James Phipps-Tan

Address: Friedrich Miescher Laboratory of the Max Planck Society, 72076 Tübingen, Germany

E-mail: james.tanshengyi@tuebingen.mpg.de **X and Bluesky:** @jphippstan

PhD Researcher (IMPRS 'From Molecules to Organisms') Feb 2023-Now

- **Main project (Pallares Lab): Expression variability in *Drosophila melanogaster* and its genetic and environmental dependence**
  - Aims to better characterize the biological value of inter-individual expression variability in multicellular eukaryotes by carrying out GWAS (e.g., eQTL and veQTL mapping) in environmentally-perturbed laboratory fruit fly populations
  - Generating and analysing individual-level genomes and transcriptomes using R-, Python- and Bash-based statistical tools
- **Science Communication**
  - Poster talk at the 1st SMBE Satellite Conference on Biological Noise
  - Co-authored a Perspective under review - Brasó-Vives *et al.*, 'Unlocking the hidden dimensions of genomic diversity within species', *EcoEvoRxiv*
  - 12-minute results talk at the SMBE Conference Puerto Vallarta 2024
  - Designed 'Origami *Drosophila* Flight', a simple practical introducing the phenomenon and causes of inter-individual trait variability, and ran it as our lab's activity stand for three of our institute's Diversity Days
  - 5-minute chalk talk on trait variability at the 2023 IMPRS PhD retreat
- **Other responsibilities**
  - Phenotyping behavioural, wing morphological, and life history traits as part of teams carrying out a long-term evolution experiment
  - Teaching Master and Bachelor students fly husbandry and lab techniques
  - Authoring lab protocols and minor organisational documents

MSc Molecular Life Sciences at Université de Lausanne 2020-2022

- **Thesis Project (Benton Lab): Genetic specification of neuronal apoptosis in the developing *D. melanogaster* olfactory system (94%)** Feb 2021-2022
  - Found candidate transcriptional regulators controlling olfactory sensory neuron (OSN) number by first RNAi screen using a fluorescence reporters of neuron number, fluorescence *in-situ* hybridisation against odorant receptor mRNA and immunostaining of brain regions that OSNs connect to
  - Presented a poster at the Swiss *Drosophila* Meeting 2021
  - Defended an oral viva after thesis submission

- **Short Project (Waterhouse Lab): The evolution of sex determination genes in anopheline mosquitoes (94%)** Oct 2020-Jan 2021
  - Compared differences in the amino acid sequences of two insect sex determination genes between 22 *Anopheles* species to assess their viability as targets for genetic pest control by Vectorbase searches, curating new gene models, and coding a reproducible phylogenetics workflow with Snakemake

BSc Biological Sciences at Imperial College London (ICL) 2017-2020

- Overall grade – **2A (Hons) with Dean's List for 1st Year**
- **1st class grade** in Biological Chemistry and Microbiology, Cell Biology and Genetics, Ecology and Evolution with Bioinformatics in R, Applied Molecular Biology, Immunology

Bioinformatics Experience

Cancer Research Malaysia Genomics Intern Sept 2022-Jan 2023

- Worked with Dr. Pan Jia Wern towards developing a locally-relevant breast cancer prognostic prediction tool based on the largest Malaysian breast cancer clinical cohort combining bulk tissue transcriptome analyses, survival analyses, and machine learning

Sequence-a-genome MSc course (94%): From short and long read technologies, assembled *de novo* and analysed genomes of new stingless gut bacteria species.

MSc courses (93% average): Data Analysis in R (Intro. to linear mixed models, survival analysis, Bayesian inference), Python Programming, Controversial Case Studies, Bioinformatics Algorithms (Intro. to Computer Science), Comparative Genomics in Populations and Cells, Population Genetics (Intro. to the Wright-Fisher Model, the Coalescent, and Diversity Statistics)

Wet Lab Experience

Imperial College Undergraduate Neuroscience Intern July-Aug 2019

- Worked with Dr. Andrew Hammond to functionally characterize the roles of chemoreceptor genes in human host-seeking behaviour
- Learnt how to design and clone CRISPR/Cas9 knock-in constructs and implemented biting assays to test behavioural differences between transgenic and normal mosquitoes

Indigenous Malaysian Health Project Volunteer 2016-2019

- Volunteered for a joint survey between Monash University Malaysia and University of Malaysia to improve understanding of the genetics, health and microbiome of Orang Asli – the heavily under-represented indigenous peoples of Malaysia
- Helped compile questionnaire data, extract DNA from blood and edit two publications on Orang Asli cardiometabolic health and microbiomes (PMID: 31275564 and 30509859)

Authored publications

- On the genetic and environmental bases of expression variability (first author; in prep.)
- A gene expression signature of Malaysian breast cancer prognosis (in prep.)
- Brasó-Vives, *et al.,* Unlocking the hidden dimensions of genomic diversity within species. *EcoEvoRxiv* ('Gene expression variability' section; under review)

Leadership and Communications Roles

External PhD Student Representative August 2024-2025

- Through writing mails and attending student events, kept students aware of the working and living conditions of students across the greater Max Planck Society, as well new agreements between the PhD student network and the general administration
- Implemented and ran the first internal PhD student survey with the help of internal student representatives and external representatives from other institutes
- Helped write statements highlighting student concerns during a Scientific Advisory Board meeting and keeping students composed and conscious of support options following the release of a DW exposé on several abuse reports within the Max Planck Society

EMBL *Drosophila* Genetics and Genomics Statistics Instructor July 2023

- Created an R-based practical for students with no prior coding experience to analyse results of a two-condition experiment

Social Media Officer of ICL Chamber Music and Anime Societies 2019-2020
President then Treasurer of ICL Wushu Society 2018-2020
Peer Mentor to 1st Year ICL Biology Students 2018-2019

Languages

- English, Mandarin, Malay; Basic French, Japanese, German