

## **PEER REVIEW**

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**Subject:** Competition for the academic rank of "Professor" in the scientific specialty "Oncology" — one position, full-time for the Department of Oncology, Faculty of Medicine at the Medical University "Prof. Paraskev Stoyanov" – Varna, and half-time (0.5) for the Clinic of Medical Oncology at "St. Marina" University Hospital – Varna.

### **I. Procedural Overview**

The competition for the academic rank of "Professor" in the scientific specialty of "Oncology" — one full-time position for the Department of Oncology, Faculty of Medicine, Medical University of Varna, and a 0.5-time position for the Clinic of Medical Oncology at "St. Marina" University Hospital, Varna — was officially announced in the State Gazette, issue No. 102, dated November 28, 2025. By decision of the Faculty Council and by order of the Rector of the "Prof. Dr. Paraskev Stoyanov" Medical University – Varna, I have been appointed as an internal member of the Scientific Jury. During the first meeting of the Scientific Jury held on February 10, 2026, I was elected as its chairman and designated to prepare a review. A single candidate, Assoc. Prof. Eleonora Georgieva Dimitrova-Gospodinova, MD, PhD, has submitted documents for participation in the competition. I have received all the materials necessary for the preparation of this review, which is conducted in accordance with the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, and the Regulations for the Development of the Academic Staff of the Medical University of Varna.

### **II. Brief Biographical Data and Professional Development of the Candidate**

Assoc. Prof. Eleonora Georgieva Dimitrova-Gospodinova, MD, PhD, was born in 1972 in Varna. She completed her secondary education at the 7th Secondary School "Maurice Thorez" with intensive German language studies. In 1996, she graduated from the Medical University of Varna with highest honors (*Summa Cum Laude*). From 1997 to 2007, she worked at the Clinic of Pneumology and Phthysiology at St. Marina University Hospital – Varna. She obtained her specialty in Internal Diseases in 2002, followed by a specialty in Pneumology and Phthysiology in 2004. In 2008, she acquired a specialty in Oncology and joined the Clinic of Medical Oncology at St. Marina University Hospital – Varna, where she continues to practice to this day. Since 2015, she has sequentially held the positions of Assistant Professor, Senior Assistant Professor, and Associate Professor at the Department of Propaedeutics of Internal Diseases, serving as Head of

the Department from 2018 to 2020. In 2020, she was appointed Head of the newly established Department of Oncology, a position she holds to the present day.

In 2017, she defended her doctoral dissertation entitled "**Beclin-1 expression as a marker of autophagy and its prognostic and predictive value in patients with metastatic colorectal cancer,**" for which she was awarded the educational and scientific degree of "Doctor" (PhD). Since 2018, she has held the academic rank of "Associate Professor." She is a member of the Bulgarian Medical Association, the Bulgarian Oncological Scientific Society, and the European Society for Medical Oncology (ESMO). Furthermore, she is a member of the Faculty Council of the Faculty of Medicine, as well as the Academic Council of the "Prof. Dr. Paraskev Stoyanov" Medical University – Varna.

### **III. Research Activity and Related Contributions**

According to the presented Academic Reference (No. 1059/ Dec. 22, 2025), Assoc. Prof. Eleonora Dimitrova-Gospodinova, MD, PhD, participates in the competition with a total of **23 scientific works**, as follows:

- **Doctoral Dissertation (Indicator A1):** "Beclin-1 expression as a marker of autophagy and its prognostic and predictive value in patients with metastatic colorectal cancer" – 50 points.
- **Habilitation Work – Monograph (Indicator B3):** "Personalized Approach in Patients with Colorectal Cancer" – 100 points.
- **11 publications and reports** published in scientific journals, referred and indexed in world-renowned databases (Indicator G7) – 86.70 points.
- **10 publications and reports** published in non-refereed journals with scientific peer-review (Indicator G8) – 161 points.
- **1 full-text publication** in scientific journals and proceedings beyond the minimum national metric requirements.
- **Citations** reflecting the candidate's scientific activity (Indicator D12) – 113 counts, 1,695 points.
- **Total Impact Factor (IF)** of the journals in which the candidate has published – 153.00.

Regarding the submitted scientific publications, Assoc. Prof. Eleonora Dimitrova-Gospodinova is the sole author of four publications, the first author in one, the second author in one, and the third author in four publications, among others.

## **Research Profile and Contributions:**

**Colorectal Cancer** Publications A1, B3, G7.7, G7.11, and G8.1 establish **colorectal cancer (CRC)** as the primary focus of the candidate's research, emphasizing contemporary understandings of tumor biology, tumor heterogeneity, and biomarkers.

In the candidate's doctoral dissertation, an original retrospective study is described concerning an autophagy marker (**Beclin-1**) and its potential predictive role in patients with metastatic CRC, specifically in predicting the efficacy of 5-FU-based first-line therapy. For the first time, the correlation between an autophagy marker and the pre-treatment **SUVmax** levels in liver metastases was evaluated. Furthermore, this is the first study in Bulgaria to investigate Beclin-1 expression levels in the primary tumor site and to report the prognostic value of SUVmax regarding overall survival (OS) in patients with colorectal cancer and liver metastases.

**Monograph Analysis** The monograph "**Personalized Approach in Patients with Colorectal Cancer,**" presented by Assoc. Prof. Eleonora Dimitrova-Gospodinova, provides a comprehensive overview of contemporary insights into tumor biology, with a specific focus on key pathogenic mechanisms and the characteristics of the tumor microenvironment. Innovative molecular genetic technologies for investigating the tumor genome such as **NGS, ASO-PCR, HUDSON, and CRISPR-Cas platforms**—are thoroughly examined, with a detailed discussion of their potential applications and limitations. Furthermore, the work systematizes modern therapeutic approaches, presenting data from major international clinical trials, as well as promising treatment modalities such as tumor regression, CAR-T cell therapies, and their potential role in personalized oncology.

**RAS mutation status** is of critical importance in patients with CRC, as it directly influences the choice of therapeutic strategy, treatment outcomes, and prognosis. In publication **G7.7**, the candidate presents a large-scale, single-center prospective study among patients with metastatic CRC, aimed at identifying the **KRAS mutation status** within the Bulgarian population, as well as the correlation between the presence of RAS mutations, the primary tumor localization, and various clinical and pathological characteristics.

The standard therapeutic approach for patients with locally advanced rectal cancer involves combined chemoradiotherapy. **HMGB1** is a nuclear protein released during radiation therapy, serving as a biomarker for necrotic cell death. Publication **G7.11** presents an original study involving patients with locally advanced rectal carcinoma undergoing neoadjuvant radiotherapy combined with Capecitabine. The study demonstrates that post-therapeutic serum levels of HMGB1, as well as their dynamics, can serve as a potential predictive marker for poor response to neoadjuvant chemoradiotherapy.

The accumulated knowledge of tumor biology and the pathway of genomic instability enables the implementation of more effective, personalized treatment strategies, which are also a primary subject of the candidate's scientific interest. Publication **G8.1** presents contemporary achievements

and future directions in the field of immunotherapy for CRC treatment, focusing on the mechanism of action, clinical outcomes, and strategies to overcome drug resistance.

### **Lung Cancer**

Publications **G7.9 and G7.10** describe the results of a large-scale retrospective data analysis investigating the impact of **travel burden** (measured in distance or travel time) on clinical outcomes in the treatment of lung cancer patients. For the first time globally, a correlation between the distance to the oncology center and patient survival was established. A statistically significant difference in **overall survival (OS)** was demonstrated among the various patient subgroups, with survival being significantly lower for patients with a higher travel burden (longer distance and/or increased travel time to the oncology center). These findings raise critical questions regarding oncology patients' access to specialized treatment facilities.

In publication **G8.2**, the candidate describes a clinical case of a patient with metastatic lung carcinoma achieving long-term, nearly ten-year survival. The report emphasizes the benefits of the applied multimodal personalized approach, which included the sequential administration of various drug therapies (cytotoxic, anti-angiogenic targeted therapy, and immunotherapy), stereotactic radiosurgery, and precise monitoring.

### **Breast Cancer**

The publications submitted by Assoc. Prof. Eleonora Dimitrova (**G7.4, G8.6, and G7.8**) reveal the significance of **PIK3CA mutations** in patients with **HR+/HER2- breast cancer**. For the first time in Bulgaria, the frequency and specific variants of this mutation were investigated in a large patient cohort. Additionally, this is the first study in Bulgaria to examine the role of PIK3CA mutations as a prognostic marker regarding **progression-free survival (PFS)** and **overall survival (OS)** in this patient population.

The clinical case presented in publication **G8.4** demonstrates successful clinical outcomes, including prolonged progression-free survival and high quality of life, achieved through targeted and endocrine therapy in an elderly patient with multiple comorbidities.

### **Modern Therapeutic Options for Solid Tumors of Various Localizations**

Publications **G8.1, G8.3, G8.7, and G8.10** demonstrate the potential of contemporary personalized therapy in the treatment of colorectal cancer and non-small cell lung cancer (NSCLC) harboring **KRAS mutations**, as well as the role of **antibody-drug conjugates (ADCs)** in the management of metastatic breast cancer. Furthermore, the work presents up-to-date therapeutic approaches for patients with prostate cancer.

## **Genetics and Oncology**

A portion of the candidate's research (**G7.1, G7.2, G7.3**) is dedicated to the role of genetic counseling in malignant tumors. Hereditary cancer predisposition syndromes are associated with an increased risk of developing various neoplasms, often at an earlier age. The scientific work in this area focuses on the broad implementation of genetic testing, the associated ethical and psychosocial challenges, the specific nature of genetic information and its implications for families, as well as issues related to genetic discrimination and social stigmatization. Furthermore, the candidate presents personal clinical experience in genetic counseling and identifies the most frequently observed genetic alterations.

Assoc. Prof. Dimitrova also presents her participation in a study evaluating the capabilities of **68Ga-PSMA-11 PET/CT** in identifying and monitoring suspicious imaging findings in prostate cancer patients following radical prostatectomy (**G7.5**). Furthermore, she has conducted research on the levels of resilience and distress in breast cancer patients prior to the initiation of neoadjuvant treatment (**G7.6**). The clinical cases presented in **G8.5 and G8.9** demonstrate the candidate's scientific interest in the field of **dermato-oncology**.

## **IV. Teaching and Pedagogical Activity**

Assoc. Prof. Eleonora Dimitrova-Gospodinova has been a faculty member since 2015, sequentially holding the positions of Assistant Professor, Senior Assistant Professor, and **Associate Professor since 2018**. She is actively involved in the instruction of medical students in the disciplines of "Propaedeutics of Internal Diseases" and "Oncology," delivering both lectures and practical seminars, as well as supervising medical interns during their pre-graduate internships. She is deeply committed to the postgraduate training of medical residents and doctoral students; since 2020, she has been leading the core course "Selected Chapters of Internal Diseases – Parts I and II" for oncology residents.

She serves as the Chairperson of the examination boards for semester exams in Oncology and for the State Examination in Internal Diseases. Furthermore, she is a member of the National State Examination Boards for the specialty of Oncology. She has served as the residency supervisor for four specialists who have already obtained their certification; she has also been the primary supervisor for five successfully defended PhD students and is currently supervising seven active doctoral candidates. She is a frequent lecturer at national oncological forums and masterclasses.

The total teaching workload of Assoc. Prof. Eleonora Dimitrova-Gospodinova over the last five years amounts to **1,521 hours**, averaging **304 hours per year**, which significantly exceeds the mandatory requirement of 126 hours.

## V. Diagnostic and Clinical Activity

Assoc. Prof. Eleonora Dimitrova-Gospodinova, MD, PhD, is an established specialist in the fields of Internal Medicine, Pulmonology, and Oncology. She has served as a long-standing member and Secretary of the General Hospital Oncology Board and is a member of the Oncological Chemotherapy Commission, the Hormone Therapy Commission, and the Medical Audit Committee. Additionally, she serves on the Committee for Quality Control, Safety, and Rational Use of Blood and Blood Components at "St. Marina" University Hospital – Varna.

## VI. Conclusion

Assoc. Prof. Eleonora Dimitrova-Gospodinova, MD, PhD, is not only an established specialist in the field of Oncology but also a scholar with a diverse and extensive research portfolio, providing significant contributions to the respective scientific areas. She is an experienced educator and Head of the Department of Oncology, dedicated to mentoring and supporting young scientists and emerging specialists. I consider that the candidate meets the criteria for the academic rank of "Professor" as stipulated by the Act on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, and the Regulations for the Development of the Academic Staff of the Medical University of Varna. I provide a positive assessment of the candidate. I recommend that the members of the Scientific Jury vote in favor of awarding the academic rank of "Professor" to Assoc. Prof. Eleonora Georgieva Dimitrova-Gospodinova.

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