To:
The Chair of the Scientific Jury,
appointed by Order № I-45/26.03.2025
of the Director of the Institute of Microbiology, BAS (IMikB-BAS)

OPINION

by
Assoc. Prof. Maya Margaritova Zaharieva, Ph.D. – Institute of Microbiology "Stefan Angeloff", Bulgarian Academy of Sciences (IMikB-BAS)

Regarding: Competition for the academic position of "Associate Professor" in Higher Education Field 4. Natural Sciences, Mathematics and Informatics, Professional Field 4.3 Biological Sciences, Scientific Specialty Virology, announced in State Gazette no. 11 of 07.02.2025, for the needs of the Department of Virology, Laboratory "Experimental Chemotherapy of Influenza" at IMikB-BAS.

I declare that there is no conflict of interest between myself and the candidate, Chief Assistant Dr. Lora Simeonova, in accordance with §1, items 2a, 3, 4, and 5 of the Additional Provisions of the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB). The required documents provided to me for the preparation of this opinion meet the requirements of IMikB-BAS and were submitted on time. Chief Assistant Dr. Lora Simeonova is the sole candidate in the competition.

1. Candidate's Biographical Data

a. Education

Chief Assistant Dr. Lora Simeonova received her higher education at Sofia University "St. Kliment Ohridski", obtaining a Bachelor's degree in "Molecular Biology" in 2003 and a Master's degree in "Virology" in 2005.

Since 2005, she has been working as a specialist at the "Experimental Chemotherapy of Influenza" Laboratory, Department of Virology at IMikB-BAS, where she became a full-time PhD student and obtained the degree of Doctor of Science in 2011 with a dissertation titled "Study of the Combined Action of Rimantadine and Oseltamivir against Influenza A Virus."

b. Professional Development

From 2007 to 2015, she worked as an "Assistant" in the above-mentioned laboratory. In 2015, she was promoted to "Chief Assistant" in the same laboratory.

Since 2012, Dr. Lora Simeonova has held the position of Head of the "Experimental

Chemotherapy of Influenza" Laboratory, Department of Virology at IMikB-BAS. She has more than 19 years of professional experience.

c. Qualification

Throughout her scientific career, Chief Assistant Simeonova has acquired significant research experience and expertise in the field of virology, enhanced by training and specializations completed at internationally renowned research centers and universities in France, Italy, Germany, South Korea, and others.

2. Submitted Documents and Fulfillment of Minimum Requirements for the Academic Position

The submitted documents are complete and well-organized. The accompanying tables and summaries show that the candidate not only meets the national minimum requirements but also fulfills the additional criteria of IMikB-BAS for the academic position of Associate Professor.

According to the indicators in Groups G and D under the LDASRB requirements, the candidate exceeds the required number of points. The high ranking of the scientific journals where the presented articles are published is notable—they are peer-reviewed, indexed in globally recognized databases, and have a high impact factor. These facts demonstrate that Dr. Lora Simeonova is well-recognized in both the Bulgarian and international scientific communities. This is further confirmed by the high citation count—148 citations in the Scopus database.

In this competition, Dr. Simeonova has submitted a total of 20 scientific publications, of which:

1. 18 are published in journals indexed in Web of Science and Scopus;
2. 2 are in peer-reviewed scientific collections.

In terms of quartile rankings based on Scopus, Dr. Simeonova has:

- 5 publications in Q1 journals,
- 6 in Q2,
- 4 in Q3.

The majority of the submitted articles are related to the study of antiviral and virucidal activity of natural and synthetic substances, probiotic products, and plant extracts. The scientific theme is particularly relevant in the context of the COVID-19 pandemic, the increasing risk of new epidemics and pandemics, and the urgent need for new antiviral agents.

Dr. Simeonova works with viral models including members of the families Orthomyxoviridae (influenza viruses A and B), Coronaviridae, Herpesviridae, Picornaviridae, and Adenoviridae. She has studied the mechanisms of action of various products and has shown that metabolites from lactic acid bacteria inhibit extracellular HSV-1 and, to a lesser extent, Koi Herpes virus (KHV) virions by blocking viral adsorption to host cells. These studies are particularly promising for aquaculture, as Koi Herpes virus disease is

one of the main causes of significant economic losses in both wild and cultured carp populations worldwide.

Plant extracts from species such as *Tanacetum vulgare*, *Carlina acanthifolia*, and *Rhus typhina* have been studied against a panel of RNA- and DNA-containing viruses. The extract from the aerial parts of *Tanacetum vulgare L.* inhibits HSV-1 replication by blocking viral adsorption to host cells and exhibits direct virucidal activity against extracellular virions. The essential oil from the roots of *Carlina acanthifolia All.* demonstrates radical-scavenging, antibacterial, and antiviral activity against human poliovirus-1 (LSc-2ab). A crude methanolic extract from the leaves of *Rhus typhina L.* shows antiproliferative activity against two human malignant cell lines (breast carcinoma) and moderate inhibitory effect on IAV/H3N2 replication and HSV-1 and IAV/H3N2 adsorption.

Dr. Lora Simeonova has also submitted publications in the field of viral diagnostics, employing classical and molecular techniques to assess the sensitivity of influenza virus strains (H1N1 and H3N2) isolated in Bulgaria between 2004–2007 to neuraminidase inhibitors and M2 blockers. She also presented results related to the viral etiology of certain types of carcinomas and the tracking of HPV 6 viral DNA in studied samples. These results highlight the importance of precise diagnostics in determining the disease stage.

Of particular note are the combined approaches for influenza therapy involving antioxidants and immunomodulatory agents, studied by a team led by Acad. Galabov.

The candidate's publications in the field of viral pathogenesis are significant for better understanding the mechanisms of virus-host cell interactions and for the development of more effective antiviral therapies.

3. Teaching Activities

Dr. Lora Simeonova teaches practical exercises in *Virology* at the Faculty of Biology, Sofia University "St. Kliment Ohridski", within the *Pharmacy* program in Bulgarian. She also reads lectures and teaches practical exercises in *Microbiology and Virology* for the Pharmacy program in English. She has successfully supervised and mentored one **Bachelor's thesis** and one **Master's thesis** at New Bulgarian University (NBU).

4. Project Activities

Dr. Simeonova has participated as both a leader and a team member in **9 scientific projects**, including:

1) **One international project** with researchers from the **Pasteur Institute (Paris)** and **Sciensano (Belgium)**;
2) **Four projects** funded by the **Bulgarian National Science Fund** at the Ministry of Education and Science of the Republic of Bulgaria, in one of which she serves as the **project leader**;
3) **Two projects** with the **Medical University – Varna**;
4) **One project** with **Sofia University "St. Kliment Ohridski"**;
5) **One project** in collaboration with the company **Lumikod Ltd.**

5. Scientific and Applied Contributions

The original scientific and applied contributions presented reflect Dr. Lora Simeonova's **long-term and systematic research** in the fields of **viral pathogenesis and antiviral therapy**. Her work addresses **contemporary challenges** in the **control, prevention, and treatment of viral infections** in both humans and animals. Her significant contributions in the field of **virology** demonstrate that Dr. Simeonova has acquired **extensive knowledge and experience**, providing a **solid foundation** for her future academic development.

6. Critical Notes and Recommendations

I have **no critical remarks or recommendations** regarding the submitted documentation. I am confident that Dr. Lora Simeonova—whom I have known since 2012 as a responsible and competent scientist and a sought-after collaborator for team-based research—possesses the **necessary competence**, **professional experience**, and **scientific enthusiasm** to meet the challenges of a higher academic position. I believe she is fully capable of **managing and leading national and international scientific projects**, as well as **mentoring young scientists**, graduate students, and doctoral candidates, thereby **nurturing the next generation of virologists** and supporting their career growth.

7. Conclusion

Dr. Lora Simeonova meets—and in some respects exceeds—the minimum requirements of the Academic Staff Development Act (ASDA) and the internal criteria of IMicB-BAS for the position of **Associate Professor**. Her scientific achievments attest to her **rich professional experience and competence** in virology.

Taking into account her successful research, teaching, and expert activity in scientific fields relevant to epidemiology and medicine, I give my **strong positive evaluation** and **recommend** that the esteemed scientific jury confer upon **Dr. Lora Simeonova** the academic position of **Associate Professor** in the scientific specialty *Virology*, for the needs of the Department of Virology, Laboratory of Experimental Chemotherapy of Influenza, at the Stephan Angeloff Institute of Microbiology – BAS.

Date: June 13, 2025, Sofia

Signature:
/Assoc. Prof. Dr. Maya Zaharieva/