WOAH Collaborative Centre Reports Activities 2022

Activities in 2022

This report has been submitted : 18 février 2023 15:24

Centre Information

Title of WOAH Collaborating Centre	
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Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):	Professor Dr. Kohei Makita, Head Division of Preventive Veterinary Medicine, Department of Veterinary Medicine
Name of the writer:	Dr. Kohei Makita

TOR1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAH

TOR3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main fucus

area for which you were designated

Proposal title	Scope/Content	Applicable area
FAO/WHO/WOAH One Health Field Epidemiology Competency Framework and Training Manuals Technical Advisory Group	Dr. Makita at RGU contributed to meetings as an expert.	Training and education
21st Federation of Asian Veterinary Associations (FAVA) Congress	RGU contributed as a chairperson and a member of Pharmaceutical Stewardship Standing Committee held November 12, 2022.	Laboratory expertise Veterinary products
Antimicrobial Drug Resistance Working Group for the Food Safety Commission of Japan	Dr. Makita at RGU contributed as a member of the AMR Working Group for the Food Safety Commission of Japan.	Laboratory expertise Veterinary products
FAO Expert Meeting on Microplastics	NCFS participated in the meeting between 10-20 January 2022, as part of an expert review of a draft document titled “Microplastics in foods: current status and future perspectives".	Laboratory expertise Training and education
ASEAN Training Workshop on Food Sampling	Training Workshop on Food Safety Sampling held between 21 and 25 February 2022. The workshop is organised with the objective to increase the capacity of the ASEAN Member States’ national competent authorities in establishing and enhancing food safety sampling practices for preventive surveillance and foodborne outbreak investigations.	Laboratory expertise Training and education
Workshop on Microbiological Risk Assessment	Workshop on Microbiological Risk Assessment held on 17 March 2022. NCFS participated in the workshop to: a) To enhance knowledge on food safety risk analysis among risk managers and risk assessors b) To provide the latest updates on microbiological risk analysis c) To strengthen interactions and communication between risk managers and risk assessors	Laboratory expertise Training and education
20th International Akademie Fresenius Online Conference on “Food Safety and Dietary Risk Assessment”	NCFS participated in the conference on 24 and 25 March 2022, to further understand insights on: a) Regulatory Framework and Guideline Developments b) Dietary Risk Assessment and Evaluation of Metabolites c) Cumulative Dietary Risk Assessment.	Laboratory expertise Training and education
Workshop on Food Safety Risk	NCFS participated this workshop between 25 - 28 March 2022, to further understand food safety risk	Laboratory expertise

Communication	communication and its application in food emergency responses and rapid alert systems.	Training and education
Codex Committee on Contaminants in Food	15th Session of the Codex Committee on Contaminants in Food held from 4-25 May 2022. NCFS participated in the Session to: a) establish or endorse permitted maximum levels or guidelines levels for contaminants and naturally occurring toxicants in food and feed b) prepare priority lists of contaminants and naturally occurring toxicants for risk assessment by the Joint FAO/WHO Expert Committee on Food Additives c) consider methods of analysis and sampling for the determination of contaminants and naturally occurring toxicants in food and feed d) consider and elaborate standards or codes of practice for related subjects; and e) consider other matters assigned to it by the Commission in relation to contaminants and naturally occurring toxicants in food and feed."	Laboratory expertise Training and education
Codex Committee on Pesticide Residues	53th Session of the Codex Committee on Pesticide Residues held between 4-8 July and on 13 July 2022. NCFS participated in the Session to: NCFS contributed actively to the deliberation of several important topics of the 53rd CCPR, including the feasible ways of management of unsupported compounds without public health concern scheduled for periodic review by JMPR, possible options for addressing Codex MRLs for the legacy pesticide chlorpyrifos and chlorpyrifos methyl amid public health concerns raised by some countries, and setting of Codex guidelines for monitoring the purity and stability of certified reference materials during prolonged storage, among other matters.	Laboratory expertise Training and education
2nd International Electronic Conference on Antibiotics-Drugs for Superbugs: Antibiotic Discovery, Modes of Action and Mechanisms of Resistance	NCFS participated in the event between 15 and 30 June 2022, which provided a common platform for the discussion and sharing on the latest research for the advancement on antimicrobial resistance.	Laboratory expertise Training and education
3rd Meeting of the AMU/AMR Technical Advisory Group (TAG) for Southeast Asia	NCFS co-hosted with FAO the 3rd Meeting of the AMU/AMR Technical Advisory Group (TAG) for Southeast Asia between 20-22 September 2022.	Laboratory expertise Training and education
Recent Advances in Food Analysis (RAFA 2021)	NCFS participated in the RAFA 2021 symposium between 3-4 November 2022, to gain insights into contemporary trends in analytical & bioanalytical strategies in food quality and safety control and	Laboratory expertise Training and education

	discuss challenges/ novel approaches in food and natural product analysis.	
APEC Whole Genomic Sequencing (WGS) training workshop	NCFS participated in the workshop held between 15 and 17 August 2022, to understand how WGS data were generally used in tandem with epidemiological data for inference.	Laboratory expertise Training and education
21st IUFoST World Congress of Food Science and Technology	NCFS was one of the Jury for 21st IUFoST "Food Safety Without Borders Paper Competition"	Training and education
Development of food allergy diagnosis technology	UT developed a technology for quantitative evaluation of allergy symptoms using urine from patients and animals. This technology can be applied not only to the diagnosis of patients and affected animals, but also to the antigenic evaluation of foods.	Laboratory expertise

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
WOAH CC for Food Safety Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM)	Italy	Europe	Planning joint online workshop by RGU. IZSAM directed to WOAH RL for Brucellosis within the institute.
WOAH CC for Food Safety Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM)	Italy	Europe	UT visited to investigate AMU monitoring system in livestock in Italy

TOR4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose

WOAH RL for Brucellosis Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise (IZSAM)	Italy	Europe	Organizing Virtual Workshop on Brucellosis Control in the Asia Pacific Region, 2022 December 15 by WOAH in collaboration with RGU
WOAH RL for Brucellosis National Institute of Animal Health	Thailand	Asia and Pasific	Organizing Virtual Workshop on Brucellosis Control in the Asia Pacific Region, 2022 December 15 by WOAH in collaboration with RGU
WOAH RL for Brucellosis Animal and Plant Quarantine Agency	South Korea	Asia and Pasific	Organizing Virtual Workshop on Brucellosis Control in the Asia Pacific Region, 2022 December 15 by WOAH in collaboration with RGU
WOAH CC for Diagnosis and Control of Animal Diseases and Related Veterinary Product Assessment in Asia National Veterinary Assay Laboratory	Japan	Asia and Pasific	UT and RGU: Collaborative research on antimicrobial use and drug resistance in livestock and companion animals
WOAH CC for Diagnosis and Control of Animal Diseases and Related Veterinary Product Assessment in Asia National Institute of Animal Health	Japan	Asia and Pasific	Collaborative research on classical swine fever by RGU
WOAH RL for Rabies Onderstepoort Veterinary Research	Republic of South Africa	Africa	Research and publication on epidemiology of dog, human and wildlife rabies

TOR6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAH?

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
Kohei MAKITA (RGU)	Facilitation of WOAH virtual workshop	WOAH Virtual Workshop on Brucellosis Control in the Asia Pacific Region, 2022 December 15

Tomoko ISHIBASHI (UT)	Provision of advice and coordination of discussion	WOAH Working Group on Antimicrobial Resistance

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

Yes

RGU provided advice and technical service to researchers from the Central Laboratory, Veterinary Research Institute, and Life Science University of Mongolia for epidemiology, infectious disease modelling and dairy herd health, upon request from Mongolia.

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOAH, to personnel from WOAH Members?

Yes

a) Technical visit : 136

b) Seminars : 293

c) Hands-on training courses: 8

d) Internships (>1 month) : 31

TYPE OF TECHNICAL TRAINING PROVIDED (A, B, C OR D)	CONTENT	COUNTRY OF ORIGIN OF THE EXPERT(S) PROVIDED WITH TRAINING	NO. PARTICIPANTS FROM THE CORRESPONDING COUNTRY
a	Technical visit by Nestle Head of Regulatory and Scientific Affairs	Singapore	5
a	Technical visit from participants at the 21st IUFoST World Congress of Food Science & Technology 2022	Singapore	30
a	Technical visit by delegates from India Food Safety and Standards Authority	Singapore	11
a	Technical visit by ILSI SEA and government delegation from Fiji	Fiji	8
a	Technical visit by participants from the SFA Foundation Programme	Singapore	30
a	Technical visit by participants from Vietnam National Institute of Food Control (NIFC)	Singapore	24

a	Technical visit by participants from the Laboratory Recognition Programme	Singapore	28
b	JICA seminar on the use of epidemiology for controlling animal infectious and zoonotic diseases, 2022 May, Ulaanbaatar, Mongolia	Mongolia	80
b	WOAH virtual Workshop on Brucellosis Control in the Asia Pacific Region, 2022 December 15	Asia and Pacific	110
b	A follow-up event of the Veterinary Education Twinning Project 2018-2021	Cambodia	50
b	Bridging Clinical Findings to Basic Research: Connecting UT and NTU	Taiwan	53
c	JICA hands on training course for herd health and epidemiology, 2022 November	Mongolia	5
c	Training of veterinary drugs testing in eggs	Singapore	3
d	Provided JICA training on epidemiology, 2022 October - December	Mongolia	2
d	Internships at NCFS	Singapore	29

TOR8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAH?

TOR9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAH that may be useful to Members of WOAH

a) Articles published in peer-reviewed journals:

69

1. Fukuda A, Nakano H, Suzuki Y, Nakajima C, Usui M. 2022. Conjugative IncHI2/HI2A plasmids harbouring mcr-9 in colistin-susceptible Escherichia coli isolated from diseased pigs in Japan. Access Microbiol. 4. 000454.*

2. Usui M, Tamura Y, Asai T. 2022. Current Status and Future Perspective of Antimicrobial-Resistant Bacteria and Resistance Genes in Animal-Breeding Environments. J Vet Med Sci.84. 1292-1298.

3. Usui M, Fukuda A, Suzuki Y, Nakajima C, Tamura Y. 2022. Broad-host-range IncW plasmid harbouring tet(X) in Escherichia coli isolated from pigs in Japan. J Glob Antimicrob Resist. 22, 97-101.*

4. Usui M, Tase J, Onozaki M, Suzuki Y, Tamura Y, Nakajima C. 2022. Campylobacter Express Resistance Array for detecting the presence of fluorqouinolone- and macrolide-resistant Campylobacter jejuni and Cammpylobacter coli in broiler farms. J Appl Microbiol. 132. 3249-3255.*

5. Usui M, Tateno S, Onozaki M, Misawa N, Suzuki Y, Tamura Y, Nakajima C. 2021. Rapid and simultaneous detection of fluoroquinolone- and macrolide-resistant Campylobacter jejuni/coli in retail chicken meat using CAMpylobacter Express Resistance Array (CAMERA). Food Control 123:107815.*

6. Usui M, Nozawa Y, Fukuda A, Sato T, Yamada M, Makita K, Tamura Y. 2021. Decreased colistin resistance and mcr-1 prevalence in pig-derived Escherichia coli in Japan after banning colistin as a feed additive. J Glob Antimicrob Resist 24:383-386.*

7. Tsunoda R, Usui M, Tagaki C, Fukuda A, Boonla C, Anomasiri W, Sukpanyatham N, Akapelwa ML, Nakajima C, Tamura Y, Suzuki Y. 2021. Genetic characterization of coliform bacterial isolates from environmental water in Thailand. J Infect Chemother 27:722-728.*

8. Sabala RF, Usui M, Tamura Y, Abd-Elghany SM, Sallam KI, Elgazzar MM. 2021. Prevalence of colistin-resistant Escherichia coli harbouring mcr-1 in raw beef and ready-to-eat beef products in Egypt. Food Control 119:107436.*

9. Kimura J, Kudo H, Fukuda A, Yamada M, Makita K, Oka K, Takahashi M, Tamura Y, Usui M. 2022. Decreasing the Abundance of Tetracycline-Resistant Escherichia coli in Pig Feces During Nursery Using Flavophospholipol as a Pig Feed Additive. Vet Anim Sci. 15. 100236.*

10. Miyazato Y, Iwamoto N, Usui M, Sato T, Miyoshi-Akiyama T, Nagashima M, Maezaki K, Hayakawa K, Ohmagari N. 2022. Chromosomal coharboring of blaIMP-60 and mcr-9 in Enterobacter asburiae isolated from a Japanese woman with empyema: a case report. BMC Infect Dis. 22, 762.

11. Sato T, Harada K, Usui M, Yokota S, Horiuchi M. 2022. Colistin susceptibility in companion animal-derived Escherichia coli, Klebsiella spp., and Enterobacter spp. in Japan: Frequent isolation of colistin-resistant Enterobacter cloacae complex. Front Cell Infect Microbiol. 12: 94841.

12. Azuma T, Uchiyama T, Zhang D, Usui M, Hayashi T. 2022. Distribution and characteristics of carbapenem-resistant and extended-spectrum beta-lactamase (ESBL)-producing Escherichia coli in hospital effluents, sewage treatment plants, and river water in an urban area of Japan. Sci Total Environ. 839. 156232.*

13. Gondaira S, Fujiki J, Hirano Y, Murata R, Uchida I, Usui M, Iwasaki T, Okabayashi T, Iwano H, Higuchi H. 2022. Whole-Genome Sequencing of a Pasteurella multocida Strain Pm1 Isolated from Bovine. Microbiol Resour Announc. e0004222.

14. Fukuda A, Nakamura H, Umeda K, Yamamoto K, Hirai Y, Usui M, Ogasawara J. 2022. Infiltration of hidden antimicrobial resistance among healthy people in a Japanese community. JAC-Antimicrobial Resistance. 4. dlac031.*

15. Kakita T, Shigemura H, Fukuda A, Katamune C, Nidaira M, Kudeken T, Kyan H. 2022. Antimicrobial resistance and molecular epidemiological analysis of Escherichia fergusonii harboringthe mcr gene in pigs and broiler chickens in Okinawa, Japan. J Vet Med Sci. DOI: 10.1292/jvms.22-0288

16. Nakada S, Fujimoto Y, Kohara J, Makita K, Economic losses associated with mastitis due to bovine leukemia virus infection, Journal of Dairy Science, 106, 1, 2022

17. Kamata Y, Tojinbara K, Hampson K, Makita K, The final stages of dog rabies elimination from Japan, Zoonoses and Public Health, 12989, 2022

18. Mogano K, Suzuki T, Mohale D, Phahladira B, Ngoepe E, Kamata Y, Chirima G, Sabeta C, Makita K, Spatio-temporal epidemiology of animal and human rabies in northern South Africa between 1998 and 2017, PLOS Neglected Tropical Diseases, 16, e0010464, 2022

19. Bonfoh B, Koné B, Koffi Y, Miyama T, Fujimoto Y, Fokou G, Zinsstag J, Sugimura R, Makita K, Healthy Aging: Comparative Analysis of Local Perception and Diet in Two Health Districts of Côte d'Ivoire and Japan, Frontiers in Aging, 3, , 2022

20. Asakura S, Makingi G, John K, Kazwala R, Makita K, Use of a Participatory Method for Community-Based Brucellosis Control Design in Agro-Pastoral Areas in Tanzania, Frontiers in Veterinary Science, 9, , 2022

21. Itami T, Hanazono K, Makita K, Yamashita K, Cardiovascular effects of intravenous pimobendan in dogs with acute respiratory acidosis, Journal of Veterinary Emergency and Critical Care, 32, 341-349, 2022

22. Ngoepe E, Chirima JG, Mohale D, Mogano K, Suzuki T, Makita K, Sabeta CT. Rabies outbreak in black-backed jackals (Canis mesomelas), South Africa, 2016., Epidemiology and Infection, 1-42, 2022
23. Fukumoto F, Kimura Y, Tsutsumi A, Hori A, Tanaka A, Ukita M, Makita K, The impact of coronavirus disease 2019 (COVID-19) in Japanese companion animal clinics, Journal of Veterinary Medical Science, 84, 1041-1050, 2022
24. Nakada S, Fujimoto Y, Kohara J, Adachi Y, Makita K, Estimation of economic loss by carcass weight reduction of Japanese dairy cows due to infection with bovine leukemia virus, Preventive Veterinary Medicine, 198, 105528, 2022
25. Uchida L, Sakurai Y, Shimooka M, Morales-Vargas RE, Hagiwara K, Muramatsu Y. Identification of three novel genes in Phenuiviridae detected from Aedes mosquitoes in Hokkaido, Japan. Jpn J Infect Dis. 2022 Sep 30; Online ahead of print.
26. Satoh H, Gondaira S, Higuchi H, Ueda H, Nohara M, Nagahata H, Comparing chemiluminescent response and intracellular bactericidal activity of bovine blood neutrophils and monocytes against Salmonella Dublin and Escherichia coli. Jpn. J. Vet. Res., 70, 71-77, 2022. doi: 10.14943/jjvr.70.2.71
27. Lai J, Lin H, Hsu P, Gondaira S, Higuchi H, Nagahata H, A novel polymerase chain reaction assay for the detection of seven Mycoplasma species of cattle origin., World J. Microbiol. Biotechnol., 38, 128, 2022. doi: 10.1007/s11274-022-03312-6.
28. Nagahata H, Fuse M, Umehara K, Gondaira S, Higuchi H, Hisaeda K, Kumano Y, Evaluation of the health status of mammary glands and compositional changes in udder-half milk obtained from dairy goats for milk quality management., Anim. Sci. J., 93, e13714, 2022. doi: 10.1111/asj.13714
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32. Fukumori R, Takayama Y, Izumi K, Oikawa S. Effects of digestive drug containing betaine hydrochloride on dry matter intake, rumen profiles, and blood concentrations of gut hormones in non-lactating cows. The Japanese Journal of Animal Hygiene 47:197-204. 2022.
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65. Uchida Kenji, Kenichi Iida, Ikumi Fujioka, Satoshi Hachimura, and Osamu Kaminuma. 2022. Suppressive Effect of Lactococcus Lactis Subsp. Cremoris YRC3780 on a Murine Model of Japanese Cedar Pollinosis. Pathogens 11 (11). https://doi.org/10.3390/pathogens11111347.
66. Vitor Rodel Jonathan Santos, 2nd, Ryota Tochinai, Shin-Ichi Sekizawa, and Masayoshi Kuwahara. 2022. Favorable Effects of Virgin Coconut Oil on Neuronal Damage and Mortality after a Stroke Incidence in the Stroke-Prone Spontaneously Hypertensive Rat. Life 12 (11). https://doi.org/10.3390/life12111857.
67. Yamaguchi Kosuke, Masanori Itakura, Mona Tsukamoto, Sei-Young Lim, and Koji Uchida. 2022. Natural Polyphenols Convert Proteins into Histone-Binding Ligands. The Journal of Biological Chemistry 298 (11): 102529.
68. Yoshitake Jun, Mayuko Azami, Haruka Sei, Daisuke Onoshima, Kumiko Takahashi, Akiyoshi Hirayama, Koji Uchida, Yoshinobu Baba, and Takahiro Shibata. 2022. Rapid Isolation of Extracellular Vesicles Using a Hydrophilic Porous Silica Gel-Based Size-Exclusion Chromatography Column. Analytical Chemistry 94 (40): 13676–81.
69. Zhou Yingyu, Tomohiro Takano, Xuyang Li, Yimei Wang, Rong Wang, Zhangliang Zhu, Masaru Tanokura, Takuya Miyakawa, and Satoshi Hachimura. 2022. β-Elemene Regulates M1-M2 Macrophage Balance through the ERK/JNK/P38 MAPK Signaling Pathway. Communications Biology 5 (1): 519.

b) International conferences:
39
1. Usui M. Potential Transmission of antimicrobial-resistant bacteria derived from livestock via vegetables in Japan. 2nd ICAVESS (The second International Conference of Advance Veterinary Science for Sustainable Development). Indonesia. 2022.9/17-18.
2. Usui M. Guidebook for antimicrobial therapy against Porcine Respiratory Disease Complex (PRDC) in Japan. Federation of Asian Veterinary Association Conference. 2022. 11/11.
3. Usui M. The importance of the environments as a transmission route of antimicrobial resistant bacteria. Federation of Asian Veterinary Association Conference. 2022. 11/11.
4. Fukuda A. Antimicrobial resistance among healthy people in Japanese community. 7th One Health Lecture Series. 2022.12/16.
5. Kudo H, Kimura J, Fukuda A, Higashi S, Oka K, Takahashi M, Usui M. The dynamic changes of tetracycline-resistance and fecal microbiota using flavophospholipol as a pig feed additive. 32nd ECCMID (European Congress of Clinical Microbiology & Infectious Diseases)2022. 2022.4/23-26.
6. Makita K, Okamura A, Fukuda A, Tetsuo A, Shimazaki Y, Usui M. Quantitative risk assessment for beta lactamase producing Escherichia coli of dairy origin in vegetables. 16th International Symposium of Veterinary Epidemiology and Economics (ISVEE16). 2022.8/7-12.
7. Ukita M, Kuwata K, Isoda N, Sakoda Y, Yamamoto T, Makita K, Development of evaluation methods for the vaccination policy against Classical Swine Fever at Japanese pig farms using a simulation model, The 16th International Society of Veterinary Epidemiology and Economics (ISVEE16). 2022.8/7-12.
8. Makita K, Mogano K, Kamata Y, Suzuki T, Sabeta C, Ecosystem analysis of human-dog-wildlife rabies in South Africa, International Webinar on Global Climate Change and Zoonotic Infectious Diseases. 25 April, 2022 (Youtube, Invited, Keynote)
9. Makita K, The way of harmonious spirit in disease emergence, The 23rd Khon Kaen Veterinary Annual International Conference (KVAC) 1 September, 2022 (Invited, keynote)
10. Makita K, Mogano K, Kamata Y, Suzuki T, Sabeta C, Ecosystem analysis of human-dog-wildlife rabies in South Africa, The Conference of The Korean Society for Zoonoses, 6 October, 2022 (Invited).
11. Makita K, Medical, veterinary, and economics collaborations for controlling brucellosis, One Health seminar Hokkaido University, 29 November, 2022 (Invited).
12. Makita K, Socio-economics of animal and human brucellosis. WOAH Virtual workshop: Brucellosis control in the Asia and Pacific Region. 15 December, 2022. Online.
13. Fukumori R, Hara K, Hiramatsu Y, Ito A, Arai K, Ashibe S, Nagao Y, Yamamoto H, Otani Y, Yasugi Y, Yoshiura Y, Sasaki A. Measurement of pH in the cow's rumen for high-quality dairy product. ASON 2022.
14. Matsuyama R, Kido N, Omori R. Development of a method to estimate the impact of disease mortality on wild animal populations using animal rescue data. 15th Asian Society of Conservation Medicine. Chiang Mai. October 2022.
15. Matsuyama R, Yamamoto T, Hayama Y, Omori R. Evaluating vaccine effectiveness for classical swine fever among wild boar considering their population dynamics. 16th International Symposium of Veterinary Epidemiology and Economics. Halifax. August 2022.
16. Calvin Yeo. 2022. Microplastics and Nanoplastics as an Emerging Food Contaminant: Gaps and Challenges. 12th Global Summit on Regulatory Science (GSRS22). Oral Presentation.

17. Dingyi Yu. 2022. Micro-/Nanoplastics(MPs/NPs) in Food: Analytical Developments and Challenge 12th Global Summit on Regulatory Science (GSRS22). Oral Presentation.
18. Yen Ching Lim. 2022. Characterisation Of Salmonella Weltervreden Isolates From Humans, Food, Wild Birds And Environment In Singapore. 7th World One Health Congress. Poster Presentation.
19. Muhd Tarmidzi. 2022. Harnessing data science for risk-based targeted inspection in prevention of foodborne disease outbreaks in Singapore. 7th World One Health Congress. Poster Presentation.
20. Lim Hui Yi. 2022. Non-targeted Analysis Strategy: Development and Applications. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
21. Chan Siew Herng. 2022. Beyond the conventional: Exploring a real-time PCR approach for accelerated detection and serotyping of Salmonella Enteritidis in shell eggs. 21st IUFoST World Congress of Food Science and Technology. Oral Presentation.
22. Geraldine Lim. 2022. Singaporeans Initiatives for Total Diet Study. 21st IUFoST World Congress of Food Science and Technology. Oral Presentation.
23. Alex Ng Yu Zhe. 2022. Leveraging data science towards smarter food safety system in Singapore. 21st IUFoST World Congress of Food Science and Technology. Oral Presentation.
24. Sri Harminda Hartantyo. 2022. Antimicrobial resistance characterisation of food-associated Klebsiella pneumoniae. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
25. Khor Wei Ching. 2022. Antimicrobial resistance in the food chain in Singapore. 21st IUFoST World Congress of Food Science and Technology. Oral Presentation.
26. Wang Yanwen. 2022. Quantification of meat proportions in processed meat products. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
27. Tan Yong Quan. 2022. Developing an agile food safety regulatory framework for cultured meat. 21st IUFoST World Congress of Food Science and Technology. Oral Presentation.
28. Li Haiyan. 2022. Micro-/Nanoplastics (MPs/NPs) in Food: Analytical Developments and Challenges. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
29. Bay Lian Jie. 2022. The Simultaneous Detection of Multiple Food Allergens via LC-MS/MS Technique. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
30. Ivan Ng. 2022. A Survey of Inorganic Arsenic in Infant Cereal Products. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
31. Ong Jun Xiang. 2022. A Study on the Background Radioactivity Levels in Domestic Food Produce in Singapore. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
32. Roshini Devi Mohan. 2022. Identification and Antibiotic-Susceptibility Profiling of Aeromonas species in seafood products along the food chain in Singapore. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
33. Teo Guat Shing. 2022. Monitoring illegal antibiotics in honey on Singapore market to safeguard public health. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
34. Chin Kek Foo. 2022. Sensitive detection of Ethylene-thiourea (ETU) and Propylene-thiourea (PTU) in fruits and vegetables. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
35. Raymond Shi Rong Sheng. 2022. Sensitive detection of food processing contaminants-heterocyclic aromatic amines (HAAs) in cooked food. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
36. Pang Jia Hao. 2022. Are phytotoxins potential food safety concerns? A market survey of phytotoxins in food from Singapore market. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
37. Ang Wei Min. 2022. A focus study on migration of harmful chemical contaminants from reusable bamboo fibre cups. 21st IUFoST World Congress of Food Science and Technology. Poster Presentation.
38. Patrick Gan. 2022. Exposure science and food consumption research: strategies and approaches to inform food safety measures. 21st IUFoST World Congress of Food Science and Technology. Oral Presentation.
39. Sim Kae Hwan. 2022. A metagenomics workflow for rapid detection and characterization of Group B Streptococcus (GBS) in fish. World Aquaculture Singapore (WAS) 2022 Conference. Oral Presentation.

c) National conferences:
44
1. Usui M, Current status of zoonotic antibiotic-resistant bacteria and appropriate use of antimicrobial agents. The 37th Annual Meeting of the Environmental Infection Control Society of Japan. 2022.6/17.
2. Usui M, AMR Issues at One Health. The 10th Medical Epidemiology Workshop. 2022. 7/2.

3. Fukuda A, Nakano H, Suzuki S, Nakajima C, Usui M. Conjugative plasmids harbouring mcr-9 in colistin-susceptible Escherichia coli isolated from pigs in Japan. 16th bacteriology young colosseum. 2022.8/25-27.
4. Nakano H, Fukuda A, Suzuki S, Nakajima C, Usui M. Sterilization Conditions for Heat- and Non-Heat-Resistant Bacteria in foods by Low-Temperature Cooking. 87th Japanese Society for Bacteriology Hokkaido branch. 2022.8/27.
5. Usui M, Current status and future prospects of zoonotic antibiotic-resistant bacteria. The 1st One Health Network Seminar. 2022. 8/27.
6. Zhang D, Fukuda A, Makita K, Suzuki M, Usui M. Fate of Antimicrobial Resistant Bacteria derived from Livestock Slurry in Manure Irrigation Facilities and Analysis of the Transmission Pathway to Soil. 71th Hokkaido Veterinary Medical Association. 2022.9/1-2.
7. Nakano H, Fukuda A, Suzuki S, Nakajima C, Usui M. Sterilization Conditions for Heat- and Non-Heat-Resistant Bacteria in foods by Low-Temperature Cooking. 71th Hokkaido Veterinary Medical Association. 2022.9/1-2.
8. Takeichi K, Fukuda A, Usui M. Relationship of possession of Clostridioides difficile and diarrhea in piglets, and genetic relatedness of C. difficile from piglets and human. 71th Hokkaido Veterinary Medical Association. 2022.9/1-2.
9. Zhang D, Fukuda A, Makita K, Suzuki M, Usui M. Fate of Antimicrobial Resistant Bacteria derived from Livestock Slurry in Manure Irrigation Facilities and Analysis of the Transmission Pathway to Soil.165th meeting of the Japanese Society of Veterinary Science. 2022.9/1-2.
10. Takeichi K, Fukuda A, Usui M. Potential for monitoring drug-resistant bacteria using wild deer used for gibier. 165th meeting of the Japanese Society of Veterinary Science. 2022.9/1-2.
11. Kawabata Y, Ishikawa H, Oeda N, Tetsuo A, Nakajima C, Suzuki S, Fukuda A, Usui M. Elucidating the Potential for Disinfectants to Act as a Selection Pressure for Antimicrobial Resistant Plasmids. 165th meeting of the Japanese Society of Veterinary Science. 2022.9/1-2.
12. Sato T, Tachibana T, Tamai S, Hoshino Y, Torigoe S, Sakakibara S, Fukuda A, Okubo T, Usui M, Tsukamoto S, Takahashi S, Yokota S, Tamura Y, Horiuchi M. Based on the One Health Approach, Elucidation of the Mode of Spread and Establishment of Fluoroquinolone-Resistant Escherichia coli in the Community. 165th meeting of the Japanese Society of Veterinary Science. 2022.9/1-2.
13. Fukuda A, Tyo T, Suzuki M, Kohei M, Usui M. Amount of resistant bacteria/resistant genes transmitted to soil and crops by application of livestock excrement treatments on the same farm. 43th Japanese Society of Food Microbiology. 2022.9/29-30.
14. Usui M. Current status and future prospects of zoonotic antibiotic-resistant bacteria. 71th The Japanese Association for Infectious Disease East Japan Regional Meeting. 2022/10/26-28.
15. Fukuda A, Usui M. Situation of antimicrobial resistance among healthy people in Japanese community. 71th The Japanese Association for Infectious Disease East Japan Regional Meeting. 2022/10/26-28.
16. Makita K, Usui M, Shimazaki Y. The predicted and measured changes in the risk of colistin resistant bacteria after the implementation of risk management. The 59th Japanese Society of Veterinary Epidemiology, 20 March, 2022, Online.
17. Okamoto A, Yokoyama A, Makita K. The establishment of estimating method for central part of cattle meat using outside temperature and carcass weight. The 59th Japanese Society of Veterinary Epidemiology, 20 March, 2022, Online.
18. Shimazaki H, Moriyama K, Nakada S, Kaneto K, Fujimoto Y, Makita K. Economic effect of hygiene measures on dairy farms in Betsukai town, Hokkaido. The 59th Japanese Society of Veterinary Epidemiology, 20 March, 2022, Online.
19. Ukita M, Isoda N, Yamamoto T, Makita K. Comparison of the hygiene management practices between classical swine fever (CSF)-infected and non-infected farms in the CSF-occurred prefectures. The 59th Japanese Society of Veterinary Epidemiology, 20 March, 2022, Online.
20. Kayano T, Miyama T, Makita K. A qualitative retrospective study on the occurrence of troubles and solution in an international project in Uganda. The 165th Japanese Society of Veterinary Science, 6-8 September, 2022, Online.
21. Sugino Y, Vaseeharan S, Kothalawaka KACHA, Makita K. Descriptive epidemiology on bovine brucellosis in dairy farms in northern Sri Lanka. The 165th Japanese Society of Veterinary Science, 6-8 September, 2022, Online.
22. Ozawa M, Shirakawa T, Uchiyama M, Kawanishi M, Miyata R, Makita K, Kijima M. Mechanism of co-selection in Escherichia coli of swine origin. The 165th Japanese Society of Veterinary Science, 6-8 September, 2022, Online.
23. Ukita M, Matsuyama R, Isoda N, Omori R, Yamamoto T, Makita K. Investigation into effective hygiene measures against classical swine fever outbreaks in pig farms. The 165th Japanese Society of Veterinary Science, 6-8 September, 2022, Online.
24. Imano T, Kawazoe T, Makita K. A qualitative study on the effect of coronavirus disease 2019 on animal assisted therapy activities. The 165th Japanese Society of Veterinary Science, 6-8 September, 2022, Online.
25. Makita K. Potential in the progress of livestock clinical science in view of epidemiology. Tohoku Region NOSAI Conference of Livestock Clinical Technologies. 25 October, 2022, Online (Invited, Plenary).
26. Makita K. Overview of classical swine fever epidemic in Japan. Symposium of Japan Society of Wildlife Medicine. November 26th, 2022 (Invited, Plenary).
27. Makita K. Workshop: how can we use epidemiology? In: Using epidemiology in livestock farms: challenge and solutions for the application. Symposium of Society of Livestock Infectious Diseases. 3 December, 2022, Ariake Central Tower Hall, Tokyo, Japan (Invited).
28. Development of a virtual reality system of slaughtering inspections training in veterinary education. Uchida L, Chisato K, Iwaya T,

Narisawa A, Makita K. The 165th meeting of the Japanese Society of Veterinary Science, Kanagawa, 7 Sep 2022.
29. Uchida L, Sakurai Y, Shimooka M, Morales-Vargas RE, Hagiwara K, Muramatsu Y. Identification of novel mosquito-specific viruses belonging to Flaviviridae and Phenuiviridae in Aedes mosquitoes from Hokkaido, Japan. The 28th meeting of the society of Togaviruses, Flaviviruses and Pestiviruses research, Nagasaki, 12 Nov 2022.
30. Uchida L, Kawae S, Shimooka M, Eshita Y, Orba Y, Sawa H, Muramatsu Y. Zika Virus Potential Vectors among Aedes Mosquitoes from Hokkaido, Japan. The 69th Annual meeting of the Japanese Society for Virology, Nagasaki, 14 Nov 2022.
31. Shimooka M, Miki K, Sasaki R, Eshita Y, Orba Y, Sawa H, Muramatsu Y. Uchida L. Genetic variation of Zika virus propagated in three different Aedes mosquitoes. The 69th Annual meeting of the Japanese Society for Virology, Nagasaki, 14 Nov 2022.
32. Chisato K, Fukumori R, Oikawa S. Epidemiological study of postpartum subclinical and clinical ketosis cows in Hokkaido, Japan. The annual meeting of Japanese Animal Hygiene. 2022.
33. Sato H, Oguchi K, Kayasaki S, Maruyama K, Katsura J, Hasegawa A, Chisato K, Fukumori R, Oikawa S. The studies on failure passive transfer and colostrum of dairy calves in East Hokkaido, Japan. The annual meeting of Japanese Animal Hygiene. 2022.
34. Kayasaki S, Chisato K, Fukumori R, Oikawa S. Actual losses associated with the percentage of calf deaths in the first month of life on dairy farms in the East Hokkaido, Japan. The annual meeting of Japanese Animal Hygiene. 2022.
35. Hirose M, Nakayama T, Fukumori R, Chisato K, Oikawa S, Shimada K, Norimura I, Izumi K. The effect of lactose content in milk replacer on blood parameter, digestibility and faecal score in dairy calves. The annual meeting of Japanese Animal Science. 2022.
36. Nakayama T, Hirose M, Fukumori R, Chisato K, Shimada K, Mineo H, Norimura I, Izumi K, Gondaira S, Higuchi H, Oikawa S. The effect of lactose content in milk replacer on intestinal permeability and inflammatory related mRNA expression in the liver of dairy calves. The annual meeting of Japanese Animal Science. 2022.
37. Chisato K, Fukumori R, Oikawa S. Survey of the incidence of postpartum type 1 and type 2 subclinical ketosis in Hokkaido, Japan. The annual meeting of Japanese Veterinary and Medical Science. 2022.
38. Suzuki K, Oikawa S, Fukumori R, Chisato K, Sawada Y, Ishizawa M, Shintani T. Predictive indicators of postpartum subclinical ketosis in dairy cows during the dry period. The annual meeting of Japanese Veterinary and Medical Science. 2022.
39. Ishizaka M, Oikawa S, Fukumori R, Chisato K, Shintani T, Suzuki K, Sawada Y. Early detection and prevention of ketosis cows in dry period using on-farm blood test system. The annual meeting of Japanese Veterinary and Medical Science. 2022.
40. Shintani T, Oikawa S, Fukumori R, Chisato K, Ishizaka M, Suzuki K, Sawada Y. Comparison of lipid metabolism profiles during the transition period in cows with high and low levels of non-esterified fatty acids in blood. The annual meeting of Japanese Veterinary and Medical Science. 2022.
41. Sawada Y, Fukumori R, Chisato K, Oikawa S, Shintani T, Ishizawa M, Suzuki K. Estimation of blood concentrations of non-esterified fatty acids by percentage of preformed fatty acids in milk of dairy cows and their use in herd health management. The annual meeting of Japanese Veterinary and Medical Science. 2022.
42. Oikawa S, Fukumori R, Chisato K. Blood markers for health monitoring in dairy herds. Symposium 7, The annual meeting of Japan Society of Clinical Chemistry. 2022.
43. Uchida Koji. Immune Memory of Food via Protein Modification. The 49th Annual Meeting of the Japanese Society of Toxicology. 2022/6/30—2022/7/2.
44. Takahisa Murata. The role of prostaglandin D2 and its receptor-mediating signaling in food allergy. The 71st Annual Meeting of Japanese Society of Allergology. 2022/10/8.

d) Other (Provide website address or link to appropriate information):

11. What have you done in the past year to advance your area of focus, e.g. updated technology?
UT established a laboratory for research on immunity and biological functions of animals. RGU improved curriculum, facility, and quality assurance system to meet the standards for European Association of Establishments of Veterinary Education (EAEVE). RGU expanded the capacity of infectious disease modelling by new recruitment.

12. Additional comments regarding your report: