

To
The Chairman of the Scientific Jury,
appointed by Order No. 80 / 16.03.2026
of the Director of the NCIPD, Sofia
Prof. Iva Hristova, MD, DSc

REVIEW

by Prof. Neli Korsun, MD, DSc - member of the scientific jury

Regarding the participation of Assoc. Prof. IVAILO ALEXIEV IVANOV - Doctor of Sciences

In a competition for the academic position of "Professor" for the needs of the Department of Virology at the National Center of Infectious and Parasitic Diseases (NCIPD), announced in the State Gazette, issue 115 of 30.12.2025

I. Candidate's Career Development

Ivailo Alexiev Ivanov is a graduate of the Faculty of Biology at Sofia University "St. Kliment Ohridski", where he earned a master's degree in 1994. Since 2003, he has been working at the National Reference Confirmatory Laboratory (NRCL) of HIV at the NCIPD. He obtained a specialty in "Clinical Virology" in 2008. From 06.2008 to 09.2011, he was a doctoral student at the NCIPD, where, in 2011, he defended a dissertation on the topic "Molecular-virological characterization of the HIV-1 epidemic in Bulgaria through sequencing and phylogenetic analysis" and obtained the PhD "Doctor of Virology". In 2014, he was elected "Associate Professor"; since 2016, he has been the head of the NRCL for HIV, and since 2024, he has been the head of the Virology Department at the NCIPD. In December 2025, he defended his dissertation on the topic "Antiretroviral resistance and molecular epidemiology of HIV-1 in Bulgaria: an integrated analysis of genetic diversity, phylodynamics and demographic correlations" and obtained the scientific degree "Doctor of Sciences". He completed 6 specializations in molecular biological methods and bioinformatics at leading scientific centers in Athens (2006), Cairo (2009), CDC Atlanta, USA (2013), Rome (2014), Luxembourg (2016), and Gainesville, USA (2016, 5 months). The specialization at the University of Florida in Gainesville was based on a Fulbright teaching and research scholarship.

II. Materials Received

I received all the materials for the competition in electronic format. The candidate Assoc. Prof. Ivailo Alexiev has submitted documents that comply with the requirements of the Law on the Development of Academic Staff in the Republic of Bulgaria (LDASRB) and the Regulations for its Implementation in the NCIPD, as well as evidence of meeting the minimum national requirements for holding the academic position of "Professor" (indicators A, Б, В, Г, Д, and E).

III. Compliance of the candidate with the minimum national requirements contained in the Regulations for the Implementation of the Law on the Development of Academic Staff in the Republic of Bulgaria - Conditions and Procedure for Occupying the Academic Position "Professor" (amended and supplemented, State Gazette, issue 59 of 22.07.2025).

Group of indicators	Indicators	Number of points	Required number of points	Number of points based on evidence presented
A	1. Dissertation for the award of the educational and scientific degree "Doctor"	50	50	50
B	2. Dissertation for the award of the scientific degree "Doctor of Science"	100	-	
B	4. Habilitation thesis - scientific publications in journals that are refereed and indexed in world-renowned databases of scientific information (Web of Science and Scopus)	25 for publ. in Q1 20 for publ. in Q2 15 for publ. in Q3 12 for publ. in Q4	100	572
Г	7. Scientific publication in journals that are refereed and indexed in world-renowned databases of scientific information (Web of Science and Scopus), outside the habilitation thesis	25 for publ. in Q1 20 for publ. in Q2 15 for publ. in Q3 12 for publ. in Q4	200	418
Д	11. Citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in world-renowned databases of scientific information (Web of Science and Scopus)	2	100	970
E	12. Obtained scientific degree "Doctor of Science"	75	150	75
	13. Supervision of a successfully defended doctoral student (n is the number of co-supervisors of the respective doctoral student)	50/n		100
	14. Participation in a national scientific or educational project	10		50
	16. Leadership of a national scientific or educational project	20		40
	17. Participation in an international scientific or educational project	20		80
	18. Funds raised for projects led by the candidate	1 point for every 5,000 BGN.		48
Total			600	2403

From the table above, it is clear that the evidence presented by Assoc. Prof. Ivailo Alexiev on the individual groups of indicators from the Regulations for the Implementation of the LDASRB exceed the required number of points. The total number of points of the candidate is 2403, with the required minimum number of 600.

IV. General characteristics of the activity

Scientific production and publication activity

For participation in this competition, Assoc. Prof. Ivailo Alexiev presents a total of 57 scientific papers, of which by indicator B4: 26 scientific publications in journals that are

referenced and indexed in world-renowned databases of scientific information (Web of Science and Scopus) with an impact factor; by indicator I7: 15 scientific publications in journals that are referenced and indexed in world-renowned databases of scientific information (Web of Science and Scopus), outside the habilitation paper with an impact factor and 16 scientific publications without an impact factor. The publications do not repeat those submitted for the acquisition of the ESD "Doctor", the scientific degree "Doctor of Sciences", and for occupying the academic position "Associate Professor". A total of 22 articles have been published in issues with Q1, 12 in issues with Q2, 7 in issues with Q3, and 7 in issues with Q4. The total impact factor of the 41 publications is 172.928. Assoc. Prof. Ivailo Alexiev is the first author in 9 (16%) of the publications, which indicates his leading role in a significant part of scientific research. The candidate presents 485 citations established in the Scopus database. Citations in publications used in the acquisition of the ESD "Doctor", "Doctor of Sciences", and "Associate Professor" are not included. His H-index in Scopus is 18. The citations in the world databases show the significance of the scientific topics developed by the candidate and the recognition of the international academic community.

For participation in this competition, Assoc. Prof. Ivailo Alexiev has submitted a list of participations in 39 scientific forums held abroad and 162 national scientific events. The publications and participations testify to significant publication activity during all periods of the candidate's scientific career.

Participation in research projects

Assoc. Prof. Ivailo Alexiev has participated in five national research projects, four of which are funded by the Scientific Research Fund and one is funded by the Medical University, Sofia. He also participates in two international research projects. He is the head of four national research projects. The projects led by the candidate have attracted 240,000 BGN.

Main areas of scientific activity

The scientific output of Assoc. Prof. Ivailo Alexiev includes four main scientific areas: (1) molecular epidemiology and antiretroviral resistance of HIV-1; (2) co-infections in people living with HIV; (3) genomic epidemiology of SARS-CoV-2 and other respiratory viruses, and (4) molecular diagnostics of viral infections and other pathogens.

The candidate's scientific contributions are presented in detail in the academic report. Of these, I will note the contributions of a scientific and theoretical nature:

I. Molecular epidemiology of HIV-1 and antiretroviral resistance

1. Extremely high genetic diversity of HIV-1 in Bulgaria has been established, characterized by the circulation of multiple viral subtypes (A1, A6, A7, B, C, F1, and others), circulating recombinant forms (CRF01_AE, CRF02_AG, and others), as well as unique recombinant forms.
2. The complex evolutionary history and phylogeography of the HIV-1 epidemic in Bulgaria have been reconstructed by applying phylodynamic analysis and molecular clock models.

3. Subtype-specific epidemiological patterns have been identified and characterized by clearly distinguishable geographic, demographic, and transmission profiles.
4. A complex methodology for identifying and analyzing phylogenetic transmission clusters has been developed and implemented, based on the integration of modern bioinformatics tools (ClusterPicker, MicrobeTrace, BEAST) and the use of different genetic distance thresholds to distinguish between recent ($d = 0.5\%$) and more distant ($d = 1.5\%$) transmission events.
5. The first systematic national analysis of antiretroviral drug resistance was conducted on a representative sample of 1,654 HIV-1 sequences.
6. The baseline frequency of resistance to integrase inhibitors (InSTIs) in Europe was determined before the introduction of this class of antiretroviral drugs into clinical practice.
7. A large-scale European multicenter analysis of HIV resistance transmission was conducted on 4,140 treatment-naive individuals from 26 European countries (2008–2010).

II. Coinfections in people living with HIV

8. High levels of hepatitis B (HBV) and hepatitis C (HCV) co-infections were found among people living with HIV in Bulgaria during the period 2010-2015.
9. For the first time, the molecular epidemiology of HCV infection in at-risk communities in Bulgaria was characterized through the analysis of cases of HIV/HCV co-infection.
10. The first comprehensive regional study assessing the state of care for patients with viral hepatitis in 16 countries of Central and Eastern Europe was conducted, revealing significant inequalities in access to modern diagnostics and therapy.

III. Genomic epidemiology of SARS-CoV-2 during the COVID-19 pandemic

11. Comprehensive studies on the genomic epidemiology of SARS-CoV-2 in Bulgaria were conducted through a systematic analysis of whole-genome sequences for three years (2020–2023), documenting the introduction, circulation, and successive dominance of different viral variants.
12. The early introduction and spread of the SARS-CoV-2 Delta AY.4.2.1 sub-lineage in Bulgaria was identified, representing the first scientific report of this variant.
13. The first genomic characterization of the recombinant XAN variant of SARS-CoV-2, composed of the BA.2 and BA.5 sub-lines of Omicron, was conducted in Bulgaria.
14. Post-vaccination infections with SARS-CoV-2 were analyzed in healthcare workers fully immunized with the Pfizer-BioNTech vaccine (BNT162b2) in the presence of documented IgG antibodies.
15. The first systematic analysis of SARS-CoV-2 reinfections in Bulgaria has been conducted, covering the period of the first three main pandemic waves (March 2020 – December 2021).

IV. SARS-CoV-2 and other respiratory viruses

16. Low circulation of endemic human coronaviruses (HCoVs) was detected during the COVID-19 pandemic in Bulgaria.
17. Respiratory viral coinfections involving SARS-CoV-2 were characterized for the period October 2020 - January 2024.

18. The molecular epidemiology of RSV in Bulgaria was studied for the seasons 2014-2018 and 2020-2023 with pronounced inter-seasonal fluctuations and changes in subgroup dominance.

V. HIV among vulnerable populations: epidemiology and behavioral factors

19. A large-scale multicenter behavioral surveillance study of MSM in 13 European countries was conducted as part of the Sialon II project, involving a total of 4966 participants.

20. High rates of undiagnosed HIV infections were found among the European MSM population, with approximately one-third of people living with HIV (47.1% of 497 participants with HIV-reactive samples) unaware of their infection status.

21. A quantitative analysis of the proportion of European MSM meeting criteria for pre-exposure prophylaxis (PrEP) was conducted.

VI. HIV immune-pathogenesis and biomarkers

22. Elevated levels of labile iron pool (LIP) in CD4+ and CD8+ T cells were found in people living with HIV with undetectable viral load as a result of long-term combination antiretroviral therapy (cART), despite recovery of hemoglobin and serum iron levels.

23. T-lymphocyte phenotypic and mitochondrial parameters were identified as markers of incomplete immune reconstitution in people living with HIV on long-term cART.

24. Genetic signatures of immune reconstitution were identified in people living with HIV on long-term contemporary antiretroviral therapy by analyzing mRNA expression of genes associated with HIV infection and HIV-related comorbidities.

Contributions of a scientific-applied nature are in the areas of clinical practice and therapeutic strategies, epidemiological surveillance and preventive systems, health policies and strategic planning, as well as international cooperation and scientific capacity.

Educational, methodological, and teaching activities

Assoc. Prof. Ivailo Alexiev presents a report on his academic workload for the period 2021-2025. His academic activity includes 205 academic hours in 2021, 143 hours in 2022, 193 hours in 2023, 167 hours in 2024, and 179 hours in 2025. The average annual workload is 177.4 hours.

Assoc. Prof. Ivailo Alexiev is the supervisor of two successfully defended doctoral students in an independent and full-time form of study. He is also the supervisor of two diploma theses from the master's program at Sofia University "St. Kliment Ohridski".

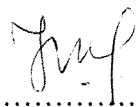
CONCLUSION

I have known Assoc. Prof. Ivailo Alexiev, since he started working at the NCIPD. An exceptional professional in the field of bioinformatics and modern molecular methods in virology, a well-established specialist with over 25 years of experience, he is also deeply respected by his colleagues and postgraduates. He is distinguished by the ability to form scientific teams and win scientific projects, to solve important problems in the field of public health. His scientific research, reflected in numerous scientific publications, has received wide

international recognition. The high impact factor and citations of his articles many times exceed scientometric requirements. The materials presented by the Assoc. Prof. Ivailo Alexiev has shown that he fully meets the mandatory and specific conditions and scientometric criteria for holding the academic position of "Professor". I give a convincing positive assessment and recommend that the esteemed scientific jury award Assoc. Prof. Ivailo Alex

iev Ivanov holds the academic position of "Professor" in the field of higher education 4. Natural Sciences, Mathematics and Informatics, Professional Direction 4.3. Biological Sciences, scientific specialty "Virology".

31.03.2026 r.

Member of the scientific jury:.....

/Prof. Neli Korsun, MD, DSc/