

To the Chairman of the Scientific Jury,
appointed with order № P-109-421/ 03.10.2025 г.
of the Rector of the Medical University - Varna

OPINION

By assoc. prof. Boyan Ivanov Nonchev, MD, PhD

Scientific specialties: Endocrinology and metabolic diseases, Internal diseases

Institution: Department of Endocrinology and metabolic diseases of the Medical University – Plovdiv; Clinic of Endocrinology and metabolic diseases of the University Hospital "Kaspela" - Plovdiv

Regarding: competition for the academic position of "Professor" in the field of higher education 7. Health and Sports, in the professional field 7.1. "Medicine" and scientific specialty "Endocrinology", for the needs of the Second Department of Internal Medicine, Faculty of Medicine of MU-Varna and Clinic of Endocrinology and Metabolic Diseases at the University Hospital "St. Marina" - Varna, announced in the State Gazette, issue 64/05.08.2025

I. General presentation of the procedure

By decision of the scientific jury (Protocol No. 1/13.10.2025) and on the basis of order No. R-109-421/03.10.2025 of the Rector of Medical University - Varna, I have been appointed to prepare a opinion in my capacity as an external member of the scientific jury. The presented set of materials complies with the requirements of the procedure for acquiring the title of "professor" according to the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations of MU - Varna and includes all necessary documents. One candidate has submitted the necessary documents for participation in the competition: Assoc. Prof. Dr. Mira Valentinova Siderova, MD, PhD. I have no conflict of interest in this competition.

II. Biography

Assoc. Prof. Dr. Mira Siderova was born in the city of Varna, where she completed her secondary education at the First Language High School (English and German). In 2003, she

received a Master's degree in Medicine from the Medical University - Varna with full honors and was awarded the Rector's Award "Golden Hippocrates". Her professional career as a doctor began at the Clinic of Anesthesiology and Resuscitation of the "St. Anna" Hospital - Varna, where she worked in the period 2004-2005. From 2006 to the present, she has held various academic and clinical positions - full-time doctoral student, resident, specialist, assistant professor and since 2017, she has been an associate professor at the Clinic of Endocrinology of the "St. Marina" University Hospital - Varna. Since 2022, she has been the head of the Second Department of Internal Medicine at the Medical University - Varna, and since 2023, she has also headed the Clinic of Endocrinology at the "St. Marina" University Hospital - Varna.

She obtained a specialty in Endocrinology and Metabolic Diseases in 2011 and defended her dissertation in 2013 on the topic "Immunohistochemical markers and ultrasound elastography - new diagnostic options in the definition of thyroid nodules". Assoc. Prof. Siderova has a number of additional specializations and qualifications related to endocrinology (University Hospital of Bari, Italy), thyroid diagnostics - including highly specialized activities such as cervical ultrasound, fine needle aspiration biopsy under ultrasound control, as well as courses in ultrasound, thyroid cytopathology and laser treatment of thyroid nodules, organized by the European Thyroid Association. She also has additional qualifications in the field of diabetology (Steno Diabetes Center) and osteodensitometry.

She speaks English, German, Greek and Russian languages. Assoc. Prof. Siderova is a member of a number of professional organizations: the European Thyroid Association (ETA), the International Osteoporosis Federation (IOF), the Bulgarian Society of Endocrinology (BDE) and the Union of Scientists - Varna. She participates as an independent expert in scientific and ethical evaluation of projects at the European Research Council of the European Commission.

III. Scientific activity, citations and contributions

According to the submitted report, Assoc. Prof. Siderova participated in the competition with a total of **59 scientific papers**, distributed as follows:

- 1 dissertation (author's abstract);
- 20 full-text articles published in refereed and indexed journals included in global databases (Scopus and Web of Science), of which 8 with an impact factor; 11 of the publications are considered equivalent to a habilitation thesis;
- 4 scientific reports printed in scientific journals indexed in Scopus and Web of Science, including 1 with an impact factor;
- 15 full-text publications in non-refereed journals;
- 17 scientific reports published in non-refereed publications;
- 1 chapter in a collective monograph;
- 1 university textbook published in co-authorship.

According to the regulations, the scientific production was published after habilitation and was not used in previous procedures (excl. dissertation work). Of the submitted publications, Assoc. Prof. Siderova is the only author of 9, and in 50 she is a co-author, respectively as the first author – in 8 publications; second author – in 21 publications; third author – in 15 publications, fourth and subsequent author – in 6 publications. 35 of the publications are in Bulgarian, and 24 are in a foreign language (English). Of the publications submitted for this competition, 9 have an impact factor.

Assoc. Prof. Siderova's scientific work is in the following scientific areas in endocrinology:

1. Thyroidology

Nodular goiter and thyroid carcinoma are the main focus of scientific research (publications A1, B 4.1, B 4.4, G 7.1, G 7.10, G 8.22 and G 9). The emphasis is placed on the diagnosis, treatment and follow-up of malignant thyroid lesions. Since over 90% of malignant thyroid nodules are differentiated thyroid carcinomas (DTC) with a favorable prognosis, the main priority is the definition of precise diagnostic and therapeutic criteria. This allows to avoid overtreatment in low-risk patients and to ensure adequate treatment in patients with high-risk forms. Part of the works of Assoc. Prof. Siderova present rare thyroid neoplasma such as thyroid lymphoma, a familial variant of medullary carcinoma, as well as casuistic cases of thyroid metastases from tongue carcinoma and ovarian cancer, the description of which brings not only scientific and practical, but also educational contribution.

Another major research interest of Assoc. Prof. Siderova is thyroid-associated ophthalmopathy (TAO). Publication B 4.5 analyzes the pathogenesis, assessment of disease activity and severity, as well as new therapeutic options beyond standard steroid immunosuppression. Publication B 4.11 examines the relationship between autoimmune hyperthyroidism with and without TAO and osteoporosis. The reported positive correlation between TSH receptor antibodies and bone mineral density underlies the hypothesis of a possible protective effect of these antibodies in the bone, as the data in the literature are mixed. This work has also been included in international meta-analyses. Review articles B 4.9 and B 4.10 examine the effects of thyroid dysfunction on bone metabolism - in hyper- and hypothyroidism, respectively.

Assoc. Prof. Siderova has also studied autoimmune thyroid diseases in the context of their systemic effects (publications G 7.12 and G 7.13). In a study with over 700 participants, it was found that in autoimmune thyroiditis, an increased TSH level is associated with increased triglycerides and LDL-cholesterol values, as well as higher cardiovascular risk. The relationship between hypothyroidism and depression has also been studied, with the results emphasizing the need for psychiatric screening in these patients, even with adequate hormone therapy. Other publications address a growing problem in modern oncology - thyroid dysfunction induced by immune checkpoint inhibitors and after stem cell transplantation. The need for an individualized approach in the diagnosis and treatment of these new forms of thyroid damage is emphasized.

2. Sarcopenia in endocrinopathies – thyrotoxicosis and drug-induced male hypogonadism in androgen deprivation therapy

A series of publications (G 7.8, G 8.8, G 8.9, G 8.10, G 8.21) consider hyperthyroidism as a possible factor for the early development of secondary sarcopenia. In these studies, Assoc. Prof. Siderova and co-authors analyzed body composition, muscle strength and physical function (assessed by grip strength and walking speed), establishing a relationship between reduced TSH values and deteriorated muscle performance. Innovative for Bulgaria is the comprehensive study of muscle health in women with newly diagnosed hyperthyroidism, with a focus on the ASMI index and the functional state of skeletal muscles. The contribution of these studies is both scientific and practical, emphasizing the importance of measuring grip strength as a reliable, easily applicable and informative indicator, suitable for inclusion in the routine clinical assessment of patients with thyrotoxicosis.

Another area of research interest is drug-induced hypogonadism in men undergoing androgen deprivation therapy (ADT) for prostate cancer, reviewed in publications G 7.2, G 7.11, G 8.3 and G 8.28. These studies focus on the increased fracture risk and the development of osteosarcopenia. Of particular importance is publication G 7.2, which for the first time on a national scale investigated sarcopenia in men with prostate cancer treated with ADT. In it, in addition to the application of the SARC-F questionnaire and the measurement of grip strength, the skeletal muscle index (SMI) was also assessed by [⁶⁸Ga]Ga-PSMA-11 PET/CT imaging, used within the framework of oncological staging. This study represents an innovative contribution with potential for application in clinical practice and scientific research on sarcopenia.

3. Pathology of the parathyroid glands

Hyperparathyroidism – in its primary, secondary and tertiary forms – represents a significant challenge in endocrinological practice due to its complex diagnosis, diverse clinical manifestations and potential for serious complications. Publication B 4.3 presents an extremely rare clinical case of primary hyperparathyroidism with severe disabling bone deformities and the presence of brown tumors. The work has a pronounced educational and applied-practical character, since asymptomatic forms of the disease dominate these days. The rich photographic material emphasizes bone manifestations as a possible first, although often non-specific, manifestation of the disease. Another group of publications is dedicated to secondary hyperparathyroidism and presents results of a joint study with the dialysis clinic. It analyzed the serum levels of bone-specific alkaline phosphatase, osteocalcin and vitamin D in two groups of patients – on hemodialysis and with chronic kidney disease (CKD) stage 2/3 with secondary hyperparathyroidism (SHP), as well as the results of ultrasound examination of hyperplastic parathyroid glands (publications G 8.20, G 8.30 and G 8.32). The clinical experience of the candidate allows for an assessment of the diagnostic accuracy of ultrasound examination in detecting secondary hyperparathyroidism among dialysis patients. Of particular value is the determination of a threshold value of parathyroid hormone (PTH), above which hyperplasia of the parathyroid glands is visualized – a result with direct clinical applicability. Assoc. Prof. Siderova advocates the wider introduction of ultrasound diagnostics in SHP, which can significantly enrich

and optimize the diagnostic, pharmacological and surgical approaches in the treatment of this condition. Publication G 7.7 presents a case of tertiary hyperparathyroidism (THP) arising from long-standing secondary hyperparathyroidism and highlights the therapeutic difficulties of THP in the context of advanced renal failure and the limitations of non-surgical methods for achieving adequate biochemical control.

4. Diabetes mellitus and diabetic neuropathy – modern therapeutic approaches and innovative methods

A group of publications (G 7.6, G 8.1, G 8.2, G 8.14, G 8.15) are dedicated to the new classes of glucose-lowering drugs – GLP-1 receptor agonists and SGLT2 inhibitors, which significantly change the therapeutic paradigm in type 2 diabetes mellitus, cardiovascular diseases (CVD) and chronic kidney disease (CKD). They discuss current challenges in clinical practice and the real-life application of these organ-protective drugs among patients with diabetes who have undergone treatment at a university center for a period of one year (publication G 7.6). The results of the studies demonstrate progress in the guideline implementation in real clinical settings. Publication B 4.7 examines the possible relationship between type 2 diabetes mellitus and increased oncological risk, focusing on the potential antitumor effects of metformin. A scientific and applied contribution is also made by a co-authored publication (G 8.25), presenting real clinical results of switching to insulin pump therapy in patients with type 1 diabetes. From an educational and scientific point of view, the editing of the book "Type 2 Diabetes – from Pathophysiology to Modern Treatment" (IntechOpen, 2019) is also valuable, which systematizes modern knowledge about the pathogenesis and therapy of the disease.

Part of Assoc. Prof. Mira Siderova's research focuses on diabetic sensorimotor neuropathy and covers its pathogenesis, therapeutic strategies and new non-pharmacological interventions. A significant scientific and practical contribution is made by studies dedicated to the application of high-energy MLS-laser therapy in patients with diabetic neuropathy, conducted in collaboration with physiotherapy specialists (G 7.5, G 7.9). The results of these studies support the effectiveness of the method as a complementary approach in the treatment of diabetic neuropathy.

5. Metabolic disorders in adrenal and gonadal pathology

Publications B 4.6, G 8.6, G 8.13 have examined the relationship between hormonally inactive adrenal incidentalomas and the development of metabolic syndrome. The frequency and nature of metabolic disorders in these patients, including changes in lipid and carbohydrate metabolism, have been analyzed, with an emphasis on potential mechanisms that link adrenal masses to insulin resistance and increased cardiovascular risk.

Other studies (B 4.2, G 8.17 and G 8.28) have examined metabolic, lipid and carbohydrate disorders in drug-induced hypogonadism in men undergoing androgen deprivation therapy for prostate cancer. These studies highlight the adverse metabolic effects of hormonal therapy and the need for active monitoring and prevention of metabolic and cardiovascular risk in this category of patients.

6. Rare endocrine diseases

Some of the publications in this area are dedicated to the presentation and analysis of rare clinical cases that have both theoretical and practical significance. Among them are described cases of the so-called "extinguished" acromegaly, TSH-producing pituitary adenoma, as well as thyroid hormone resistance (Refetoff's syndrome), realized in co-authorship with Prof. Refetoff - a leading name in this field. Of particular interest is the reported innovative therapeutic approach in a patient with hypercortisolism, treated by superselective arterial embolization of the adrenal gland.

The effective collaboration with the pediatric endocrinology clinic is also highlighted, illustrated in publication G 8.26, dedicated to the reassessment of growth hormone therapy in the transitional age in a group of 10 patients. From a pediatric aspect, a rare clinical case of a parathyroid cyst in a girl is also presented - a pathology with an extremely low incidence in childhood.

Citations of scientific papers

The submitted academic reference shows that the candidate's scientific papers participating in this competition have a total of 345 points on the citation indicator, with references to 12 articles. Most citations (20 out of 29) are in international scientific journals, referenced and indexed in global databases, which testifies to the scientific value and recognition of Assoc. Prof. Siderova's publications.

IV. Diagnostic and therapeutic activity

Assoc. Prof. Mira Siderova is an established specialist in the field of endocrinology with many years of clinical experience acquired at the University Hospital "St. Marina" - Varna, as well as through participation in specializations and qualification courses in prestigious international centers. Her constant commitment to professional improvement is confirmed by her active participation in scientific conferences, practical seminars and training forums dedicated to modern achievements in endocrinology.

In her daily clinical activities, Assoc. Prof. Siderova participates in multidisciplinary teams and specialized committees engaged in the complex diagnostics and treatment of patients with endocrine diseases, including the Endocrine Tumors Committee at St. Marina University Hospital, as well as in expert committees for the appointment of expensive medications and medical devices for the treatment of patients with type 1 and type 2 diabetes, growth hormone deficiency, hyperprolactinemia, acromegaly, as well as disorders in calcium/phosphate metabolism, etc.

V. Teaching experience and academic activities

Assoc. Prof. Mira Siderova's teaching and research activities began in 2008 as a part-time assistant, and since 2015 she has held the position of assistant, and subsequently - since 2017, she was elected as an associate professor. Her teaching engagement includes exercises and lectures for students from the Bulgarian and English-language medical programs, as well as for interns and pharmacy students; postgraduate training for specialist doctors and doctoral students; teaching and examination in highly specialized activities for endocrinology specialists; participation as a lecturer in a number of national scientific and training forums; membership in state and semester examination committees in "Internal Diseases". Since 2021, Assoc. Prof. Siderova has been a member of the state examination committee in Endocrinology and Metabolic Diseases, and since 2024 its chair.

For the last four academic years, her total teaching workload averaged 832 hours (208 hours per year) with a required minimum of 100 hours per year, which indicates a high degree of commitment to the educational process.

Assoc. Prof. Siderova is leading the specialization in Endocrinology and Metabolic Diseases specialization for eight doctors, five of whom have already successfully completed their specialty and three are in the process of training. In addition, she is the scientific supervisor of six doctoral students, three of whom have already successfully defended their dissertations.

VI. Fulfillment of the minimum national scientometric requirements for academic position "professor"

Group	Description	Point/Requirement	Fulfilled
A	Dissertation work	50 p.	Yes
Б	Not required for academic position "professor"	–	–
В	Publications equivalent to habilitation work (refereed and indexed) -11 articles /minimum 10/	295 p. / minimum 100 p.	Yes
Г(G)	Scientific publications items by subgroup G7, G8, G9	Total 647.61p./ minimum 200p. G7 – 224 p. G8 – 403.61 p. G9 – 20 p.	Yes
Д (D)	Citations	345 p. / minimum 100 p.	Yes
Е	Guidance of successfully defended doctoral students and other activities	171.53 p. / minimum 100 p. (no E14 – 100 p./ minimum 80 p.)	Yes

VII. Final opinion

Examining the overall career development of Assoc. Prof. Mira Siderova, I can conclude that she is a highly qualified specialist in the field of endocrinology. She is an established lecturer and head of a scientific, educational and medical unit. Her scientific activity is diverse and comprehensive, with significant contributions in various fields of endocrinology. I believe that she fully meets the qualitative and quantitative criteria for holding the academic position of "Professor", according to the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its implementation and the Regulations on the terms and conditions for acquiring scientific degrees and holding academic positions at the Medical University of Varna. Based on the above, I give a positive opinion and propose to the members of the scientific jury to award Assoc. Prof. Mira Valentinova Siderova, MD, the academic position of "Professor" in the specialty "Endocrinology" at the Second Department of Internal Medicine, Faculty of Medicine of MU-Varna, and the Clinic of Endocrinology and Metabolic Diseases at UMHAT "St. Marina"-Varna.

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