

Tammy C. T. Lan
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EDUCATION

- Harvard University, USA** 2020-present
Ph.D molecules, cells and organisms (MCO)
- Ruprecht-Karls Universität Heidelberg, Germany** 2016-2019
M.Sc Molecular Biosciences major: Infectious Diseases
- Ruprecht-Karls Universität Heidelberg, Germany** 2012-2016
B.Sc Molecular Biosciences
- Secondary Education, United Kingdom** 2004-2010
Scottish National Qualifications Highers: English (A), Mathematics (A), Biology (A), Chemistry (A), German (A)

RESEARCH EXPERIENCE

- Whitehead Institute for Biomedical Research, USA - Research Technician** 01.2019-09.2021
Advisor: Dr. Silvia Rouskin
The role of RNA secondary structures in viral and human alternative splicing
- Developed Co-transcriptional chemical probing of RNA secondary structure (DMS-MaPseq) *in vivo*
 - Analyse genome-wide RNA structure and splicing data to understand their relationship
 - Design mini-gene libraries to systematically interrogate role of structure and splicing
- Whitehead Institute for Biomedical Research, USA - M.Sc thesis** 02-09.2018
Advisors: Dr. Sebastian Lourido and Dr. Friedrich Frischknecht
Parasitic Factors Involved in *Toxoplasma gondii*'s Broad Host Range
- Constructed genome-wide CRISPR library for *T. gondii*
 - Performed screens on multiple mouse cell lines to find significantly differentially expressed genes
- Okinawa Institute of Science & Technology, Japan** 10.2017-01.2018
Advisor: Dr. Igor Goryanin
Engineering Efficient Bacterial Fuel Cells with Limited Carbon Metabolism
- Edited genes essential for acetate/lactate metabolism in arcobacter using CRISPR-CAS9 and Cpf1
 - Characterised edited bacteria and tested in biosensor for single analyte detection
- German Cancer Research Centre (DKFZ), Germany** 03-08.2017
Advisor: Dr. Angelika Riemer
Generating Tumorigenic E6+/E7+ Expressing Lung Cells for HPV Therapeutic Vaccine Testing
- Generated construct for E6+/E7+ expressing tumors in humanised mice
 - Measured tumor growth and monitored mice health and phenotype

Max-Planck Institute of Immunobiology and Epigenetics, Germany

08-10.2016

Advisor: Dr. Jian-Ying Yang

Engineering A Monomeric-B Cell Receptor

- Generated construct for monomeric BCR for retroviral transduction in cell line
- FACS analysis to quantify mono BCR activation compared with normal BCR

University of Heidelberg, Germany – B.Sc Thesis

11.2015 - 03.2016

Advisor: Dr. Klaus Heeg

MicroRNA 125a /99b-Mediated Fine Tuning of a Tolerogenic TLR-APC Phenotype

- Quantified successful knockdown of miRNAs in human primary monocytes
- Investigated effect of miRNA knockdown on interleukin and tryptophan production

National Taiwan University, Taiwan

07.2015 - 09.2015

Advisor: Dr. Chu Ching Liang

Characterising tolerogenic dendritic cells in mice

- Isolated primary PBMCs from mice and induced to differentiate to tolerogenic phenotype
- Investigated effect of several compounds on tolerogenic phenotype

PUBLICATIONS

Normandin, E.*, Triana Sierra, S. H.*, Raju, S. S.*, **Lan, T. C. T.***, ... Hensley, L. E., Sabeti, P. C., Siddle, K. J. (2022) Viral and Host RNA Dynamics in Tissues from Lethal Ebola Virus Disease in Rhesus Monkeys. *Cell Host & Microbe* (submitted)

Lan, T. C. T., Allan, M. F., Malsick, Lauren. E., Khandwala, S., Nyeo, S. Y. S., Bathe, M., Griffiths, A., Rouskin, S. (2021) Secondary structural ensembles of the SARS-CoV-2 RNA genome in infected cells. *Nature Communications*

McCormick DM, Lalanne JB, **Lan T. C. T**, Rouskin S, Li G-W. (2021) Differential translation of mRNA isoforms transcribed with distinct sigma factors. *RNA*

Tomezsko, P., Corbin, V., Gupta, P., Swaminathan, H., Glasgow, M., Persad, S., Edwards, M., McIntosh, L., Papenfuss, A., Emery, A., Swanstrom, R., Zang, T., **Lan, T. C. T** et al. (2019) Determination of RNA structural diversity and its role in HIV-1 RNA splicing. *Nature*

Szydowski, L., **Lan, T. C. T.**, Shibata, N., Goryanin, I. (2019) Metabolic engineering of a novel strain of electrogenic bacterium *Arcobacter butzleri* allows single analyte detection using an amperometric system. *Enzyme and Microbial Technology*

Kruse, S., Büchler, M., Uhl, P., Sauter, M., Scherer, P., **Lan, T. C. T** et al. (2018). Therapeutic vaccination using minimal HPV16 epitopes in a novel MHC-humanized murine HPV tumor model. *Oncoimmunology*

RESEARCH PRESENTATIONS

Eukaryotic mRNA Processing Cold Spring Harbor Laboratory, USA, 08.2019

Lan, T.C.T., Rouskin, S. Co-transcriptional RNA secondary structure and its role in RNA splicing

Cell Symposia: Regulatory RNAs Berlin, Germany, 05.2019

Thangappan, J., **Lan, T.C.T.**, Port, J., Rouskin, S. The regulatory role of RNA structures in Tau exon 10 alternative splicing

SCHOLARSHIPS AND AWARDS

Harvard MCO Fellowship, USA 12.2020

DAAD-PROMOS Scholarship, Germany 03-09.2018

- Annual federal program supporting independent study abroad stays. Scholarships are awarded competitively based on study/research proposal, transcript and recommendation letters.

OIST Research Internship Scholarship, Japan 10.2017-01-2018

- Competitive award to cover travel expenses, housing and monthly allowance. Applicants selected based on research proposal, academic background, CV, transcript and recommendation letters.

British Biology Olympiad - Bronze medal, United Kingdom 2012

ACADEMIC OUTREACH & COMMUNITY SERVICE

Speaker, **Molecular Biosciences University of Heidelberg student council** 2016-2017

- Co-organised first scientific retreat for M.Sc students in biology

Co-organiser, **TEDx UniHeidelberg** 2017

- Organised sponsorships and partnerships for the event

Chairwoman, **Taiwanese Society in Heidelberg** 2016-2017

- Elected representative supported by the Ministry of Foreign Affairs in Taiwan

Contributor, Interpreter, translator, **g0v Taiwan, civic tech NGO** 2014-

- Interpreter and coordinator for g0v biennial summit, the largest civic tech conference in Asia

WORK EXPERIENCE

Business Weekly Publications 2017

- "Das Prinzip der Widerstandskraft. Wie Stress und Gift uns stärker machen" by Richard Friebe (361 pages, German to Mandarin)

National Geographic Channel Asia 2015-2016

- Researched, wrote, translated and fact-checked scripts for documentaries in production