

БЪЛГАРСКА АКАДЕМИЯ НА НАУКИТЕ
И-Т ПО ЕКСПЕРИМЕНТАЛНА МОРФОЛОГИЯ,
ПАТОЛОГИЯ И АНТРОПОЛОГИЯ С МУЗЕЙ

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СОФИА

Attitude of Reviewer

by Professor Nina Atanassova, PhD, DSc,
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Re: competition for the academic position „ASSOCIATED PROFESSOR“ in the Professional field 4.3. Biological Sciences, specialty "Animal Pathology" in the Department "Pathology" of the Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences, announced in the Newspaper of State no. 107/16.12.2021

Assistant Professor Katerina Todorova is the only candidate in the announced competition for the occupation of the academic position "Associated Professor" in the Department " Pathology " of the Institute of Experimental Morphology, Pathology and Anthropology with Museum, Bulgarian Academy of Sciences. She presents detailed documentation of an active and promising scientists with indisputable indicators for academic promotion.

Assistant Professor Katerina Todorova is graduated in veterinary medicine in University of Forestry in 2005. As a student she worked in veterinary clinics in Sofia. After graduation in 2005, she started his work as assistant professor in the Institute of Experimental Pathology and Parasitology of the Bulgarian Academy of Sciences, where she conducted her research. In 2015 she defended a dissertation for the acquisition of PhD degree at the Institute of Experimental Morphology, Pathology and Anthropology with Museum and in 2016 she was promoted in Assistant Professor. The PhD testis is entitled "Pathomorphological and immunological investigations in experimentally treated chickens with Fumonisin B1" in the specialty of current competition.

Dr. Todorova's participated in the current competition with 53 scientific articles, of which 36 were published in journals registered in the list of NACID with indexed journals in global databases Web of Science and SCOPUS (33 papers) and CABI (Centre for Agriculture and Bioscience International - 3 papers). Twenty four articles with a total IF of 40.157 were published in journals with Impact Factor. According to criteria of Web of Science and SCOPUS, the articles are distributed in the following quartiles: 6 articles with Q1; 3 articles with Q2; 11 articles with Q3; 4 articles with Q4. The international journals with IF in which the scientific works of Dr. Todorova have been published are: Journal of Veterinary Research, The Bulletin of the Veterinary Institute, Viruses, Biomedicines, Open Life Sciences, Acta Biomaterialia, European Polymer Journal, Materials Science and Engineering: C. Bulgarian journals with IF in which Dr. Todorova have published her papers are Comptes rendus de l'Académie bulgare des Sciences, Bulgarian Journal of Veterinary Medicine, Bulgarian Journal of Agricultural Sciences and Bulgarian Chemical Communications. In almost half of the articles the candidate has leading position (1st and 2nd author), that indicates her personal contribution. It is obvious that she is a team-worker who is able to organize a scientific group for interdisciplinary research.

A list of 61 participations in scientific forums in national and international events is presented. The list of citations of Dr. Todorova includes 44 citations of 16 publications.

The scientometric analysis of the research activity clearly indicates that she meets the criteria/requirements of the Regulations on the terms and conditions for obtaining scientific degrees and for academic positions in IEMPAM. According to indicators "G" and "D" Dr. Todorova exceeds the required minimum according to the regulations of IEMPAM-BAS. For example, according to indicator "G7" (*Scientific publications in journals refereed and indexed in Web of Science and Scopus, that are not included in the habilitation thesis*), which requires at least 200 points, she has 231 points; according to indicator D (*citations, requiring minimum of 50 points*) she has got 80 points.

Dr. Todorova's research activity has a clearly defined profile in the field of veterinary medicine with focus on experimental and clinical pathology. Fundamental and clinical achievements were generated with importance for veterinary and human medicine. They are results from candidate's research in the field of pathological and clinical aspects of animal and human deceases with infectious and non-infectious nature. They are domestic and animal deceases – calf pneumoarthrititis, bacterial infections in rodents and birds, parasitic infections. Regarding the pathology of non-communicable diseases, Dr. Todorova develops the topic of her doctoral dissertation. Applying a wide range of molecular biological, biochemical, immunological, virological and morphological methods, the experimental or clinical cases, were studied from macroscopic findings to the level of ultrastructure and nanoparticles. The main topics presented in these studies are related to industrial livestock, game, health and food safety.

The second main field in the research activity of Dr. Todorova is focused on biological activity and safety of newly synthesized, nanostructured materials or natural products by using a complex in vitro and in vivo approaches, for the purpose of their medical application. The biological properties (anticancer, bactericidal, immunomodulatory, antiparasitic effects) are characterized of a number of synthetic substances, such as erufosine, orthonic and inorganic compounds of zinc and iron in compound feeds used in industrial poultry farming.

Parallel studies have been conducted with plant extracts and hemolymph products of invertebrates. In the field of nanomedicine, newly synthesized multifunctional hydrogels and bioactive silver-lignin nanoparticles (Ag @ Lig NPs) have been experimentally used to treat chronic wounds. The biocompatibility of polymer hydrogels for use in the manufacture of implants for surgery and dentistry has been studied

In the field of experimental oncology, the achievements were generated on of the role of human herpesvirus-6 (HHV-6) in the development of autoimmune thyroiditis, bovine leukemia virus (BLV) infection, which due to its high identity with human lymphotropic viruses, is able to infect in vitro human cells. Parvovirus B19 (B19) has been associated with a wide range of human diseases, including autoimmune diseases, and is likely to be involved in the pathogenesis of some cancers.

In the recent years, Dr. Todorova has been working on cellular and molecular mechanisms associated with the onset of muscular dystrophy, using an experimental model of muscle degeneration caused by the parasitic nematode *Trichinella spiralis*. Research is of particular importance for medicine, as it concerns an important problem of health and social importance, such as the disability of patients suffering from this pathology. Chronic fatigue

syndrome in humans has also been studied to establish the etiological agents and association with Epstein-Barr virus (HHV-4).

Assistant Professor Katerina Dimitrova has participated in the implementation of more than 20 research projects funded by the NSF, with Universities (Sofia University "St. Kliment Ohridski", University of Forestry-Sofia, Thracian University-Stara Zagora), European programs (FP7 EU, ESF, COST), EBR-BAS (Lithuania), companies contracts. Dr. Todorova spent short scientific vivitis in Latvia, Germany and Italy. She actively participates in the training of graduates, young scientists, PhD students and specialists from Bulgaria and abroad. He is currently the Acting Head of the Pathology Section.

Conclusion: Based on the materials presented in the competition, I find that Assistant Katerina Stanimirova Todorova, PhD is an active and promising scientist, specialist in the field of cell biology and animal pathology with a focus on oncovirology, experimental oncology, implantology and regenerative medicine. As a result from her research, original fundamental and applied scientific contributions were generated that are important for veterinary and human medicine. In particular, they are important for development of new approaches and strategies for diagnosis and therapy, as well as for elucidation of the factors and mechanisms involved in the initiation and development of diseases. Dr. Todorova conducts interdisciplinary research with specialists in medical chemistry, which corresponds to modern trends in the development of biomedicine. Dr. Todorova's scientific production has high scientometric indicators, that exceeds the criteria in the Regulations of IEMPAM-BAS for obtaining the academic position "Associate Professor". Dr. Todorova demonstrates active project activity, in which she has shown her skills to work in a team. I believe that Assistant Professor Dr. Katerina Todorova fully meets the requirements of regulations for holding the academic position of "Associate Professor" in animal pathology. All this gives me sufficient grounds to convincingly recommend to the Scientific Jury to vote positively for the proposal to the Scientific Council of IEMPAM, Assistant Dr. Katerina Stanimirova Todorova to be promoted into "Associate Professor" in the Department of "Pathology" at IEMPAM-BAS in the scientific specialty "Animal Pathology" in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.4 . Veterinary Medicine.

22.03.2022

Sign:



(Prof. Nina Atanassova, DSc)