
First Winner of the MolBioS Award

Gordana Matić: distinguished dedication, constancy and motivation

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Professor Gordana Matić was born in Belgrade, where she finished primary school and graduated from the 5th Belgrade Gymnasium. She was a student of the first generation of the Molecular Biology and Physiology group at the then Natural Sciences Faculty of the University of Belgrade. She graduated in 1977, completing her MSc in 1984 and her PhD in biological sciences in 1990.

Professor Matić began her prolific scientific research in the Institute for Biological Sciences “Siniša Stanković” in Belgrade in 1976. Throughout her scientific career, she has remained true to the Institute, where she became Head of the Biochemistry Department in 1998. She achieved the highest academic position of Principal Research Fellow in 2001. Just as she has remained true to the Institute, she has shown the same dedication to the main field of her research – molecular endocrinology. She also expanded her research into the field of biological psychiatry, nutritional biochemistry and the molecular biology of the cell. Gordana Matić’s scientific work has concentrated on the study of the molecular mechanisms of the action of glucocorticoid hormones, with a focus on examining the structure and function of glucocorticoid receptors. The importance of the experiments in which she examined the various modifications of the DNA-binding domain on the glucocorticoid receptor and manipulations of the DNA-binding activities of this transcriptional regulator is supported by the results published in several prestigious journals. She was also one of the pioneers in the study of the importance of the molecular interactions of the glucocorticoid receptor with heat shock proteins. Her later work was aimed at elucidating the role of the signaling pathway of glucocorticoid hormones in the pathogenesis of human metabolic and psychiatric diseases. The results of this research clearly showed the importance of posttranslational modification of the glucocorticoid receptor in the regulation of the stress response and the development of depression. The study of metabolic disorders has shown that glucocorticoid hormones also play a very important tissue-specific role in regulating the expression of a large number of genes involved in the metabolism of fats and carbohydrates. Gordana Matić’s

work in the field of steroid receptors was greatly influenced by her time spent in the laboratory of Professor William B. Pratt at the Department of Pharmacology, University of Michigan Medical School, Ann Arbor, MI, USA. As an outstanding researcher, Professor Pratt was the first to definitively document the role of heat shock proteins in steroid receptor-binding activity, transformation and nuclear translocation, which was the benchmark result in the field of steroid receptor research and has since been shown to be the mechanism for intracellular transport of other receptors, growth factors and proteins. During her time in Professor Pratt’s laboratory, Gordana Matić studied the redox regulation of glucocorticoid receptor function, which at the time represented a completely new aspect in steroid receptor research.

The scientific work of Gordana Matić is documented in a prolific bibliography comprising over 100 papers in international scientific journals (ResearcherID: N-7134-2014). In 60 of these papers, she is either the first or the last author. The highlights of her bibliography are scientific journals such as the *Journal of Biological Chemistry*, *Journal of Steroid Biochemistry*, *Biochimica et Biophysica Acta*, *Psychoneuroendocrinology*, *Journal of Affective Disorders*, *Progress in Neuro-Psychopharmacology* and *Biological Psychiatry*, *Molecular Medicine*, *Journal of Nutritional Biochemistry* and *British Journal of Nutrition*. According to the database Scopus (Author ID: 7004010397), Gordana Matić has been cited over 650 times and her h-index of 14. In addition to this, she is the author of 4 book chapters as well as 3 review papers. To date, she has been invited to give 13 lectures at scientific meetings, and is the author of more than 50 presentations at international and national meetings.

Gordana Matić has managed two research projects in fundamental research: “Modulation of glucocorticoid receptor function during cellular stress response” (#1654 from 2002 to 2005) and “The expression and function of glucocorticoid receptor and heat shock proteins in pathophysiological states and stress” (#143003 from 2006 to 2010). At the moment, she is heading a project of integral interdisciplinary research titled “The role of steroid hormones in neuroendocrine adaptation to stress and pathophysiology of metabolic syndrome – molecular mechanisms and clinical implications” (#III41009), financed by the Ministry of Edu-

cation, Science and Technological Development of the Republic of Serbia. In the period 2004–2008, as chief researcher she took part in the international project “Psychobiology of posttraumatic stress disorder (PBPTSD)”, financed by the European Commission’s Framework Program 6 (FP6-2002-INCO-WBC-1-509213). Research within this project involved cooperation with laboratories in the Netherlands, UK, Italy and Croatia. She was also head of a bilateral scientific project entitled “Interactions between stress and dietary fructose in the development of the metabolic syndrome: role of glucocorticoids”, which was funded by the Swiss National Science Foundation. Under this project, a scientific collaboration was realized with the laboratory of Professor Luc Tappy of the Institute of Physiology of the University in Lausanne (SCOPES IZ73Z0_152331). Professor Tappy is considered one of the biggest names in the field of nutritional biochemistry, and his works, with an h-index of 60, have been cited over 13,000 times. Thanks to this collaboration with Professor Tappy, Gordana Matić brought to Serbia the latest techniques in the kinetic evaluation of substrate metabolism using stable isotope labeling.

In 2002, her scientific endeavors were rewarded by the prestigious Allan Munck Prize, awarded by the Dartmouth Medical School, Department of Physiology, New Hampshire, USA.

Her scientific curiosity and perseverance have been a true motivation for the many young colleagues who have taken their first steps into the world of science under her mentorship. In the course of her 20 years as head of a research group, Gordana Matić has mentored 14 doctoral dissertations, 8 master’s theses and many bachelor and master’s degree works. Alumni of her laboratory are spread over Europe and the United States of America, and currently her laboratory is one of the most dynamic in the country, with eight young scientists and two PhD students. She has an irreplaceable role in further developing and elucidating scientific issues of interest, solving experimental problems and the other challenges that daily scientific research poses to young researchers. Like few other heads of departments, she is involved in the innovative designing and execution of experiments.

Apart from her exceptional scientific career, a large part of Gordana Matić’s professional life is devoted to education of the young. She was a teacher at the Natural Sciences Faculty of the “Svetozar Marković” University in Kragujevac, where, from 1992 to 1995 she held the course “Fundamentals of molecular biology”. She held the same course for students of the Natural Sciences Faculty of the University of Novi Sad. Between 1993 and 1998, she held the Biochemistry II course for students at the Faculty of Chemistry of the University of Belgrade. In addition to these activities, her greatest contribution to academic work was accomplished at her own faculty. She was chosen as assistant professor in 1994, associate professor in 1998, becoming a full professor at the University of Belgrade – Faculty of Biology in 2004. During ALL this

time, she has held the “Fundamentals of molecular biology” course, teaching students about the basic phenomena responsible for the maintenance and expression of the genome.

Wishing to improve her teaching skills, within the framework of the Course Development Program funded by the Austrian NGO, World University Service (WUS), she spent time at the Department of Biochemistry and Molecular Biology, Faculty of Life Sciences, University College London (UCL), London, UK. Here she learnt about the latest trends in the education of students in life sciences, and then successfully applied this acquired knowledge at her own faculty.

Gordana Matić is the author of the first university textbook in the field of molecular biology. In 1996, she published “Essentials of molecular biology” (ISBN 86-7034-024 0), which very quickly became popular with students at the biology and other related faculties. Generations of high-school biology teachers expanded their knowledge thanks to this textbook, which was colloquially known as “the little black book”. However, this is not that only connection Gordana Matić has with high schools. She is the author of a number of biology and biochemistry textbooks for high schools in the Republic of Serbia and Republic of Montenegro. Recognizing the fundamental importance of education in the development of our country, Gordana Matić continues to invest great energy in the education of high-school teachers so that they can introduce younger generations to an interesting and accessible approach to the invisible world of molecular biology. Her seminars aimed at educating teachers are always gladly attended and highly appreciated. Collaboration with colleagues from primary and high schools is not the only way Gordana Matić has influenced the advancement of education in a wider sense. In the period 1998–2003, with a group of colleagues she actively participated in the realization of the program “Environment as a challenge for science, technology and society” within the then very popular Alternative Academic Educational Network (AAEM).

Based on her rich scientific and educational experience, in collaboration with Professor Dr. Dušanka Savić-Pavićević, she published the first part of the excellent three-volume edition “Molecular Biology 1” in 2011 (ISBN 978-86-6157-001-8). With the academician Nikola Tucić (1946–2015), she published the textbook “About genes and people”, which has had a second edition (ISBN 86-83797-03-1 and 86-83797-37-6). Finally, with her colleagues Dr. Ana Đorđević, Dr. Nataša Veličković and Dr. Goran Korićanac, she published the textbook “Molecular mechanisms of signal transduction”. This textbook is intended for students attending the eponymous undergraduate course at the Faculty of Biology.

One of Professor Matić’s special roles was in the designing and establishment of the molecular biology doctoral program which she has managed since its founding in 2006. During these years, she has succeeded in gaining recognition for this program, which the Faculty of Biology implements in collaboration with the Institute for Biological Research

“Siniša Stanković” and the Institute for Molecular Genetics and Genetic Engineering. With her talent for teamwork and collegial respect, she has managed to gather a large number of teachers and scientist who together very successfully execute and promote this program. As a result, it is often cited as an example of the efficient realization of doctoral studies in accordance with the Bologna Process. In addition to her role as program coordinator, she participates in the realization of two courses, Molecular Biology of Cells I and II.

With her inimitable and inexhaustible enthusiasm, Professor Gordana Matić motivates other colleagues, who recognize her rare talent for finding simple and attractive ways for students to comprehend the most complex phenomenon of cell function. This approach to teaching is recognized by the students themselves, who are “infected” by the scientific research “virus”.

As a recognized professor and scientist, she has been elected for membership to numerous professional and scientific bodies, such as the University Council in Belgrade, the Committee for Scientific Degrees, Ministry of Science and Advisory Committee for Biomedicine, Ministry of Education, Science and Technological Development of the Republic of Serbia. She had two mandates as President of the Scientific Council of the Institute for Biological Research “Siniša Stanković”, University of Belgrade, as well as President of Advisory Committee for Biology, Ministry of Science, Republic of Serbia. Additionally, she has been a longtime member of the editorial boards of the local scientific journals, *Journal of Medical Biochemistry* and *Archives*

of Biological Sciences. She is a member of the Serbian Biological Society, the Society of Medical Biochemists of Serbia and the Serbian Biochemical Society.

All those who know Professor Matić personally know that molecular biology is not simply her occupation, but also a lifestyle. Many in our country have read the bestseller “Genome: The autobiography of a species in 23 chapters” by Matt Ridley, unaware that the book was translated into Serbian by Gordana Matić. It is expected that shortly another of her translations will be published – “The evolution of everything: How ideas emerge”, by the same author.

Last but not least, Professor Gordana Matić was one of the founders of the Serbian Society for Molecular Biology (MolBioS). At the inaugural meeting on 8 April 2015, she was chosen to be the first president of the Society. The society is the organizer of the First Congress of Molecular Biologists of Serbia (CoMBoS), which will be held from 20 to 22 September 2017. The CoMBoS will be closed by the ceremonial presentation of the MolBioS Award and a lecture by Gordana Matić entitled: “Historical Perspectives of Steroid Receptor Research”. The lecture will undoubtedly be a pleasure for the Congress participants, as well as an opportunity for those who do not know Gordana Matić to acquaint themselves with her scientific achievements and be convinced of the significant contribution her many years of work have made to the promotion of molecular biology. In awarding the first MolBioS prize to Gordana Matić, very high criteria are set for future winners, chosen from the exceptionally productive scientific society of molecular biologists of Serbia.