

REVIEW

**for call for the academic position of professor
in the specialty *Clinical laboratory* for the needs of the Department of Clinical Laboratory
Faculty of Medicine of Medical University
Prof. Dr. Paraskev Stoyanov – Varna**

Regarding: competition for the academic position "Professor" in the scientific specialty "Clinical Laboratory", in the field of higher education 7. "Health and Sports", professional direction 7.1."Medicine", for the needs of the Department "Clinical Laboratory" to the Faculty of Medicine, MU-Varna, announced in SG No. 59/26.7.2022.

Candidate (single): Associate Professor, Yana Dimitrova Bocheva, PhD
Reviewer: Prof. Dr. Valeriya Ignatova Kaleva , PhD,
Member of the Scientific Jury under Order No. R-109-358/21.09.2022 of the Rector of MU - Varna, designated as a reviewer

BIOGRAPHICAL DATA, PROFESSIONAL AND ACADEMIC DEVELOPMENT

Prof. Dr. Yana Dimitrova Bocheva, MD, graduated from Vasil Karagyozev Language High School - Yambol with a major in English in 1995. She graduated in Medicine at the Medical University "Prof. Dr. Paraskev Stoyanov" - Varna in 2001 with excellent results, diploma series MY-020614

In 2008 acquired a specialty in Clinical Laboratory, (diploma Series MUV 2758) and in 2010. Master's degree in Health Management. Diploma series MU 2010 - 129125

Since 2009 is the head of the Central Clinical Laboratory at the "St. Marina" UMBAL - Varna.

In 2015 defended a PhD thesis on the topic "Predictive value of some tumor markers in the follow-up of oncological patients - verification by FDG PET/CT" and obtained the educational and scientific degree "Doctor of Medicine".

In 2016, she was habilitated as an associate professor in the scientific specialty "Clinical Laboratory". In the same year, he published a monograph on "Serum markers in solid tumors - clinical interpretation".

Since 2005, she has successively held the competitive academic positions of "Assistant" and "Associate Professor" in the Department of "General Medicine and Clinical Laboratory at the

Medical University of Varna, she is the head of the "Clinical Laboratory" Department at the same department in the period 2018-2021.

She is the head of the newly created "Clinical Laboratory" department at MU-Varna from 2021.

Assoc. Dr. Bocheva, headed 5 clinical laboratory specialists and 4 doctoral students, two of whom successfully defended the ESD "Doctor of Medicine".

From 2021 is the secretary of the Management Board of the Bulgarian Clinical Laboratory Scientific Society and has been elected as the future chairman of the Society for the period 2023-2025. She is a member of the Expert Council for the same specialty at the Ministry of Health.

She is also a member of the Bulgarian Society of Endocrinology; International Society of Thrombosis and Haemostasis (ISTH).

Prof. Dr. Yana Bocheva is the National representative of Bulgaria in the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC).

RESEARCH ACTIVITY

- **Scientific indicators**

In the current competition, the candidate participated with a total of 45 scientific works, of which real publications - 41 nos. / 8 full-text articles in foreign journals, 25 in Bulgarian journals and 8 reports presented at prestigious International Congresses with abstracts published in journals with IF. The presented scientific works, according to the requirements of the procedure, were published after taking over AP "Associated Professor". A detailed summary of the available works is presented, as well as free links to a large part of them. In addition, a reference is presented for the scientific works used for acquiring of AP "Associated Professor", which is also available on the website of MU-Varna.

The candidate provides a total of 10 publications, referenced and indexed in global databases (Scopus/WebOS) according to criterion B4 (required monographic work or at least 10 equivalent publications, indexed and referenced) , thereby meeting the requirements of this criterion. The candidate has a monographic work published, which was used when taking the Associate Professor position.

According to G7 criteria, the candidate presents a total of seven publications, published in scientific publications, referenced and indexed in world-renowned databases with scientific information. Posts submitted have a point equivalent in excess of what's required.

According to G8 criteria, a total of 21 publications and scientific works are presented, with a point equivalent exceeding the required one.

According to criteria group D, the candidate presents a total of 7 citations with a point equivalent of 105. It should be noted that when consulting the scientific database Google Scholar, the actual number of citations of Assoc. Prof. Bocheva is times higher than the required ones, considering the specifics of LDAP, the candidate chose to present only a limited number of citations to cover the scientometric norm

Reference in The world scientific databases Google Scholar, ORCID, SCOPUS ID, Web of Science Researcher, Research Gate for the candidate show a total number of publications 126: of them respectively with impact factor or impact rank: 63, Number of citations of scientific publications: 81 (Google Scholar), Number of scientific publications of the last five years: 69, of them with impact factor or impact rank: 33, H index (according to Scopus or Web of Science): 5 (Scopus); 5 (Web of Science), with a total IF=169,938. Again, due to the specifics of the Law on the Development of the Academic Staff, some of the most significant publications co-authored with international collectives are deliberately not included for participation in the competition. The very high individual impact - factor of the candidate is impressive, which shows the importance of the scientific works and their adequate realization in appropriate scientific publications.

Compliance with the scientometric requirements of MU-Varna for occupying the academic position "professor"

A group of indicators	Required number of points	Number of points based on the evidence presented by the candidate
A	50	50
B	100	108.62
G	200	236.55
D	100	105
E	100	260.1

- **Thematic areas and contributions**

Based on the presented scientific works, published in the period 2005-2022, including the author's abstract of a dissertation work, monograph, full-text publications and summaries of participation in scientific forums, it is evident that the author works and builds her professional development by initially developing her specific scientific interest in the field of medical oncology/doctoral dissertation and monographic work/ and consistently expanding the scope of her scientific research in the field of endocrinology, hematology, pulmonology, infectious diseases and nephrology. In the publications of the last 7 years, the

author works with clinical teams in national and international projects and shows a desire to adapt and validate methodologies for new and up-to-date markers in laboratory diagnostics. As the head of the largest multidisciplinary laboratory in Eastern Bulgaria, Assoc. Dr. Bocheva actively connects the adaptation of new methods and markers with clinical medicine by participating in the development of laboratory panels of established and new markers for screening, interventions in risk groups and diagnosis of social significant diseases in risk groups. The author's work in scientific and applied clinical-laboratory activity is in multi-disciplinary teams with clinical and diagnostic specialties from almost the entire spectrum of practical medicine.

Assoc. Dr. Bocheva's dissertation and monograph are closely related to medical oncology, imaging and nuclear medicine.

The two works are practically unique in content, with the aim of covering 3 diagnostic medical specialties related to the team interpretation of a narrow diagnostic-therapeutic problem in oncology: a positive laboratory marker against a negative imaging study/A1, B3 - scientometric indicators " Associated Professor "/.

The monograph, for its part, aims to summarize and define the knowledge available in the literature on the justified use of serum tumor markers in medical practice in the context of evidence-based medicine. This perspective also includes the participation of Assoc. Dr. Bocheva as a laboratory expert in the expert boards of MORE - 2012, 2013, 2014, 2015, 2017. and 2018 and MORE Pediatrics 2015/E21/, developed the practical guidelines for behavior in thoracic and gastroenteropancreatic neuroendocrine tumors, breast carcinoma, ovarian carcinoma, melanoma and neuroblastoma in children, predictive biomarkers in solid tumors in hematological neoplasias. Associate Professor Bocheva is a lecturer - an annual participant in the established format during the period 2020-2022. virtual training seminars for hematologists, laboratory specialists, pathologists and pediatricians certified by EBAH /European Board of Accreditation in Hematology/.

The full-text publications of Associate Professor Dr. Bocheva chronologically follow the development as a broad laboratory diagnostician with interests in almost all therapeutic medical specialties - cardiology/B4-10,G7-2,6,7,G8-2,3/ endocrinology/B4- 2,3,4,G7-1,4,G8-4,5,8,16,/ oncology/A1,B3- " Associated Professor ", B4-8,G7-3,G8- 10/, pulmonology /B4-5,G8-1,20/, pediatrics /B4-6,7G8-9,G8-14,15,17, nephrology /G7-4,G8-6,G8-19/, infectious diseases /B4-9,G7 -5, G8-7,18/, gastroenterology /G8-21/, and also in the adjacent surgical specialties - abdominal surgery with a focus on oncosurgery, oncogynecology, thoracic oncosurgery, maxillofacial surgery/G8-13/.

For the period 2005-2022. career academic development in the Department of "General Medicine and Clinical Laboratory", University of Applied Sciences in "Clinical Laboratory" and subsequently the Department of "Clinical Laboratory" Assoc. Dr. Bocheva participates with reports in all national conferences and congresses on clinical laboratory,

European and world congresses on clinical chemistry and laboratory medicine / and in the first joint congress of EFCC and UEMS, /attached list of participations/. With joint reports with clinicians, Prof. Dr. Bocheva also participates in international forums of the European Thyroid Association, the European Society of Nuclear Medicine (E ANM), ESPE, ISPAD, BCLF as well as in national congresses and conferences in endocrinology, oncology and pulmonology, pediatrics .

Along with the contributions reflected in the publications, as head of Central Clinical Laboratory at the "St. Marina" Medical Center-Varna, Assoc. Dr. Bocheva introduces some specific diagnostic tests. The determination of the titer of inhibitors against hemostasis factor 8 and 9 by the Bethesda method, Nijmegen modification was introduced for the first time in the Central Clinical Laboratory at the "St. Marina" Medical Center-Varna in 2009. and is currently a routine test for monitoring patients with hemophilia A and B. After training at the Center for Hemophilia - University Hospital Bonn, Germany, Assoc. Dr. Bocheva adapted and introduced determination of inhibitors against factors 8 and 9 in accordance with the Bonn Protocol for the needs of the Center for Rare Diseases at UMBAL "St. Marina" EAD-Varna. The center is unique in the country.

In 2012 Associate Professor Dr. Bocheva and the team of the Central Clinical Laboratory at the "St. Marina" Medical Center-Varna adapted for work and introduced into routine work the first robotic system in laboratory diagnostics in Bulgaria with modules for clinical chemistry and immunochemistry.

Since the start of kidney transplants and autologous stem cell transplants in CCL methods have been introduced to routinely determine levels of immunosuppressants from all used groups: Everolimus, Sirolimus, Tacrolimus and Cyclosporin A.

In addition to the introduction of innovative tests and equipment, Associate Professor Dr. Bocheva adapted working procedures for the determination of hormones - calcitonin , parathormone, free T4 and thyroglobulin in specific biological material: washing from a lymph node or thyroid node, determination of testosterone in saliva and serum ultrafiltrate/ project under the "Science" fund at the MU-Varna, determination of ADA in punctates and cerebrospinal fluid, determination of superoxide dismutase and glutathione peroxidase in hemolysate.

Below are presented the contributions of Associate Professor Dr. Bocheva depending on the areas of application and their importance:

In the field of medical oncology:

1. For the first time in Bulgaria, she published a monograph with a practical focus on the correct use and clinical interpretation of the most frequently used serum tumor markers.
2. The author conducted the most large-scale study in Bulgaria of the diagnostic value of the tumor markers CEA, CA-19-9, CA-125, SCC, CA-15-3 in colorectal cancer, ovarian

cancer, cervical cancer and breast cancer, respectively in a group of 174 patients selected from a total of 2741 patients with the indicated diagnoses and allowing statistical reliability of the results.

3. For the first time in Bulgaria, she developed a practical guide for behavior in thoracic and gastroenteropancreatic neuroendocrine tumors in the part of laboratory tests as part of the National Expert Board.
4. For the first time in Bulgaria, she developed a practical guide for behavior in breast cancer in the part of follow-up laboratory tests as part of a National Expert Board.
5. For the first time in Bulgaria, she developed a practical guide for behavior in ovarian carcinoma in the part of tumor markers for diagnosis, monitoring and behavior in case of biochemical recurrence as part of the National Expert Board.
6. For the first time in Bulgaria, she developed a practical guide for behavior in melanoma in the part of tumor markers for monitoring in the composition of the National Expert Board.
7. For the first time in Bulgaria, she developed a practical guide for pediatric neuroblastoma behavior in part laboratory markers for diagnosis and monitoring in the composition of the National Expert Board
8. For the first time in Bulgaria, she developed a practical guide for evaluation of evidentiary value of predictive laboratory markers in solid tumors and in hematological neoplasias.

In the field of endocrinology:

1. For the first time in Bulgaria, Assoc. Dr. Bocheva adapted a working procedure for determination of calcitonin in a specific biological material: wash-out from a lymph node or a thyroid node. For the first time in Bulgaria, Assoc. Dr. Bocheva adapted a work procedure for the determination of hormones-free T4 in a specific biological material: lymph node or thyroid nodule washout.
3. For the first time in Bulgaria, Assoc. Dr. Bocheva adapted a working procedure for determination of thyroglobulin in a specific biological material: washout from a lymph node or thyroid node.
4. Assoc. Dr. Bocheva participated in the multidisciplinary team that conducted an in-depth study of the frequency of gestational diabetes mellitus according to three groups of criteria in Northeastern Bulgaria.

In the field of neurology:

1. Associate Professor Dr. Bocheva participated in the multidisciplinary team that created a center for thrombolytic treatment in ischemic stroke at MBAL "St. Marina" EAD - Varna, being directly responsible for the laboratory diagnostic section.

In the field of pulmonology:

1. Assoc. Dr. Bocheva participated in the creation of the "Sleep Medicine" center at St. Marina Medical Center EAD-Varna initially as a medical student and later as a co-researcher and leading researcher in a project that won a grant from the "Medical Science" fund at MU-Varna
2. For the first time in Bulgaria, NT pro BNP was investigated in patients with obstructive sleep apnea.
3. For the first time in Bulgaria, C-reactive protein was examined in patients with breathing disorders during sleep.
4. For the first time in Bulgaria, sexual disorders are studied in patients with obstructive sleep apnea and the levels of sex hormones in serum and saliva are examined.
5. For the first time in Bulgaria, it is being studied and applied as part of a risk assessment system for patients with sepsis DNI /delta-neutrophil index/, shock and multi-organ failure.
6. Within the application of DNI/delta-neutrophil index/ for risk assessment in different clinical groups, reference values for the Bulgarian population of DNI are derived .

Contributions to clinical-laboratory practice:

1. For the first time in Bulgaria, Assoc. Dr. Bocheva adapted and introduced determination of inhibitors against factor 8 and 9 in accordance with the Bonn Protocol.
2. Associate Professor Dr. Bocheva and the team of the Central Clinical Laboratory at the "St. Marina" Medical Center-Varna are adapting for work and introducing into routine work the first robotic system in laboratory diagnostics in Bulgaria with modules for clinical chemistry and immunochemistry.
3. For the first time in Bulgaria, within the framework of a doctoral work under the supervision of Assoc. Dr. Bocheva, cut-off values for the assessment of kidney damage in patients with diabetes mellitus type 1 and 2 were derived by validating an automatic method for determining NGAL in serum and urine.
4. For the first time in Bulgaria, methodologically dependent reference limits were determined for the Bulgarian population for NGAL in adults for serum and urine.
5. For the first time in Bulgaria, reference limits have been set for the Bulgarian population for DNI.

• ***Participation in projects***

Assoc. Dr. Bocheva worked on 16 research projects that won a grant from the "Science" fund at MU-Varna, and in 1 project she was the lead researcher/E16 from academic reference, certificate of participation in completed and ongoing projects/. The scientific research projects are in the fields of endocrinology, cardiology, gastroenterology, pulmonology and pediatric endocrinology, nephrology, pediatric hematology and oncology,

physiology /attached list in the creative CV of the candidate/, each of which has led to the discovery and successful defense of a doctoral thesis in the respective field of Scientific specialty. In the period 2014-2019, Prof. Dr. Bocheva participated in an international project on "Development and implementation of interventions in the community, to create a supportive society and physical environment with the aim of lifestyle changes and prevention of diabetes in vulnerable families in Europe" - Feel4Diabetes, funded by the European Union Horizon 2020 research and innovation program (GA #643708 H2020-HCO-2014). The laboratory studies of the project for both centers in the Republic of Bulgaria were carried out in the CL at the UMBAL "St. Marina" with the direct participation of Assoc. Prof. Bocheva. She is among the participants in the final conference of the project in Brussels in 2019, where the preliminary results from all 6 countries, 7 universities and 2 scientific research groups/publications 1-3 beyond the minimum scientometric requirements, criterion E17/, were presented.

National scientific project "Cardiovascular and metabolic risk associated with visceral adipose tissue in patients with type 1 diabetes mellitus", financed by the "Scientific Research" fund, was won by a research team of MU-Varna with the participation of Assoc. Prof. Dr. Bocheva in 2017 and completed in 2021. with reported over 30 publications and reports and 7 doctoral students working on dissertation theses related to the tasks of the project/E16-7/. Within this project, 10 innovative laboratory parameters were tested, a questionnaire-survey was developed, and an imaging method for the assessment of visceral adipose tissue was validated and implemented.

GUILD AND EXPERT ACTIVITY

For the period 2017-2022 Assoc. Assoc. Dr. Bocheva was elected as a member of the Management Board of the Bulgarian Clinical Laboratory Society (BDCL) and a member of the Clinical Laboratory Expert Council at the Ministry of Health. In 2018 Associate Professor Dr. Bocheva was elected as the national representative of Bulgaria and BDCL in the International Federation of Clinical Chemistry and Laboratory Medicine (IFCC) . In 2021 created and became the head of the "Clinical Laboratory" department at the "Medicine" faculty of the Medical University of Varna, and at the General Assembly of the BDCL she was elected as the chairman of the joint organization for the future term 2023-2025. Such career development of a representative of the Varna academic community in national and international organizations is undoubtedly the result of the overall constructive and supportive personnel development policy of the University of Varna, which gives results in increasing the visibility of the University of Varna academic community and strengthening the positions of the University of Varna as the leading university in the country and the best Medical University in Bulgaria (World University Ranking 2022)

TEACHING AND LEARNING ACTIVITY

Prof. Dr. Yana Bocheva has over 17 years of teaching experience, of which 7 years as a habilitated teacher. Since 2018, she has been the head of the Academic Department of Clinical Laboratory at the then General Department "General Medicine and Clinical Laboratory". From 2021 is the head of the Department of Clinical Laboratory established under her leadership. As part of her teaching experience, Assoc. Dr. Bocheva combines both lecturing and practical exercises with students of Medicine - English and Bulgarian language training (academic reference provided), students of Medical College-Varna in the specialty "Clinical Laboratory Assistant". Independently develops a lecture course for students of Medicine with an English language program and part of a lecture course for students of BEO. Prepares notes on relevant disciplines and conducts semester and state exams. The study and workload according to the presented report significantly exceeds the norm for the relevant position, which shows commitment to the teaching process and a desire to bring the training in the discipline to a relevant and high clinical level.

Assoc. Dr. Bocheva, supervisor of two successfully acquired Clinical Laboratory interns and three active interns (name reference provided)

Assoc. Dr. Bocheva is the scientific supervisor of two successfully defended doctoral students - Dr. Sevim Shefket (specialty Clinical Laboratory) and Dr. Ilian Todorov (specialty Infectious Diseases). She is the scientific supervisor of two current doctoral students - Dr. Gergana Chausheva (specialty Clinical Laboratory) and Dr. Yanko Yankov (specialty Surgery). The four doctoral theses are in the scientific specialties "clinical laboratory", "infectious diseases" and "surgery", which is in line with the broad-spectrum scope of the scientific researches of Assoc. Dr. Bocheva and her views on the development and place of diagnostic specialties as entirely clinical directed ones.


Having personally known Assoc. Prof. Dr. Bocheva since the beginning of her professional and academic career, I am respected by the interpretative gift of her scientific and research thinking, connecting evidence-based medicine with original inventions and innovative implementations. Our joint work in the field of some rare hematological diseases in children shaped her personality as a laboratory expert with erudition and qualifications comparable to the highest European and world standards. In my personal ideas about the social organization of Bulgarian medicine, the individuality of Assoc. Prof. Dr. Bocheva always stands out as perfect example of inspiring creativity and moral principles.

In conclusion, the candidacy of Assoc. Professor Dr. Yana Bocheva fully meets the state and institutional requirements for occupying the academic position "Professor". Her scientometric indicators in some of the criteria exceed the mandatory requirements many times over. The candidate's scientific activity is extremely wide-ranging, addressing both socially significant diseases from oncology and cardiology practice, as well as niche indications and rare diseases and conditions in both adults and children. The candidate's scientific achievements have been realized both independently or in compact author collectives, as well as within the framework of large-

scale scientific projects. Assoc. Dr. Bocheva's participation in multidisciplinary teams both at the level of scientific and at the level of expert activity makes her a recognizable and reference specialist in the field of Clinical Laboratory. The clinical focus and clinical expertise, which is unusual for the specialty, demonstrated both in the candidate's scientific and teaching and expert activities, also make a strong impression. Apart from purely scientometric data and required documentary attributes, Assoc. Dr. Bocheva also realizes a corresponding professional and career development, fully corresponding to what is expected for holding the title of Professor. In her work with students, specialists and doctoral students, the candidate also demonstrates commitment to teaching and teaching activities, which should be an integral part of the content of AD Professor.

With complete conviction and with great respect, I recommend to the Scientific Jury to award Prof. Dr. Yana Dimitrova Bocheva, PhD, the academic title "Professor" in the scientific specialty "Clinical Laboratory" for the needs of the Department of Clinical Laboratory at Medical University - Varna and Clinical laboratory at MDL at St. Marina UMBAL - Varna.

15 Dec 2022



Prof. Valeriya Kaleva