

CURRICULUM VITAE

NAME: VLADIMIR R. GLIŠIN

BORN: June 24, 1930, Novi Sad, Serbia



ADDRESS: Institute of Molecular Genetics and Genetic Engineering, Emeritus
Director, Vojvode Stepe 444a, P.O.Box 446, 11001 Beograd, Serbia, vglisin@yahoo.com

EDUCATION: 1956 -Graduate of Chemistry, Faculty of Sciences and Mathematics, University of Belgrade.
1963 -Ph.D. in Biology, Faculty of Sciences and Mathematics University of Belgrade.

PROFESSIONAL and SCIENTIFIC CAREER:

1960 -Research Fellow at the Institute for Biophysics of Macromolecules, Polish Academy of Sciences, Warsaw. Head of the laboratory, prof. David Shugar. 1961-1963 -Research Fellow in the Laboratory of prof. Paul Doty, Chemistry Department, Harvard University, Cambridge, Mass. USA. 1963-1967 - Continued appointment as a Research Fellow in Prof. Paul Doty's laboratory. 1966 -Head, Laboratory of Molecular Embryology, Marine Station, Kotor, Serbia. 1967-1971 -Senior Scientist, Institute for Biological Research, Belgrade, Serbia. 1968 – 1971 -Head, Laboratory of Molecular Biology, Institute for Biological Research, Belgrade, Serbia. 1969-1970 -Visiting Associate Professor, Dept. of Chemistry, Harvard University. 1970 -Senior Foreign Scientist Award, National Science Foundation, USA 1971-1985 - Professor of Molecular Embryology, Center for Multidisciplinary Studies and Faculty of Sciences, University of Belgrade, Serbia 1973-1974 -Visiting Professor, Dept. of Biochemistry, University of New Hampshire. 1975-1977 -Head, Laboratory of Molecular Biology and Embryology, Institute for Nuclear Sciences "B. Kidrič" Belgrade, Serbia. 1983-1992 Director, Affiliated Center in Belgrade, of the UNIDO Center for Genetic Engineering and Biotechnology 1985-1995 -Director, Institute of Molecular Genetics and Genetic Engineering (IMGGE), Belgrade, Serbia. 1986-1992 -Special UNIDO Scientific Adviser for Asia, Africa and Europe for the New Biotechnology. 1988-1990 -Professor of Biochemistry, Faculty of Medicine, University of Kuwait. 1994 -present – Member, Science Advisory Board, Hyseq Inc., Sunnyvale, CA. 1996 -present Emeritus Director IMGGE. 1999-2002 -Vice President of Genomic Biotechnology, Hyseq Inc., Sunnyvale, CA
2000 and 2001 -Member, Peer Review Study Section for Molecular Biology, Ministry of Science and Technology, Athens, Greece

Publications: Over 100 papers in internationally peer reviewed journals Citations: Over 4000 citations in the primary scientific literature

Summary of research work

The contribution to science can be grouped into several research activities

- i) The effects of UV-irradiation on DNA The papers related to the interchain thymine dimer formation in DNA by UV-irradiation and its biological implication. They contributed to the formulation of an important biochemical mechanism whereby damages to DNA could be repaired by the so-called excision-repair mechanism. In one of these papers (BBA, 1962), the term “excision” was first introduced.
- ii) Embryonic development The papers related to the molecular biology of sea urchin early development contributed the concept that the fast cell divisions during early development is enabled by structuralization of presynthesized macromolecular components (mRNA, proteins, histones, mitochondria etc.). At the same time these papers contributed significantly to formulate the concept of stable, long-living mRNA and, hence, a novel concept of gene regulation at the translational level. In subsequent publications of other authors. it was found that the same concept holds for other higher animals as well. These papers have been cited in many books on embryology.
- iii) Hereditary anemias The hereditary anemic Belgrade laboratory b/b rat was a model system for studying regulation of gene expressio at the post-transcriptional level. The disbalance of α -and β -globin mRNAs was partially compensated at the level of polysomes. The disbalance of α -and β -globins involved the engagement of membrane bound Hsp70 at red blood cells. The same phenomenon has been noticed in some human hemolytic anemias.
- iv) The penicillin amidases The publications related to the study of penicillin amidases from Gram negative bacteria was focused on the unusual property of these prokaryotic enzymes to be regulated at the posttranslational level, as well. This unusual regulation characteristic for eukaryotes only may indicate that this gene may have evolved in a higher cell and then in a horizontal transfer, the gene was reintegrated in a bacterium. The expression of two bacterial penicillin amidases expressed in yeast indirectly supports this notion.
- v) The isolation of intact, biologicaliy active mRNA by CsCl centrifugation is still 25 years affer its publication the best method of RNA isolation. It was included in Molecular Cloning: A Laboratory Manual Ed. T. Maniatis, E.F. Fritsch, J. Sambrook. The method allows one to obtain RNA in the simplest possible way. The recovery from all biological specimens is almost absolute. The best cDNA libraries were constructed based on mRNAs isolated by CsCl centrifugation.

Selected list of publications

Hudnik-Plevnik, T V Glisin and M Simic, (1959) Fate of Highly Polymerized Spleen Deoxyribonucleic Acid Labelled with Phosphorous-32 injected Intraperitoneally into Rats. *Nature*, 184, 1818.

Glisin, V. and P. Doty. (1962) The Effect of Temperature on Induction of Interchain Crosslinks by Ultraviolet Irradiation. *Biochim. Biophys. Acta* 6, 458

Glisin, V and M. Glisin, (1964) Ribonucleic Acid Metabolism Following Fertilization in Sea Urchin Eggs. *Proc. Natl. Acad. Sci. USA* 52, 1548.

Glisin, V., M. Glisin and P. Doty. (1966) The Nature of Messenger RNA in the Early Stages of Sea Urchin Eggs. *Proc. Natl. Acad. Sci. USA* 56, 285

Glisin, V. and P. Doty. (1967) The Crosslinking of DNA, by Ultraviolet Radiation. *Biochim. Biophys. Acta*, 142, 314.

Gottlieb, A.A., V. Glisin and P. Doty. (1967) Studies on Macrophage RNA Involved in Antibody Production *Proc. Natl. Acad. Sci. USA*, 57, 1849.

Crkvenjakov, R., N Bajkovic and V. Glisin, (1970) The effects of 5-azacytidine on metabolism of nucleic acids and proteins in sea urchin embryos. *Biochem. Biophys. Res Comm.* 39, 655-660.

Sevaljevic, Lj, S. Ruzdijic and V. Glisin. (1971) The Study of Proteins During Early Stages of Embryogenesis of Sea Urchins by Immunochemical Approach. *W. Roux Archiv* 168, 181

Glisin, V. and A Savic (1971) Informational Macromolecules During Early Development of Sea Urchins, *Prog. Biophys Mol. Biol.*, ed, J.A.W. Butler, Perg. Press 23, 191

Glisin, V., A. Savic, S. Ruzdijic, N. Bajkovic and R. Mileusnic, (1972) Old and New Informational Macromolecules During Early Development of Sea Urchin Embryos *Studia biophysica*. 33, 345.

Ruzdijic, S. and V Glisin (1972) Towards a Total Analysis of Polyribosome Associated Ribonucleoprotein Particles of Sea Urchin Embryos. *Biochim Biophys Acta* 269, 441-449.

Ruzdijic, S., G. Milchev, N, Bajkovic and V. Glisin. (1973) Properties of 24S Particles Isolated from the Cytoplasm of Sea Urchin Eggs. *Biochem. Biophys. Res Comm* 53, 224-230

Trams, EG., C.J. Bouter, G. Koval, S. Ruzdijic and V Glisin. (1974) Plasma Membrane Marker Enzymes in Developing Sea Urchin Embryos. *Proc. Soc Expt. Biol. and Med.* 147, 171.

Glisin, V., R. Crkvenjakov and C. Byus, (1974) Ribonucleic Acids Isolated by Cesium Chloride Centrifugation. *Biochemistry*, 13, 2633

Crkvenjakov, R., S Cusic, I. Ivanovic and V. Glisin (1976) Rat b/b Anemia. Translation of Normal and Anemic Globin mRNA in Wheat Germ Cell-free System *Eur J Biochem.* 75, 85.

Grecco, M., N. Bajkovic, C. Saccone and V. Glisin.. (1977) Mitochondrial RNA Synthesis During the Cleavage Stages of Sea Urchin Embryos. *Bull.Mol.Biol. and Med.*, 2, 145.

Deretic, V., and V. Glisin. (1982) On the Evolution of Sea Urchin Early Histone Genes *Bull.Mol.Biol.Med.* 7, 65.

Crkvenjakov, R., V.Maksimovic and V.Glisin. (1982) A Pool of Nonpolysomal Giobin mRNA in Globin Deficient Reticulocytes of the Anemic Belgrade Rat *Biochem.Biophys.Res.Comm.* 105, 1524.

Crkvenjakov, R, M. Bucan, M. Konstantinovic, M Fogel, A. Savic and V. Glisin. (1984) Characterization of Two Rat Globin cDNA Clones Hemoglobin, 8, 597

Deretic, V., O. Francetic and V Glisin (1984) Instability of Plasmids Carrying Active Penicillin Acylase Gene from E coli: Conditions Inducing Insertional Inactivation. *FEMS Microbiology Letters* 24, 173

Drmanac,R, N Petrovic,V. Giisin and R.Crkvenjakov, (1986) A calculation of fragment lengths obtainable with human DNA with 78 restriction enzymes: An aid for cloning and mapping. *Nucl Acid.Res.*, 14,4691

Glisin, V., A.Savic, R Crkvenjakov S. Ruzdijic, N. Bajkovic-Moskov, (1987) Molecular Biology within Embryology: The Sea Urchin Embryo, in *Self-organizing Systems -The Emergence of Order*, Chapter 14.Yates F E, ed., Plenum Press, New York

Francetic O. and V.Glisin, Bacterial penicillin amidases (1988) *BTF Biotech Forum* 5, 90

Francetic O. and V. Glisin, (1988) Penicillin Amidase-from Basic Science to Commercialisation.*Chimica Oggi*, 4,11

Ajdic. D., G. Jovanovic, V. Glisin, J Hejna, and D. Savic. (1991) Nucleotide Sequence Analysis of the Inversion Termini Located within IS3 Elements of Escherichia coli K12. *J Bacteriol.* 173, 906

Konstantinovic M, V Maksimovic, G. Nikcevic and V.Glisin (1991) Hybrid PLtI Promoter with Dual Regulation Control. *DNA and Cell Biology*, 10, 389-395.

Ljubijankic, G., M. Konstantinovic, and V Glisin, (1992) The Primary Structure of Providencia rettgeri Penicillin G Amidase Gene and its Relationship to other Gram Negative Amidases. *J. DNA Sequencing and Mapping* 3, 195-200.

Knezic, Z., G Nikcevic, N. Marjanovic, V. Glisin and Z Popovic. (1993) Constitutive Interferon Expression from a Retroviral Vector *Antiviral Res* 22, 215-221

Popovic, Z., N. Rajic, S. Savkovic and V. Glisin, (1993) The "b" Mutated Gene in Heterozygous Belgrade Anemic Rat. *Exp. Hematol.* 21, 21-24

Konstantinovic. M., N. Marjanovic, G. Ljubijankic and V Glisin. (1994) The Penicillin Amidase of *Arthrobacter viscosus* (ATCC 15294). *Gene*, 143, 79-83.

Marjanovic, J. S. Savkovic, G. Nikcevic, V. Glisin, Z. Ivanovic, P. Milenkovic and Z. Popovic. (1994) The Disbalance of alfa-and beta-Globins in Anemic Rat Red Blood Cells. *Biochem. Biophys. Res. Comm.* 201: 115-122.

Savkovic.S., S.Pavlovic, T Mitrovic, M. Joksimovic, J. Marjanovic, V Glisin and Z. Popovic. (1996) Molecular Evidence for Increased Hematopoietic Proliferation in Spleen of the b/b Laboratory Rat. *Experientia*,52. 807-811.

Zaric. J., V. Glisin and Z. Popovic. (1998) Evidence for MSP70-like Protein in the RBC Membrane of the Hereditary Anemic Belgrade Laboratory (b/b) Rat *Mol.Cell.:Biochem.* 178,119-125

Zaric, J., D Lazic, V. Glisin, N.Stojanovic, J.Jovcic and Z Popovic (1998) Alfa and β -globins of the Anemic, Belgrade Laboratory (b/b) Rat. 1. Status of α -and β -Globins in Bone Marrow and Spleen Hemoglobin, *22(3)*,217-229

Zaric, J., D Lazic, S Markovic, V. Glisin, Z. Ivanovic, P. Milenkovic and Z. Popovic, (1998) Alfa-and β -Globins of the Anemic Belgrade Laboratory Rat. 2. The Effect of Haemin and Iron-dextran Treatment. *Hemoglobin*, *22(3)*, 231-244

Zaric, J, M. Lusic, A. Djurkovic, V.. Glisin and Z. Popovic. (1998) Hsp70 Protein is Membrane Bound in Red Blood Cells of Human Hereditary Haemolytic Anemias. *Comp Hematol.Int*, 8:205 •209

Djurkovic,A., J.Zaric, M.Lusic, V.Glisin and Z.Popovic (1999) Differences in rat RBC cytosol induced after in vivo phenylhydrazine treatment *Cell Biol.Int.* 23(10) 677-683

Lusic, M., A. Djurkovic, J Zaric, V. Glisin and Z. Popovic. (1999) The Lack of Protein 4.1a in Red Blood Cells of the Hereditarily Anemic Belgrade Laboratory (b/b) Rat. *J Cell.Biochem.*, 75, 56-63

Radoja, S., O.Francetic, N. Stojicevic, I. Moric, V.Glisin, M. Konstantinovic (1999) DNA region responsible for transcriptional regulation of the E.coli penicillin amidase (pac) gene by CRP and PAA:Genetic analysis *Biomolecular Engineering* 15, 235-239

Todorovic, V., N.Skoko, N.Pavkovic, N.Grujicic, J.Zaric, V.Glisin and G.Ljubijankic (2000) Synthesis and secretion of biologically active human β -interferon in *Saccharomyces cerevisiae* *Arch. Biol.Sci* 52, 133-140