

## CONCLUSION

scientific supervisor, doctor of veterinary sciences, professor Fotina H.A. for the dissertation work of Xueqin Zhao "**Advances in research on mechanism and function of antimicrobial peptides**", which was submitted for obtaining the scientific degree of Doctor of Philosophy to the one-time academic council at the Sumy National Agrarian University, field of knowledge 21 - "Veterinary Medicine", specialty 211 - "Veterinary Medicine".

**1. General characteristics of the acquirer.** The graduate student completed the entire course of study, conducted research, and prepared a dissertation. During the dissertation work, Xueqin Zhao conducted scientific work on the study of the current state of the issues stated in the dissertation. Objects, materials and research methods were chosen, the relevance of the topic, purpose and tasks were formulated. The researcher Xueqin Zhao directly participated in setting tasks, planning and performing experiments, and discussing results. She proved herself to be a responsible, persistent and diligent person. At the meeting of the Academic Council of the Sumy National Agrarian University, the topic of the dissertation work "Advances in research on mechanism and function of antimicrobial peptides" was approved.

**2. Implementation of the educational and scientific program.** The educational and scientific program was completed by a graduate student in full.

**3. Implementation of an individual plan of scientific work.** The individual plan of the scientific work of mining Xueqin Zhao was approved by the decision of the academic council of the Sumy National Agrarian University. The scientific supervisor is Fotina Hanna Anatoliivna, doctor of veterinary science, professor of the department of veterinary expertise, microbiology, zoohygiene and safety and quality of animal husbandry products.

**4. Relevance of the dissertation, purpose and tasks of the dissertation.** Despite the fact that antibiotics have a high antibacterial and anti-inflammatory effect, at the same time they can damage the function of the intestinal barrier, disrupt the intestinal microbial balance and disrupt the intestinal homeostasis of the body. There is also the problem of the emergence of resistant strains of microorganisms. The problems caused by the long-term, large-scale use of antibiotics are becoming more and more serious, and the development of effective and safe substitutes for antibiotics is extremely urgent and inevitable. Having assessed the relevance of the emergence of antibiotic resistance, the dissertation student decided to study the antimicrobial effect of peptides. Xueqin Zhao took into account the insufficient study of these issues when choosing the topic and areas of research for the qualifying scientific work.

**5. Connection of work with scientific programs, plans, topics.** The dissertation is a fragment of the scientific research programs of the National Natural Science Foundation of China (No. 31702259 and 31520103917), the Young Talent Development Project in Henan Province (2020HYTP041), the Key Research Projects of Colleges and Universities in Henan Province (21A230004), the Project of Youth College and University Teachers of Henan Province

(2020GGJS162), the Promotion Project of Henan Institute of Science and Technology (2018JY02), and the Program for Innovative Research Groups (in Science and Technology) in Henan Provincial University (20IRTSTHN025). The materials of the candidate's dissertation are part of comprehensive scientific research of the department of veterinary expertise, microbiology, animal hygiene and safety and quality of animal husbandry products of the Sumy National Agrarian University according to the following thematic plans of research works: "System of monitoring control methods and Veterinary-sanitary measures regarding the quality and safety of animal husbandry products in diseases of infectious etiology" (state registration number 0114U005551, 2014-2019).

**6. Scientific provisions developed personally by the acquirer and their novelty.** The scientific novelty of the research results lies in the fact that the mechanism of the antimicrobial peptide mastoparan X, its ability to destroy gram-negative bacteria in vitro and its anti-inflammatory and barrier recovery functions in pneumonic and enteric diseases in vivo, as well as for the further study of the relationship between microorganisms have been studied for the first time anti-inflammatory and intestinal action. The anti-inflammatory and barrier repair mechanism of MPX in intestinal epithelial cells was also investigated, laying the foundation for reducing the use of antibiotics in livestock and poultry production, this will help to provide some theoretical and practical value for the future application of MPX in animal and poultry disease prevention.

**7. The degree of validity and reliability of the provisions, conclusions and recommendations formulated in the dissertation.** The dissertation consists of an introduction, the main content, which includes 5 chapters, general conclusions, a list of used literary sources with 230 items and appendices. The main content of the work is laid out on 180 pages, including 39 figures and 6 tables. The given conclusions and provisions are well-founded and reliable.

**8. Approbation of the results of the dissertation.** The main provisions and results of the research were reported and received general scientific approval at the annual scientific seminars and conferences of the teaching staff and postgraduate students of the Sumy National Agrarian University of the Faculty of Veterinary Medicine (2018-2022); Fifth Annual Regional Scientific Symposium "One Concept of Health", Kyiv (2019).

**9. The completeness of the publication of the results of the dissertation, the number of scientific publications and the specific personal contribution of the recipient.** The author of the dissertation personally performed experiments in applied and fundamental research. Calculated the obtained results of the reliability of the experiments. The author personally formulated conclusions and recommendations, prepared research materials for publication, participated in the approval and discussion of research results. Based on the dissertation materials, 21 scientific works were published, including 4 – articles in Ukrainian scientific publications, 3 – articles in Scopus journals, 3 – articles in Chinese scientific publications, 9 – abstracts of scientific reports, 1-patent, 1 – methodical recommendations.

**10. Unity of the content of the work, evaluation of the language and style of the dissertation.** The text of the dissertation is written in a competent, technical language, logically and consistently. The structure of the dissertation, the language and style of presentation meet the requirements for the design of doctoral theses. The scientific terminology used in the work is generally recognized, the style of presenting the results of theoretical and practical research, new scientific provisions, conclusions and recommendations ensures the accessibility of their perception and use. In general, the dissertation is a completed scientific work that meets the requirements of specialty 211 - Veterinary Medicine.

**11. Characteristics of the academic integrity of the recipient.** The dissertation was checked for academic plagiarism using a license program.

**12. Compliance of the dissertation with the established requirements.** Dissertation work of post-graduate student Xueqin Zhao "Advances in research on mechanism and function of antimicrobial peptides", which was submitted for obtaining the scientific degree of Doctor of Philosophy at the one-time special council at the Sumy National Agrarian University, field of knowledge 21 - "Veterinary Medicine", specialty 211 - "Veterinary Medicine" fully corresponds requirements for the preparation of dissertations, which are approved by the order of the Ministry of Education and Culture of Ukraine dated 12.01.2017 No. 40 with changes and additions introduced by the order of the Ministry of Education and Culture of Ukraine dated 31.05.2019 No. 759 and the requirements of the Procedure for awarding the degree of Doctor of Philosophy and the cancellation of the decision of the one-time specialized academic council of the institution of higher education, scientific institution on awarding the degree of Doctor of Philosophy, which was approved by the Resolution of the CMU dated 12.01.2022 No. 44. The dissertation can be submitted for defense, and its author is Xueqin Zhao. deserves to be awarded the scientific degree of Doctor of Philosophy in specialty 211 - "Veterinary Medicine", Field of Knowledge 21 - "Veterinary Medicine"

Scientific Supervisor, Doctor of Veterinary Science  
Professor

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H.A. Fotina

