SCIENTIFIC REVIEW

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in connection with the announced competition for the academic position of "professor" in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.3. Biological Sciences, scientific specialty "Immunology" for the needs of the Department of Immunology, Laboratory "Experimental Immunotherapy" of the Stephan Angeloff Institute of microbiology – BAS

The competition was appointed by order of the Director of the Institute of Microbiology "Stephan Angeloff " - BAS, announced in the State Gazette, issue 84/10.10.2025. One candidate participated in it - Assoc. Prof. Dr. Anastas Dimitrov Pashov, MD.

Associate Professor Anastas Pashov was born on July 13, 1962 in the town of Asenovgrad. He completed his secondary education at 114 AEG, Sofia, and in 1989 graduated from the Medical Academy, Sofia (now Medical University – Sofia) as a Doctor of Medicine. He began his professional career in 1989 as a resident physician at the HEI, Kardzhali, and from 1993 to 1995 he was a resident physician at the Monoclonal Antibody Laboratory at the National Center for Infectious and Parasitic Diseases, Sofia. Assoc. Prof. Pashov's scientific activity began in 1990 as a PhD student at the National Center for Infectious and Parasitic Diseases, Sofia, with the topic of his postgraduate studies: "Identification and quantitative characterization of the expression of two pan-leukocyte antigens, recognized by newly obtained monoclonal antibodies CAF7 and 7E12", which he defended in 1995 with a diploma for Ph.D. N23439 dated 20.02.1995.

This was followed by a postdoctoral internship (1995-96) at U430 INSERM, Paris, France on the topic "Mechanism of action of intravenous immunoglobulin G in multiple sclerosis", followed by work as a Research Associate (1998-2000) at IBIR-BAS. In 2000, Dr. Pashov became a Senior Research Associate of the 2nd degree and worked as such at IBIR-BAS until 2006. During this period, he completed two more post-doctoral programs at U430 INSERM, Paris, France (2002) on the topic "Mechanisms of corticosteroid-sparing effect of intravenous immunoglobulins" and at the University of Arkansas for Medical Sciences, Little Rock, USA (2003 – 2009) on the topic "HIV-1 Carbohydrate Antigens“ NIH grant CA-089480, under the supervision of Thomas Kieber-Emmons. Another post-doctoral program followed in U430

INSERM (2010). Since 2010, Associate Professor Anastas Pashov has been working as an Associate Professor in the Department of Immunology, Stephan Angeloff Institute of Microbiology - Bulgarian Academy of Sciences.

I will not examine in detail the documentary part of the competition, which has undergone numerous administrative checks and verifications of the evidentiary material attached to the competition documentation. These documents are detailed and comprehensive, which allows for a review and real assessment of the required indicators. I will concentrate my assessment on the scientific-metric parameters and qualities of the participant in the competition.

Teaching activity: Teaching activity is an important factor for a professorship, although in purely scientific institutions this is neither a priority nor a mandatory indicator regarding the scientific activities carried out at the Bulgarian Academy of Sciences. Associate Professor Pashov conducted a lecture course "Challenges of Tumor Immunology" (2014 - 2015) under the project "Fundamental and Applied Training of PhD Students, Postdoctoral Fellows, Specialists and Young Scientists in Interdisciplinary Biological Fields and Innovative Biotechnologies" BG051PO001- 3.3.06-0059, as well as a lecture course on "Tumor cell/tumor immunology" (1997 - 2001) in the master's program of the Faculty of Medicine of Sofia University "St. Kl. Ohridski".

Associate Professor Pashov has been the scientific supervisor of three graduates in master's programs, as well as the scientific supervisor of two doctoral students (Dr. Andrey Kenderov and Dr. Shinka Pashova), which means that the candidate meets the regulatory requirements for academic growth at the Stephan Angeloff Institute of Microbiology - Bulgarian Academy of Sciences.

Publications: Publications in prestigious international journals are of particular importance for forming the scientific image of the candidate, who in scientific circles has a clearly defined vision and scientific expertise. Against the background of the large number of publications so far, for the current competition, Assoc. Prof. Pashov has presented 17 scientific papers published in journals in Q1, 8 articles in Q2, 4 publications in Q3 and 6 articles in Q4 - all of which were included in the habilitation thesis. In addition, 5 more articles published in journals in Q1, 3 articles in Q2, 1 publication in Q3 and 1 article in Q4, as well as 4 publications in refereed journals without an impact factor and 2 book chapters are presented. The submitted publications fully satisfy (and exceed) the requirements of the Act on the Development of the Academic Staff in the Republic of Bulgaria. The candidate has also presented his publications

in separate sections, clearly satisfying the additional criteria for the growth of the academic staff at the Stephan Angeloff Institute of Microbiology. The candidate's overall impact factor is very good for the professional field in which his publications and expertise lie. It many times exceeds the required minimum in the additional criteria for the growth of the academic staff at Institute of Microbiology. This also shows to a large extent his professional readiness for career advancement based on achieved results. The works are very well distributed by thematic areas in the extended habilitation. Assoc. Prof. Pashov has sufficient works that support his contributions on the respective topics.

A criterion for the quality of publications is also the attached document with the citations found in global and national databases. The candidate has provided information on 1490 citations found in scientific databases, which also drastically exceeds the required minimum.

A report on participation and leadership of national and international scientific projects, as well as funds attracted from projects, is also provided. While I am not very sure about the direct connection between the funds attracted and the quality of the scientific work, the projects are a definite indicator of the nature of the scientific work. Assoc. Prof. Pashov has been the leader of 2 international projects and has also participated in 2 more. At the national level, the candidate has been the leader of 2 scientific projects and as a participant has worked on 5 more national projects. The projects presented are funded by various sources - Marie Curie International Re-integration Grants (IRG), EU, MSE, Scientific Research Fund and IMI. All these participations undoubtedly enrich the arsenal of the candidate and his laboratory with laboratory techniques and approaches necessary for the implementation of the work programs in the projects. Of course, scientific publications and participation in scientific forums are the result of the implementation of the projects being developed.

An additional certificate of the quality of Assoc. Prof. Pashov's scientific output is the list of participations in scientific forums – congresses, conferences, symposiums, etc. It should be noted that this is not Assoc. Prof. Pashov's favorite pastime, unlike me, for example. The candidate has presented a list of 20 participations in forums abroad and in Bulgaria. Most of them are in very specialized forums, corresponding to the scientific interests of Assoc. Prof. Pashov, which are definitely specific. These participations demonstrate activity in terms of the desire to present the scientific results obtained during the research process mainly at specialized forums, preferred over large immunological forums presenting all kinds of topics.

Beyond the mandatory scientometrics required by law and the regulations of the Bulgarian Academy of Sciences and the Institute of Microbiology, of particular importance are the specific topics presented, in which the candidate's main scientific activities are. Assoc. Prof. Pashov has summarized his works in scientific directions, and has also made an introductory overview showing the connection of these approaches. The first of these topics is "Design of epitope vaccines: Carbohydrate mimetic peptides (CMPs)", and the experiments for these works were mainly conducted at the University of Arkansas for Medical Sciences in Little Rock, Arkansas, USA and are published in a series of articles. The three subsections "Mechanisms of Mimicry and Vaccine Design", "Safety and Therapeutic Efficacy", and "Weaknesses of the Mimicry Approach" represent a very serious group of experiments related to tumor vaccine design, bioinformatics, analysis of the obtained data, experimental models and the consideration of many fundamental aspects in the development and specificity of the immune response, based on molecular-level analysis and mathematical analysis from a physico-chemical perspective.

The second group of works by Assoc. Prof. Pashov is “Biophysics of Plasticity: Induced and Cryptic Polyspecificity.” As he himself describes this group of works, they concern studies that challenge the static view of antibody specificity by examining how it is modulated by environmental factors. These studies were conducted both at the Institute of Microbiology of the Bulgarian Academy of Sciences and in the laboratory of Prof. Shrini Kaveri at the Cordelier Center in Paris, France. The three sub-parts "Cofactor-mediated polyreactivity", "Clinical significance of induced polyspecificity" and "Biophysics of polyreactivity" examine various aspects of the biochemistry and biophysics of antibodies and the immunoglobulin molecule, polyreactivity and polyspecificity, and the molecular aspects of their induction. The candidate has been dealing with these problems of theoretical immunology for many years, of which I myself have memories outside of literary data.

The next large group of works, realized in numerous articles, is "Systemic Immunology: Mapping the Igome". Without trying to guess, I assume that this group of works is Assoc. Prof. Pashov's favorite and he continues to work in it to this day. Despite the seemingly broad front of experiments in its 4 sub-sections: "Global image of antibody specificities", "Igome graphs and diagnostic signatures in the repertoire of reactivities", "Limiting diversity in autoimmunity" and "Discovery of epitopes of infectious agents", the commonality in this group is the entry into systemic immunology from different perspectives, aspects and approaches. The candidate has

provided a very diverse information in his articles covering the claims of these subheadings, which is very positive.

It is customary in our country for each candidate's habilitation report to declare the candidate's contributions in order to determine the seriousness of his or her work. Here too, the candidate has attached an author's report of the scientific contributions of the works. I believe that the contribution of Assoc. Prof. Pashov's scientific output is far from limited to the stated facts and specific results. The high publication activity in reputable journals and the citations received for them are the best attestation to the real contribution of his works.

Conclusion: Based on the presented data on the scientific production, teaching and mentoring activities of Assoc. Prof. Dr. Anastas Dimitrov Pashov, MD for this competition for "professor" at the Department of Immunology of the Institute of Microbiology "Stefan Angelov" - BAS, I believe that he meets all the requirements of the Act on the Development of Academic Staff in the Republic of Bulgaria and the Regulations on the Conditions and Procedure for Acquiring Scientific Degrees and holding academic positions at the Institute of Microbiology "Stephan Angeloff" - BAS, therefore I propose to the esteemed scientific jury to award Associate Professor Dr. Anastas Dimitrov Pashov, DM the academic position of "professor" in the field of higher education 4. Natural Sciences, Mathematics and Informatics, professional field 4.3. Biological Sciences, scientific specialty "Immunology" for the needs of the Department of Immunology, Laboratory "Experimental Immunotherapy" of the Institute of Microbiology "Stephan Angeloff " - BAS.

13.02.2026 Chairman of the Scientific Jury

Sofia Prof. Dr. A. Tchorbanov