



To

**The Chairman of the Scientific jury,
Assigned in accordance with Order No. R - 1725/ 15.07.2022
Of the Rector of Medical University - Plovdiv
15A Vassil Aprilov Blvd.
4002 Plovdiv**

Your Protocol No. 1/ dated 25.07.2022.

Attached I Submit: Review

In relation to the Procedure for the academic position of Professor
In the Scientific Specialty CARDIOLOGY
For the needs of Medical University - Plovdiv,
Published in State Gazette No. 32/26.04.2022

Reviewer: Professor Dr. Fedya Nikolov, MD, PhD
Scientific specialties: Cardiology and Internal Medicine
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REVIEW

In relation to the procedure for the academic position full "Professor" in Cardiology
in MU of Plovdiv

I. Analysis of the career profile of the candidate

Associate-professor Mariya Tokmakova was born in 1971 in Plovdiv. She graduated from the English Language School in Plovdiv in 1989 and from the Higher Medical Institute (HMI) Plovdiv in 1995 with honours. From 1996 to 1999 she was a PhD student at the cardiology section of the First Department of Internal diseases of the Medical University – Plovdiv and specialized in internal diseases. From 1999 to 2000 she was resident at the cardiology clinic of the same institute. In 2000, she successfully defended her dissertation on the topic: "Diagnostic value of parameters from cardiopulmonary exercise testing in patients with chronic heart failure" and obtained the educational and scientific degree "Doctor" by the Higher Evaluating Committee in Bulgaria. From 2001 to 2008, she was consecutively an assistant-, senior assistant- and chief assistant-professor, and from 2008 to the present time an Associate-Professor at the Cardiology Section of First Department of Internal Medicine, Faculty of Medicine, Medical University of Plovdiv. Since the same year, she has been appointed Head of Division at the Clinic of cardiology at University hospital "Sveti Georgi" EAD in Plovdiv.

Since 2000 she has been certified as a specialist in Internal Medicine, and since 2003 as a specialist in Cardiology. Since 2011, she has a Master's degree in Health Management. Associate-professor Tokmakova holds certificates in Echocardiography - basic and expert level and in Invasive Cardiology. She completed a number of courses and specializations abroad: 2000 Hopital Boujon, Paris, France (ESC Training Fellowship), 01.2002 - 01.2003 Brigham and Women's Hospital, Harvard Medical School, Boston, USA and 20.01.2018 - 01.12.2019 University of Zurich, Zurich, Switzerland and other. She is fluent in English.

For 26 years of service Associate-prof. Tokmakova has passed gradually, harmoniously and constructively through all stages of academic and professional development in the field of cardiology. For the last 10 years she has participated in the management and initiatives of the BSC as a member of the Board, Scientific Secretary and President. From 2020 Associate-prof.

Tokmakova is actively involved in the activities of the European Society of Cardiology and has been elected as a member of the Board of the Heart Failure Association of ESC, term 2022 – 2024.

II. Description of the scientific materials presented by the candidate

The presented set of documents are in accordance with the requirements of the rules for the procedure for the award of the academic position "Professor" of Mu-Plovdiv.

III. Evaluation of the applicant's scientific papers

1. General characteristics of scientific production and publication activity.

The analysis is based on the publication activity of Associate-prof. Tokmakova for the period 2008 – 2022, after achieving the academic position of "Associate Professor".

- **Dissertation** for the award of the educational and scientific degree "Doctor": "Diagnostic value of parameters from cardiopulmonary exercise testing in patients with chronic heart failure", Higher Medical Institute - Plovdiv, 1999.

- **Habilitation thesis**, monograph: M. Tokmakova. Sex differences in heart failure. 2022, Koala Press, ISBN 978-619-261-015-9.

- **17 publications published in scientific journals, referenced and indexed in world-renowned databases with scientific information (Scopus and Web of science)**, of which 9 publications with IF, (Q1 – 2 publications; Q2 – 4 publications; Q3 – 2 publications; Q4 – 1 publications).

- **16 full-text publications in non-refereed peer-reviewed scientific journals**

- **2 participations as co-author of 2 chapters in monographs:** Handbook of electrocardiography, 2018, pp. 280 – 297, Society of Cardiologists in Bulgaria, ISBN 978-619-91203-0-9, and Chompalov KA, Dzhambov AM, Bahchevanov KM, Tokmakova M , Atanassova PA. Sex and age characteristics of cerebrovascular risk factors In: New Research on Atrial Fibrillation and Ischemic Heart Disease, 2020, p. 57-84. Nova Science Publishers, Inc., New York, ISBN 978-153-6

- **2 participations as coauthor in university textbooks** - „Cardiology“, Lax Book Ltd. 2015, ISBN: 978-619-189-011-8; „Internal diseases“, Lax Book Ltd, ISBN:978-619-189-145-0

- **1 published University helpbook** – "PhD Student's Manual", Medical University – Plovdiv 2018, ISBN: 978-619-237-007-7

2. Scientific activity – dissemination and application of the scientific and practical achievements of candidate among the scientific community

The main scientific directions in which Associate Prof. Tokmakova has an interest and scientific achievements are related to physiology, pathophysiology and clinical significance of the response to physical exercise and physical training in patients with heart failure, cardiovascular risk and risk factors, prognostic factors and heart failure.

The response to exercise and physical training in patients with HF was initially studied in a thesis for the educational and scientific degree "Doctor" - "Diagnostic value of parameters from cardiopulmonary exercise testing in patients with chronic heart failure". Further, in collaboration with a team from the Department of Pathophysiology and Section of Pulmonology from the First Department of Internal Medicine of the Medical University - Plovdiv, the influence of concomitant respiratory diseases on the indicator of oxygen consumption efficiency (OUES) in patients with chronic heart failure (CHF) with functional class NYHA II – III during dosed exercise were studied.

OUES is a measure that characterizes ventilatory response and cardiopulmonary functional reserve at submaximal levels of exercise, correlates significantly with VO₂, and has excellent reproducibility, reliability, and prognostic value. The validity of the standardized peak exertion perception score (SPEPS) was evaluated in different groups of patients - with CHF, with COPD and a control group and its applicability to evaluate prognosis in physical training by examining the effect of an 8-week physical training program on SPEPS. The candidate is a co-author in an analytical review on field and laboratory stress testing and current aspects of physical training in CHF and in a prospective randomized controlled single-center study on 120 patients with CHF II or III comparing a modified group-based high-intensity interval training with moderate-intensity continuous training lasting 12 weeks as an alternative approach in rehabilitation of outpatients with CHF II or III functional.class.

On the topic of cardiovascular risk and risk factors, Assoc. Prof. Tokmakova has published in excellent international scientific journals such as Circulation, Atherosclerosis, Journal of cardiopulmonary rehabilitation and prevention, Advances in therapy, etc., which examine the problems of patients with risk factors for the occurrence of cardiovascular diseases such as chronic kidney disease, arterial hypertonia, familial hypercholesterolemia. A study was

also conducted on the adverse health effects of municipal noise and occupational noise exposure and risk factors for cardiovascular disease. Some of the publications examined the role of some prognostic factors in patients with severe myocardial infarction and in those with carotid stenting. There is a publication in this field in *Circulation* magazine in 2009.

3. Participation in the implementation and management of projects

Prof. Tokmakova has 4 participations in national scientific or educational projects (PRE E Health, Doctoral student, Doctoral student-2, Student practices) and 3 participations in international scientific or educational projects (Leonardo da Vinci program, Erasmus and Erasmus Plus project). Prof. Tokmakova is the national coordinator of the international project "Atrial Fibrillation Integrated Approach in Frail, Multimorbid and Polymedicated Older People" with the acronym "AFFIRMO" under the HORIZONT 2020 research and innovation funding program for Bulgaria and the project manager for MU - Plovdiv.

4. Scientific and creative achievements (scientific authority)

Assoc. Prof. Tokmakova is a member of the editorial boards and section editor of the magazines "Bulgarian Cardiology" and "Folia Medica". She is an invited speaker at a number of scientific congresses and conferences at home and abroad, training formats for cardiology specialists, general medicine specialists and cardiologists. Participated as a researcher, trainer, coordinator and leader in several international, national and intra-university scientific projects. For several years Assoc. Prof. Tokmakova has been invited to participate as an evaluator in the selection of scientific announcements and reports for the European Congress of Cardiology and other international scientific forums. She is the editor of several clinical guidelines of the European Society of Cardiology. She has participated many times as a member of scientific juries for the acquisition of ONS "Doctor", JSC "Chief Assistant", "Assistant Professor" and "Professor". As a member of the working group, which includes experts in the field of HF, Assoc. Prof. Tokmakova participated in the development of a package of quality indicators (QIs) for the assessment of the quality of care for adult patients with heart failure (HF). The proposed indicators can be used to evaluate and select the adherence to the recommended behavior of the current clinical guidelines and thus to improve the prognosis of patients with HF.

5. Guidance of doctoral students

Associate Professor M. Tokmakova is the supervisor of two successfully defended doctoral students - Dr. Petar Fedev Nikolov "Prehypertension. Distribution, functional and laboratory changes. Therapeutic approach"; awarded ONS "doctor" 20.06.2013; and Dr. Angel Mario Jambov "Noise pollution from car traffic - a risk factor for some cardiovascular and metabolic diseases among the adult population"; awarded ONS "Doctor" 06.11.2017

IV. Evaluation of the monographic work for participation in the contest for "PROFESSOR" by the candidate

Assoc. Prof. Tokmakova's monograph provides a comprehensive view of gender differences in heart failure. It has been analytically, thoroughly and critically proven that gender is an important factor that must be taken into account in the prevention, diagnosis, treatment and prognosis of patients with HF. For the time being in the major studies and manuals on the subject, these differences have not been sufficiently and fully appreciated, necessitating a more in-depth study in the future. Knowledge of gender differences in the pathogenesis, clinical presentation and response to treatment in different diseases is an important element of a personalized approach in medicine and in particular in patients with HF.

V. Reflection (citation) of the candidate's publications in national and foreign literature (publication impact).

Associate Professor Tokmakova's works have been **cited 494 times** in scientific publications, referenced and indexed in world-renowned databases with scientific information (Scopus and Web of science). A significant part of the citations are in prestigious publications with IF (ranked mostly in Q1 or Q2). Her first author publication in *Circulation* since 2004 has been cited 145 times in *Circulation*, *J Cardiol*, *Am J Med*, *Kidney Int*, *J Am Heart Assoc*, *JACC Heart Fail*, *J Am Coll Cardiol*, as well as in books and textbooks.

Her co-authored articles in *Am Heart J* from 2001 - 116 times, *European Heart Journal* from 2002 - 153 times, *Curr Opin Cardiol* from 2006 - 16 times, *Russ J Cardiol* from 2015 - 6 times and others have a high number of citations.

The works of Associate Professor Tokmakova are cited in several Bulgarian dissertations and numerous publications in well-known Bulgarian scientific journals.

Assoc. Prof. Tokmakova's **H-index** is 6, the **total IF** is 46.136, and the **individual IF** is 4.37.

VI. Complex, qualitative evaluation of the teaching-methodical and teaching activity, incl. scientific guidance of students, doctoral students, specialists.

Assoc. Prof. Tokmakova has been a long-time educator of medical students, trainee doctors, specialists and doctoral students. She participates in examination committees of Bulgarian and foreign students and intern-doctors, as well as of specialists. Since 2013, she has been a member of the examination committee for the state examination for acquiring the "cardiology" specialty.

The educational horarium (lectures and exercises) of Associate Prof. Tokmakova is large - 766 hours for the academic year 2020/2021 and 892 hours for 2021/2022 and exceeds the minimum requirements. The extracurricular employment of the candidate is related to individual work with students, theoretical training of cardiology specialists, preparation of teaching materials and others and exceeds 100 hours/year.

VII. Critical notes and recommendations

I have no comments or recommendations.

VIII. My overall assessment of the personal qualities, scientific production and academic-teaching skills of Associate Professor Mariya Tokmakova is high and is in accordance with the minimum national requirements under Art. 2b, para. 2 and 3, respectively, to the requirements under Art. 2b, para. 5 of the ZRASRB and the requirements specific to MU - Plovdiv by direction and for units with clinical activity, defined in the Regulations for Academic Development at the Medical University - Plovdiv.

IX. Conclusion

Based on the provided documents and the analysis of the entire scientific and academic-teaching activity, I believe that Associate Prof. Dr. Mariya Petkova Tokmakova fully meets the mandatory and specific conditions and scientometric criteria for occupying the academic position of "Professor".

I propose to the Honorable Scientific Jury to vote positively for awarding the academic position "Professor" to Associate Prof. Mariya Tokmakova.

Заличено на основание
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14.09.2022

Prof. Dr. Fedya Nikolov, MD