

OIE Collaborating Centres Reports Activities

Activities in 2015

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Title of collaborating centre:	Diagnosis, Control and Assessment in Asia
Address of Collaborating Centre:	(1) National Institute of Animal Health, NARO, 3-1-5 Kannondai, Tsukuba, Ibaraki 305-0856 JAPAN (2) National Veterinary Assay Laboratory, 1-15-1 Tokura, Kokubunji, Tokyo 185-8511 JAPAN
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Name of Director of Institute (Responsible Official):	(1) National Institute of Animal Health, NARO: Dr. Tomoyuki Tsuda, Director General (2) National Veterinary Assay Laboratory: Dr. Minoru Yamamoto, Director General
Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Dr. Kenichi Sakamoto, Director of Exotic Disease Research Division, National Institute of Animal Health, NARO
Name of writer:	(1) National Institute of Animal Health, NARO: Dr.Kazuhiro Yoshihara, Head of Planning and Promotion Section (2) National Veterinary Assay Laboratory: Dr.Shoko Iwamoto, Technical and Guidance Section Leader

ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

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

Disease control	
Title of activity	Scope
Holding of the 4th Japan-Thailand Joint Conference on Animal Health 2015 in Tsukuba, Japan on 15, 16 July.	Fourteen researchers from National Institute of Animal Health in Thailand attended the meeting and 13 subjects from Thailand and 16 subjects from Japan were presented. Moreover we discussed the collaborative researches.
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
Attendance to "2015 International Workshop on Highly Avian Influenza and Bird Migration" at the invitation of Animal and Plant Quarantine Agency (QIA) in Korea on May 27, 28.	Dr. T. Tsutsui gave a presentation entitled "Current situation of HPAI outbreak and migration route of migratory birds in Japan" at the workshop and had discussion with scientists from other countries.
Training, capacity building	
Title of activity	Scope
JICA Project on Capacity Development of Animal Health Laboratory in Indonesia.	Dr. T. Yamamoto was sent to Balai Veteriner Subang in Indonesia as an expert of epidemiology to evaluate the project in the final year on May 17-27.
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Invitation from National Institute of Veterinary Research, Vietnam as a part of the project entitled "the use of baculovirus expression system for recombinant protein productions of porcine cirovirus type 2 for veterinary uses of diagnosis and material for vaccine production" on 14-16 Sep.	Dr. T. Kokuho had a seminar entitled "Gene Expression System: Basics, Applications, and Related Topics" and gave technical support in Vietnam.
Veterinary medicinal products	
Title of activity	Scope
Approval Activities for veterinary medicinal products and vaccines	A total of 69 VMPs were approved in 2015. Veterinary Biologics Standards, National Assay Standards and usage regulation ordinance has changed 10 times in 2015.

Other (Name the category)	
Title of activity	Scope
Attendance at Laboratory Technical Advisory Group (LAB-TAG) meeting on 7, 8 Oct in Thailand.	Dr. K. Sakamoto attended the LAB-TAG meeting and provided technical assistance as an expert.

ToR : To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

Proposal title	Scope/Content	Applicable area
Development of the VICH guidelines (GLs) concerning to studies to evaluate the bioequivalence of veterinary drugs.	-To develop the new VICH GL 52 (blood level bioequivalence study)	<input checked="" type="checkbox"/> Surveillance and control of animal diseases <input type="checkbox"/> Food safety <input type="checkbox"/> Animal welfare

ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines

ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other centres, laboratories or organisations

3. Did your Collaborating Centre maintain a network with other OIE 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
Animal, Plant and Fisheries <input type="checkbox"/> Quarantine and Inspection Agency	Korea	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	General MOU on promoting research cooperation in the fields of mutual interest such as surveillance, diagnosis and control of major animal diseases.

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

No

ToR: To place expert consultants at the disposal of the OIE.**5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?**

Yes

Name of expert	Kind of consultancy	Subject
Toshiyuki Tsutsui	The OIE Code Committee	A member

ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries**6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from OIE Member Countries?**

Yes

- a) Technical visits: 7
 b) Seminars: 50
 c) Hands-on training courses: 6
 d) Internships (>1 month): 0

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	NIAH has dispatched a researcher as JICA experts (biochemistry) to JICA project on capacity development of animal health laboratory at Disease Investigation Center Subang, Indonesia.	Indonesia	3

ToR: To organise and participate in scientific meetings and other activities on behalf of the OIE**7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?**

Yes

National/International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
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International	2nd FMD Scientific Meeting for East Asia under the OIE/JTF Project on FMD Control in Asia	Dr. Kenichi Sakamoto	11 June 2015	Tokyo	47
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ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty

8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

a) Articles published in peer-reviewed journals: 61

(1)NIAH

1) Akiba M., Senba H., Otagori H., Prabhasankar VP., Taniyasu S., Yamashita N., Lee K., Yamamoto T., Tsutsui T., Ian Joshua D., Balakrishna K., Bairy I., Iwata T., Kusumoto M., Kannan K. and Guruge KS. Impact of wastewater from different sources on the prevalence of antimicrobial-resistant *Escherichia coli* in sewage treatment plants in South India. *Ecotoxicol Environ Saf.* 2015 May;115:203-8.

2) Athey TB., Auger JP., Teatero S., Dumesnil A., Takamatsu D., Wasserscheid J., Dewar K., Gottschalk M. and Fittipaldi N. Complex population structure and virulence differences among serotype 2 *Streptococcus suis* strains belonging to sequence type 28. *PLoS One.* 2015 Sep16;10(9):e0137760.

3) Fukai K., Morioka K., Yamada M., Nishi T., Yoshida K., Kitano R., Yamazoe R. and Kanno T. Comparative performance of fetal goat tongue cell line ZZ-R 127 and fetal porcine kidney cell line LFBK- $\alpha\beta$ 6 for Foot-and-mouth disease virus isolation. *J Vet Diagn Invest.* 2015 Jul;27(4):516-21.

4) Fukai K., Yamada M., Morioka K., Ohashi S., Yoshida K., Kitano R., Yamazoe R. and Kanno T., Dose-dependent responses of pigs infected with the foot-and-mouth disease virus O/JPN/2010 by intranasal and intraoral routes. *Arch Virol.* 2015 Jan;160(1):129-39.

5) Hata E. Complete Genome Sequence of *Mycoplasma arginini* Strain HAZ 145_1 from bovine mastitic milk in Japan. *Genome Announce.* 2015 Apr16;3(2).pii:e00265-15.

6) Hayama Y., Kimura Y., Yamamoto T., Kobayashi S. and Tsutsui T. Potential risk associated with animal culling and disposal during the foot-and-mouth disease epidemic in Japan in 2010. *Res Vet Sci.* 2015 Oct;102:228-30.

7) Hayama Y., Yamamoto T., Kobayashi S., Muroga N. and Tsutsui T. Potential impact of species and livestock density on the epidemic size and effectiveness of control measures for foot-and-mouth disease in Japan. *J Vet Med Sci.* 2015 Aug 7. [Epub ahead of print]

8) Hayama Y., Yamamoto T., Kobayashi S., Muroga N. and Tsutsui T. Evaluation of the transmission risk of foot-and-mouth disease in Japan. *J Vet Med Sci.* 2015 Sep;77(9):1167-70.

9) Hidano A., Yamamoto T., Hayama Y., Muroga N., Kobayashi S., Nishida T. and Tsutsui T. Unraveling antimicrobial resistance genes and phenotype patterns among *Enterococcus faecalis* isolated from retail chicken products in Japan. *PLoS One.* 2015 Mar 17;10(3):e0121189.

10) Hirashima Y., Kato T., Yamakawa M., Shirafuji H., Okano R. and Yanase T. Reemergence of Ibaraki disease in southern Japan in 2013. *J Vet Med Sci.* 2015 Nov 5;77(10):1253-9.

11) Hofmann M., Wietholter A., Blaha I., Jost H., Heinemann P., Lehmann M., Miller T., Cadar D., Yanase T., Kley N., Eiden M., Groschup M. and Schmidt-Chanasit J. Surveillance of batai virus in bovines from Germany. *Clin Vaccine Immunol.* 2015 Jun;22(6):672-3.

- 12) Hosoya T., Hanafusa Y., Kudo T., Tamukai K. and Une Y. First report of *Veronea botryosa* as a causal agent of chromomycosis in frogs. *Med Mycol.* 2015 May;53(4):369-77.
- 13) Iseki H., Takagi M., Kawashima K., Shibahara T., Kuroda Y., Tsunemitsu H. and Yamakawa M. Pathogenicity of emerging Japanese type 1 porcine reproductive and respiratory syndrome virus in experimentally infected pigs. *J Vet Med Sci.* 2015 Jul 5 [Epub ahead of print]
- 14) Ito H. The genetic organization of the capsular polysaccharide biosynthesis region of *Actinobacillus pleuropneumoniae* serotype14. *J Vet Med Sci.* 2015 May;77(5):583-6.
- 15) Ito H. and Matsumoto A. Isolation and genetic characterization of an *Actinobacillus pleuropneumoniae* serovar K12:O3 strain. *J. Vet. Diagn Invest.* 2015 Jan;27(1):102-6.
- 16) Ito H. and Sueyoshi M. The genetic organization of the capsular polysaccharide biosynthesis region of *Actinobacillus pleuropneumoniae* serotype15. *J Vet Med Sci.* 2015 Apr;77(4):483-6.
- 17) Kanemoto H., Morikawa R., Chambers JK., Kasahara K., Hanafusa Y., Uchida K., Ohno K. and Nakayama H. Common variable immune deficiency in a Pomeranian with *Pneumocystis carinii* pneumonia. *J Vet Med Sci.* 2015 Jun;77(6):715-9.
- 18) Kato T., Shirafuji H., Tanaka S., Sato M., Yamakawa M., Tsuda T. and Yanase T. Bovine arboviruses in *Culicoides* biting midges and sentinel cattle in southern Japan from 2003 to 2013. *Transbound Emerg Dis.* 2015 Jan 19.
- 19) Kobayashi S., Tsutsui T., Yamamoto T., Hayama Y., Muroga N., Konishi M., Kameyama K. and Murakami K. The role of neighboring infected cattle in bovine leukemia virus transmission risk. *J Vet Med Sci.* 2015 Jul;77(7):861-3.
- 20) Konishi M., Hayama Y., Shirafuji H., Kameyama K., Murakami K., Tsutsui T. and Akashi H. Serological survey of caprine arthritis-encephalitis virus infection in Japan. *J Vet Med Sci.* 2015 Oct 24.[Epub ahead of print]
- 21) Lee K., Kusumoto M., Sekizuka T., Kuroda M., Uchida I., Iwata T., Okamoto S., Yabe K., Inaoka T. and Akiba M. Extensive amplification of GI-VII-6, a multidrug resistance genomic island of *Salmonella enterica* serovar Typhimurium, increases resistance to extended-spectrum cephalosporins. *Front Microbiol.* 2015 Feb 10;6:78.
- 22) Mase M. and Kanehira K. Surveillance of avian paramyxovirus serotype-1 in migratory waterfowls in Japan between 2011 and 2013. *J Vet Med Sci.* 2015 Mar;77(3):381-5.
- 23) Mase M. and Kanehira K. Phylogenetic analysis of avian paramyxovirus serotype-1 in pigeons in Japan. *J Vet Med Sci.* 2015 Aug;77(8):919-23.
- 24) Masuda T., Murakami S., Takahashi O., Miyazaki A., Ohashi S., Yamasato H. and Suzuki T. New porcine epidemic diarrhoea virus variant with a large deletion in the spike gene identified in domestic pigs. *Arch Virol.* 2015 Oct;160(10):2565-8.
- 25) Matsubayashi M., Kanamori K., Sadahiro M., Tokoro M., Abe N., Haritani M. and Shibahara T. First molecular identification of *Entamoeba polecki* in a piglet in Japan and implications for aggravation of ileitis by coinfection with *Lawsonia intracellularis*. *Parasitol Res.* 2015 Aug;114(8):3069-73.
- 26) Matsubayashi M., Murakoshi N., Komatsu T., Tokoro M., Haritani M. and Shibahara T. Genetic identification of *Entamoeba polecki* subtype 3 from pigs in Japan and characterisation of its pathogenic role in ulcerative colitis. *Infect Genet Evol.* 2015 Dec; 36:8-14.
- 27) Morioka K., Fukai K., Yoshida K., Kitano R., Yamazoe R., Yamada M., Nishi T. and Kanno T. Development and evaluation of a rapid antigen detection and serotyping lateral flow antigen detection system for Foot-and-Mouth Disease Virus. *PLoS One.* 2015 Aug13;10(8):e0134931.
- 28) Murakami M., Shimonishi Y., Hobo S., Niwa H. and Ito H. First isolation of *Actinobacillus* genomospecies 2 in Japan. *J Vet Med Sci.* 2015 Dec 12. [Epub ahead of print]
- 29) Murakami S., Miyazaki A., Takahashi O., Hashizume W., Hase Y., Ohashi S. and Suzuki T. Complete Genome Sequence of the Porcine Epidemic Diarrhea Virus Variant Tottori2/JPN/2014. *Genome Announc.* 2015 Aug 13;3(4).pii:e00877-15.

- 30) Murata Y., Chambers JK., Uchida K., Nakashima K., Hanafusa Y., Ikezawa M., Sugita T. and Nakayama H. Mycotic aneurysm caused by *Graphium* species in a dog. *J Vet Med Sci.* 2015 Nov5;77(10):1285-8.
- 31) Muroga N., Yamamoto T., Hayama Y., Kobayashi S., Hidano A. and Tsutsui T. Injuries to staff engaged in foot-and-mouth disease eradication in Japan. *Occup Med (Lond).* 2015 Jan;65(1):45-8.
- 32) Nakamura K., Fujimori H., Koyama A., Dai TQ., Imai K., Ikezawa M. and Yamamoto Y. Immunohistochemistry and molecular epidemiology of avian paramyxovirus 1 from formalin-fixed and paraffin-embedded sections of Japanese doves (*Columba livia*) affected with neurological signs. *J Vet Med Sci.* 2015 Jul;(77):837-41.
- 33) Nemoto M., Oue Y., Murakami S., Kanno T., Bannai H., Tsujimura K., Yamanaka T. and Kondo T. Complete genome analysis of equine coronavirus isolated in Japan. *Arch Virol.* 2015 Nov;160(11):2903-6.
- 34) Ohkura T., Minakuchi M., Sagai M., Kokuho T., Konishi M., Kameyama K. and Takeuchi K., Infection of the upper respiratory tract of hamsters by the bovine parainfluenza virus type 3 BN-1 strain expressing enhanced green fluorescent protein. *Virology* 2015 Feb;476:134-40.
- 35) Ooka T., Ogura Y., Katsura K., Seto K., Kobayashi H., Kawano K., Tokuoka M., Furukawa M., Harada S., Yoshino S., Seto J., Ikeda T., Yamaguchi K., Murase K., Gotoh Y., Imuta N., Nishi J., Gomes TA., Beutin L. and Hayashi T. Defining the genome features of *Escherichia albertii*, an emerging enteropathogen closely related to *Escherichia coli*. *Genome Biol Evol.* 2015 Nov3;7(12):3170-9.
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- 38) Sato A., Kameyama K., Nagai M., Tateishi K., Ohmori K., Todaka R., Katayama K., Mizutani T., Yamakawa M. and Shirai J. Complete Genome Sequence of Bovine Viral Diarrhea Virus 2 Japanese Reference and Vaccine Strain KZ-91CP. *Genome Announc.* 2015 Feb12;3(1).pii:e01573-14.
- 39) Shirafuji H., Yazaki R., Shuto Y., Yanase T., Kato T., Ishikura Y., Sakaguchi Z., Suzuki M. and Yamakawa M. Broad-range detection of arboviruses belonging to Simbu serogroup lineage 1 and specific detection of Akabane, Aino and Peaton viruses by newly developed multiple TaqMan assays. *J Virol Methods.* 2015 Dec 1;225:9-15.
- 40) Shiraiwa K., Ogawa Y., Eguchi M., Hikono H., Kusumoto M. & Shimoji Y. Development of an SNP-based PCR assay for rapid differentiation of a Japanese live vaccine strain from field isolates of *Erysipelothrix rhusiopathiae*. *J Microbiol Methods.* 2015 Oct;117:11-3.
- 41) Suzuki T., Hasebe A., Miyazaki A. and Tsunemitsu H. Analysis of genetic divergence among strains of porcine rotavirus C, with focus on VP4 and VP7 genotypes in Japan. *Virus Res.* 2015 Feb2;197:26-34.
- 42) Suzuki T., Murakami S., Takahashi O., Kodera A., Masuda T., Itoh S., Miyazaki A., Ohashi S. and Tsutsui T. Molecular characterization of pig epidemic diarrhoea viruses isolated in Japan from 2013 to 2014. *Infect Genet Evol.* 2015 Dec;36:363-8.
- 43) Takamatsu D., Sato M. and Yoshiyama M. Infection of *Melissococcus plutonius* clonal complex 12 strain in European honeybee larvae is essentially confined to the digestive tract. *J Vet Med Sci.* 2015 Aug 8.[Epub ahead of print]
- 44) Takeo T., Tanaka T., Matsubayashi M., Tsujio M., Umemiya-Shirafuji R., Tsuji N., Fujisaki K., Matsui T. and Matsuo T. Evaluation of *Eimeria kriegsmanni* as a murine model for testing the efficacy of anti-parasitic agents. *Acta Parasitol.* 2015 Jun;60(2):190-5.
- 45) Unno H., Inada M., Nakamura A., Hashimoto M., Ito K., Hashimoto K., Nikaido M., Hayashi T., Hata E., Katsuda K., Kiku Y., Tagawa Y. and Kawai K. Improved rapid and efficient method for *Staphylococcus aureus* DNA extraction from milk for identification of mastitis pathogens. *J Vet Med Sci.* 2015 Aug;77(8):1007-9.
- 46) Yamamoto Y., Nakamura K., Yamada M. and Mase M. Corneal opacity in domestic ducks experimentally infected with H5N1 highly pathogenic avian influenza virus. *Vet Pathol.* 2015 Jun29.pii:0300985815591077.

47) Yamane I., Ishizeki S. and Yamazaki H. Aujeszky's Disease and the Effects of Infection on Japanese Swine Herd Productivity: a Cross-sectional Study. *J Vet Med Sci.* 2015 May;77(5):579-82.

(2)NVAL

1) Gamoh K., and Nakamura S. Introduction of an update system for vaccine strains of veterinary influenza vaccines in Japan. *Biologicals*, 2015 43, 150-152.

2) Gamoh K., Kobayashi C., Nakamizo M. and Suzuki S. Evaluation of efficacy of inactivated avian influenza vaccine (oil adjuvant added) against field strains. *Journal of Veterinary Medicine, (Tokyo)* 2015 68, 921-926.

3) Gamoh K., Nakamizo M., Okamatsu M., Sakoda Y., Kida H. and Suzuki S. Protective efficacy of stockpiled vaccine against H5N8 highly pathogenic avian influenza virus isolated from a chicken in Kumamoto prefecture, Japan in 2014. *The Journal of Veterinary Medical Science*, in press

4) Hamamoto S. Risk Control of Antimicrobial Resistance in Bacteria by JMAFF. *Journal of Veterinary Medicine*, 2015 Vol.68, No.2, 106-110.

5) Hamamoto K., Akama R., Mizuno Y. Measurement of ampicillin residue levels in chicken eggs during and after medicated feed administration by LC-MS/MS. *Food Additives and Contaminants Part A*, 2015 Vol.32, No.8, 1249-1255.

6) Hamamoto K., Mizuno Y. LC-MS/MS measurement of ampicillin residue in swine tissues at 5 days after in-feed administration, *Journal of Veterinary Medical Science*. 2015 Vol.77, No. 11, 1527-1529.

7) Hiki M., Kawanishi M., Abo H., Kojima A., Koike R., Hamamoto S. and Asai T. Decreased Resistance to Broad-Spectrum Cephalosporin in *Escherichia coli* from Healthy Broilers at Farms in Japan After Voluntary Withdrawal of Ceftiofur. *Foodborne Pathogens and Disease*, 2015; 12: 639-43.

8) Kawanishi M. Global movement of Antimicrobial Resistance in Bacteria of Food-producing Animal Origin. *Topics Summery. Journal of Veterinary Medicine*, 2015 Vol.68, No.2, 124-125.

9) Kozasa T., Abe Y., Mitsuhashi K., Tamura T., Aoki H., Ishimaru M., Nakamura S., et. al. Analysis of a pair of END+ and END- viruses derived from the same bovine viral diarrhoea virus stock reveals the amino acid determinants in Npro responsible for inhibition of type I interferon production. *The Journal of Veterinary Medical Science*, 2015 77(5):511-8.

10) Nagai H. Veterinary Diagnostic kits used in Japan (XIX). Overview of Avian infectious diseases and diagnostic kits. 8. Avian Mycoplasma Disease. 9. Infectious Coryza. *Journal of the Japan Veterinary Medical Association*, 2015 Vol. 68, No. 1, 12-14.

11) Noda K. Progress and perspective in harmonization of veterinary medicinal products among Japan, EU and US. *JVPA (Japan Veterinary Products Association) Digest* 2015 No. 54, 7-14.

12) Noda K. Quality control of regenerative medicinal products for veterinary use -Technical explication of relating laws and the challenges in pre-competitive collaboration-. *JSAVBR (The Japanese Society for Animal Vaccine and Biomedical Research) News Letter* 2015 No. 12, 11-12.

13) Shimazaki Y., et. al. Hygiene Management Procedures for Breeder Chicken Farms in Japan. *Journal of the Japanese society on Poultry Diseases*, 2015 51, 3, 158-166.

14) Takayasu M., Hamamoto K., et. al. Pharmacokinetics of metoclopramide in calves with renal dysfunction. *The Journal of Veterinary Medical Science*, 2015 Vol.77:No.2 February, 261-263.

b) International conferences: 35

(1)NIAH

1) Abe T., et al. The diagnostic significance of the lower part of ileum in porcine epidemic diarrhoea. *The 7th International Symposium on Emerging and Re-emerging Pig Diseases*, Kyoto, Japan, 21-24 June 2015.

2) Fukai K., et al. Horizontal transmissibility of a foot-and-mouth disease virus from cows to pigs. *2nd FMD Scientific Meeting for East Asia under the OIE/JTF Project on FMD Control in Asia*, Tokyo, Japan, 12 June 2015.

- 3) Fukai K., et al. Horizontal transmission of foot-and-mouth disease virus from cattle to pigs. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 4) Fukai K., et al. Experimental infections of a foot-and-mouth disease virus to vaccinated animals. Joint SEACFMD laboratory network and epidemiology network meeting. Myanmar, 22-24 Sep. 2015.
- 5) Hayama Y., et al. Development of FMD transmission simulator in Japan. International Symposia on Veterinary Epidemiology and Economics. Mexico, 2-7 Nov. 2015.
- 6) Ikezawa M., et al. Abortion of pregnant gilts inoculated with highly pathogenic porcine reproductive and respiratory syndrome virus. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 7) Ito H. and Matsumoto A. Emergence of a novel serovar K12:O3 strain of *Actinobacillus pleuropneumoniae* in Japan. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 8) Kiku Y., et al. Effect of intramammary infusion of recombinant bovine GM-CSF produced in transgenic silkworm at drying-off on mammary gland involution in dairy cows. The World Congress on Controversies & Consensus in Bovine Health, Industry & Economics (CoBo), Berlin, Germany, 27-30 Aug. 2015.
- 9) Miyazaki A., et al. Prolonged and massive excretion of porcine epidemic diarrhea virus RNA in feces of experimentally infected pigs at finisher age. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 10) Morioka K., et al. Development and evaluation of lateral flow assay for antigen detection and serotyping of FMD. 2nd FMD Scientific Meeting for East Asia under the OIE/JTF Project on FMD Control in Asia, Tokyo, Japan, 12 June 2015.
- 11) Morozumi T., et al. Method for determining the genomic sequence of north-american-type porcine reproductive and respiratory syndrome viruses. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 12) Muneta Y., et al. Infection of *Salmonella enterica* serovar cholerasuis and typhimurium to in vitro produced porcine macrophages; effect of a TLR5 SNP (C1205T). The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 13) Ohashi S., et al. Detection and characterization of Deltacoronavirus in Japanese pig population, 2014. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 14) Otake S., et al. The initiative of PRRS area regional control/elimination in Japan (P-JET: PRRS-Japan Elimination Team). The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.
- 15) Yamamoto T., et al. Evaluation of the nationwide serological surveillance for paratuberculosis using individual based simulation model. International Symposia on Veterinary Epidemiology and Economics. Mexico, 2-7 Nov. 2015.
- 16) Tsutsui T., et al. Are human resources sufficient for immediate stamping-out upon the outbreak of avian influenza? International Symposia on Veterinary Epidemiology and Economics. Mexico, 2-7 Nov. 2015.
- 17) Shinkai H., et al. Porcine Toll-Like Receptors: Toward the Better Swine Industry. TOLL2015, Spain, 30 Sep-3 Oct.
- 18) Shirafuji H., et al. Bluetongue and EHD in Japan. 1st Meeting for Collaboration and Planning for Bluetongue Surveillance and Research in the Asian-Pacific Region, Kunming, China, 3-5 March 2015.
- 19) Suzuki T., et al. Molecular characterization of pig epidemic diarrhoea viruses isolated in Japan from 2013 to 2014. 6th European Rotavirus Biology Meeting, France, 17-20 May 2015.
- 20) Suzuki T., et al. Genetic and antigenic characterization of porcine epidemic diarrhea virus (PEDV) collected in Japan from 2013 to 2014. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto,

Japan, 21-24 June 2015.

21) Takagi M., et al. Tylvalosin tartrate-medicated feed inhibits the replication of highly pathogenic porcine reproductive and respiratory syndrome virus in vivo. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.

22) Tsuchiya Y., et al. Improvement of anti-bacterial activity of porcine lysozyme by protein engineering. BIOTRANS2015, Vienna, Austria, 26-30 July.

23) Watanabe A., et al. Possible involvement of neutrophil elastase and inflammatory lactoferrin-derived peptides in the development of bovine mastitis induced by intramammary infusion of *Staphylococcus aureus* in the early dry period. The World Congress on Controversies & Consensus in Bovine Health, Industry & Economics (CoBo), Berlin, Germany, 27-30 Aug. 2015.

24) Yaguchi Y. and Kawashima K. Optimal protocol for rapid fixation in immunohistochemical diagnosis of porcine epidemic diarrhea. The 7th International Symposium on Emerging and Re-emerging Pig Diseases, Kyoto, Japan, 21-24 June 2015.

25) Yamada M., et al. Comparison of the pathogenesis between O/JPN/2000 and O/JPN/2010 strain of foot-and-mouth disease virus isolated from epidemics in Japan in experimentally infected pigs. 2nd FMD Scientific Meeting for East Asia under the OIE/JTF Project on FMD Control in Asia, Tokyo, Japan, 12 June 2015.

26) Yanase T., et al. Akabane virus and other important arboviruses in Japan. 1st Meeting for Collaboration and Planning for Bluetongue Surveillance and Research in the Asian-Pacific Region, Kunming, China, 3-5 March 2015.

(2)NVAL

1) Endo Y., The Vision for the Future. VICH Outreach Forum 6th meeting, 27 October 2015.

2) Endo Y., The Vision for the Future. The 5th VICH Open Conference, 29 October 2015.

3) Kawanishi M., Control of the Development and Prevalence of Antimicrobial Resistance in Bacteria of Food-producing Animal Origin in Japan. DASAN Conference (in Korea), 29 October 2015.

4) Kawanishi M., Outline of result of Japanese veterinary antimicrobial resistant monitoring system (JVARM). Japan-UK AMR Mission to APHA, 5 November 2015.

5) Kozasa T., et. al., How to use VICH GLs. The 5th VICH Open Conference, 28 October 2015.

6) Noda K., VICH Task Force for Efficacy Studies for Combination Products, Progress Report for the 31th SC /5th VOF meeting. VICH Outreach Forum 5th meeting, 24 February 2015.

7) Noda K., VICH Task Force for Efficacy Studies for Combination Products, Progress Report for the 32th SC /6th VOF meeting. VICH Outreach Forum 6th meeting, 26 October 2015.

8) Noda K., VICH Task Force for Efficacy Studies for Combination Products, Progress Report (Final). The 5th VICH Open Conference, 29 October 2015.

9) Ozawa M., Japanese Antimicrobial Resistance Monitoring System (JVARM) Topics. Japan-UK AMR Mission to APHA, 5 November 2015.

c) National conferences: 40

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1) Aihara N., Understanding the pathogenesis of cryoglobulinemia in experimentally *Capillaria hepatica* infected mouse. The 158th meeting of the Japanese Society of Veterinary Science. 9 September 2015.

2) Eguchi K., Procedures for Veterinary Medicinal Products approval. 35th Training Workshop for MAH on Veterinary Medicinal Products. 24 and 27 February 2015.

3) Endo Y., The past, the present and the future of VICH. Summer Seminar on the Japanese Cooperative Society for Veterinary Medicinal Products, 7 August 2015.

- 4) Gamoh K., Nakamizo M., Okamatsu M., Sakoda Y., Kida H., and Suzuki S., Protective efficacy of stockpiled vaccine against H5N8 highly pathogenic avian influenza virus isolated from a chicken in Kumamoto prefecture, Japan. The meeting of the Japan Veterinary Medicinal Association. 14 February 2015.
- 5) Hamamoto K., Suda M., Iwatsuki K., and Akama R., Development of a simultaneous analytical method for pesticides contained in veterinary medicine (for external use) in muscle and liver of bovine, swine and chicken. 110th Japanese Society for Food Hygiene and Safety. 30 October 2015.
- 6) Haruna M., Sasaki Y., et al., Prevalence of Campylobacter and Salmonella in broiler flocks. The 158th meeting of the Japanese Society of Veterinary Science. 8 September 2015.
- 7) Haruna M., Sasaki Y., et al., Multi-locus sequence typing of Campylobacter from broilers, cattle and pigs. The 36th meeting of the Japanese Society of food microbiology. 13 November 2015.
- 8) Hiki M., Correlation of Minimum Inhibitory Concentration (MIC) between Ceftiofur derived from livestock and Third Generation Cephalosporins for humans. The 158th meeting of the Japanese Society of Veterinary Science. 8 September 2015.
- 9) Hirano F., et al., Method for efficacy testing of inactivated Salmonellosis vaccine against Salmonella Enteritidis derived from in egg infection. The 158th meeting of the Japanese Society of Veterinary Science. 7 September 2015.
- 10) Hosoda Y., Outline of the work in National Veterinary Assay Laboratory (NVAL), especially National Assays for porcine virus vaccines. Animal Quarantine Service Training Course for New Employees, Part 2. 13 March 2015.
- 11) Iwamoto S., GMP Inspection for veterinary medical devices and extracorporeal diagnostic medicines. Lectures on the Pharmaceutical and Medical Device Act of veterinary medical devices and extracorporeal diagnostic medicines in 2015. 11 November 2015.
- 12) Iwamoto S., Items of Guidance on GMP Inspection. 27th Pharmaceutical Affair Management representative Meeting. 19 August 2015.
- 13) Iwamoto S., Overview of National Veterinary Assay Laboratory (NVAL) and GMP inspection. Veterinary pharmaceutical training workshop on Pharmacist Group for Veterinary Pharmaceutical, Japan Pharmaceutical Association, 2015. 29 January 2015 and 4 February 2015.
- 14) Kawanishi M., Japanese Antimicrobial Resistance Monitoring System (JVARM) - Resistance for Cephalosporins - . Veterinary Public Health Workshop 2015 (Hokkaido area). 26 January 2015.
- 15) Kawanishi M., et al., Japanese veterinary antimicrobial resistant monitoring system (JVARM). Conference to establish AMR monitoring system in Vietnam. 14 July 2015.
- 16) Kawanishi M., et al., JANIS-JVARM collaboration. The 158th meeting of the Japanese Society of Veterinary Science. 8 September 2015.
- 17) Koike R., Japanese Veterinary Antimicrobial Resistance Monitoring System. The 36th meeting of the safety of the feed. 13 July 2015.
- 18) Koike R., Regulations for veterinary drugs in Japan. Policy making / a management seminar of food security in 2015. 17 November 2015.
- 19) Koike R., et al., Comparison of antimicrobial susceptibility between bacteria isolated from the slaughterhouse and the farm. The 158th meeting of the Japanese Society of Veterinary Science. 8 September 2015.
- 20) Morioka A., Specific procedures of package inserts notification and establishment of recommendation regarding context of package inserts. Winter Seminar on Cooperative Society for Veterinary Medicinal Products. 5 March 2015.
- 21) Noda K., Legal status of regenerative medicinal products and technical challenges for veterinary use. 1st Animal FIRM (Forum for Innovative Regenerative Medicine) Seminar. 23 April 2015.
- 22) Noda K., Progress and perspective in harmonization of veterinary medicinal products among Japan, EU and

US. 47th JVPA (Japan Veterinary Products Association) Academic Seminar. 1 September 2015.

23) Noda K., Quality control of regenerative medicinal products for veterinary use. -Technical explication of relating laws and the challenge in pre-competitive collaboration-. JSAVBR (The Japanese Society for Animal Vaccine and Biomedical Research) Symposium. 9 September 2015.

24) Ogino T., Regenerative medicinal products for veterinary use. Legal status and challenges in quality control. The 2nd Convention of Veterinary Medicine and Life Science. 7 November 2015.

25) Ohmori J., Act amendment concerning package inserts and establishment of recommendation regarding context of package inserts. 35th Training Workshop for MAH on Veterinary Medicinal Products. 24 and 27 February 2015.

26) Oishi K., Current situation of biological products for equine use in Japan and summary of Committee on Influenza Vaccine For Veterinary Use. The Investigative Commission for Equine Disease Control. 23 October 2015.

27) Oishi K., Basic knowledge of Veterinary Biological Products. The Training Course for Certification of Veterinary Drug Sellers. 12 November 2015.

28) Ozawa M., Epidemiology of Antimicrobial-resistant Bacteria Isolated from Food-producing Animals. 45th Japan Society for Veterinary Epidemiology Conference. 9 September 2015.

29) Ozawa M., The situation of antimicrobial resistance in pigs. Livestock hygiene workshop (pig). 1 July 2015.

30) Sasaki Y., et al., Multi-locus sequence typing of *Campylobacter* from broiler farms in Japan. The 17th meeting of Kanto regional avian disease society. 27 November 2015.

31) Sasaki Y., et al., Multi-locus sequence typing and antimicrobial resistance of *Campylobacter jejuni* from beef cattle in Japan. The 8th meeting of Japanese Society for *Campylobacter*. 3 December 2015.

32) Sasaki Y., et al., Prevalence and characterization of *Campylobacter jejuni* in bovine gastrointestinal tracts. The 158th meeting of the Japanese Society of Veterinary Science. 8 September 2015.

33) Sasaki Y., et al., Prevalence of *Campylobacter* in porcine gastrointestinal tracts. The 110th meeting of the Japanese Society of food hygiene. 30 October 2015.

34) Sasaki Y., et al., Prevalence of *Campylobacter* in bovine gastrointestinal tracts and livers. The 36th meeting of the Japanese Society of food microbiology. 13 November 2015.

35) Shimazaki T., Training course of Animal Health (Exotic Diseases). National Institute of Animal Health. 2 September 2015.

36) Shimazaki T., Relationship between JMAFF and applicants in Veterinary Medicinal Products approval procedures. Meetings for MAH Pharmaceutical Affairs Manager. 12 March 2015.

37) Shimazaki Y. et al., Serotyping reanalysis and characterization of unserotypable *Actinobacillus pleuropneumoniae* isolates by agar gel diffusion test. Annual conference of Japan veterinary medical association. 14 February 2015.

38) Shimizu Y., et al. Altered pharmacokinetics of cefazolin in cattle with fever induced by lipopolysaccharide. The 158th meeting of the Japanese Society of Veterinary Science. 8 September 2015.

39) Uchiyama M., Characterization of *Erysipelothrix rhusiopathiae* Met-203 type SpaA Variants from Chronic and Subacute Swine Erysipelas in Japan. The 158th meeting of the Japanese Society of Veterinary Science. 8 September 2015.

40) Yamamoto A., Procedures of approval application of veterinary medical devices and extracorporeal diagnostic medicines. Lectures on the Pharmaceutical and Medical Device Act of animal medical devices and extracorporeal diagnostic medicines in 2015. 11 November 2015.

d) Other

(Provide website address or link to appropriate information): 2

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1) Ogata T., Quality Expert Working Group. The 5th VICH Open Conference. 27-29 Oct 2015.

2) Oishi K., VICH5 Biologicals Quality Monitoring Expert Working Group. The 5th VICH Open Conference. 27-29 Oct 2015.