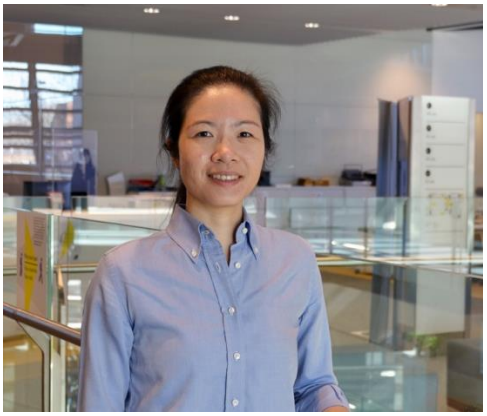
Name	LEANNE LI
Position	Group Leader (1st 6)
Year joined *(Crick or founder institute)*	2020



Career History

2007 to 2008: National Taiwan University Hospital, Taipei, Taiwan. Intern
2008: School of Medicine, National Taiwan University, Taipei, Taiwan - MD
2008: Taipei City Hospital, Ren-Ai Branch, Taipei, Taiwan. Internal medicine resident
2009-2014: ISREC, School of Life Science, École Polytechnique Fédérale de Lausanne, Switzerland - PhD: Molecular Life Science Program
2015-2020: Koch Institute for Integrative Cancer Research, MIT, USA. Postdoctoral fellow
2020-present: Francis Crick Institute, London, UK. Group leader

Major Awards, Honours and Prizes

Foundation of Health Sciences/Schering-Plough Scholarship,Taiwan (2006); Junior Debiopharm Life Sciences Award, Switzerland (2013); Pfizer Research Award: Field of oncology, basic research, Switzerland (2014); Swiss National Science Foundation Early Postdoctoral Mobility Fellowship, Switzerland (2015); Lung Cancer Research Foundation Award, United States (2015); Swiss National Science Foundation Advanced Postdoctoral Mobility Fellowship (2016); Hope Funds Fellowship for Cancer Research, United States (2017)

Membership of external committees, editorial boards, review panels, SABs etc

Lab Name	***Cancer-Neuroscience Laboratory***

Research programme and achievements

Our laboratory combines cancer biology and neuroscience to investigate how tumours communicate with the rest of our body.

Tumours are made up of both cancer cells and host cells that support the tumour's growth. Interactions among the different types of cells in the tumour constantly shape the behaviour of the cancer cells, and affect how the disease will progress.

This means we need to understand how cancer cells communicate with the host or 'stromal' cells within the space directly around the tumour, called the tumour

microenvironment. But we also need to know how the tumour communicates with the rest of the body.
The immune system controls part of the conversation, and this piece of the system is relatively extensively-studied at the moment. However, the neuroscience aspects of cancer biology remain mostly unexplored. Our lab uses genetically-engineered mouse models (GEMMs) and GEMM-derived tissue culture systems to answer the following questions: What are the roles of neuronal signalling pathways in cancer? Do cancer cells 'communicate' with our body through the nervous system, and if so, how? Finally, can we interfere with these 'communications' to treat cancer?

One of the major model systems we use is small cell lung cancer (SCLC), a highly aggressive neuroendocrine tumour which metastasizes early and has very limited treatment options. By learning more about the relationship between cancer and neuroscience, we hope to develop potential new treatments for SCLC, and eventually for cancers in general.

Research outputs

Cynthia Hajal, Yoojin Shin, Leanne Li, Jean Carlos Serrano, Tyler Jacks, Roger D. Kamm. (2021) ***The CCL2-CCR2 astrocyte-cancer cell axis in tumor extravasation at the brain.*** **Science Advances (In press).**
Extravasation is a rate-limiting factor in brain metastasis, but mechanisms underlying this process have been challenging to investigate, due to the limitations of available technologies. Here we developed a novel in vitro microfluid 3D platform to model the process of cancer cell extravasation in brain vasculatures in real time, and identified novel signalling pathways mediating the brain extravasation of cancer cells.

Rodrigo Romero, Francisco J. Sánchez-Rivera, Peter M. K. Westcott, Kim L. Mercer, Arjun Bhutkar, Alexander Muir, Tania J. González Robles, Swanny Lamboy Rodríguez, Laura Z. Liao, Sheng Rong Ng, Leanne Li, Caterina I. Colón, Santiago Naranjo, Mary Clare Beytagh, Caroline A. Lewis, Peggy P. Hsu, Roderick T. Bronson, Matthew G. Vander Heiden and Tyler Jacks. (2020) ***Keap1 mutation renders lung adenocarcinomas dependent on Slc33a1*****. Nature Cancer 1: 589–602. DOI: 10.1038/s43018-020-0071-1**
Keap1 is frequently co-mutated with Kras in lung adenocarcinoma. Using genetic screens, we identified synthetic lethal targets that could be effective in treating Kras mutant lung adenocarcinomas.

Leanne Li*, Sheng Rong Ng*, et al (*equal contribution). (2019) ***Identification of DHODH as a novel therapeutic target in small cell lung cancer*****. Science Translational Medicine 11(517):eaaw7852. DOI: 10.1126/scitranslmed.aaw7852**
The treatment landscape of small cell lung cancer has remained nearly unchanged over the past 30 years. This study used a cutting-edge CRISPR-mediated genetic screen techique to identify novel therapeutic targets in small cell lung cancer, and validated one of the targets in various pre-clinical models.

Leanne Li*, Qiqun Zeng*, et al. (*Equal contribution). (2018) ***GKAP acts as a genetic modulator of NMDAR signaling to govern invasive tumor growth.*** **Cancer Cell 33: 736-751. DOI: 10.1016/j.ccell.2018.02.011**

The finale of a series of proof-of-concept studies, in which a genetically-engineered mouse model of cancer was used to demonstrate the essence of personalized medicine: genetic modifers identified from genome-wise association studies (GWAS) can govern the phenotype of cancer progression through differential activation of signaling pathways, and convey differential susceptibilities to personalized treatments in cancer cells.

Hugh Robinson and Leanne Li. (2017) ***Autocrine, paracrine and necrotic NMDA receptor signalling in mouse pancreatic neuroendocrine tumour cells.*** **Open Biology 7 :170221. DOI:** 10.1098/rsob.170221
This is one of the first extensive electrophysiology studies of pancreatic neuroendocrine tumor cells, demonstrating how NMDA receptor signaling functions in these cells.