

SCIENTIFIC STATEMENT

regarding the materials submitted for participation in a competition for the academic position of Associate Professor for the needs of the Department of Virology, Laboratory of DNA Viruses and Oncolytic Viruses, Institute of Microbiology, BAS

by: Field of higher education 4. Natural sciences, mathematics and informatics

professional direction 4.3. "Biological Sciences" (Virusology),

announced in the State Gazette no. 60/29.07.2022

Candidate: Assistant Professor Neli Milenova Vilhelmova-Ilieva, Ph.D

prepared by Assoc. Prof.. Ekaterina Krumova, PhD,

Institute of Microbiology, BAS

The set of materials presented by Assistant professor Neli Milenova Vilhelmova-Ilieva, PhD, is in accordance with the Regulations for the Development of the Academic Staff of SAIM, BAS.

Brief biographical data of the applicant

Assistant Professor Neli Vilhelmova-Ilieva graduated in 2002 at the Sofia University "St. Kliment Ohridski", Faculty of Biology with bachelor's degree Biologist - molecular biologist. She received her master's degree in 2004 at the Sofia University "St. Kliment Ohridski", Faculty of Biology with Master's degree - molecular biologist in virology. From 2009 to 2011 she is a specialist - virologist in the "Virology" department at the "Stefan Angelov" Institute of microbiology (SAIM), BAS. From June 15, 2011 to April 30, 2017, she held the position of assistant in the Department of Virology at SAIM - BAS, and from 2017 and until now she is the assistant professor in the same department of the Institute of Microbiology, BAS.

She obtained the educational and scientific degree "doctor" in 2012 at the SAIM, BAS, Department of Virology on the subject: Investigation of the antiherpes activity of natural substances, and their combined action with ACV on the replication of herpes simplex viruses in vitro.

General characteristics of the applicant's activity

Compliance with the minimum national requirements contained in the Regulations for the implementation of the ZRASRB - Section III. Conditions and procedure for occupying the academic position "associate professor" (amended and supplemented, SG No. 15 of 19.02.2019; Field 4. Natural sciences, mathematics and informatics; Professional direction 4.3. Biological sciences)

According to criterion A - 50 points are required - 50 points are presented.

She received her PhD in 2012 at the Institute of Microbiology, BAS, Department of Virology on the topic: Study of the antiherpes activity of natural substances and their combined action with ACV on the replication of herpes simplex viruses in vitro.

According to criterion B - 100 points are required - 100 points are presented.

Four publications are presented – all of them in Q1 quartile journals. They do not repeat those on the basis of which the dissertation work for the acquisition of the ONS "doctor" is defended.

According to criterion D - 200 points are required - 286 points are presented.

16 scientific publications are presented, which are referenced and indexed in world-famous databases with scientific information (Web of Science and Scopus). Four of them are published in journals with quartile Q1, 3 - in journals with quartile Q2, 2 - in journals with quartile Q3 and 3 - in journals with quartile Q4. Four of the featured publications are book chapters.

According to criterion D - 50 points are required. - 60 points are presented.

assist.prof. Vilhelmova-Ilieva presents a list of 30 citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in a world-renowned database of scientific information (Web of Science and Scopus), which significantly exceeds the minimum required by this criterion.

Fulfillment of the additional criteria for the growth of the academic staff of the "Stefan Angelov" Institute of Microbiology at the BAS.

1. 20 publications in journals with IF/SGR, monographs, chapters of monographs, proceedings of international forums, published in full text, patents (not included for acquisition of arr. and scientific degree "doctor") in 5 of them 1st author or correspondent - 24 publications are presented, one of which is included for the acquisition of the PhD. In 10 of the publications, the candidate is the first author.
2. 100 citations – 120 citations of publications with the participation of assist.prof. Vilhelmova-Ilieva
3. IF-20. The combined impact factor of the published scientific works with the participation of the candidate for the entire scientific career is 46.154, and the impact factor of the publications participating in the competition is 36.295.
4. The H-factor of the candidate is 6 with a required 5.
5. Participation in 3 projects. It can be seen from the submitted documents that assist. professor Vilhelmova-Ilieva participated in 8 projects.

Evaluation of the candidate's scientific and scientific-applied activity

It is clear from the submitted documents that Assist. Prof. Neli Vilhelmova-Ilieva, PhD, participated in the current competition with 23 scientific works, classified in the following groups:

- Scientific publications in editions referenced and indexed in Web of Science and Scopus – 18 .
- chapters from collective monographs - 4
- participation in an international congress, published in full text - 1

The publication in the proceedings of the Second congress of Virology (Days of virology in Bulgaria), 2008 is included in the documents for the acquisition of the PhD and is not reviewed in the current competition.

In 10 of the presented publications, she is the lead author, and in two she is the second author, which proves her essential role in a large part of the conducted scientific research.

The candidate participated in the development of 4 scientific projects with NSF, 2 projects with Bulgarian companies and in two projects with foreign companies. With the results of his scientific research, she participated in 32 scientific forums.

She received an award from the foundation "Acad.Prof. Dr. Stefan Angelov", for the best work of a young microbiologist for 2011.

Assist.prof. Vilhelmova-Ilieva is a part-time lecturer at Southwestern University, Department of Health Care, Faculty of Public Health, Health Care and Sports. For the academic year 2021/2022. she took 25 hours. lectures and 5 hours of exercises.

As an international recognition of the published results, 120 citations of the presented publications are noted. Her H –index, according to Scopus, is 6.

Assist.prof. Vilhelmova-Ilieva also has an active expert activity. She has prepared 10 reviews of scientific publications.

Contributions (scientific, scientific-applied, applied)

The scientific activity of Assist.prof. Vilhelmova-Ilieva is aimed at researching herpes viruses and the antiviral potential of natural and synthetic products.

The original scientific contributions of the candidate are the following:

1. The anti-herpesviral activity of tannins (ellagitannins and halotannins) against sensitive and resistant to ACV - HSV-1 and HSV-2 strains was determined and the synergistic action of the most active representatives administered simultaneously with ACV was proven.
2. The effect of Canadian propolis extract on the replication and viability of extracellular HSV-1 virions was determined.
3. 3. The antiherpetic activity of rose essential oils and products of their production in relation to HSV-1 replication and extracellular virion viability was determined. Their influence on the stage of adsorption of the virus to the host cell and the protective effect they exert on healthy cells were also determined. They have been shown to work synergistically when administered with ACV.
4. The antiviral activity of post-metabolites isolated from various lactic acid bacterial strains (used in the production of various dairy products) was determined; compared their influence on the replicative cycle and viability of extracellular virions of fish (KHV) and human (HSV-1) herpes viruses and determined their influence on the stage of virus attachment to susceptible cells and the protective effect of post-metabolites on healthy cells , before the onset of herpes infection.

Contributions of direct application:

1. The influence of extracts from Bulgarian medicinal plants on the replicative cycle and vitality of the extracellular virions of HSV-1 and human coronavirus (HCoV-43) was determined. The extracts that influence the adsorption stage of the viruses to the cells and whether they protect the cell from subsequent viral infection have been determined. The

extracts are an integral part of the products of the companies "MirtaMedicus" and "Extractpharma", which are sold in the commercial network.

2. The virucidal activity of "LumiSept" - disinfecting gel and lotion was determined according to BDS EN14476:2013+A2.

3. The virucidal activity of air disinfection systems of the company "Atra 96" was determined.

Conclusion

The documents and materials presented by Assist. Professor Vilhelmova-Ilieva meets all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB), the Regulations for the Implementation of ZRASRB and the relevant Regulations of the SAIMQ BAS.

The candidate in the competition has submitted a sufficient number of scientific works published after the materials used in the defense of the PhD. In the presented works there are original scientific and applied contributions that have received international recognition as a representative part of them have been published in journals and scientific collections issued by international academic publishing houses. Theoretical developments have practical applicability. The scientific qualification of assistant Professor Vilhelmova-Ilieva. is undoubted.

The achievements of Assistant Professor Vilhelmova-Ilieva's results in the scientific research activity fully correspond to the minimum national and additional requirements of the Institute of Microbiology, BAS, adopted in connection with the Rules of the SAIM for the application of ZRASRB.

After getting acquainted with the materials and scientific works presented in the competition, analyzing their significance and the scientific, scientific-applied and applied contributions contained in them, I find it reasonable to give my positive assessment and recommend the Scientific Jury to prepare a report-proposal to the Scientific board of the Institute of Microbiology for the selection of assistant professor Neli Vilhelmova-Ilieva at the academic position of "associate professor" at the "Stefan Angelov" Institute of microbiology in: field of higher education 4. Natural sciences, mathematics and informatics, professional direction 4.3. "Biological Sciences" (Virology).

08.12.2022.

**На основание
чл. 2 от ЗЗЛД**

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E. Krumova
/Assoc.Prof. E. Krumova, PhD/