



IEIF ASEAN Research Collaboration Project:

Get to know: Dr Hao Nguyen

Round 1 and 2 Early Career Researcher from Viet Nam

Round 1

- **Host Organisation:** The University of Adelaide
- **Project title:** Nano-OsPXG9 for Enhancing Stress Tolerance in Rice
- **Project outline:** This project applies Nano-OsPXG9 to enhance rice stress tolerance under abiotic conditions. It aims to boost antioxidant enzyme activity and improve stress-response pathways for sustainable rice cultivation.

Round 2

- **Host organisation:** The University of Adelaide
- **Project title:** Biodegradable electrospun nanofiber loaded with plant-protective phage for sustainable agriculture and food packaging
- **Project outline:** This project aims to develop electrospun nanofibers incorporating bacteriophages for sustainable antimicrobial applications. By optimising electrospinning parameters and evaluating phage stability and release, the study seeks to create innovative biomaterials that reduce reliance on antibiotics. The outcomes will provide a basis for future applications in agriculture and healthcare.

What motivated you to apply?

My motivation to apply for the IEIF ASEAN Research Collaboration Project stemmed from a desire to translate advanced laboratory findings into practical, sustainable solutions for agriculture and healthcare. The program's focus on fostering ASEAN–Australia scientific collaboration perfectly aligned with my research trajectory in nanotechnology, electrospinning, and bioactive compound delivery. I viewed IEIF as an opportunity to integrate high-level scientific innovation with real-world impact, advancing non-antibiotic strategies for bacterial control while contributing to the broader goals of sustainable development in the ASEAN region.



How has the Project supported you and how will you use this experience to expand ASEAN–Australia collaboration?

The IEIF Project has significantly strengthened my capacity to conduct translational and commercially relevant research. Through the collaboration between the University of Adelaide and Vietnam National University of Agriculture, I have been able to explore the application of electrospun nanofibers and bacteriophage-loaded systems for bacterial infection control, combining advanced material fabrication with biological validation.

This interdisciplinary framework supported by Australian expertise in nanomaterials and my own background in bioassays provides a foundation for developing scalable solutions with commercial potential. Moving forward, this experience enables me to expand the ASEAN–Australia partnership by establishing sustained research networks and co-developing technologies that address shared regional challenges in sustainable agriculture and biomedical innovation.



What tips or advice would you give to interested Early Career Researchers thinking of applying for Round 3 of the Project?

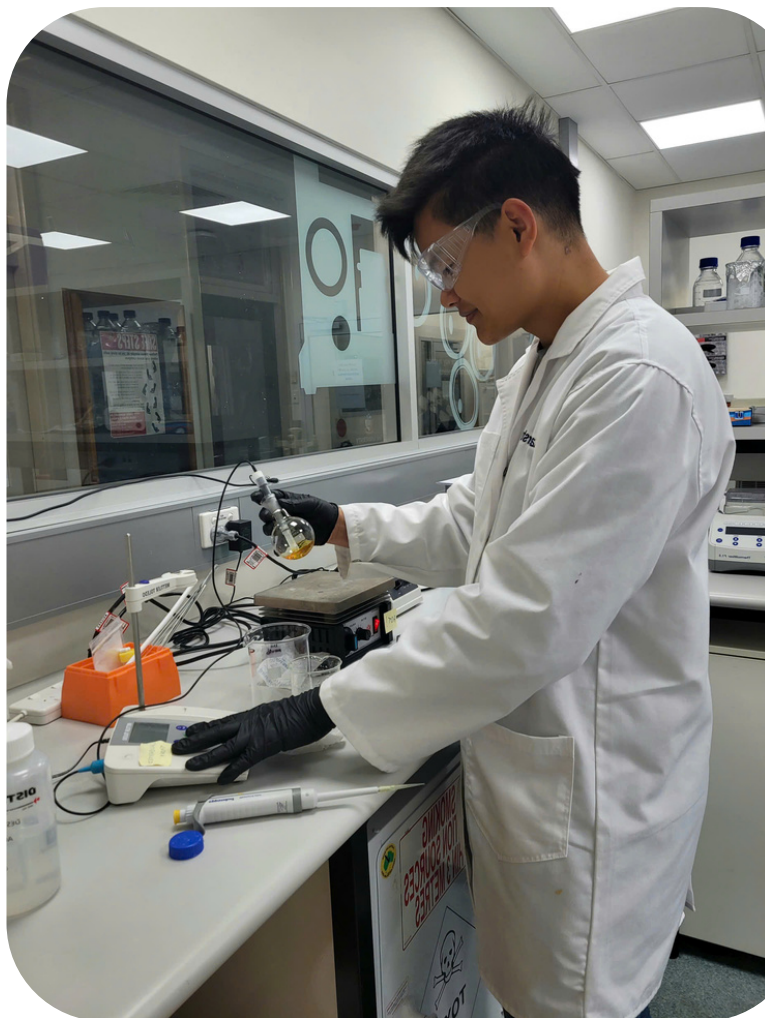
For prospective applicants, my key advice is to build the proposal around the strengths of both collaborating teams. If you already have an existing partnership with an Australian laboratory, design the project to align closely with their ongoing research direction while integrating your complementary expertise. This ensures a win-win collaboration. For instance, in my case, Prof. Dusan's group provides strong capability in chemical engineering and material fabrication, while I contribute biological assays to evaluate the antimicrobial efficacy of the developed systems. Such synergy not only enhances project feasibility but also maximises its impact within the short funding duration.

Additionally, I encourage applicants to actively reach out and discuss project ideas with potential Australian mentors early, as I did with Dr. Lukas (School of Pharmacy), to co-design feasible, high-impact projects that can evolve into long-term partnerships beyond the IEIF framework.

What has been the highlight or most valuable aspect of the Project for you so far?

The most valuable aspect of the IEIF Project has been the opportunity to engage in a truly interdisciplinary and translational research environment. Working within the Dusan Laboratory at the School of Chemical Engineering, and closely interacting with experts in materials science and biotechnology, allowed me to integrate complementary expertise across disciplines. This has enhanced my understanding of how early-stage research can evolve into practical innovations, particularly in the context of antibacterial materials and biofilm control.

The collaborative ethos and access to advanced infrastructure in Australia have been instrumental in transforming conceptual ideas into tangible research outputs.



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