One Health Lecture Series

The One Health Lecture Series 10th Anniversary Symposium

December 1 (Mon) -2 (Tue), 2025

Hybrid meeting

On-site: Faculty of Veterinary Medicine, Hokkaido University, Japan

Online: ID: 817 0936 7695 Passcode: 217579

Co-organized by

- Faculty of Public Health, Thammasat University
- Faculty of Veterinary Medicine, Hokkaido University
- Hokkaido University International Institute for Zoonosis Control
- School of Veterinary Medicine, Rakuno Gakuen University
- One Health Research Center, Hokkaido University
- Institute for Vaccine Research and Development, Hokkaido University


THAMMASAT UNIVERSITY
FACULTY OF PUBLIC HEALTH
International Institute for Zoonosis Control
RGU
SINCE 1932
RAKUNO GAKUEN UNIVERSITY
One Health
Research Center
HRC
北海道大学
One Health
リサーチセンター
INSTITUTE FOR VACCINE RESEARCH AND DEVELOPMENT
IVReD

Please contact Faculty of Veterinary Medicine, Hokaido University.
For more information.
E-mail: y.ikenaka@gmail.com

How to attend the meeting

Day 1:

Date: Dec 1, 2025 Time: 10.00 – 15.50 JST (08.00- 13.50 ICT)

On-site meeting: Lecture Hall, Grad School of Veterinary Medicine, Hokkaido University, Japan

Day 2:

Date: Dec 2, 2025 Time: 10.00 – 12.35 JST (08.00- 10.35 ICT)

On-site meeting: WHO CCC Room in CZC, Hokkaido University, Japan

Zoom Meeting Link:

https://us06web.zoom.us/launch/edl?muid=29ef656d-fd2b-49e8-8231-1fd3085a43e3

Zoom Meeting ID: 817 0936 7695

10th Anniversary One Health Lecture Series

Date: 1-2 December 2025

Venue: Faculty of Veterinary Medicine, Hokkaido University, Japan(Hybrid meeting)

Day 1– Monday, December 1, 2025

7.30-8.00 ICT	Registration
9:30-10:00 JST	
Opening Remarks	
8.00-8.05 ICT	Dean, Faculty of Veterinary Medicine, Hokkaido University, Japan
10:00- 10:05 JST	**Prof. Yoshihiro Sakoda**
Welcome Speeches: > Group photo	
8.05-8.10 ICT	Rector of Thammasat University
10:05-10:10 JST	**Prof. Dr. Supasawad Chardchawarn**
8.10-8.15 ICT	Vice President of Hokkaido University
10:10-10:15 JST	**Prof. Dr. Aya Takahashi**
8.15-8.20 ICT	President of Rakuno Gakuen University
10:15-10:20 JST	**Prpf. Dr. Hidetomo Iwano (On line)**
8.20-8.25 ICT	Director of One Health Research Center, Hokkaido University
10:20-10:25 JST	**Prof. Dr. Motohiro Horiuchi**
Introduction	
8.25-8.30 ICT	Ten years of One Health Lecture Series
10:25-10:30 JST	Hokkaido University Institute for Vaccine Research and Development
	Prof. Dr. Yasuhiko Suzuki
Keynote Lecture:	
8.30-9.00 ICT	Are we prepared for future pandemics?
10:30-11:00 JST	~ Based on Experience of Influenza and COVID-19 ~
	The University Professor, Hokkaido University
	Prof. Dr. Hiroshi Kida

Day 1– Monday, December 1, 2025

Session 1: Control of Infectious diseases

9.00-9.20 ICT 11:00-11:20 JST	1-1: Reduction of Antimicrobial Resistant Bacteria and Bacterial Community Variation in Anaerobic Digestion Systems in Swine Farms, Thailand Faculty of Public Health, Thammsat University **Asist. Prof. Dr. Kanjana Changkaew**
9.20-9.40 ICT 11:20-11:40 JST	1-2: Exploring the ecology of Marburg virus in African fruit bats with integrated field and molecular approaches Hokkaido University International Institute for Zoonosis Control **Assoc. Prof. Dr. Masahiro Kajihara**
9.40-10.00 ICT 11:40-12:00 JST	1-3: HOT-WIRE & HOT-AID: Advanced and Interdisciplinary Diagnostics in Hokkaido University One Health Research Center, Hokkaido University **Sen. Lect. Dr. Naganori Nao**
10.00-10.20 ICT 12:00-12:20 JST	1-4: Strategy for achieving both safety and efficacy of CTL-inducing vaccines using a low molecular drug Hokkaido University Institute for Vaccine Research and Development **Assoc. Prof. Dr. Kensuke Takada**

Session 2: Toxicology and environmental health

11.20-11.40 ICT 13:20-13:40 JST	2-1: Establishment of Sustainable Mineral Development Through Strengthening of Monitoring Systems and Human Capacity Toward Heavy Metal Pollution in Zambia, Zimbabwe, Namibia, Botswana [ZAZINAMBO Project] Faculty of Veterinary Medicine, Hokkaido University **Assoc. Prof. Dr. Shouta Nakayama**
11.40-12.00 ICT 13:40-14:00 JST	2-2: Characterizing and Detecting Bioaerosols: An Environmental Health Perspective on Infectious Diseases Faculty of Veterinary Medicine, Rakuno Gakuen University **Prof. Dr. Jun Noda**
12.00-12.20 ICT 14:00-14:20 JST	2-3: Quantifying particulate emissions from open biomass burning in upper northern Thailand and policy-ready mitigation Faculty of Public Health, Thammasat University **Asst. Prof. Dr. Duanpen Sirithian**

Day 1– Monday, December 1, 2025

Session 3: Food safety and food security

12.20-12.40 ICT	3-1:
14:20-14:40 JST	Food Safety through a One Health Lens
	Faculty of Public Health, Thammasat University
	Assoc. Prof. Dr. Saowanee Norkaew
12.40-13.00 ICT	3-2:
14:40-15:00 JST	Co-designing neglected zoonosis intervention through One Health, education, and public-private partnerships
	Faculty of Veterinary Medicine, Rakuno Gakuen University
	Prof. Dr. Kohei Makita

Closing Remarks Group Photo

13.20-13.30 ICT	Dean, Faculty of Public Health, Thammasat University
15:20-15:30 JST	**Asst. Prof. Dr. Soisuda Kesornthong**
13.30-13.40 ICT	Director, Hokkaido University International institute for Zoonosis Control
15:30-15:40 JST	**Prof. Dr. Ayato Takada**
13.40-13.50 ICT	Faculty of Veterinary Medicine, Rakuno Gakuen University
15:40-15:50 JST	**Prof. Dr. Jun Noda**

Strengthening Research Capacity To Elicit Young Researchers' Engagement In One Health Issues

Day 2 – Tuesday, December 2, 2025
Young Researcher Presentations

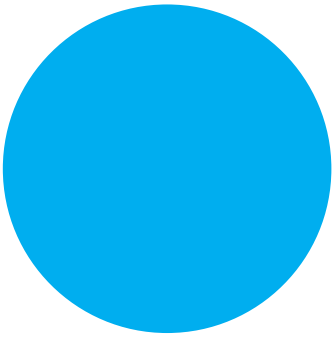
7.30-8.00 ICT	Registration
9:30-10:00 JST	
8.00-8.05 ICT	Y-1:
10:00- 10:05 JST	Investigating the Alcohol Metabolism Capacity in Elephants with a Focus on Hepatic Enzymes
	Graduate School of Veterinary Medicine, Hokkaido University
	Ms. Ayuko Morita
8.15-8.30 ICT	Y-2:
10:15-10:30 JST	Neonicotinoid-Induced Neurotoxicity: Investigating Mechanisms in Human Dopaminergic Neurons
	Graduate School of Veterinary Medicine, Hokkaido University
	Ms. Natamon Jianpraphat
8.30-8.45 ICT	Y-3:
10:30-10:45 JST	Assessment of Water Quality and Seasonal Variation of Surface Water in Samut Sakhon Province, Thailand
	Faculty of Public Health, Thammasat University
	Ms. Phashararat Yoogate
8.45-9.00 ICT	Y-4:
10:45-11:00 JST	Assessment of fine particulate matter (PM2.5) emissions from vehicles in Lampang province, Thailand
	Faculty of Public Health, Thammasat University
	Ms. Chophaka Thaenthong
9.00-9.15ICT	Y-5:
11:00-11:15 JST	Understanding the Integration of One Health Principle in Antimicrobial Use among Myanmar's Private Dental Practitioners
	Faculty of Public Health, Thammasat University
	Ms. Nyein Ko Lwin
9.15-9.30 ICT	Y-6:
11:15-11:30 JST	Identification and functional analysis of disease-associated microglia in West Nile virus infection
	Hokkaido University International Institute for Zoonosis Control
	Mr. Passawat Thammahakin

Strengthening Research Capacity To Elicit Young Researchers' Engagement In One Health Issues

Day 2 – Tuesday, December 2, 2025
Young Researcher Presentations

9.30-9.45 ICT	Y-7:
11:30-11:45 JST	Determination of T Cell Responses in Thai Systemic Sclerosis Patients
	Graduate School of Infectious Diseases, Hokkaido University
	Ms. Oranit Likhit
9.45-10.00 ICT	Y-8:
11:45-12:00 JST	Herd level sero-prevalence of bovine brucellosis in Morogoro Region, Tanzania
	Faculty of Veterinary Medicine, Rakuno Gakuen Univeresity
	Mr. Hayato Furumoto
10.00-10.15ICT	Y-9:
12:00-12:15 JST	Knowledge, Attitudes, and Practices (KAP) in the Implementation of Qurban on Eid al-Adha Related to Foot and Mouth Disease (FMD)
	Faculty of Veterinary Medicine, Rakuno Gakuen University
	Ms. Riyandini Putri
10.15-10.30ICT	Y-10:
12:15-12:30 JST	Unlocking archived trematode specimens: Optimized DNA extraction from formalin fixed rumen fluke
	Faculty of Veterinary Medicine, Rakuno Gakuen University
	Sen. Lect. Dr. Takahiro Ishizaki
10.30-10.35ICT	Closing remarks
12:30-12:35 JST	

Opening Remarks



Prof. Yoshihiro Sakoda

Dean, Faculty of Veterinary Medicine,
Hokkaido University, Japan

Excellencies,

Executive Vice President, Hokkaido University,
President, Rakuno-Gakuen University,
Distinguished Delegates, Ladies and Gentlemen.

On behalf of the Faculty of Public Health, Thammasat University, I am honored to express our deep desire to host the 9th One Health Lecture Series on December 16-17, 2024, at Faculty of Public Health, Thammasat University. Today, our continued consolidation of this ninth seminar emerged out of our collaboration network among three universities: Hokkaido University, Rakuno Gakuen University, and Thammasat University.

This hybrid seminar marks the continuation of fruitful academic collaboration among our universities. Faculty of Public Health, Thammasat University sincerely appreciates all distinguished delegates from Hokkaido University, Rakuno Gakuen University, and all other participants attending to this seminar; who are interested in doing interdisciplinary research and obtaining currently emerged One Health issues.

I do hope we closely build and enhance interuniversity cooperation in diverse aspects of global health. This seminar helps us understand more about how to build interdisciplinary collaboration to the "One World, One Health" that requires cooperative efforts. Finally, I am most grateful for sharing great visions and contributing greatly to our success.

Thank you.

Welcome Speeches

Prof. Dr. Supasawad Chardchawarn

Rector of Thammasat University

Dear

Vice President, Hokkaido University,
President of Rakuno-Gakuen University,
Dean, Faculty of Veterinary Medicine, Hokkaido University,
Dean of the Faculty of Public Health, Thammasat University,
Director of One Health Research Center, Hokkaido University,
and Distinguished Delegates,

It is my great pleasure and honor to welcome all of you to the 10th One Health Lecture Series under the theme "10 Years of the One Health Lecture Series: Reflecting on the Partnership between Hokkaido University."

This year marks a significant milestone a decade of our strong and productive collaboration among Hokkaido University, Rakuno-Gakuen University, and Thammasat University. Since our partnership began in 2016, it has continuously expanded, producing cutting-edge research, impactful academic exchanges, and a robust platform for developing young researchers across the One Health spectrum.

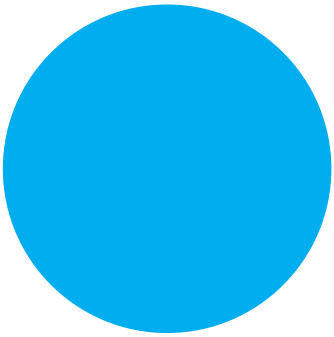
Over the past ten years, our tripartite network has grown in both depth and vision. Thammasat University is proud to contribute its strength in community-engaged public health research and its strong regional network to this partnership. Our shared mission is to advance global public health and address emerging health challenges through integrated and multidisciplinary approaches.

I am confident that today's seminar will further enrich our collective knowledge, promote meaningful dialogue, and inspire new ideas for future high-impact research.

On behalf of Thammasat University, I would like to express our profound appreciation for the enduring friendship and impactful partnership we have cultivated over the past ten years. We look forward to many more years of collaboration and shared achievements.

Thank you very much.

Welcome Speeches



Prof. Dr. Aya Takahashi

Vice President of Hokkaido University

Excellencies,

Executive Vice President, Hokkaido University,
President, Rakuno-Gakuen University,
Distinguished Delegates, Ladies and Gentlemen.

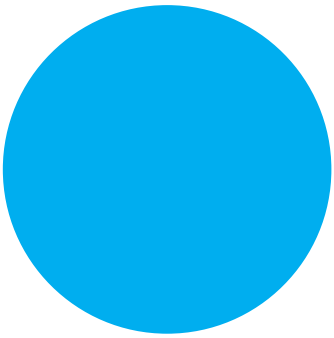
On behalf of the Faculty of Public Health, Thammasat University, I am honored to express our deep desire to host the 9th One Health Lecture Series on December 16-17, 2024, at Faculty of Public Health, Thammasat University. Today, our continued consolidation of this ninth seminar emerged out of our collaboration network among three universities: Hokkaido University, Rakuno Gakuen University, and Thammasat University.

This hybrid seminar marks the continuation of fruitful academic collaboration among our universities. Faculty of Public Health, Thammasat University sincerely appreciates all distinguished delegates from Hokkaido University, Rakuno Gakuen University, and all other participants attending to this seminar; who are interested in doing interdisciplinary research and obtaining currently emerged One Health issues.

I do hope we closely build and enhance interuniversity cooperation in diverse aspects of global health. This seminar helps us understand more about how to build interdisciplinary collaboration to the "One World, One Health" that requires cooperative efforts. Finally, I am most grateful for sharing great visions and contributing greatly to our success.

Thank you.

Welcome Speeches



Prof. Dr. Hidetomo Iwano

President of Rakuno Gakuen University

Excellencies,

Executive Vice President, Hokkaido University,
President, Rakuno-Gakuen University,
Distinguished Delegates, Ladies and Gentlemen.

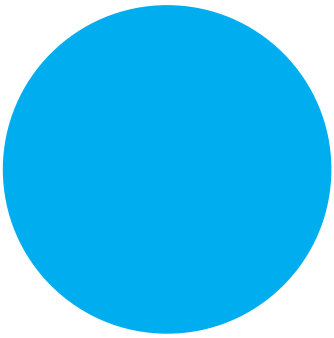
On behalf of the Faculty of Public Health, Thammasat University, I am honored to express our deep desire to host the 9th One Health Lecture Series on December 16-17, 2024, at Faculty of Public Health, Thammasat University. Today, our continued consolidation of this ninth seminar emerged out of our collaboration network among three universities: Hokkaido University, Rakuno Gakuen University, and Thammasat University.

This hybrid seminar marks the continuation of fruitful academic collaboration among our universities. Faculty of Public Health, Thammasat University sincerely appreciates all distinguished delegates from Hokkaido University, Rakuno Gakuen University, and all other participants attending to this seminar; who are interested in doing interdisciplinary research and obtaining currently emerged One Health issues.

I do hope we closely build and enhance interuniversity cooperation in diverse aspects of global health. This seminar helps us understand more about how to build interdisciplinary collaboration to the "One World, One Health" that requires cooperative efforts. Finally, I am most grateful for sharing great visions and contributing greatly to our success.

Thank you.

Welcome Speeches



Prof. Dr. Motohiro Horiuchi

**Director of One Health Research Center,
Hokkaido University**

Excellencies,

Executive Vice President, Hokkaido University,
President, Rakuno-Gakuen University,
Distinguished Delegates, Ladies and Gentlemen.

On behalf of the Faculty of Public Health, Thammasat University, I am honored to express our deep desire to host the 9th One Health Lecture Series on December 16-17, 2024, at Faculty of Public Health, Thammasat University. Today, our continued consolidation of this ninth seminar emerged out of our collaboration network among three universities: Hokkaido University, Rakuno Gakuen University, and Thammasat University.

This hybrid seminar marks the continuation of fruitful academic collaboration among our universities. Faculty of Public Health, Thammasat University sincerely appreciates all distinguished delegates from Hokkaido University, Rakuno Gakuen University, and all other participants attending to this seminar; who are interested in doing interdisciplinary research and obtaining currently emerged One Health issues.

I do hope we closely build and enhance interuniversity cooperation in diverse aspects of global health. This seminar helps us understand more about how to build interdisciplinary collaboration to the "One World, One Health" that requires cooperative efforts. Finally, I am most grateful for sharing great visions and contributing greatly to our success.

Thank you.

Introduction

Ten years of One Health Lecture Series

Prof. Dr. Yasuhiko Suzuki

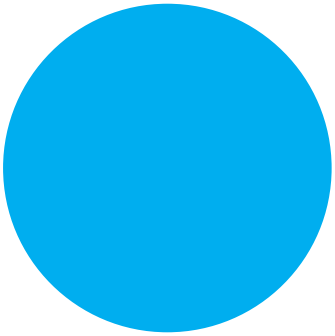
Hokkaido University Institute for Vaccine Research and Development

The pandemic of COVID-19 started from China at the end of 2019 have quickly spread all over the world. Other infectious diseases such as influenza, ebola virus disease, tuberculosis, leptospirosis, anthorax and so forth has been attacked and killed vast number of people. Many of these belong to zoonoses. It is known that the pathogens that cause zoonoses originally come from wild animals. For example, the original natural host of the influenza virus is the duck, and the natural host of the Ebola virus and SARS coronavirus is thought to be the bat. The pathogens that cause zoonoses do not show pathogenicity to these natural hosts. However, when humans and livestock come into contact with wild animals and become infected with microorganisms carried by wild animals, they may develop serious infectious diseases with unexpected pathogenicity. The significant population growth in recent years, the destruction of nature that has accompanied it, and changes in the global environment have erased the boundary between the natural world and human society, and the emergence of new zoonoses is expected in the future. In addition, the risk of infectious diseases spreading around the world in the blink of an eye due to globalization has been pointed out, and even if an infectious disease occurs on the other side of the world, we may not be unaffected. From this perspective, zoonotic diseases are an important issue that we must address, and they represent a real and present danger to all of humanity.

For the control of zoonoses, One Health approach is the key issue. Hence, in this special lecture, taking tuberculosis as an example, practical example of One Health approach will be discussed.

Keynote Lecture:

Are we prepared for future pandemics?
~Based on Experience of Influenza and COVID-19~



Prof. Dr. Hiroshi Kida

The University Professor, Hokkaido University

The pandemic of COVID-19 started from China at the end of 2019 have quickly spread all over the world. Other infectious diseases such as influenza, ebola virus disease, tuberculosis, leptospirosis, anthorax and so forth has been attacked and killed vast number of people. Many of these belong to zoonoses. It is known that the pathogens that cause zoonoses originally come from wild animals. For example, the original natural host of the influenza virus is the duck, and the natural host of the Ebola virus and SARS coronavirus is thought to be the bat. The pathogens that cause zoonoses do not show pathogenicity to these natural hosts. However, when humans and livestock come into contact with wild animals and become infected with microorganisms carried by wild animals, they may develop serious infectious diseases with unexpected pathogenicity. The significant population growth in recent years, the destruction of nature that has accompanied it, and changes in the global environment have erased the boundary between the natural world and human society, and the emergence of new zoonoses is expected in the future. In addition, the risk of infectious diseases spreading around the world in the blink of an eye due to globalization has been pointed out, and even if an infectious disease occurs on the other side of the world, we may not be unaffected. From this perspective, zoonotic diseases are an important issue that we must address, and they represent a real and present danger to all of humanity.

For the control of zoonoses, One Health approach is the key issue. Hence, in this special lecture, taking tuberculosis as an example, practical example of One Health approach will be discussed.

Session 1: Control of Infectious diseases

1-1 Faculty of Public Health, Thammsat University: Asist. Prof. Dr. Kanjana Changkaew

Reduction of Antimicrobial Resistant Bacteria and Bacterial Community Variation in Anaerobic Digestion Systems in Swine Farms, Thailand

Kanjana CHANGKAEW[1,2], Masaru USUI[3], Akira FUKUDA[3]

[1]Faculty of Public Health, Thammasat University, Pathum Thani, Thailand
[2]Thammasat University Research Unit in Modern Microbiology and Public Health Genomics, Thammasat University, Pathum Thani, Thailand
[3]School of Veterinary Medicine, Rakuno-Gakuen University, Hokkaido, Japan

Abstract:

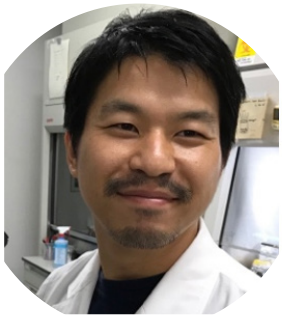
The study focuses on collecting wastewater samples before and after treatment to analyze patterns of antimicrobial resistance in indicator bacteria, the abundance of antimicrobial resistance genes (ARGs), and changes in the microbial community across three anaerobic digestion (AD) systems on swine farms. The farms involved in the study have the following characteristics: Farm A is a large operation that utilizes the CMU-CD (Chiang Mai University-Chanel Digester), while Farms B and C are medium-sized pig farms that employ a cover lagoon system for their wastewater treatment.

The analysis of antimicrobial resistance in *E. coli* and *Enterococcus* spp. showed that the proportion of antimicrobial-resistant bacteria decreased in the secondary effluent compared to the influent. Regarding ARG removal, the CMU-CD system effectively eliminated all analyzed ARG types. Specifically, the number of copies per µl of ARGs such as *tet*A, *tet*B, bla_{TEM}, bla_{SHV}, bla_{CTX}, *sul1*, and *sul2* in the influent and in the secondary effluent differed significantly (p-value <0.05). The Cover lagoon system at Farm B only removed the *tet*A, with no significant difference. In contrast, the system at Farm C eliminated most ARGs but failed to remove *sul1* and *sul2*. Principal component analysis showed distinct bacterial community clusters only in farms A and C across sampling points. Bacteroidetes were the most abundant phylum, with a decrease in Proteobacteria during anaerobic digestion in farm A. In addition, the first and secondary effluents from farms B and C had similar community compositions.

Studying AD in swine farms provides insights into advancing treatment, especially for mitigating AMR. The CMU-CD system effectively reduces antimicrobial-resistant *E. coli* and *Enterococcus* spp. Different profiles of wastewater microbial communities across the treatment process indicate that each process creates distinct communities, which may be related to ARG concentrations and other environmental factors.

1-2 Hokkaido University International Institute for Zoonosis Control:
Assoc. Prof. Dr. Masahiro Kajihara

Exploring the ecology of Marburg virus in African fruit bats with integrated field and molecular approaches



Masahiro KAJIHARA

International Institute for Zoonosis Control, Hokkaido University, Sapporo, Hokkaido, Japan

Abstract:

Orthomarburgvirus, a member of the family *Filoviridae* alongside orthoebolaviruses, causes severe hemorrhagic fever. Since 2020, the frequency of Marburg virus disease (MVD) outbreaks has increased in sub-Saharan Africa, including in countries with no prior outbreaks. Accumulating epidemiological evidence implicates Egyptian fruit bats (*Rousettus aegyptiacus*, ERBs) as a natural reservoir. However, the ecological dynamics of viral maintenance and cross-border transmission remain poorly understood.

Here, we integrate longitudinal viral surveillance, phylogenetics, GPS biotelemetry, population genomics, and human seroepidemiology to investigate epidemiological dynamics of orthomarburgvirus in southern Africa. In Zambia, orthomarburgvirus genomes were detected in ERBs in September 2018 and October 2022. Since ERB seroprevalence repeatedly peaked in November–December during 2014-2017, these data suggest that active circulation of orthomarburgviruses within the ERB colony most likely occurred around September–October. Phylogenetic analyses indicated co-circulation of distinct lineages, including a strain closely related to the Ozolin strain isolated in the first African MVD outbreak (Zimbabwe, 1975). GPS tracking of ERBs revealed seasonal shifts in foraging activity and cross-border movements into Zimbabwe, consistent with genomic evidence of gene flow from population genomics analyses. These ecological and evolutionary findings support a metapopulation model of orthomarburgvirus maintenance in the Zambia-Zimbabwe landscape. Furthermore, serological surveys of >600 residents living near an ERB roosting cave indicated low but detectable exposure to orthomarburgviruses, contrasted with higher seroprevalence for orthoebolaviruses, suggesting limited but non-negligible spillover risk under current conditions.

Collectively, our multidisciplinary data illuminate spatiotemporal dynamics of orthomarburgvirus maintenance in ERB populations in southern Africa, provide molecular clues to the origin of historic outbreak, and highlight the need for evidence-based surveillance and community engagement at human–bat interfaces to mitigate MVD risk in the region.

1-3 One Health Research Center, Hokkaido University: Sen. Lect. Dr. Naganori Nao

HOT-WIRE & HOT-AID: Advanced and Interdisciplinary Diagnostics in Hokkaido University

Naganori Nao

One Health Research Center, Hokkaido University, Sapporo, Hokkaido, Japan

Abstract:

The COVID-19 pandemic demonstrated both the strengths and limitations of Japan's diagnostic systems. While the country successfully expanded PCR capacity for human diagnostics, the pandemic highlighted a significant lack of preparedness for health threats beyond standard clinical targets. Specifically, there is a notable disparity between human and animal diagnostic capacities.

This structural issue is clearly illustrated by zoonotic diseases such as Severe Fever with Thrombocytopenia Syndrome (SFTS). While testing systems for humans were established promptly, equivalent capacity for animals initially lagged.The situation is even more critical regarding wildlife. Infectious diseases and poisoning in wild animals pose significant risks to conservation medicine and public health. However, Japan lacks an official framework for investigating the causes of wildlife deaths, aside from surveillance for avian influenza. Consequently, many wildlife mortality events remain unexplained, potentially leading us to overlook possible environmental hazards.

To address these challenges, Hokkaido University has established two advanced diagnostic teams: HOT-AID and HOT-WIRE.HOT-AID (Hokkaido University One Health Team for Advanced and Interdisciplinary Diagnostics) serves as a comprehensive "one-stop" platform that connects clinical medicine and research. It tests specimens from humans, companion animals, and livestock using shared protocols. It is designed to detect novel or rare pathogens that routine clinical testing might miss. HOT-WIRE (Hokkaido University One Health Team for Wildlife Incident Response) specializes in the systematic investigation of wildlife incidents. Composed of experts in pathology, anatomy, toxicology, and infectious diseases, this team actively identifies hazards in nature.

1-4 Hokkaido University Institute for Vaccine Research and Development:
Assoc. Prof. Dr. Kensuke Takada

Strategy for achieving both safety and efficacy of CTL-inducing vaccines using a low molecular drug

Kensuke TAKADA[1], Zimeng Cai[2,3], Mina Kozai[1], Kazuhiro Matsuo[1]

[1]Institute for Vaccine Research and Development (IVReD), Hokkaido University, Sapporo, Hokkaido, Japan
[2]Graduate School of Veterinary Medicine, Hokkaido University
[3]Current address: Shanghai Immune Therapy Institute (SITI), Shanghai Jiao Tong University

Abstract:

CD8 T cells activated by specific antigens acquire the killer function against infected cells as cytotoxic T lymphocytes (CTLs). Differentiation of memory CTLs depends on strong inflammatory signals when their naïve precursors are primed by antigens. Therefore, vaccine development faces a difficult trade-off between inducing robust cellular immunity to enhance efficacy and limiting inflammation to ensure safety. Here we report that an anti-inflammatory drug may provide a solution to this long-lasting challenge in vaccine development.

Short-term administration of a synthetic nuclear receptor ligand during CD8 T cell activation promoted the differentiation of memory T cells with effector-like phenotype and enhanced cytotoxic function. It was due to TCF-1 downregulation in effector T cells. Application of the ligand with a live attenuated vaccine enhanced immediate protection against Listeria monocytogenes infection in mice. Along with these immune-stimulatory effects, the drug alleviated acute inflammation caused by infections and adjuvant injections. These findings provide a unique pharmacological approach to enhance cell-mediated protection while limiting the inflammation induced by vaccines.

Session 2: Toxicology and environmental health

2-1 Faculty of Veterinary Medicine, Hokkaido University: Assoc. Prof. Dr. Shouta Nakayama

Establishment of Sustainable Mineral Development Through Strengthening of Monitoring Systems and Human Capacity Toward Heavy Metal Pollution in Zambia, Zimbabwe, Namibia, Botswana [ZAZINAMBO Project]

Shouta M.M. NAKAYAMA

Laboratory of Toxicology, Faculty of Veterinary Medicine, Hokkaido University, Sapporo, Hokkaido, Japan
Biomedical Sciences Department, School of Veterinary Medicine, The University of Zambia, Lusaka, Zambia

Abstract:

The ZAZINAMBO Project, which stands for Zambia, Zimbabwe, Namibia, and Botswana, is a Technical Cooperation Project, funded by JICA. The project was conceptualized by Hokkaido University, in collaboration with the stakeholder countries. This follows the previous successes of the KAMPAI Project (Kabwe Mine Pollution Amelioration Initiative) in Zambia. The four countries share common attributes, including a quadripoint border, mineral resources, a legacy of heavy metal pollution, etc. Therefore, mining activities have harmed the environment, animals, and humans (One Health). To counter these effects, the project aims to establish a network for metal pollution control in the region and strengthen the system for joint research and education. This will ensure that:1. The stakeholders in each country can monitor, identify, quantify, and solve environmental metal problems. 2. The capacities, including human resources and facilities, are set up through the project lifeline. Detailed Planning Surveys were conducted in 2024 in each country, followed by the signing of the Records of Discussions. However, the implementation of the project was hampered by several challenges, as each country has different policies. Therefore, the ZAZINAMBO project emphasizes sustainable laboratory management, with core programs including training in sampling, analysis, and data assessment through Joint Field Surveys. These are complemented by Regional Technical Workshops and an Intensive Chemical Hazard Course in Japan. Furthermore, networking and information sharing among the four countries would be another asset to motivate and support constant and sustainable activities in the established laboratories. The ultimate goal of the is ZAZINAMBO project to establish laboratories that would act as a driving force to achieve One Health.

2-2 Faculty of Veterinary Medicine, Rakuno Gakuen University: Prof. Dr. Jun Noda

Characterizing and Detecting Bioaerosols: An Environmental Health Perspective on Infectious Diseases

Jun Noda[1], Tomoko Ando[1], Hana Takahara[1], Hiroto Nitta[1], Maki Teruya Maki[2], Tomoaki Okuda[3], Kozo Morimoto[4], and Satoshi Mitarai[4]

[1]School of veterinary medicine, Rakuno Gakuen University, Ebetsu, Hokkaido, Japan
[2]Department of Life Science, Kindai University, Osaka, Japan
[3]Department of Applied Chemistry, Keio University, Yokohama, Japan
[4]Department of Mycobacterium Reference and Research, the Research Institute of Tuberculosis, Japan Anti-Tuberculosis Association, Tokyo, Japan

Abstract:

Bioaerosol research has gained increased attention during the recent COVID-19 pandemic, which highlighted the challenges associated with effectively detecting airborne infectious agents across human, animal, and environmental systems. Because bioaerosols, including pathogenic microorganisms, typically occur at very low concentrations, improved detection methods capable of capturing both viable and non-viable particles are essential. The development of airborne pathogen detection technologies is becoming increasingly important within medical and public health sectors, veterinary and livestock industries, environmental monitoring, and other areas central to the One Health framework. Indoor air quality issues related to bioaerosols have also become more significant as modern buildings move toward tighter construction to minimize energy consumption and maintain stable indoor climate conditions. From an aerosol-science perspective, particulate matter metrics such as $PM_{2.5}$ and PM_{10} are widely used indices, and particle size plays a critical role in the dispersion and fate of airborne pathogens that may affect both humans and animals. Understanding the size distribution of airborne microorganisms is essential for predicting their transport, persistence, and potential for cross-species exposure. Larger droplets settle rapidly, whereas smaller particles can remain suspended for extended periods and travel longer distances through shared environments. This presentation provides an overview of airborne pathogens as bioaerosols from an Environmental Health perspective and introduces novel approaches to enhance their detection. Strengthening our understanding of airborne transmission pathways is crucial for clarifying the dynamics of disease spread and for developing integrated prevention and control strategies that protect human health, animal health, and environmental quality.

2-3 Faculty of Public Health, Thammasat University: Asst. Prof. Dr. Duanpen Sirithian

Quantifying particulate emissions from open biomass burning in upper northern Thailand and policy-ready mitigation.

Duanpen Sirithian[1,2], Pantitcha Thanatrakolsri[1]

[1]**Faculty of Public Health, Thammasat University, Lampang, Thailand**
[2]**Thammasat University Research Unit in Environment, Health and Epidemiology, Thammasat University, Lampang, Thailand**

Abstract:

Southeast Asian nations acknowledge particulate matter pollution as a significant environmental and public health issue. This research quantified particulate emissions ($PM_{2.5}$ and PM_{10}) from open burning in upper northern Thailand for the year 2020 using the Atmospheric Brown Cloud (ABC) Emission Inventory Manual and uncertainty analysis by Monte Carlo simulation with 10,000 iterations. The total emissions of $PM_{2.5}$ and PM_{10} during the burning season (January–May) were 31.1 [21.1–50.0] kilotonnes and 72.4 [50.0–114.3] kilotonnes, respectively, reflecting variability in fuel load, combustion efficiency, and emission factors among different land-use types. Provincial emissions ranged from 1.3 to 5.6 kilotonnes of $PM_{2.5}$ and 3.0 to 13.6 kilotonnes of PM_{10}, with Mae Hong Son, Lampang, Tak, and Chiang Mai contributing more than 70% of the region's emissions. These provinces are dominated by extensive forest and agricultural residue burning in upland areas where hotspots are abundant. Six mitigation scenarios were examined to predict the possibility of managing burned areas in relation to a business-as-usual (BAU) scenario. Government measures (Scenario 1) resulted in an estimated 23% reduction in particulate emissions. In contrast, the integrated high-control scenario (Scenario 6), which included a 70% reduction in rice-straw burning alongside a 50% reduction in forest and field crop burning, achieved a 50% reduction in emissions, highlighting the upper limit of achievable mitigation. The findings present strong evidence to develop comprehensive policies for managing fires in forests and agriculture and highlight the necessity for coordinated efforts among local authorities, communities, and environmental agencies to effectively mitigate open-burning emissions and related health risks.

Session 3: Food safety and food security

3-1 Faculty of Public Health, Thammasat University: Assoc. Prof. Dr. Saowanee Norkaew

Safety through a One Health Lens

Saowanee Norkaew[1,2*], Theerayut Baubhom[1,3], Pondpimon Nuanphuen[1], Katiya Ivanovitch[1], Brian T. Buckley[4], Yoshinori Ikenaka[5,6]

[1]Faculty of Public Health, Thammasat University, Thailand
[2]Thammasat University Research Unit in Occupational Ergonomics, Thailand
[3]Mahidol University, Thailand
[4]Environmental and Occupational Health Sciences Institute, Rutgers University, USA
[5] Laboratory of Toxicology, Graduate school of Veterinary Medicine, Hokkaido University, Japan
[6]One Health Research Center, Hokkaido University, Japan

Abstract:

The One Health approach offers a transformative framework for addressing complex and interconnected health challenges by recognizing the inseparable links between human, animal, and environmental health. It promotes interdisciplinary collaboration across human and veterinary medicine, environmental science, and public health. In food safety, One Health emphasizes the need for rapid and reliable methods to monitor hazards throughout the farm-to-table, authorizing effective risk assessment, mitigation, and prevention of emerging foodborne threats. Many countries are required to collect data on the occurrence of zoonoses, zoonotic agents, antimicrobial resistance, animal populations, and foodborne outbreaks. These reports allow for the evaluation of trends and the identification of sources of zoonotic agents, antimicrobial resistance, and foodborne disease. Beyond biological hazards, food safety is deeply influenced by chemical contamination. Many chemicals of concern, due to their toxicity and widespread exposure, enter the food chain at multiple points, from primary production to final consumption. Evidence, including our own studies, shows that chemical hazards in plant and aquatic products can originate from human activities, climate-related impacts, and natural environmental contamination. These include pesticides, heavy metals, and microplastics. Although advances in analytical chemistry and toxicology have enhanced the characterization of chemical hazards, further interdisciplinary effort is required. Strengthening collaboration will expand understanding of risks, support effective regulatory measures, and ensure the safety of food and the environment, thereby enhancing consumer confidence. As one Health is an approach, to design and implement programmes, policies, legislation and research, where multiple sectors communicate and work together to achieve better public health outcomes. Integrating one Health education into science, engineering, and humanities curricula is essential for building workforce capacity and establishing networks dedicated to improving public health, food safety, and sustainable agriculture while addressing emerging threats such as climate-related disasters and transboundary diseases.

3-2 Faculty of Veterinary Medicine, Rakuno Gakuen University: Prof. Dr. Kohei Makita

Co-designing neglected zoonosis intervention through One Health, education, and public-private partnerships

Kohei MAKITA[1], Coletha MATHEW[2], Makoto UKITA[1], Hayato FURUMOTO[1], Masaru USUI[1], Akira FUKUDA[1], Masahisa WATARAI[3], Satoko KUBOTA[4], Masahiro UMEZAKI[5], Esron KARIMURIBO[2]

[1]Rakuno Gakuen University, Japan
[2]Sokoine University of Agriculture, Tanzania
[3]Yamaguchi University, Japan
[4]Obihiro University of Agriculture and Veterinary Medicine, Japan
[5]University of Tokyo, Japan

Abstract:

Neglected zoonoses bear significant burden on public health and the economy at larger, but often escape attention due to the nature of non-catastrophic endemic patterns of disease and limited resources for surveillance in endemic countries. The purpose of this project is to offer an innovative approach for controlling such diseases.

The project is to be conducted in the Morogoro Region of Tanzania for five years (2024- 2029) using an integrated four step process, targeting country priority zoonoses such as brucellosis and zoonotic tuberculosis (TB). Step 1 fills the knowledge gaps of epidemiology, disease burden, socio-economics and human ecology of both diseases in animals and humans. In Step 2, a set of participatory processes will drive the development of integrated simulation models on disease transmission in animals and humans, vaccination, diagnosis and treatment efficacy, and behavioral dynamics. Based on these models, cost-effective and incentivized public-private partnership disease intervention programs will be co-designed by stakeholders. In Step 3, educational materials including disease knowledge, intervention, gender, nudges, and incentivized messages will be developed using locally developed virtual reality tools. Randomized control trial of One Health educational interventions will be conducted for public and animal health offices, private service providers, value chain actors, schools, health posts, and communities. The changes of perception and behaviors, and prevalence in animals and humans will be compared between intervention and control villages. Finally, in Step 4, an operational system to implement interventions for brucellosis and zoonotic TB control will be established. This will include the establishment of a One Health surveillance system with a data sharing protocol, linking a variety of data sharing mechanisms in both health and animal health sectors.

Young Researcher Presentations

Y-1 Graduate School of Veterinary Medicine, Hokkaido University: Ms. Ayuko Morita

Investigating the Alcohol Metabolism Capacity in Elephants with a Focus on Hepatic Enzymes

Ayuko Morita[1], Kanami Watanabe[1], Amnart Poapolathep[2], Saranya Poapolathep[2], Aksorn Saengtienchai[2], Kraisiri Khidkhan[2], Supaphen Sripiboon[2], Kornsorn Srikulnath[3], Chatchote Thitaram[4], Chaleamchat Somgid[4], Taweepoke Angkawanish[5], Warangkhana Langkaphin[5], Mitsuki Kondo[6], Yoshinori Ikenaka[1,7], Shouta M.M. Nakayama[1], Mayumi Ishizuka[1]

[1]Faculty of Veterinary Medicine, Hokkaido University, Japan
[2]Faculty of Veterinary Medicine, Kasetsart University, Thailand
[3]Faculty of Science, Kasetsart University, Thailand
[4]Faculty of Veterinary Medicine, Chiang Mai University, Thailand
[5]National Elephant Institute, Thailand
[6]Joint Faculty of Veterinary Medicine, Kagoshima University, Japan
[7]One Health Research Center, Hokkaido University, Japan

Abstract:

The news of drunk elephants has repeatedly captured people's attention. In Asia, local people describe instances where empty bottles of alcohol were left near sleeping elephants. In Southern Africa, the myth persists that wild elephants seem inebriated after eating fermented marula fruits. However, studies on the enzymes involved in alcohol metabolism, specifically alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (ALDH), are limited in elephants. This study aimed to identify the dominant ADH and ALDH isoforms involved in alcohol metabolism, determine the kinetic parameters of hepatic ADH and ALDH, and elucidate enzyme affinity and efficiency in elephants.

Liver, kidney, and small intestine samples were collected from four deceased Asian elephants in Thailand. mRNA expression levels were compared among different isoforms of ADH and ALDH. Ethanol and acetaldehyde metabolism were assayed using elephant livers. The mRNA expression profile of the isoforms indicated that ADH1$_{-c}$, ALDH2, and ALDH1A1-b were predominant isoforms involved in alcohol metabolism in the Asian elephant liver. The kinetic analysis indicated that ADH in elephants exhibited a lower K_m than that in rats, suggesting a higher enzyme affinity. ALDH in elephants showed a higher catalytic efficiency (V_{max}/K_m) than that in rats. Elephants are presumed to possess a potentially more efficient alcohol metabolism and a relatively high tolerance to ethanol.

Y-2 Graduate School of Veterinary Medicine, Hokkaido University: Ms. Natamon Jianpraphat

Neonicotinoid-Induced Neurotoxicity: Investigating Mechanisms in Human Dopaminergic Neurons

Natamon JIANPRAPHAT

Laboratory of Toxicology, Hokkaido University, Sapporo, Hokkaido, Japan

Abstract:

Neonicotinoid insecticides have been increasingly used worldwide. Their potential neurotoxicity has been reported in several studies. However, the underlying mechanisms of neurotoxicity remain unclear. This study aimed to elucidate the *in vitro* neurotoxic mechanisms associated with clothianidin (CLO) exposure using Lund human dopaminergic neurons (LUHMES).

Differentiated LUHMES cells were exposed to CLO at various concentrations. CLO treatment at 100 μM significantly reduced mitochondrial membrane potential (MMP). Additionally, dopamine (DA) levels from cell extracts were markedly decreased while cell viability and reactive oxygen species (ROS) levels remained unaffected.

Targeted lipidomics analysis of the cell extracts using LC–TQ–MS revealed CLO-induced alterations in lipid profiles, with 26 lipid species upregulated and 10 downregulated. Pathway enrichment analysis indicated that the altered lipids were primarily associated with glycerophospholipid metabolism and glycosylphosphatidylinositol (GPI)-anchor biosynthesis pathways.

These lipid classes play essential roles in membrane structure, signaling, and regulation of apoptosis and neuroinflammation. The lipid perturbations and observed neurotoxic endpoints, including mitochondrial depolarization and dopamine depletion, suggest that altered lipid profiles may represent sensitive targets of CLO-induced neurotoxicity, ultimately contributing to disrupted neuronal dysfunction.

Y-3 Faculty of Public Health, Thammasat University: Ms. Phashararat Yoogate

Assessment of Water Quality and Seasonal Variation of Surface Water in Samut Sakhon Province, Thailand

Phashararat YOOGATE[1], Chalobon TREESAK[1], Manaporn WONGSOONTHORNCHAI[1], Kanjana CHANGKAEW[1,2]

[1]Faculty of Public Health, Thammasat University, Pathum Thani, Thailand
[2]Thammasat University Research Unit in Modern Microbiology and Public Health Genomics, Thammasat University, Pathum Thani, Thailand

Abstract:

Wastewater represents a significant environmental concern resulting from the expansion of urban communities, agricultural activities, and industrial development. Furthermore, the deterioration of water quality may be exacerbated by critical co-factors such as temperature fluctuations and variations in precipitation patterns. Seasonal dynamics can influence the physical, chemical, and biological characteristics of water quality. This study aimed to analyze water quality and seasonal variations in surface water in Samut Sakhon province, Thailand, using the Water Quality Index (WQI).

Surface water samples were collected from 11 monitoring stations over three distinct seasons winter, summer, and rainy between January and August 2025. Sampling occurred twice per season to capture temporal variability. All samples underwent thorough analyses of physical, chemical, and biological water quality parameters. The WQI was calculated based on five parameters: dissolved oxygen (DO), biological oxygen demand (BOD), total coliform bacteria (TCB), coliform bacteria (FCB), and ammonia (NH_3).

The study found that the overall WQI in Samut Sakhon province, based on 33 samples, indicated that 73% of the samples were classified as degraded. The WQI was most degraded during the rainy season (WQI = 30-35), and it showed significant differences compared to the winter season (WQI = 41-60). However, there was no statistically significant variation when compared to the summer season (WQI = 38-68). Focusing on individual physicochemical parameters, this study highlighted significant seasonal variations in temperature, pH, electrical conductivity, salinity, nitrate, and phosphate levels, underscoring the impact of seasonal dynamics on essential water quality indicators. The results emphasize the need for sustained monitoring of seasonal changes in water quality to support timely health risk assessment and sound water management decisions.

Y-4 Faculty of Public Health, Thammasat University: Ms. Chophaka Thaenthong

Assessment of fine particulate matter ($PM_{2.5}$) emissions from vehicles in Lampang province, Thailand

Chophaka Thaenthong[1], Pantitcha Thanatrakolsri[1,2], and Duanpen Sirithian[1,2]

[1]Faculty of Public Health, Thammasat University, Lampang, Thailand
[2]Thammasat University Research Unit in Environment, Health and Epidemiology, Thammasat University, Lampang, Thailand

Abstract:

Air pollution is a significant environmental concern in Thailand and globally with regard to fine particulate matter ($PM_{2.5}$), which poses severe risks to public health and the ecosystem. Vehicle exhaust, especially in urban settings, is one of the largest sources contributing to $PM_{2.5}$ emissions. Accurately measuring emissions is a key step toward addressing pollution at its source. This study focuses on estimating on-road vehicle-related $PM_{2.5}$ emissions in Lampang Province, Thailand, based on the analysis of six vehicle categories. The results indicate that in 2024, vehicles in Lampang emitted approximately 204.09 tons of $PM_{2.5}$. Trucks were identified as the predominant source, followed by motorcycles, pickup trucks, buses, passenger cars, and vans, contributing 53.66%, 24.13%, 11.77%, 7.31%, 2.55%, and 0.58% of total emissions, respectively. Therefore, focusing on reducing emissions from trucks would yield the most significant benefits. Moreover, employing advanced vehicle technologies (EURO 5/6 engines) or transitioning from diesel vehicles to electric vehicles (EVs) could have enormous reductions in $PM_{2.5}$ emitted from road transportation.

Y-5 Faculty of Public Health, Thammasat University: Ms. Nyein Ko Lwin

Understanding the Integration of One Health Principle in Antimicrobial Use among Myanmar's Private Dental Practitioners

Nyein Ko Lwin, Katiya Ivanovitch

Faculty of Public Health, Thammasat University

Abstract:

Antimicrobial resistance (AMR) is one of the threatening global health challenges, exacerbated by improper use of antimicrobials. In Myanmar, private dental practitioners used antimicrobials in their clinical settings, but there was limited information on their knowledge, attitudes, and practices (KAP) regarding antimicrobial use and antimicrobial waste management, and how the One Health Approach was integrated. Therefore, we conducted a cross-sectional survey among dental practitioners using validated online Google Forms questionnaires between January and February 2024 in Myanmar. This study aimed to assess the integration of One Health Principles, identifying knowledge, attitudes, and practices (KAP) of private dental practitioners in Myanmar regarding antimicrobial prescription, including antimicrobial waste management.

Among the dental practitioners surveyed, 67% expressed favorable views on responsible antibiotic use and waste management. However, only 41% possessed sufficient knowledge about antimicrobial use and antimicrobial resistance, and 61% demonstrated appropriate prescribing habits. Nearly one-third showed only poor to moderate levels of practice, with just 17.1% aware of One Health principles, and many lacking understanding of the environmental impacts of antimicrobial waste. In addition, limited training and the absence of clear guidelines were major obstacles for those working in private dental settings.

These findings demonstrated a poor integration of the One Health Principle in private dental health care settings in Myanmar. However, respondents suggested support from professional organizations and strengthening the National Action Plan on AMR by incorporating the private dental health sector.

This study highlighted the role of private dental health care settings in combating AMR. Therefore, it is crucial to fill the gaps in knowledge and practice among Myanmar's private dentists, and this would need targeted interventions, improving dental education, and policy development and implementation to enhance antimicrobial prescribing and waste management, integrating the One Health approach into dental practice.

Y-6 Hokkaido University International Institute for Zoonosis Control: Mr. Passawat Thammahakin

Identification and functional analysis of disease-associated microglia in West Nile virus infection

Passawat THAMMAHAKIN

Division of Molecular Pathobiology, Hokkaido University
International Institute for Zoonosis Control

Abstract:

West Nile virus (WNV) can cause encephalitis in humans, but its pathogenesis remains unclear. During infection, microglia become activated and differentiate into distinct phenotypes. Among them, disease-associated microglia (DAM), which is positive for CD11c and weak positive for general microglia markers, has shown protective roles in neurodegenerative disease such as Alzheimer's disease. DAM has recently been shown to be induced by CSF-1 receptor stimulation. In this study, we aimed to determine whether WNV infection induces the DAM phenotype and to investigate the role of DAM in WNV infection by inducing DAM with CSF-1 receptor ligands, CSF-1 and interleukin-34 (IL-34).

Morphological changes and phenotypic diversity in microglia were observed in C57BL/6 mice inoculated intracranially with WNV (NY99 strain). CD11c-positive and weakly TMEM119-positive DAM were observed in the vicinity of WNV-infected cell, and their numbers were increased in WNV-infected mice.

To reveal the role of DAM in WNV infection, two CSF-1 receptor ligands were administered intracranially to WNV-infected mice. An increase in the DAM population and their interactions with WNV-infected cells were observed only in the IL-34 treated group, but not in the CSF-1-treated group. In addition, IL-34 treatment significantly reduced WNV-induced mortality, viral titers, and neuronal apoptosis in brain. These findings indicate that DAM was activated and may contribute to neuroprotection during WNV infection.

Y-7 Graduate School of Infectious Diseases, Hokkaido University: Ms. Oranit Likhit

Determination of T Cell Responses in Thai Systemic Sclerosis Patients

Ms. Oranit Likhit

Graduate School of Infectious Diseases, Hokkaido University

Abstract:

Systemic sclerosis (SSc), or scleroderma, is a chronic autoimmune disease characterized by multisystem fibrosis and immune activation, including the production of disease-specific autoantibodies. SSc is classified into limited (lcSSc) and diffuse (dcSSc) forms, with dcSSc associated with rapid organ involvement and higher morbidity and mortality. Although the etiology remains unclear, genetic, environmental, and immunological factors contribute to disease development.

This study investigated the roles of $CD4^+$ and $CD8^+$ T cells in SSc pathogenesis. Peripheral blood mononuclear cells (PBMCs) from SSc patients and healthy controls were stimulated with DNA topoisomerase-derived peptides, and T cell cytokine responses were assessed by intracellular staining for IFN-γ and IL-2. SSc patients exhibited high cytokine production in $CD8^+$ T cells and lower levels in $CD4^+$ T cells, whereas healthy controls showed minimal responses. Among the peptides tested, CSLRVEHINLHPELD (sPep3; positions 505–519) induced the strongest T cell responses. No significant correlation was found between common HLA haplotypes (DRB1*12:02, DRB1*5:01, DRB1*15:02, DRB5*01:08) and T cell activity.

These findings enhance understanding of SSc immunopathology and may inform the development of diagnostic tools and targeted therapies.

Y-8 Faculty of Veterinary Medicine, Rakuno Gakuen Univeresity: Mr. Hayato Furumoto

Herd level sero-prevalence of bovine brucellosis in Morogoro Region, Tanzania

Hayato Furumoto[1], Makoto Ukita[1], Shingo Asakura[1], Masahisa Watarai[2], Coletha Mathew[3], Esron Karimuribo[3], Kohei Makita[1]

[1]Rakuno Gakuen University
[2]Yamaguchi University
[3]Sokoine University of Agriculture, Tanzania

Abstract:

Brucellosis is a zoonotic disease affecting both humans and livestock animals including cattle, goats and sheep. Typical symptoms in livestock animals include abortion, hygroma and reduction in milk yield. Humans are mainly infected through unpasteurized livestock products such as milk and blood, and exhibit symptoms such as undulant fever, malaise and arthritis. With these features, it has substantial impacts on both public health and economy. Despite these effects, brucellosis remains endemic in many countries, particularly among marginalized population in developing regions where information, human resources and facilities are limited, making it a neglected disease.

Tanzania is not an exception, although livestock production is a major industry of the country. This study aimed to assess the current status of *Brucella spp*. infection among cattle herds in Morogoro region. It is part of a project to develop control measures for neglected zoonoses using One Health approach.

A total of 429 cattle keeping farms were randomly selected in the region. Bulk milk samples were collected from these farms and tested using a commercial indirect ELISA kit. As of November 11th 2025, among 212 farms tested to date, 80 (37.7%) were positive. Preliminary results suggest that *Brucella spp*. infection is widely prevalent in the cattle population in Morogoro.

Further surveys are planned at the animal level in the positive farms with questionnaire survey. In addition, surveys in communities and value chains will be conducted. Integrating these findings in participate system dynamics modeling will help develop an effective intervention.

Y-9 Faculty of Veterinary Medicine, Rakuno Gakuen University: Ms. Riyandini Putri

Knowledge, Attitudes, and Practices (KAP) in the Implementation of Qurban on Eid al-Adha Related to Foot and Mouth Disease (FMD)

Riyandini Putri[1,2], Bambang Ngaji Utomo[2], Susan M. Noor[2], Ermin Widjaja[2], Eni Kusumaningtyas[2], Fitrine Ekawasti[2], Freshinta Jellia Wibisono[3], Harimurti Nuradji[2], Shingo Asakura[1], Kohei Makita[1]

[1]Rakuno Gakuen University
[2]National Research and Innovation Agency
[3]Universitas Wijaya Kusuma Surabaya, Indonesia

Abstract:

Eid al-Adha, also known as the Festival of Sacrifice, is a significant Islamic holiday marked by the sacrifice of animals (cattle, goat, sheep, and buffalo), with the meat distributed among the community. The large number of animals involved in this tradition poses challenges in management and transportation, as well as the potential for spreading infectious diseases, such as Foot and Mouth Disease (FMD). This study aims to identify gaps in knowledge, attitudes, and practices regarding FMD spread during the festival. The structured questionnaire was used to evaluate knowledge, attitudes, and practices related to FMD and the festival, with maximum scores of 15, 15, and 60, respectively. A total of 435 qurban committee respondents who had experience purchasing sacrificial animals from West Java, the Special Region of Yogyakarta, and East Java participated in this study. Descriptive statistics were used to analyze the data. The results showed that the majority of respondents were male (95.2%), 51-60 years old (35.2%), lived in the urban area (67.4%), had a junior/high school education level (52.6%), and participated in a training/awareness program (63.2%). Respondents sometimes purchased the sacrificial animals in several locations, with the highest percentage being trusted/preferred farms (64.8%). Sacrificial animals were mostly slaughtered in the mosque area (79.1%). The mean score of Knowledge was 11.22±2.16, Attitude was 11.40±2.20, and Practice was 47.05±3.69 with the range 3-15, 3-15, and 31-54, respectively. It can be concluded that there are gaps in knowledge, attitude, and practice regarding FMD and the festival. Most respondents (95.2%) agreed that a veterinarian should conduct health inspections of animals before and after slaughter, but due to a lack of human resources, inspections are sometimes conducted by veterinary students or not at all. Even though control measures for FMD, including surveillance, strengthened biosecurity, quarantine, limited culling, movement restrictions on animals and animal products based on district and city zoning, and vaccination, are being implemented by the government, targeted interventions to enhance community awareness and preparedness are essential for mitigating the spread of infectious disease, particularly during the Eid al-Adha celebration.

Y-10 Faculty of Veterinary Medicine, Rakuno Gakuen University: Sen. Lect. Dr. Takahiro Ishizaki

Unlocking archived trematode specimens: Optimized DNA extraction from formalin fixed rumen fluke

Takahiro ISHIZAKI

Parasitology and Zoology Unit, School of Vet. Med.,
Rakuno Gakuen University, Ebetsu, Hokkaido, Japan

Abstract:

Formalin solutions have been uses as tissue fixatives across diverse research fields. During formalin fixation, formaldehyde stabilizes protein structures by forming methylene bridges with amino groups in tissues. Conversely, formalin also generates crosslinks with amino groups in DNA, and formic acid produced via oxidation damage DNA, leading to fragmentation and denaturation. Consequently, DNA extraction from formalin-fixed specimens and subsequent PCR amplification have traditionally been regarded as technically challenging.

Paramphistomum parasitizing the rumen and reticulum of ruminants comprise 20 genera and 76 species worldwide. Although species identification of these trematodes required morphological examination of serial sections (Sey 1987), the complexity of the procedure has resulted in numerous formalin-fixed specimens that remain unidentified samples. If DNA suitable for molecular analysis could be extracted from archived specimens, it would allow retrospective reconstruction of historical patterns of parasite distribution. Here, we aimed to optimize a DNA extraction protocol from formalin fixed *Paramphistomum* specimens to enable molecular species identification.

THAMMASAT UNIVERSITY
FACULTY OF PUBLIC HEALTH

北海道大学
One Health
リサーチセンター

IVReD