**STATEMENT**

by Assoc. Prof. Tanya Ivanova Deneva, MD, PhD
Dept. of Clinical Laboratory, Farmacy Faculty
Medical University – Plovdiv
Member of the scientific jury according to order № P-109-112 / 11.03.2022
of the Rector of MU-Varna

**Subject:** Dissertation for the creation educational and scientific degree "Doctor of Philosophy" in professional field 7.1 Medicine, specialty "Clinical Laboratory"

**Author:** Dr. Sevim Ahmed Shefket

**Type of PhD** - regular

**Department:** Clinical Laboratory, Medical University - Varna

**Topic:** Predictive role of NGAL as an early marker of renal dysfunction in patients with type 1 diabetes and type 2 diabetes

**Scientific adviser**: Assoc. Prof. Yana Bocheva, MD, PhD

**1. General presentation of the procedure and PhD student**

The presented set of documents of the candidate is in accordance with Section III, art. 69 of the Regulations for the development of the academic staff at the Medical University - Varna and includes the following documents:

- application to the rector of MU - Varna for disclosure of the procedure for defense of the dissertation
- CV in European format with the signature of the PhD student
- a copy of the diploma for master degree – medicine
- a copy of the diploma for the acquired specialty in clinical laboratory
- order for enrollment in doctoral studies
- dissertation
- abstract
- protocol of doctoral minimum in the specialty
- protocol of doctoral minimum - foreign language

- protocol from the department council for readiness to open a procedure for discussion of the dissertation - internal defense
- deduction order with the right to defense
- declaration of originality
- list of scientific publications related to the dissertation
- copies of scientific publications related to the dissertation
- declaration of authenticity and originality of the attached documents
- declaration for registration in a scientific database

Dr. Sevim Ahmed Shefket graduated in medicine in 2010 at the Medical University of Varna and began working as a doctor at the Center for Medical Research - Varna and MC "South" - Varna. In 2014 she started to specialize in a clinical laboratory at the Medical University of Varna and worked as specialist doctor in the clinical laboratory of the University Hospital "St. Marina "- Varna.

Since 2019 she is an assistant professor and and PhD student in the Department of Clinical Laboratory of MU "Prof. Dr. P. Stoyanov "- Varna

**2. Relevance of the topic**

Diabetes mellitus is a socially significant disease with serious complications, one of which is diabetic nephropathy and the risk of developing end-stage renal disease. The high frequency of the disease and the disability of the patients have a significant socio-economic significance and determine the relevance of the study of the problem. In recent years, a number of studies have focused on the predictive role of tubulo-interstitial lesions in the development and progression of diabetic kidney disease. This suggests the search for new biomarkers other than classical glomerular indicators, such as indicators of subclinical tubular damage and early renal dysfunction in patients with diabetes mellitus.

Based on the above, I believe that the topic of Dr. Sevim Shefket is relevant, as it emphasizes the predictive role and study of the diagnostic reliability of neutrophil gelatinase-associated lipocalin (NGAL) as a promising biomarker for renal dysfunction in diabetes. The doctoral student emphasizes its verification and introduction into routine practice, as well as the construction of methodologically and

age-dependent reference limits for the Bulgarian population, which determines the scientific-applied and original contribution of the developed dissertation.

**3. Knowledge of the problem**

The doctoral student shows in-depth knowledge in the field, which is evident from the prepared literature review with a volume of 40 pages. She manages to use professional terminology correctly, which she analyzes and systematizes in a much better way. The very focus on this topical issue shows knowledge of the problem and challenges in clarifying the diagnostic and prognostic role of NGAL in clinical practice.

**4. Characteristics and evaluation of the dissertation**

The dissertation "Predictive role of NGAL as an early marker of renal impairment in patients with type 1 diabetes and type 2 diabetes" is a well-planned, developed and conducted research. It is written on 150 standard typewritten pages and contains 36 figures, 46 tables. The research is structured as follows: introduction - 1 page, literature review - 39 pages, goal and objectives -1 page, material and methods - 7 pages, results - 37 pages, discussion - 33 pages, conclusions and contributions - 4 pages, applications - 4 pages, bibliography - 17 pages. The latter contains 221 literary sources, 10 of them in Cyrillic and 211 in Latin.

The introduction outlines the significance of the researched problem. **The literature review** is a systematic review analyzing the etiopathogenesis of tubointestinal disorders in diabetes mellitus and the role of NGAL in the diagnosis of diabetic nephropathy and the differentiation of diabetic renal impairment from renal impairment in chronic kidney disease. Critical analysis of the literature data allows the doctoral student to properly formulate the purpose of the study and to justify the individual tasks for its implementation.

**The aim** of the dissertation is clearly formulated and corresponds to the set tasks.

**The Material and Method**s section is extremely detailed and properly structured. The applied clinical and laboratory analyzes are described in detail. The verification of the method for determination of NGAL is in accordance with the basic

requirements for analytical quality and criteria for analytical reliability of clinical and laboratory methods.

**The results** of the set tasks are described in detail, visually presented with tables and figures that emphasize the importance of the research. In the discussion section there is a discussion of the obtained results with own reasoned reasoning and comparison with the data from the international literature.

**The conclusions** are correctly reasoned and correspond to the set goal and the performed tasks. They synthesize the analysis of the survey data and their own research.

Dr. Sevim Shefket has indicated 7 contributions with theoretical and 7 contributions with practical-applied and original character for the Bulgarian population.

**5. Assessment of the publications and personal contribution of the doctoral student**

In connection with the dissertation, 2 publications were presented in connection with the dissertation in refereed journals and two participations in international scientific forums, which fulfills the quantitative criteria set in the regulations of MU - Varna.

I have no critical remarks and recommendations to the conducted research and the presented materials.

**Abstract**

The abstract is prepared according to the requirements, with quality illustrative material and sufficient volume to fully reflect the main results achieved in the dissertation.

**CONCLUSION**

I believe that the dissertation of Dr. Sevim Shefket is extremely relevant, properly constructed, with excellent methodology and reliable results. It contains scientific and applied research results with original contributions to science and meets all the requirements of the Law on the Development of Academic Staff in the

Republic of Bulgaria, the Regulations for its implementation and the Regulations of MU-Varna. The presented materials and dissertation results fully comply with the scientific requirements of these regulations.

The dissertation shows that the doctoral student has in-depth knowledge and professional skills in the scientific specialty Clinical Laboratory, showing qualities and skills for independent research.

Due to the above, I confidently give my positive assessment of the research presented by the dissertation, abstract, results and contributions, and I invite the esteemed scientific jury to award the educational and scientific degree "Doctor" of Dr. Sevim Ahmed Shefket in the scientific specialty " Clinical Laboratory"

20.04.2022 г

Plovdiv

Assoc. Prof. Tanya Deneva, MD, PhD