THE EIGHTH WORKSHOP ON INTERDISCIPLINARY SCIENCES 2026

ABSTRACT BOOK

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OUTLINE

A life in science 1

From International Perspectives to Doctoral Research and Beyond 2

My Experience at Kyushu University and After Graduation 3

Building Bridges Beyond Borders: My Journey at Kyushu University 4

My Career at Kyushu University 5

From Bioscience Graduate to IT Business Leader: Building a Career Beyond Your Degree 6

Central regulation of feeding behavior and the cross-talk between stress and appetite in the young chick 7

From Japan to the world: How my experiences in Japan helped to shape my global career in the food ingredients industry 8

Exploring functional diversity of an innate immune factor, the complement system, in bony fish and my international academic activities. 9

From PhD Student to Assistant Professor: My Journey at Kyushu University 10

Bridging Cultures and Building Community: A Decade Journey from Student to Community Builder at Kyushu University 11

Evaluation of the PPR Technology by Targeting miR-138 for Alzheimer's Disease 12

A life in science

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Abstract

I will outline my education and career in science from an undergraduate in Scotland to a faculty member in Japan. I will explain the factors and choices that have shaped my career path. My research has focused on the structure and function of molecules using a range of model systems (frogs, flies, and yeast) and techniques in cell biology and purified protein assays, often using customised microscopes. I started my research examining the function of mRNA capping and polyadenylation. Then I moved to proteins with most of my research concentrated on cytoskeletal proteins. Initially on the role of actin in striated muscle contraction but later kinesin motor proteins and microtubules. I have studied tubulin and microtubules in the fission yeast S. pombe in vivo and in vitro. This has revealed differences in tubulin activity compared to other organisms despite their protein sequence similarities. I will cover both my successes and failures in research and some of the reasons these came about. I hope this overview of one person's experiences will be helpful for anyone considering or starting out in a career in science and give an insight into both the pleasure and pain of a life in science.

Biography

Positions

2016 – present Professor Faculty of Agriculture, Kyushu University, Japan

2009 – 2016 Senior Research Associate Centre for Mechanochemical Cell Biology, Warwick Medical School, University of Warwick, UK.

1997 – 2009 Senior Research Associate Molecular Motors Group, Marie Curie Research Institute, UK.

1993 – 1997 Postdoctoral Research Associate School of Biological Sciences, University of Manchester, UK.

1992 – 1993 Postdoctoral Research Associate CRC Wessex Medical Oncology Group, Southampton General Hospital, UK.

1986 – 1992 Postdoctoral Research Associate Department of Biology, University of York, UK.

1986 Postdoctoral Research Associate Department of Zoology, University of Texas, USA.

Education

1982 -1985 PhD. "The Stability, movement and expression of natural and synthetic mRNAs injected into Xenopus oocytes" Supervisor: Alan Colman.

School of Biological Sciences, University of Warwick, UK.

1978 – 1982 Bsc Hns Biological Sciences (Molecular Biology), University of Edinburgh, UK.

From International Perspectives to Doctoral Research and Beyond

Thy Ta

Abstract

Academic life at Kyushu University was a truly life-changing experience. As an international student, I embraced an unrivalled opportunity to study where rigorous science intersects with a convergence of cultures. This environment profoundly shaped my personal and academic growth, helping me discover both my scientific voice and a global cultural identity within and outside of research. Throughout this journey, I was guided by the invaluable mentorship of professors and faculty – including my undergraduate thesis advisor Dr. Takeshi Zendo, Dr. Douglas Drummond, Dr. Ton Viet Ta, and Dr. Hyunjung Bang. Their unwavering support laid a strong foundation for my future endeavors. Here, I found the courage and fearlessness to pursue a career in science and carry forward a lasting commitment to contribute and give back to the community.

Biography

Thy Ta graduated from Kyushu University in 2024 with a Bachelor of Science in Bioresource and Bioenvironment, with an Applied Biosciences emphasis. As a recipient of the Japanese Government (MEXT) Scholarship, she joined the School of Agriculture through the International Undergraduate Program (IUP). During this time, she was an undergraduate researcher under the guidance of Dr. Takeshi Zendo, studying antibacterial proteins produced by lactic acid bacteria. She presented her work at conferences including the JSBBA 6th Student Forum and received the Excellent Presentation Award. In 2023, she also served on the Organizing Committee of the 5th Workshop on Interdisciplinary Sciences (WIS 2023) and presented her collaborative project with Trang Thu Dao (IUP, 2020-2024) and Dr. Ton Viet Ta, receiving the Most Popular Poster Award. Outside of academic work, she was interested in community engagement. With other IUP members, she co-led the SDGs project “Yuumori” funded by the Robert T. Huang Entrepreneurship Center of Kyushu University (QREC).

Currently, she is a PhD Candidate in Biochemistry at the University of Illinois Urbana-Champaign (UIUC). Working as a graduate research assistant under Dr. Martin D. Burke, she is combining biocatalysis, biophysics, organic chemistry, and machine learning to advance drug development challenges in antifungal therapeutics. She also serves as a Career Development Chair for the Graduate Student Association in Molecular and Cellular Biology (MCB GSA), overseeing career support for graduate students.

My Experience at Kyushu University and After Graduation

Carl Andersen Tan

Abstract

In this presentation, I will share my experiences at Kyushu University and how they have shaped my work after graduation. I will briefly introduce my current role as a Data Intelligence Officer, where I work with data analytics, business intelligence, and systems development to help different departments solve business problems. Although my academic background is in Agriculture and Biology, I have found that many of the skills I developed through scientific research are directly applicable to my current work. In particular, I will focus on three skills that I believe have been especially valuable: contextualizing problems, problem-solving, and communicating findings through storytelling.

Drawing from examples in both laboratory research and my day-to-day work, I will discuss how these skills translate across different fields. I will also touch on why I believe these abilities are becoming increasingly important in the age of artificial intelligence, where technical tools are becoming more accessible, but understanding problems and asking the right questions remain essential. I hope to share how my time at Kyushu University prepared me for a career outside my original field of study and how the lessons I learned continue to influence my professional development and future aspirations.

Biography

Carl Andersen Tan graduated from Kyushu University and Northern Arizona University with degrees in Agriculture and Biology through a dual-degree program. He graduated summa cum laude from NAU and received the 九州大学学生表彰 and 第 26 回農学部賞 awards from Kyushu University in 2025.

He currently works as a Data Intelligence Officer at Raemulan Lands Inc., specializing in data analytics, business intelligence, and systems development. He plans to pursue medical studies in 2027.

Building Bridges Beyond Borders: My Journey at Kyushu University

Rinka Nakao

Abstract

Having spent much of my childhood in Thailand, I grew up surrounded by different cultures, languages, and perspectives. However, it was through my experiences at Kyushu University that I began to understand what it truly means to connect people across differences.

In this presentation, I will reflect on my journey as a student in the International Undergraduate Program (IUP), highlighting the lessons I have learned both inside and outside the classroom. In particular, my involvement in KYURIOUS, a student organization supporting international students, has taught me the importance of listening to others, embracing different perspectives, and creating an environment where everyone feels welcomed and valued.

Through these experiences, I have come to realize that building bridges is not simply about connecting Japan with the rest of the world. It is also about bringing together people with different backgrounds, values, and ways of thinking through meaningful dialogue.

Looking ahead, I aspire to become someone who fosters mutual understanding, connects diverse perspectives, and serves as a bridge between Japan and the world.

Biography

Rinka Nakao is a fourth-year student in the International Undergraduate Program (IUP) at the Faculty of Agriculture, Kyushu University. She belongs to the Marine Environmental Science Laboratory, where she is currently researching the effects of microplastics on gastropod behavior.

Outside her academic studies, she has taken on leadership roles in KYURIOUS, a student-led organization dedicated to supporting international students and fostering intercultural exchange within the Faculty of Agriculture. She has also served as the vice-captain of the Kyushu University Tennis Team, contributing to team management and leadership.

She is a recipient of the 2025 Yamakawa Award, a prestigious award established by Kyushu University to recognize students who demonstrate academic excellence, leadership potential, and a commitment to making meaningful contributions to society.

My Career at Kyushu University

Hisako Nomura

Faculty of Agriculture, Kyushu University

Abstract

This presentation reflects on my academic and professional career at Kyushu University, highlighting key milestones in education, research, teaching, and international collaboration. It traces my development from my initial appointment to my current position, emphasizing major research achievements, contributions to graduate and undergraduate education, and involvement in interdisciplinary and international projects. Particular attention is given to research activities in sustainable agriculture, nutrient management, resource circulation, and environmental policy, as well as to collaborations with domestic and overseas institutions. The presentation also discusses challenges encountered, lessons learned, and opportunities that have shaped my career path. By sharing these experiences, I aim to provide insights into academic career development, the importance of international engagement, and the evolving role of universities in addressing global sustainability challenges. The presentation concludes with reflections on future research directions and contributions to education, innovation, and society through Industry-Academia-Government Collaboration.

Biography

Hisako Nomura is an associate professor at the Faculty of Agriculture, Kyushu University. She obtained her Ph.D. in 2005 from Manchester University, U.K. She specializes in impact evaluation (socioeconomic evaluation) of policy and project introductions. In Japan, she has conducted impact evaluations of smart agriculture and the circular economy. Her research on development focuses on the impact assessment of farmers' adaptation to new agricultural technologies and practices, specifically examining the economic impact of new policies and projects on household expenditures and food security.

From Bioscience Graduate to IT Business Leader: Building a Career Beyond Your Degree

Eric Chi-Yun Chen

Executive Officer | SYSTEX Corporation

Chief Strategy Officer | CTC-SYSTEX 株式会社

Abstract

How does a bioscience graduate become an IT business leader? In this talk, I will trace my journey from Kyushu University's Faculty of Agriculture through technology startups and independent consulting to leading SYSTEX's Japan business. Drawing on the formation of the joint venture between SYSTEX and ITOCHU Techno-Solutions Corporation (CTC), I will discuss the work involved in connecting organizations across national and cultural boundaries.

The discussion will explore how scientific training and international education can inform a career beyond one's original discipline. I will reflect on learning about unfamiliar industries, communicating across business cultures, and building the trust needed to turn shared intentions into sustained collaboration. For current IUP/IGP students, I will offer practical perspectives on exploring career directions and translating their experience in Japan into professional opportunities.

I will close by reflecting on how alumni can help students connect university learning with professional life. I will emphasize that career paths can evolve and that cultivating an adaptable mindset provides the foundation for acquiring and applying new knowledge and skills.

Biography

Eric is Executive Officer and Japan Market Lead at SYSTEX Corporation, a publicly listed IT company in Taiwan, where he has led Japan market strategy and business development since 2023. He also serves as Chief Strategy Officer at CTC-SYSTEX. He graduated from Kyushu University's Faculty of Agriculture in 2015. His career has spanned AI, digital commerce, and advisory work supporting Taiwan–Japan business development, investment, and mergers and acquisitions. At SYSTEX, he led the formation of the joint venture with ITOCHU Techno-Solutions Corporation (CTC). His current work includes providing IT services to Taiwanese semiconductor manufacturers and financial institutions in Japan, with a focus on turning international partnerships into operating businesses.

Central regulation of feeding behavior and the cross-talk between stress and appetite in the young chick

Phuong V. Trana,† and Mitsuhiro Furusea

aLaboratory of Regulation in Metabolism and Behavior, Graduate School of Bioresource and Bioenvironmental Science, Kyushu University, Fukuoka 819-0395, Japan

† Department of Animal Nutrition and Feed, Vietnam Institute of Animal and Veterinary Sciences, Hanoi, Viet Nam

Abstract

The regulation of food intake is important for the animals to ensure optimal nutrition and meet their metabolic requirements. Feeding behavior is tightly regulated by neuronal, metabolic and endocrine signals to the central nervous system (CNS). Understanding the mechanisms that control feeding behavior in juvenile animals is critical owing to the substantial impact of early developmental stage on growth and health across species. Central orexigenic and anorexigenic actions mediated by neuropeptides have been extensively characterized in both mammals and birds. In addition to neuropeptides, increasing evidence from the chick model indicates that brain amino acids also play an important role in the central regulation of feeding behavior. Fasting and subsequent short-term refeeding rapidly alter brain amino acid metabolism, with refeeding increasing the concentrations of several amino acids that may function as satiety signals in the neonatal chick brain. Candidates of feeding regulators including neuropeptides and endogenous and/or exogenous nutrients such as amino acids are hypothesized to simultaneously collaborate to control feeding behavior of neonatal chicks with a short eating cycle. This concept may be applicable to attain further insights on appetite biology across species, due to the fact that eating interval during the neonatal stage is much shorter than in the adult stage regardless of mammals or birds. Furthermore, adaptation to stress involves both behavioral and physiological changes in the CNS, including stress-induced modulation of feeding behavior. Therefore, elucidating the integrated neural networks controlling behavior is essential.

Biography

Dr. Phuong V. Tran is a researcher specializing in animal nutrition and neurobiology. She completed her doctoral studies at Kyushu University, Japan, where her research focused on the neurochemical regulation of feeding behavior in neonatal chicks. Currently, she is affiliated with the Department of Animal Nutrition and Feed, Vietnam Institute of Animal and Veterinary Sciences. Dr. Tran has contributed to a range of national and international research projects, with a particular focus on improving nutrient utilization and feed efficiency and reducing greenhouse gas emissions in livestock production. Her research interests center on the interactions between amino acids and neuropeptides in the regulation of appetite and stress responses in animals. Building on the interests, she contributes to the broader scientific community as a member of the Editorial Board of The Journal of Poultry Science and a Topic Editor for Frontiers in Neuroscience. Dr. Tran received the 2023 Encouragement Award from the Japan Poultry Science Association for her contributions to poultry physiology and nutrition research.

From Japan to the world: How my experiences in Japan helped to shape my global career in the food ingredients industry

Adiguna Bahari

Abstract

I will take you through my experiences studying in Kyushu University, what values shaped and prepared me as I further went exploring the world to the US and Europe. I will share my stories about how university life in the US and Europe is different to that of Japan. You will hear from me what are the strengths that you get while studying in Kyushu University, and blind spots that you may not see unless you go out of Japan. As an alumni of the international program, I want to let you know that you are in a unique position to use your experience in Japan to make the kind of career you want for your future.

Biography

I was born in Bogor, Indonesia. During high school, I had a dream to study in three different continents. My first successful step was to study in the international undergraduate faculty of agriculture program of Kyushu University from 2011-2015. In 2016 I was fortunate enough to be admitted to a Food Science masters program in the United States. After my masters program, I still wanted to do my PhD and I found a unique industrial PhD program in Belgium. I completed my PhD in 2022. Since then, I have been working in the Netherlands as a cocoa powder technology manager in Olam Food Ingredients.

Exploring functional diversity of an innate immune factor, the complement system, in bony fish and my international academic activities.

Miki Nakao

Faculty of Agriculture, Kyushu University

Abstract

The complement system is an evolutionarily ancient humoral effector of innate immunity. Teleost fish possess a sophisticated complement system with a complexity comparable to that of mammals in terms of both its components and activation pathways.

Since the 1990s, my research group has pursued the molecular identification of complement components in carp, a pseudotetraploid teleost fish. These studies revealed a remarkable characteristic of the teleost complement system: extensive gene duplication of complement components. To understand the functional significance of this genetic expansion, detailed analyses at the protein level were essential.

In this presentation, I will introduce the international collaborative studies that enabled us to elucidate the structural and functional diversity of carp complement proteins. I will also share how these collaborations helped foster lasting relationships within the global comparative immunology community, which have been as valuable as the scientific discoveries themselves.

Biography

Miki Nakao received his Ph.D. in Agricultural Sciences from Kyushu University in 2001. He joined the Faculty of Agriculture, Kyushu University, in 1992 and became Professor in 2004. His research focuses on the comparative immunology of fish, particularly the evolution and function of the complement system. He served as President of the International Society of Developmental and Comparative Immunology (2012–2015) and Dean of the Faculty of Agriculture, Kyushu University (2020–2024). He has been Specialty Chief Editor of the Comparative Immunology section of Frontiers in Immunology since 2017.

From PhD Student to Assistant Professor: My Journey at Kyushu University

Harsha Prakash

Faculty of Agriculture, Kyushu University

Abstract

This presentation reflects on my journey at Kyushu University, beginning in 2015 when I arrived as a MEXT-supported Ph.D. student in the Marine Biochemistry Laboratory under Professor Miki Nakao in the Faculty of Agriculture. Over the following years, Kyushu University became the setting for each stage of my academic and professional growth. My doctoral training provided a foundation in research, publication, international conferences, and collaboration. I then continued in the Faculty of Agriculture as technical staff and later as a postdoctoral researcher, gaining broader research experience and increasing responsibility.

My career subsequently expanded into animal life science, cultured meat research, international education, and academic coordination, leading to my current position as Assistant Professor. I will discuss how mentorship, research opportunities, international networks, and the Kyushu University community supported this progression, as well as how these experiences encouraged me to take on broader leadership and alumni roles. Through this presentation, I hope to share with current students that career development often happens step by step through people, opportunities, persistence, and a willingness to take on new challenges.

Biography

Harsha Prakash is an Assistant Professor in the Faculty of Agriculture at Kyushu University. She joined Kyushu University in 2015 as a doctoral student supported by the MEXT Scholarship and received her Ph.D. in Marine Immunology in 2021. She later worked as technical staff and as a postdoctoral researcher in the Marine Biochemistry Laboratory before moving to the Animal Life Science Laboratory. Her current research focuses on chicken smooth muscle biology and cultured meat, alongside her involvement in international education and academic exchange. Her professional journey at Kyushu University has spanned roles as a student, research staff member, postdoctoral researcher, and faculty member.

Bridging Cultures and Building Community: A Decade Journey from Student to Community Builder at Kyushu University

Tsukasa Ryu

Abstract

This presentation reflects on a nearly ten-year journey at Kyushu University, spanning undergraduate through doctoral studies within the International Course of the School of Agriculture, following graduation from Fukuoka International School in 2015. Born in the United States, raised in Japan, and fully bilingual, I stepped into a role that went beyond academic study: serving as a cultural and linguistic bridge between domestic and international students. Over time, this personal mission evolved systematically from fostering individual friendships during my undergraduate years, to supporting lab-level integration during my Master's studies, and ultimately co-founding "KYURIOUS" during my Ph.D. program in partnership with junior students and the faculty. KYURIOUS was established as a sustainable, student-led organization designed to provide equitable support and ensure long-term knowledge transfer even after graduation. Beyond community building, Kyushu University provided an extraordinarily open and supportive environment for personal growth. Academically, pursuing research in fish immunology within the Laboratory of Marine Biochemistry was deeply fulfilling, while participating in the university dance and juggling clubs illustrated the institution's rich, inclusive culture. Now working as a patent researcher, I look back on how these collective experiences shaped my career, while sharing reflections and insights for faculty, staff, and current students involved in international education.

Biography

Dr. Tsukasa Ryu obtained his Bachelor’s, Master’s, and Ph.D. degrees in Agricultural Science from Kyushu University (Laboratory of Marine Biochemistry). Born in the United States, raised in Japan, and a graduate of Fukuoka International School, he brings a fully bilingual perspective to his academic and professional work. During his nearly ten years at Kyushu University, he actively contributed to student integration and co-founded "KYURIOUS," an international student support organization in collaboration with the Faculty of Agriculture. Beside his doctoral research in fish immunology, he engaged in diverse extracurricular activities, including university dance and juggling clubs. He currently works as a patent researcher at Shiga International Patent Office in Tokyo.

Evaluation of the PPR Technology by Targeting miR-138 for Alzheimer's Disease

Samantha Sastrawidjaja

Abstract

Alzheimer's disease is associated with progressive neuronal degeneration, and reduced SIRT1 expression has been linked to decreased neuroprotective capacity. This study investigated whether programmable pentatricopeptide repeat (PPR)-DYW proteins could suppress miR-138, a microRNA that negatively regulates SIRT1, and thereby increase SIRT1 expression. Eight PPRDYW constructs targeting different regions of precursor miR-138 were designed and evaluated in HEK293 cells. Among these, Targets 4 and 7 produced the strongest reduction in mature miR-138. Nuclear localization signal (NLS)-containing constructs generally showed stronger activity and reduced both precursor and mature miR-138, suggesting that nuclear localization improves access to early miRNA processing. The selected constructs were further tested in retinoic acid-differentiated SH-SY5Y cells, where miR-138 reduction was accompanied by an increase in SIRT1 expression of up to approximately threefold. C-to-U editing by the DYW domain was also confirmed, although editing efficiency remained relatively low. These results demonstrate the potential of programmable PPR-DYW proteins as a tool for miRNA regulation and restoration of SIRT1 expression in an Alzheimer's disease-relevant neuronal model.