Statement
From Prof. Dr. Biliana Pancheva Nikolova-Lefterova Institute of Biophysics and Biomedical Engineering, BAS

According to the competition for the occupation of the academic position of "associate professor" in the scientific field 4.3. Biological Sciences (Human Biology), announced in SG no. 48/28.06.2022 for the needs of the Faculty of Medicine of the SU "St. Kliment Ohridski", with only one candidate who submitted documents for participation: assistant professor Lyudmila Filipova Belenska-Todorova.

By order of the rector of SU "St. Kliment Ohridski" I have been appointed as a member of the scientific jury in the competition described above.

At the first meeting of the scientific jury, we got acquainted in detail with the materials provided by the assistant professor Ludmila Filipova Belenska-Todorova and we ascertained that they meet the requirements of the law on the development of the academic staff of the Republic of Bulgaria.

Assistant Professor Belenska graduated as a Bachelor in Molecular Biology in 2004 at the Faculty of Biology of the University of “St. Kl. Ohridski”, later in 2016, acquired ONS "doctor", in specialty Immunology, in professional field: 4.3. Biological sciences, based on a dissertation on the topic: "Role of complement in the processes of joint destruction in experimental models of arthritis" and in 2017 she held the academic position of "principal assistant" in Human Biology at the Department of "Biology, Medical Genetics and Microbiology" of the Faculty of Medicine, Sofia University "St. Kliment Ohridski".

The materials submitted for participation in the competition show the distribution of the scientific assets of Belenska-Todorova by points according to the minimum national requirements of the RAS of the Republic of Bulgaria.

As is clear from the presented documents, the results achieved by the candidate cover, and in some indicators exceed, the requirements laid down in the law.

In group of indicators B (habilitation work) a monograph with the title: "The complement system in inflammatory joint diseases" is presented. The book is published in 2019 by University Publishing House "St. Kliment Ohridski". This paper earns the candidate 100 points.

In group D indicators are included: under item 5 monograph which is not presented as the main habilitation thesis: "Sepsis" University Publishing House "St. Kliment Ohridski", Sofia 2021, carries 30 points. According to item 6 a book was published based on a dissertation work for the award of ONS "doctor": "Role of complement in the processes of tissue destruction in experimental models of rheumatoid arthritis" University Publishing House "St.

Kliment Ohridski", Sofia 2019 carries 20 points. Under item 7 scientific publications in publications that are referenced and indexed in world-famous databases with scientific information: 15 scientific publications are presented, which carry 140 points. As 2 of them were published in journals with rank Q1; 1 in journal Q2; 4 in Q3. Of the presented works in journals with IF, 6 papers were printed. In 5 of the presented works Assistant Professor Beleska-Todorova is the first author, and in 6 he is the second. According to item 8 a published chapter of a book or a collective monograph: 5 book chapters are presented. The candidate is the first author of all of them. Thus presented materials under item 8 carry 75 points. In total, group D indicators carry 265 points (200 pints are required).

In group of indicators D (citations in scientific publications, monographs, collective volumes and patents) with minimum national requirements of 50 points, a list of 37 citations carrying 74 points is presented. Citations are from 8 articles.

In indicator group E, the candidate presented a list of participations in national and international scientific projects. Assistant Professor Belenska-Todorova was the head of 2 and a participant in 7 national and 2 international scientific projects, which brought her 150 points. There is no E-point requirement when applying for the academic position of Associate Professor. A very good impression is made by the candidate's active participation in the project activities.

Review of contributions of the Assoc. Lyudmila Belenska-Todorova.

The presented scientific contributions are grouped as follows:

I. Contributions of the habilitation work (monograph);

II. Contributions from a published monograph that is not presented as a major thesis;

III. Contributions from a published book, based on a defended dissertation;

IV. Contributions of scientific works according to indicator G7 (scientific publications in publications that are referenced and indexed in world-renowned databases).

Contributions from habilitation work

The attached reference presents a habilitation thesis - a monograph on the topic: "Complement system in inflammatory joint diseases". The monograph thoroughly describes the complement system, the role of its activators and inhibitors, and its role in the pathogenesis of joint arthrosis. The author's results from studies of experimental models of rheumatoid arthritis and osteoarthritis are collected and described. Data demonstrate that inhibition of functional complement activity results in inhibition of synovitis development and reduced bone resorption.

The methods described by the author for experimental analysis of serum complement activity and especially for the induction of animal models of inflammatory joint diseases, resembling those in humans, represent a modern approach in the field of research into the mechanisms of the pathogenesis of inflammatory joint diseases.

Contributions from a published monograph that is not presented as a thesis.

The contributions were made on the basis of a monograph on the subject: "Sepsis". The causes and mechanisms for the occurrence of the disease, the course and outcome of sepsis at the organ, cellular and molecular level are described in detail. The use of antibodies against the pro-apoptotic factor TRAIL was identified as a major contribution.

Contributions from a published book, based on a defended dissertation.

A published book is presented based on a defended dissertation for the award of ONS "PhD" on the topic: "Role of complement in the processes of joint destruction in experimental models of rheumatoid arthritis". The main contributions of this work are based on the results obtained and presented in the candidate's dissertation work, namely, it has been proven that the activation of the complement system leads to the occurrence of severe synovitis, which can become chronic. Suppression of expression of the pro-apoptotic factor TRAIL in joints in the absence of functional complement activity has been shown for the first time. The role of properdin in the processes of osteoclastogenesis has also been shown.

Contributions of scientific works according to indicator G7 (scientific publications in publications that are referenced and indexed in world-renowned databases).

Contributions are divided into five groups:

1. Immunobiological studies in an experimental model of sepsis in order to clarify the molecular and cellular mechanisms of the disease.

Blocking TRAIL at the time of sepsis induction was found to reduce the severity of symptoms mainly due to inhibition of apoptosis.

The relationship between TRAIL expression and disease course is shown for the first time.

Data are presented showing that the absence of functional complement limits organ failure. These data are a prerequisite for the development of new therapeutic approaches to limit the development of organ failure in patients with sepsis.

2. Immunobiological studies in experimental models of inflammatory joint diseases in order to clarify the mechanisms of bone destruction and remodeling, as well as their systemic nature.

Estradiol stimulation in vitro has been found to reduce the incidence of chondrocyte apoptosis and reduce their ability to produce metalloproteases and inflammatory cytokines.

Estradiol has been found to affect osteoclastogenesis and bone destruction.

Follicle-stimulating hormone was found to promote the secretion of anti-inflammatory cytokines, stimulate osteoclastogenesis, but did not affect the formation of osteoblasts.

Inflammatory joint diseases are associated with overproduction of proinflammatory cytokines. Berberine (a plant alkaloid) has been found to reduce the phosphorylation of Janus kinases and suppress the action of pro-inflammatory cytokines.

The role of complement in the initiation of zymosan-induced arthritis has been established.

Summaries of the known literary sources are made regarding: the role of complement in the pathogenesis of osteoarthritis, megakaryopoiesis and their involvement in inflammatory joint diseases.

3. Study of the role of neuro growth factor in the pathogenesis of myasthenia gravis.

A mechanism for the involvement of the neuro growth factor in the local auto and paracrine regulatory processes is proposed.

4. Study of the dermatoglyphic characteristics of pro-mono and dizygotic twins.

The obtained data are applicable in the "twin method" used in medical genetics.

5. Morphological study of the emissary openings and veins in the skull.

It has been hypothesized that the anatomical features of these openings are due to a pathology requiring their development in order to regulate intracranial pressure.

The scientific contributions presented by the candidate correctly reflect the published results. Most of them have an original character.

In conclusion, I believe that the scientometric indicators presented above, the derived scientific contributions, as well as the overall work of the assistant Lyudmila Filipova and Lyudmila Belenska-Todorova fully meet, and in some indicators exceed, the requirements for acquiring the academic position of "associate professor" laid down in the regulations to the law on the Development of the Academic Staff of the Republic of Bulgaria.

The duly submitted documents for the competition give me reason to confidently recommend to the scientific jury to prepare a proposal to the Faculty Council of the Faculty of Medicine at SU "St. Kliment Ohridski" for the election of Lyudmila Belenska-Todorova for the academic position of "associate professor" in scientific direction 4.3, Biological Sciences (Human Biology).

30.09.2022 Signature:

Sofia /prof. B. Nikolova-Lefterova/