



Trends in **Molecular Biology** • Special issue

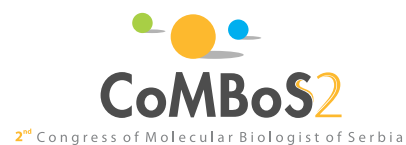
# Abstract Book

## CoMBoS<sup>2</sup>

2<sup>nd</sup> Congress of Molecular Biologist of Serbia

Belgrade • 2023

ISBN-978-86-82679-15-8



**CoMBoS2 – the Second Congress of Molecular Biologists of Serbia,  
Abstract Book – Trends in Molecular Biology, Special issue**

06-08 October 2023, Belgrade, Serbia

**Online Edition**

<https://www.imgge.bg.ac.rs/lat/o-nama/kapacitet-i-oprema/istrazivacka-delatnost>

<https://indico.bio.bg.ac.rs/e/CoMBoS2>

**IMPRESSUM**

PUBLISHER:

**Institute of Molecular Genetics and Genetic Engineering (IMGGE),  
University of Belgrade**

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Belgrade, 2023

ISBN 978-86-7078-173-3

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## DETECTION OF GENOMIC INSTABILITY IN MALIGNANT BRAIN TUMORS

Nejla Ademović,<sup>1</sup> Nasta Tanić,<sup>2</sup> Tijana Tomić,<sup>2</sup> Blagoje Murganić,<sup>2</sup> Marina Milić,<sup>3</sup> Nikola Tanić<sup>1</sup>

<sup>1</sup>*Institute for Biological Research "Siniša Stanković", University of Belgrade, Belgrade, Serbia;*

<sup>2</sup>*Institute of Nuclear Science "Vinča", University of Belgrade, Belgrade, Serbia;*

<sup>3</sup>*Clinic for Neurosurgery, Clinical Center of Serbia, Belgrade, Serbia*

**Introduction:** Astrocytoma and glioblastoma are the most aggressive type of brain tumor. Glioblastoma *IDH* wild-type is a primary tumor which develops *de novo*, while Astrocytoma *IDH* mutant progresses from lower grade tumors. They are characterized by high heterogeneity and resistance to therapy which develop as a consequence of accumulation of mutations that lead to genomic instability.

**Methods:** We analysed genomic instability in 66 patients with malignant brain tumors using arbitrarily primed PCR as DNA profiling method. Comparing DNA profiles of tumor and normal (blood) tissues, we detected quantitative and qualitative differences. Quantitative differences are represented by different band intensities and correspond to chromosomal instability (CIN). Qualitative changes seen as band shifts represent microsatellite instability (MIN). We correlated frequencies of genomic instability with tumor grade and histopathological data.

**Results:** In patients with Glioblastoma *IDH* wild-type, percentages of high total genomic instability, MIN and CIN were 65%, 32% and 57%, respectively. In patients with Astrocytoma *IDH* mutant, percentages of high total genomic instability, MIN and CIN for grade 3 were 45%, 36% and 72%, respectively while they were 40%, 40% and 40%, for grade 4. In patients with NOS (not otherwise specified glioblastoma) percentages are 50%, 50% and 70%, respectively.

**Conclusion:** Our results show that Glioblastoma *IDH* wild-type and Astrocytoma *IDH* mutant grade 3 have higher genomic instability, while it is lower in Astrocytoma *IDH* mutant grade 4. These results are in line with evolutionary theory of origin of cancer. Genomic instability in NOS tumors could be used as a prognostic marker.

Key words: Astrocytoma; Glioblastoma; genomic instability; DNA profiling

Acknowledgements: This study was supported by the Ministry of Education, Science and Technological Development of Republic of Serbia (Agreement no. 451-03-68/2022-14/200007).