

ATTN.:Members of the Scientific Jury

assigned upon the Ordinance

N P-109-142/ 23/02/2023

issued by the Vice-Rector of

Medical University – Varna

REVIEW

of the scientific output of Senior Assistant Zhivka Stoykova Demireva-Kalcheva, MD, PhD,
Medical University – Varna

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

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DEAR COLLEAGUES – MEMBERS OF THE SCIENTIFIC JURY,

The current review is in connection with a procedure of taking the academic position “ASSOCIATE PROFESSOR” to the Chair of Microbiology and Virology to Medical University, Varna, Bulgaria. The current procedure is officially announced in the State Gazette under number 102/23.12.2022 г. according to Ordinance N P-109-142/ 23/02/2023 issued by the Deputy Rector of Medical University – Varna.

Senior Assistant Zhivka Stoykova Demireva-Kalcheva, MD, PhD, was born in 1977 in Varna. In 1996 г. she graduated from Highschool “ Acad. Metodii Popov”, Varna, profile “Biology” with advanced teaching in English and after that entered the Medical University (MU) in Varna. She graduates from MU in 2002 , then works in the Emergency in Dobrich and Varna, and briefly – in the Varna District Center for Public Health . She acts consecutively as an assistant to the Chair of Hygiene and Disastrous Situations and to the Chair of Microbiology and Virology in MU, Varna. Currently she is a Senior Assistant to the same Chair and simultaneously – Senior Assistant to the Lab. of Virology in St. Marina Hospital in Varna. In 2011 she published her first research paper, in 2012 passed successfully State exam in Virology and got a certificate for speciality “Virology”|. In 2018 she defends a dissertation titled : „Sero-epidemiological and molecular-genetic studies of Cytomegalovirus infection in risk groups.” Her research in the field is ongoing and later becomes even more profound.

Dr. Stoykova participates in the current competition with 38 scientific publications , one out of them – her dissertation (2018), 10 are presented as equivalent to a monograph (according to quartile system this corresponds to 150 points, minimum 100 points required), another 15 publications meet the requirements as referred and indexed in world data base of scientific information Web of Science and Scopus, according to quartile system this corresponds totally

to 210 points (required minimum – 200 points), some of them have IF and one – is a chapter in a scientific book without IF.

Totally 66 citations of her works have been found; the citation number in the data bases Web of Science and Scopus is 25 and corresponds well to the minimum required (50 points). Additionally, Dr. Stoykova has participated in 28 scientific events with reports as a presenter or in poster sessions. Her activities have been granted in 4 projects, all in a close relation to her topics and interests. She has been a principal investigator of one of the projects and a leading researcher in another one for the time remaining.

The first area of Dr. Stoykova's research is about **serological screening for the prevalence of CMV and EBV in the general population and in different risk groups**. A major contribution in this area is the establishment of the estimated population risk of intrauterine transmission of CMV - 7% in total for the Varna region and 1% risk of transmission in immune pregnant women (B4.8). Importantly, confirmation of the results of the retrospective study was obtained with a prospective study of pregnant women. The influence of age and gender on the onset of primary EBV infection was defined by anti EBV VCA IgM with peaks in two age groups 1 - 5 years and 11 - 20 years (G7.8). The dynamics in the spread of these two infections were also analyzed compared to previous studies. The articles I mentioned have been cited 3 times in our and foreign scientific publications.

In the next scientific area, publications presented are analyzing and evaluating the various **additional laboratory methods such as avidity tests, immunoblot and RT-PCR as an aid in diagnosis, as well as for the detection of duration of infection**. Original for the country is the use of non-invasive clinical material - saliva - in PCR analysis in a symptomatic newborn suspicious for CMV infection, the result of which enables timely initiation of specific treatment. In this field of research, I should mark the publications (B4.2.; B4. 3.; B4. 9) having 3 citations in foreign scientific publications.

In another field of research - **latent viral infections in patients with oncohematological diseases and in immunocompromised patients** - are the most publications and citations of the candidate - 7 publications, 7 citations, the latter refer to 2 articles - B4.1 and D8.1. The need to introduce RT-PCR into routine practice has been confirmed as the method of choice for proving the reactivation of latent viral infections (CMV, EBV, BKV) in patients under immunosuppression due to the underlying disease, after transplantation of solid organs and hematopoietic stem cells. The importance of additional serological diagnostic tests such as anti-EA-(D) IgM and anti-EA-(D) IgG in different groups of immunocompromised patients was analyzed. I especially emphasize that, although confirmatory in nature, these contributions are extremely important for clinical practice in the field of transplantology.

Candidate's interests in the field of **acute and chronic viral hepatitis** follow (articles B4. 4.; D7. 1.; D7. 5.; D7. 9.; D7. 12 and a single article from group 3 – publications, beyond the minimum scientometric requirements for occupying AP "associate professor". Many different aspects of hepatotropic viruses are object of interest in this area. A thorough analysis of occult hepatitis B in patients with liver dysfunction was done. The data show that occult hepatitis B is more common than expected and may be considered as a significant risk factor for the development of more severe liver damage and an important oncogenic factor for the development of cirrhosis and hepatocellular carcinoma.

A study of **post-vaccination immunity against HBV** in a large cohort of healthcare workers indicated the need for booster doses for many of them. The virological responses to antiviral therapy of patients with chronic HBV/HDV hepatitis were evaluated - one of the few such studies in the country. A higher than the average frequency of HBsAg and anti-HCV positivity was found in patients with non-Hodgkin's lymphomas for the region and the country, which might be a significant risk factor for the development of this disease. It is important that these studies are continued by the candidate.

As a virologist, Dr. Stoykova has not remained aside from the **COVID-19 pandemic** either - I have read publications B4.10, G7.2 and G7.7 with interest - all three are actual and pose important questions for discussion. The latter have been published in high IF journals and are most likely to be cited. I appreciate very much the fact that during the pandemic the candidate and the team of virologists and microbiologists have found time to present important diagnostic problems to the medical community.

Regarding a study about the clinical reason for testing for HIV in "St. Marina", Varna, it turns out that the first most common clinical manifestation as a reason for HIV testing is bilateral pneumonia, unresponsive to treatment with conventional antibacterial agents, and secondly, that persons living with HIV are most often co-infected with syphilis. These studies are important and necessary, but from a scientific point of view they confirm previous knowledge.

After a thorough acquaintance with the works and participations of Dr. Stoykova, the image of a precise researcher of a number of important current and insufficiently clarified viral infections in her region - Northeastern Bulgaria - emerges. I fully agree with the distribution into 6 groups of the main topics of the candidate's studies, as well as with the conclusions and inputs of her research. Since in her development, Dr. Stoykova followed her teachers - Associate Professor V. Russev and Associate Professor L. Ivanova, it is quite understandable that today we not only have data on the spread of a number of viral infections in North-Eastern Bulgaria, but also see the trends of this spread over time, the importance of diagnostics and antiviral therapy as well as the pathology of the entire region. Therefore, there is continuity in thematic respect, combined with updating the research methods and expanding of the target groups - the object of the research.

The academic position "associate professor" also requires serious teaching work. Thanks to her excellent knowledge and use of English language, Dr. Zhivka Stoykova successfully copes with teaching - she has a total of 15 years, 9 months. and 22 days of teaching experience, including study load far more than the mandatory 220 hours. The study load includes both training in Bulgarian and in English /the latter dominates/, with exercises and lectures.

It is my pleasure to know personally Dr. Zhivka Stoykova, with whom we worked together during her stays in Sofia. She is a dedicated, accurate researcher with long lasting interests in virology, evidenced by her scientific output.

In conclusion, the comprehensive evaluation of the candidate's research and teaching activities, contributions and participations and in promoting scientific achievements in her field, her long personal and public experience in teaching modern virology, as well as her personal qualities, assures me to vote positively for the appointment of chief assistant Dr. Zhivka Stoykova Demireva-Kalcheva, PhD, to the academic position of "associate professor" at the MU - Varna.

Her achievements far exceed the minimum required for an "associate professor". Because of this , I strongly suggest to the members of the respected scientific jury to vote also positively.

Thus, MU-Varna will be enriched with an experienced and serious clinical virologist who will continue the research and teaching tradition in virology not only in Varna, but also in Bulgaria.

Sofia, May 1st,2023

REVIEWER:

