

To the chairman of the scientific jury
Medical University "Prof. Dr. Paraskev Stoyanov" Varna
Medical Faculty

Statement

by Prof. Marina Borisova Garcheva-Tsacheva, MD PhD,
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Regarding: The candidacy of chief assistant. Dr. Zhivka Dancheva Mezan, MD
announced in SG No. 28/28.3.2023.

in the competition for the scientific position "**Associate professor**" in the **higher education field 7. "Health and Sports", professional direction 7.1 "Medicine", in the scientific specialty "Nuclear Medicine", for the needs of the faculty of "Medicine", Department of "Imaging diagnostics, interventional radiology and radiation therapy", MU" Prof. Dr. Paraskev Stoyanov" Varna and Department of "Nuclear medicine and radionuclide therapy", "St Marina" University hospital, Varna**

I have known Dr. Zhivka Dancheva since 2006, when she was enrolled as a full-time resident and PhD student in the Department of Imaging and Radiotherapy. Until 2012, she successfully developed and defended the patient-relevant topic "⁸⁹Sr metabolic radiopharmaceutical therapy (Metastron) of painful bone metastases in patients with prostate and breast carcinoma". From 2016 to the present, she is a chief assistant in the Department of Imaging, Interventional Medicine and Radiotherapy and the Clinic of Nuclear Medicine and Metabolic Therapy at St. Marina UMBAL.

As such, she has extensive teaching experience: teaching nuclear medicine to medical students and nuclear medicine and imaging specialists. In addition, she is an imaging and nuclear medicine specialty educator for X-ray technicians, midwives and nurses.

Her continuous improvement in this regard is also proven by her participation in 3 textbooks and 7 study aids with a total volume of 128 pages.

Dr. Dancheva has deep scientific interests.

In the current competition for Associate professor, she mainly participated with the magnificent monograph "Cutaneous melanoma through the scope of nuclear medicine"; in which the role of 18F-FDG-PET/CT incl. in a group of 347 carefully studied and followed own patients. Epidemiology, risk factors and clinical picture, characteristics of melanoma types, TNM classification and lymphatic drainage were investigated. The indications for the application of imaging methods are justified and their capabilities compared to specific clinical questions are compared. The sentinel lymph node biopsy method, indications and approaches depending on its result are presented. As a result of these data, as well as data from the comparison of diagnostic methods in practice, the approach to patients with cutaneous melanoma for the best staging is indicated. 18F-FDG PET/CT is recommended for patients in stage IIC and higher, and for all patients with questionable results from other imaging studies or suspicious symptoms.

The role of 18F-FDG PET/CT to evaluate the effect of the treatment of CM with the new therapeutic agents – target therapy and immunotherapy with checkpoint inhibitors was studied. New criteria for evaluating treatment effect based on univariate or bivariate measures irRECIST, iRECIST, imRECIST are included. The role of 18F-FDG PET/CT in detecting immune-related adverse events (irAEs) has been proven. The forms of

unconventional response of tumor lesions to immunotherapy, such as pseudoprogression, multidirectional response, hyperprogression and sustained response, are discussed.

In conclusion, the role of 18F-FDG PET/CT to identify at-risk patients and to modify treatment is evaluated.

Obviously, a monograph written in collaboration with medical oncologists is of utmost importance to them as well. The volume of revised synthesized information is impressive, given by chapter and includes over 380 sources.

The presented monograph is extremely valuable including as a guide for indications, application and interpretation of nuclear medicine methods: sentinel scintigraphy and 18 FDG PET/CT in the staging and restaging of cutaneous melanomas.

The refereed publications of high scientific quality presented are diverse, the role of FDG PET/CT in the evaluation of suspicious palatine tonsils, the detection of synchronous tumors in primary head and neck diseases, bone involvement in multiple myeloma, risk factors in men with breast carcinoma, the role of endocrine therapy in them, as well as the evaluation of surgical practices as part of an international study. An interesting clinical case of 68Ga PSMA positive pancreatic cystadenoma and another interesting clinical case for the diagnosis of relapsed extranodal diffuse large B-cell lymphoma (DLBCL) are presented.

FDG PET/CT – positive lymph nodes as a side effect of Covid-19 vaccination leading to misinterpretation, the influence of sarcoidosis on the interpretation of lymph nodes, the importance of FDG PET/CT – to detect progression in calcified lesions, e.g. of ovarian carcinoma, incidence of brain metastases in patients with head and neck tumors, monitoring of patients after radiotherapy for malignant epithelioid tumors of the head and neck, role of 68Ga PSMA in staging and detection of recurrence of prostate carcinoma or generally presented for the current competition are 22 publications, 6 in non-refereed journals and one outside the requirements, a total of 29.

The main scientific contributions of the candidate beyond those mentioned in the submitted monograph can be highlighted:

1. Regarding head and neck tumors - the leading role of FDG PET/CT for the diagnosis of recurrences, of synchronous tumors, often determining overall survival, as well as the essential observation of a delay in complete metabolic response after radiotherapy.

2. Regarding the behavior of mammary gland carcinomas - the features of the disease in young women and the accumulated experience in terms of diagnosis and therapeutic approaches in men, promotion of endocrine therapy in ER+.

3. Regarding prostate carcinoma, the observations of nonspecific accumulation of PSMA are important, with possible false-positive dissemination in proven prostate carcinoma and low PSA values, but on the other hand, the possibility of false-negative bone metastases in high-risk patients is highlighted. Dependencies of iPSA, aPSA, ISUP and volume of distribution assessed by 68Ga PSMA PET were assessed.

4. Regarding the importance of FDG PET/CT in non-oncological diseases, essential observations have been made for their recognition, as well as for the recognition of the side effects of modern immunotherapy. Observations on the vaccination effects of Covid-19 are pioneering. The diagnosis of extranodal multiple myeloma, the advantages in staging the disease compared to other imaging methods are important.

5. The role of FDG PET/CT in gastrointestinal stromal tumors has also been evaluated in terms of both underestimation of areas of spread and rapid determination of response to therapy.

A candidate's scientific output 2017-2021 represents her continuously developing potential. The criteria of the University of Varna have been met, exceeding the required 200 points with a minimum of 7, the author has submitted 5 citations /when checking in the scientific online platforms, it is seen that they exceed several times this value/, which

proves the quality of the presented works and their value to the community of nuclear medicine.

Furthermore, I would like to highlight Dr. Dancheva's qualities as a member of BDNM, a member of WIN, EANM and ESHI, showing an exceptional willingness to involve and assist in the organization of numerous events of BDNM - annual meetings, Balkan Congress of Nuclear medicine in 2017, Varna days of NM in the last 2 years post Covid pandemic, etc. I cannot recall an event in recent years in which she has not been involved not only as a participant but also as a facilitator or organizer of events in the life of the Society of Nuclear Medicine.

I categorically vote and recommend the members of the Scientific Jury to vote positively for awarding the scientific title of associate professor to Dr. Zhivka Dancheva.

Prof. Dr. M. Garcheva



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