

EXPERT OPINION

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RE: Competition for occupancy of the academic position “Professor” in the Professional area 4.3. Biological Sciences; Specialty “Genetics – Molecular Genetics, Bioinformatics and Synthetic Biology” for the needs of the Genetics Department at the Faculty of Biology of the Sofia University “St. Kliment Ohridski”, State Gazette No. 93/26.11.2019

Applicant: Assoc. Prof. Robert Dimitrov Penchovsky, PhD

Expert: Prof. Roumyana Mironova, PhD, IMB –BAS

By Order No ПД38-58/20.01.2020 of the Rector of Sofia University “St. Kliment Ohridski ” I have been appointed a member of a scientific jury in a competition for the occupation of the academic position of Professor in the Department of Genetics at the Faculty of Biology of the same university. For participation in the competition has applied only one candidate - Dr. Robert Dimitrov Penchovsky, Associate Professor at the same department. The applicant has submitted all the documents (including supporting documents) required by the Act for the Development of the Academic Staff in the Republic of Bulgaria (ADASRB), the Regulations for its implementation and the relevant Rules of the Sofia University, including a criminal record certificate, a medical certificate, a declaration under Art. 115, para. (1), item 5 and a certificate of seniority in the specialty lasting 13 years, 3 months and 19 days.

Brief CV of the applicant

Dr. Penchovsky obtained a Master's Degree in Biochemistry and Microbiology with a major in Genetics in 1994 from the Sofia University, and in 1995 he obtained a second major in Applied Informatics from the Free Faculty of the same university. He holds a PhD in Genetics from the University of Cologne since 2003, and this scientific degree was approved by the Higher Attestation Committee of the Council of Ministers of the Republic of Bulgaria in 2009. From 2003 to 2006 he was post-doctoral student in the Department of Molecular, Cellular Biology and Developmental Biology at Yale University (USA). From 2007 to 2010 Dr. Penchovski was a scientific consultant in various foreign biotechnology companies, in 2010 he occupied the academic position of "Chief Assistant" in the Department of Genetics at the Sofia University, and since 2013 he is Associate Professor in the same department. In 2015 Dr. Penchovsky was awarded the Union of Bulgarian Scientists Award for Excellence.

Publications and citations

Assoc. Prof. Penchovski takes part in this competition with a total of 25 publications in which he is the lead author (first or last), which points to his key role in the scientific research. The number of his articles in international scientific publications is 14 with a **total impact factor of 39** with half of them (7/14) having **quartile Q1**. The applicant's list of publications includes also a monograph with an ISBN that represents an English version of his PhD dissertation (recognized by the National Centre for Information and Documentation (NACID) as an eligible item; see the appended correspondence). In addition, the applicant's publication list contains four chapters of books issued by prestigious publishers such as Springer and Elsevier, one Bulgarian patent issued, one international patent application and four abstracts of presentations at scientific meetings. The abstracts will not be taken into consideration in my opinion as no evidence of their publication as full text articles has been

provided. In this regard, I would like only to mention that Assoc. Prof. Penchovski has participated in a total of 27 scientific forums, in 17 of which since 2013, *i. e.* after he became Associate Professor. According to Scopus, the citations of all publications of the applicant are 349, 30 of which are included in his assets for the academic position of Associate Professor in the NACID's register.

Projects and teaching

Since 2013 Dr. Penchovsky was the Principal Investigator of 8 research projects, three of them financed by the Science Foundation of the Republic of Bulgaria (NSF) and 5 by the Research Fund of the Sofia University at a total amount of BGN 340 600. He was also a team member of 4 joint projects between the European Union and NSF, and of one funded by the Sofia University. The applicant's teaching activities include the training of bachelors, masters and doctoral students and the pursuit of postgraduate courses. Dr. Penchovsky is a holder of a Molecular Genetics course for BSc in Molecular Biology, and of a Bioinformatics course for BSc in Agrobiotechnology. He also takes part in 12 MSc Programs by teaching full-time and part-time students, and non-specialists as well in Bioinformatics and Molecular Evolution, Synthetic Biology and Genomics. In these latter three disciplines Dr. Penchovsky trains also PhD students with a major in Genetics. His postgraduate courses in "Modern Biology: Bioinformatics, Genomics and Synthetic Biology" include the following four disciplines - Methods in Bioinformatics, Methods in Synthetic Biology, Genomics and Molecular Genetics. The average annual academic load of the applicant for the last 5 years was 497.94 hours, of which 375.6 hours were classroom work. Since 2011 Dr. Penchovsky has been the supervisor of 16 MSc students from 5 nationalities. He was also the head of two more students, who already got their PhD degrees. Currently, Dr. Penchovsky is the scientific advisor of two ongoing PhD programs and of two PhD programs that were canceled by keeping the right to be completed in the near future.

Contributions

The applicant's major contributions relate to the following three areas of research - Bioinformatics and Molecular Evolution, Molecular Genetics of Bacteria, and Synthetic Biology. The applicant co-authored the first algorithms for computer design of allosteric ribozymes, all of them being synthesized and tested experimentally *in vitro*. He has contributed to creation of the first allosteric ribozyme that records the length of RNA molecules. Applicant's main contributions in the field of the Molecular Genetics of Bacteria relate to the study of the newly discovered gene expression control elements called riboswitches, which are promising for the development of new antibacterial drugs. In this regard, Dr. Penchovsky examined the general distribution, structure and function of 28 riboswitch classes by applying the modern antisense technology to pathogenic bacteria that are of interest to the World Health Organization. The applicant has also participated in the development of high-performance biochemical tests for discovery of new antibiotics and in the design and development of microreactors that work as DNA-based computers. These microreactors are applicable in the selection of DNA molecules, in the development of new methods for DNA sequencing and SNP analysis, and in the molecular diagnostics as well.

Compliance with the minimal national criteria

Dr. Penchovsky has presented a detailed report on the compliance of his activities with the minimal national criteria for occupancy of the "Professor" position. This report shows that he meets the national and those of the Sofia University requirements for that position and exceeds them by some indicators. Of the 4 articles presented, each with quartile Q1, equivalent to a habilitation work (group of indicators B), he gets the required minimum

of 100 points. The publications in group G cover a total of 229 points with a minimum of 200 points required. Of note, since a published international patent application (15 points) has been submitted instead of a document certifying that the patent has indeed been protected (25 points), I think that the total number of points in Group G should be reduced by 10 points, *i. e.* to become 219. Note that in this way the total number of points in Group G will still remain above the minimum threshold of 200 points. The citation points (group D) of Dr. Panchovsky amounting 638 significantly exceed the minimum threshold of 100 points. According to the indicators of group E, the candidate earns a total of 265.2 points, mainly from his project and teaching activities, with a minimum of 150 points required in this group.

CONCLUSION

The analysis I made reveals that the candidate covers, and in some aspects exceeds, the minimal national criteria for occupying the academic position of "Professor", and that he fully fulfills the terms and conditions for taking up this position at the Sofia University. His contributions have been published in peer reviewed international journals and have significantly impacted the scientific community. Dr. Penchovsky has extensive experience as a lecturer and supervisor of graduates and PhD students, which makes him a valuable member of the Genetics Department staff. That is why I find it quite reasonable to recommend the Faculty Council at the Faculty of Biology of Sofia University "St. Kliment Ohridski" to vote for the election of Dr. Robert Dimitrov Penchovsky at the academic position "Professor" in the Professional area 4.3. Biological Sciences; Specialty "Genetics – Molecular Genetics, Bioinformatics and Synthetic Biology".

March 27, 2020
Sofia

Prof. R. Mironova