

POSITION

from

Prof. DSc Ivan Atanassov

AgroBioInstitute, Sofia, 8 Dragan Tzankov blvd

on the materials presented by

Assoc. Prof. Dr. Robert Dimitrov Penchovski

for participation in the competition for the occupation of the academic position of 'Professor' of Sofia University "St. Kliment Ohridski ", in higher education: 4. Natural sciences, mathematics and informatics, professional field: 4.3. Biological sciences, scientific specialty 'Genetics - molecular genetics, bioinformatics and synthetic biology'. The competition is announced in the State Gazette, issue. 93 of 26.11.2019 and on the website of Sofia University "St. Kliment Ohridski"

1. General presentation of the procedure and the applicant

By Order № ПД38-58/20.01.2020 r.by the Rector of Sofia University "St. Kliment Ohridski "I have been appointed a member of the scientific jury of the competition for the occupation of the academic position of " professor "in the field of higher education: 4. Natural sciences, mathematics and informatics, professional field: 4.3. Biological Sciences, scientific specialty 'Genetics - molecular genetics, bioinformatics and synthetic biology' for the needs of the Faculty of Biology at Sofia University "St. Kliment Ohridski".

Only one candidate participated in the announced competition for "professor": Assoc. Prof. Dr. Robert Dimitrov Penchovski of the Faculty of Biology at Sofia University "St. Kliment Ohridski". The set of materials and documents presented in paper and electronic form for participation in the competition, presented by Assoc. Prof. Dr. Robert Penchovski, fully complies with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, and Rules of SU "St. Kliment Ohridski ".

Assoc. Prof. Dr. Robert Penchovski was born in 1971 and received his Master's Degree in Biochemistry and Microbiology, specialty Genetics in 1994 from the Faculty of Biology, Sofia University "St. Kliment Ohridski ". In 2003 Assoc. Prof. Penchovski defended his thesis on " Integrated DNA Selection in Micro-flow Reactors as an Approach for Molecular Computation and Diagnostics" and obtained the Doctor degree in genetics from the University of Cologne, Germany. In the period 1996-2002, Assoc. Prof. Penchovski worked as a researcher at leading research institutes and centers in Bulgaria and Germany (Institute of Molecular Biology, BAS, Bulgaria; Molecular Biotechnology Institute, Jena and Fraunhofer Gesellschaft, St. Augustine, Germany) and during 2003-2006 was a Postdoctoral Fellow at the Department of Molecular, Cellular and Developmental Biology, Yale University, New Haven, USA. Since 2010 he has been Assistant Professor, and since 2013 - Associated Professor of Genetics, Synthetic Biology and Molecular Evolution at the Department of Genetics, Faculty of Biology, Sofia University "St. Kliment Ohridski ". Since 2018 he is also the Head of Molecular Biology Laboratory at the Center for Competence "Clean Technologies and Environment", Sofia University "St. Kliment Ohridski ". Assoc. Prof. Penchovski speaks three foreign languages, incl.

excellent command of English and very good in German and Russian. He has extensive knowledge and extensive experimental experience in a range of biological sciences, including molecular biology and genetics, synthetic biology, bioinformatics, microreactors and biotechnology. He has excellent computer skills, which he has successfully applied in a wide range of studies in bioinformatics and synthetic biology. In his career so far, he has demonstrated excellent organizational teaching skills, including leadership and execution of a large number (14) of national and international projects, as well as leadership of a large number of Masters (16 defended) and Doctoral students (2 defended, 2 defended with a defense and 3 regular).

2. General characteristics of the applicant's activities and achievements

Research activities and achievements

Assoc. Prof. Penchovski's submission for the "professor" competition include a total of 25 scientific publications in which he is the leading (first or last) author, of: 14 publications in scientific journals with a total IF = 39, 1 book, 4 book chapters, 2 patents and 5 conference appearances. The high level of scientific publications of the candidate is also supported by the large number of citations in publications of other researchers, respectively 349 citations (without self-citation) in Scopus and 620 citations in Google Scholar. The submitted scientific papers and citations significantly exceed the requirements and are completely sufficient for occupation of the academic position of "professor" according to the criteria specified in PRA of Sofia University "St. Kliment Ohridski ". Considering the current research activities of Assoc. Prof. Dr. Penchowski, his participation in 14 national and international projects should be highly appreciated, with a significant part of them (8) being the leader or coordinator.

The main results of the research and scientific contributions of Assoc. Prof. Dr. Penchowski in this competition are in three directions, including:

/1/ development and implementation of modern bioinformatic approaches including: development and practical application of the first algorithms for the computer design of allosteric ribozymes, which are activated or deactivated by specific binding of specific DNA, RNA oligomers and small molecules, as well as with the ability to detect the length of specific RNA molecules; creation of algorithms for computer design of RNA biosensors showing logical functions; and creation of a total of 15 bioinformatics computer programs with different applications, it should be noted that some of them were developed with the participation of graduates and PhD students of Assoc. Prof. Dr. Penchovski, which is also an important contribution to the specialized training in bioinformatics of the Faculty of Biology of Sofia University "St. Kliment Ohridski ".

/2/ molecular genetics of bacteria, comprising mainly studies related to riboswitches - newly discovered elements for controlling gene expression and applications of designer antisense oligonucleotides, and both research groups with potential applications for the development of new antibacterial agents.

/3/ synthetic biology. Extensive knowledge and skills in bioinformatics, molecular genetics, DNA and RNA technologies Assoc. Prof. Dr. Penchowski has successfully applied in a number of synthetic biology studies involving the design and development of microreactors with the potential to work as "DNA-based computers" and opportunities for a wide range of applications in the development of analytical tools for modern biotechnology. The subject of the research activity of Assoc. Prof. Penchowski is the creation of the basis of riboswitches of high-performance biochemical tests for the

discovery of new antibiotics, as well as the design, synthesis and experimental testing of allosteric ribozymes that recognize small molecules with the potential to be used as molecular sensors.

The presented comprehensive scientific production and research and applied results indicate that Assoc. Prof. Penchovski is a researcher with extensive and in-depth knowledge, extensive experimental experience, proven skills, accomplishments and capacity to successfully undertake complex studies in molecular biology and genetics , synthetic biology and biotechnology, as well as the application of a wide range of bioinformatics methods and approaches.

Applicant's teaching and organizational activity

The materials presented at the competition show that Prof. Dr. Penchovski has a lengthy teaching experience (10 years of which 7 years as an associate professor) and intensive teaching activity including lecture courses (author and main lecturer) within the undergraduate course. "Bioinformatics" and "Molecular Genetics") and master's degree programs (genomics, synthetic biology and bioinformatics and molecular evolution) and doctoral programs at the Faculty of Biology at Sofia University "St. Kliment Ohridski ". For the period since 2013, Assoc. Prof. Penchovski is the head of the diploma works of a total of 16 master students from 5 nationalities, two successfully defended doctoral students, and is the head of total 5 PhD students, as well as 4 student of the Course Modern Science in Biology: Bioinformatics, Genomics and Synthetic Biology. The above reflects the high quality of teaching activities of Assoc. Prof. Dr. Penchovski. Assoc. Prof. Dr. Penchovski's past work also includes significant organizational work, which must be noted: his participation in the editorial board of the journal EC Microbiology, participation in the jury in 2 competitions for Ch. assistant professor and 2 competitions for associate professor, drafting reviews of 21 project proposals and reviews of scientific publications for a number of international refereed journals.

The above facts from the teaching and organizational activity of Assoc. Prof. Dr. Penchovski show that he is actively working to raise the quality of teaching and the prestige of the Faculty of Biology at Sofia University "St. Kliment Ohridski ". Assoc. Prof. Penchovski has extensive and successful experience and proven capacity to teach and lead the work of undergraduate and master's students and PhD students in the field of molecular and synthetic biology and bioinformatics, which is mandatory and of high importance for the academic post of 'Professor' in this competition.

3. Critical comments and recommendations

I have known Assoc. Prof. Penchovski for almost 10 years and I have personal positive impressions of his research activity, vigor, broad scientific knowledge and as a researcher always looking for new scientific challenges. I have no critical remarks on the submitted application of Assoc. Prof. Dr. Penchovski for the occupation of the academic position of "Professor" at Sofia University "St. Kliment Ohridski ".

Conclusion:

After reviewing and analyzing the materials submitted to me in the competition, I consider that:

/1/ I'm convince Dr. Robert Dimitrov Penchovski's application is fully compliant with the

requirements of the ZRASRB and the requirements specified in the Regulations of Sofia University “St. Kliment Ohridski”;

/2/ I give an excellent assessment of the overall research, teaching and organizational activities of Assoc. Prof. Dr. Robert Penchovski;

/3/ I believe that the research profile and teaching experience of Assoc. Prof. Dr. Robert Penchovski fit in well and will contribute significantly to improving the quality and effectiveness of the overall research and teaching activities at the Department of Genetics and the Faculty of Biology at the Sofia University St. Kliment Ohridski ”as a whole.

In view of the above, I strongly recommend to the Scientific Jury, that Assistant Professor Dr. Robert Dimitrov Penchovski be selected as "Professor" in the field of higher education: 4. Natural Sciences, Mathematics and Informatics, Professional Degree: 4.3. Biological Sciences, scientific specialty 'Genetics - Molecular Genetics, Bioinformatics and Synthetic Biology' at the Faculty of Biology at Sofia University “St. Kliment Ohridski”.

27. 03. 2020
Sofia

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Prof. DSc Ivan Atanassov