

To the Scientific jury,  
defined by Order № P-109-71/04.02.2022  
of the Rector of the Medical University  
"Prof. dr. P. Stoyanov" – Varna  
Prof. Valentin Ignatov, MD, PhD

On your protocol № 1/08.02.2022

I present the attached:

Short academic review

on the thesis for the award of the educational and scientific degree "Doctor"  
by Assoc. Prof. Deyan Lyudmilov Dzhenkov, MD, PhD, Associate Professor at the Department of  
General and Clinical Pathology, Forensic Medicine and Deontology at MU "Prof. Dr. Paraskev  
Stoyanov"-Varna

Appointed as a member of the Scientific Jury / order № P-109-71/ 04.02.2022 of the Rector of MU

"Prof. P. Stoyanov " - Prof. Dr. Valentin Ignatov, MD, PhD

Field of higher education 7. Health and sports. Professional direction 7.1 Medicine. Scientific  
specialty 03.01.03 "Pathoanatomy and cytopathology".

Topic: "Prognostic and predictive factors in glioblastoma multiforme "

Author: Georgi Stoyanov Stoyanov

Form of doctoral studies: full-time

Department: General and Clinical Pathology, Forensic Medicine and Deontology

Scientific adviser: Prof. Peter Ghenev, MD, PhD

Scientific consultant: Assoc. Prof. Stoyan Pavlov, MD, PhD

**I. Brief biographical data on the candidate's career development**

Georgi Stoyanov Stoyanov, MD was born on December 25, 1992, in Shumen. He completed his secondary education at the High School of Arts - Sava Dobroplodni, Shumen in 2011 and a master's degree in medicine at the Medical University - Varna in 2017 with an award for a graduate with the highest scientific achievements during his studies. In the course of his studies Dr. Stoyanov was a demonstrator in the Department of Anatomy and Cell Biology, as well as in the Department of General and Clinical Pathology, Forensic Medicine and Deontology of Bulgarian and English language students in medicine, dentistry and pharmacy. In two consecutive terms he was respectively

Secretary and Deputy Chairman of the Association of Medical Students Varna (ASMB-Varna) and a member of the Board for Control and Quality at the national level, organizer of the research program and head of the editorial staff for BSYSB – a student and young researcher scientific symposium. After graduating in 2017, Dr. Stoyanov started working as a part-time assistant in the Department of Anatomy and Cell Biology and the Department of Physiology and Pathophysiology, Division of Pathophysiology, where he conducted practical seminars in Bulgarian and English for students of medicine and dentistry. In 2018 he was appointed as an intern and began specialization in General and Clinical Pathology at the Clinic of St. Marina University Hospital - Varna and full-time assistant in the Department of General and Clinical Pathology, Forensic Medicine and Deontology at the Faculty of Medicine, Medical University - Varna.

Dr. Stoyanov's research interests are diverse, focused mainly on diseases of the central nervous system, diseases of the head and neck, autopsy and infectious disease pathology. Evidence of the quality of his scientific work are more than 80 full-text scientific papers, most of them in English, published in international indexed journals. The candidate's works have been cited more than 350 times, and his personal impact factor is over 25. Dr. Stoyanov has also published a chapter in an international textbook - Handbook of Clinical Neurology. The candidate has successfully completed four courses in Web of Science and is a member of the editorial board of the Cureus Journal of Medical Science - an international indexed journal. In the period 2018-2019 he served as a member of the editorial board of the Scripta Scientifica vox Studentium journal published by MU-Varna. Apart from the scientific work, the candidate has two specialized certificates of work - The clinical autopsy with a module for biobanks, issued by the University of Oviedo, Spain and MMR / MSI professional expert course of Targos Molecular Pathology GmbH. As an assistant professor dr. Stoyanov participates in the educational work of the Department, conducts practical classes in General and Clinical Pathology of physicians and dentists in Bulgarian and English. In 2019, by order of the Rector R-109-51 / 01.02.2019, work on the current doctoral program began, in regular form, with research supervisor Prof. Dr. Petar Genev, MD and scientific consultant Assoc. Prof. Dr. Stoyano Pavlov, MD. In connection with the implementation of the dissertation, Dr. Stoyanov successfully received permission from the Commission on Ethics of Research, MU-Varna in connection with the activities set in the dissertation, and won a project to the Science Fund of MU-Varna. The topic of the dissertation - prognostic and predictive factors in glioblastoma multiforme, at the end of doctoral studies coincides with the introduction of a new classification for tumors of the WHO nervous system in 2021, which significantly changes the definitions of many tumor units, including glioblastoma. Dr. Stoyanov concluded work on the thesis in 2022, within the set term of the doctoral program, by order of the Rector R-109-71 / 04.02.2022, according to which I have been appointed as a regular internal member of the scientific jury.

Dr. Stoyanov is a member of the Bulgarian Society of Pathology, Bulgarian Medical Union and Union of Scientists - Varna.

I have the pleasure and honor to know Dr. Georgi Stoyanov, as a student during his training in General and Clinical Pathology, initially as his teacher, and later as head of his specialization. During this period I am impressed by his activity, curiosity, methodology and responsibility in the daily activities with which he is engaged especially in professional and scientific terms. All the impressive results he has achieved in scientific work are the result of his great desire, backed by specific skills that he has.

## **II. General performance of the candidate**

The presented materials on electronic media and in print meet the requirements of the Regulations for the development of the academic staff at MU Varna from 2018 under the Procedure for acquiring the educational and scientific degree "Doctor" at MU Varna. The doctoral student passed the exam for doctoral minimum in the specialty "General and Clinical Pathology" on 28.09.2020 with a very good grade. The required scientometric indicators have been covered and exceeded many times. The doctoral student obtained the right to external thesis defense by Order № P-109-41 of 21.01.2022 of the Rector of Mu-Varna.

## **III. Dissertation**

## **evaluation**

The dissertation presented in my opinion (in English and Bulgarian) and the attached thesis resume (in English and Bulgarian) meet the generally accepted scientific and institutional formatting norms of a dissertation in the field of medicine. The dissertation is written on 113 standard typewritten pages, together with the literature sources, and is supported by 65 figures, 13 tables and 250 literature sources, of which 11 are in Cyrillic and 239 in Latin. The structure and content of the dissertation is as follows: commonly used abbreviations (2 pages), where the author has listed, arranged in alphabetical order, respectively in Cyrillic and Latin. Literature review (23 pages) - here the dissertation focuses on the evolution of knowledge about tumors of the central nervous system, with special focus on the most common of them and related to the topic of the dissertation - glioblastoma multiforme. The history of medical knowledge in this field is examined in detail with the histological definition of this type of tumor by Rudolf Virchow, the first classifications of Bailey and Cushing, to the last classification of tumors of the nervous system of the WHO in 2021. Some of the Bulgarian contributions to glioblastoma multiforme research are presented in a short form (1 page). For illustrative and diagnostic purposes, the review includes 15 original figures, as well as a translation, without edits, of the latest WHO classification for tumors of the nervous system from 2021. Purpose and tasks (1 page) - the goals of the dissertation and the tasks set for the dissertation, the research supervisor and the dissertation consultant are briefly and clearly defined. Material and methods (7 pages) - here it is presented in detail the analytical approach, in accordance with the goals and

objectives, as the methodology of the work process, these allow reproducibility and verification of the results achieved. For illustrative purposes, the author has presented 4 figures in this part of the dissertation, demonstrating the operation of the automated programs used for analysis of digitized microscopic images. Results (24 pages) are supported by 46 original figures and 13 tables. Discussion (16 pages) - in addition to reviewing the original results achieved in the dissertation against the background of scientific periodicals, the author includes concluding chapters to the discussion on future directions and limitations of the dissertation. Conclusion (1 page) - here in a short form are synthesized the conclusions of the available scientific literature on the subject, as well as the results achieved. Conclusions (1 page) - the conclusions are in a synthesized and concise form, fully consistent with the scientific periodicals, as well as the original results of the dissertation. Contributions (1 page) - the contributions are divided into those of clinical-diagnostic and therapeutic nature, fully meeting the objectives, methodology and results achieved by the dissertation. Publications on the topic (2 pages). Acknowledgments (1 page) with individual messages, here the author is grateful to its supervisors, mentors, teachers, colleagues, friends and family. Literary sources (17 pages) - as already mentioned, a total of 250 literary titles from scientific periodicals are presented here, of which 11 (4.4%) in Cyrillic and 239 pcs. (95.6%) in Latin. The scope of the used literary sources is from the period 1860-2021. The sources cover mainly scientific publications, citing monographs, dissertations, conference reports, teaching aids, textbooks, specialized textbooks and classifications, statistical reports of national structures and online databases. The number of used literature sources from the last 5 years (2017-) is 134 titles (53.6%). The titles are arranged in alphabetical order, first the Cyrillic titles, which allows them to be easily found in specialized scientific databases.

#### **IV. Evaluation of publications and personal contribution of the PhD student**

Dr. Stoyanov presents a total of 14 publications on the topic, of which one (7.14%) in Bulgarian, in the form of a conference report and 13 (92.86%) full-text publications, all in English in journals with impact factor (2 pcs. , 14.29%), international referenced journals (6, 42.86%), international non-referenced journals (3, 21.43%) and national journals (2, 14.29%). Dr. Stoyanov is the first author in 11 (84.62%) of the presented publications and the third author in 2 (15.38%). In one (7.14%) of the mentioned articles Dr. Stoyanov is the only author. The presented publications are in the period 2017-21, ie. precede the work on the dissertation and show the high level of preliminary preparation of the dissertation in connection with the topic of the dissertation.

#### **V. Thesis resume**

The thesis resume of the dissertation is prepared in accordance with the requirements of the Regulations of the Academic Staff of MU-Varna, reflecting adequately and sufficiently the state of



the studied problem, the set aim and experimental tasks, the methods used for their practical implementation, the results obtained, their analytical description and interpretation of own data, as well as the author's conclusions and contributions.

**VI. General assessment of compliance with the mandatory conditions, quantitative criteria and scientific-metric indicators, according to the Law on the Development of Academic Staff in the Republic of Bulgaria and the Regulations for its application.**

The quantitative scientometric criteria for the PhD degree have been met, in accordance with the LADRB, the Regulations for its application and the Regulations of MU-Varna - a total of 30 points is required: indicator D (publications and reports) -  $150+10 = 160$  points.

**Conclusion**

As a member of the scientific jury, I give a convincingly positive assessment of the acquisition of the scientific degree "Doctor" by Dr. Georgi Stoyanov Stoyanov. The submitted dissertation, thesis resume and published scientific works meet and repeatedly exceed the requirements of the Law on the Development of Academic Staff of the Republic of Bulgaria (LADRB) and the Regulations of MU-Varna. The dissertation deals with a topical problem in scientific and clinical terms, and the conclusions are part of the evolution of the medical knowledge of tumors of the central nervous system and are a catalyst for future research in the field, for which I also suggest to the other scientific jury member to also give their positive vote.



23.03.2022

Assoc. Prof. Deyan Dzhankov, MD, PhD

