



## Opinion

of Prof. Dr. Ivaylo Stefanov Stefanov, VMD, Faculty of Medicine, University "Prof. Dr. Asen Zlatarov"-Burgas, Chairman of the Scientific Jury of the competition for the academic position of "Associate professor" according to Order No. 237 of 15.07.2024 of the Rector of the University "Prof. Dr. Asen Zlatarov" - Burgas.

Subject: Competition for the academic position "Associate professor " in the scientific specialty "Pathoanatomy and Cytopathology", in the field of higher education 7. Health and Sports, professional area 7.1. "Medicine", announced in the Official Gazette, issue 43 /17.05.2024 for the needs of Department of "Anatomy, Histology and Embryology, Pathology, Forensic Medicine and Deontology", Medical Faculty, "Prof. Dr. Asen Zlatarov" University, Burgas.

Only Dr. Nedyalka Todorova Zgurova, MD, submitted materials for participation in the competition.

The set of materials presented by the candidate is in full compliance with the national regulatory requirements for holding academic positions and with the Regulations for the terms and conditions for acquiring scientific degrees and for holding academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas.

### I. Candidate's career profile

Dr. Nedyalka Zgurova graduated from higher education in 2011 at Medical University "prof. Dr. Paraskev Stoyanov" - Varna, specialty "Medicine". Since 2013 she began her professional career as a teacher and researcher in the position of "Assistant" at the Department of General and Clinical Pathology, Forensic Medicine and Deontology"of the same University.

In 2016, she was appointed as a full-time doctoral student at the Department of "General and Clinical Pathology, Forensic Medicine and Deontology", scientific specialty "Pathology and Cytopathology", MU-Varna. In 2020, she received the Educational and Scientific degree "Doctor" in the scientific specialty General and clinical pathology after successfully defending a PhD thesis on the topic "Comparative morphological and immunohistochemical analysis of benign and malignant epithelial tumors of the large intestine". In 2016, she acquired a specialty in "General and Clinical Pathology".

From 2012 to 2022, she worked as a resident doctor at the Clinic for General and Clinical Pathology, "Sveta Marina" UMBAL - Varna. In 2020, she was appointed to the position of chief assistant at the Department of General and Clinical Pathology, Forensic Medicine and Deontology, MU "prof. Dr. Paraskev Stoyanov" – Varna. Since 2022, she has worked as an assistant and then chief assistant at the Department of Anatomy, Histology and Embryology, Forensic Medicine and Deontology at the University "Prof. Dr. Asen Zlatarov" - Burgas. In the same year, she was appointed as the Head of the Histopathology Laboratory at the Medical

Center "Doctors for Us Burgas", as well as the Head of the Department of General and Clinical Pathology, St. Ivan Rilski Medical Center - Razgrad.

The scientific research activity of the candidate develops in several main morphological directions, which fully correspond to the field of higher education 7. Health care and sports", professional direction 7.1. "Medicine", scientific specialty "Pathology and cytopathology":

- Chronic myeloproliferative neoplasms.
- Basal cell carcinoma – risk factors and histological features.
- Colon adenocarcinoma. Study of the expression of some proteins in relation to the tumor process.
- Parotid gland lesions. Cytological examination (**FNA**) of lesions in the neck area.
- Implantology. Bone reparative materials and rates of bone regeneration.
- Clinical cases and literature review

An important part of the career development of Dr. Nedyalka Zgurova is her participation in the development of study programs (discipline "Clinical pathology" for the specialty of medicine), as well as in 3 research projects corresponding to the scientific specialty "Pathology and cytopathology":

1. Stochastic and simulation models in the field of medicine, social sciences and dynamic systems /06.12.2019-06.06.2021/ to the "Scientific Research" to fund at the Ministry of Education and Science.

2. Three-dimensional visualization of glial cell growths and tumor cells in colorectal cancer /05.12.2016- 04.12.2020/, Medical University - Varna

3. In situ analysis of mebduglial, neuronal and tumor cell relationships in colorectal cancer /21.12.2015- 21.12.2017/, Medical University - Varna.

A significant part of the obtained original scientific results have been published in specialized journals indexed in Web of science and Scopus.

## **II. General description of the submitted materials for the competition**

Dr. Nedyalka Zgurova submitted 15 articles for participation in the competition, of which 5 were published in specialized journals (1 with an impact factor) indexed in Web of science and Scopus, and 10 in non-refereed journals.

The candidate's personal contribution to scientific research stands out with his participation in 4 publications where she is the lead author, in 2 publications she is in second place, and in the rest - in 3<sup>th</sup> and following place. A monograph titled "Colorectal carcinoma - risk and prognostic factors", 2024 was presented.

33 citations are presented, of which 7 are in journals indexed in Web of Science.

### **Evaluation of the candidate's scientific works**

Dr. Nedyalka Zgurova has attached a very well-prepared detailed report on the contributions from the scientific works, which accurately reflects her achievements in the individual scientific fields of practical importance. The main scientific contributions of the candidate are related to:

- I. Studies on chronic myeloproliferative neoplasms:

The correlations between the degree of angiogenesis, bone marrow fibrosis and JAK2V617F mutational burden were investigated. A correlation between angiogenesis and JAK2V617F mutation was established, especially in cases with polycythemia vera and primary myelofibrosis. The relationship between the immunohistochemical examination of the increased microvascular density (G8.1.) and the development of bone marrow fibrosis, characteristic of MPN, has been proven. These results identify JAK2V617F mutation carrier as an important prognostic factor in these neoplasms

## II. Basal cell carcinoma - risk factors and histological features.

Particular attention is paid to infiltrative and micronodular basal cell carcinoma with a high risk of recurrence and involvement of subcutaneous fat. An important conclusion is that the wide variety of histological subtypes of basal cell carcinoma must be taken into account in the differential diagnosis, because it can sometimes be indistinguishable from an adnexal tumor. Histological variants are important to know and mention in the morphological result because they are related to the local aggressiveness of the basal cell carcinoma, even to the metastatic potential of these tumors.

## III. Colon adenocarcinoma. Study of the expression of some proteins in relation to the tumor process.

An analysis of two of the major genes (APC and BRAF) and their immunohistochemical expression in colorectal carcinomas was performed. Using the logistic regression method, a directly proportional relationship was established between APC protein expression and the presence of metastases in lymph nodes. An important conclusion is that BRAF protein expression can be used as a prognostic marker for the risk of metastasis. This is also supported by the fact that most CRCs with a BRAF gene mutation have a lower survival rate. These results demonstrate the importance of immunohistochemical markers as predictive markers for directed targeted therapy.

## IV. Parotid gland lesions; cytological examination (FNA) of lesions in the neck area

The role of FNA as a preoperative method of diagnosis and a means of differentiating benign from malignant lesions of the parotid gland is highlighted. for the first time in Bulgaria, based on clinical-morphological and statistical analyses, proving the high specificity and sensitivity of FNA, a treatment-diagnostic algorithm was created for neoplasms in the head and neck area. The role of FNA as a method providing a gentle diagnostic and treatment approach in pediatric patients has been established.

## V. Implantology. Bone reparative materials and rates of bone regeneration

Emphasis is placed on an original methodology for lifting the floor of the maxillary sinus with lateral access, in which collagen fleece is used to isolate the bone repair material from the sinus mucosa. It was found that the patient's gender and age did not affect the amount and quality of newly formed bone when raising the floor of the maxillary sinus with a lateral approach. The importance of Goldner's Masson trichrome staining in differentiating mature mineralized bone tissue from osteoid is highlighted.

## VI. Clinical case report and literature review

The causes of liver abscess, in this case retrograde intestinal bacterial contamination of the bile ducts at choledochoduodenal anastomosis, are analyzed in detail and comprehensively. The role of histology as the gold standard for determining the type of process in the liver is emphasized (in this case, microbiology is negative).

Twenty seven autopsy cases of patients with proven COVID 19 infection were examined. The characteristic viral tropism towards epithelial cells and the attitude towards post-covid complications - the dynamics over time of virus development - have been thoroughly studied. Changes in the endothelial cells of the vascular wall, which can lead to pulmonary vascular hyalinosis, pulmonary hypertension and chronic pulmonary heart disease.

Rare cases of arrhythmogenic right ventricular hyperplasia and schwannoma (malignant psammomatous melanotic schwannoma) in childhood are presented, which is important in terms of differential diagnosis.

In the study of the expression of gastric mucins: MUC1, MUC5AC and MUC6 in gastric carcinoma, was demonstrated that the process of neoplastic transformation in the stomach is associated with a reduction of MUC5AC and MUC6 and an increased expression of MUC1 in tumor tissue of all gastric carcinomas. MUC1 overexpression can be considered as one of the factors that play a role in the transformation of gastric epithelial cells.

For the first time in Bulgaria, the cardioprotective effect of lipid emulsions (LE) was investigated on experimental animals (rats) treated with an overdose of Verapamil and the large therapeutic range of LE was determined upon single administration. Different dosage regimens have been established for different severity of acute exogenous intoxications.

The teaching activity of Dr. Zgurova includes conducting a significant number of hours of practicals and lectures for the period in the following disciplines:

- General pathology – 3rd year students, medicine
- Clinical pathology – 4th year students, medicine
- Pathoanatomy 2nd course, dental medicine
- General pathology – 3rd year students, lecture course

Dr. Zgurova has a total teaching experience of 9 years.

The complex analysis of the teaching and research activity shows that the candidate has fulfilled the required criteria for occupying the academic position "Associate professor", laid down in the Regulations for the terms and conditions for acquiring scientific degrees and for occupying academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas, which are included in a group of indicators A, B, C, D and E. It is important to note that the points of the indicators for groups D and E significantly exceed the minimum required points.

### **III. Conclusion**

The career development of Dr. Nedyalka Zgurova, her scientometric indicators, contributions of her scientific research activity correspond to the requirements specified in the Regulations for the terms and conditions for acquiring scientific degrees and for holding

academic positions at the University "Prof. Dr. Asen Zlatarov" - Burgas regarding the occupation of the academic position " Associate professor ".

For these reasons, I give my positive assessment to Dr. Nedyalka Todorova Zgurova, PhD and recommend to the members of the respected Scientific Jury to support her selection for the academic position of " Associate professor " in the scientific specialty "Pathology and cytopathology", in the field of higher education 7. Health care and sports", professional direction 7.1. "Medicine" to the Department of "Anatomy, Histology and Embryology, Pathology, Forensic Medicine and Deontology", Medical Faculty, University "Prof. Dr. Asen Zlatarov".

Signature :

26.08.2024.

/ Prof. Dr. Ivaylo Stéfanov Stefanov, PhD /