

ThienSon Vu

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Education

Doctoral Candidate Department of Bioengineering, Faculty of Engineering, Imperial College London	7.2022 - present
Doctoral Candidate (Withdrawal) Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo	4.2021 - 3.2022
Master of Engineering in Chemistry and Biotechnology Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo Graduated March 2021 with an overall grade of A (優)	4.2019 - 3.2021
Research Student Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo	4.2018 - 3.2019
Bachelor of Science (Distinction) in Biotechnology Faculty of Biology, Vietnam National University, University of Science Graduated October 2017 with a GPA of 8.34/10 (UK First class Honours equivalent)	9.2013 - 10.2017

Research Experience

Biological Forms and Functions Laboratory, Centre for Synthetic Biology Department of Bioengineering, Faculty of Engineering, Imperial College London Academic Supervisor: Reader, Dr. Naomi Nakayama	7.2022 – present
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Improving plant cell suspension culture as a next-generation synthetic biology chassis

- Devised the research project and obtained a PhD scholarship together with Dr. Nakayama

Suzuki Laboratory of RNA Modification School of Engineering, The University of Tokyo Academic Supervisor: Professor, Dr. Suzuki Tsutomu	4.2018 – 3.2022
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Engineering a novel m⁶A modification system toward a site-specific control of mRNA biogenesis

- Proposed the research project and successfully received 2 offers for fully funded PhD fellowships
- Screened different bacterial m⁶A methyltransferases (MTases) and characterised the mechanisms for substrate recognition by a combination of enzyme kinetic analysis and RNA-Seq analysis
- Engineered the characterised MTases toward a hyperactive mutant by directed evolution

Elucidating the structure, decoding property, and biogenesis of a novel cytidine modification found in plant organellar tRNA

- Participated in the determination of the chemical structure of a novel modification found in plant chloroplast tRNA (in collaboration with Akimitsu Okamoto Laboratory, The University of Tokyo)
- Optimised different enzymatic reactions, ribosome binding assay, and aminoacylation assay to study the decoding property of the tRNA carrying the novel modification
- Elucidated the biogenesis pathway of this modification by purifying different candidate proteins for the in vitro reconstitution assay

Determining the decoding of an oxidized tRNA modification found in MELAS patients' mitochondrial tRNA

- Elucidated the decoding ability of tRNAs bearing the novel modification, using the modified ribosome binding assay that I optimised (in collaboration with the Sochacka Laboratory, Lodz University of Technology, Poland)

Key Laboratory of Enzyme and Protein Technology Vietnam National University Academic Supervisor: Associate Professor, Dr. Nguyen Thi Van Anh	4.2016 – 10.2017 (10.2017 – 04.2022: Remote collaboration)
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Development of a novel LNA-based Real-time COLD-PCR for the detection of HBV antiviral resistance with ultra-sensitivity

- Proposed the research project, developed the pilot assay, and obtained the preliminary results
- Prepared the research proposal and successfully applied for a research grant from the National Foundation for Science and Technology Development (NAFOSTED), Vietnam
- Drafted and participated in the reviewing correspondence for 2 scientific publications in Q1-tier journals
- Participated in the supervision board for technology transfer of the developed assay to clinical units in Vietnam

Elucidating the role of ScPso2 in interstrand cross linking (ICL) damage repair

- Participated in the expression and purification of yeast (*Saccharomyces cerevisiae*) Pso2 protein in *E. coli*

Technical Skills

Project Development	Working experience in all phases of project development from initiation: conducting literature review, drafting project proposal and funding allocation plan; execution : gathering data and performing data analysis; to project delivery
Laboratory Skills	Fundamental skills to work in a research laboratory in biochemistry and molecular biology, including, but not limited to: laboratory organisation, preparing and handling chemical reagents, conducting experiments, and waste disposal
DNA-related Skills	Amplification, detection, and quantification of DNA by PCR and quantitative real-time PCR (qPCR); Molecular cloning by restriction-ligation method and seamless recombination method
RNA-related Skills	RNA extraction from bacteria; Individual tRNA isolation using reciprocal circulating chromatography (RCC); in vitro transcription of RNA; Enzymatic modification of RNA ; RNA nucleoside and fragment analysis by mass spectrometry (ESI-MS); Ribosome purification by sucrose density gradient (SDG); Ribosome binding assay to assess the binding affinity between codon-anticodon in the ribosome; RNA-immunoprecipitation (RIP)
Protein-related Skills	Expression and purification of recombinant proteins in bacterial systems and cell-free systems (more than 15 proteins purified); Protein engineering by site-specific mutagenesis; Peptide and protein mass spectrometry analysis ; Analysis of enzyme kinetics by radioactive filter assay
Bioinformatics	RNA-Seq data analysis ; Sequence alignment ; Biostatistics and data visualization using R
Language Proficiency	Vietnamese : Native; English : Fluent; Japanese : Proficient; Chinese : Conversational
Communication	Advanced computer literacy ; Scientific writing : drafted multiple published research papers, research grant-winning and scholarship-winning applications; Manuscript review : assisted Prof. Suzuki and Assoc. Prof. VanAnh in their reviewers' duty for Science, Nature Chemical Biology, Nucleic Acid Research, and eLife; Scientific illustration using Inkscape, Adobe Illustrator, Photoshop and Lightroom; Web design : designed and maintained personal website for online presence; Photography and editing with professional camera and lighting setup

Selected Awards, Scholarships, and Honours

UK Research and Innovation (UKRI) International PhD Scholarship : a 3.5-year fully funded PhD scholarship (full tuition fees at the international rate and monthly stipend)	2022 – 2026
Fostering Fellowship for Talents in Chemistry (化学人材育成プログラム) by Japan Chemical Industry Association (JCIA) : a 3-year fully funded doctoral fellowship (generous monthly stipend and research funding to the hosting department) granted to 1 student from JCIA-selected chemistry departments	2021 – 2022
The Okazaki Kaheita International Scholarship by All Nippon Airways (ANA) : a 3-year fully funded scholarship (full tuition fees, monthly stipends, accommodation, commute expense, and yearly leisure travel) toward a Master degree, awarded to 1 students from Vietnam once every 2 years	2018 – 2021
Research Grant for Basic Science Research from National Foundation for Science and Technology Development (NAFOSTED), Vietnam for a total amount of ~55,000 GBP - Grant Number 108.02-2017.320 (to Professor VanAnh, with ThienSon Vu registered as a key member of the research project)	2018 – 2020
11th KAIST Experience – Bio-Undergraduate Research Program by Korea Advanced Institute of Science and Technology (KAIST) : a fully funded summer research internship, granted to 3 top students in Vietnam National University, University of Science	Summer 2016

Selected Publications and Manuscripts

- Chu, Son V.*, **Son T. Vu***, Hang M. Nguyen, Ngan T. Le, Phuong T. Truong, Van TT Vu, Thuy TB Phung, and Anh TV Nguyen. "Fast and Sensitive Real-Time PCR Detection of Major Antiviral-Drug Resistance Mutations in Chronic Hepatitis B Patients by Use of a Predesigned Panel of Locked-Nucleic-Acid TaqMan Probes." Journal of Clinical Microbiology 59, no. 10 (2021): e00936-21. doi.org/10.1128/JCM.00936-21 ***Co-first authors**
- Phung, Thuy T.B., Son V. Chu, **Son T. Vu**, Hanh T. Pham, Hang M. Nguyen, Hoan D. Nguyen, Ngan T. Le, Dung V. Nguyen, Phuong T. Truong, Van T.T. Vu, and Anh T.V. Nguyen. 2020. "COLD-PCR Method for Early Detection of Antiviral Drug-Resistance Mutations in Treatment-Naive Children with Chronic Hepatitis B" Diagnostics 10, no. 7: 491. doi.org/10.3390/diagnostics10070491

Teaching and Leadership Activities

Graduate teaching assistant in the group interview module of the undergraduate entrance examination to the Department of Bioengineering, Imperial College London	2022 - 2023
Graduate teaching assistant in the experiment module of the Molecular Biology class for 3 rd year undergraduate students in the Department of Chemistry and Biotechnology, The University of Tokyo. The curriculum included cloning the Green Fluorescent Protein (GFP) into the expression vector, protein expression, and purification. The teaching was conducted in English and Japanese.	2019 Fiscal Year
Research tutor in Suzuki Laboratory for a newly entered graduate student. The tutor curriculum included basic laboratory techniques tailored toward the student's prospective project.	2019 - 2020
Research tutor in VanAnh Laboratory for newly entered undergraduate students.	2017 Fiscal Year
Deputy Secretary (Student Secretary) of the Ho Chi Minh Communist Youth Union of the Faculty of Biology, Vietnam National University – the centralised body that organises and oversees all the extracurricular activities of ~800 undergraduate students in the Faculty of Biology	2014 – 2017

Referees

Please inquire ThienSon Vu for further information