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*To the chairman of the scientific jury appointed
with Order No. 524 of 19. 12. 2022 of the Director of the NCIPD*

REVIEW

*for competition for the academic position "Associate Professor"
at the National Center for Infectious and Parasitic Diseases
Specialty "Epidemiology", professional field 7.1. Medicine 7. Healthcare and sports*

*by Professor Dr. Ani Kevork Kevorkyan , PhD,
Head of Department of "Epidemiology and Disaster Medicine", MU Plovdiv*

with only candidate for the position *Dr. Maria Angelova Pishmisheva-Peleva, PhD*

I. Professional and career development of the candidate

Dr. Maria Pishmisheva-Peleva graduated from the Language High School "Bertolt Brecht" in Pazardzhik (with intensive studying of German language) and subsequently higher medical education at MU Plovdiv in 1989. She started working as a general practitioner and held this position until 1992, when she started working at the Department of Infectious Disease / Multiprofile Hospital for Active Treatment, Pazardzhik. In this medical institution, she held the positions of resident physician in infectious diseases (until 1999), senior physician (from 1999 to 2013) and Head of Department (from 2013 to date). From 1997 she is an Infectious Diseases specialist.

She was a volunteer doctor in Turkey after the earthquake in Adapazari, 1999.

In 2019, she defended a dissertation -"Clinical-epidemiological aspects of acute hepatitis E virus infection"- and gained the educational and scientific degree "Doctor of Philosophy - PhD".

She speaks German, Russian and English languages. She is a member of 5 professional and scientific organizations: BMA, BSIB, SBAIDEP, BAM and ECCMID.

Dr. Pishmisheva-Peleva is a member of the Ethics Committee of Multiprofile Hospital for Active Treatment, Pazardzhik; the committee on Nosocomial infections, and the committee on the Hospital's antibiotic policy.

In 2016, she was awarded the "Doctor of the Year" prize by the Bulgarian Medical Association. Also, in 2020 she was nominated in the category "Fighting the Covid-19 pandemic" -

Contribution to the development and strengthening of the authority of the social organization" (Bulgarian doctors who gave their contribution to the fight against Covid-19).

In 2020, she was awarded the Presidential Badge of Honor by the President of the Republic of Bulgaria.

The same year, Dr. Maria Pishmisheva-Peleva was awarded a Diploma for Special Merits of Public Significance by the Pazardzhik Municipality.

II. General description of the submitted materials for the competition.

The documents and materials submitted for the competition meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the specific requirements of the NCIPD - Sofia.

III. Evaluation of the scientific works of the candidate for the overall academic development.

Dr. Maria Pishmisheva-Peleva is the author/co-author of 83 scientific works (in total), presented as follows:

- * dissertation work and she got the educational and scientific degree "Philosophy Degree – PhD";
- *authoreferate;
- *24 full-text publications in scientific journals, refereed and indexed in world-renowned databases with scientific information (Scopus/Web of science), 9 of which with an impact factor;
- *52 full-text publications in peer-reviewed journals, not indexed in world-renowned scientific information databases (journals/collections);
- *1 monograph and
- *4 book chapters/monographs.

Thirteen of the articles were peer-reviewed in the course of the procedure for acquiring the "doctor's degree" (3 of the publications are in journals with an impact factor and 10 in non-refereed databases (magazines/collections).

In the current competition for the acquisition of "Associate Professor", the candidate participates with a total of 69 scientific works, not repeating the evidentiary material according to the previous procedure in the academic development. They are distributed as follows:

dissertation work; 1 monograph; 21 publications in scientific publications, peer-reviewed and indexed in world-renowned databases with scientific information (Scopus/Web of science), 6 of

which in journals with an IF [*Travel Med Infect Dis* (IF2021-20.41), *J Neurovirol* (IF2021-3.739) , *Vector Borne Zoonotic Dis* (IF2019 -2.249), *Vojnosanit Pregl* (IF2019- 0.152), *Wien Klin Wochenschr* (IF2014- 2.723 and *Pediatr Infect Dis J*(IF2019- 2.723); 42 publications in peer-reviewed non-indexed journals and 4 book chapters/monographs.

The presented monographic work "*Hepatitis E - exotic or silent existence*" contains nine separate chapters, including the most recent information on the fifth hepatotropic virus at the time of discovery, however, not in importance, and author's own clinical-epidemiological studies. Through the prism of the regional identity of the HEV infection in Pazardzhik region, Dr. Pishmisheva made a significant contribution to understanding the infection profile at national level.

The detailed clinical-laboratory description of patients with acute hepatitis E and the analysis of the probable risk factors for the infection are pioneering for the country. In addition to the above, the author conducted several epidemiological studies on the HEV prevalence among different population groups with no symptoms of acute liver infection, as well. I greatly appreciate the research in animals (pigs) in co-authorship with veterinarians. It sheds light on one of the virus animal reservoirs. Dr Pishmisheva's own experience, observations, findings, and subsequent recommendations presented in the eighth chapter of the monograph are the most valuable. The proposed algorithm for the diagnosis of acute HEV infection includes a complex of clinical, laboratory and epidemiological criteria, based on author's own data and the recommendations of EASL from 2018. HEV infection should be sought not only among symptomatic patients, but also in all cases with extrahepatic manifestations (patients with Guillain-Barré syndrome, amyotrophic neuralgia, glomerulonephritis, pancreatitis, etc.) and elevation of the liver function tests, which often remain unrecognized.

The distribution of the remaining scientific output (63 articles, 17 of which in English and 46 in Bulgarian) confirm her active participation in the development (concept of scientific research, conduct and design): in 31 articles she is the first author (49%), in 9 articles – the second (14%), in 8 (13%) – the third author, and in the remaining 24% she is the fourth or subsequent author. They cover significant problems in infectology and epidemiology in the following thematic areas: zoonotic infections (Mediterranean spotted fever, CCHF, HFRS, Lyme borreliosis, Anaplasmosis, West Nile fever, Tick-borne encephalitis, etc.), respiratory tract infections (Varicella, Mononucleosis infectiosa, Influenza, Measles, Covid-19); viral hepatitis (Hepatitis A, Hepatitis E); surface infections such as Tetanus, etc. The candidate's teamwork is the basis of joint studies with veterinarians, parasitologists, epidemiologists, etc. in an attempt to cover the topics discussed in a comprehensive and in-depth manner. Many of the laboratory tests and, accordingly, the verification of the pathogens described in the works of Dr. Pishmisheva, were done in the reference laboratories of the NCIPD -Sofia. This guarantees the credibility and high quality of the scientific results, conclusions and recommendations arising from them.

A part of Dr. Pishmisheva's works are dedicated to Viral Hepatitis E, and her interest in this virus and the related manifestations continues even after the dissertation defence in 2019. This is evident by 9 publications, the monograph and book chapter described above. The scientific works contain an in-depth analysis with specific conclusions and references not only to clinical practice and differential diagnostic problems, but also in terms of infection prevention: recommendations are related to testing for HEV of the donor blood and the occupationally exposed contingents, such as workers in pig farms, etc.

Participation in co-authorship in the genotype/subtype determination of HEV isolates from patients with acute hepatitis E are based on highly specialized molecular genetic studies and

serves to the purposes of epidemiological surveillance and sheds additional light on the disease epidemiology in the country.

The other areas of Dr. Maria Pishmisheva-Peleva's research are related to the epidemiology and clinic of other infectious diseases: One of them is Mediterranean spotted fever. The long period of observation (1993-2000) on the clinical manifestations, complications and epidemiology of Mediterranean spotted fever patients in Pazardzhik region enriches the available information for the country and, together with the studies of N. Popivanova and I. Baltajiev in the Plovdiv region, outline a significant part of the nosogeographic area of distribution of *R. conorii* and the vector *Rhipicephalus sanguineus* in southern Bulgaria.

Dr. Pishmisheva has contributed to the study of both viral hemorrhagic fevers registered in Bulgaria - CCHF and HFRS, and again the observation period is long enough (ten years) to outline the clinical and epidemiological characteristics and tendencies. An original contribution for the country, with the participation of the candidate, is the isolation of Puumala hantavirus (PUUV) RNA from a hospitalized patient with HFRS. Dr. Pishmisheva's participation in an international working group to study zoonotic infections, and in particular vector-borne infections, as well as the influence of regional and social factors among 24 countries in Europe, Africa and Asia, completes the information about them in a comparative plan.

Another interesting infection is Legionnaires' disease, which is also the subject of Dr. Pishmisheva's studies – mainly on the clinical manifestations and related complications such as respiratory failure and pneumothorax. Some rarely diagnosed diseases and syndromes are well described in a stylish and scientifically valuable manner – Stevens-Johnson syndrome in three patients with different infectious diseases, Haemophagocytic syndrome and Guillain-Barré syndrome in patients with hepatitis E, Toxocarosis in a patient with pericarditis. The dynamics of specific antibodies and the levels of the main cytokines were studied depending on the clinical severity of COVID 19. In the current competition, Dr. Pishmisheva participated with publications

in Bulgarian journals such as General Medicine (Scopus), Folia medica (Scopus), Infectology, Medical Review, Bulgarian Neurology, etc., as well as in publications with a high scientific impact such as Travel Med Infect Dis (IF2021-20.41), J Neurovirol (IF2021-3.739), Vector Borne Zoonotic Dis (IF2019 -2.249), Panminerva Med (IF2018- 2.186), PLoS ONE (IF2018- 2.776), Pediatric Infect Dis J (IF2014 - 2.723) and others. All of the above is a reason to accept the contributions indicated in Dr. Pishmisheva's self-assessment, contained in the presented scientific and scientific-applied works.

Although the accepted minimum national requirements for the academic position "Associate Professor", participation in scientific forums in the country and abroad is not subject to assessment and does not bring a corresponding number of points to the candidate, I would like to focus in brief on this activity. It is related to the promotion of the candidate's results and achievements among the scientific community.

The total number of participations of Dr. Pishmisheva at specialized scientific forums in her entire professional career to date is 30 (of which 4 at international forums abroad), 14 of which are after acquiring the doctoral degree "PhD" in 2019.

IV. Reflection of the candidate's publications in the national and foreign literature (publication image).

Dr. Pishmisheva's publications, at the time of review, have been cited 50 times in total in Scopus/Web of Science, with an h-index of 4 (excluding self-citations). The citations are mainly from foreign authors, mainly in refereed and indexed editions with an impact factor, which is indicative itself of the scientific quality of the published works in co-authorship with the candidate. The predominant part of the citations is after the dissertation defence - i.e. in the period from 2019 to 2023 (to date) there are 43 (86%), reflecting a very intensive period of research, analysis and sharing of scientific results. Two articles published in PLOS ONE, 2018 with 13 citations and in Vector-Borne and Zoonotic Diseases, 2019 with 8 citations are distinguished with the highest citations. They are related to one of the main directions in Dr.

Pishmisheva's research activity - the study of Hepatitis E virus infection in the country, to which the candidate has made a significant contribution.

V. Teaching activity.

Teaching activity at a university: Dr. Maria Pishmisheva-Peleva teaches third-year students from the "Microbiology and Virology" specialty at the Faculty of Biology of Plovdiv University "Paisii Hilendarski", as a part-time lecturer and assistant and an examiner in the semester exam. Training of specialist doctors at Multiprofile Hospital for Active Treatment, Pazardzhik: for the last 5 years, Dr. Maria Pishmisheva-Peleva has supervised the postgraduate training of three doctors specializing in Infectious Diseases. Two of them have graduated, the third is to come.

VI. Additional scientific activity:

The candidate demonstrates a wide range of scientific interests as an active participant in 3 research projects, 2 of which are international. The topic of the project activity is diverse and is related to the supervision of the causative agents of acute febrile diseases in Bulgaria; zoonotic and vector-borne diseases and immunological memory in SARS-CoV2/COVID-19. The participation in the projects complements the practical skills of Dr. Pishmisheva as a clinician, on the one hand, and enriches her research and teaching experience, on the other hand.

VII. Fulfillment of the minimum national requirements:

The materials submitted by Dr. Maria Pishmisheva-Peleva for the competition reflect research and teaching activities that correspond to the academic position of "Associate professor" in the scientific field and professional direction of the competition and the regulatory criteria and rules of the NCIPD. With a required minimum of 400 points of, Dr. Pishmisheva has submitted evidence for a total of 1594 points, distributed accordingly:

Criterion A (Indicator 1. Dissertation work for the award of degree "PhD" on the topic "Clinical-epidemiological aspects of acute hepatitis E virus infection") - 50 points;

Criterion B (Indicator 3. Habilitation work-monograph - "Hepatitis E-exotic or silent existence", 2022 (ISBN 978-619-7388-38-1) - 100 points;

Criterion D with a total of 666 points with a minimum of 200 points required, distributed as follows: Indicator 7. Publications in scientific publications, refereed and indexed in world-famous databases with scientific information (Scopus and Web of Science) - 21 issues - 231 points;

Indicator 8. Publications and reports published in non-referent journals with scientific review or in edited collective volumes) - 55 issues - 405 points. Indicator 9. Published chapter of a collective monograph - participation in 3 monographs -30 point.

Criterion D with a total of 640 points compared to a required minimum of 50 points, distributed as follows:

Indicator 10. Citations in scientific publications, refereed and indexed in world-famous databases with scientific information or in monographs and collective volumes (Scopus and Web of Science) -585 points; Indicator 11. Citations in monographs and collective volumes with scientific review -20 points; Indicator 12. Citations or reviews in non-refereed journals with scientific review - 35 points;

Criterion E with a total of 138 points distributed as follows: Indicator 15. Acquired medical specialty - 1 specialty - 40 points; Indicator 16. Participation in a national scientific or educational project - 1 project - 15 points; Indicator 17. Participation in an international scientific or educational project – 2 international projects - 40 points; Indicator 20. Published university textbook or textbook that is used in the school network -13 points; Indicator 22. Training of interns, specialists and doctoral students (seminars and practical classes) – 30 points;

In total, the presented data exceed the national minimum requirements for holding academic position "Associate Professor".

I. VIII. Conclusion:

Dr. Maria Pishmisheva-Peleva is a qualified specialist with extensive experience in clinical-epidemiological studies of significant infectious diseases and a fascinating lecturer with an affinity for science. The presented evidentiary material under the current procedure covers the specific scientific criteria for acquiring the academic position "ASSOCIATE PROFESSOR".

Based on this, I would confidently recommend to the members of the Scientific Jury, appointed by order No. P-524/ 19.12.2022, of the Director of the NCZPB-Sofia, Dr. Maria Pishmisheva-Peleva, Phd to be elected as "Associate Professor" in the scientific specialty "Epidemiology" for the needs of the "Epidemiology" department of the NCIPD - Sofia.

Prepared the review:

Prof. Dr. Ani Kevorkyan, MD

09/04/2023