DEK is found overexpressed in a substantial number of neoplasms, including melanoma, and plays roles in central pathways of tumor biology, this finding may define a targetable mechanism of how DEK drives tumorigenesis, e.g. by inducing aberrant gene silencing upon overexpression.

This project specifically aims to examine the regulation of the DEK-HP1 $\alpha$  interplay biochemically and on the cellular level in melanoma-related cellular systems. The outcome might pave the way for novel strategies that target this unique factor for the treatment of metastatic melanoma - a currently deadly disease. This is a multifaceted and challenging basic research project that entails a large range of state-of-the-art biochemical, cellular, bioinformatics, proteomics, and other approaches. Therefore, we are looking for an eager, enthusiastic and skilled individual with an MRes background and experience in chromatin biology and epigenetics.

### **Selected relevant literature:**

- Kappes, F., Waldmann, T., Mathew, V., Yu, J., Zhang, L., Khodadoust, M.S., Chinnaiyan, A.M., Luger, K., Erhardt, S., Schneider, R. et al. (2011) The DEK oncoprotein is a Su(var) that is essential to heterochromatin integrity. *Genes Dev*, 25, 673-678.
- Kappes, F., Khodadoust, M.S., Yu, L., Kim, D.S., Fullen, D.R., Markovitz, D.M. and Ma, L. (2011) DEK expression in melanocytic lesions. *Hum Pathol*, 42, 932-938.
- Devany, M., Kappes, F., Chen, K.M., Markovitz, D.M. and Matsuo, H. (2008) Solution NMR structure of the N-terminal domain of the human DEK protein. *Protein Sci*, 17, 205-215.
- Kappes, F., Fahrer, J., Khodadoust, M.S., Tabbert, A., Strasser, C., Mor-Vaknin, N., Moreno-Villanueva, M., Burkle, A., Markovitz, D.M. and Ferrando-May, E. (2008) DEK is a poly(ADP-ribose) acceptor in apoptosis and mediates resistance to genotoxic stress. *Mol Cell Biol*, 28, 3245-3257.
- Kappes, F., Scholten, I., Richter, N., Gruss, C. and Waldmann, T. (2004) Functional domains of the ubiquitous chromatin protein DEK. *Mol Cell Biol*, 24, 6000-6010.
- Kappes, F., Damoc, C., Knippers, R., Przybylski, M., Pinna, L.A. and Gruss, C. (2004) Phosphorylation by protein kinase CK2 changes the DNA binding properties of the human chromatin protein DEK. *Mol Cell Biol*, 24, 6011-6020.

For a full list of publications see: <https://www.ncbi.nlm.nih.gov/pubmed/?term=kappes+>

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

<http://www.xjtlu.edu.cn/en/admissions/phd/entry-requirements.html>

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

### **How to Apply:**

Interested applicants are advised to email Ferdinand.Kappes@xjtu.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 Dr. Ferdinand Kappes (Ferdinand.Kappes@xjtu.edu.cn), whose personal profile is linked below, <http://www.xjtu.edu.cn/en/departments/academic-departments/biological-sciences/staff/ferdinand-kappes>.