

REVIEW

From Prof. Krasimira Simeonova Yakimova, MD, PhD, DSc

REGARDING: Procedure of a competition for occupying the academic position "PROFESOR" in the professional field 7.1. Medicine, scientific specialty "Pharmacology", for the needs of the Department "Behavioral neurobiology" at the Institute of Neurobiology at the Bulgarian Academy of Sciences, announced in State Gazette No 10 of 01.02.2019

I present this review as a member of the Scientific Jury, approved by the Scientific Council of the Institute of Neurobiology at the Bulgarian Academy of Sciences (Protocol №4 /28.03.2019) and by Order № 228 /29.03.2019 of the Director of INB-BAS. For the participation in this competition, documents were submitted by the only candidate Lyubka Pavlova Tancheva, Ph.D., from the Institute of Neurobiology at the Bulgarian Academy of Sciences.

Associate Professor Dr. Lyubka Tancheva has submitted all the necessary documents according to the Law on the Development of the Academic Staff in the Republic of Bulgaria (ZRASRB) and the Regulations for the implementation of the ZRASRB, as well as the Regulations on the Terms and Procedure for Acquisition of Academic Degrees and the Acquisition of Academic positions at the Institute of Neurobiology at the Bulgarian Academy of Sciences (accepted on 05.11.2018 by the Scientific Council of INB-BAS), for taking the academic position "professor".

I. PROFESSIONAL DEVELOPMENT

Associate Professor Lyubka Tancheva graduated with a Master Degree from the Pharmaceutical Faculty of the Medical Academy in Sofia in 1975. She was assistant at the Department of Pharmacology and Toxicology, Faculty of Pharmacy, Medical Academy-Sofia in the period 1976-1987. From April 1987 to 2007, Associate Professor Lyubka Tancheva worked at the Institute of Physiology with the Bulgarian Academy of Sciences (at present Institute of Neurobiology) as a second degree researcher (1987-1988) and first degree researcher (Chief Assistant) (1988-2007).

As a PhD student at the Pharmaceutical Faculty of the Medical Academy-Sofia, Lyubka Tancheva successfully defended a dissertation thesis on "Influence of Hydrocortisone and Deoxycorticosterone on the Activity of Some Drugs Metabolic Enzyme Systems", on the basis of which she was awarded by HAC (since 13.01.1983) the academic degree "Candidate of Sciences" (educational and scientific degree "Doctor").

In 2007, after winning a competition she was awarded s Senior research fellow second degree position (Associate Professor) in Pharmacology, including Pharmacokinetics and Chemotherapy. Since March 1, 2011, she has been an Associate Professor at the Institute of Neurobiology, Bulgarian Academy of Sciences. According to a certificate from INB - BAS (dated March 15,

2019), Lyubka Pavlova Tancheva has a work experience at INB - BAS (Assistant Professor and Associate Professor) for 31 years, 11 months and 13 days. According to an official note (Ex. Number 30 /13.12.2018) from the Faculty of Medicine at the Sofia Medical University, Lyubka Pavlova Tancheva has a working experience in the specialty Farmacology as an Assistant Professor in the Department of Pharmacology and Toxicology for a period of 10 years, 10 months, 20 days.

Assoc. Prof. Lyubka Tancheva is a guest lecturer at Southwest University "Neofit Rilski" - Blagoevgrad (since 2019).

Assoc. Prof. Lyubka Tancheva has working proficiency in English and Russian languages.

Assoc. Prof. Lyubka Tancheva is a member of the Union of Scientists in Bulgaria, Bulgarian Toxicology Society, European Society of Toxicology, International Society of Toxicology, Bulgarian Society of Peptides, and World Christian Doctors Network-Director for Bulgaria.

II. SCIENTIFIC AND RESEARCH ACTIVITY

Assoc. Prof. Lyubka Tancheva participated in the professor's competition with 36 publications (out of 86), of which 25 publications in scientific journals, referenced and indexed in world-known databases (1 in print, attached document) (**18 with an IF**), 8 publications in non-referenced journals and 3 articles in a textbook on pharmacology and toxicology (three editions - 2014, 2017, 2019); 81 participations in 45 scientific forums in Bulgaria and abroad (for the period 2010-2019).

Assoc. Prof. Lyubka Tancheva has presented a list and evidence of a cumulative impact factor from the papers in the professor's competition: **IF = 21.095**.

Assoc. Prof. Lyubka Tancheva has presented a list and evidence of 39 positive citations of the publications in the professor's competition. Quotations of her scientific publications by foreign authors in international science journals with an impact factor show trust in the research community in her research.

1) *Publications in scientific journals, referenced and indexed in world-known scientific databases*

Assoc. Prof. Lyubka Tancheva, PhD, has presented a list and prints of the publications in scientific journals with which she participates in the competition for the academic position "Professor", of which 18 were published in journals with an IF. Assoc. Prof. Lyubka Tancheva's scientific interests and scientific production are focused on studies in several main directions related to: drug design for the selection of biologically active substances; neurobiological and psychopharmacological investigations of newly synthesized analogues on experimental models

of socially significant diseases; experimental approaches for protection and therapy of neurodegenerative diseases with newly synthesized substances and with substances of natural origin; mechanisms of neurodegenerative processes and social exclusion.

The main scientific contributions of Assoc. Prof. Lyubka Tancheva are related to the following:

- Study and identification of: (a) Significant enhancing effects of L-valine peptidomimetics on rodent memory and related correlation in neurotransmitters serotonin and acetylcholine in the brain; (b) Significant analgesic effect and influencing memory and learning in rodents by canavanin and neurotensin analogues as well as new pharmacokinetic and pharmacodynamic data for neurotensin analogues; (c) toxic and cognitive effects of new derivatives of galantamine and amantadine, and their effects on antioxidant and acetylcholinesterase inhibitory activity *in vitro* and *in vivo* (articles №№ 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 14, 25);
- Effects of new valine peptidomimetics (M-6 and P-6) on models of experimental aggression and social isolation in rodents and the effects of a new neurotensin analogue (NT4) on a genetic model of autism (articles №№ 6, 7, 9, 14, 21);
- Original data on neuroprotective and neuromodulatory effects of neurotensin analogues (NT2 and NT4) associated with increased dopamine levels in rat brain with experimental Parkinson's disease model were found; a neuroprotective and therapeutic effect of a novel amantadine analogue (Amantir) with improved neurobiological and biochemical effects on a toxin-induced experimental Parkinson's disease model in rats (papers № 11, 14, 15, 18, 21);
- Investigated and estimated positive effects on the memory functions in rodents with an Alzheimer-type dementia model and improvement of the disturbances in an experimental model of Parkinson's disease in rats, with substances of natural origin (papers № 1, 4, 16, 17, 19, 20, 22, 23);

In-depth studies have been carried out using modern methods to identify new mechanisms involved in the development of neurodegenerative processes in brain structures as well as the link between social isolation and the development of aggressive behavior. It has been shown for the first time that the modulation of memory functions in aggressive animals depends on gender and social isolation of animals, demonstrating the complex interaction between biological, chemical and social factors (articles №№ 6, 7, 9, 11, 15, 16, 17, 18, 19, 21, 23).

2). Monograph

Assoc. Prof. Dr. Lyubka Tancheva presents the monograph "Drug Metabolism and Oxidative Stress in Influenza Virus Infection, Experimental Approaches to Antioxidant Protection", Eagle Publishing House, ISBN 978-619-7424-22-5, 2019, 112 pp.

3). Textbooks

Assoc. Prof. Lyubka Tancheva participates in a Textbook on Pharmacology and Toxicology for medical students, which received three editions:

- Pharmacology and Toxicology, Editors N. Boyadjieva and Kr. Yakimova, First Edition, Medical Publishing House "ARSO", Sofia, ISBN: 978-954-9301-946, 2014 (3 articles).
- Pharmacology and Toxicology, Editors N. Boyadjieva and Kr. Yakimova, Second revised and supplemented edition, MI "ARSO", Sofia, ISBN: 978-619-197-024-7, 2017 (3 articles);
- Pharmacology and Toxicology, Editors N. Boyadzhieva, Kr. Yakimova and R. Nikolov, Third Edition, MI "ARSO", Sofia, ISBN: 978-619-197-039-1, 2019 (3 articles).

4) Scientific activities

Assoc. Prof. Lyubka Tancheva has presented a list and evidences for a total of 81 participations with lectures and posters in 45 congresses as well as symposia and conferences in Bulgaria and abroad for the period 2010-2019.

She has numerous participations or management of research contracts and projects in Bulgaria and abroad.

Assoc. Prof. Lyubka Tancheva has presented a list and evidences for participation in **24 scientific projects**: she has been a participant in 19 national and 2 international scientific projects, and a leader of 3 international scientific projects.

Assoc. Prof. Lyubka Tancheva is a Coordinator of Work Package 4 of the National Scientific Program "Innovative Low-Toxic Biologically Active Systems for Precision Medicine (BioActivMed)", D 01-217/30.11.2018 (2018-2021), Ministry of Education and Science.

Assoc. Prof. Lyubka Tancheva is a Coordinator of INB-BAS under grant D 03/13/2016 with National Fund "Scientific Research" on: "Changes in the composition and thermodynamic properties of brain proteomes in neurodegenerative disorders - connection of exothermic processes in the proteomus with the mechanism of plaque formation ", which attracted funds in the INB amounting to BGN 10,098 (Reference INB outgoing number №307/29.03.2019). Prof. Lyubka Tancheva is also a Coordinator of INB-BAS under Contract №03/08/2016 with National Fund "Scientific Research" on "Galantamine and 4-aminopyridine derivatives containing peptide motif with expected effect on Alzheimer's disease and multiple sclerosis" grant by which BGN 18,000 was invested in INB (Reference INB № 307/29.03.2019).

5) Work with PhD students, graduates and pupils

Assoc. Prof. Lyubka Tancheva is supervisor of one successfully defended dissertation thesis in Pharmacology PhD student (2015 year) and at present is a scientific supervisor of four PhD students in the specialty "Pharmacology" in Department "Behavioral Neurobiology" at INB - BAS. Assoc. Prof. Lyubka Tancheva is supervisor of three graduate students and she has presented a list and proofs for work with five students in the research field.

6) Rationalizations and inventions

Assoc. Prof. Lyubka Tancheva, PhD, has presented copy of the patent application for invention on September 25, 2018 (Patent Office of the Republic of Bulgaria) entitled "Amantadine derivative of antiviral and antiparkinsonian activity", in which she participates as an inventor.

III. ACADEMIC AND TEACHING ACTIVITY

Assoc. Prof. Lyubka Tancheva is an experienced lecturer in Pharmacology and has been teaching pharmacology and toxicology to students at the Pharmaceutical Faculty of Medical University - Sofia for more than 10 years.

As an Associate Professor at the Institute of Neurobiology at the Bulgarian Academy of Sciences, Lyubka Tancheva has been mentoring PhD students (5), graduates (3) and pharmacology circle student groups (5). She has also mentored three students from Sofia University under the Mentor Program 2016.

Assoc. Prof. Lyubka Tancheva, PhD, is a guest lecturer in the Master Program "Biologically Active Substances and Drugs" at SWU "Neofit Rilski" in "Basic Pharmacology and Toxicology" course.

CONCLUSION

On the basis of the complex evaluation of the research activity as well as the teaching work of the only candidate in the competition for the academic position "PROFESOR", I draw the following conclusion:

Associate Professor Lyubka Pavlova Tancheva, PhD, meets the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for the Application of the Academic Staff Development Act for taking the academic position "PROFESOR" as well as the Regulations for the conditions and order for acquiring academic degrees and for taking academic positions at the Institute of Neurobiology at the Bulgarian Academy of Sciences, including Annex №1 (Minimum Requirements of the Institute of Neurobiology, Bulgarian Academy of Sciences, to the scientific and lecturer tactivity of the candidates for acquiring a scientific degree and for occupying academic positions), for occupying the academic position "professor" in field 7. Health and Sport:

Associate Professor Lyubka Pavlova Tancheva, PhD:

- Has been awarded educational and scientific degree "Doctor"
- She holds the academic position "Associate Professor" from 2007;

- She has provided sufficient publications in specialized scientific journals, which do not repeat the articles for acquiring the educational and scientific degree "doctor" and for earning the academic position "Associate Professor"
- Has sufficient work experience required in the Law on the Development of the Academic Staff in the Republic of Bulgaria;
- Meets and exceeds the minimum requirements of the Bulgarian Academy of Sciences, as well as those referred to in the INB-BAS Regulations for the academic position "professor" in the area 7. Health and Sport, according to the groups of indicators (A, B, C, D, E);
- Her scientific indicators are in accordance with the criteria set out in the INB-BAS Regulations for occupying the academic position "PROFESSOR"; she has sufficient number of publications in scientific journals, referenced and indexed in world-known scientific information databases (after obtaining associate professor title), including scientific journals with an impact factor.
- She was the scientific supervisor of a successfully defended PhD student at INB.

On the basis of the assessment of professional development, scientific indicators and teaching work experience, and in accordance with the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Rules for its Application and the Regulations on the Terms and Procedures for Acquisition of Academic Degrees and Academic Positions at the Institute of Neurobiology at the Bulgarian Academy of Sciences, I propose to the Honorable Scientific Jury to award to the associate professor Lyubka Pavlova Tancheva, PhD, the academic title "Professor" in the professional field 7.1. Medicine, Scientific specialty "Pharmacology", for the needs of Department "Behavioral Neurobiology" at the Institute of Neurobiology, Bulgarian Academy of Sciences.

Reviewer:

Prof. Krasimira Simeonova Yakimova, MD, PhD, DSc