

## REVIEW

*regarding the competition for associate professor of Cardiology in the Department of "Internal Diseases" of the Faculty of Medicine of the University "Prof. Dr. Asen Zlatarov", Burgas, announced in the "State Gazette", issue 45, dated June 17, 2022.*

*by Prof. Dr. Iskren Kotsev, MD, Medical University, Varna, MBAL-Varna*

By Order No. RD-250/15.09.2022 of the Rector of the University "Prof. Dr. Asen Zlatarov", Burgas, I was appointed to participate in the Scientific Jury for the above-mentioned competition, and following the first meeting of the Scientific Jury, I was appointed to present a review.

For the competition for associate professor of cardiology announced in the "State Gazette" issue 45 of June 17, 2022, regular documents were submitted by Konstantin Mihailov Kostov, MD, cardiologist and head of "Management of Clinical Trials" in the Medconsult OOD Medical Center, Pleven and Associate Professor Liliana Georgieva Mircheva, MD, Head of the Department of Cardiology at the "Heart and Brain" Medical Center, Burgas. The papers of the two candidates were analyzed consecutively in alphabetical order of the last name, and the assessment and final opinion were formed based on the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria of May 21, 2010, the Regulations for its Application of September 24, 2010. , incl. all additions until July 19, 2022 and the Regulations for the development of the academic staff at the University "Prof. Dr. Asen Zlatarov", Burgas.

**Dr. Konstantin Mihailov Kostov** has a scientific and educational degree "doctor" after successfully defending a dissertation in the scientific specialty of cardiology on July 1, 2021 on the topic "Comorbidity, risk profile and biomarkers in hospitalized patients with heart failure". Dr. Konstantin Kostov was born in the city of Pleven in 1986. The candidate did not provide information on where and when he completed his secondary education. Dr. Kostov submitted a diploma for training in the period 2005-2009 from Michigan State University (USA), College of Natural Sciences for a bachelor's degree in "Physiology"; the diploma was issued on August 20, 2009. In the following 6 years, he was a student at the MU, Pleven, and in 2015 he graduated as a Master of Medicine with a good GPA of 5.19. In the period 2016 - 2017 he was a doctor and assistant in the Department of "Cardiology, Pulmonology and Endocrinology", MU, Pleven, in the period 2017 - 2020 he was a doctor and assistant in the Department "Propaedeutics of Internal Diseases" at "Dr. Georgi Stranski" UMBAL, Pleven. As of August 6, 2020, he has a Board certificate in cardiology. From December 1, 2020 to April 6, 2022, he worked as a cardiologist at the University Hospital for Active Cardiology Treatment, Pleven, 2 hours a day, with a recognized total experience



in the cardiology hospital of 4 months and 1 day. On 01.07.2021, he defended a dissertation on the topic: "Comorbidity, risk profile and biomarkers in hospitalized patients with heart failure". From April 14 of this year until now he worked at Medconsult Medical Center as the head of Clinical Trials Management. Dr. Kostov has 6 years of medical experience, 4 years of teaching experience - one academic year as an assistant in the Department of "Cardiology, Pulmonology and Endocrinology" of the MU, Pleven and 3 academic years as an assistant in the Department of "Propaedeutics of Internal Medicine", MU, Pleven and a 2-year cardiology internship.

### **Research activity**

In 2021, Dr. Kostov defended his dissertation on the topic: "Comorbidity, risk profile and biomarkers in hospitalized patients with heart failure", with scientific supervisor Prof. Sotir Marchev. The topic represents an important part of modern cardiology and Dr. Kostov's work deals with current problems. The candidate has submitted 3 scientific publications related to his dissertation work. All three publications address serum biomarkers in heart disease. He is first author in 1 publication, third and fourth co-author respectively in the other two.

Dr. Kostov has not submitted his own monograph.

Dr. Kostov has presented 11 scientific publications from scientific publications that are referenced and indexed in global databases with scientific information. All are in English and published in the scientific journals: *Acta Medica Bulgarica*, *Medicina flumenensis* (Croatia), *Atherosclerosis*, *Acta medica Croatica* and *NEJM*. In these refereed publications, Dr. Kostov is third author in 8, fourth author in one, and participant in 2 clinical trials. All these articles are published in extenso. He is not the first author on any of the publications. Two of the articles are super-cited because they represent results and discussion of two international clinical studies in which Dr. Kostov participated. In them, he is listed as a participant, but not explicitly as a co-author of the publication. The two articles deal with important issues of modern cardiology - the application of the oral anticoagulant Edoxaban and Kanakinumab as an anti-inflammatory agent in atherosclerosis. The Edoxaban article has been cited over 3,000 times in Web of Science and Scopus, and the Kanakinumab article over 4,000 times in the same databases. In fact, there is 1 citation of an article with his participation outside of clinical studies - "Circulating serum markers of collagen type III synthesis in high atherogenic risk patients with heart failure and coronary artery disease" with authors A. Nikolov, M. Tzekova, K. Kostov, A. Blazhev, N. Popovski, published in *Atherosclerosis* 315 (2020), (108-281): 241, ISSN: 1567-5688. The *NEJM* impact factor was 54.420 from 2013 and 79.260 from 2017 (the publication years of the two international clinical studies).

The candidate has submitted 25 scientific publications and reports in peer-reviewed journals. In them, he is first author in 5 scientific papers, second author in 11, third author in 7 and fourth author in 2.



His scientific works are in the following areas: heart failure, biomarkers in heart failure and heart diseases, metabolic syndrome, arterial hypertension, rhythm disorders. The main contributions of his dissertation work are in the study of biomarkers Cystatin C and IL-18, which he studied for the first time in our country in patients with heart failure. Defines a threshold value of IL-18 associated with an increased frequency of hospitalizations. His scientific developments are related to current and important medical problems - metabolic syndrome - incidence and classification, heart failure, diabetes mellitus, arterial hypertension. Dr. Kostov has made indisputable contributions to the analysis of the risk profile, comorbidity and prognosis of patients with heart failure and the role of biomarkers in the same patients. Contributions include publications on elastin, matrix metalloproteinase-12, angiotensin imbalance in patients with arterial hypertension and diabetes mellitus.

Dr. Kostov participated in 4 scientific projects of the MU, Plevan:

1. D2- "Monitoring the levels of Apolipoprotein B, hs CRP and IL-6 in patients with acute coronary syndrome and determining their clinical and prognostic significance" (approved for funding by MU Plevan for 2014). M. Tsekova, M. Negrilov, D. Petrova, K. Kostov, E. Lakova. – 07.06.2014 – 07.06. 2015.
2. №6/2015 - "Study of the role of the A>G polymorphism in the LPA locus and the plasma levels of lipoprotein (A) in the development of calcific aortic stenosis in a target group of Bulgarian patients" V. Tomova, M. Atanasova, T. Rashev, K. Kostov, M. Tsekova (approved for funding by the Plevan University in 2015) - 07.07.2015 – 07.07.2016.
3. №19/2018 - "Metabolic syndrome and cognitive dysfunction: new perspectives for early diagnosis" E. Lakova, G. Atanasova, T. Rashev, K. Kostov, M. Tsekova (approved for funding by MU Plevan in 2018), - 28/05/2018 – 28/05/2019.
4. №1/2019 - "Changes in the serum markers of the cardiac extracellular matrix (cardiac collagen exchange) and myocardial remodeling in patients with essential hypertension and heart failure with borderline suppressed ejection fraction" (approved for funding by MU Plevan in 2019), Prof Dr. Maria Tsekova, Ph.D., Assoc. Dr. Asparuh Nikolov, Dr. K. Kostov, Dr. Nikola Popovski. 30/05/2019 – 30/05/2020.

Dr. Kostov has extensive experience in participating in clinical trials. According to his own data, he took part in 48 clinical studies in various fields of medicine: cardiology, pulmonology, neurology, psychiatry, dermatology, vaccines, rheumatology. 2 of his publications are related to such participation. In summary, Dr. Kostov's main scientific contributions are in the areas of cardiology, laboratory biomarkers, metabolic syndrome, and clinical trials.



### **Scientific activity**

Dr. Kostov participated in 6 scientific forums - 1 abroad and 5 - in our country. Scientific reports relate to atherosclerosis, metabolic syndrome, and serum biomarkers in hypertension and heart failure.

The scientific activity is from 2019, 2020 and 2021.

### **Teaching activity**

For 5 years as an assistant in the Department of Propaedeutics of Internal Medicine at the Medical University of Pleven Dr. Kostov has conducted 1544 study hours with medical students in English language training, an average of 309 hours per year, as follows:

2016/2017 year - 165,6 h

2017/2018 year - 147,5 h

2018/2019 year - 135 h

2019/2020 year - 516,6 h

2020/2021 year - 579,6 h

Dr. Kostov is included in the curriculum for training of medical students from the IV year (discipline of cardiology), having participated in the lecture course of 45 academic hours and practical seminars of 90 academic hours.

Dr. Kostov has an excellent command of written and spoken English, which makes him a teacher respected by students.

### **Diagnostic and therapeutic activity**

Dr. Kostov has clinical experience from his work as a university teacher and from taking care of outpatients. He is a specialist in cardiology and is proficient in non-invasive diagnostic methods in the specialty: Holter ECG; Holter AP, velo ergometry, echocardiography, for which he presents relevant certificates.

Dr. Kostov is a member of the BMU, the Bulgarian Cardiology Society and the Bulgarian Heart and Vascular Association. In the period 2005-2008, during his studies in the USA, he was the president of the student organization of students from Eastern Europe at Michigan State University.

Dr. Kostov meets the necessary **minimum requirements** according to the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Application and the Regulations for the Development of the Academic Staff at the University "Prof. Dr. Asen Zlatarov", Burgas. According to indicator A, he has 50 points, according to indicator B - 116.06 points, according to indicator D - 284.5 points, according to indicator D - 105 points, according to indicator E - 40 points, or in total - 595.56 points.

**The second candidate, assoc. prof. Liliana Georgieva Mircheva, MD**, obtained her PhD degree after successfully defending her thesis in the scientific specialty of cardiology in 2017 on the topic "Optimization of care for patients with heart failure after discharge", with monographic work from 2020 "Congestion and heart failure" edition of MU, Varna and with habilitation as



associate professor of cardiology from 2021 at MU, Varna. Assoc. Prof. Mircheva was born in the city of Varna, where she graduated in 1998 from the First Language High School with German language. In 2004, he graduated as a Master of Medicine at the Medical University of Varna with summa cum laude. In 2007, he started working as a doctor in the Second Noninvasive Cardiology Clinic at UMHAT "St. Marina", Varna. In 2013, he acquired a specialty in cardiology and from the same year became an assistant in cardiology in the teaching sector of cardiology at the Department of Internal Medicine of the Medical University of Varna. Throughout her professional development she worked in the Second Cardiology Clinic as a cardiologist. In 2017, she defended her doctoral thesis, and in 2021 she qualified as an associate professor of cardiology. From 01.04.2022, she is the head of the Department of Cardiology at the "Heart and Brain" Medical Center, Burgas.

Assoc. Prof. Mircheva has 15 years of medical experience at UMHAT "St. Marina", 9-year teaching experience as an assistant and associate professor at the Medical University, Varna, and a 9-year cardiology internship.

#### **Research activity**

In 2017, Assoc. Prof. Mircheva defended her thesis on the topic: "Optimization of care for patients with heart failure after discharge". The topic is up-to-date and deals with a significant part of the modern requirements regarding the care of patients with heart failure. Assoc. Prof. Mircheva has developed a model for ambulatory follow-up of patients with heart failure after their hospital discharge. Her work investigates the role of demographic, clinical, and biochemical indicators, biomarkers, and functional tests for assessing the condition of patients. It proved a statistically significant reduction in the rate of rehospitalizations, lower mortality and better quality of life in the actively monitored group of patients.

In 2020, Assoc. Prof. Mircheva published a monographic work on the topic "Congestion and heart failure", published by the MU, Varna. In his monograph, the author examines in detail the problem of congestion in patients with heart failure, the main pathogenetic mechanisms and causes of water retention, the methods for clinical evaluation, and the current drug and device-assisted treatment options. In the above mentioned monograph the author shares some of her own experience in this area of cardiology.

Assoc. Prof. Mircheva has presented 8 scientific publications and abstracts, referenced and indexed in world-famous scientific databases (Scopus; Web of Science). In these peer-reviewed publications, assoc. Prof. Mircheva is the first author in 6 of them, the second author in 1 and the third author in 1. The publications are in English and are published in the European Journal of Heart Failure and the European Journal of Cardiovascular Nursing.

Assoc. Prof. Mircheva as a single author has published 4 chapters in several monographs. These include cardiocytotoxicity in oncology, rehospitalizations for



heart failure, diuretic resistance, worsening heart failure - prevention, diagnosis, therapy.

Dr. Mircheva has also presented 14 full-text publications and reports in non-refereed peer-reviewed journals or published in edited collective volumes. In 6 of them she is the first author, in 2 - the second author, in 3 - the third author, in the remaining 3 she is the fourth and subsequent author.

Assoc. Prof. Mircheva has 6 citations of her scientific works, in scientific publications, referenced and indexed in world-famous scientific databases with scientific information, which are thoroughly described. The total impact factor of her scientific publications is 57.066.

Her scientific works are in the following areas: heart failure, heart failure rehospitalizations, the role of the 6-minute walk test to assess functional capacity, the role of BNP in patients with heart failure, congestion and heart failure, drug treatment of chronic heart failure, treatment with Ivabradine in chronic heart failure, ultrafiltration, etc. refractory chronic heart failure, heart failure in adult patients, cardio-oncology, infective endocarditis, hyperuricemia, iron deficiency, valvular diseases, imaging diagnostics in CHD, pulmonary thromboembolism. It can be concluded that her scientific interests cover a broad field and include almost all important sections of clinical cardiology.

The main contributions of Dr. Mircheva can be summarized in the following directions:

- Development of a first of its kind outpatient clinic our country for the follow-up of patients with HF
- Preparation of an algorithm for following up patients after their discharge from hospital
- Defining general measures to deal with unnecessary and preventable rehospitalizations
- Training of healthcare professionals to work with patients with HF (Heart failure nurse)
- Ensuring a better quality of life for patients with heart failure by including them in an outpatient monitoring program
- Inclusion in the Cardiocare program and in the international registry for ambulatory follow-up of patients with heart failure Optimize HF - the only center representing Bulgaria. ([www.optimize-hf.com](http://www.optimize-hf.com)).

Assoc. Prof. Mircheva has an extensive experience as a co-researcher and coordinator from participation in multicenter national and international phase 3 and 4 clinical trials related to the diagnosis and treatment of patients with heart failure, acute coronary syndrome, atrial fibrillation - APPRAISE-2, PARADIGM - HF, PARAGON, FINEARTS - HF, FOURIER, SELECT.

#### **Scientific activity**

Assoc. Prof. Mircheva participated regularly with scientific reports, abstracts and posters at the European Congress on Heart Failure. She regularly participates with posters, reports and oral presentations at the National Congress of Cardiology.

### Teaching activity

Assoc. Prof. Mircheva actively participates in the cardiology education of medical students, including trainee doctors, by leading practical seminars and lectures. She has 9 years of teaching experience as assistant, chief assistant and associate professor of cardiology. In the last 5 years, the MU, Varna had an annual workload of 128 to 216 study hours per year.

Dr. Mircheva is a qualified and experienced cardiologist, a teacher respected by the students.

### Diagnostic and therapeutic activity

Assoc. Prof. Mircheva has extensive clinical experience, knows a wide range of non-invasive diagnostic methods in cardiology. She has held numerous qualification courses and participations, for each of which she presented a certificate or diploma. The most important of them are:

- November 2003 - May 2004 - six-month internship as a participant in the Erasmus program at the Universität zu Köln, Germany
- September 2009 - Hypertension Summer School, Smolenice, Slovak Republic
- January 2014 - October 2015 - Postgraduate Heart Failure Course, Zurich Heart House, ESC
- 2014. Echocardiography - Fundamental level
- 2017 - Echocardiography - Expert level, transthoracic, transesophageal, stress echocardiography

In UMHAT "St. Marina" she was a desired and respected cardiology consultant. She is a member of the BMU and the Bulgarian Cardiology Society.

Assoc. Prof. Mircheva meets the necessary **minimum requirements** according to the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Application and the Rules for the Development of the Academic Staff at the University "Prof. Dr. Asen Zlatarov", Burgas. According to indicator A, she has 50 points, according to indicator B - 100 points, according to indicator D - 358.75 points, according to indicator D - 65 points, according to indicator E - 70 points, or in total - 643.75 points.

### Conclusion

After thoroughly analyzing the submitted papers of both candidates, it can be seen that both meet the minimum requirements for habilitation in the academic position "Associate Professor". The detailed review of the candidates provides a comparison in favor of Prof. Mircheva:

Indicator	Dr. Kostov	Dr. Mircheva
General <i>medical</i> experience	6	15
Experience <i>as a</i> cardiologist	2	9
Teaching experience	4	9
PhD Thesis	Yes	Yes



<i>First author</i>	<b>5</b>	<b>16</b>
<i>Single author</i>	<b>1</b>	<b>6</b>
<i>Monography</i>	-	<b>Yes</b>
<i>Habilitation – assoc. prof.</i>	-	<b>Yes</b>
<i>Total points</i>	<b>595,56</b>	<b>643,75</b>

Dr. Kostov is a young and successful doctor, cardiologist and researcher and will have the opportunity to develop and realize his aspirations and desires. Prof. Mircheva is an established and experienced cardiologist, scientist and teacher and surpasses Dr. Kostov in several indicators - extensive scientific contributions, experience, habilitation work and scientometric number of points. It fully meets and exceeds the requirements according to the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Application and the Regulations for the Development of the Academic Staff at the University "Prof. Dr. Asen Zlatarov", Burgas. Dr. Mircheva categorically outperforms Dr. Kostov in many of the examined indicators. Bearing in mind the research activity of Dr. Mircheva, her pedagogical experience, her publication and scientific activity, her diagnostic and therapeutic activity and her contributions, I propose to award the scientific title of "associate professor" to Dr. **Liliana Georgieva Mircheva**.

October 23, 2022  
Varna

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