

To the Chairman of the Scientific Jury,
determined by order №15-03-215#2/03.09.2025
of the Executive Director and the Procurator of
Acibadem City Clinic University Hospital Tokuda – Sofia

REVIEW

By Prof. Dr. Tchavdar Nikolov Shalganov, MD, PhD
Professor of Cardiology at the National Heart Hospital – Sofia

Member of the Scientific Jury for the competition for the academic position "Full Professor" in the scientific specialty Cardiology, in the higher education area 7. "Health and Sports", professional field 7.1 "Medicine", determined by order №15-03-215#2/03.09.2025 of the Executive Director and the Procurator of Acibadem City Clinic University Hospital Tokuda – Sofia by decision of the Scientific Council with protocol №58/05.06.2025.

Subject: Competition for the academic position "Full Professor" in the field of higher education 7. "Health and Sports", professional field 7.1 "Medicine", scientific specialty Cardiology, in the Clinic of Cardiology of Acibadem City Clinic University Hospital Tokuda, announced in State Gazette, issue 54/04.07.2025

The sole candidate is assoc. prof. Vassil Borislavov Traykov, MD, PhD, Head of the Department of Invasive Electrophysiology at the Clinic of Cardiology of ACC UH Tokuda, associated professor at the same Clinic, and part-time lecturer at the Department of Internal diseases in the Medical Faculty of Sofia University "St. Kliment Ohridski".

The candidate has submitted in time the documentation necessary for the preparation of this review, in accordance with the requirements of the Academic Staff Development Act, the Regulations for the implementation of the Act, and the Regulations for the development of the academic staff in ACC UH Tokuda.

I have no conflict of interest with the candidate to declare. Over the past 10 years, we have participated as co-investigators in 1 multicentre project to assess national diagnostic reference levels of medical radiation exposure during electrophysiological procedures (initiated by a medical physicist), which ended with the publication of an original article in 2023. In the period 2021-2023, we co-authored 2 more publications in international scientific journals (1 meta-analysis and 1 review) and 4 publications in national scientific journals, 3 of which are annual reports of the National Electronic Ablation Registry.

I. Brief biographical data

Assoc. prof. Vassil Traykov graduated in medicine with honours from the Medical University – Sofia in 2000. He began working as an intern at the Cardiology Clinic of SBALSSZ – Sofia, and in 2004 became a research associate III degree in the same Clinic. From 2008 to 2010 he specialized in cardiology at the University of Szeged and in 2010 acquired a degree in cardiology at the Medical Faculty of the University of Szeged, Hungary. After returning to Bulgaria in 2011, he started working at Tokuda Hospital, where he founded the second cardiac electrophysiology laboratory in the country. He headed the Department of Electrophysiology there until now with a break of several months in 2012/2013, when he worked briefly at the Cardiovascular Center City Clinic – Sofia. In 2021, he defended a doctoral thesis on the topic "Catheter ablation in atrial fibrillation: procedural characteristics and role of structures exhibiting trigger activity in the fibrillatory process" and obtained the educational and scientific degree "doctor". Later that year, he took up the academic position of "associate professor" at the Cardiology Clinic of ACC UH Tokuda. As of the date of announcement of this competition, he has a total work experience of 20 years as a medical doctor in Bulgaria.

He has national certificates for invasive cardiology since 2011, for cardiac pacing (basic and expert level) since 2013, for invasive electrophysiology (basic and expert level) since 2014. In addition, he has certificates for cardiac pacing and invasive electrophysiology from the European Heart Rhythm Association (EHRA) since 2011. He graduated with a master's degree in public health and health management at the Medical University – Sofia in 2016. In 2023, he graduated from the Diploma of Advanced Studies in Cardiac Arrhythmia Management (DAS-CAM) program at the University of Maastricht, the Netherlands. Part-time lecturer at the Faculty of Medicine of Sofia University "St. Kliment Ohridski". Member of the examination commissions on "Invasive Electrophysiology" and "Cardiac pacing" at the Faculty of Medicine of Medical University – Sofia.

Assoc. prof. Traykov is board member of the Bulgarian Society of Cardiologists (BSC), member of the Association for Cardiac pacing and Electrophysiology in Bulgaria (ACEB), the Hungarian Society of Cardiology, the European Society of Cardiology (Fellow) and EHRA (Fellow). Member of the EHRA Scientific Documents Committee (term 2017-2020), EHRA National Societies Committee (term 2020-2022), co-chair of the EHRA Selection committee (current term), member of the ESC Declaration of interests Committee (current term). President of ACEB (mandates 2016-2019 and 2019-2022). Scientific secretary of BSC (term 2018-2020). Past president of BSC (term 2022-2024).

He speaks English, German and Hungarian.

II. Research activity

Publications

Assoc. Prof. Traykov presented a list of a total of 44 publications after taking up the title of Associate Professor, of which:

- 1 doctoral thesis for the educational and scientific degree "Doctor"
- 4 scientific abstracts at congresses and conferences – 3 at international

scientific forums (being first or last author in all) and 1 at a Bulgarian forum

- 37 original articles indexed in world databases (Web of Science, Scopus) – 26 in international scientific journals (being the first author in 6 of them) and 11 in national scientific journals (first author in 3).

- 2 chapters in collections, monographs and textbooks in Bulgarian, being the sole author in both.

Of the 4 abstracts at scientific forums, I do not recognize abstract No 47, which is an oral presentation without a printed abstract.

I do not find any data on plagiarism in the presented list of publications.

Citations

The candidate has submitted a citation reference from the Central Medical Library of the Medical University – Sofia (No 542/05.08.2025). According to the reference, the citations in Bulgarian sources are a total of 34. The citations in foreign sources are 4739 in the Web of Science database and 4757 in the Scopus database with partial overlap between the two databases. The sum of the impact factors of the journals with scientific publications of assoc. prof. Traykov amounts to 80.587.

The **H-index** of assoc. prof. Vassil Traykov in Scopus is 21, and in Web of Science is 24.

The author's reference to the candidate's works, as expected, shows a focus on arrhythmology. The publications on the presented list include a variety of original studies, case reports, reviews, expert documents and chapters in collections and manuals, and can be classified into several groups: atrial fibrillation; ECG monitoring, screening and diagnostics; reduction of fluoroscopic exposition during catheter ablation of supraventricular tachycardias and atrial flutter; cardiac implantable electronic devices; ventricular arrhythmias and prevention of sudden cardiac death; cardioneuroablation; expert consensus, position papers, practical guidelines, registries; divers.

Atrial fibrillation is an area in which the author obviously has a great interest – not only his doctoral thesis, but also a number of other publications are focused to this area. From theoretical point of view, his thesis examined the frequency distribution and temporal stability of trigger structures in paroxysmal atrial fibrillation, confirming the role of the pulmonary veins in the initiation and maintenance of atrial fibrillation. The presence of a frequency gradient with good time stability between the different trigger structures was established. The HASBLED score has been identified as a new predictor of success. The role of general anaesthesia in reducing a number of procedural parameters was emphasized. From an applied point of view, the candidate's work emphasized the place and importance of catheter ablation in the treatment of atrial fibrillation, and examined a number of procedural parameters and factors for long-term success and impact on quality of life. The preferences of a heterogeneous group of cardiologists in ECG monitoring were studied and the importance of modern digital devices for intermittent ECG monitoring as a preferred tool by electrophysiologists was emphasized. A EHRA position paper examined in detail modern tools for screening and diagnosing atrial fibrillation and their importance in patients at risk. Anticoagulant treatment is an extremely important part of the

comprehensive care in atrial fibrillation and has been studied as a periprocedural component and also in the long term. The correlation of the effective heparin dose during catheter ablation and the oral anticoagulant used was confirmed. With regard to long-term oral anticoagulation, it was proven that gender has no predictive value and a modification of the popular CHA₂DS₂VASc score was proposed, which was subsequently included in the latest edition of the ESC Guidelines for the management of atrial fibrillation.

In the field of supraventricular tachycardias, the candidate's work has important original contributions of great practical importance in terms of reducing the absorbed radiation dose – a topic that has been particularly popular in invasive electrophysiology in recent years due to the overall increase of medical radiation and the widespread use of three-dimensional mapping and non-fluoroscopic navigation systems. In single-centre and international multicentre studies, the influence of three-dimensional mapping in catheter ablation of supraventricular tachycardias and atrial flutter on reducing the absorbed dose has been investigated and a significant reduction has been demonstrated, including the possibility of achieving zero fluoroscopic exposure, without reducing the procedural success and without increasing procedural complications. In a national multicentre study, the absorbed dose in electrophysiological studies, as well as in simple and complex catheter ablations, was studied for the first time in Bulgaria, and national diagnostic reference levels were proposed. The importance of three-dimensional mapping in reducing the absorbed dose was confirmed again.

In the area of cardiac pacing, the important publications are in two directions. The first direction is conduction system pacing as an alternative to classical biventricular cardiac resynchronization therapy. In the field of physiological pacing, the author is one of the pioneers in Bulgaria and at the last ESC congress presented his own findings of real-time monitoring with intracardiac echography the depth of the pacing electrode within the septum and the relationship between the depth of implantation and electrical parameters. The second direction is the prevention of infections associated with implantable electronic devices – a problem of increasing importance, which is discussed in two reviews on the epidemiology, mechanisms and methods of prevention, and on the efficacy and cost-effectiveness of antibacterial envelopes.

In the field of ventricular arrhythmias and the prevention of sudden cardiac death the original contributions are in the field of interventional electrophysiology. A single-centre study reported a series of patients with a relatively rare variant of idiopathic ventricular arrhythmia from the left ventricular inferoseptal process and different approaches for catheter ablation, as well as criteria for choosing the appropriate approach. A systematic review with meta-analysis of randomized trials examined early catheter ablation for scar-related ventricular tachycardia and demonstrated for the first time that early ablation significantly reduced cardiovascular hospitalizations even after including patients with non-ischemic and arrhythmogenic cardiomyopathy, that transpericardial access did not increase the procedural complications, and that quality of life remained unchanged.

The author's interests in the field of cardioneuroablation are presented by a contemporary systematic review of all published studies, which examined in detail the pathophysiological mechanisms of vasovagal syncope and their impacting by neuromodulation, the different techniques of cardioneuroablation, and the acute and mid-term results.

The candidate's participation in EHRA working groups and task forces in several expert consensus and positions is particularly important. This type of publications is important in promoting uniform diagnostic and therapeutic management and in fact is a guide to conditions that are not covered in detail or at all in the ESC recommendations. The publications are in the field of diagnostic imaging in electrophysiology, screening and diagnosis of atrial fibrillation, and takotsubo syndrome. In addition, the author participated in the working group that developed the latest ESC guidelines for the management of atrial fibrillation.

The candidate co-authored the ESC-EHRA Atlas of heart rhythm disorders, a paper that is in some way a successor and continuation of the EHRA White Book published for 10 years. The Atlas provided a detailed and up-to-date picture within the ESC of the organization of various aspects of the care for patients with arrhythmias. Five other publications also showed in detail the status and the evolution of invasive electrophysiology and cardiac pacing in Bulgaria based on comprehensive data from the two national electronic registries BG-EPHY and BG-PACE. One review paper pointed out the joint efforts of the EU countries to adopt European and national cardiovascular health plans – a topic on which the author has worked hard during his mandate as President of the Bulgarian Society of Cardiology.

III. Teaching activity

A certificate of teaching workload was provided by ACC UH Tokuda. It is evident from it that for the period 01.01.2020 - 31.12.2024 the teaching load of assoc. prof. Traykov amounted to 2817 hours, of which 714 hours with graduates, 441 hours for VSD, 1312 hours with external graduates, and 90 hours for continuing medical education.

In addition, the candidate has submitted an official reference for study employment from the Medical Faculty of Sofia University "St. Kliment Ohridski", certifying another 975 hours of teaching work with students as a part-time lecturer for years 2019-2025. For the academic years 2021-2025 (i.e. after taking up the title of "associate professor"), I calculated the teaching workload at 855 hours.

The candidate submitted also a list of 25 participations as a lecturer at international scientific forums, and 18 participations as a lecturer at national scientific forums. In my opinion, the presentation listed as abstract No 47 should also be added here, i.e. the lecturer participations at national scientific forums are actually 19.

He is supervisor of doctoral study with No. QS07290.

IV. Clinical, organizational and administrative activities

I have known the professional development of assoc. prof. Vassil Traykov for many years and I can state without hesitation that he is a well-established specialist with extensive experience in diagnosing and treating cardiovascular diseases. Its professional activity is focused mainly on cardiac arrhythmias in all their manifestations with an emphasis on catheter ablation and cardiac pacing, including with complex devices for the treatment of heart failure and the prevention of sudden cardiac death. He founded an EP centre that is established now as one of the leading centres in Bulgaria and he was the first in the country to apply intracardiac ultrasound and transpericardial access for catheter ablations. During our joint work on the

Management Board of ACEB for two consecutive terms, I had direct impressions of his very good organizational abilities and practical collaboration skills. He is capable of making responsible decisions and has good team-leading abilities.

V. Compliance with the minimum national requirements

Assoc. prof. Traykov presented a completed table of compliance in accordance with Regulations for the implementation of the Academic Staff Development Act.

The fulfilment of the minimum requirements by groups of indicators is as follows:

- Group A – completed (50 points)
- Group B – not required for academic position "Full Professor"
- Group C – completed. Eleven publications equalling a total of 129.31 points are

included,

with a minimum of 100 points required.

- Group D – completed. Twenty-six publications and 2 chapters in monographs equalling a total of 281.82 points are included, with a minimum of 200 points required.

- Group E – completed. A total of 142 610 points is indicated. The actual number of citations is huge and it is impossible to list them in full in the table, which is why citations carrying only 455 points are indicated in detail. After taking into account the partial overlap of the Scopus and Web of Science databases, as well as only the period after the appointment as associated professor, I calculate the points at 50 655 according to the Scopus database and at 54 375 according to the Web of Science database.

Similarly, I calculate the points from citations in Bulgarian sources at 30. In such a case, the total sum amounts to 50 685 (citations in Scopus and in Bulgarian sources) or 54 405 (citations in Web of Science and in Bulgarian sources). In both cases, the required minimum of 100 points is exceeded many times. For my calculations, I accept the higher sum of 54 405 points.

- Group F – completed with 220 points, with a required minimum of 100 points.

I calculate the actual total number of points as 55 086.13. The minimum required for the position of "Full Professor" is 550 points, therefore the candidate exceeds it.

VI. Critical remarks

- the candidate incorrectly indicated a lecture participation at a national scientific forum as a published abstract. The error is formal and practically has no consequences for my assessment.

- the candidate did not take into account the partial overlap of the citation databases and did not correctly account for the time period during the self-assessment of the points in group E scientometric indicators. However, in this case also, there are no practical consequences due to the multiple exceeding of the required minimum.

In summary, assoc. prof. Vassil Borislavov Traykov has a specialty acquired, has a long medical experience, expert level board-certification in various highly specialized activities, significant practical, organizational and administrative skills, a serious teaching workload, and very good experience in research. He has also a large number of publications and excellent number of citations. He fulfils and in fact many times exceeds the minimum national scientometric indicators required by Regulations for the implementation of the Academic Staff Development Act. Therefore, my vote on the candidacy of assoc. prof. Traykov is "positive" and I

allow myself to recommend to the esteemed Scientific Council at Acibadem City Clinic
University Hospital Tokuda to vote also positively for his approval on the academic position
"Full Professor".

Sofia, 20.10.2025

Prof. Dr. T. Shalganov, MD, Ph.D.

A handwritten signature in black ink, appearing to read 'T. Shalganov', written in a cursive style.