

# WOAH Collaborative Centre Reports Activities 2022

## Activities in 2022

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### Centre Information

<b>Title of WOAHCollaborating Centre</b>	Diagnosis and Control of animal diseases and related veterinary product assessment in Asia
<b>Address of WOAHCollaborating Centre</b>	(1)National Veterinary Assay Laboratory, 1-15-1 Tokura Kokubunji Tokyo 185-8511, JAPAN (2)National Institute of Animal Health, NARO 3-1-5 Kannondai Tsukuba Ibaraki 305-0856, JAPAN
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<b>Name Director of Institute (Responsible Official):</b>	(1)National Veterinary Assay Laboratory: Dr. SHIMAZAKI Tomoaki (2)National Institute of Animal Health, NARO:Dr. KATSUTA Ken
<b>Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):</b>	Dr. KAWASHIMA Kenji. Deputy Director, Department of Research Promotion, National Institute of Animal Health, NARO
<b>Name of the writer:</b>	(1)NVAL: Dr. OCHIAI Mariko (2)NIAH.NARO: Dr.SHIBAHARA Tomoyuki

### 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 WOAHC

Veterinary medicinal products

Title of activity

Scope

<p>Japan-Thailand EPA Training on Veterinary Medicinal Products, online, 14-28th March, 2022</p>	<p>Dr. IWAMOTO Shoko and Dr. SAKAKI Hajime organised the online training for Quality control of Veterinary Medical Products as part of the framework for Japan-Thailand project.</p>
<p>Veterinary medicinal products</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>Regional Seminar for OIE National Focal Points for Veterinary Products (7th cycle), online, 25-26th April, 2022</p>	<p>Dr. NODA Ken participated as Focal point of Japan. Dr. OCHIAI Mariko, Dr. IWAMOTO Shoko and Dr. FURUYA Yukari participated as coordinators and facilitators of the meeting. Dr. MATSUDA Mari participated as an expert of AMR and AMU monitoring.</p>
<p>Veterinary medicinal products</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>Peer review of the list of Antimicrobial Agents of Veterinary Importance for aquatic species.</p>	<p>Dr. TAKAHASI Nobuyuki peer reviewed "Technical Reference Document Listing Antimicrobial Agents of Veterinary Importance for Aquatic Species", that a WOAHA ad hoc Group developed.</p>
<p>Veterinary medicinal products</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>WOAH ANIMUSE Launch Event, 19th September, 2022</p>	<p>Dr. MATSUDA Mari and Dr. FURUYA Yukari participated as an expert of AMR and AMU monitoring.</p>
<p>Veterinary medicinal products</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>11th Meeting of OIE AMU Database Technical Reference Group (TRG) 16th, February, 2022</p>	<p>Dr. MATSUDA Mari participated as a member of TRG.</p>
<p>Veterinary medicinal products</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>12th Meeting of OIE AMU Database Technical Reference Group (TRG) 15th, June, 2022</p>	<p>Dr. MATSUDA Mari participated as a member of TRG.</p>
<p>Veterinary medicinal products</p>	
<p>Title of activity</p>	<p>Scope</p>

FAO/OIE/WHO Tripartite AMR EU fund project 12th May, 2022	Dr. FURUYA Yukari participated as an expert of AMR.
Veterinary medicinal products	
Title of activity	Scope
FAO RAP Virtual Learning Suite on AMR Course 1 1st – 19th August, 2022 Course 2 22th August- 9th September, 2022	Dr. FURUYA Yukari participated as a trainee.
Veterinary medicinal products	
Title of activity	Scope
2nd MFDS Global Conference on Foodborne Antimicrobial Resistance, 27-28th, September, 2022	Dr. KAWANISHI Michiko and Dr. FURUYA Yukari participated as an expert of AMR.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
The 2022 Global African Swine Fever Research Alliance (GARA) scientific meeting, 24-27th May, 2022	Dr. KOKUHO Takehiro and Dr. KITAMURA Tomoya participated as an expert of African swine fever.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Meeting of the WOAHA Biological Standards Commission, Paris, 5-9th September, 2022	Dr. KAWAJI Satoko participated as an expert of a member of OIE Biological Standards Commission
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Bilateral International Program (Vietnam): For field verification of ASF/CSF test kits in Vietnam (National Institute of Veterinary Research: NIVR), 16-20th October, 2022	Dr. KOKUHO Takehiro, Dr. MASUJIN Kentaro, Dr. Kameyama Ken-ichiro, Dr. NISHI Tatsuya, Dr. KITAMURA Tomoya participated as an expert of African swine fever.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
5th Outreach Meeting for Maintaining Global Freedom from	Dr. KOKUHO Takehiro and Dr. KONDO Sonoko participated as a

Rinderpest, 27-28th September, 2022	reference laboratory of Rinderpest and a liaison officer.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Regional Laboratory Expert Network Meeting on avian influenza and other avian diseases in the Asia-Pacific region, 1-2nd November, 2022	Dr. MINE Junki participated as an expert of avian influenza.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
WOAH Regional Laboratory Expert Network Meeting on ASF for Asia, 2-4th November 2022	Dr. KOKUHO Takehiro and Dr. SAWAI Kotaro participated as an expert of African swine fever.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Preparatory meeting on bilateral international joint research with Regional Reference Laboratory for Foot and Mouth Disease in South East Asia (Thailand), 7-9th November, 2022	Dr. FUKAI Katsuhiko participated as an expert of foot-and-mouth disease.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
2022 Joint Annual Meeting of The Entomological Society of America (ESA), Entomological Society of Canada (ESC), and the Entomological Society of British Columbia (ESBC), 13-16th November, 2022	Dr. Takamatsu Daisuke participated as an expert of foul brood.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Meeting for Antimicrobial Resistance (AMR) in Sri Lanka, and sampling of wastewater and environmental water samples, 13-22th December, 2022	Dr. GURUGE Keerthi Siri participated as an expert of AMR.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Meeting of the WOAH Biological Standards Commission, virtual meeting, 7-11th February, 2022.	Dr. KAWAJI Satoko participated as an expert of a member of OIE Biological Standards Commission.

## TOR3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main focus area for which you were designated

Proposal title	Scope/Content	Applicable area
Revision of the VICH GLs concerning studies to evaluate the safety of residues of veterinary drugs in human food.	To revise the VICH GL23R (genotoxicity testing) To revise the VICH GL22 (reproduction studies)	Veterinary products
Development or revision of the VICH GLs concerning studies to evaluate the metabolism and residue kinetics of veterinary drugs in food-producing animals/species.	To revise the VICH GL49R (guidelines for the validation of analytical methods used in residue depletion studies)	Veterinary products
Development of VICH GLs concerning testing of biologicals.	To develop the new VICH GL (test on the presence of extraneous viruses in veterinary vaccines) To develop the new VICH GL (test on safety evaluation of biotechnology- derived/biological products)	Veterinary products
Development of VICH GL concerning quality testing of new drug substances.	To revise the VICH GL18R (guidelines for impurities: residual solvents in new veterinary medicinal products, active substances and excipients)	Veterinary products
Revisions of the VICH GLs concerning studies to evaluate the efficacy of anthelmintics	To revise the VICH GLs 7, 12 to 16 and 19 to 21.	Veterinary products
Development of VICH GL concerning combination products.	To develop the new VICH GL (General GL on Pharmaceutical Combination Products)	Veterinary products
Development of VICH GL concerning waiving on bioequivalence testing.	To develop the new VICH GL	Veterinary products
Development of VICH GL concerning stability on	To develop the new VICH GL	Veterinary products

medicated premixes.		
Development of VICH GL concerning quality on GMP for active pharmaceutical ingredients.	To develop the new VICH GL	Veterinary products
Development of VICH GL for pharmaceutical development.	To develop the new VICH GL	Veterinary products

4. Did your Collaborating Centre maintain a network with other WOAHA 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
Bureau of Quality Control of Livestock Products, Department of Livestock Development (Thailand), Food and Agricultural Material Inspection Center (CC), and Japan Food Research Laboratories	Thailand, Japan	Asia and Pasific	Enhancing the capacity development for the effective veterinary drugs and hazardous substances assay laboratory.
Federal Governmental Budgetary Institution Federal Center for Animal Health (FGBI "ARRIAH"), Russia	Russia	Europe	Collaboration agreement on emerging pathogens and avian influenza surveillance and study.
National Institute of Veterinary Research (NIVR), Vietnam	Vietnam	Asia and Pasific	Collaborative research on the characteristics of epidemic viruses in Vietnam, control methods for viral infections in livestock, and development of vaccines.
Department of Livestock Development of the Ministry of Agriculture and	Thailand	Asia and Pasific	General MOU on strengthening research cooperation in the fields of

Cooperatives of the Kingdom of Thailand			mutual interest on veterinary science.
Polish National Veterinary Research Institute (PIWet-PIB)	Poland	Europe	Research cooperation on African swine fever, highly pathogenic avian influenza and transmissible spongy encephalopathy.
Vietnam National University of Agriculture (VNUA), Vietnam	Vietnam	Asia and Pasific	Collaborative research on the characteristics of epidemic viruses and bacteria in Vietnam, control methods for viral infections in livestock, and development of vaccines.
Animal Health Research Institute Council of Agriculture (AHRI), Taiwan	Taiwan	Asia and Pasific	Development of diagnostic technologies for transboundary animal diseases such as foot-and-mouth disease, African swine fever, swine fever, highly pathogenic avian influenza, and arbovirus infection, and evaluation of the viruses
State Central Veterinary Laboratory, Mongolia	Mongolia	Asia and Pasific	Technological cooperation, information exchange, and interchange of researchers in transboundary animal diseases including foot-and-mouth disease and African swine fever.
Global African Swine Fever Research Alliance (GARA) Partners	Global	Africa Americas Asia and Pasific Europe MiddleEast	To cooperate to achieve the mission of GARA.
Animal and Plant Quarantine Agency of the Ministry of Agriculture, Food and Rural Affairs of the Republic of Korea (MAFRA) ("APQA")	Korea	Asia and Pasific	Development of the research cooperation in avian influenza, foot-and-mouth disease, African swine fever and arbovirus.
Friedrich-Loeffler-Institute (FLI),			Collection of epidemiological information on highly pathogenic avian influenza viruses obtained from wild birds and poultry, information

Germany	Germany	Europe	on the analysis of the characteristics of causative viruses in Germany, and development and evaluation of diagnostic techniques.
Russian Academy of Medical Science, Research Institute of Experimental and Clinical Medicine	Russia	Europe	Research on spreading pathogens and avian influenza.
University of Montreal, Canada	Canada	Americas	Collaborative research on Streptococcus.
National Institute of Veterinary Research (NIVR), Vietnam	Vietnam	Asia and Pasific	Verification and optimization of diagnostic technologies for African swine fever and their application to the investigation of the prevalence in Vietnam

## TOR4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAHA 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
Equine Research Institute, Japan Racing Association (RL)	Japan	Asia and Pasific	Cooperation for proficiency testing by interlaboratory comparison.
Research center for food safety (University of Tokyo)	Japan	Asia and Pasific	To deepen the analysis of antimicrobial use pattern in the field.
Hokkaido University	Japan	Asia and Pasific	Cooperation for proficiency testing by interlaboratory comparison.



## TOR6: EXPERT CONSULTANTS

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

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
Dr. NODA Ken, Dr. EGUCHI Kaoru	VICH Steering Committee	Member
Mr. OHMORI Junichi	VICH Steering Committee	Coordinator
Dr. SATO Kota	VICH Biologicals Expert Working Group	Chairperson
Dr. KIKUTANI Yuto	VICH Biologicals Expert Working Group	Member
Dr. KIDA Moeko	VICH Biologicals Expert Working Group	Advisor
Dr. OGATA Tomoko	VICH Quality Expert Working Group	Chairperson
Dr. TAKAHASHI Chikako, Dr. EGUCHI Kaoru (April- )	VICH Quality Expert Working Group	Member
Dr. TANITA Natsumi, Dr. ISHIKAWA Ryoko	VICH Quality Expert Working Group	Advisor
Ms. AKAMA Ryoko (- March), Ms. IWASAKI Masako (April- )	VICH Bioequivalence Expert Working Group	Member
		Advisor

Dr. OGINO Tomoe	VICH Bioequivalence Expert Working Group	
Dr. OGINO Tomoe	VICH Anthelmintics Expert Working Group	Member
Mr. KOIKE Ryoji	VICH Anthelmintics Expert Working Group	Advisor
Dr. OZAWA Manao	VICH Safety Expert Working Group	Member
Dr. OGATA Tomoko	VICH Safety Expert Working Group	Advisor
Mr. KOIKE Ryoji	VICH Metabolism and Residue Kinetics Expert Working Group	Member
Dr. OGURA Aki	VICH Expert Working Group for a General Guideline on Pharmaceutical Combination Products	Member
Dr. NODA Ken, Dr. EGUCHI Kaoru	VICH Expert Working Group for a General Guideline on Pharmaceutical Combination Products	Advisor
Ms. KANEHARA Mariko	VICH Pharmacovigilance Expert Working Group	Member
Dr. EGUCHI Kaoru, Mr. MIYAZAKI Teruki	VICH Pharmacovigilance Expert Working Group	Advisor
Dr. OGATA Tomoko	VICH Medicated premix Expert Working Group	Member
Dr. SHIMAZAKI Yoko, Dr. SEKIGUCHI Hideto, Dr. KAWANISHI		

Michiko, Dr. MATSUDA Mari, Dr. OZAWA Manao, Ms. AKAMA Ryoko, Dr. FURUYA Yukari, Dr. HARADA Saki, Dr. KUMAKAWA Mio	OIE RRAP Experts on AMR monitoring	Member
Dr. KAWAJI Satoko	OIE Biological Standards Commission	Member
Dr. YANASE Tohru	OIE Regional Resource Persons about Arthropod vectors surveillance and control	Member
Dr. KOKUHO Takehiro	FAO-OIE Rinderpest Holding Facility, Category A	Contact Person
Dr. TAKAGI Michihiro	FAO-OIE Rinderpest Holding Facility, Category B	Contact Person
Dr. IWAMARU Yoshifumi	OIE Reference Laboratory, BSE	
Dr. FUKAI Katsuhiko	OIE Reference Laboratory, CSF	
Dr. SAITO Takehiko	OIE Reference Laboratory, Swine Influenza	
Dr. KOKUHO Takehiro	OIE Reference Laboratory, Rinderpest	

## **TOR7: SCIENTIFIC AND TECHNICAL TRAINING**

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

Yes

*To South Korea: We provided leaflet about our countermeasures on LA-MRSA.*

*To Taiwan: We provided guidelines and reference materials for improving awareness and understanding on AMR in small animal*

practices.

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

Yes

a) Technical visit :

b) Seminars :

c) Hands-on training courses:

d) Internships (> 1 month) :

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
b	Japan-Thailand EPA Training on Veterinary Medicinal Products, online, 14-28th March, 2022	Thailand	17
b	Improvement of basic technique of livestock disease diagnosis (Japan International Cooperation Agency: JICA) 27th June, 2022 – 28th October, 2022	Cambodia, Palestinian authority, Viet Nam	3

## 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 WOA?

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	VICH coordinators 6th teleconference meeting	VICH	2022-01-25	Teleconference	8
International	VICH SC Task Force to elaborate proposals for updated VICH structures 4th virtual meeting	VICH	2022-01-25	Teleconference	7
International	VICH coordinators 7th teleconference meeting	VICH	2022-05-23	Teleconference	8
	VICH SC Task Force to elaborate				

International	proposals for updated VICH structures 5th virtual meeting	VICH	2022-05-23	Teleconference	7
International	VICH SC Task Force to elaborate proposals for updated VICH structures 6th virtual meeting	VICH	2022-06-23	Teleconference	7
International	VICH SC Task Force to elaborate proposals for updated VICH structures 7th virtual meeting	VICH	2022-07-20	Teleconference	7
International	VICH coordinators 8th teleconference meeting	VICH	2022-08-30	Teleconference	8
International	VICH SC Task Force to elaborate proposals for updated VICH structures 8th virtual meeting	VICH	2022-08-30	Teleconference	7
International	VICH SC Task Force to elaborate proposals for updated VICH structures 9th virtual meeting	VICH	2022-10-11	Teleconference	7
International	VICH coordinators 9th teleconference meeting	VICH	2022-10-11	Teleconference	7
International	41th VICH steering committee meeting	VICH	2022-11-14	Washington D.C., USA	36
International	15th VICH Outreach Forum	VICH	2022-11-16	Washington D.C., USA	57
	4th Scientific Meeting and workshop on Foot-and-Mouth Disease between Regional	Food Safety and Consumer Affairs			

International	Reference Laboratory for Foot and Mouth Disease in South East Asia and Kodaira Research Station, National Institute of Animal Health, NARO	Bureau, Ministry of Agriculture, Forestry and Fisheries	2023-02-06	Kokubunji and Kodaira, Tokyo, Japan	30
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## TOR9: DATA AND INFORMATION DISSEMINATION

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

a) Articles published in peer-reviewed journals:

a) Articles published in peer-reviewed journals: 63

(1) NVAL

1) Furuya Y, Matsuda M, Harada S, Kumakawa M, Shirakawa T, Uchiyama M, Akama R, Ozawa M, Kawanishi M, Shimazaki Y, Sekiguchi H. Nationwide Monitoring of Antimicrobial-Resistant *Escherichia coli* and *Enterococcus* spp. Isolated From Diseased and Healthy Dogs and Cats in Japan. *Front Vet Sci.* 2022 Jun 24;9:916461. doi: 10.3389/fvets.2022.916461.

2) Ozawa M, Furuya Y, Akama R, Harada S, Matsuda M, Abo H, Shirakawa T, Kawanishi M, Yoshida E, Furuno M, Fukuhara H, Kasuya K, Shimazaki Y. Molecular epidemiology of methicillin-resistant *Staphylococcus aureus* isolated from pigs in Japan. *Vet Microbiol.* 2022 Oct;273:109523. doi: 10.1016/j.vetmic.2022.109523. Epub 2022 Jul 28.

3) Sasaki Y, Nozawa-Takeda T, Yonemitsu K, Asai T, Asakura H, Nagai H. Characterization of *Campylobacter jejuni* in large-billed crows (*Corvus macrorhynchos*) in Tochigi prefecture, Japan. *J Vet Med Sci.* 2022 Jul 25;84(7):1029-1033. doi: 10.1292/jvms.22-0055.

(2) NIAH, NARO

1) Katsura M, Fukushima M, Kameyama KI, Kokuho T, Nakahira Y, Takeuchi K. Novel bovine viral diarrhoea virus (BVDV) virus-like particle vaccine candidates presenting the E2 protein using the SpyTag/SpyCatcher system induce a robust neutralizing antibody response in mice. *Arch Virol.* 2023 Jan 7;168(2):49. doi: 10.1007/s00705-022-05653-x.

2) Mase M, Hiramatsu K, Watanabe S, Iseki H. Complete Genome Sequences of Infectious Bronchitis Virus Genotype JP-II (GI-7) and JP-III (GI-19) Strains Isolated in Japan. *Microbiol Resour Announc.* 2023 Jan 4:e0067022.

3) Fukai K, Nishi T, Kato T, Kawaguchi R, Seeyo KB, Morioka K. Near-Complete Genome Sequences of Three Foot-and-Mouth Disease Virus O/ME-SA/Ind-2001e Isolates Obtained from Cattle and Pigs in Thailand in 2016. *Microbiol Resour Announc.* 2023 Jan 18. doi: 10.1128/mra.01110-22.

4) Miyaoka Y, Kadota C, Kabir MH, Hakim H, Yamaguchi M, Hasan MA, Shoham D, Murakami H, Kobayashi S, Takehara K. Isolation, molecular characterization, and disinfectants susceptibility of swine-carried mammalian orthoreoviruses in Japan in 2020-2022. *J Vet Med Sci.* 2022 Dec 27. doi: 10.1292/jvms.22-0476.

5) Kanno T, Ishihara R, Mori H, Tomiyasu T, Okazaki K. Impact of amino acid 233 in Tax on bovine leukemia virus infection in Japanese Black cattle. *Res Vet Sci.* 2023 Jan;154:102-107.

6) Kawai K, Kurumisawa T, Shinozuka Y, Higuchi H, Iwano H, Hayashi T, Ozawa M, Koike R, Uchiyama M. Antimicrobial susceptibility of bovine clinical mastitis pathogens in Japan and development of a simplified agar disk diffusion method for clinical practice. *J Vet Med Sci.* 2022 Dec 20. Doi: 10.1292/jvms.21-0450.

7) Kasai S, Itokawa K, Uemura N, Takaoka A, Furutani S, Maekawa Y, Kobayashi D, Imanishi-Kobayashi N, Amoa-Bosompem M, Murota K, Higa Y, Kawada H, Minakawa N, Cuong TC, Yen NT, Phong TV, Keo S, Kang K, Miura K, Ng LC, Teng HJ, Dadzie S, Subekti S, Mulyatno KC, Sawabe K, Tomita T, Komagata O. Discovery of super-insecticide-resistant dengue mosquitoes in Asia: Threats of concomitant knockdown resistance mutations. *Sci Adv.* 2022 Dec 21;8(51):eabq7345.

8) Andoh K, Hidano A, Sakamoto Y, Sawai K, Arai N, Suda Y, Mine J, Oka T. Current research and future directions for realizing the ideal One-Health approach: A summary of key-informant interviews in Japan and a literature review. *One Health.* 2023 Jun;16:100468. Doi: 10.1016/j.onehlt.2022.100468. Epub 2022 Dec 5.

9) Takenouchi T, Masujin K, Suzuki S, Haraguchi S, Hiramatsu K, Kokuho T, Uenishi H. Establishment and characterization of the immortalized porcine lung-derived mononuclear phagocyte cell line. *Front Vet Sci.* 2022 Nov 18;9:1058124.

10) Nishikawa S, Ogawa Y, Shiraiwa K, Nozawa R, Nakayama M, Eguchi M, Shimoji Y. Rational Design of Live-Attenuated Vaccines against Genome-Reduced Pathogens. *Microbiol Spectr.* 2022 Dec 21;10(6):e0377622.

- 11) Suzuki K, Shinkai H, Yoshioka G, Matsumoto T, Takenouchi T, Tanaka J, Shimizu M, Kitazawa H, Uenishi H. Polymorphisms in Pattern Recognition Receptor Genes Are Associated with Respiratory Disease Severity in Pig Farms. *Animals (Basel)*. 2022 Nov 16;12(22):3163.
- 12) Ueno Y, Suzuki K, Takamura Y, Hoshino K, Takamatsu D, Katsuda K. Antimicrobial resistance and associated genetic background of *Histophilus somni* isolated from clinically affected and healthy cattle. *Front Vet Sci*. 2022 Oct 25;9:1040266.
- 13) Ikeda K, Miyazawa K, Takagi M, Tomochi H, Ishii K, Araki M, Iwamaru Y. Complete Genome Sequence of a Genotype 3 Atypical Porcine Pestivirus Strain (OKN/2021) from Okinawa Prefecture, Japan. *Microbiol Resour Announc*. 2022 Dec 15;11(12):e0061422.
- 14) Ohashi I, Kobayashi S, Tamamura-Andoh Y, Arai N, Takamatsu D. Disinfectant resistance of *Salmonella* in in vitro contaminated poultry house models and investigation of efficient disinfection methods using these models. *J Vet Med Sci*. 2022 Dec 14;84(12):1633-1644.
- 15) Okumura K, Okamoto M, Takamatsu D. Whole-Genome Sequences of *Bacillus* and *Paenibacillus* sp. Strains Isolated from Honey in Japan. *Microbiol Resour Announc*. 2022 Nov 17;11(11):e0084222.
- 16) Fukai K, Kawaguchi R, Nishi T, Ikezawa M, Yamada M, Seeyo KB, Morioka K. Risk of transmission of foot-and-mouth disease by wild animals: infection dynamics in Japanese wild boar following direct inoculation or contact exposure. *Vet Res*. 2022 Oct 22;53(1):86.
- 17) Tanikawa T, Fujii K, Sugie Y, Tsunekuni R. Ubiquitin-specific protease 18 in mallard (*Anas platyrhynchos*) interferes with type I interferon-mediated inhibition of high pathogenicity avian influenza virus replication. *Virology*. 2022 Oct 9;577:32-42.
- 18) Tsugami Y, Chiba T, Obayashi T, Higuchi H, Watanabe A, Isobe N, Kawai K. Differences in antimicrobial components between bacterial culture-positive and culture-negative bovine clinical mastitis milk. *Anim Sci J*. 2022 Jan;93(1):e13771.
- 19) Matsuyama R, Yamamoto T, Hayama Y, Omori R. Measuring impact of vaccination among wildlife: The case of bait vaccine campaigns for classical swine fever epidemic among wild boar in Japan. *PLoS Comput Biol*. 2022 Oct 6;18(10):e1010510.
- 20) Nishi T, Fukai K, Masujin K, Kawaguchi R, Ikezawa M, Yamada M, Nakajima N, Komeno T, Furuta Y, Sugihara H, Kurosaki C, Sakamoto K, Morioka K. Administration of the antiviral agent T-1105 fully protects pigs from foot-and-mouth disease infection. *Antiviral Res*. 2022 Dec;208:105425.
- 21) Hayama Y, Sawai K, Yoshinori M, Yamaguchi E, Yamamoto T. Estimation of introduction time window of highly pathogenic avian influenza virus into broiler chicken farms during the 2020 - 2021 winter season outbreak in Japan. *Prev Vet Med*. 2022 Nov;208:105768.
- 22) Okamoto M, Furuya H, Sugimoto I, Takamatsu D. Detection of macrolide resistance genes, *ermC* and *ermB*, in Japanese honey using real-time PCR assays. *J Vet Med Sci*. 2022 Nov 1;84(11):1453-1456.
- 23) Sajiki Y, Konnai S, Watari K, Okagawa T, Tanaka A, Kawaji S, Nagata R, Maekawa N, Suzuki Y, Kato Y, Murata S, Mori Y, Ohashi K. Prostaglandin E2-Induced Immune Suppression via Cytotoxic T-Lymphocyte Antigen 4 in Paratuberculosis. *Infect Immun*. 2022 Oct 20;90(10):e0021022.
- 24) Murakami S, Kitamura T, Matsugo H, Yamamoto T, Mineshita K, Sakuyama M, Sasaki R, Takenaka-Uema A, Horimoto T. Detection and genetic characterization of bat MERS-related coronaviruses in Japan. *Transbound Emerg Dis*. 2022 Sep 4.
- 25) Kameyama KI, Kitamura T, Okadera K, Ikezawa M, Masujin K, Kokuho T. Usability of Immortalized Porcine Kidney Macrophage Cultures for the Isolation of ASFV without Affecting Virulence. *Viruses*. 2022 Aug 16;14(8):1794.
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b) International conferences:

b) International conferences:12

(1) NVAL

none

(2) NIAH, NARO

- 1) Yamamoto T. et al., Analysis of the prophylactic vaccination against classical swine fever conducted in the country previously free from CSF. The 16th International Symposium on Veterinary Epidemiology and Economics. August 7-12, 2022
- 2) Hayama Y. et al., Pig farm vaccination against classical swine fever protects infection from wild boar. The 16th International Symposium on Veterinary Epidemiology and Economics. August 7-12, 2022
- 3) Hayama Y. et al., Spatial analysis of classical swine fever in wild boar in Japan 2018-2020 using a Bayesian spatiotemporal model. The 16th International Symposium on Veterinary Epidemiology and Economics. August 7-12, 2022
- 4) Sawai K. et al., Epigenetic analysis of a classical swine fever virus outbreak in Japan between 2018 and 2020. The 16th International Symposium on Veterinary Epidemiology and Economics. August 7-12, 2022
- 5) Murato Y et al., Region-wise analysis of dairy and beef cow movements in Japan. The 16th International Symposium on Veterinary Epidemiology and Economics. August 7-12, 2022
- 6) Yamaguchi E. et al., Case-control study of geographical risk factors for highly pathogenic avian influenza on chicken farms in Japan in 2020 to 2021. The 16th International Symposium on Veterinary Epidemiology and Economics. August 7-12, 2022
- 7) Yamamoto T., CSF outbreaks in pig farms and wild boars in Japan. the 21st Federation of Asian Veterinary Associations (FAVA) Congress August 7-12, 2022
- 8) Miyazawa K. et al., Appearance of new scrapie prion strain by the conformational rearrangement of parental scrapie prion strain through serial transmission in wild-type mice, *Prion* 2022, 13-16 September, 2022
- 9) Kitamura T et al., An immortalized porcine macrophage cell line for competent for the isolation and genetic modification of African swine fever virus GARA May 23-27, 2022
- 10) Kokuho T et al., Direct PCR assay for differential diagnosis of African swine fever and classical swine fever using crude tissue samples GARA May 23-27, 2022
- 11) Kokuho T. LA-AKO vaccine: a bullet for global emergency FAO Roma, Sep 27-28, 2022
- 12) Iwamaru Y., Detection of chronic wasting disease prion seeding activity in feces with PMCA — Application to CWD monitoring in Japan. Asian Pacific Prion Symposium 2022, December 15-16, 2022

c) National conferences:

c) National conferences:4

(1) NVAL

- 1) Ms. AKAMA Ryoko, Efforts to utilize antimicrobial sensitivity discs for prudent use. 48th symposium of Japan Society of antimicrobials for animal 23rd April, 2022
- 2) Dr. KAWANISHI Michiko, Correlation between antimicrobial susceptibility test results and antimicrobial resistant gene by whole genome analysing in *Salmonella* from healthy broiler. Academic conference of The Japanese Society of Veterinary Science, 7th September, 2022
- 3) Ms. AKAMA Ryoko, Analysis of MIC and disk inhibition zone in *Pasteurella multocida*. Academic conference of The Japanese Society of Veterinary Science, 7th September, 2022
- 4) Dr. OZAWA Manao, Involvement of plasmids in the co-selection mechanism in swine-derived *E. coli*. Academic conference of The Japanese Society of Veterinary Science, 7th September, 2022

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

d) Others:0

*none*

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

1) *Scheme and data from JVARM (Japanese Veterinary Antimicrobial Resistance Monitoring System) has been published in English on HP of NVAL.*

*[https://www.maff.go.jp/nval/yakuzai/yakuzai\\_p3.html](https://www.maff.go.jp/nval/yakuzai/yakuzai_p3.html)*

2) *Preparation for OIE-CC-Regional follow-up training seminar (Feb, 2023).*

3) *Commercialization of FMD diagnostic kits.*

4) *Establishment of a direct PCR assay for simultaneous differential diagnosis of African swine fever and classical swine fever.*

5) *Development of Johne's disease diagnostic kits (Two new genetic tests)*

6) *Commercialization of diagnostic kits, CSFV/ASFV Direct RT-qPCR Mix & Primer/Probe*

7) *Distribution of a novel cell line of immortalized porcine kidney macrophages (IPKM) for the isolation of African swine fever virus.*

12. Additional comments regarding your report:

*none*