Chloe Tran

Molecular Biology & Biomedical Research | Molecular Diagnostics

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Professional Summary

Biomedical Science MSc graduate (Distinction) from Swansea University, combining clinical molecular diagnostics experience with experimental research in microbial engineering and disease genomics. Experienced in molecular testing for inherited genetic disorders and infectious diseases, next-generation sequencing and biological data analysis. During MSc research into tumour-targeting Salmonella, successfully constructed and sequence-verified recombinant plasmid pCT1 containing the dctA succinate transporter gene. Second author of "Metabolic Engineering of Corynebacterium glutamicum for the Production of Flavonoids and Stilbenoids" (Molecules, 2024).

Seeking laboratory and research roles in molecular diagnostics, microbiology and biomedical science, alongside PhD opportunities in cancer biology, cancer immunology or computationally assisted biomedical research. Particular research interests include tumour metabolism, the tumour microenvironment and microbial interactions with cancer.

Experience

Swansea University — Swansea, UK

MSc Research Student — Jan 2025 – Jan 2026

- Investigated bacterial succinate utilisation in research aimed at developing tumour-targeting Salmonella Typhimurium.
- Designed primers, amplified dctA and constructed recombinant plasmid pCT1 using restriction digestion and molecular cloning, with PCR and sequencing-based screening.
- Optimised PCR amplification of the approximately 3.5 kb *sdhCDAB* operon and its fragments for subsequent molecular cloning experiments.
- Investigated unsuccessful *sdhCDAB* cloning attempts through colony PCR, restriction digestion and sequencing, identifying unexpected plasmid inserts and potential recombination or instability.

Hanoi University of Science, Vietnam National University — Hanoi, Vietnam

Research Assistant — Nov 2023 – Nov 2024

- Contributed to microbial metabolic engineering research on bioactive compound production, including flavonoids and stilbenoids.
- Applied SWISS-MODEL homology modelling and AutoDock molecular docking to investigate molecular interactions.
- Contributed as second author to a peer-reviewed publication in Molecules (2024).

True Medicine Vietnam — Hanoi, Vietnam

Laboratory Technician — Jun 2023 – Nov 2023

- Performed molecular diagnostic procedures for cervical cancer screening and the detection of hepatitis B and hepatitis C.
- Conducted routine molecular biology laboratory work in accordance with clinical laboratory protocols and standards.

Centre for Gene and Protein Research, Hanoi Medical University — Hanoi, Vietnam

Laboratory Technician — Jun 2021 – Jun 2023

- Performed molecular diagnostic assays for alpha- and beta-thalassaemia, Duchenne muscular dystrophy and AZF microdeletions associated with male infertility.
- Undertook non-invasive prenatal testing (NIPT) workflows and ELISA-based assays for tuberculosis investigation.

Hanoi Medical University — Hanoi, Vietnam

Research Intern — Jun 2021 – Jun 2023

- Contributed to SARS-CoV-2 whole-genome sequencing research with Hanoi Medical University and the Oxford University Clinical Research Unit, analysing samples from industrial outbreaks in Bac Ninh.
- Used next-generation sequencing and bioinformatic analysis to identify viral genome variation, including mutations in ORF1b and the spike gene.

- Designed exon-specific primers and used PCR and Sanger sequencing to investigate SNCA variation in Parkinson's disease, identifying variants in 5 of 30 patient samples.

Vinmec Research Institute of Stem Cell and Gene Technology Hanoi, Vietnam

Research Intern Jun 2021 – Jun 2023

- Investigated donor and collection factors affecting umbilical cord blood quality before cryopreservation, using cell viability assessments and multivariate linear regression.
- Identified associations between higher neonatal birth weight and increased cord blood volume, total nucleated cell counts and CD34+ counts, alongside lower CD34+ yield with increasing gestational age.

Education

Swansea University Master of Science (MSc) • Distinction

Biomedical Science (Clinical Microbiology) Swansea, UK • Jan 2025 – Jan 2026

Hanoi University of Science, Vietnam National University Bachelor of Science (BSc) • GPA: 3.16/4.00

Biotechnology Hanoi, Vietnam • Jan 2019 – Jan 2023

Technical Skills

Molecular Diagnostics & Genetic Testing

DNA extraction; PCR; Quantitative real-time PCR (qPCR); Primer design; Multiplex ligation-dependent probe amplification (MLPA); Sanger sequencing; Agarose gel electrophoresis; Polyacrylamide gel electrophoresis

Microbiology & Genetic Engineering

Bacterial culture; Plasmid DNA extraction; Restriction digestion; Molecular cloning; Bacterial transformation; Recombinant construct screening; Bacterial growth assays; Microbial metabolic engineering

Genomics & Sequence Analysis

Illumina library preparation; Next-generation sequencing (NGS) research; SARS-CoV-2 whole-genome analysis; Sequence variant identification and annotation

Cell Biology & Protein Analysis

Aseptic technique; Mammalian cell culture and maintenance; Cell freezing; Cell viability assessment; Enzyme-linked immunosorbent assay (ELISA); Western blotting; Protein expression; Flow cytometry (exposure)

Molecular Modelling & Data Analysis

Homology modelling (SWISS-MODEL); Molecular docking (AutoDock); Basic biostatistical analysis (Python, SPSS and Excel); Multivariate linear regression

Research & Scientific Communication

Experimental troubleshooting; Scientific literature interpretation; Biological data interpretation; Scientific writing and presentations; SnapGene; BioRender; PowerPoint

Publications

Metabolic Engineering of Corynebacterium glutamicum for the Production of Flavonoids and Stilbenoids 2024

Molecules

Chu LL, Tran CTB, et al. Molecules. 2024;29(10):2252. Second author.

Awards & Public Engagement

Swansea University International Excellence Scholarship 2025

Awarded £7,000 for academic excellence.

SUPERBUGS Project Coordinator Jul 2025

Contributed to an ISSF3-funded public engagement project raising awareness of microorganisms and antibiotic resistance.

Dean's List Award 2020 - 2023

Hanoi University of Science

Student Research Conference — 1st Place Prize 2023

Faculty of Biology, Hanoi University of Science