

STATEMENT

by Professor Konstantin Todorov Balashev, DSc

for a contest for the academic position "Associate Professor" in professional area 4.3. Biological sciences, scientific specialty "Biochemistry", for the needs of the Faculty of Biology of the Sofia University "St. Kl. Ohridski", announced in State Gazette No. 30 of 15.04.2022, with a candidate

Chief Assistant Professor Dr. Kirilka Stefanova Mladenova

1. General requirements and a brief description of the candidate

In the contest for the academic position of Associate professor of Biochemistry at the Faculty of Biology, Sofia university, participated only one candidate - Chief Assistant Professor Dr. Kirilka Stefanova Mladenova. Dr. Mladenova graduated from the Faculty of Biology of the SU in 2013 with a master's degree in Cell Biology and Pathology, having previously obtained a bachelor's degree in Molecular Biology in 2011. Her career began in 2015 as an assistant professor at the Department of Biochemistry of the Faculty of Biology, and in 2017 she defended her thesis on "Investigation of the interaction of the bestrophin-1 protein with model membrane structures and its behavior in eukaryotic cells" and obtained her Ph.D. degree in Biological Sciences. In the same year, she got the academic position of Chief Assistant Professor in the Department of Biochemistry of the Faculty of Biology.

2. Description of the presented materials

Dr. Mladenova has prepared and presented in tabular form a report on the fulfillment of minimum national requirements for holding the scientific position "Associate professor". She participates in the contest with 17 scientific publications, most of which are published in leading specialized international journals. In the database "Scopus" as of today (15.07.2022), can be found 17 of her articles with 63 citations. Her Hirsch index is 5, excluding self-citations by all co-authors. The list of 17 publications is presented for participation in the contest (Appendix 10B). All of these publications fully match the subject of the announced contest and they are all in renowned and leading journals in the interdisciplinary areas of Biological Sciences and Biochemistry, such as Colloids and Surfaces B: Biointerfaces, FEBS journal, Membranes, etc.

Dr. Mladenova has been an active participant in numerous scientific projects funded by Sofia University, the Ministry of Education, and some of the European and international programs. She was the head of two of them.

The marks of Dr. Mladenova's activity exceed the minimum national requirements for the scientific activity of candidates for the academic position "Associate Professor". This is demonstrated in the table:

Group indicators	National requirements	Point acquired by the candidate
A	50	50
B	100	105
Г	200	226
Д	50	62

3. General characteristics of the research, pedagogical and applied research activities of the candidate

Dr. Mladenova's research is within three interdisciplinary scientific areas of biochemistry, molecular, and cell biology. They include studies of: 1) the properties of the transmembrane protein bestrophin-1 (hBest1); 2) the biological properties of nanoparticles; 3) the influence of biologically active substances on cell lines.

Her educational and teaching activities are as a lecturer in Biochemistry for the undergraduate majors of Agricultural Biotechnology and Biology and as a tutor of experimental classes and exercises for the basic courses, such as Biocatalysis, Fundamentals of Biochemistry, Biochemistry, and Cell Polarization, which are compulsory of the undergraduate or the master's programs of the Faculty of Biology, Faculty of Physics and Faculty of Chemistry and Pharmacy, of Sofia University. Dr. Mladenova was the supervisor of two graduates who successfully defended their master's or bachelor's theses.

4. Main scientific and applied scientific contributions

The contributions of Dr. Mladenova can be summarized according to the above-mentioned areas of her scientific activities, as follows:

- Study of the morphology and physicochemical properties of pure hBest1 or mixtures of hBest1 with lipids organized in Langmuir monolayers at the water/air interface as model systems (Articles [1, 2, 6, 7, 13, 15 and 16] of Annex 10B).
- Study of the biological activity of nanoparticles and their properties, such as cytotoxicity, their paths into the cells, stability in the presence of biologically active molecules such as enzymes, etc. (Article [5, 11, 12 and 14] of Annex 10B).
- Investigation of biologically active substances on secretory enzymes isolated and purified from the snake venom of *Vipera ammodytes meridionalis* (Articles [3, 8 and 9] of Appendix 10B).
- Studies related to plant extracts of *Haberlea rhodopensis*, *Lamium album L.* and plants of the genus *Inula* (Articles [4 and 10] of Annex 10B).

7. Personal impressions of the reviewer about the candidate

I know Dr. Mladenova from her student years, from her scientific reports and discussions that we have had about various research issues. She has always demonstrated an excellent and in-depth understanding of the study material and any scientific topics. Particularly useful and fruitful for me were our discussions regarding the properties of the neurotoxin Vipoxin, isolated and purified from the snake venom of *Vipera ammodytes meridionalis*.

CONCLUSION

The documents submitted by Dr. Mladenova, as the only candidate for the announced contest for the academic position "Associate Professor", satisfy and exceed the requirements of the Law. Her contributions are undeniable and clearly distinguishable in the scientific community.

The analysis of her overall scientific research work and pedagogical activities gives me a reason to support the candidacy of **Chief Assistant Professor Dr. Kirilka Stefanova Mladenova**, and to recommend to the members of the respected scientific Jury and to the members of the Council of Faculty of Biology to award her the academic position "Docent" in professional area 4.3. Biological Sciences, scientific specialty "Biochemistry".

15.07.2022 r.

Sofia

(Prof. Konstantin Balashev, DSc)