# To

# The Chairman of the Scientific Jury,

# appointed by order of the Executive

# Director and Procurator of "Acibadem City Clinic UMHAT Tokuda" EAD

# №15-03-123#2/15.06.2023

# 

# R E V I E W

# From

# Prof. Dr. Dimitar Petkov, DM, DSC

# executive director of the University General Hospital for Active Treatment

# "Prof. Dr. Alexander Chirkov"

# on

# The scientific works and scientific teaching activity of

# Dr. Ivilin Plamenov Todorov, PhD.

# Cardiac surgeon at the Cardiac Surgery Clinic

# of "ACIBADEM CITY CLINIC UMHAT TOKUDA" EAD

# Regarding: Participation in a competition for the academic position of "ASSOCIANT PROFESSOR" in professional direction 7. "Health and sport", 7.1 "Medicine", in the scientific specialty "Cardiovascular surgery", for the needs of the Cardiac Surgery Clinic "Ajibadem City Clinic" UMBAL Tokuda" EAD, announced in SG, no. No. 37/25.04.2023

**I. INFORMATION ON THE PROCEDURE FOR THE ANNOUNCEMENT OF A COMPETITION FOR THE ACADEMIC POSITION OF "ASSOCIATE PROFESSOR" IN THE SCIENTIFIC SPECIALTY OF "CARDIAC - VASCULAR SURGERY", FOR THE NEEDS OF THE CARDIOVASCULAR SURGERY CLINIC "AJIBADEM CITY CLINIC UMBAL TOKUDA" JSC,**

The competition for the full-time academic position " associate professor " in professional direction 7. "Healthcare and sports", 7.1 "Medicine", in the scientific specialty "Cardiovascular surgery", for the needs of the Cardiac Surgery Clinic "Acibadem City Clinic UMHAT Tokuda" EAD, was announced in the State Gazette No. 37/25.04.2023.

By order No. 15-03-123#2/15.06.2023 of the Executive Director and Procurator of "Acibadem City Clinic UMHAT Tokuda" EAD, I have been appointed as a member of the Scientific Jury for the open competition. At the first non-attendance meeting of the Scientific Jury, a decision was made to prepare a review of the candidate's scientific works and scientific teaching activities.

Dr. Ivilin Plamenov Todorov, M.D., cardiac surgeon at the Cardiac Surgery Clinic, "Acibadem City Clinic UMHAT Tokuda" EAD is the only candidate who submitted documents for participation in the competition within the legally defined period. He complies with the requirements of ŽRASRB, the Regulations for its application and the Regulations for the terms and conditions for acquiring scientific degrees and holding academic positions at "Acibadem City Clinic UMHAT Tokuda" EAD:

1. Has an acquired educational and scientific degree "PhD", in the scientific specialty "Cardiac Surgery"

2. He is a part-time teacher and lecturer and a member of the scientific research team at " Acibadem City Clinic UMHAT Tokuda " EAD and Faculty of Medicine of SU "Kliment Ohridski" teaching students in Bulgarian and English.

3. To participate in the competition, submit scientific publications sufficient in number and quality in specialized scientific publications and scientific works, which do not repeat those submitted for the acquisition of the educational and scientific degree "PhD".

4. Meets the minimum national requirements and the requirements under Art. 1a, paragraph 2

5. There is no proven plagiarism in scientific works.

Based on meeting the necessary requirements, Dr. Ivilin Plamenov Todorov was admitted to participate in the competition and was evaluated by a Scientific Jury.

**II. BIOGRAPHICAL DATA OF THE CANDIDATE RELATED TO HIS PROFESSIONAL DEVELOPMENT AND ACTIVITY**

Dr. Ivilin Plamenov Todorov was born on July 30, 1982. in the city of Sofia. He graduated in medicine in 2007 at Medical University - Sofia. In the same year, he was appointed as a resident physician to the newly opened department of cardiac surgery at Tokuda Hospital-Sofia, where he still works. In 2009, he was enrolled for specialization in cardiac surgery at the Sofia University. Acquired a specialty in cardiac surgery in 2014. In 2019, he graduated with a master's degree in public health and health management at the Faculty of Public Health of Medical University-Sofia. From 2019 and until now he is a part-time teacher at the Faculty of Medicine of Sofia University "St. Kliment Ohridski".

In 2021, he successfully defended his dissertation on "Surgical treatment in patients with prosthetic valve endocarditis" to obtain the educational and scientific degree "PhD" in the scientific specialty "Cardiovascular Surgery".

Academic development: From 2019 until now, Dr. Ivilin Todorov is a part-time lecturer at the Faculty of Medicine of Sofia University "St. Kliment Ohridski".

Acquired specialties. Dr. Todorov has a recognized specialty — "cardiac surgery" since 2014.

Postgraduate training and specializations: In 2012 — specialization in cardiac surgery - coronary surgery. To University Hospital Center Zagreb, Zagreb Croatia. In 2013, specialization in "minimally invasive valvular heart surgery", Department of Cardiac Surgery of Medical University Innsbruck, Austria. In 2019 — Specialization in pediatric cardiac surgery, UNIVERSITATS KLINIKUM HEIDELBERG, Heidelberg, Germany.

Obtained scientific degree. After an independent doctoral program in 2019 - 2021, Dr. Todorov defended a dissertation to obtain the educational and scientific degree "DOCTOR" in the specialty "cardiovascular surgery" on the topic "Surgical treatment in patients with prosthetic valve endocarditis",

Membership in professional and scientific organizations: Member of the Bulgarian Medical Union; Bulgarian Society of Cardiac Surgery. Member and secretary of the Bulgarian Association of Thoracic, Cardiac and Vascular Surgery. Member of the European Association for Cardio-Thoracic Surgery.

In the documents submitted for participation in the competition, the candidate has presented a detailed up-to-date report on his professional development and qualifications, as well as on his educational, teaching and scientific activities.

**III. ANALYSIS AND EVALUATION OF SCIENTIFIC RESEARCH ACTIVITY AND FORMULATION OF SCIENTIFIC CONTRIBUTIONS**

**Quantitative criteria for research activity:**

Dr. Ivilin Todorov participated in the competition with a total of 25 full-text publications in Bulgarian or English, distributed as follows:

* Dissertation work on the topic: "Surgical treatment in patients with prosthetic valve endocarditis. With this work, Dr. Todorov meets Criterion A of the minimum requirements for holding JSC "Associate Professor", according to ZRASRB and PRAS of "Ajibadem City Clinic UMBAL Tokuda" EAD.
* Monographic work - Todorov I. d.m., Prosthetic valve endocarditis - clinic, diagnosis and treatment. Monograph, 2022, ISBN: 978-619-7703-04-7, Pub. Intel Entrans Sofia, 155s.. With whichmeets Criterion C of the minimum requirements for borrowing AD "Associate Professor", according to the RSARB and PRAS of "Ajibadem City Clinic UMBAL Tokuda" EAD.
* 9 additional journal publications that are referenced and indexed in Scopus and Web of Science
* 11 publications in non-refereed peer-reviewed journals
* 4 Published chapters of collective monographs

In total, these publications generate a weight of 297.5 points, which meets Criterion D of the minimum requirements for holding AD "Associate Professor", according to the RSARB and PRAS of "Acibadem City Clinic UMHAT Tokuda" EAD.

Dr. Todorov presented a citation reference from the Medical Library of the University of Sofia - Sofia (Exh. N 245/12.05.2023), which indicates 11 open citations - Bulgarian 9, and in the Scopus database - 2 citations, in Web of Science - 1 citations with a weight of 95 points, which cover and exceed Criterion D of the minimum requirements for holding JSC "Associate Professor", according to the ZRASRB and PRAS of "Acibadem City Clinic UMHAT Tokuda" EAD.

The evaluation of the quantitative criteria of the scientific research activity and publication activity of Dr. Ivilin Plamenov Todorov shows that he presents scientific publications sufficient in number and quality in specialized scientific publications and scientific works, which do not repeat those submitted for the acquisition of the educational and scientific degree "PhD" and no proven plagiarism in scientific works. The evaluation of these works covers the minimum national requirements and the requirements of the normative documents and the Regulations for the development of the academic staff of "Acibadem City Clinic UMHAT Tokuda" EAD for occupying the academic position "Associate Professor".

# IV. TOPICS OF SCIENTIFIC RESEARCH ACTIVITY.

# In the majority of the publications with which he participated in the competition, Dr. Todorov is the first or second author. This shows independence, both in the setting of the scientific problem, and in the development, interpretation and publication of the results. The scientific areas in which Dr. Todorov worked and his scientific contributions are grouped into the following 3 clinical areas:

# 1. Reoperative cardiac surgery, prosthetic valve endocarditis.

# A high rating should also be given to innovative approaches introduced by the author to reduce complications and improve postoperative results in reoperations in cardiac surgery

# In the presented monograph: "PROSTHETIC VALVE ENDOCARDITIS - CLINIC, DIAGNOSIS AND TREATMENT", dedicated to the main aspects of the clinic, diagnosis and operative treatment in patients with prosthetic valve endocarditis, significant scientific contributions are presented, and the presented algorithm and the main steps should be especially noted when performing various types of surgical interventions. The conclusions and recommendations made for the daily practical activity of cardiac surgeons are of significant scientific and applied value, pointing to correct specific decisions for diagnosis and treatment. The monograph also presents the multidisciplinary model for diagnosis, medical and surgical treatment of prosthetic valve endocarditis, and the challenges are thoroughly discussed and the decisions in patients with PVE when the infection involves a prosthetic valve, as the risks of repeat cardiac surgery can be significant. The history of PVE is traced and the current literature on the management of specific valvular involvement (ie, aortic and/or mitral) is reviewed, and the challenges, issues, and outcomes that drive clinical decision-making in light of the most new and effective therapeutic approaches and the latest strategic and practical algorithms in the treatment of the disease.

# 2. Infective endocarditis

# A significant part of the candidate's publications is devoted to the analysis of valve prosthetics in patients with valvular endocarditis and the conditions for increasing the effectiveness of operative treatment. They are reflected in the scientific works of the candidate related to surgical behavior and treatment in patients with early and late prosthetic valve endocarditis. The duration of hospitalization and survival in patients with a proven microbiological causative agent treated with antibiotics according to an antibiogram and those without an isolated causative agent treated empirically were studied. The degree of sensitivity and specificity of the most available diagnostic imaging studies (TEE and TTE) in the diagnosis of prosthetic valve endocarditis and its complications has been established. A comprehensive study and comparative analysis of outcomes in deceased and discharged patients was conducted and a modern prognostic model was created for factors predicting an increased risk of death in patients with prosthetic valve endocarditis.

# Applied, described for the first time in Bulgaria, is a method for angiographic balloon LIMA occlusion, with the aim of optimal myocardial protection, as well as improving the operative results and the survival of patients in the surgical treatment of PVE and previous coronary surgery with a working LIMA-LAD graft

# 3. Cardiac and extracardiac tumors, difficulties and solutions in cardiac surgery

# The scientific-applied contributions are also in the scientific works dedicated to the surgical difficulties and the experience of the team in a patient with Marfan syndrome and severe pectus excavatum, the proposed cardiac surgical approach for extracorporeal perfusion through the use of two parallel connected oxygenators, as an effective, easy and safe method in patients with "extreme" perfusion needs, providing the surgical team with sufficient oxygenator "reserve" for the implementation of an optimal and safe surgical intervention.

**V. ANALYSIS AND EVALUATION OF EDUCATIONAL AND TEACHING ACTIVITY**

Dr. Todorov is a part-time lecturer at the Faculty of Medicine of Sofia University "St. Kliment Ohridski". A report on the educational and teaching activities of Dr. Todorov as a part-time assistant at the Faculty of Medicine of SU "Kliment Ohridski" is presented:

During the academic year 2019/2020: exercises on "Surgical diseases" for students 3-6 course of medicine - 24 study hours;

During the academic year 2020/2021: exercises on "Surgical diseases" for students 3-6 course of medicine - 6 study hours;

In the academic year 2021/2022: exercises on "Surgical diseases" for students 3-6 course of medicine - 39 study hours;

**VI. ANALYSIS AND EVALUATION OF THE DIAGNOSTIC-TREATMENTAL AND CONSULTING ACTIVITY**

Dr. Todorov is an excellently prepared cardiac surgeon and university professor, both theoretically and practically. He is a built professional, mastering the most modern methods of diagnosis and treatment of heart diseases and their surgical treatment. His hard work in his professional growth, the opportunities and qualities he possesses as a specialist cardiac surgeon, the qualities of a communicative and ethical professional in his relations with colleagues and patients, make him one of the respected cardiac surgeons in our country. Over the years, with much patience and persistence, he managed to become part of the team of specialists who together made the Cardiac Surgery Clinic of "Acibadem City Clinic UM Tokuda" JSC a leading highly specialized and high-tech cardiac surgery center of European scale. All of the above is testimony to his high level of professional competence and quality of scientific and teaching activity.

# VII. CONCLUSION

# I give my positive opinion from the scientific, research and teaching activities of Dr. Todorov, which demonstrate his undoubtedly high surgical and scientific training and his confirmation as an innovative specialist in cardiac surgery. I believe that his candidacy is suitable for the announced competition - "associate professor" for the needs of the Cardiac Surgery Clinic at "Acibadem City Clinic UMHAT Tokuda" EAD. Referring to the overall professional development and analyzing scientific research and practical surgical activity of Dr. Todorov, I vote with a positive vote and recommend the other members of the Scientific Jury to do the same.

# 19/09/2023 Reviewer:

# Sofia /Prof. Dr. Dimitar Petkov, DM, DSC/