

TO: The Chairman of the Scientific Jury for the appointment of the academic position "Associate Professor" at the Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Sciences, appointed by Director's Order No. 51/05.08.2024 г.

REVIEW

BY: **Assoc. Prof. Svetoslav Guerguiev Dimov, Ph.D.**, Chairman of the Department of Genetics at the Faculty of Biology, Sofia University "St. Kliment Ohridski"

CANDIDATES: for participation in the announced competition for the academic position "Associate Professor", announced in the State Gazette no. 48 of 07.06.2024, in the field of higher education: 4. "Natural sciences, mathematics and informatics"; Professional direction: 4.3. "Biological Sciences"; Scientific specialty: "Genetics" to the research group "Molecular-Evolutionary Studies", Section "Biodiversity and Ecology of Parasites" to the Department "Animal Diversity and Resources" of IBER-BAS, a single candidate has applied for participation – **Assist. Prof. Boyko Stoykov Neov, Ph.D.**

1. CAREER DEVELOPMENT OF THE CANDIDATE

1.1. Professional Education

Assist. Prof. Boyko Neov, Ph.D., was born on October 24, 1984. In 2002, he enrolled in the BSc Program in "Molecular Biology" at the Faculty of Biology of Sofia

University "St. Kliment Ohridski", where in 2008, he obtained a bachelor's degree. The same year, he continued his education in the MSc Program in "Animal and Human Physiology" at the Faculty of Biology of the Sofia University of "St. Kliment Ohridski", and obtained a master's degree in 2010. In 2012, he began doctoral studies at the Institute of Biodiversity and Ecosystem Studies, obtaining in 2021 the "Doctor of Philosophy" degree in the scientific specialty "Parasitology and Helminthology".

1.2. Professional career

Boyko Neov's scientific professional career began during his bachelor's studies at the University. Initially, in the period 2004-2006, he worked as a technical assistant at the Institute for Nuclear Research and Nuclear Energy. Later, in 2008, he was appointed to the position of a "Biologist" at the Institute of Biophysics and Biomedical Engineering. In 2012, he joined the Institute of Biodiversity and Ecosystem Research of the National Academy of Sciences, where he also worked first in the position of "Biologist". In 2021, after acquiring the Ph.D. degree, he won a competition for the position of Assistant Professor in The Laboratory for Molecular Evolutionary Studies.

1.3. Acquired professional skills

During his professional internship, Boyko Neov acquired practical professional skills for the maintenance of laboratory computers and electronics, working with an X-ray diffractometer, to perform neurochemistry chromatographic studies of the brain, to perform pharmacological studies on the smooth muscles of blood vessels, for conducting phylogenetic, parasitological and zoological studies, for working with sequencing data, to make polymerase chain reaction, to conduct gel electrophoresis, to isolate DNA from various

sources, etc. Most importantly for the current competition, he acquired skills for writing scientific publications, which are mentioned in the applicant's bibliography, for the creation and successful implementation of scientific research projects and for supporting the education of graduates, doctoral students and young researchers.

Boyko Neov is proficient in English and French languages.

2. MAIN DIRECTIONS IN SCIENTIFIC AND RESEARCH ACTIVITY

In the research activity of Assist. Prof. Boyko Neov, Ph.D., based on his dissertation work and the attached scientific publications, several main directions can be distinguished:

1. *Molecular-genetic research on the taxonomy, phylogeny and identification of parasites and other pathogenic organisms* - based on his thesis for the acquisition of the educational and scientific degree "Doctor of Philosophy", as well as the scientific publications indicated as habilitation work in the current competition;

2. *Molecular genetic research on the origin and evolution of domestic animals and their wild relatives* - on the basis of presented additional scientific publications and participation in scientific projects on this topic;

3. *Assessment of the state of the bee populations, the role of their genetic structure and the reasons for the increase in mortality in the populations* - based on presented additional scientific publications and participation in scientific projects on this topic.

The diversity and versatility of the subjects on which Assist. Prof. Boyko Neov, Ph.D., works, and the balanced presentation of experimental and review publications are a mandatory prerequisite and proof of maturity for the academic position of Associate Professor.

3. MOST SIGNIFICANT SCIENTIFIC ACHIEVEMENTS

3.1. Scientific achievements reported in scientific publications presented as habilitation thesis

1. *Clarification of the taxonomic position of the trematode *Aphalloidescoelomicola* based on a fragment of the 28S rRNA gene from materials collected from the Atanasovo Lake (publication no. 3);*

2. *Increasing knowledge on honeybee pathogens through research based on PCR, reverse transcription PCR and DNA sequencing - the prevalence and systematics of six RNA viruses and the microsporidian pathogen *Nosema ceranae* are investigated, and possible routes of entry in Europe were discussed (Publications 4, 5, 6 and 7);*

3. *Study of the genetic diversity and systematics of the genus *Lyssavirus* from bats in Europe with an emphasis on European bat lyssavirus 1 and 2 (EBLV-1 and EBLV-2), considering the origin, evolution and geographical distribution, features of the intraspecific and interspecific distribution of viruses and routes of transmission (Publication No. 8).*

3.2. Other significant scientific achievements

1. *Contribution to the knowledge of the genotypic diversity of two breeds of autochthonous Bulgarian cattle - Bulgarian gray cow and Rhodope shorthorn cow based on the polymorphism of two genes encoding casein proteins - alpha-S1 casein (CSN1S1 gene) and kappa casein (CSN3 gene), analyzed by PCR-RFLP analysis as well as by sequencing of the D-loop region of mitochondrial DNA (Publications no. 9, 10, 11 and 12).*

2. *Study of the genetic diversity of ancient dogs from Bulgaria from the Early Neolithic period (8 thousand years BC), Chalcolithic, Bronze Age and the Antiquity (Publication No. 14).*

3. *Contribution to the study of the Eastern Balkan pig*, which is considered to be an ancient autochthonous breed that is well adapted to local environmental conditions (Publication No. 15).

4. *Contribution to research on modern and ancient horses* - the mitochondrial profiles of two breeds of Bulgarian horses - the Eastern Bulgarian horse and the Pleven horse - as well as three breeds of Eastern European horses - the Hungarian nonius, the Danube horse and the Serbian nonius which were studied by sequencing a region of the mitochondrial DNA D-loop from (Publications No. 18, 22, 24 and 25).

5. *Contribution to research on the Jacob sheep* as a potential model for various human diseases, such as Tay-Sachs disease (Publication No. 23).

6. *A molecular genetic study providing new data on the evolution of the European bison* (article no. 21).

7. *Review of the honeybee genotyping methods in the form of a book chapter*, in which some of the main methods used in bee genotyping are discussed - allozyme analysis, microsatellite analysis, mitochondrial genetic markers, PCR-RFLP, as well as introductory information about bees on the territory of Europe and Bulgaria (Publication No. 27).

8. *Studies on the structure of bacterial communities associated with bees* (Publication No. 26).

9. *Reviews of knowledge about honeybee populations and their survival* - a series of review publications examining the mortality, the role of bees as pollinators, the biotic and the abiotic factors affecting honeybee mortality and the death of entire hives (Publications No. 13, 16, 17, 19 and 20).

The scientific achievements of Assist. Prof. Boyko Neov, Ph.D., speaking about his scientific maturity, are a mandatory prerequisite for maturity to occupy the academic position of an "Associate Professor".

4. PROJECT ACTIVITY AND MANAGEMENT OF RESEARCH PROJECTS

From 2015 to the present, Assist. Prof. Boyko Neov, Ph.D., participates in 5 national projects financed by the "Scientific Research" Fund and one project for bilateral scientific cooperation, all of which have been successfully completed. He is also the leader of three successfully completed projects under the Program for support to young scientists and postdoctoral fellows, which speak of his research emancipation and abilities to plan and successfully carry out research tasks, interact productively, and work in a team with his fellow researchers. The topics of the projects in which he participates, as well as those he coordinates, again speak of the diverse scientific interests of the candidate. The acquired experience in writing, carrying out research tasks and coordinating projects is mandatory for the academic position of "Associate Professor". It would be of great benefit to his future work.

5. TRAINING OF YOUNG SCIENTISTS AND RESEARCHERS

In the Research Group "Molecular Evolutionary Studies" at the "Biodiversity and Ecology of Parasites" Section at the "Animal Diversity and Resources" Department of the Institute of Biodiversity and Ecosystem Studies, where he works, Assist. Prof. Boyko Neov, Ph.D., actively works with graduate students, doctoral students and young researchers. He led the student Mihail Stoyanov's club activities and actively supported and guided

doctoral students Miroslav Marinov, Violeta Zhelyazkova and Nedyalka Atsenova in their work. This speaks of his ability to impart theoretical knowledge and practical skills to young researchers, which is again a mandatory prerequisite for holding the academic position of Associate Professor.

6. SCIENCE METRICS INDICATORS AND COMPLIANCE WITH THE MINIMUM REQUIREMENTS ACCORDING TO THE REGULATIONS FOR THE IMPLEMENTATION OF THE LAW ON THE DEVELOPMENT OF THE ACADEMIC STAFF IN THE REPUBLIC OF BULGARIA

According to the Regulations for the implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the minimum requirements for the occupation of the academic position "Associate Professor" in the Professional field 4.3. "Life Sciences" are as follows:

*1. **Indicator A:** dissertation work for the award of the Educational and Scientific Degree "Doctor of Philosophy" - 50 points.* Assist. Prof. Boyko Neov, Ph.D., successfully defended his PhD thesis on the topic "Evolutionary processes in the formation of the diversity of hymenolepidid cestodes on insectivorous mammals from the *Soricidae* family", which **fully covers this indicator**.

*2. **Indicator C:** habilitation work – 100 points.* Assist. Prof. Boyko Neov, Ph.D., presents 6 scientific publications in referenced and indexed in Web of Science and Scopus journals, of which 3 possessing quartile Q1 (3 x 25 p = 75 p), one possessing quartile Q2 (1 x 20 p = 20 p), one possessing Q3 quartile (1 x 15 p = 15 p) and one in a journal with SJR without impact factor (1 x 10 p = 10 p). **The total number of points for indicator B is 120, which is above the minimum state requirements.**

3. **Indicator D**– 200 points:

3.1. Point 7 - Scientific publications in journals that are referenced and indexed in world-renowned databases with scientific information (Web of Science and Scopus), outside of the habilitation work. Assist. Prof. Boyko Neov, Ph.D., presents a total of 18 scientific publications in referenced and indexed in Web of Science and Scopus journals, of which 6 possessing quartile Q1 (6 x 25 p = 150 p), 6 possessing quartile Q2 (6 x 20 p = 120 p), 3 possessing Q3 quartile (3 x 15 p = 45 p) and 3 in SJR indexed journals without impact factor (3 x 10 p = 30 p).

3.2. Point 8 - Published book chapter or collective monograph – 15 points. Assist. Prof. Boyko Neov, Ph.D., presents one co-authorship in a book chapter indexed in Web of Science (1 x 15 p = 15 p).

The total number of points under indicator D is 360, which is more than one and a half times more than the minimum state requirements.

4. **Indicator E:** *Citations in scientific publications, monographs, collective volumes and patents, referenced and indexed in world-famous databases with scientific information (Web of Science and Scopus) – 60 points.* Assist. Prof. Boyko Neov, Ph.D., presents a list of 277 citations, carrying 2 points each, which is why **the candidate collects 554 points, which is 9 times more than the minimum state requirements.**

The candidate is a co-author in 24 scientific publications with SJR with a required minimum of 20, in 20 publications with an impact factor with a required minimum of 10 and owns and 277 citations in international publications with an impact factor, **therefore fully meets the requirements of the Terms and Conditions of the procedure for obtaining scientific degrees and for occupying academic positions at IBER-BAS for the academic position "Associate Professor".**

7. PERSONAL IMPRESSIONS

I know Boyko Neov from the time of his Bachelor degree studies in "Molecular Biology" at the Faculty of Biology -Sofia University "St. Kliment Ohridski" in my capacity as his professor in genetics and molecular genetics. My personal impressions from that time were of an inquisitive, motivated and well-read student who enjoyed the respect of his colleagues. Subsequently, after completing his studies at the Faculty of Biology, I did not often could communicate with him, but I could indirectly follow his career development based on his participation in research projects and scientific publications, as well as through mutual acquaintances working in IBER- BAS. It is since their statements about him that I know that he is capable of working in a team, shows a willingness to help not only in research work that is closely related to his scientific interests, but also whenever he can. These qualities speak of an accomplished and motivated researcher who is focused on his scientific career.

CONCLUSION

On the basis of his professional education, career and acquired skills, significant scientific achievements and contributions, project activity, demonstrated abilities to support young researchers in their work, his personal qualities, as well as the compliance of his science metrics indicators with the requirements of the Regulations for the Implementation of The Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for the Terms and Conditions for the Acquisition of Scientific Degrees and for the Occupancy of Academic Positions at IBER-BAS, ***I strongly recommend the appointment Assist. Prof. Boyko Neov, Ph.D., at the academic position "Associate***

Professor" in the Professional field: 4.3. "Biological Sciences"; Scientific specialty: "Genetics" at the research group "Molecular Evolutionary Studies", Section "Biodiversity and Ecology of Parasites" at the Department "Animal Diversity and Resources" of IBER-BAS.

Sofia, August 20, 2024

Signature:

/Assoc. Prof. Svetoslav Dimov, Ph.D./