Darya Vodolazska
DVM, PhD

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Scientific focus areas

I work in the field of veterinary science and translational research. I specialize in developing and applying robust experimental models to investigate both systemic and local immune responses, enabling mechanistic insight into host–pathogen interactions, immune activation, and gut barrier function.

The central focus of my research is to support global efforts to mitigate antimicrobial resistance (AMR), by gaining knowledge and understanding of the biological processes that underlie disease resilience, progress and recovery, especially in early-life stages.

Essentially, my research advances pigs as translational models for studying diseases that are relevant to both veterinary and human medicine. By generating mechanistic knowledge applicable across species, my work aligns with the One Health framework, contributing to AMR mitigation.

Areas of expertise and interest

Extensive experience in cross-species disease research and comparative biomedical disease models, inflammatory disorders, including acute and chronic immune responses. I strive to advance our knowledge on immune priming and disease resilience through the aims of One Health and antimicrobial resistance mitigation. I have in-depth expertise in host–pathogen interactions, early-life programming and gut development, inflammatory biomarkers profiling, assessment of gut barrier function and gut histopathology; integration of structural and functional data; design of controlled animal trials, development of systemic (e.g., LPS) and local (e.g., enteric pathogens) inflammatory challenge models.

Strong skills in technical, communicative and ethical competencies

- Design and conduction of animal experiments
- Development and refinement of animal infection models
- Collection and processing of biological samples
- Immunoassays
- Basic and specific histological techniques
- Image analysis of tissue specimens (QuPath)
- Molecular technics for assessment of gut permeability and immune activation
- Robust biostatistics, data analysis, and data visualization (R)

- Ethical compliance and animal welfare in research procedures
- Project coordination across interdisciplinary research teams
- Strong scientific writing and communication skills (manuscripts, grant applications, presentations)
- Adaptability and problem-solving in complex research settings

Current academic position

2023 – Present Postdoc, Department of Animal and Veterinary Sciences, Aarhus University

The project focuses on reducing antibiotic use by improving intestinal robustness and resilience in piglets through deeper understanding of gut microbiome–host–nutrition interactions. By developing strategies that strengthen piglets' natural defenses, the project aims to enable sustainable, antibiotic-free pig farming. This work supports global antimicrobial resistance mitigation efforts and promotes more responsible and resilient animal production systems.

Funding provided by the Novo Nordisk Foundation

Education:

2023 PhD Degree (Department of Animal and Veterinary Sciences, Aarhus University)
Thesis: *Early interventions for enhancing the robustness and intestinal health of piglets before and after weaning* (Defended May 30th, 2023), main supervisor: Professor Charlotte Lauridsen

Assessment committee: Professor Jürgen Zentek (Institute of Animal Nutrition, Freie Universität Berlin, Germany), Associate Professor Stine Brandt Bering (Comparative Pediatrics and Nutrition, University of Copenhagen, Denmark), and Adjunct Professor, Stig Purup (Aarhus University)

2019 MSc. Degree in Agrobiology, Aarhus University

2009 Doctor of Veterinary Medicine, Dnipropetrovsk State Agrarian University, Ukraine

Additional training (selected):

Nov, 2024 Intensive course on PhD Supervision, Aarhus University

Aug.-Dec, 2024	University Pedagogical Programme for assistant professors and post-docs. The programme aims to contribute to the professionalisation and quality of university teaching by developing the participants' practical teaching skills and fostering a scholarly approach to teaching, Aarhus University
Aug.-Nov, 2023	Laboratory Animal Science course, for persons carrying out procedures on animals (Function A), designing procedures and projects (Function B) and killing animals (Function D); 7.5 ECTS. The course is accredited by the Federation of European Laboratory Animal Science Associations (FELASA accreditation F032/10) and approved by the Danish Veterinary and Food Administration and is in compliance with the Danish Executive Order 2028 of 14/12/2020, §56 and to Article 23.2 of Directive 2010/63/EU.
Oct. 2023	Research Integrity at Aarhus University (mandatory e-learning course)

Teaching and supervision (see teaching portfolio for more details)

- The Cell/Animal Cell (10 ECTS, Bachelor level, 2024-present)
- Animals and Tissue (10 ECTS, Bachelor level, 2024-present)
- Anatomy and Physiology (10 ECTS, Bachelor level, 2024-present)
- Animal, Veterinarian and Society (10 ECTS, Bachelor level, 2024-present)
- Livestock disease and disease prevention (5 ECTS, Master level, 2019- present)
- Scientific mentorship and supervision: Ongoing supervision of MSc and PhD students, including training in lab techniques, data interpretation, and academic writing

Language skills

- Danish (nativelike competence)
- English (nativelike competence)
- Ukrainian (native speaker)
- Russian (native speaker)
- Polish (basic comprehension)