

REVIEW

by: Albena Georgieva Jordanova, professor of Biochemistry, Professional field 4.3. Biological Sciences, Faculty of Medicine, Sofia University "St. Kliment Ohridski"

Subject: competition for the academic position "**Associate professor**" in a Professional field 4.3. Biological Sciences (Human Biology) for the needs of the Department "Biology, Medical Genetics and Microbiology" at the Faculty of Medicine, Sofia University "St. Kliment Ohridski", announced in the State Gazette (No. 48, 28.06.2022)

One applicant, **Assistant professor** Ludmila Filipova Belenska - Todorova, **PhD**, presented documents for participation in the announced competition.

1. Conformity of the applicant's submitted documents, according to the Rules for occupying academic positions of Sofia University "St. Kliment Ohridski"

The submitted documents from Assistant professor Lyudmila Filipova Belenska-Todorova, PhD, for the announced competition for the academic position "Associate professor" fully meets the requirements of the Law on the Development of the Academic Staff in Bulgaria (amended and supplemented in SG, No. 30 of 03.04.2018), the Regulations for its application (amended and supplemented in SG No. 15 of 19.02.2019) and the Regulations for the occupancy of academic positions at Sofia University "St. Kliment Ohridski".

2. Biographical data of the applicant

Assistant professor Lyudmila Filipova Belenska-Todorova graduated II English Language High School "Thomas Jefferson", Sofia in 2000, after which she studied Molecular Biology in Faculty of Biology, Sofia University. In 2006 she graduated master's degree in "Microbiology and microbiological control" (diploma series A-05SU No. M180108; 02. 2006). After successfully passing the exam in 2008 Lyudmila Belenska-Todorova began her teaching activity as an assistant in the course "Human Biology" for 1st year students in the Department of "Biology, Medical Genetics and Microbiology" at the Faculty of Medicine of Sofia University "St. Kliment Ohridski". From 2017 until now she is an assistant professor in this discipline. In 2014, she completed her postgraduate qualification in "Medical Biology" at the Faculty of Medicine of the University of St. Kliment Ohridski". In the period 2011-2016, he prepared and successfully defended a dissertation on the topic "Role of complement in the

processes of joint destruction in experimental models of arthritis" at the Institute of Microbiology "Stefan Angelov", Bulgarian Academy of Sciences, obtaining the educational and scientific PhD degree, Specialty: Immunology; Professional field: 4.3. Biological Sciences.

3. Educational and teaching activities of the applicant

The teaching activity of Assistant professor L. Belenska includes conducting practical classes in the discipline "Human Biology" for 1st year students of Medicine (over 1300 hours from 2008 to now) and students of Medicine in English (over 500 hours from 2013 to now), as well as lectures and exercises on the discipline "Microbiology, Parasitology and Virology" for students in the specialty "Nursing" at the Faculty of Medicine of Sofia University.

Dr. Lyudmila Belenska takes an active part in the development of the curricula and programs in "Human Biology" for students of the "Medicine" specialty at the Faculty of Medicine at the SU from the second year of its creation until the present moment; in the launch of English language teaching and the preparation of curricula and programs for the discipline "Human Biology" for the students of the specialty "Medicine in English" at the Faculty of Medicine of SU. She is an active participant in the preparation of curricula and programs for the accreditation of the discipline "Human Biology" for the students of the specialty "Medicine", "Medicine in English", as well as the discipline "Microbiology, Parasitology and Virology" for the students of the specialty "Nurse" at the Faculty of Medicine of Sofia University.

The candidate in the competition is a key member of the committees for conducting the entrance exams for the students of specialties "Medicine" and "Medicine in English" at the Faculty of Medicine, Sofia University, by preparing test questions, participating in courses for candidate students and correctly evaluates candidate student exams in biology and chemistry.

4. Scientific, applied scientific and publication activity of the applicant

The scientific research activity of Assistant professor Lyudmila Filipova Belenska - Todorova, is mainly focused on researching the molecular and cellular mechanisms of inflammatory joint diseases, sepsis, myasthenic transformation of the thymus and T-lymphocyte selection, reinnervation of facial muscles. The results obtained in the scientific publications of the candidate in the competition clarify the participation of complement in the processes of joint destruction in experimental models of arthritis; the role of neutrophils and NK cells in the development of collagenase-induced osteoarthritis; the role of terminal

Schwann cells and Insulin-like growth factor I (IGF-I) in the reinnervation of facial muscles; investigated NGF/NGF receptors (p75, TrkA) in mast cells and their role in the myasthenic transformation of the thymocyte microenvironment and T-lymphocyte selection, the role of TRAIL, apoptosis and the complement system in the development of sepsis, as well as the application of the tyrosine kinase inhibitor tyrphostin AG 490 in a model of collagenase-induced arthritis.

In the current competition Assistant professor Ludmila Belenska participated with **one habilitation work - monograph** (*indicator B.3*), **one monograph** that was not presented as the main habilitation work (*indicator Г.5*), **one published book** based on a defended dissertation work for award of an educational and scientific PhD degree (*indicator Г.6*), **8 scientific articles** published in scientific journals, referenced and indexed in world-famous scientific information databases *Scopus* and *Web of Science* (*indicator Г.7*) and **5 published book chapters** (*indicator Г.8*). All scientific works extend and build on research; both in the field of fundamental and in the field of applied scientific activities, and are beyond the dissertation work for the acquisition of the PhD degree. The minimum requirements of the National Center for Information and Documentation (NACID) for acquiring the academic position "**Associate professor**" in the field of higher education 4. Natural sciences, mathematics and informatics, Professional field 4.3. Biological Sciences, are presented in the table below. For comparison, the indicators of Assistant professor Lyudmila Belenska for her participation in the competition are also presented in the table.

| Indicator group | Content | Minimum number of points for "Associate professor" | Applicant's points |
|---|-----------------------------|---|---------------------------|
| A | Indicator 1 | 50 | 50 |
| Б | Indicator 2 | - | - |
| B | Indicators 3 or 4 | 100 | 100 |
| Г | Sum of indicators 5-10 | 200 | 270 |
| Д | Sum of point in indicator11 | 50 | 74 |
| TOTAL NUMBER OF POINTS BY INDICATORS A-Д | | 400 | 494 |

According to **indicator A.1. Dissertation work for awarding the educational and scientific PhD degree** assistant professor Dr. L. Belenska presented documents for her dissertation work on the topic "The role of complement in the processes of joint destruction in experimental models of arthritis" (diploma 000735/01.07.2016), for which she received the

educational and scientific PhD degree, Scientific specialty: Immunology, Professional field: 4.3. Biological Sciences. According to this indicator, she has the required number of **50 points**, according to the legal requirements.

Regarding **indicator B.3. Habilitation thesis – monograph**, the candidate in the competition presented her monograph on the topic "The complement system in inflammatory joint diseases", published in 2019 by University Publishing House "St. Kliment Ohridski", Sofia, ISBN: 978-954-07-4652-4. The points from this indicator also cover the required requirements – **100 points**, with a minimum of 100 points required.

To meet the criteria of **indicator Г** Associate professor L. Belenska presented one monograph, one published book, 8 scientific publications in refereed and indexed scientific journals and 5 book chapters:

- **indicator Г.5. Published independent monograph, which is not presented as the main habilitation thesis:** Sepsis, published in 2021 by University Publishing House "St. Kliment Ohridski", Sofia, ISBN: 9789540751634. According to the criteria, this monograph carries **30 points** according to indicator Г.5.
- **indicator Г.6. Published independent book based on a defended dissertation for the award of an educational and scientific PhD degree:** The role of complement in the processes of joint destruction in experimental models of rheumatoid arthritis, published in 2019 by University Publishing House "St. Kliment Ohridski", Sofia, ISBN: 978-954-07-4651-7. According to the criteria, the book has **20 points** according to indicator Г.6.
- **8 scientific publications** are presented by Assistant professor L. Belenska for meeting the requirements under **indicator Г.7. Scientific publications in journals that are referenced and indexed in world-renowned databases with scientific information (Scopus and Web of Science)**, outside of the habilitation work. Scientific publications are in journals with quartiles: Q1 – 2 articles (total 50 points); Q2 – 2 articles (total 40 points); Q3 – 3 articles (total 45 points) and one publication is in a refereed journal without impact factor and quartiles (10 points). The sum of the points for indicator Г.7 is **145 points**.
- **indicator Г.8. Published book chapter or collective monograph – 5 book chapters** in which Dr. Belenska is the first author, which is proof of her leading role. According to the legal criteria, the total number of points for this indicator is **75 points**.

The total sum of the points for indicators Г.5, Г.6, Г.7 and ДГ8 of the candidate in the competition Lyudmila Belenska for the academic position "**Associate professor**" at Sofia University "St. Kliment Ohridski" is **270 points**, with a required minimum of 200 points, which significantly exceeds the minimum regulatory requirements for this indicator.

The candidate in the competition submitted evidence for 37 citations to meet the requirements of **indicator 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)** (excluding self-citations of all co-authors). The total number of points for this indicator is **37 citations x 2 points = 74 points**, with a required legal minimum of 50 points. In *Scopus* Assistant professor L. Belenska has an h-index of 3, as well as 46 citations of 8 scientific publications from 2012 to now (<https://www.scopus.com/authid/detail.uri?authorId=55342360200>).

In addition, Dr Ludmila Belenska has also attached in her documents the participations and project managements (**indicator E**), which is not required in this competition. She was a participant in 6 National scientific or educational projects; she is a member of 2 International Projects and was the head of 2 successfully completed scientific projects. The documents for the competition also include 7 scientific publications in non-refereed journals, yearbooks and collections of scientific conferences, as well as 13 participations in scientific forums (out of a total of 19) other than the dissertation work for awarding the educational and scientific PhD degree.

The scientific indicators of Assistant professor Lyudmila Belenska, PhD, meets the requirements for acquiring the academic position "Associate professor" at Sofia University. In conclusion, with a required overall minimum of 400 points, she exceeds the requirements and has a total of 494 points.

5. Scientific contributions of Dr. Lyudmila Belenska – the candidate in the competition for "Associate professor"

The scientific works presented in the competition for the academic position "Associate professor" in the Professional field 4.3. Biological sciences (Human Biology) cover several scientific, scientific-applied and methodological directions. The research carried out is in areas that are laid down in the curriculum of the discipline "Human Biology" in the main directions: "Cell Biology and Immunology", "Genetics", "Developmental Biology and Ecology of Parasitism", "Comparative Anatomy". This makes the presented data applicable in the competent practical and theoretical training of medical students, as well as in the

supervision of medical biology specialists, for which Dr. Lyudmila Filipova Belenska-Todorova holds a diploma for a recognized specialty.

- A model of septic shock was chosen as an example of acute inflammation and basic cellular and molecular mechanisms involved in its development were analyzed. The researches are of a fundamental nature and explain how the expression of different molecules affects the cell populations involved in sepsis, the development of multiple organ failure syndrome and mortality. The obtained results have a markedly applied nature for clinical practice in the search for fast and adequate therapeutic approaches to limit the damage that acute inflammation inflicts on the body and to increase survival in sepsis and septic shock.
- Research on chronic inflammation is in the field of osteoimmunology, for which experiments have been carried out in mouse models of rheumatoid and osteoarthritis, and patient samples have been studied. Part of the analyzes are aimed at investigating the role of hormones used in assisted reproduction procedures in the development of arthrosis. The fundamental nature of research on inflammatory joint diseases is expressed in the fact that they contribute to the clarification of the mechanisms of bone destruction and remodeling and their systemic nature. The applied nature of the analyzes is also important, as they are the basis for the development of new therapeutic strategies for the prevention and treatment of inflammatory joint diseases.
- The similarities and differences of the specific dermatoglyphic patterns on the fingertips and palms of mono- and dizygotic twins were analyzed. Apart from the fundamental nature of these analyses, which shed light on the extent to which phenotypic and genotypic differences exist between twin types, the research also has an applied nature for clinical practice in the search for rapid methods for diagnosing genetic diseases and selecting their adequate and timely treatment.
- The anatomical features in a person have been studied, which has a significant applied importance for medical practice and especially in the field of surgery.
- Some of the scientific works presented in the competition are aimed at improving the educational process of medical students in the Faculty of Medicine of SU "St. Kliment Ohridski".

6. Evaluation of the candidate's personal contribution

After I got acquainted with the attached documents of Assistant professor Dr. Lyudmila Belenska in the competition for the academic position "**Associate professor**", I can categorically summarize that the results obtained, the scientific publications, the formulated scientific contributions, the participation and management of scientific projects, citations, as well as the published monographs, books and chapters of books were realized with her active participation and are her personal credit.

7. Personal impressions of the candidate

I have known Dr. Lyudmila Belenska since 2012, when I became an Associate professor and Biochemical lecturer at the Medical Faculty of Sofia University. From then until now, I have witnessed her growth as a scientist and teacher: she has a deep knowledge of cell biology, immunology, parasitology, anatomy, histology and embryology, both theoretically and practically. Possessed high professionalism, as well as her personal qualities such as purposefulness, dedication, persistence, hard work, correctness and exceptional ability to work and motivation of students, define her as a candidate corresponding to the requirements for occupying the academic position "**Associate professor**" in Medical Faculty of Sofia University.

8. Conclusion

The documents and materials submitted in the current competition by Dr. Lyudmila Belenska meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Application and the Internal Regulations of Sofia University "St. Kliment Ohridski" and fully cover and exceed the criteria for acquiring the academic position "**Associate professor**". Undoubtedly, the only candidate in the competition is a well-established researcher and teacher who excels both in scientific, teaching and organizational activities and significantly exceeds the minimum national requirements set out in the Law on the Development of the Academic Staff in the Republic of Bulgaria for the position of "**Associate professor** in the field of higher education 4. Natural sciences, mathematics and informatics, Professional field 4.3. Biological Sciences (Human Biology).

Based on all of the above, I give my positive assessment and confidently recommend to the members of the scientific jury and the members of the honorable Faculty Council of the Faculty of Medicine of the Sofia University to vote positively for the awarding of the academic position "**Associate professor**" to Assistant professor Ludmila Filipova Belenska-

Todorova in the announced competition for the needs of the Department of "Biology, Medical Genetics and Microbiology" at the Faculty of Medicine of Sofia University "St. Kliment Ohridski".

12.10.2022 г.

Signature:

/Prof. Albena Georgieva Jordanova, PhD/