OPINION

in a competition for the academic position "Associate Professor", scientific specialty "Biophysics", professional field 4.3. Biological sciences, area of higher education 4. Natural sciences, mathematics and informatics, announced in State Gazette issue 32/26.04.2022 for the needs of the "Lipid-protein interactions" section at the IBPhBME-BAS

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The only participant in the competition - Ch. Assistant Professor Anelia Stefanova Kostadinova, PhD, is a graduate of Sofia University "St. Kliment Ohridski", where she graduated in 1993 with a master's degree in Cell and Developmental Biology. Her professional career advanced at IBPhBME, where she started working as a biologist in 1995. Since 2003, she has been an Assistant, and since 2006 - Chief Assistant Professor in the same institute. In 2012, after successfully defending a thesis on "Modulation of the interaction of cells with polymer surfaces and membranes", she received the educational and scientific degree "PhD" in the scientific field "Biophysics". According to the presented documents, Dr. Kostadinova has over 26 years of work experience in the specialty, which fully meets the requirements of the Regulations for the implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria in the IBPhBME at BAS.

In the current competition Ch. Assoc. Prof. Kostadinova participates with 17 articles in scientific journals (all with an impact factor or SJR) and one book chapter published by MedDocs Publishers LLC, which do not repeat the articles for awarding the educational and scientific degree "Doctor". Fifteen articles without an impact factor and a list of 27 participations in scientific forums are also presented. Applying the adopted quartile classification, the distribution of the presented publications is as follows: 5 are in quartile Q1, 4 - in Q2 and 8 - in Q3. Dr. Kostadinova is the first author in half of all the 18 scientific works presented for the competition, which demonstrates her active participation in the conducted research. The total impact factor of the articles, according to the information presented, is 26,334, and the citations of the same are 32. According to the information in Scopus, the Hirsch index of Dr. Kostadinova is 6. These

scientometric data are an attestation of the good quality of the scientific production presented. The above-mentioned scientometric data completely cover, and in most cases exceed the criteria for awarding the academic position "Associate Professor", defined in the regulatory documents. The required and achieved points from Ch. Assistant Professor Kostadinova are summarized in the table below:

Indicator	**Required minimum**	**Number of points achieved**
А	50	50
Б	100	105
Г	220	235
Д	60	64
Total	**430**	**454**

The main scientific directions in which Dr. Kostadinova works are related to studying the factors that control the interaction of cells with their environment and the biological activity of amphiphilic molecules of natural and synthetic origin. From the research, reflected in the scientific publications, 6 general contributions have been derived, with which I agree.

In my opinion, one of the most interesting results are those related to establishing the influence of the substrates' surface characteristics on the cell behavior. Substrate hydrophobicity has been shown to determine αV integrin organization in human skin fibroblasts and alter cell signaling. Of interest, not only from a fundamental, but also from a practical point of view, are the experiments on targeted functionalization of synthetic cell substrates developed for reparative medicine. The obtained results demonstrate that the biocompatibility can be channeled by changes in the microarchitecture, as well as by the type and positioning of the chemical groups relative to the surface of the substrate. It has been shown that the incorporation of metal ions into natural polymer structures or composite materials improves their biocompatibility as well as their antibacterial properties. Especially interesting in this regard are the studies on composite materials containing graphene oxide and silver or silicon compounds, which show broad-spectrum antibacterial activity and moderate cytotoxicity to human cells.

The second line of research is related to studies on the cellular response and changes in biomimetic and native membranes after treatment with natural and synthetic agents of an amphipathic nature. Plant extracts containing myconoside, sesquiterpene lactones, or phenolic acids have been found to alter membrane lipid ordering, intercellular contacts, and actin

cytoskeleton organization. Also interesting are the results demonstrating that the effects of the antitumor lipids rifampicin and miltefosine can be potentiated by combining them with electroporation.

Dr. Kostadinova actively participates in the implementation of various scientific projects, which is evident from the presented information about participation in 19 research projects and management of one international project. From 2004 until now Ch. Assistant Professor Kostadinova annually participates in conducting practical classes for undergraduate students at the Faculty of Biology of the University of Sofia St. Kliment Ohridski", as she was also the supervisor of four successfully defended diploma theses of master's students.

Conclusion: Dr. Kostadinova presents herself in the current competition with scientific research in a well-defined and up-to-date field, fully corresponding to the field of the announced competition. The scientific contributions, the number and quality of the published scientific articles, as well as their good international response, fully cover and even exceed the requirements set out in the Regulations for the Implementation of the Law on the Development of the Academic Staff in Republic of Bulgaria at the IBPhBME-BAS. All this gives me reason to express my positive assessment and to confidently recommend to the respected members of the scientific jury to choose Ch. Assistant Professor Anelia Stefanova Kostadinova, Ph.D., for the academic position "Associated Professor".

09/19/2022

Signature:

/acad. Roumen Pankov/