

WOAH Collaborative Centre Reports Activities 2023

Activities in 2023

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Centre Information

Title of WOA Collaborating Centre	FGBU VGNKI (The Russian State Center for animal feed and drug standardization and quality)
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Name of the writer:	Olga Ivanova

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

Category	Title of activity	Scope
		<p>A total of 5100 samples were tested within the framework of implementation of the plan for state epizootological monitoring in year 2023 in accordance with the order of the Rosselkhoz nadzor № 1915 dated from December 20, 2022 "On laboratory research as part of the implementation of the Rosselkhoz nadzor state work measures in 2023 "Testing and (or) examination of products subjected to the state veterinary control (supervision)". To monitor for brucellosis disease, 4650 serum samples from cattle and sheep were tested. A significant part of the blood serum samples from animals (99.52%) was negative, 22 samples reacted positively. To monitor for leptospirosis disease, a total of 450 cattle sera were analyzed for the presence of antibodies to 7 Leptospira serogroups (11.77% of positive tests, which corresponds to 53 positive samples). In total, 100 samples of pathological material were subjected to bacteriological studies for the detection of Salmonella spp. 11 samples of the pathological materials contained the causative agent of salmonellosis, which represented 11% of the examined samples. According to the acquired test</p>

<p>Disease control (true)</p>	<p>State epizootiological monitoring</p>	<p>results the incidence rate of salmonellosis in chickens comprise 11% of detections. However, it should be noted that the procedure of sampling of materials for testing within the framework of implementation of the plan for state epizootological monitoring and maintaining objectivity and impartiality of the process are of outmost importance. Salmonellosis is a disease common for both humans and animals and establishing the fact of the bird's infection entails restrictions on the sales of poultry products from the infected farm. It is necessary to talk about this, among other things, because in some years during epizootological monitoring, which is conducted in farms that have the status of salmonellosis-free, positive samples are found. In particular, in year 2022, during the bacteriological examination of 256 samples of pathological material taken from unvaccinated poultry, 2 of the samples were found positive. A total of 5020 PCR tests were carried out to identify pathogens of various infectious agents, including: - Nodular dermatitis of cattle – 1315 samples of washout and whole blood samples of cattle from 10 administrative regions of the Russian Federation; - Bovine leukemia – 860 PCR tests of whole blood samples from 7 administrative regions of the Russian Federation, 12.44% were positive. - Highly pathogenic avian influenza – 335 of various biological samples from 9 administrative regions of the Russian Federation, 0.3% were positive. - Aleutian mink disease - 620 tests of various biological samples from 8 administrative regions of the Russian Federation, 3.38% were positive. - Avian influenza – 335 samples of pathological material and droppings of poultry and wild birds were analyzed, in one sample the genetic material of subtype H9 Avian influenza virus was detected. - Porcine reproductive and respiratory syndrome - 971 PCR tests of the samples from 8 administrative regions of the Russian Federation, in 2 samples from unvaccinated animals the genetic material of the European type PRRS virus was detected. - African swine fever – 674 tests of domestic swine blood serum from 12 administrative regions of the Russian Federation; - Salmonellosis – 245 tests of various biological samples of poultry and livestock, in 10.2% of cases Salmonella spp DNA was detected. 717 samples of pork products were tested for the presence of DNA material of African swine fever virus. In addition, 2980 various PCR tests were carried out on pets and different bird species. As part of the work on vaccine control by the PCR method, 72 vaccines of 20 manufacturers were tested for contamination by 14 various foreign viruses and mycoplasmas.</p>
		<p>As part of the plan of risk identification in serologic reactions (agglutination reaction, RBT, RID) no studies were conducted in order to confirm questionable and positive results. Within the framework of scientific work under the grant of the Russian Science Foundation (project No. 22-26-00093), screening studies of material from 124 free-living moose and roe deer, which were the objects of hunting, as well as deer kept in hunting farms and wildlife farms in Moscow, Smolensk and Tver regions were carried out. Testing was carried out by PCR for</p>

<p>Epidemiology, surveillance, risk assessment, (true)</p>	<p>Epidemiology, surveillance and risk assessment</p>	<p>the presence of the genome of 16 viruses, including bovine viral diarrhoea virus, respiratory syncytial virus of bovines, bovine herpes viruses 1, 2, 4, 5 and 6, bovine coronavirus, SARS-CoV-2, rotaviruses of group A, bovine parainfluenza virus 3, cobuviruses, hepatitis E, adenoviruses and reindeer alphaherpesviruses. Rotavirus RNA was detected in samples of parenchymatous organs of moose shot in the Moscow region and fallow deer from the Smolensk region. Genetic material of pestiviruses was detected in the nasal swab of moose shot in the Serpukhov District of the Moscow Region. DNA fragments of bovine herpes virus were also detected in samples of three roe deer from the Moscow region and five fallow deer from the Smolensk region. The presence of Bovine alphaherpesvirus 5 was confirmed in one of the samples by Sanger sequencing. Bovine herpes virus DNA was also detected in samples from seven moose shot in the Tver region and several districts of the Moscow region: Stupinsky, Orekhovo-Zuevsky, Klinisky, and Ruzsky city districts. Analysis of the nucleotide sequences of the gB Bovine alphaherpesvirus gene fragment conducted for four positive samples confirmed their identity as the type 1 bovine herpes virus (Bovine alphaherpesvirus 1). Content of the viruses discovered in the samples was low. During the examination by the specialists of the veterinary service the animals have been declared clinically healthy. During the testing of samples from moose for presence of viruses from the Adenoviridae family, adenovirus was confirmed in 6 animals, which likely caused a mild respiratory disease in animals. The analysis showed 100% match of the analyzed genome sequence with the sequence of Roe deer adenovirus 1, detected in the Moscow region in 2022 in the roe deer sample and deposited in the international database of nucleotide sequences. Cultural works confirmed the presence of the revivable virus in the material. A weak cytopathic effect during adenovirus isolation on MDBK calf kidney cell culture was observed on day 3. The cytopathic effect was characterized by the appearance of rounded cells and cell-free areas. In general, the effect of the virus was similar to the effect characterized by bovine adenovirus. None of the samples from the tested animals contained genetic material of hepatitis E virus that would exhibit zoonotic potential. No epizootically significant viruses, which cause mass mortality of reindeer, were detected.</p>
<p>Diagnosis, biotechnology and laboratory (true)</p>	<p>Research</p>	<p>- Method for detection of the aadD gene used in genetically engineered constructs of modified bacteria by PCR with real-time detection; - Method for detection of the cat gene used in genetically engineered constructs of modified bacteria by PCR with real-time detection; - Method for detection of the ble gene used in genetically engineered constructs of modified bacteria by PCR with real-time detection; - Method for the detection of genetically modified Atlantic salmon AquAdvantage Salmon by PCR with real-time detection; - Method for detection of sulfonamide resistance genes sul1 and trimethoprim resistance genes dfrA12 in bacteria of the Enterobacteriaceae family by PCR with real-time detection; - Method for detection of</p>

		aadA1/aadA2 genes providing resistance to aminoglycosides in bacteria of the Enterobacteriaceae family by PCR with real-time detection; - Guidelines: "Method of control of immunogenic activity of brucellosis vaccines using cultures of attenuated Brucella strains"
Veterinary medicinal products (true)	Monitoring of veterinary medicinal products	As part of the state task and in accordance with the order of Rosselkhoznadzor, 774 samples of pharmacological medicinal products for veterinary use were tested for compliance with established quality requirements using destructive test methods. Among the samples taken in 2023, which are in civil circulation on the territory of the Russian Federation, the largest percentage (50.8%) represented the samples of medicinal products from foreign manufacturers and 49.2% - from domestic manufacturers. Of these, 60.98% are liquid dosage forms, 35.53% are solid dosage forms and 3.49% of semi-solid dosage forms. During the research, compliance with established quality requirements was confirmed for 95.2% of samples, and non-compliance with established quality and labeling requirements was revealed in 4.8% of samples. Indicators of non-compliance, which were most frequently encountered in 2023: quantitative determination of the substance (35.6%), appearance (description) (8.9%), pH (8.9%), authenticity (8.9%), density (8.9%), labeling (6.7%), degree of color of liquids (4.4%), mass fraction of ethyl alcohol (4.4%), volume of the drug in the bottle (2.2%), etc.
Vaccines (true)	Monitoring of vaccines	217 samples of immunobiological medicinal products were tested for compliance with established quality requirements using destructive test methods. Among the samples taken in 2023, which are in civil circulation on the territory of the Russian Federation, the largest percentage (50.7%) represented the samples of vaccines from foreign manufacturers and 49.3% - from domestic manufacturers. During the research, compliance with established quality requirements was confirmed in 86.6% of samples, and non-compliance with established quality requirements was detected in 13.4% of samples. Non-compliance indicators most frequently encountered in 2023: Activity - 34.5%, Safety - 13.7%, Appearance - 13.7%, Sterility - 6.9%, Stability - 6.9% and others (24.3%)

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
Set of oligonucleotides (Patent RU 2 808 662 C1)	For detection of genetically modified Atlantic salmon by PCR with real-time detection (Bogomazova A.N., Putintseva A.V., Krylova E.V., Kirsanova N.A., Soltynskaya I.V., Kish L.K.)	Laboratory expertise
Package of synthetic oligonucleotide sequences (Patent RU 2 810 576 C1)	For identification and detection of qnrS and qnrB genes, providing resistance to fluoroquinolone in Enterobacteriaceae bacteria family by PCR with real-time detection and ways of their application (Kish L.K., Prasolova O.V., Krylova E.V., Soltynskaya I.V., Timofeeva I.A., Kirsanova N.A., Bogomazova A.N.)	Laboratory expertise

Oligonucleotide package (Patent RU 2 794 156 C1)	For detection of test group tetracycline resistance genes in bacteria by PCR with real-time detection (Ivanova O. E., Prasolova O.V., Krylova E.V., Soltynskaya I.V., Kirsanova N.A., Timofeeva I.A., Putintseva A.V., Bogomazova A.N.)	Laboratory expertise
Campylobacter jejuni bacterial strain (Patent RU 2 796 348 C1)	For microbiological research related to determination of the sensitivity of microorganisms to antibacterial drugs (Ivanova O. E., Kish L.K., Panin A.N., Prasolova O.V., Pomazkova A.V., Akhmetzyanova A.A., Sklyarov O.D., Kirsanova N.A.)	Laboratory expertise
Polyresistant strain of Escherichia coli bacteria (Patent RU 2 797 383 C1)	For determination of the bactericidal effect of antibacterial drugs in veterinary (Prasolova O.V., Pirozhkov M.K., Ivanova O.E., Borunova S.M., Timofeeva I.A., Makarov D.A.)	Laboratory expertise

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOA?H?

No

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

Yes

Name of WOA?H CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
FGBU "ARRIAH"	Vladimir, Russia	Europe	Creation of means of protection against economically and socially significant animal diseases

TOR4 AND 5: NETWORKING AND COLLABORATION

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

Yes

Name of WOA?H CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
UN FAO	Rome, Italy	Europe	For establishing monitoring activities for safety and quality of domestic and foreign veterinary medicinal products on the territory of the Russian Federation

TOR6: EXPERT CONSULTANTS

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

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
Guleichik I.A. - Cand. Sc. Biology Tsaturyan L.G. – Cand. Vet. Science Chupakhina N.A. - Cand. Sc. Biology Kuzmenko M.A.	Department of Bacteriology / Experts on Bacterial medicinal products	pasteurellosis, streptococcosis, bordetellosis, staphylococcosis

Manoyan M.G. - Cand. Vet. Science	Mycology Department / Expert on Mycological medicinal products	mycosis and mycotoxicosis of animals
Zuev Yu.V. - Cand. Vet. Science Shetsova L.I. Atrokhova S.V. - Cand. Vet. Science Egorenkova M.I. Emelyanov I.A. Kudesova A.N. Pugacheva T.N. Rizvanov R.O. Semchenko I.V. Elizbarashvili E.Y. - Cand. Sc. Biology	Virology Department / Experts on Viral medicinal products	specific prevention of viral infections of all kinds of productive and non-productive animals, including wildlife
Rusakov S.V. – Cand. Sc. Biology Lobova P.S. – Cand. Sc. Biology Lysenko E.V. – Cand. Vet. Science Morozova A.V. – Cand. Vet. Science Napalkova V.V. – Cand. Vet. Science Prokofieva M.I. Tanirbergenov T.B. – Cand. Sc. Biology Khristenko V.V. – Cand. Vet. Science	Department of expertise of medicinal products for veterinary use / Experts on pharmacological medicinal products	pharmacological medicinal products for veterinary use
Belyatskaya A.V. (expert certificate № CЭN001777) Poletaeva A.V.	Sector of technical regulation and standardization	regulatory documents for pharmacological medicinal products, examination of instructions for use
Bondarenko V.O. – Doctor of Vet. Science Muravieva V.B. – Cand. Vet. Science Sidorenko A.I. Khodkova Yu. S. Khrushchev A. Yu. – Cand. Chem. Science	Department for Control of safe circulation of pharmaceutical medicinal products / Laboratory for quality control of medicinal products	pharmacological medicinal products for veterinary use
GMP inspectors (3+ years of experience)	GMP audits of foreign manufacturers of medicinal veterinary products	The following list contains information on countries where pharmaceutical companies and producers of veterinary medicinal products and immunobiological medicinal products are located: Hungary, Czech Republic, Uruguay, People’s Republic of China, Germany, Italy, New Zealand, Republic of India, Bulgaria, Brazil, Argentina, Spain, Portugal, Netherlands, Romania, France

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

To ensure the quality of domestically-produced vaccines (produced by FGBU "ARRIAH") intended for export, VGNI provides testings on safety and quality (test parameters: immunogenicity, sterility, activity, safety for animal health). This service is requested by FGBU "ARRIAH" and is provided on a contract base.

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 : 2

b) Seminars : 9

c) Hands-on training courses: 3

d) Internships (>1 month) : 13

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
C	Advanced training courses on detection, identification and quantification of GMOs in products of plant origin, feeds, seeds and planting material	Russia	20

B	- Validation of microbiological control methods - Registration of pharmacological veterinary medicinal products in accordance with the EAEU Circulation Rules - Preparation of an authorized person of the manufacturer of medicinal products for veterinary use - Qualification and maintenance of water treatment systems for pharmaceutical production - Microbiology. Sanitary and epidemiological requirements and rules for working with pathogenic biological agents - Procedure for introducing medicinal products for veterinary use into civil circulation - Risks of cross-contamination in the production of medicinal products. Equipment cleaning	Belarus	25
A	- Quality control of pharmacological drugs using biological analysis methods - Requirements for the organization of production and quality control of medicinal products for veterinary use. Training of pharmaceutical inspectors	Kazakhstan	4
D	In accordance with the existing license to carry out educational activities in postgraduate school, VGNI offers a program "4.2.2. Sanitation, hygiene, ecology, veterinary and sanitary examination and biosafety"	Russia	13

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

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	XXIV International IACMAC Congress on antimicrobial therapy	-	2023-05-24	Moscow, Russia	1
International	XXIV international IACMAC congress on antimicrobial therapy	-	2023-05-25	Moscow, Russia	1
International	II International Youth Conference "Genetic and radiation technologies in agriculture	-	2023-10-19	Obninsk, Moscow region, Russia	1
International	II International Scientific and Practical Conference	-	2023-06-07	Yerevan, Armenia	1
National	Results of testing of cats and dogs for carrying monogenic hereditary diseases conducted in FGBU "VGNI" for 2018-2022	AO "Science Media Projects"	2023-11-14	Moscow, Russia	1

TOR9: DATA AND INFORMATION DISSEMINATION

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

a) Articles published in peer-reviewed journals:

21

1. Bogomazova A., Krylova E., Soltynskaya I., Prasolova O., Ivanova O. *In silico analysis to develop PCR assays for identification of bacterial pathogens in animals: What can we improve?* *Frontiers in Veterinary Science*, Vol. 10, pp. 1235837. DOI: 10.3389/fvets.2023.1235837
2. Fedotov S.V., Surogin M.V., Savenkov K.A. *Comparative effectiveness of the influence of diluents on the biological usefulness of service male sperm.* *Caspian veterinary bulletin*, №2, pp. 46-53
3. Ivanova O., Blumenkrants D., Krylova E., Soltynskaya I., Goncharova A., Chaikin E., Akhmetzyanova A., Panin A. *Founding of the culture collection of antibiotic-resistant strains of zoonotic bacteria in the Russian Federation.* *Veterinary World*, 2023, 16(7), pp. 1451–1460. DOI: 10.14202/vetworld.2023.1451-1460
4. Prasolova O., Krylova E., Bogomazova A., Soltynskaya I., Sklyarov O., Gordeeva V., Timofeeva I., Motorygin A., Panin A. *Russian collection of Brucella abortus vaccine strains: annotation, implementation and genomic analysis.* *Frontiers in Veterinary Science*, 2023, Vol. 10, pp. 1154520. DOI:10.3389/fvets.2023.1154520
5. Yatsentyuk S., Pobolelova Ju., Gordeeva V., Timofeeva I. *Whole-genome sequencing of Histophilus somni strains isolated in Russia.* *Veterinary World*, 2023, 16 (2), pp. 272–280. DOI:10.14202/vetworld.2023.272-280
6. Kish, L.K. *Lipophilic properties of pesticides: bioaccumulation and biomagnification in animal organisms, prediction of toxicity / L.K. Kish, O.I. Lavrukhina, A.V. Tretyakov, D.A. Makarov, I.N. Nikonov, I.I. Kochish.* *Agricultural Biology*, 2023, Vol. 58, pp. 6
7. Makarov, D.A. *Study of the stability of antibiotics in samples of livestock products. Results analysis / D.A. Makarov, E.S. Kozeicheva, T.D. Penkov.* *Product Quality Control*, №1 (2023), pp. 44-48
8. Makarov D.A., Ivanova O.E., Vinogradova A.G., Kuzmenkov A.Y., Kozlov R.S. *Antibiotic resistance of zoonotic and indicator bacteria isolated from productive animals. Practical guide, Smolensk, 2023. A printed version exists. It is possible to draw up an implementation certificate*
9. Makarov D.A., Kozeicheva E.S., Khishov A.S. *Problem of antibiotic contamination of products of plant origin.* *Product Quality Control*, 2023, № 6, pp. 36-41.
10. Prasolova O.V., Kish L.K., Malik N.I., Babushkina A.E., Grityuk V.A. *Establishing the collection of representatives of normal microflora of farm animals in Russia, regulatory aspects // Veterinary.* 2023, № 10, pp.62-67. DOI: 10.30896/0042-4846.2023.26.10.62-67
11. Prasolova O.V., Krylova E.V., Soltynskaya I.V., Putintseva A.V., Timofeeva I.A., Kirsanova N.A., Osipova S.A., Ivanova O.E., Kish L.K. *Identification of resistance genes in the framework of veterinary monitoring.* *International bulletin of Veterinary Medicine*, 2023, № 2, pp.77-85. DOI: 10.52419/issn2072-2419.2023.2.77
12. Pchelnikov A.V., Yatsentyuk S.P., Krasnikova M.S. *Circulation of bovine herpes viruses (Herpesviridae: Varicellovirus) and bovine diarrhea viruses (Flaviviridae: Pestivirus) among wild even-toed ungulates of the Moscow region.* *Problems of virology*, 2023, Vol. 68, № 2, pp. 142-151.
13. Pchelnikov A.V., Yatsentyuk S.P., Krasnikova M.S., Dolinskaya K.G. *Natural outbreaks of infectious bovine rhinotracheitis in the Moscow region.* *Scientific notes Kazan Bauman state academy of veterinary medicine*, 2023, Vol. 256, № 4, pp. 206-212.
14. Pyrsikov A.S., Petrov A.S., Stepchenko N.I., Milyukova N.A. *Search and analysis of loci of glycoproteins responsible for grain quality parameters in varieties of spring triticale.* *Fudder journal*, 2023, №8, pp. 35-39
15. Savenkov K.A., Makarov D.A., Lavrukhina O.I., Tretyakov A.V. *Chemical contamination of feeds containing components of animal origin.* *Veterinaria i kormlenie*, 2023, № 2, pp. 66-68
16. Fedotov S.V., Surogin M.V., Savenkov K.A. *Comparative efficiency of the effect of diluents on the biological completeness of sperm of service male dogs.* *Caspian veterinary bulletin*, No. 2, pp. 46-53
17. Khishov A.S., Makarov D.A., Kish L.K. *Toxic properties and permissible levels of glyphosate in food and feed products.* *Journal of Agriculture and Environment*, 2023, № 3 (31)
18. Yatsentyuk S.P. *Detection of bacteria of Campylobacter genus in bull semen used for artificial insemination.* *Veterinary Medicine, Zootechnics and Biotechnology*, 2023, № 10, pp. 112-119
19. Yatsentyuk S.P. *Study of metagenome of bull semen.* *Innovations and food security*, 2023, № 3(41), pp. 31-39
20. Yatsentyuk S.P., Kapustin A.V. *Study of microbial composition of cryopreserved bull semen.* *Proceedings of the All-Russian Research Institute of Experimental Veterinary Science named after YA.R. Kovalenko*, 2023, № 83, pp. 161-164
21. Yatsentyuk S.P., Krasnikova M.S., Dolinskaya K.G., Pchelnikov A.V. *Study of circulation of viral pathogens among deer of Moscow region.* *Proceedings of the All-Russian Research Institute of Experimental Veterinary Science named after YA.R. Kovalenko*, 2023, № 83, pp. 299-304.

b) International conferences:

3

1. Gorbacheva N.S., Yatsentyuk S.P., Kozlova A.D., Brusova M.B., Krasnikova M.S. *Studies of Immunobiological Drugs for the Prevention of Poultry Diseases on the Presence of Avian Gyrovirus 2 (Agv2) Contamination by PCR in Real Time Mode.* In *Proceedings: Socially Significant Infections of Farm Animals: Prevention and Control Measures. Materials of the II International Scientific and Practical Conference. Moscow-Yerevan, 2023.* pp. 64-71.
2. Krylova E.V., Kirsanova N.A., Putintseva A.V., Chaikin E.A., Prasolova O.V., Gordeeva V.D., Soltynskaya I.V., Ivanova O.E. *Full genome sequencing of Staphylococcus aureus isolates isolated from samples from animals and from the environment at agricultural enterprises during the monitoring of antibiotic resistance.* *Abstracts of the XXIV International IACMAC Congress on antimicrobial therapy.* 24-26.05.2023. CMAC. 2023. V. 25. Appendix 1, pp. 34.
3. Krylova E.V., Osipova Y.A., Leukhina O.O., Timofeeva I.A., Soltynskaya I.V., Bogomazova A.N., Borunova S.M., Ivanova O.E., Kish L.K. *Development and validation of PCR method for the detection of aadA group genes that provide resistance to aminoglycosides in bacteria of the family Enterobacteriaceae.* *Abstracts of XXIV international IACMAC congress on antimicrobial therapy.* 24-26.05.2023. CMAC. 2023. V. 25. Appendix 1, pp. 34-35.

c) National conferences:

3

1. Krylova E.V., Putintseva A.V., Timofeeva I.A., Kirsanova N.A., Osipova S.A., Soltynskaya I.V. *Results of testing of cats and dogs for carrying monogenic hereditary diseases conducted in FGBU "VGNKI" for 2018-2022.* *Molecular Diagnostics, Proceedings, composite author.* Moscow: AO "Science Media Projects", 2023, pp.331-333.
2. Lugovaya I.S., Azarnova T.O., Bachinskaya N.A., Burlakova G.I., Kravchenko A.L. *"Influence of ammonium succinate on the indicators of biocontrol of chicks".* *Collection of highly efficient technologies in the agro-industrial complex, Yelets*, 2023, pp. 130-131. *Collection of materials of the III All-Russian scientific-practical conference.*

3. Pyrsikov A.S., Krylova E.V., Bogomazova A.N., Soltynskaya I.V., Gordeeva V.D., Prasolova O.V., Ivanova O.E. Analysis of mobile genetic elements in isolates of bacteria isolated in veterinary resistance monitoring. Collection of reports of the II International Youth Conference "Genetic and radiation technologies in agriculture", Obninsk, 19-20.10.2023, NRC «Kurchatov Institute» – RIRAE, pp. 76-78.

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

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

- Development of methods for genetic identification of infectious animal disease

- VGNKI obtained a mega grant "Development of means for the prevention of socially significant infections in productive animals based on modern methods of nutrigenomics"

- VGNKI is studying the possibilities of using alternatives to antibiotics in view of consortia of probiotic strains of lactobacilli that have immunomodulatory and antagonistic properties against *Salmonella* and *Campylobacter*

12. Additional comments regarding your report:

No comments