

WOAH Collaborative Centre Reports Activities 2022

Activities in 2022

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Centre Information

Title of WOA Collaborating Centre	WOAH Collaborating Centre for Diagnosis and Control of Viral Animal Diseases in Eastern Europe, Central Asia and Transcaucasia
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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 WOA

Disease control	
Title of activity	Scope
	Missions (57) of the FGBI "ARRIAH" experts for advisory

<p>Infectious disease diagnosis in the Russian Federation</p>	<p>assistance in animal disease diagnosis, collection of pathological samples, arrangement and implementation of anti-epidemic measures: For control/prevention of bovine , ovine and caprine diseases - 9, including: 3 – FMD (Republic of Tyva, Republic of Mordovia, Saratov Oblast) 6 – Other bovine, ovine and caprine diseases: sheep and goat pox (Kostroma Oblast, Republic of Dagestan) For control/prevention of porcine diseases - 35, including: 15 - ASF (Ivanovo Oblast, Oryol Oblast, Moscow Oblast, Vladimir Oblast, Kaliningrad Oblast) 20 – Other porcine diseases: pneumonic pasteurellosis, Glässers disease, PRRS, porcine contagious pleuropneumonia (Belgorod Oblast, Kursk Oblast, Voronezh Oblast, Kaliningrad Oblast, Ulyanovsk Oblast, Republic of Mordovia, republic of Bashkortostan, Kirov Oblast, Novgorod Oblast, Ryazan Oblast) - For control/prevention of avian diseases - 5 (Stavropol Krai, Tyumen Oblast, Bryansk Oblast and Chelyabinsk Oblast, Sakhalin Oblast, Khabarovsk Krai) For control/prevention of fish diseases - 8 (Krasnodar Krai, Murmansk Oblast, Republic of Karelia)</p>
<p>Disease control</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>Infectious disease diagnosis in other countries</p>	<p>Missions (12) of the FGBI "ARRIAH" experts to foreign countries for advisory assistance in animal disease diagnosis, arrangement and implementation of anti-epidemic measures: - For control/prevention of bovine diseases: RSA (1), Serbia (1), Islamic Republic of Pakistan (1), Republic of Belarus (1), Lebanon (1), Republic of Kyrgyzstan (1). - For control/prevention of avian diseases: Republic of Belarus (2), Republic of Uzbekistan (2), Republic of Kazakhstan (1) , Republic of Türkiye (1)</p>
<p>Zoonoses</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>Rabies monitoring</p>	<p>1257 rabies tests of samples from 25 RF Subjects were performed (fluorescent antibody technique (FAT) – 684 tests; virus isolation in cell culture – 573 tests)</p>
<p>Zoonoses</p>	
<p>Title of activity</p>	<p>Scope</p>
<p>Bovine spongiform monitoring</p>	<p>23,581 ELISA tests for BSE were carried out on pathological materials from 74 RF Subjects</p>
<p>Zoonoses</p>	
<p>Title of activity</p>	<p>Scope</p>

COVID-19 monitoring	1627 PCR tests for COVID-19 were performed on samples from 22 RF Subjects
Avian diseases	
Title of activity	Scope
Newcastle disease monitoring	42,160 tests for Newcastle disease were carried out on pathological samples from 76 RF Subjects (real-time RT PCR – 5898 tests; ELISA – 26,980 tests; HI – 9183 tests; virus isolation – 99 tests) 4927 tests of the samples delivered from the poultry farms of the Republic of Belarus were carried out for ND diagnosis: 4909 HI tests and 18 PCR tests. 120 HI tests of the samples delivered from the Republic of Kazakhstan were performed.
Avian diseases	
Title of activity	Scope
Avian influenza monitoring	45,715 tests for avian influenza were carried out on pathological samples from 76 RF Subjects (real-time RT PCR – 6447 tests; ELISA – 31,887 tests; HI – 7180 tests; virus isolation – 201 tests) 4927 tests of the samples delivered from the poultry farms of the Republic of Belarus were carried out for ND diagnosis: 4909 HI tests and 18 PCR tests. 120 HI tests of the samples delivered from the Republic of Kazakhstan were performed.
Aquatic animal diseases	
Title of activity	Scope
Spring viraemia of carp diagnosis	371 diagnostic tests of the samples from 26 RF Subjects were performed 158 ELISA tests 11 PCR tests 202 virus isolation tests
Aquatic animal diseases	
Title of activity	Scope
Infectious hematopoietic necrosis diagnosis	556 diagnostic tests of samples from 21 RF Subjects were performed 304 ELISA tests 50 PCR tests 202 virus isolation tests
Aquatic animal diseases	
Title of activity	Scope
Viral haemorrhagic septicaemia diagnosis	563 diagnostic tests of samples from 21 RF Subjects were performed 304 ELISA tests 56 PCR tests 203 virus isolation tests

Aquatic animal diseases

Title of activity	Scope
Infectious pancreatic necrosis diagnosis	558 diagnostic tests of samples from 20 RF Subjects were performed 305 ELISA tests 50 PCR tests 203 virus isolation tests

Aquatic animal diseases

Title of activity	Scope
Infectious salmon anaemia diagnosis	291 diagnostic PCR tests of samples from 16 RF Subjects were performed

Aquatic animal diseases

Title of activity	Scope
Epizootic haematopoietic necrosis diagnosis	210 diagnostic PCR tests of samples from 13 RF Subjects were performed

Aquatic animal diseases

Title of activity	Scope
Diagnosis of alphavirus infection in salmonids	52 diagnostic PCR tests of samples from 7 RF Subjects were performed

Diagnosis, biotechnology and laboratory

Title of activity	Scope
Bluetongue diagnosis	6930 tests of samples from 12 RF Subjects were performed (5217 ELISA tests of bovine/ovine and caprine sera for bluetongue virus; 1713 PCR tests of biomaterial samples)

Diagnosis, biotechnology and laboratory

Title of activity	Scope
Classical swine fever diagnosis	12,200 tests were performed (5993 ELISA tests of samples from 67 RF Subjects; 6055 PCR tests of biological samples from 69 RF Subjects; 152 samples from 18 RF Subjects – virus isolation tests)

Diagnosis, biotechnology and laboratory

Title of activity	Scope
African swine fever diagnosis	8824 tests were performed (5087 ELISA tests of samples from 67 RF Subjects; 3732 PCR tests of biological samples from 50 RF Subjects; 5 samples from 1 RF Subject – virus isolation tests)
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Schmallenberg disease diagnosis	8824 tests of samples from 7 RF Subjects were performed (128 sera were ELISA tested for antibodies; 2111 PCR tests)
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Lumpy skin disease diagnosis	4600 PCR tests of samples from 24 RF Subjects were performed Six diagnostic PCR tests of the samples delivered from Mongolia were performed.
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
FMD diagnosis in the Russian Federation	273,140 samples from 85 RF Subjects were tested: - Liquid phase blocking indirect ELISA (LPB ELISA) – 205,026 tests of sera for FMDV non-structural protein antibodies; - Virus neutralization test (VNT) – 11,346 serum tests; - Indirect ELISA-NSP – 53,954 serum tests for FMDV non-structural protein antibodies; - Indirect double sandwich ELISA – 450 tests of biological samples; - CFT – 450 tests of biological samples; - Virus isolation – 450 tests of biological samples; - RT-PCR – 1464 tests of biological samples. 1840 tests of samples delivered from foreign countries were performed (Kazakhstan, Mongolia). - Liquid phase blocking indirect ELISA (LPB ELISA) – 900 tests of sera for FMDV non-structural protein antibodies; - Virus neutralization test (VNT) – 900 serum tests; - Indirect double sandwich ELISA – 15 tests of biological samples; - Virus isolation – 15 tests of biological samples; - RT-PCR – 5 tests of pathological samples; - VP1 gene sequence – 5 tests for each.
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Peste des petits ruminants diagnosis	26,957 tests of sheep and goat sera from 84 RF Subjects were PCR tested for PPRV antibodies. Three diagnostic PCR tests of sera from Mongolia were performed.

Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Sheep and goat pox diagnosis	84 tests of samples from 7 RF Subjects were PCR tested. Three diagnostic PCR tests of sera from Mongolia were performed.
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Contagious bovine pleuropneumonia diagnosis	27,667 tests of sera from 84 RF Subjects were ELISA tested.
Food safety	
Title of activity	Scope
Food safety monitoring	56,636 tests of samples from 46 RF regions were performed. Test methods: physico-chemical, microbiological, radiological, ELISA, real-time PCR.

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
- Development and approval of "Methodological Recommendations for Detection of Salmonid Alphavirus by Real-Time Polymerase Chain Reaction"	Control and laboratory diagnosis of alphavirus infection in salmonids	Laboratory expertise health management
- Development and approval of Methodical guidelines for determining the number of copies of the African swine fever virus genome in biological material using real-time polymerase chain reaction (real-time PCR); - Development and		

<p>approval of Methodical guidelines for identification of ASFV genome fragment using polymerase chain reaction with electrophoretic detection (using endogenous internal control); - Methodical guidelines for African swine fever epidemic survey</p>	<p>Control and laboratory diagnosis of African swine fever</p>	<p>Laboratory expertise health management</p>
<p>- Development and approval of Methodical guidelines for identification of classical swine fever virus genome using real-time reverse transcription polymerase chain reaction (real-time RT-PCR - Development and approval of Methodical guidelines for indirect determination of the CSFV strain SC infectivity titer</p>	<p>Control and laboratory diagnosis of classical swine fever</p>	<p>Laboratory expertise health management</p>
<p>-Development of a real-time PCR-based method for detecting the bluetongue virus genome</p>	<p>Control and laboratory diagnosis of bluetongue</p>	<p>Laboratory expertise health management</p>
<p>- Development of a real-time PCR-based method for detecting the CBPP virus genome</p>	<p>Control and laboratory diagnosis of CBPP</p>	<p>Laboratory expertise health management</p>
<p>- Development of real-time PCR for detection of DNA of the vaccine NISHI strain of sheep pox virus used in the Russian Federation</p>	<p>Control and laboratory diagnosis sheep pox</p>	<p>Laboratory expertise health management</p>
<p>- Methodical guidelines for planning and implementation of the</p>		

<p>serological and virological monitoring as part of FMD control; - Methodical guidelines for collection, storage and transportation of wild animal biological samples as part of FMD control in wild fauna</p>	<p>FMD control, including FMD control in wild fauna</p>	<p>Laboratory expertise health management</p>
<p>- Methodical guidelines for subtype H5 and H7 avian influenza virus RNA detection using multiplex real-time RT-PCR - Methodical guidelines for subtype N5 avian influenza virus RNA detection using real-time RT-PCR - Methodical guidelines for Type A avian influenza virus genome amplification using RT-PCR for further determination of its nucleotide sequence using full-size genome sequencing methods</p>	<p>Avian influenza control and laboratory diagnosis</p>	<p>Laboratory expertise health management</p>
<p>- Methodical guidelines for canine adenovirus type 1 antibody detection using microneutralization test - Methodical guidelines for detection of canine enteric coronavirus antibodies using microneutralization assay - Methodical guidelines for canine adenovirus titration using microtitration assay</p>	<p>Laboratory diagnosis of pet diseases</p>	<p>Laboratory expertise health management</p>
<p>- Methodical guidelines for identification of F and ND genes of Genotype IV NDV isolates using RT-PCR and nucleotide sequencing - Methodical guidelines for detection of Genotype VII Avian</p>	<p>Newcastle disease control and laboratory diagnosis</p>	

orthoavulavirus 1 isolates and its derivatives using real-time RT-PCR		
Methodical guidelines for identification of genetically engineered rabies virus vaccine strain using real-time polymerase chain reaction along with melting curve analysis Methodical guidelines for use of test-kit for identification of genetically engineered rabies virus vaccine strain using real-time polymerase chain reaction along with melting curve analysis	Rabies control and laboratory diagnosis	Laboratory expertise health management
Methodical guidelines for use of test-kit for identification and differentiation of the labeled vaccine LSDV strain DELTA-NEETHLING using real-time polymerase chain reaction	Lumpy skin disease control and laboratory diagnosis	Laboratory expertise health management

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
European Union Reference Laboratory for African Swine Fever (CISA-INIA)	Madrid, Spain	Europe	International proficiency tests
			Molecular epidemiology of FMD outbreaks Exchange with FMDV genomic sequences

FMD WRL	Pirbright, England	Europe	according to the MoU of the WOA/FAO FMD Laboratory Network
ARC-Onderstepoort Veterinary Institute	Pretoria, RSA	Africa	Coordination of joint research within BRICS
GD Animal Health	Netherlands	Europe	Avian diseases (International proficiency tests)
Animal Husbandry and Veterinary Services (Ministry of Agriculture and Rural Affairs, PRC) Veterinary and Breeding Agency, Mongolia	China Mongolia	Asia and Pasific	Interaction in case of highly dangerous disease emergency, including FMD. Agreement between China, Mongolia and Russia on transboundary trade and transboundary disease risk mitigation
European Commission for the Control of Foot-and-Mouth Disease (EU FMD)	Rome, Italy	Africa Asia and Pasific Europe MiddleEast	Exchange of information on disease outbreaks, animal vaccination Cooperation between Transcaucasian countries, Russia and Iran on control and prevention of FMD and other transboundary diseases (GF-TADs)
Instituto Zooprofilattico Sperimentale delle Venezie (IZSve)	Padova, Italy	Europe	Multiple shipments of HPAI and ND viruses isolates from poultry farms at the level of initial and significant epidemiological events for comparative research studies
Animal and Plant Health Agency (APHA)	Weybridge, England	Europe	Multiple shipments of HPAI and ND viruses isolates from poultry farms at the level of initial and significant epidemiological events for comparative research studies
National institute for Animal Health, National Agriculture and		Asia and Pasific	Multiple shipments of HPAI and ND viruses isolates from poultry farms at the level of

Food Research Organization (NIAH/NARO)	Japan		initial and significant epidemiological events for comparative research studies
OFFLU Secretariat		Africa Americas Asia and Pasific Europe MiddleEast	Providing genomic sequences of Avian Influenza Viruses H5/H7/H9 every 6 month for OIE/FAO/WHO Network for Avian Influenza

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
International Atomic Energy Agency (IAEA)	Austria	Europe	Study of the virus ecology and birds migrations through testing biological materials from wild waterfowl for avian influenza virus detection and bird species genetic identification, and for determination of stable isotope content in feathers
Institutions and organizations subordinated to the National Veterinary Services	Armenia Azerbaijan Belarus Kazakhstan Kyrgystan Moldova Tajikistan Uzbekistan	Asia and Pasific Europe	Avian influenza and Newcastle disease monitoring and control Updated CIS programme of joint activities to be taken for HPAI and ND prevention

TOR6: EXPERT CONSULTANTS

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

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
Dr Viktor Irza	WOAHA Reference Laboratory	Avian Influenza, Newcastle disease

Dr Valery Zakharov	WOAH Reference Laboratory	FMD
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TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

- The Centre provided consultation and diagnostic services in control and prevention of avian diseases in the Republic of Belarus, Republic of Kazakhstan, Republic of Uzbekistan

- The Centre provided consultations/services to the Islamic Republic of Pakistan for the analysis of the FMD causes in Pakistan and finding solution of the issues related to the FMD outbreaks in the region. Vaccine strains and use of monovalent vaccines with immunogenic activity of at least 6.5 PD50 for the control of the FMD outbreaks are recommended.

- The Centre provided diagnostic services in bovine, ovine and caprine disease control and prevention in Mongolia: Six biological samples collected from cattle were tested for the detection and typing of lumpy skin disease virus.

Three biological samples collected from small ruminants in Umnugobi province were tested for the detection and typing of peste des petits ruminants, sheep pox and contagious ecthyma.

-The Centre provided diagnostic services for FMD control and prevention in Mongolia and Kazakhstan (ELISA, RT-PCR, sequencing)

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 : 21

b) Seminars : 188

c) Hands-on training courses: 10

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
Technical visit (a)	Technical mission on highly dangerous avian disease eradication	Uzbekistan, Kazakhstan, Republic of Belarus	4
Technical visit (a)	Global FMD epidemic situation, antigenic and phylogenetic relatedness of the strains, FMD diagnostic methods	Indonesia	5
Technical visit (a)	Global FMD epidemic situation, antigenic and phylogenetic relatedness of the strains, FMD diagnostic methods	Azerbaijan	5
Technical visit (a)	Global FMD epidemic situation, antigenic and phylogenetic relatedness of the strains, FMD diagnostic methods	Kazakhstan	2

	diagnostic methods		
Technical visit (a)	Global FMD epidemic situation, antigenic and phylogenetic relatedness of the strains, FMD diagnostic methods	Pakistan	3
Technical visit (a)	Global FMD epidemic situation, antigenic and phylogenetic relatedness of the strains, FMD diagnostic methods	Kyrgyzstan	2
Seminars (b)	Biosecurity system in commercial poultry industry. Avian influenza and Newcastle disease prevention and control measures	Republic of Belarus	16
Seminars (b)	African swine fever virus isolation and identification	Republic of Belarus	5
Seminars (b)	Sanger sequencing of animal disease virus fragments (ASFV, PRRSV, AI, ND, etc.)	Republic of Belarus	7
Seminars (b)	Genetic lineages of FMD virus reported in the Middle Eastern and North Eurasian countries. Antigenic matching to production vaccine strains. Examples of the FMD vaccine use in different countries	Pakistan	160
Hands-on training courses (c)	Infectious avian disease prevention in the commercial poultry industry	Republic of Belarus	10

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?H?

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
	VI International conference "Achievements of Scientists for				

International	Veterinary Practice” dedicated to the 60th anniversary of the FGBI “ARRIAH” Postgraduate Department	WOAH Regional Representation for Europe in Moscow	2022-03-22	Vladimir, FGBI “ARRIAH”	100
International	FAO/WOAH Consultative Seminar on Progress Made in the FMD and PPR Regional Roadmap for East Mediterranean Countries	WOAH Regional Representation	2022-09-11	Beirut, Lebanon	

TOR9: DATA AND INFORMATION DISSEMINATION

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

a) Articles published in peer-reviewed journals:

91

1. *A recombinant vaccine-like strain of lumpy skin disease Virus causes low-level infection of cattle through virus-inoculated feed*/I. Shumilova, A. Nesterov, O. Byadovskaya [et al.] // *Pathogens*, 2022. m.Vol. 11, N № 8. - Cm.920
2. *African swine fever in the Primorsky Krai: disease situation and molecular and biological properties of the isolate recovered from a wild boar long bone* /A. R. Shotin, A. S. Igolkin, A. Mazloun [et al.] // *Veterinary Science Today*, 2022. v.V. 11, No. 4.-P.347-358
3. *African swine fever in the Republic of Crimea in 2015-2018* /N.G. Kosharny, S.I. Danilchenko, M. A. Pasunkina [et al.] // *Veterinary Science Today*, 2022. v.V. 11, No. 3.-P.239-247
4. *Alternative approaches to African swine diagnosis in the Russian Federation in 2017-2021* /A. R. Shotin, A. Mazloun, A.S. Igolkin [et al.] // *Problems of Virology*, 2022. v.V. 67, No. 4.-P.290-303
5. *Alternative approaches to the diagnosis of African swine fever in the Russian Federation in 2017–2021*/ Shotin, A. R., Mazloun, A., Igolkin, A. S., Shevchenko, I. V., Elsukova, A. A., Aronova, E. V., & Vlasova, N. N. (2022). *Problems of Virology*, 67(4), 290-303.
6. *An in-depth bioinformatic analysis of the novel recombinant lumpy skin disease virus strains: from unique patterns to established lineage*/A. Krotova, O. Byadovskaya, I. Shumilova [et al.] // *BMC Genomics*, 2022. m.Vol. 23.- Cm.396.-C.1-10
7. *Analysis of foot-and-mouth disease virus spread with milk and dairy products* /A.V. Mischenko, A.M. Gulyukin, A.S. Oganessian, V.A. Mischenko, M.I. Gulyukin / *Veterinaria i kormlenie*. 2022. No. 6. P. 62-64.
8. *Analysis of the process for Newcastle disease virus inactivation* /D. S. Garkina, N. V. Moroz, A. A. Pyatkina [et al.] // *Proceedings of the Federal Centre for Animal Health. -Vladimir*, 2022. v.V. XVIII.-P.536-555
9. *Analysis of the whole-genome sequence of an ASF virus (Asfarviridae: Asfivirus: African swine fever virus) isolated from a wild boar (Sus scrofa) at the border between Russian Federation and Mongolia*/A. S. Igolkin, A.R. Shotin, N.G. Zinyakov [et al.] // *Voprosy Virusologii*, 2022. m.T. 67,N № 2.-C. 153-164
10. *Assessment of the chemical composition of shungite of the zzhoginsky field for Its Use in biotechnology*/A. P. Ponomaryov, S. F. Tyutikov, I. V. Podkolzin, D. Bolshakov // *Geochemistry International*, 2022. m.Vol. 60,N № 2.-C.203-212
11. *Biological properties of highly pathogenic avian influenza viruses isolated in the Russian Federation regions in 2020* / P.D. Zhestkov, A.V. Andriyasov, V.Yu. Sosipatorova [et al.] // *Proceedings of the Federal Centre for Animal Health. -Vladimir*, 2022. v.V. XVIII.-P.700-714
12. *Biological properties of Myxo/ARRIAH-18 strain of rabbit myxomatosis virus* /Ye. D. Kunikova, N.V. Moroz, A. A. Pyatkina, V.Yu. Kulakov // *Veterinarnaya patologiya*, 2022. v.No. 1.-P.48-55
13. *Biological properties of RHDV1/ARRIAH and RHDV2/ARRIAH strains of rabbit hemorrhagic disease virus type 1 and 2* /Ye.D. Kunikova, N.V. Moroz, V.Yu. Kulakov, A.A. Pyatkina // *Proceedings of the Federal Centre for Animal Health. -Vladimir*, 2022. v.V. XVIII.-P.556-580
14. *Biological properties of Salmonella spp. isolates recovered from products of animal origin* /S. Ye. Shmajhel, N.B. Shadrova, S.I.

- Danilchenko, O. P. Selivanova // *Proceedings of the Federal Centre for Animal Health*. -Vladimir, 2022. v.V. XVIII.-P. 729-751
15. Bovine viral diarrhoea: spread, characterization, prevention, diagnosis and control measures/R. I. Bubyakin, S. V. Kononova, O. P. Byadovskaya [et al.] // *Proceedings of the Federal Centre for Animal Health*. -Vladimir, 2022. v.V. XVIII.-P.99-121
16. Capripoxviruses, leporipoxviruses, and orthopoxviruses: Occurrences of recombination/A. V. Sprygin, A. Mazloun, A. van Schalkwyk, S. Babiuk // *Frontiers in Microbiology*, 2022. m.T. 13.- Cm.978829
17. Chernyshev R. S., Sprygin A. V., Shotin A. R. et al. Comparative analysis of full genome sequences of two African swine fever virus isolates recovered from domestic and wild pigs in the Zabaikalsky Krai of the Russian Federation in 2020. *Veterinary Medicine, Zootechnics and Biotechnology*. – 2022. – No. 10. – P. 84-97.
18. Chernyshev R.S., Sprygin A.V., Igolkin A.S., Zhanova T.V., Perevozchikova N.A., Romenskaya D.V., Gruzdev K.N., Mazlum A. Modern approaches to specific prevention of African swine fever (a review). *Agricultural Biology*, 2022, volume 57, No. 4, p. 609-627.
19. Classical swine fever: a retrospective analysis of the epizootic situation in the Russian Federation (2007-2021) and forecast for 2022/ A. S. Oganessian, A. A. Shevtsov, A. V. Scherbakov [et al.] // *Veterinary Science Today*, 2022. v.V. 11, No. 3.-P.229-238
20. Comparative study of ASF serological rapid test [Text]: scientific publication / A. R. Shotin, A. Mazlum, A. S. Igolkin // *Proceedings of the Federal Center for Animal Health*. - 2022. - V. XVIII. - P. 615-633. - 619.6 T78
21. Construction of P JET 1.2 SF GFP-146S FMDV plasmid to obtain positive control for indirect determination of FMDV 146S component concentration in vaccine raw materials for inactivated vaccines/M. I. Doronin, D. V. Mikhailishin, M. N. Guseva [et al.] // *Actual Questions of Veterinary Biology*, 2022. Vol. No.3 (55).-P.68-74
22. Contemporary issues in ensuring biological safety during disposal of biological wastes of animal origin by incineration in the Russian Federation /A. V. Belchikhina, M. A. Shibayev, A. M. Selyanin, A. K. Karaulov // *Veterinary Science Today*, 2022. v.V. 11, No. 1.-P.85-92
23. Coronavirus infections in animals: risks of direct and reverse zoonoses/I. M. Donnik, I. A. Chvala, L. K. Kish, A. M. Ermakov // *Herald of the Russian Academy of Sciences*, 2022. m.T. 92,N № 4.-C.491-496
24. Cryopreservation of primary trypsinized fibroblast cells of chicken embryos using different cryoprotectors/ S. P. Lazareva, B.L. Manin, N. S. Mudrak, D. B. Andreychuk // *Veterinary Science Today*, 2022. Vol. 11, N No. 2.-P.163-168
25. Current approaches to the vaccine development for african swine fever/R. S. Chernyshev, A. V. Sprygin, A. S. Igolkin [et al.] // *Sel'skokhozyaistvennaya Biologiya*, 2022. m.T. 57.-C.609-627
26. Density of wild boar population and spread of African swine fever in the Russian Federation/O. I. Zakharova, A. A. Blokhin, N. N. Toropova [et al.] // *Veterinary Science Today*, 2022. v. V. 11, N No. 2.P.104-113
27. Determination of antibody titer against FMDV strain A No.2269/ARRIAH/2015, genotype A/Asia/G-VII, using indirect liquid-phase blocking ELISA/M. I. Doronin, N. N. Lugovskaya, D. V. Mikhailishin [et al.] // *Actual Questions of Veterinary Biology*, 2022. Vol. No. 3 (55).P.75-83
28. Determination of indicators for tests of polysept (polyhexamethylene guanidine hydrochloride) for flocculation properties/M. N. Guseva, M. I. Doronin, M. A. Shevchenko [et al.] // *Veterinary Science Today*, 2022. v. V.11, N No. 3.P.254-261
29. Determination of reproductive properties of virulent and vaccine classical swine fever virus strains in primary and continuous cell cultures/I. S. Kolbin, A. S. Igolkin, V. L. Gavrilova [et al.] // *Veterinary Science Today*, 2022. v.V. 11, N No. 2.P.149-155
30. Developing real-time RT-PCR to detect RNA of AOAV-1 genotype VII and its derivatives/Guseva N.A., S. N. Kolosov, A. V. Andriyasov [et al.] // *Proceedings of the Federal Center for Animal Health*. -Vladimir, 2022. v.V. XVIII.P.686-699
31. Development of humoral immune response in foxes to rabies vaccine virus strain RV-97/A. V. Shishkov, A. V. Borisov, D. V. Mikhailishin [et al.] // *Proceedings of the Federal Center for Animal Health*. -Vladimir, 2022. v.V. XVIII.-P.448-464
32. Doronin M.I. Indirect determination of FMD virus titre in vaccine-production seed lot with isothermal amplification of viral RNA (NASBA)/M.I. Doronin // *Actual Questions of Veterinary Biology*, 2022. v.V. 54, No. 2.-P.29-37
33. Economic damage associated with foot-and-mouth disease /A. V. Mischenko, A. M. Gulyukin, V. A. Mischenko [et al.] // *Veterinary Medicine*, 2022. v.No. 10.-P.3-8.
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90. Vorobyev V.V. *Anthropogenic impact on Atlantic salmon (salmo salar) population in the Arctic basin of the Russian Federation* / V.V. Vorobyev // *Rybnoe khozyastvo*, 2022. v. No.5.-P.34-46
91. *Whole-genome sequencing of African swine fever virus from wild boars in the Kaliningrad region reveals unique and distinguishing genomic mutations.* /Mazloum, A.; Van Schalkwyk, A.; Shotin, A.; Zinyakov, N.; Igolkin, A.; Chernyshev, R.; Debeljak, Z.; Korennoy, F.I.; Sprygin, A. // *Frontiers in vet.sci.* 12.2022.

b) International conferences:

28

1. *Achievements of the Russian Federation within the framework of FMD surveillance* /V. V. Nikiforov, A. A. Shmelev, S. R. Kremenchugskaya [et al.] // *Proceedings of the international research-to-practice conference on recent achievements in addressing current issues of the agroindustrial complex, Minsk, the Republic of Belarus, 2022.* -P.252-256
2. Chvala I.A., Nikiforov V. V. *Participation in the 44th meeting of the Intergovernmental Council for Cooperation in the Veterinary Field, Kyrgyzstan*
3. *Current issues of avian infectious disease diagnosis and prevention, the Republic of Kazakhstan, Almaty*
4. *FAO Webinar (EMPRESS Animal health), Managing large-scale highly pathogenic avian influenza (HPAI) outbreaks in wild birds (10 February 2022)* Irza V.N., Volkov M.S.
5. Gruzdev K.N. *Participation in the 19th meeting of the GF-TADs Standing Group of Experts on ASF under the OIE GF-TADs umbrella*
6. Gruzdev K.N. *Work in the GF-TADs Group of Independent Experts on African Swine Fever.*
7. *Immunobiological properties of FMD virus isolates recovered in Mongolia and the Republic of Kazakhstan in 2021-2022/A. K. Soloshenko, T. K. Mayorova, S. N. Fomina [et al.]* // *Proceedings of the international research-to-practice conference on recent achievements in addressing current issues of the agroindustrial complex, Minsk, Republic of Belarus, 2022.* -P.39-43
8. *International industry forum "Agrarian Belarus. Meat farm". Section "POULTRY FARMING: healthy poultry is the key to the successful business"; report on measures for highly pathogenic avian influenza control and prevention, 28 September 2022, Minsk;* Irza V.N.
9. *Irza V.N. Forum for poultry farmers of the Central Asian region within the framework of the 25th Central Asian International Exhibition "FoodExpo Qazaqstan"*
10. *Irza V.N. IX Kazakhstani International forum of poultry farmers organized by the Poultry Farmers' Union of Kazakhstan and the Eurasian Poultry Association.*
11. *Irza V.N. Seminar of the Poultry Farmers' Union of Kazakhstan "Reliable technologies for cost effective business in poultry farming" within the framework of the agricultural exhibition AgroWorld Qazaqstan. Report on the ongoing pandemic of highly pathogenic avian influenza. Almaty.*
12. *Irza V.N. VI International scientific conference "Scientific achievements – to veterinary practice" to mark the 60th anniversary of the postgraduate school of the FGBI "ARRIAH", 22-23 March 2022, the FGBI "ARRIAH". Report on the history of establishment of international cooperation in the field of avian diseases*
13. *IV International scientific conference "The Impact of Climate Change on Biological Diversity and the Spread of Viral Infections of Animals in Eurasia" Federal State Budgetary Scientific Institution Federal Research Center for Fundamental and Translational Medicine (Varkentin A.V. Irza V.N. Starov S.K.) (Russia, Novosibirsk)*
14. *Kolbin I.S. and Shotin A.R., VI International scientific conference "Scientific achievements – to veterinary practice" to mark the 60th anniversary of the postgraduate school of the FGBI "ARRIAH" (22-23.03.2022).*
15. *Mazlum Ali, 29 July 2022, International conference "International meeting for ASFV genome sequencing and analysis".*
16. *Meeting of Experts and seminar (videoconference) of the countries of Asia and the Pacific within the GF-TADS framework. Organized by the OIE representation in Japan and the Hokkaido University. Report on the current avian influenza situation in the Russian Federation, Irza V.N.;*
17. *Meeting of the OFFLU Experts in relation to the wide spread of highly pathogenic avian influenza (videoconference), participation in discussion, comment on the situation in the Russian Federation, the FGBI "ARRIAH"; Irza V.N.*
18. *Moroz N.V. Plenary meeting within the framework of the International specialized exhibition FeedVet-2022*
19. *Morozova Ye.O. 15–16 September 2022. International research-to-practice conference on recent achievements in addressing current issues of the agroindustrial complex (Minsk).*
20. *Nikiforov V. V. Participation in the annual reporting meeting of the WOA Reference Laboratory Network for FMD, presentation of report on the activities of the WOA Regional Reference Laboratory for FMD in 2022.*
21. *Online oral presentation at the international conference Mediterranean Geographical Unit (MedGU-22): The spatio-temporal and environmental patterns of tick-borne diseases distribution in the Russian Far East / Malkhazova S., Korennoy F., Shartova N., Orlov D.,*

Surkova G., Vladimirov I., Marrakesh, Morocco, 29 November 2022

22. *Participation in the 5th International forum of poultry farmers of Uzbekistan within the framework of the International Exhibition "UzAgroExpo-2022"*,
23. *Round table within the framework of the annual World Antimicrobial Awareness Week 2022 with participation of the WHO, WOA and UNEP representations.*
24. *Seminar on progress made in the FMD and PPR Regional Roadmap, organized by the FAO and the WOA, the Republic of Lebanon (V. V. Nikiforov, D.V. Mikhalishin, A. Mazlum, L.K. Tyurina, P.A. Solovyev, I.A. Chvala.)*
25. *Shotin A.R., VII International Scientific and Practical Online Conference Detection of borrowings 2022 (20-21 October 2022)*
26. *Sprygin A.V. Meeting of the GF-TADs Standing Group of Experts on Lumpy Skin Disease in South East Europe under the GF-TADs umbrella*
27. *Varkentin A.V., Borisov A.V. Conference on Veterinary Medicine Regulatory Harmonization among the UEMOA (West African Economic and Monetary Union) countries, Ouagadougou, Burkina Faso.*
28. *Webinar organized by OFFLU Pre VCM Meeting, on-line (14.02.22) to exchange information on HPAI in the world (Varkentin A.V. Irza V.N. Starov S.K.)*

c) National conferences:

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1. *Igolkin A.S., Mazloun Ali, Chernyshev R.S., September 6-7, 2022 Diagnosis and monitoring of highly dangerous animal infections. Development of a vaccine against African swine fever, including that to be used orally in wild boars" (Nizhny Novgorod)*
2. *Irza V. N. Interregional Conference on Biological Safety: CURRENT ISSUES OF ANIMAL HEALTH PROVISION, report: Current avian influenza epidemic situation globally and in the Russian Federation. Effectiveness of vaccination in poultry farming with domestically produced medicinal products, Saransk, 26-27 April 2022;*
3. *Irza V.N. Scientific and Practical Seminar of the Sverdlovsk Breeding and Genetic Center (OOO PPR "Sverdlovsk") for chief specialists of poultry establishments of the Russian Federation and neighboring countries: Ways of effective use of parental herds. Provision of farms with breeding products under sanctions. Report on Avian influenza in the farms of the Russian Federation, global current epidemic situation. Ways to solve the problem, September 6- 9, St. Petersburg;*
4. *Seminar within advanced training courses for specialists of the state veterinary services of the FGBI "Veterinary Center", Kazan, on-line lecture on Measures for prevention and control of highly pathogenic avian influenza. Current epidemic situation, methods of laboratory diagnosis, Irza V.N.*
5. *Seminar for specialists of poultry farms of the Bryansk Oblast.*
6. *Seminar for specialists of poultry farms of the Republic of Chuvashia and the Ulyanovsk Oblast.*
7. *Seminar for specialists of poultry farms of the Tyumen Oblast.*
8. *Seminar of the Poultry Union of Russia (Rospticesoyuz): Prevention and control measures for highly pathogenic avian influenza.*
9. *Chernyshev R.S., October 27-28, 2022. Current issues of diagnosis, prevention and treatment of livestock and poultry infectious diseases (Moscow).*
10. *Conferences on the prevention of infectious diseases of cattle. CATTLE. Speech on "Epizootic situation" as one of the causes of production slowdown. Chuvashia 14.06 to 16.06.2022 (Varkentin A.V. Prutnikov P.V., Biryuchenkov D.A.).*
11. *Melnikov V., May 31 - June 03, 2022, V Scientific-Practical Conference "Technology of Closed Water Supply Plants (CCTV)" (Tambov)*

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

28

1. *Consultations for the Subject Veterinary Services for disease free status reconfirmation on FMD, BSE, CBPP and PPR (Spiridonov A.N.);*
2. *Estimated assessment of economic damage caused by foot-and-mouth disease in the Russian Federation for 2018-2020 / V.M. Gulyonkin, O.N. Petrova, A.K. Karaulov //Proceedings of the Federal Center for Animal Health.- Vladimir, 2022. -V. 18.- P. 40-53.*
3. *Implementation of measures to monitor foot-and-mouth disease in the wild animals of the Zabaikalsky Krai in 2018-2020 during the annual migration of Mongolian dzerens/V. V. Nikiforov, E. N. Kalinina, T. R. Mayorova [et al.] // Proceedings of the Federal Center for Animal Health. -Vladimir, 2022. v.V. XVIII.-P.21-39*
4. *Irza V.N. Round table on Epidemic situation on livestock and poultry highly dangerous diseases in the Republic of Bashkortostan, within the framework of the 32nd "Agrocomplex" International Specialized Exhibition under the auspices of the Veterinary Department of the Republic of Bashkortostan. Report on Current avian influenza epidemic situation, avian influenza diagnosis, prevention and control*

methods, FGBI "ARRIAH", 23 March 2022;

5. Lectures on LSD and ASF epidemic situation in the Russian Federation. Within a visit of Sprygin A.V. to the Onderstepoort Veterinary Institute (Pretoria, South Africa).
6. Lecturing and workshops in the Geography Faculty of the Moscow State University on application of the tools of statistical analysis and geospatial modelling in biogeography and ecology (Korennoy F.I.);
7. Meeting on scientific cooperation issues with the Research Institute for Biological Safety Problems of the Republic of Tajikistan.
8. Participation in the 15th Azerbaijan International Agricultural Exhibition "Caspian Agro"
9. Participation in the activities of the Oblast anti-epidemic commission on HPAI and ASF (Vladimir city) 10.08.2022 г. (Varkentin A.V., Gruzdev K.N., Shotin A.R.);
10. Participation in the development of the draft amendments to the domestic regulatory documents: Veterinary rules on African swine fever, Aujeszky's disease, porcine reproductive and respiratory syndrome, etc. and Veterinary rules for determination of the disease status of the pig farms. (Shevtsov A.A.);
11. Participation in the meetings of the EAEU Commission on harmonization of the regulatory documents (in the veterinary field) of the EAEU members;
12. Participation in the meetings of WTO SPS Committee ad hoc working groups: Food Safety and SPS, Risk Assessment, Regionalization, Observer organizations (Oganesyan A.S.);
13. Participation in the VC on incubation eggs organized by the Rosptitsesoyuz (Varkentin A.V., Scherbinin S.V., Karaulov A.K., Starova S.K., Irza V.N.);
14. Participation in the VC organized by the Rosselkhoz nadzor Territorial Administration (TA) and Veterinary Department for Republic of Bashkiria, Chelyabinsk, Sverdlovsk and Kirov Oblasts on the anti-epidemic measures to be taken in case of ASF, HPAI and FMD in the above mentioned regions (Varkentin A.V., Scherbinin S.V.);
15. Presentation "LPAI: control and prevention measures" on the VC organized by the Rosptitsesoyuz (Varkentin A.V.);
16. Presentation for the Veterinary Center: LPAI and control and prevention measures taken for its control globally and in the Russian Federation (Varkentin A.V.);
17. Presentation on highly dangerous animal diseases in the Russian Federation in 2021-2022 and their control and prevention measures during the meeting with the Kazakhstan Veterinary Service in the FGBI "ARRIAH" (Varkentin A.V.);
18. Presentation on HPAI, LPAI and ND during the webinar organized by the Veterinary Center (Varkentin A.V.);
19. Presentation on low-pathogenic avian influenza. Videoconference (VC) training for the veterinary experts of the Belgorod Oblast (Varkentin A.V.);
20. Presentation within the FGBI "ARRIAH" advanced training courses for the veterinarians: African swine fever and classical swine fever epidemiology, prevention, current laboratory diagnostic tools and control measures (Shevtsov A.A.);
21. Presentation: Animal disease situation in Russia: diseases as one of major risks for production (Altai Krai, Siberian Field Day) (Spiridonov A.N.);
22. Presentation: Regionalization and zoning of the Russian Federation (advanced training program for the veterinarians (Spiridonov A.N.);
23. Seminar organized under the priority project "AIC Export": Diagnosis of fish viral diseases for the purposes of the international trade using ELISA, real-time PCR and real-time RT-PCR commercial test-kits. Export certification of fish products. Inspection of the establishments for their compliance with the importing country requirements (Oganesyan A.S.);
24. Webinar on Avian influenza epidemiology, diagnosis, prevention and control measures held by Irza V.N, FGBI "ARRIAH", for veterinary specialists of the Rosselkhoz nadzor Territorial Administrations, Republican, Krai, Oblast Veterinary Departments and veterinary laboratories of the Subjects of the Russian Federation.
25. Webinar on Current biosafety and feeding issues in turkey breeding industry of the National Association of Turkey Producers, report on avian influenza, Irza V.N.
26. Webinar presentation "LPAI: control and prevention measures" (Varkentin A.V.);
27. Webinar within advanced training courses for the State Veterinary Service specialists of the FGBI "Veterinary Center": Lecture on measures for highly pathogenic avian influenza prevention and control. Current HPAI epidemic situation, methods of laboratory diagnosis, October 14, 2022;
28. Webinars and meetings of the Rospticesoyuz for specialists of poultry farms and state veterinary services of the Russian Federation and CIS countries

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

1. Obtaining a patent: Russian Federation, IPC C12Q 1/68 (2006.01); C12N 7/00 (2006.01)/C12Q 1/68 (2022/02); C12N 7/00 (2022/02). Pat. 2773654 Method of indirect control of the completeness of inactivation of the FMD virus antigen using nested reverse transcription polymerase chain reaction followed by agarose gel electrophoresis of amplicons/ Pat. 2773654, M. I. Doronin, D. V. Mikhailishin, A. V. Borisov, N.S. Mudrak; FGBI "ARRIAH"). - No. 2021128361; Applied on 27.09.2021; Published on 07.06.2022, Bulletin No. 16. - Valid from 27.09.2021 to 27.09.2041
2. Obtaining a patent: 2 767 359 Strain A/chicken/Chelyabinsk/314-1/2020 H9N2 of avian influenza virus belonging to genus *Alphainfluenzavirus* species *Influenza A virus subtype H9* for control of antigenicity and immunogenicity of avian influenza vaccines and for production of biological products for diagnosis and specific prevention of subtype H9 type A avian influenza, Osipova O.S., Sosipatorova V.Yu., Zinyakov N.G., Volkova M.A., Andreychuk D.B., Chvala I.A. (application No. 2021113015 of 04.05.2021) Bul. No.8 of 17.03.2022 z
3. Obtaining a patent: 2 768 749 COVID-19 SPECIFIC PREVENTION MEANS FOR CARNIVORES ANIMALS Galkina T.S., Nesterov A.A., Dolgov D.L., Shatokhina I.V., Chvala I.A., Lebedev N.V., Kovalchuk A.V., Borisevich S.V. (application No. 2021116600 of 07.06.2021) Bul. No.9 of 24.03.2022)
4. Obtaining a patent: 2 768 962 TCh (*Testis Capra hircus*) – continuous monolayer subline of month-old kid testicular cells intended for reproduction of pox, peste des petits ruminants and lumpy skin disease viruses and for the manufacture of diagnostic and prevention veterinary biological products Manin B.L, Trofimova E.A., Gusarova S.E., Kononova S.V., Shumilova I.N., Vologina I.V., Kolchanov N.A. (application No.2021110116 of 12.04.2021) Bul No.9 of 22.03.2022
5. Obtaining a patent: 2 770 814 Serum-free medium for cultivation of Syrian hamster kidney cells BHK-21 and production of immunogenic components of cultured FMD and rabies viruses intended for vaccine manufacture Doronin M.I., Mikhailishin D.V., Guseva M.N., Borisov A.V., Lugovskaya N.N. (application No. 2021121410 of 19.07.2021) Bul. No. 12 of 22.04.2022
6. Obtaining a patent: 2 770 815 Tyumen/2019 strain of lumpy skin disease virus belonging to *Dermatitis nodularis bovis* genus *Capripoxvirus* for manufacture of biological products intended for diagnosis and specific prevention of lumpy skin disease Shumilova I.N., Nesterov A.A., Sprygin A.V., Byadovskaya O.P., Kononova S.V., Manin B.L. (application 2021124464 of 16.08.2021) Bul. No. 12 of 22.04.2022
7. Obtaining a patent: 2 773 654 Method of indirect control of FMDV inactivation completeness using nested reverse-transcription polymerase chain reaction followed by agar gel electrophoresis of amplicons Doronin M.I., Mikhailishin D.V., Borisov A.V., Mudrak N.S. (application 2021128361 of 27.09.2021 Bul. No. 16 of 07.06.2022
8. Obtaining a patent: 2 775 745 Method for indirect determination of ribonucleoprotein concentration in vaccine raw materials during testing for maximum extrema of the second derivative graphs for real-time amplification reaction logistic curves Doronin M.I., Mikhailishin D.V., Borisov A.V., Okovyntaya A.V. (application 2021121290 of 16.07.2021) Bul. No.19 of 07.07.2022
9. Obtaining a patent:2 786 213 Method for differentiating the genome of NISHI vaccine strain from sheep pox field isolates using real-time polymerase chain reaction with high-resolution peak analysis Sprygin A.V., Krotova A.O., Mazlum Ali, Shalina K.A., Prutnikov P.V., Nesterov A.A., Shumilova I.N., Doronin M.I., Byadovskaya O.P. (application No. 2022122746 of 23.08.2022) Bul. No.35 of 19.12.2022
10. Development and approval: Methodical guidelines for determination of polycept (polyhexamethylene guanidine) flocculent properties. (Guseva M.N., Shevchenko M.A., Doronin M.I., Gochmuradov Y.M., Mikhailishin D.V.).
11. Development and approval: Methodical guidelines for detection of adenovirus type III genome using real-time polymerase chain reaction (Sprygin A.V., Nesterov A.A., Krotova A.O., Shumilova I.N., Byadovskaya O.P.).
12. Development and approval: Methodical guidelines for adenovirus type VII genome detection using real-time polymerase chain reaction (Sprygin A.V., Nesterov A.A., Krotova A.O., Shumilova I.N., Byadovskaya O.P.).
13. Development and approval: Methodical guidelines for distemper virus titration using microtitration assay (Kiselyov A.M., Komarova A.A., Galkina T.S., Klimova A.A.).
14. Development and approval: Methodical guidelines for canine enteric coronavirus titration using microtitration assay (Komarova A.A., Galkina T.S., Kiselyov A.M., Klimova A.A.).
15. Development and approval: Methodical guidelines for canine parvovirus enteritis agent titration using HA micromethod modification (Klimova A.A., Komarova A.A., Kiselyov A.M., Galkina T.S.).
16. Development and approval: Methodical guidelines for bovine herpesvirus type 4 isolation in cell culture (Nesterov A.A., Shumilova I.N., Kononova S.V., Sprygin A.V., Byadovskaya O.P.).
17. Development and approval: Methodical guidelines for the detection of parapoxvirus DNA using real-time polymerase chain reaction (Krotova A.O., Sprygin A.V., Nesterov A.A., Shumilova I.N., Shalina K.A., Gubenko O.G., Byadovskaya O.P.).
18. Development and approval: Methodical guidelines for detection of distemper virus antibodies using microneutralization assay (Kiselyov A.M., Galkina T.S., Klimova A.A., Komarova A.A.).
19. Development and approval: Methodical guidelines for detection of canine enteric coronavirus antibodies using microneutralization assay (Komarova A.A., Galkina T.S., Klimova A.A., Kiselyov A.M.).
20. Development and approval: Methodical guidelines for *Escherichia coli* antibody detection in sera of laboratory animals using indirect

enzyme-linked immunosorbent assay (Bukhon E.A., Fyodorova O.E., Gubenko O.G., Yevgrafova V.A., Prokhvatilova L.B., Byadovskaya O.P).

21. *Development and approval: Methodical guidelines for detection of Streptococcus suis antibodies in sera of laboratory animals using indirect enzyme-linked immunosorbent assay* (Gubenko O.G., Bukhon E.A., Fyodorova O.E., Yevgrafova V.A., Ruchnova O.I., Byadovskaya O.P).

22. *Development and approval: Methodical guidelines for detection of Mycoplasma bovis antibodies in sera of laboratory animals using indirect enzyme-linked immunosorbent assay* (Fyodorova O.E., Bukhon E.A., Bryantseva M.S., Abed Alkhussen Mokhammad, Yevgrafova V.A., Byadovskaya O.P).

23. *Development and approval: Methodical guidelines for detection of Pausterella multocida antibodies in rabbit sera using indirect enzyme-linked immunosorbent assay* (Gubenko O.G., Bukhon E.A., Fyodorova O.E., Bryantseva M.S., Yevgrafova V.A., Byadovskaya O.P).

24. *Development and approval: Methodical guidelines for detection of antibodies against bacteria of genus Staphylococcus in sera of laboratory animals using indirect enzyme-linked immunosorbent assay* (Fyodorova O.E., Bukhon E.A., Gubenko O.G., Yevgrafova V.A., Ruchnova O.I., Byadovskaya O.P).

25. *Development and approval: Methodical guidelines for detection of Escherichia coli antibodies in poultry sera using plate agglutination test* (Volkova M.A., Yaroslavtseva P.S., Yevgrafova V.A., Andreychuk D.B.).

26. *Development and approval: Methodical guidelines for detection of Riemerella anatipestifer antibodies in sera of laboratory animals and poultry using plate agglutination test* (Volkova M.A., Yaroslavtseva P.S., Yevgrafova V.A., Andreychuk D.B.).

27. *Development and approval: Methodical guidelines for detection of Avibacterium paragallinarum antibodies in chicken sera using plate agglutination test* (Volkova M.A., Yaroslavtseva P.S., Yevgrafova V.A., Andreychuk D.B.).

28. *Development and approval: Methodical guidelines for detection of Ornithobacterium rhinotracheale antibodies in poultry sera using plate agglutination test* (Volkova M.A., Yaroslavtseva P.S., Yevgrafova V.A., Andreychuk D.B.).

29. *Development and approval: Methodical guidelines for detection of Enterococcus faecalis antibodies in poultry sera using plate agglutination test* (Volkova M.A., Yaroslavtseva P.S., Yevgrafova V.A., Andreychuk D.B.).

30. *Development and approval: Methodical guidelines for detection of Mycoplasma mycoides subsp. mycoides sc (MmmSc) DNA using real-time polymerase chain reaction* (Abed Alkhussen Mokhammad, Krotova A.O., Fyodorova O.E., Nesterov A.A., Prutnikov P.V., Srygin A.V., Yevgrafova V.A., Byadovskaya O.P).

31. *Development and approval: Methodical guidelines for detection of Mycoplasma dispar DNA using polymerase chain reaction with agar gel electrophoresis of amplification products* (Abed Alkhussen Mokhammad, Krotova A.O., Nesterov A.A., Prutnikov P.V., Srygin A.V., Fyodorova O.E., Yevgrafova V.A., Byadovskaya O.P).

32. *Development and approval: Methodical guidelines for detection of Streptococcus suis antibodies in sera of laboratory animals using indirect enzyme-linked immunosorbent assay* (Bukhon E.A., Gubenko O.G., Fyodorova O.E., Yevgrafova V.A., Byadovskaya O.P).

33. *Development and approval: Methodical guidelines for detection of Histophilus somni antibodies in rabbit sera using indirect enzyme-linked immunosorbent assay* (Bukhon E.A., Fyodorova O.E., Gubenko O.G., Yevgrafova V.A., Byadovskaya O.P).

34. *Development and approval: Methodical guidelines for detection of Actinobacillus pleuropneumoniae antibodies in rabbit sera using indirect enzyme-linked immunosorbent assay* (Bukhon E.A., Gubenko O.G., Byadovskaya O.P., Bryantseva M.S., Yevgrafova V.A.).

35. *Development and approval: Methodical guidelines for laboratory reproduction of associated Mycoplasma gallisepticum and Mycoplasma synoviae infection* (Developed by: Kozlov D.A., Volkov M.S., Shishkina D.A., Pronin V.V., Chupina O.A., Irza V.N., Sorokina M.I.).

36. *Development and approval: Methodical guidelines for determination of agglutination activity of Mycoplasma synoviae antigen* (Developed by: Kozlov D.A., Sorokina M.I., Volkov M.S.)

12. Additional comments regarding your report:

PVS training organized by WOAHP with participation of FGBI "ARRIAH" for the officers of the Rosselkhoz nadzor Territorial Administrations and scheduled for March 2022 was not carried out due to political reasons.