Marius I. Mihăşan, PhD

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2004 - 2006	Junior researcher, Albert-Ludwigs-University Freiburg
2006 - 2009	PhD thesis on the role of several genes from the catabolic megaplasmid pAO1 of *Arthrobacter nicotinovorans* in the lab of Prof. Dr. Roderich Brandsch, Albert-Ludwigs-University, Freiburg and prof. Dr. Vlad Artenie, Alexandru Ioan Cuza University of Iasi
2004 - 2009	Junior researcher at the Institute for Biological Research, Iaşi, Romania
2009 - 2013	Assistant lecturer at the Faculty of Biology, Alexandru Ioan Cuza University of Iasi
2010 - 2012	Postdoc, Laboratory of Molecular and Experimental Biology, Faculty of Biology, Alexandru Ioan Cuza University of Iasi, project PD No. 337
2013 - 2016	Assistant Professor at the Faculty of Biology, Alexandru Ioan Cuza University of Iasi
February – July 2017	Fulbright Research Fellow, Darie Biochemistry & Proteomics Group, Clarkson University, NY, USA
2016 - 2019	Associate professor at the Faculty of Biology, Alexandru Ioan Cuza University of Iasi
Since 2020	Professor, Biochemistry and Molecular Biology Lab, Faculty of Biology, Alexandru Ioan Cuza University

Research overview:

The main subject of research is the molecular biology of the pAO1 megaplasmid related to the nicotine-generated oxidative stress defense mechanism as well as sugar-catabolism. I focus on the molecular evolution of the pAO1 megaplasmid as a way of investigating its role in spreading of catabolic traits among Gram-positive soil bacteria as well as a way of identifying the origin of the megaplasmid. In collaboration with dr. Lucian Hritcu, I am interested in the evaluation of possible medical applications of the *Paenarthrobacter nicotinovorans* (former *Arthrobacter nicotinovorans*) nicotine-derivates. I am also exploring the possibility of using *Paenarthrobacter nicotinovorans* to decontaminate nicotine-containing waste. Lately, I am focusing on the complete omics characterization of the nicotine-catabolic pathway in collaboration with Darie Biochemistry & Proteomics Group, Clarkson University, NY, USA.

Teaching overview:

I teach Biochemistry and Molecular Biology with a great focus on structure to function relationship. I am verry enthusiastic about using 3D printing technology in life-sciences education and have developed a full collection of molecular models that can be 3D printed on consumer-grade printers. The resource is available at: https://3dprint.nih.gov/users/mariusmihasan/model and https://modelemoleculare.ro/

Most recent funding:

- PN-IV-P7-7.1-PED-2024-0343, Innovative digital manufacturing solution of 3D printed molecular models for better education in bio-molecular sciences
- PN-III-P4-ID-PCE-2020-0656, Sequencing the genome of a useful bacteria: Paenarthrobacter nicotinovorans – next step in extending it's biotechnological applications
- PN-III-P1-1.1-TE-2016-0367 Developing an *Arthrobacter nicotinovorans* biotechnology for neuro-pharmaceuticals production.

Awards:

- ''Emil Racovita'' Prize by the Romanian Academy for ''pAO1 Megaplasmid – Structure and Function'', 2013
- ''Young Researcher of the year 2013'' awarded by the A.I Cuza University of Iaşi, 2014

Most recent selected publications:

El-Sabeh, A., Mlesnita, A. M., & **Mihasan, M**. Integrated transcriptomic and proteomic analysis of nicotine metabolism in Paenarthrobacter nicotinovorans ATCC 49919. International Biodeterioration & Biodegradation, 2025, 199, 106017.
Răzvan-Ştefan, B., Laura Nicoleta, P., & **Mihasan, M**. Impact of 3D-printed molecular models on student understanding of macromolecular structures: a compensatory research study. Biochem. Mol. Biol. Educ. 2025.
Boiangiu, R.S.; Brinza, I.; Honceriu, I.; **Mihasan, M**.; Hritcu, L. Insights into Pharmacological Activities of Nicotine and 6-Hydroxy-L-nicotine, a Bacterial Nicotine Derivative: A Systematic Review. Biomolecules 2024, 14, 23
El-Sabeh, A., Mlesnita, AM., Munteanu, IT. .... **Mihasan M**. Characterisation of the P. nicotinovorans ATCC 49919 genome and identification of several strains harbouring a highly syntenic nic-genes cluster. BMC Genomics 24, 536 (2023).
Mihasan M., ..., Darie CC. Time-dependent analysis of Paenarthrobacter nicotinovorans pAO1 nicotine-related proteome. ACS Omega 2021, 6, 22, 14242–14251
Mihasan, M. A Beginner's Guideline for Low-cost 3D Printing of Macromolecules Usable for Teaching and Demonstration. Biochem. Mol. Biol. Educ. 2021, bmb.21493
Brandsch, R, **Mihasan M**, A soil bacterial catabolic pathway on the move: Transfer of nicotine catabolic genes between Arthrobacter genus megaplasmids and invasion by mobile elements *J Biosci* 45, 58 (2020)

25.09.2025

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