OPINION

in the field of higher education **4. "Natural Sciences, Mathematics and Informatics"**,
professional field **4.3. "Biological Sciences"**,
scientific speciality **"Molecular Biology"**,
for a competition for the academic position of "**Associate Professor**"
for the needs of the **Department of Gene Expression Regulation**
at the Institute of Molecular Biology "Acad. Roumen Tsanev" – BAS,
announced in State Gazette No. 66 of 12.08.2025.

AUTHOR OF THE OPINION

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appointed by Order No. 169-OB/01.10.2025 of the Director of IMB-BAS

GENERAL PART

In the competition for the academic position of "Associate Professor" in the "Regulation of Gene Activity" section at the Institute of Molecular Biology "Acad. Rumen Tsanev" – Bulgarian Academy of Sciences, there is only one candidate – Chief Assistant Dr Rositsa Georgieva Tsekovska. The candidate has submitted the complete set of documents required by the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB), the Regulations for its Implementation, and the internal rules of IMB-BAS. All materials comply with the administrative and scientific criteria for participation in a competition for the academic position of "Associate Professor" and have undergone verification for administrative accuracy.

The submitted documentation is comprehensive and includes: a list of scientific publications after obtaining the PhD degree, copies of all works with which the candidate participates in the competition, a list of citations, a report on scientific contributions, a report on project activity, information on student training, and participation as a consultant in the preparation of graduates' theses. The scientific works submitted as the habilitation thesis do not duplicate materials from the dissertation and are entirely consistent with the thematic focus of the competition.

BRIEF BIOGRAPHICAL INFORMATION

Chief Assistant Professor Dr Rositsa Georgieva Tsekovska was born in 1976 in Sofia. She graduated with a degree in Chemical Engineering from the University of Chemical Technology and Metallurgy (1999) and, in 2005, defended her PhD thesis titled *"Non-enzymatic glycosylation of proteins in Escherichia coli"*, earning the educational and scientific degree "Doctor" in Molecular Biology at the Institute of Molecular Biology "Acad. Roumen Tsanev" – BAS. Her professional career has been entirely connected to IMB-BAS, where she has successively held the positions of chemical specialist, research associate, and chief assistant in the Department of Gene Expression Regulation. Her scientific work includes planning and executing research projects, participating in national and international programmes, actively engaging in scientific forums, and maintaining a continuous publication record.

Dr Rositsa Tsekovska is a molecular biologist with a specific research profile in the study of glycation and deglycation processes, the biochemical mechanisms of ageing, the molecular pathophysiology of diabetic nephropathy, and diagnostic biomarkers of metabolic diseases. She maintains active international collaborations and works closely with leading European research institutions, including within major Horizon 2020 consortia. Her scientific profile integrates classical biochemical and molecular biology methods with advanced analytical approaches for studying advanced glycation end-products (AGEs), enabling the development of new diagnostic strategies and innovative therapeutic concepts.

ORIGINAL SCIENTIFIC CONTRIBUTIONS

The scientific output of Chief Assistant Prof. Dr Rositsa Tsekovska is notable for its volume, originality, and clear thematic consistency, centred on the molecular mechanisms of glycation and deglycation and their relevance to cell biology, ageing, and the pathophysiology of metabolic disorders. She works in one of the most complex areas of modern biochemistry, the study of non-enzymatic protein modifications and their biomedical implications. Among her significant contributions is the first demonstration of endogenous glycation of recombinant human interferon-gamma expressed in *E. coli*, accompanied by evidence that this modification leads to significant structural alterations, reduced biological activity, and increased immunogenicity. She further identifies the accumulation of advanced glycation end-products as a potential biochemical marker of cellular ageing and contributes to the creation of a unique collection of monoclonal antibodies against AGEs with considerable research and diagnostic value. In addition, Dr Tsekovska validates the anti-glycation properties of several biologically active compounds and describes the mechanistic links between oxidative stress and protein glycation, offering insights essential for refining diagnostic strategies for metabolic disorders.

In parallel with her fundamental research, Dr Tsekovska has developed a strong interdisciplinary line of work focused on scientifically grounded approaches for grouping, risk assessment, and regulatory management of nanomaterials, including the integration of the Safe(r) by Design concept. This activity combines molecular, biochemical, and regulatory perspectives. It supports the standardisation of methodologies for the safe and sustainable application of new materials, an area of increasing significance for contemporary nanotechnology.

SCIENTOMETRIC INDICATORS

The scientometric indicators of Chief Assistant Prof. Dr Rositsa Tsekovska convincingly demonstrate high research productivity and a stable presence within the international scientific community. According to the official report, the **candidate accumulates 838 points, significantly exceeding the minimum requirements of 400 points under the national criteria and 430 points under the IMB-BAS criteria**, nearly doubling the threshold for the academic position of Associate Professor. In detail, she fully meets **Indicator A with 50 points** for the defended dissertation, obtains **107 points under Indicator B** for her habilitation work (with a requirement of 100), and achieves **225 points for Indicator G**, surpassing the minimum threshold of 220 points for publications and monographs. Notable as well are the **336 points under Indicator D**, resulting from 168 citations in international scientific databases, along with her strong presence in project activity, evaluated at **120 points under Indicator E**.

These quantitative parameters are accompanied by high-quality scientific output, including publications in prestigious Q1 and Q2 journals such as *Biomedicines*, *Journal of Biological Chemistry*, *Nature Protocols*, *NanoImpact*, and *International Journal of Biological Macromolecules*.

In parallel, Dr Tsekovska demonstrates strong project involvement, serving as principal investigator of two national projects and participating in two major international consortia, further underscoring her scientific maturity and integration into the international research landscape. In the field of education, she contributes through the supervision and consulting of diploma work at Sofia University. Although teaching is not a central requirement at BAS, the candidate fulfils this component, completing her overall academic profile.

CONCLUSION

Chief Assistant Prof. Dr Rositsa Georgieva Tsekovska presents a scientific portfolio distinguished by high originality, international recognition, and significant project activity. Her research in glycation, biomarkers, bacterial biochemistry, and molecular pathophysiology is timely, innovative, and applicable to medicine and biotechnology. Her scientometric indicators far exceed both national and institutional requirements, while her project and publication achievements demonstrate sustainable development and a clearly defined scientific identity.

On this basis, **I respectfully recommend that the esteemed Scientific Jury vote positively** for the election of **Chief Assistant Prof. Dr Rositsa Georgieva Tsekovska** to the academic position of **Associate Professor** in professional field **4.3. Biological Sciences**, speciality **Molecular Biology**, in the Department of Gene Expression Regulation at IMB–BAS.

I wish the candidate academic success and creative inspiration.

Sofia, Bulgaria

16th Nov. 2025

Prepared by: _____

/Prof. Milena Georgieva, PhD/