

Sze Wai (Anna) Tse (She/Her/Hers)

[Haseloff Lab](#), Department of Plant Sciences, University of Cambridge

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EDUCATION

University of Cambridge

Ph.D. in Plant Sciences

Cambridge, UK

Viva passed in Sep 2024

Thesis title: Production of nanobodies in *Marchantia polymorpha* chloroplasts

The University of Hong Kong

BSc with First Class Honours in Molecular Biology and Biotechnology

Hong Kong, China

Jul 2020

Minor in English Studies

National University of Singapore

One-year abroad program, GPA: 4.8/5.0

Singapore

Aug 2018 – May 2019

RESEARCH EXPERIENCE

Haseloff Lab, University of Cambridge

Full Time Ph.D. researcher

UK

Oct 2020 – Now

- 4 years' experience with molecular biology, microbiology, plant tissue culture, bioinformatics and confocal imaging skills
- Developed protocol for production & purification of nanobodies from *Marchantia polymorpha*

Small Lab, The University of Western Australia

Visiting Research Student

Australia

Dec 2019 – Jan 2020

- Identified effective RBS for testing synthetic RNA-editing PPR proteins in *E. coli*
- Performed preliminary wet lab work for testing synthetic RNA-editing PPR proteins in *E. coli*

Haseloff Lab, University of Cambridge

Summer Intern

UK

Jun 2019 – Aug 2019

- Identified 3 PPR proteins and binding sites to enhance chloroplast transgene expression in *Marchantia polymorpha*
- Designed a more effective pipeline for *de novo* assembly of 10+ moss chloroplast genomes from NGS data

Plant Functional Genomics Laboratory, National University of Singapore

Undergraduate Research Opportunity Program (UROP)

Singapore

Aug 2018 – Apr 2019

- Studied the interaction between OsFTIP9 and FC1 in *Oryza sativa* (rice)
- Saved experiment time by improving sequence analysis procedure for verifying constructed plasmids

The Su Lab, Scripps Research

Remote Summer Intern

La Jolla, California

May 2018 – Aug 2018

- Wrote a parser for mygene.info to fill in a gap regarding ortholog data from PANTHER
- Did preliminary work for a parser for plant genomic data from Ensembl

The University of Hong Kong

Hong Kong

Team member, HKU 2018 iGEM team

Jan 2018 – Aug 2018

- Secured the team’s collaboration with secondary PI and funding for cell culture
- Assisted the team’s collaboration with anthropologists for human practice

Lim Laboratory, The University of Hong Kong

Hong Kong

Summer Research Fellowship

Jun 2017 – Aug 2017

- Won “Best Presenter” in the subsequent poster presentation competition
- Presented in the faculty’s summer research colloquium for undergraduate students

WORK EXPERIENCE

Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI)

Hong Kong

Jun – Aug 2024

Summer Intern (Ecosystem and University Technology Transfer)

- Helped organise conferences and seminars to connect stakeholders in different technology ecosystems
- Prepared information decks and proposals to facilitate internal and external collaborations

Cell and Developmental Biology (Natural Sciences Tripos Part 1B, Undergraduate second year), University of Cambridge

UK

Jan 2024

Demonstrator (Bioinformatics Practical with Prof. Jim Haseloff)

- Helped preparing and dry-running of two 4-hour sessions with ~20 students each
- Guided students through homologue finding and protein/DNA alignment using online tools, databases and bioinformatics software packages

Biology of Cells (Natural Sciences Tripos Part 1A, Undergraduate first year), University of Cambridge

UK

Oct 2021 – Jun 2023

Supervisor

- Led weekly 1-hour supervision sessions (2 groups of 4 students each year, 16 in total)
- Assigned and marked weekly essay, practical assignments and mock exams

Cell and Developmental Biology (Natural Sciences Tripos Part 1B, Undergraduate second year), University of Cambridge

UK

Apr 2023

Demonstrator (Self-organization and morphogens in plants Practical with Dr. Facundo Romani)

- Demonstrated for two 3-hour practical sessions with 15-20 students each
- Guided students through experiment design, microscopy, sectioning of plants and discussion

Sanomics Limited

Hong Kong

Sales and Marketing Assistant

Feb 2020 – March 2020

- Wrote 7 award application for the company’s Thai branch
- Collaborated with a team of 10 to design marketing materials targeting existing and potential customers

CONFERENCE PRESENTATIONS

“Production of nanobodies in <i>Marchantia polymorpha</i> .” Annual Meeting. BBSRC High Value Biorenewables Network.	Manchester, UK 14-15 Nov 2023.
“Production of nanobodies in <i>Marchantia polymorpha</i> chloroplasts.” Norwich-Cambridge Science Symposium for Plant and Microbial Sciences (NoCaSS)	Cambridge, UK 24-25 Apr 2023
“Production of nanobodies in <i>Marchantia polymorpha</i> chloroplasts.” Chloroplast Biotechnology GRC. Gordon Research Conferences	Ventura, California, USA. 26-31 March 2023.
“Production of nanobodies in <i>Marchantia polymorpha</i> .” Non-seed Meeting. The Genetics Society.	University of Oxford, UK. 13 Dec 2022
“Production of nanobodies in <i>Marchantia polymorpha</i> .” New Phytologist Next Generation Scientists. New Phytologist Foundation	University of Tartu, Estonia. 19-22 Jul 2022

JOURNAL PUBLICATION

Tse SW, Annese D, Romani F, Guzman-Chavez F, Bonter I, Forestier E, Frangedakis E, and Haseloff J. Optimising promoters and subcellular localisation for constitutive transgene expression in *Marchantia polymorpha*. *Plant and Cell Physiology*. 2024;pcae063.

<https://doi.org/10.1093/pcp/pcae063>

Frangedakis E, Marron AO, Waller M, Neubauer A, **Tse SW**, Yue Y, Ruaud S, Waser L, Sakakibara K and Szövényi P. 2023. What can hornworts teach us? *Front. Plant Sci.* 14:1108027. doi: <https://doi.org/10.3389/fpls.2023.1108027>

Zedler M, **Tse SW**, Ruiz-Gonzalez A, Haseloff J. 2023. Paper-based multiplex sensors for the optical detection of plant stress. *Micromachines* 14:314. doi: <https://doi.org/10.3390/mi14020314>

Frangedakis E, Guzman-Chavez F, Rebmann M, Markel K, Yu Y, Perraki A, **Tse SW**, Liu Y, Rever J, Sauret-Gueto S, et al. Construction of DNA Tools for Hyperexpression in *Marchantia* Chloroplasts. *ACS Synthetic Biology*. 2021;10(7):1651–1666. doi:

<https://doi.org/10.1021/acssynbio.0c00637>

VOLUNTEERING EXPERIENCE

Health and Safety & Biological Safety Committees, Department of Plant Sciences, University of Cambridge 2021-2024
Graduate Student Representative

- Facilitated the update for liquid waste SOP for the department in quarterly departmental meeting
- Organised a first-aid course for students and staff in the department

Fundamentals of Modern Science (first year compulsory course), The University of Hong Kong

Peer Learning Leader

- Led biweekly Peer Learning Sessions and mid-term/exam revision sessions to tutor course attendees
- Met with the teaching team to discuss long-term improvement in course planning

Hong Kong
2017-18, 2019-20

AWARDS

Conference Travel Bursary for Non-seed Meeting at Oxford, The Genetics Society.	2022
Frank Smart Studentship, University of Cambridge.	2021
Silver Award (Team), “Internet+” Innovation and Entrepreneurship Competition	2021
Doris Zimmern HKU-Cambridge Hughes Hall Scholarship, Doris Zimmern Trust, Cambridge Trust, Hughes Hall, The University of Hong Kong	2020-2024
Lee Chung Yin Jubilee Prize in Biological Sciences, The University of Hong Kong	2020
Innovation & Technology Scholarship, HKSAR Government (ITC), HSBC and HKFYG	2019
Gold Medal on behalf of HKU 2018 iGEM team, The iGEM Foundation	2018
Dean’s Honour List, The University of Hong Kong	2017
Young Scientist Scheme entrance scholarship, The University of Hong Kong	2016

PROFESSIONAL QUALIFICATION

Associate Fellow (AFHEA)	UK
Advance HE	21 Feb 2024
Fellowship reference: PR283982	

LANGUAGE

Mandarin & Cantonese Chinese	Native or bilingual proficiency
English	Full Professional proficiency
Japanese	Limited working proficiency