

**ATTN.:Members of the Scientific Jury
assigned upon the Ordinance
N P-109-276/ 25/05/2023
issued by the Rector of
Medical University – Varna**

REVIEW

of the scientific output of Senior Assistant Denitsa Todorova Tsaneva-Damianova, MD, PhD,
Medical University – Varna

in connection with a procedure of taking the „ASSOCIATE PROFESSOR“ academic position
in „Virology“ speciality

by Prof. Radka Mladenova Argirova, DSci, „Virology“ speciality, Acibadem City Clinic
University Multiprofile Hospital for Active Treatment „Tokuda“ – Sofia

DEAR COLLEAGUES – MEMBERS OF THE SCIENTIFIC JURY,

The current review is in connection with a procedure of taking the academic position
“ASSOCIATE PROFESSOR” in the field of higher education 4. Natural sciences,
mathematics and informatics, professional direction 4.3. Biological Sciences, speciality
"Virology". to the Chair of Microbiology and Virology to Medical University, Varna,
Bulgaria. The current procedure is officially announced in the State Gazette under number
28/28.03.2023 г. according to Ordinance N P-109-276/25/05/2023 issued by the Rector
of Medical University – Varna .

Chief Assistant, Dr. Med. Denitsa Todorova Tsaneva-Damianova, PhD, was born in 1983 in
the city of Varna. In 2001, she graduated from the III Science and Mathematics High School
"Academician Metodiy Popov" - Varna, majoring in biology, with advanced studies in
English. She graduated in 2007 from the Medical University "Prof. Dr. Paraskev Stoyanov" -
Varna.

In 2007-2008, she was a resident doctor at Emergency Room-Varna. From 01.02.2012 until
now, she is a medical doctor-virologist, leading a virology laboratory at Medical Diagnostic
Lab. "Status", Varna. In 2012, she became a specialist in virology. She has an additional
qualification as a Master of Health Management and Medico-Social Care - 2019/2021.

Since 2016 until 2019 she is a full-time doctoral student at the Department of Microbiology and Virology of the Medical University of Varna, specialty "Virology". In 2019 she was awarded the educational and scientific degree "Doctor" in the scientific specialty "Virology".

The topic of the dissertation is: "Clinical-laboratory study on the prevalence of viral hepatitis B and D in the general population and in patients with chronic liver diseases in North-Eastern Bulgaria. Duration of HBV the post-vaccination immune response in vaccinated persons" with scientific supervisor Assoc. Prof. Lilia Ivanova.

During the period 2016 - 2019 she is "assistant", in specialty "virology", Department of "Microbiology and Virology" of MU-Varna. From 2019 to the present, she is a senior assistant, in specialty virology to the same Department of MU-Varna.

In the current competition, Dr. Tsaneva-Damianova presents herself with 16 scientific publications, of which 1 dissertation (2019), habilitation work - monograph – 1, in Bulgarian, chapter of a book in English (published abroad) - 1 issue and publications in journals and collections - 14 issues, with SJR and/or IF - 15 issues; articles, others - published in non-refereed journals with scientific review or conference proceedings without IF and SJR (not indexed) - 8 issues. The candidate presents participation in 39 scientific forums in the specialty "virology". In summary, Dr. Tsaneva-Damianova participates in the current competition for associate professor with a total of 1 habilitation thesis (monograph), 14 publications in journals with SJR and/or IF and 1 book chapter in English. **According to the quartile system, the scientometric data corresponds to a total of 207 points, (required minimum of 200), and among the publications there is one with IF and 1 publication is a chapter of a book without IF. A total of 26 citations were found, and the citations are referenced and indexed in the world-famous scientific information databases Web of Science and Scopus (52 points), which exceed the required minimum of 50 points. Closely related to her scientific output is her participation in 4 competitively funded research projects, all in the field of virology.**

The candidate's scientific research is diverse, but all in the field of clinical virology. The main contributions of the works presented can be grouped thematically in the following directions, formulated by the candidate and with which I fully agree:

- 1. Hepatitis viruses - HBV (hepatitis B) and HDV (hepatitis D), HCV (hepatitis C);**
- 2. Herpes viruses - EBV (Epstein-Barr virus), CMV (cytomegalovirus);**
- 3. Viral infections in transplanted and immunocompromised persons;**
- 4. The SARS-CoV-2 (COVID-19) virus.**

Dr. Tsaneva-Damianova's first area of research concerns hepatitis viruses. In this field, her contributions are remarkable and excellently reflected in her publications. The monograph on hepatitis D is read with great interest, it presents not only the interesting facts surrounding the discovery of this smallest virus, but also data from the author's own research (**monograph B3**). HDV genotype I has been determined to be prevalent in Bulgaria (**monograph B3, publication G-7.6**). The severity of liver disease caused by chronic HDV infection is demonstrated to be dependent on virus genotype and viral load. HDV infection accelerates and complicates liver dysfunction. Regarding hepatitis B, an interesting seroepidemiological study was conducted to define the duration of postvaccinal immunity after hepatitis B vaccination in a large number of individuals in the age range 6 months to 20 years covered by the mandatory hepatitis B vaccination program (**Publication G7.7**). In this publication, there is also a proposal for revaccination in persons with insufficient humoral immunity to HBV. In another large seroepidemiological study on the frequency of HBsAg and anti-HCV positivity in patients with non-Hodgkin's lymphomas, a higher frequency for HBV markers than the average for northeastern Bulgaria and the country was found being more prevalent in this group of patients compared to HCV (**Publication G7.9**).

In the next scientific area, publications are presented analyzing and evaluating the possibilities of various additional laboratory methods when working with Herpesviridae viruses. Methods such as avidity tests, immunoblot and RT-PCR aid diagnosis, as well as determine the duration of infection. Original for the country is the applied use of non-invasively obtained clinical material - saliva - in PCR analysis in a symptomatic newborn suspected for CMV infection, the result of which made it possible to start specific treatment in a timely manner. In this area of research, I note the following publications (**publications G7.1, G7.2, G7.5**) with citations in foreign scientific publications. The risk of developing lymphoproliferative diseases in immunosuppressed patients is defined by the study of anti-EA (D) IgG, as a possible marker of viral reactivation (**Publication G7.10**).The significance of the anti-VCA IgG avidity test in patients with infectious mononucleosis and suspected EBV reactivation was determined (**Publication G7.11**).A comparative analysis of the primary immune response was performed against major antigens (VCA) and EA (D) in patients with clinically proven primary infection. Antibody response to the EA (D) antigen as a marker of reactivation in patients at risk of Hodgkin lymphoma and non-Hodgkin lymphoma, immunosuppressed patients, mainly acute myeloid leukemia, and patients with primary infection (infectious mononucleosis) was also determined (**Publication G7. 12**). Real time PCR method was

applied for the first time in the country in the diagnosis of EBV in patients to prove primary and reactivated infection (**Publication G7.13**).

In the other scientific field of research - viral infections in transplanted and immunocompromised patients - the Real time PCR method was applied for the first time and compared to serological markers in defining reactivation of latent infection with viruses from the Herpesviridae family in patients with Hodgkin, Non-Hodgkin lymphomas and other immunosuppressed patients (**Publication G7.13**). A comparative analysis of the primary immune response against the core antigens (VCA) and EA (D) in patients with clinically proven primary infection was performed and the antibody response to the EA (D) antigen was determined as a marker of reactivation in patients at risk, which I mentioned above. (**Publication G7.12**).

As a virologist, Dr. Tsaneva-Damianova has not remained aside from the COVID-19 pandemic either - I read **publication G7.4** with interest. The first seroepidemiological and screening study for Bulgaria (2020) was conducted on the prevalence of antibodies against SARS-CoV-2 among 586 outpatients. In the general population, seroconversion to the COVID-19 virus is essential to define virus spread, and the formation of herd immunity, as well as in the formulation of the algorithms for the prevention and treatment of the infection.

After a thorough acquaintance with the works and participations of Dr. Tsaneva-Damianova, as well as a result of our collegial acquaintance, the image of a precise researcher of a number of important current and insufficiently clarified viral infections in her region - North-Eastern Bulgaria - emerges in front of me. The data obtained by Dr. Denitsa Tsaneva-Damianova are also valid for the entire country. I fully agree with the conclusions and contributions of her research. Since in her development Dr. Tsaneva-Damyanova followed her teachers - Associate Professor V. Rusev and Associate Professor L. Ivanova, it is quite understandable that today we have not only data on the spread of a number of viral infections in North-Eastern Bulgaria , but we also see the trends of this spread over time, as well as the importance of diagnostics and antiviral therapy for the pathology of the entire region. **Therefore, there is an invaluable thematic continuity, combined with updating the research methods, expanding the scope of the target groups - object of the research and enriching the conclusions with new contributions from these studies.**

The academic position "associate professor" also requires serious teaching work. Thanks to the excellent knowledge and use of English and French, Dr. Tsaneva-Damianova copes well with teaching. According to the report on her teaching load, she started it at the MU - Varna

in 2015 and has a teaching experience, including - study load - far more than the mandatory 220 hours. The teaching load includes both Bulgarian and English teaching language /the latter dominates/, with exercises and lectures.

I have already mentioned that I personally know Dr. Denitsa Tsaneva-Damianova, with whom we worked together during her stays in Sofia. She is a thorough, accurate researcher, with abiding interests in virology, a promising scientist, as evidenced by her scientific output.

In conclusion, the comprehensive assessment of the candidate's research and teaching activities, her long-term personal experience in training in modern virology, as well as her personal qualities, gives me the confidence to vote positively for the appointment of Dr. Med.Denitsa Tsaneva-Damianova, Ph.D., chief assistant., at the academic position "Associate Professor" at the MU - Varna. Her achievements exceed the minimum required for an "associate professor". I strongly suggest that the members of the esteemed scientific jury also vote positively.

Sofia, 05.08.2023

Reviewer:

