

REVIEW

by Prof. Dr. Gospodinka Radeva Prakova, MD – Department of Internal Medicine and General Medicine at the Medical Faculty of Trakia University – Stara Zagora

Member of the Scientific Jury according to Order №RD-134/12.04.2024 of the Rector of University "Prof. Dr. Asen Zlatarov" – Burgas, for a competition to fill the academic position of "Professor" in the scientific specialty "Pathological Anatomy and Cytopathology", in the field of higher education 7. Healthcare and Sports, professional direction 7.1. Medicine, announced in the State Gazette issue 13/13.02.2024. The review is in accordance with the requirements of the Law for the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB) and the Regulations on the Conditions and Procedure for Acquiring Scientific Degrees and Holding Academic Positions at University "Prof. Dr. Asen Zlatarov" – Burgas.

Documents have been submitted by one candidate – Prof. Dr. Maya Vladova Galabova, MD.

Prof. Dr. M. Galabova graduated with a gold medal from the High School of English Language Teaching in 1977 and completed her medical education in 1983 at the Medical Academy, Sofia. She began her professional career as a pathology resident at the hospital in Svishtov and, starting in 1984, as an assistant in the Department of General and Clinical Pathology at the Higher Medical Institute (HMI), Stara Zagora. In 1988, she obtained a specialty in Pathological Anatomy and Cytopathology. Prof. Dr. M. Galabova's scientific interests in liver pathology date back to October 1989 when she underwent specialization at the First Moscow Medical Institute "I. Sechenov". In 1999, she earned the PhD degree in medicine after successfully defending her dissertation on "The Role of Sinusoidal Ito and Pit Cells in Fibroplastic and Neoplastic Processes in the Liver". In 2002 and 2013, she was respectively elected Associate Professor and Professor at the Medical Faculty of Trakia University, Stara Zagora. From 2003 to 2023, she was the Head of the Department of General and Clinical Pathology, Forensic Medicine, and Deontology. From 2004 to 2007, Prof. Dr. M. Galabova served as Vice Dean for Research, and from 2007 to 2019, she was the Dean of the Medical Faculty at Trakia University, Stara Zagora. She is proficient in English and Russian, both written and spoken. Currently, she heads the Clinic of General and Clinical Pathology at University Hospital "Prof. Dr. St. Kirkovich" AD, Stara Zagora.

Scientific Research Activity

Prof. Dr. M. Galabova presents an impressive bibliometric report based on Scopus data as of 30.11.2023, showcasing 138 documents, 1573 citations, and an h-index of 21. The total impact factor of her publications is 106,006. The report also indicates that in the last ten years, she has published 53 articles, with 25% listing her as the first author and 34% as the last author. Additionally, 40% of the publications involve co-authorship, highlighting her strong collaborative skills. For the current competition, 41 scientific articles were considered, 40 of which were published in internationally recognized, refereed, and indexed databases, and 1 in a non-refereed peer-reviewed journal. These fulfill the requirements for the academic position of "Professor" at the University "Prof. Dr. Asen Zlatarov," Burgas (**100 points for indicator B with no fewer than 10 articles in refereed journals and 360.1 points for indicator G**). A significant portion of the publications appears in prestigious scientific journals categorized as Q1-Q3 with impact factors (Archives of Physiology and Biochemistry, Journal of Metabolic Diseases, International Journal of Colorectal Disease, APMIS, Journal of Molecular Histology, Hepato-Gastroenterology, Central European Journal of Medicine, Journal of Gastroenterology and Hepatology, Anatomia, Histologia, Embryologia, Clinical and Experimental Metastasis, World Journal of Surgical Oncology, Acta Histochemica, Neoplasma, Journal of Biotechnology and Biotechnological Equipment, and others). The scientific publications considered for the current competition are from the period 2014-2023.

Prof. M. Galabova has been honored with numerous international and Bulgarian awards for exceptional achievements in science: Second Prize at the Falk Symposium, Bucharest, Romania, 2000, for the poster "Implication of mast cells and inflammatory mediators in the etiopathogenesis of chronic ulcerative colitis" and the discovery of SP+ mast cells. First Prize at the Falk Symposium, Freiburg, Germany, 2006, for the poster "Expression level of VEGF and its association with tumor-infiltrating dendritic cells in primary hepatocellular carcinoma" for demonstrating the presence of different types of dendritic cells in liver sinusoids in metastases. Third Prize at the Falk Symposium, Dresden, Germany, 2007, for the poster "S-100- and GFAP-positive cells in human liver cirrhosis and in human hepatocellular cancer" for proving the presence of nerve fibers in the stroma of hepatocellular carcinoma. Second Prize at the Falk Symposium, Brno, Czech Republic, 2010, for the poster "Transforming growth factor-beta 1 promoter polymorphism, for colorectal cancer susceptibility and prognosis" for proving the association between the high TGF-beta1 genotype-509/TT and reduced survival in patients with colorectal cancer. The "Professor

Dimitar Kadanov" Award, 2003, for the publication "Structural examination of tryptase and VIP-positive mast cells in the common bile duct of patients with lithiasis," Acta Histochem, 2001; 103:437-452. The "Galen" Scientific Award of the Medical Faculty for 2009, for significant achievements in medical science, creating a successful creative team and scientific laboratories in "Diagnostic Immunohistochemistry" and "Molecular Pathology." The Florence Nightingale Award by the Association of Bulgarian Nurses for contributions to nursing education.

For the **indicators in Group D**, with a minimum requirement of **150 points**, **Prof. M. Galabova presents evidence for 480 points** across 33 scientific publications, all of which are refereed and indexed in internationally renowned scientific databases. The total number of citations is accurately presented, excluding those considered in previous evaluations. The bibliometric indicators assessing Prof. Galabova's scientific activity for this criterion are impressive, and the provided evidence confirms her professional qualities as a researcher and her skills in collaborating with both national and international teams. The relevance of the researched issues is reflected in the high number of citations of the obtained results, predominantly by foreign authors in indexed and refereed publications in global databases.

For her overall scientific activity in the field of Medicine, in **2021, Prof. Dr. M. Galabova was included in the Stanford University ranking, USA**, where out of 49 scientists from Bulgaria for overall scientific contributions, she was the only physician. This prestigious nomination brings accreditation points to the university where the nominated lecturer works.

Throughout her active scientific career, Prof. M. Galabova has participated in four projects funded by the Ministry of Education and Science, two of which she led as the principal investigator. The total amount of financial resources attracted was 3,550,000 BGN.

The projects she led were titled: "Immunomorphological study of colorectal and gastric carcinoma and the target organ for metastasis - the liver. Prognostic significance of immune markers CD56, alpha-smooth muscle actin, desmin, type IV collagen, and laminin for tumor progression and metastasis." "Investigation of the role of tumor-infiltrating lymphocytes, dendritic cells, and certain regulatory cytokines in the development of primary and metastatic liver tumors and colorectal carcinoma."

She has participated in numerous scientific juries for the PhD degree and for the academic positions of Associate Professor and Professor. Additionally, she has been involved in preparing reviews for specialized scientific journals and projects.

With the exceptional assistance of Prof. Galabova, several laboratories have been equipped with modern apparatus, including those for molecular biology, immunology, biochemistry, biophysics, physiology, molecular pathology, immunohistochemistry, and confocal microscopy. Equipment worth approximately 5,000,000 BGN has been purchased for educational and scientific activities at the University Hospital. This includes: Thoracoscope, Ultrasound machines, Equipment for modern diagnostics and treatment of nasopharyngeal diseases, Echocardiograph and fibrogastroscope for pediatric diagnostics, Operating table and ultrasound machine for intraoperative navigation in neurosurgery, FibroScan for elastography, Fibrogastrosopes and rectoscopes for gastroenterology, Resuscitation monitors and a Bellavista IMT Medical ventilator for anesthesiology and resuscitation, Laser surgery device for varicose veins, Doppler sonograph, Climate control system for operating rooms, Laparoscopic surgery set.

Under the leadership of Prof. M. Galabova, several doctoral programs have been accredited, including the first in the country for "Healthcare" and "Medical Physics."

Prof. Dr. M. Galabova has supervised 20 doctoral students, 11 of whom have successfully defended their dissertations. She is currently supervising 5 doctoral students and actively participates in the scientific and publication activities of 6 others. With her administrative experience and research activities, Prof. M. Galabova has made an exceptional contribution to the academic development of the faculty members at the Medical Faculty of Thrakia University, Stara Zagora.

The scientific contributions from the presented works can be summarized in the following areas of general and clinical pathological anatomy:

• *Study of Extra- and Intrahepatic Bile Ducts*

The study of mast cells through routine light microscopy, electron microscopy, and immunohistochemistry has led to the hypothesis that mast cells, nerve fibers, and endocrine cells in the lower third of the common bile duct participate in regulating motility, bile evacuation, and hormonal secretion in the gastrointestinal tract. In cases of exacerbated cholangitis, the adhesion of inflammatory cells to the vascular endothelial wall is mediated by ICAM-1/LFA-1 and ICAM-1/Mac-1. Various endocrine cells have been studied using light microscopy and ultrastructural immunohistochemistry for the expression of gastrin, somatostatin, secretin, serotonin, chromogranin, and synaptophysin. A hypothesis has been proposed regarding their role in regulating physiological and pathological processes in the common bile duct, supported by extensive photographic documentation. For the first time in

Bulgarian literature, the ultrastructure of transitional cells originating from Ito cells, the basement membrane in the space of Disse, and the deposition of types III and IV collagen around them have been demonstrated. For the first time in world literature, the expression of ICAM-1 on the cell membrane of Ito cells has been documented, proving their role in the transport of inflammatory cells through the space of Disse to the hepatocyte. Also for the first time in both Bulgarian and international literature, the expression of types III and IV collagen in the liver during reactive biliary hepatitis has been demonstrated. Prof. Galabova has studied biliary-liver pathology in an experimental metabolic syndrome, making interesting discoveries such as the appearance of β -cells in the extrahepatic bile ducts, hepatocytes, and sinusoidal endothelial cells. Some of these experimental data have been published in the *Journal of Metabolic Diseases*, which has a high impact factor (IF=3.471).

- *Study of Liver Sinusoids in Primary and Metastatic Tumors through Light and Electron Microscopy Immunohistochemistry and Flow Cytometry*

Publications in the field of liver pathology focus on the study of liver sinusoids, hepatocellular carcinoma, liver metastases, bile duct pathology, peliosis, adhesion molecules, extracellular matrix, and integrins. Of particular interest is the experimentally induced diabetes with findings of insulin-producing cells in bile ducts, pancreatic ducts, and the liver.

- *Research in Oncological Diseases*

Numerous publications are directed towards the study of the tumor microenvironment in colorectal, gastric, endometrial, lung, and thyroid carcinomas, examining immune cells (myeloid and plasmacytoid dendritic cells, T-helpers, NK, and NKT cells). The research interests include studying cytokines using immunohistochemistry, ELISA, SNP, and cytokines from the tumor microenvironment, microsatellite instability, and ultrastructural immunohistochemistry. Several modern diagnostic methods have been developed for cancer diagnostics, including the immunogold method, in situ hybridization (FISH), Western blot, and confocal microscopy. A significant contribution to oncological medicine is the follow-up of 500 colorectal carcinomas to study immune cells in the tumor microenvironment. The observation period spans several years and includes results from chemotherapy and radiotherapy, and subsequently, mutations. The obtained results have been published in international journals with an impact factor.

- *Study of Tertiary Lymphoid Structures*

Over the past 3 years, Prof. Dr. M. Galabova's scientific interests have been focused on studying tertiary lymphoid structures induced by tumors, infectious agents, and autoimmune processes. A literature review on this topic has been accepted for publication by the American Journal of Clinical and Experimental Immunology with an impact factor of 0.800. She has studied certain immune cells (T helpers, cytotoxic T lymphocytes, macrophages, and dendritic cells) in colon carcinoma and rectal carcinoma before and after radiotherapy. Of particular interest are the results from studying type II pneumocytes in COVID-19, tumors, and pneumoconiosis.

Prof. Dr. M. Galabova has been instrumental in establishing several scientific laboratories within the Faculty of Medicine, particularly in the Department of General and Clinical Pathology. These laboratories serve diagnostic and therapeutic purposes, including the Laboratory of Immunohistochemistry and Immunofluorescence, Molecular Pathology, and Confocal Microscopy.

In her academic dossier, she has presented 14 research projects, 9 of which were initiated after 2013. Prof. Galabova has been the principal investigator for 8 of these projects and a participant in one. She has supervised 20 doctoral students, 11 of whom are now part of the academic staff at the Medical Faculty, with 5 currently eligible for dissertation defense. She actively participates in the training of resident physicians specializing in General and Clinical Pathology. Her total score for the E indicator is 515, well above the required minimum of 120.

Prof. Dr. M. Galabova has supervised residents in the clinical specialty of General and Clinical Pathology and conducts theoretical training for these residents. Since 2003, she has been a member of the State Examination Commission for acquiring the specialty of General and Clinical Pathology within the healthcare system. She has also participated in teaching mobility and training under the Erasmus+ program across several European countries.

Teaching and Academic Activities

Prof. Dr. M. Galabova has over 38 years of teaching experience at the Faculty of Medicine, Trakia University, Stara Zagora. She conducts lecture courses in "General and Clinical Pathology" for the "Medicine" program in both Bulgarian and English, "Somatopathology and Oncopathology" for the "Social Activities" program, and "Clinical Pathology" for the "Nursing" and "Midwifery" programs. She has been involved in developing educational programs, lecture courses, methodological materials for exercises, and test exams for students in these respective specialties. She administers semester exams for the

relevant disciplines. Her total annual workload from 1984 to 2023 ranges from 360 to 480 academic hours.

Prof. Dr. M. Galabova has participated in the programmatic accreditation of the "Medicine," "Health Care," Ultrasonography, Medical Rehabilitation and Ergotherapy, Medical Assistant programs, accreditation of the Master's degree programs in Ultrasonography, Organization and Management of the Social Sphere, and Health Management, as well as accreditation of 25 doctoral programs. She was instrumental in accrediting the doctoral programs in "Health Care" and "Medical Physics" for the first time in the country.

Conclusion

Prof. Dr. M. Galabova is an established educator and researcher with profound expertise and a strong interest in the field of general and clinical pathology. She possesses the necessary qualifications, meets both quantitative and qualitative criteria, and exceeds the minimum national requirements for participating in competitions and holding the academic position of "Professor" according to the Law on the Development of the Academic Staff in the Republic of Bulgaria and its implementing regulations at Prof. Dr. Asen Zlatarov University, Burgas. Her scientometric data by groups are as follows: Indicator "A" - 50 points for successfully defended dissertation for obtaining a PhD degree, Indicator "B" - 100 points for publications in peer-reviewed and internationally indexed databases with scientific information, Indicator "Г" - 360.1 points, Indicator "D" - 480 points exceeding the minimum of 150 points, and Indicator "E" - 518 points exceeding the minimum of 120 points.

This gives me grounds to vote positively for the election of Prof. Dr. Maya Vladova Galabova, MD, to the academic position of "Professor" in the scientific specialty of "Pathological Anatomy and Cytopathology" within the professional field 7.1. Medicine, higher education area 7. Health Care and Sports at Prof. Dr. Asen Zlatarov University, Burgas.

21. 06. 2024 г.
Stara Zagora

Reviewer:
/Prof. Dr. Gospodinka Prakova, MD, PhD/