



OPINION

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of the materials presented for the participation in a contest for

„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)

The contest for “Professor” in the field of higher education: 4. „Natural sciences, mathematics and informatics”, professional field: professional field: 4.3. Biological sciences; scientific specialty „Genetics“ (molecular genetics, bioinformatics and synthetic biology) has been announced for the needs of the Department of “Genetics” in BF of SU “St. Kliment Ohridski” in PN № 93/26.11.2019 r. The **only candidate** in the contest is associate professor Robert Dimitrov Penchovsky, PhD. At the moment he is working in the same department.

1. General presentation of the received materials

Just from the beginning I would like to underline that the represented by associate professor Robert Penchovsky, PhD materials on an electronic holder are completely **in compliance** to the Regulation for development of the academic structure of **SU “St. Kliment Ohridski”**, LDASRB and the regulation for its implementation and **correspond** to the criteria of the Faculty of Biology for the tenure of the academic position “Professor”.

Associate professor Pechovsky has represented 48 scientific papers distributed as follows – 27 scientific papers published in prestigious journals, 1 book, 7 chapters of monographies, 8 reports in scientific forums, 4 patents, one dissertation thesis, 27 participations in national and international forums. All of the represented scientific papers are related to the subject of the contest. By the Scopus data the represented papers are cited 349 times, the total IF is 126.49, h-index -10.

In the contest for professor, associate professor Penchovsky participates with 25 scientific papers: 14 in periodic journals, 1 book, 4 chapters of monographies, 4 reports of scientific forums, 2 patents /1 Bulgarian and 1 international/. On all of the publications the candidate is a leading author – first or last. Five of the represented scientific papers are resumes and posters that gives the reason not to be considered as entire publications. The book represents a material based on the dissertation thesis for the PhD degree and there is not a noticed publisher but just an ISBN number and I think that its consideration as a paper separated by the dissertation thesis is inconvenient. The Scopus report indicates that these papers have 319 citations and IF – 39.

Regarding the documentation, it is prepared very good and understandable.

2. Short biographical data

Associate professor Penchovsky has an experience of 14 years and 4 months, **13 years and 3 months of which in the field of the specialty**. He has been working in the Faculty of Biology of SU “St. Kliment Ohridski”, the department of Genetics since 2010. He is born in 1971, in 1994 graduates the specialty “Biochemistry and microbiology”, specialization “Genetics”. In 1995 he receives an additional qualification “Applied informatics” in the Free faculty of SU. After that the academic development of assoc. prof. Penchovsky continues with the elaboration of a PhD thesis in the Institute of Genetic in Cologne

University (Germany). Since 2010 he has the academic position of an assistant professor and in 2013, after a successfully gained contest, he becomes an ASSOCIATE PROFESSOR in Genetics, synthetic biology and molecular evolution in the department of “Genetics” in the Faculty of Biology.

All this academic development indicates that the candidate is a young, able, fast developing and maturing professional who works in one of the most priority and fast developing fields of the contemporary BIOLOGY.

3. Assessment of the scientific papers and the scientific contributions

Giving points to the scientific papers with which the candidate participates in the contest:

- Indicators of group A: dissertation thesis - **50 p.**
- Indicators of group B: habilitation paper – **100 p.**
- Indicators of group C: publications in Q1 – 75 p.; publications in Q4 – 24 p.; published book based on a dissertation thesis – 20 p.; chapters of books – 60 p.; inventions – 50 p. Total: **229 p. /after the correction of the book on the dissertation thesis without a publisher/ - Total - 209 p.**
- Indicators of group D: cited papers – **638 p.**

4. Scientific contributions

The scientific contributions of the candidate are thoroughly in the field of genomics, synthetic biology and the bioinformatics. All of them are new and exclusively fast developing branches of the BIOLOGICAL SCIENCE. Shortly and considered by their essence:

Associate professor Penchovsky successfully adapts basic data bases for studying the nucleic acids to PHP-based server that provides useful instruments for various analyses with useful interface. He creates a RSwitch data base, with a full description of 215 bacterial riboswitches of 16 different species, found in 50 pathogenic species of bacteria.

Based on the available data base with his inclusions, assoc. prof. Penchovsky examines the distribution, the structure and the function of 28 different classes riboswitches in bacteria, regulating the gene expression in four different mechanisms on important for the synthesis of main metabolic gens. The studies are directed to the development of new antibacterial means against resistant to antibiotics bacteria. Such means are the bacterial riboswitches. For the identification of promising riboswitches, assoc. prof. Penchovsky and his team conduct experiments with eight riboswitches in genomes of pathogenic bacteria and classify them in four groups regarding their application. These elaborations are protected with one international and one national patent.

Associate professor Penchovsky creates 6 new WEB based platforms for molecular-biological studies including a DNA/RNA translation, an amino-coded transformer, a virtual PCR analyzer, a determination of protein hydrophobicity, a reverse protein translator and a browser for open reading frames in eukaryotic genomes.

He creates an automated system for a DNA transfer with mobile superparamagnetic microspheres between two divided in the space solutions with different pH values. It has an application in the elaboration of DNA microchips, the functional screening of nucleic acids, the screening of chemical libraries, the amplification and the sequencing of DNA and others. The elaborations of associate professor Penchovsky about the creation of new genomes and the application of the plant biotechnologies as a future source of recombinant proteins with a pharmaceutical significance are interesting.

5. Teaching activity

The candidate for professor has a significant teaching activity in the three educational degrees – Bachelor, Master and Doctor. The average total tuition hours is around 550. He is an author and leads the following courses:

Bachelor's degree programs – Specialty “Molecular biology” – the course “Molecular genetics” and for the specialty “Agrobiotechnologies” – the course “Bioinformatics”.

Master's degree programs – the courses for the master programs “Genetics and genomics” and “Genetic and cellular engineering” – “Bioinformatics and molecular evolution”, “Synthetic biology” and “Genomics”.

PhD programs – author and leader of the courses “Bioinformatics and molecular evolution”, “Synthetic biology” and “Genomics”.

Associate professor Penchovsky participates in the education of PGQ with the authorship and the leading the course “Contemporary aspects of the biology, bioinformatics, genomics and synthetic biology”. The candidate is especially active in the education of graduating master and PhD students. To the moment of the delivery of the documentation for the contest associate professor Penchovsky has **been a scientific advisor of 16 successfully graduated master student from 5 different nationalities, 2 successfully graduated PhD students, 2 with completed education and right for thesis defense and 3 regular PhD students at the moment.** He was a scientific advisor of 4 students in a postgraduate qualification in the field of “Contemporary aspects of the biology, bioinformatics, genomics and synthetic biology”.

The contribution of this activity for the execution of the minimal national requirements in article 2b of LDASRB, indicators of group E, is 100 p. (for successfully graduated PhD students) and I highly appreciate his contribution for the development of these fields in the FACULTY OF BIOLOGY.

6. Scientific projects and administrative activity

Associate professor Penchovsky has been a coordinator of 8 projects and a participant in the team of 6. The total value of the gained funds by the projects that he coordinates is 326 000 BGN that brings him total 165.2 p. (indicators of group E) according to article 2b of LDASRB.

Since 2012 he has been a head of the master program “Genetics and genomics” for specialists, for non-specialists, regular and by correspondence, in Bulgarian and in English. He is a head of the laboratory for molecular biology that is building in the Center of competence “Clean technologies for sustainable environment – waters, waste, energy for circular economy”. He receives the award of UNB for high scientific achievements for 2012-2014. He is a member of the editorial panel of the journal EC Microbiology.

7. Critical notes and recommendations

My recommendation to the future Professor is to be more precise in the work with scientific and administrative documentation. In the prepared report for the minimal requirements the order of the different scientific products and their assets by points would be better to be represented in a table in comparison and based on the referent values.

8. Personal impressions

I know associate professor Penchovsky since his entrance on work in the Faculty of Biology. During the years I could clearly see its professional and worldly development and maturing and I think that he has **the courage, the professional preparation, will and sustainability** to walk a long way to the creation, practical realization of a wide circle of applicable pharmaceutical and other microbiological products for treatment and detoxification of the human and its environment as well as to pass these skills to the new generation of researchers and creators in the biological science and practice. I WRITE this with CONVINCTION that the present moment is the most suitable and important to be supported THE PREPARED TALENTS IN THE BULGARIAN SCIENCE.

9. CONCLUSION

Based on the analysis of the scientific achievements and the complexness of associate professor Penchovsky as a researcher and a teacher with an established scientific-researching profile and the created scientific group, it could be said that:

Associate professor Robert Penchovsky is an established specialist in the field of **the molecular genetics, bioinformatics and synthetic biology**. In these fields he has published 48 scientific papers in leading international journals and has been cited more than 349 times in the worldwide literature. In the mentioned field he is a popular scientist in Bulgaria and abroad.

The report for the execution of the minimal national requirements indicates that he has 1262 points of the required minimum of 600. Thus, he exceeds double the official criteria of NCID for the tenure of the academic position "PROFESSOR" in professional field 4.3. Biological sciences; scientific specialty "**Genetics**" (molecular genetics, bioinformatics and synthetic biology).

I also highly appreciate his teaching qualities and its ability to create around him a school of highly educated young researchers.

All of this gives me the reason to recommend with conviction to the honored Scientific jury as well as to the SC of the Faculty of Biology of SU "St. Kliment Ohridski" to confer him the academic position "PROFESSOR".

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Prepared the opinion:

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