

PERSONAL INFORMATION

[REDACTED]

 [REDACTED] [REDACTED] [REDACTED] [REDACTED]

Sex M | Date of birth 01/10/1991 | Nationality Romanian

WORK EXPERIENCE

Feb. 2022 – Present

Scientific Researcher

Cantacuzino National Medical-Military Research and Development Institute. Bucharest, Romania

- Viral antigen design with a strong emphasis on leveraging bioinformatics software tools.
- Construction of heterologous DNA sequences using molecular biology techniques, plasmid & baculovirus assembly, and purification.
- Cell culture techniques, phase contrast & fluorescence microscopy.
- Recombinant protein expression in *E. coli*, insect, and mammalian cells (Sf9, High Five, HEK293).
- Protein purification, quantification, characterization. *In silico* protein folding prediction and epitope modeling.

[Research and Development Department](#)

Jul. 2018 – Oct. 2021

Research Assistant

Horia Hulubei National Institute of Physics and Nuclear Engineering (IFIN-HH). Magurele, Romania

- Optimization of bioreactor fermentation processes aided by statistical design of experiment software.
- Conducting biochemical tests to assess the properties of purified compounds, and investigating the corresponding metabolic pathways in fungi.
- Gamma-ray orientated experimental cultures of mushroom mycelium.
- Transcriptional profiling of laccase genes in submerged cultures of macromycetes.
- DNA & RNA extraction, RT-PCR, qPCR.

[IRASM Department \(Technological Radiation Center\)](#)

Sep. 2017 – Feb. 2018

Research Assistant

HOFIGAL S.A. Bucharest, Romania

- High-performance liquid chromatography (HPLC) analysis.
- Kjeldahl digestion, Amido black staining, Bradford assay.
- Research (technological, analytical, biological activity) for new end products, intermediate products, and raw materials.

[Research and Development Department](#)

Oct. 2016 – Aug. 2017

Microbiological Control Specialist

HOFIGAL S.A. Bucharest, Romania

- Cultivation of pathogenic ATCC microorganisms on selective growth media, bacteriological staining, and bright-field microscopy.
- Performing microbiological analysis to evaluate the quality of raw materials, packaging, and purified water. Assessing the level of airborne microorganisms in the production and laboratory environments.
- Identification and characterization of microorganisms using a phenotype microarray system.

[Quality Control Department](#)

Mar. 2016 – Sep. 2016

Section Technologist

HOFIGAL S.A. Bucharest, Romania

- Operation of reflux extractor-concentrator units.
- Participating in the coordination and execution of factory activity (production of active pharmaceutical substances, glycerol hydroalcoholic / propylene glycol / volatile oil extracts).
- Documenting manufacturing operations (standard operating procedures, task instructions).

[Active Pharmaceutical Substances Section](#)

EDUCATION AND TRAINING

Oct. 2018 – Sep. 2022

PhD in Industrial Biotechnology

The University of Agronomic Sciences and Veterinary Medicine of Bucharest, Faculty of Biotechnology

- Statistical analysis of biological experiments. Experimental design. Laboratory and pilot (bioreactor) fermentations. Studies on the influence of γ radiation on fungi. Purification, concentration and analysis of biomolecules. Interpretation of ESI-MS, SEM-EDS, FT-IR, EPR, UV-Vis analyses and integration of results. Evaluation of biosynthetic pathways used by model organisms. Transcription profiling.

Oct. 2015 – Jun. 2017

MSc. in Applied Genetics and Biotechnology

The University of Bucharest, Faculty of Biology

- Key coursework includes Molecular Techniques in Genetics, Current Issues of Human and Animal Genetics, Advanced Issues of Plant Genetics and Biotechnology, Genetics of Microorganisms, Genetic Analysis, Bioinformatics, Transcriptomic and Proteomic Techniques.

Oct. 2011 – Jun. 2015

BEng. in Industrial Biotechnology

The University of Agronomic Sciences and Veterinary Medicine of Bucharest, Faculty of Biotechnology

- Education highlights include coursework in General and Organic Chemistry, Analytical Chemistry, Plant Cytology, Biochemistry, Enzymology, Microbiology, Genetics, Bioconversions, Biotechnological Installations, Recycling Biotechnologies and Experimental Technique.

Sep. 2007 – Jun. 2011

High School Degree; Professional Linguistic Skill Certificate: English

Hyperion Theoretical Highschool of Bucharest

- Romanian, English, French, Mathematics, Chemistry, Physics, Computer Science, Communications Technology, History, Geography.

PERSONAL SKILLS

Mother tongue(s)

Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
	Self-evaluation				
French	A1	A2	A1	A1	A1
	Self-evaluation				

Levels: A1/2: Basic user - B1/2: Independent user - C1/2 Proficient user
Common European Framework of Reference for Languages

Communication skills

- Excellent communication skills in English gained through constant use and interaction with speakers.

Organisational / managerial skills

- Strategic planning & decision-making to guide and optimize research projects for effective outcomes.
- Skilful budgeting and financial management to ensure the efficient and effective execution of research projects.
- Collaborative teamwork to achieve precise and impactful research outcomes.

- Job-related skills**
- Design of Experiments, Statistical Analysis, Data Visualization.
 - Microbiology, Mycology, Virology, Cell Culture.
 - Bioreactor Operation.
 - Ion Exchange & Gel Filtration chromatography.
 - High-Throughput Screening Assays
 - Golden Gate cloning, Gibson Assembly, In-Fusion Cloning, Plasmid isolation.
 - Primer Design.
 - PCR: Multiplex / Nested / Assembly / RAPD
 - Gene Expression Analysis (RT-PCR, qPCR).
 - Western blotting.
 - Proper use of laboratory equipment, hazardous chemicals and pathogenic bacterial, fungal and viral strains; BSL-3 (Biosafety Level 3) laboratory techniques training.
 - Participation in the validation process of technological equipment and processes.
 - Participation in resolving deviations that may occur in the research / manufacturing process.
 - Verification of the correct disposal of waste resulting from laboratory related activity and the manufacturing process.
 - Participation in internal audits.
 - Writing research papers, grant proposals, technical reports.
 - Presenting research findings.
- Computer skills**
- Bash scripting
 - Anaconda distribution
 - Python / Jupyter Notebook
 - TensorFlow
 - SRATools / Fast QC / Cutadapt / Bowtie 2 / BWA / Tophat / SAMtools / VCF tools / SPAdes
 - IGV / Galaxy
 - UGENE / Snappgene / BioEdit
 - Mega / PerlPrimer
 - Bio-Rad Image Lab 6 & CFX Maestro
 - PyMOL / ImageJ
 - Agilent EZChrome Elite
 - Cytiva Unicorn 7
 - Design Expert 11
 - Microcontroller programming
- Other skills**
- Electrical engineering.
 - 3D modelling & printing for rapid prototyping and customized device fabrication.
- Driving licence**
- Categories AM, B1, B.

ADDITIONAL INFORMATION

- Theses**
- PhD thesis “Research on fermentative biotechnologies to stimulate the synthesis of biologically active compounds in the cultivation of mushroom mycelium”
 - Master’s thesis “Molecular taxonomy studies on species of the *Pleurotus* genus”
 - Bachelor’s thesis “Romanian Mushroom Laboratory Greenhouse – Automated system for the cultivation of the Shiitake mushroom (*Lentinula edodes*) at the laboratory level”
- Patents**
- Romanian State Office for Inventions and Trademarks (OSIM) patent titled „Procedure for obtaining water-soluble melanin by biosynthesis, using the mycelium of the fungus *Fomes fomentarius*” international class C12N 1/14 and C09B 61/00 published in the Official Bulletin of Industrial Property (BOPI) 6/2022 with the publication No. 135837 A4
 - Romanian State Office for Inventions and Trademarks (OSIM) patent, titled “Procedure adapted to the cultivation of *Lentinula edodes* (Shiitake) at the laboratory level, and automated application system” international class A01G 1/04 and C12R 1/645, published in the Official Bulletin of Industrial Property (BOPI) 4/2018 with the publication No. 132458 A2
- Projects**
- Romanian Ministry of National Defence project PSCD 32/2022 VIROMAB H
 - Romanian Ministry of Research Core Program PN 19 14 01 01 grant 47N/2019
 - UEFISCDI project 5PCCDI (PN-III-P1-1.2-PCCDI-2017-0323)
 - UEFISCDI project 171PED/2017 (PN-III-P2-2.1-PED-2016-0132)
 - Eureka project 91/2016 Bakery enriched in bioactive compounds of plant origin
- Articles**
- Podgoreanu, Petre, Tanasa, Dinu, Oprea, Marandiu, Vlase (2023) Sequencing and partial molecular characterization of BAB-TMP, the Babeş strain of the fixed Rabies virus adapted for multiplication in cell lines, *Viruses*, 15(9), 1851; doi:10.3390/v15091851
 - Rai, Mishra, Singh, Singh, Vamanu, Petre (2023) Biosynthesis and bioapplications of nanomaterials from mushroom products, *Current Pharmaceutical Design*, 29(13), 1002-1008(7); doi:10.2174/1381612829666230417083133
 - Petre, Ene, Vamanu (2021) Submerged cultivation of *Inonotus obliquus* mycelium using statistical design of experiments and mathematical modeling to increase biomass yield, *Appl. Sci.*, 11(9), 4104; doi:10.3390/app11094104
 - Petre, Ene, Negut, Gatea, Vamanu (2021) The use of gamma irradiation to stimulate bioactive compound synthesis in *Inonotus obliquus* submerged cultures, *Nukleonika*, 66(3), 83 - 90; doi: 10.2478/nuka-2021-0012
 - Petre, Vamannu (2019) Comparative study of experimental approaches to increase the availability of phytochemicals using gamma radiation, *IOP Conf. Series: Materials Science and Engineering* 572; doi:10.1088/1757-899X/572/1/012002
 - Burcu, Vamanu, Sârbu, Petre (2018) Antioxidant, anti-inflammatory, and antibacterial potential of different drinks based on Matcha tea, *IOP Conf. Series: Materials Science and Engineering* 374; doi:10.1088/1757-899X/374/1/012072
- Conferences**
- Tănasă, Petre, Costache, Ermeneanu, Podgoreanu, Popescu, Florescu, Kosa, Codreanu, Ionescu, Ioniță, Coman (2023) Human monoclonal antibodies with therapeutic potential for viral infections with major public health impact: strategy for acquisition and preliminary results. *Rom. Arch. Microbiol. Immunol.* 82, 60-62. <https://roami.ro/index.php/volume-82-special-issue-november-2023/>
 - Petre, Costache, Dinu, Cotar, Tănasă (2022) Obtaining recombinant proteins with neutralizing epitopes derived from the Rabies virus and the West Nile virus. *Rom. Arch. Microbiol. Immunol.* 81, 42-43. <https://roami.ro/index.php/volume-81-specialissue-november-2022/>
 - Tănasă, Marandiu, Vlase, Podgoreanu, Petre (2022) *In vivo* and *in vitro* tests to evaluate rabies vaccine potency for human use. *Rom. Arch. Microbiol. Immunol.* 81, 75-76.
 - Petre, Vamanu (2019). Evaluation of phenolic compounds and flavonoids in *Inonotus obliquus* mycelium processed by gamma radiation. 8th Int. Conf. Agriculture for Life, 4-6th June, Bucharest, Romania.
 - Petre, Vamanu (2019). Comparative study of experimental approaches to increase the availability of phytochemicals using gamma radiation. International Conference on Innovative Research, 16-17th May, Iași, Romania.

Honours and awards

- Prize awarded within the PRECISI2021 competition, organized by the the Romanian Ministry of Research, Innovation and Digitalization (MCID no. 480/07.09.2021) for the work "Submerged cultivation of *Inonotus obliquus* mycelium using statistical design of experiments and mathematical modeling to increase biomass yield"
- The "Traian Vuia" International Exhibition of Inventions and Innovations from Timișoara – The Gold Medal – for work titled "Procedure adapted to the cultivation of *Lentinula edodes* (Shiitake) at the laboratory level and automated application system", 9 Jun. 2017
- The Banat Univeristy of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timișoara – Excellence Diploma – for work titled "ROMLABHOUSE – Procedure adapted to the cultivation of *Lentinula edodes* (Shiitake) at the laboratory level and automated application system", 9 Jun. 2017
- The European Exhibition of Creativity and Innovation EuroInvent Iași 2017 – Diploma of Inventions Section Gold Medal – awarded to "Procedure adapted for *Lentinula edodes* (Shiitake) mushroom cultivation at the laboratory level and automated application system", 27 May 2017
- The International Exhibition of Research, Innovation and Inventions PRO INVENT (15th Edition) organized by the Technical University of Cluj-Napoca – Diploma of Excellence and Gold Medal – for work "Procedure adapted to the cultivation of *Lentinula edodes* (Shiitake) at the laboratory level and automated application system", 24 Mar. 2017
- The "Justin Capra" Association within the International Exhibition of Research, Innovation and Inventions PRO INVENT (15th Edition) – Diploma of Excellence – for work "Procedure adapted to the cultivation of *Lentinula edodes* (Shiitake) at the laboratory level and automated application system", 24 Mar. 2017
- The International Student Innovation and Scientific Research Exhibition "Cadet INOVA'17" hosted by the "Nicolae Bălcescu" Land Forces Academy of Sibiu – The Bronze Medal – for the innovation "Procedure adapted to the laboratory cultivation of mushroom *Lentinula edodes* (Shiitake) and automated application system", 27-29 Apr. 2017
- The International Exhibition of Research, Innovation and Inventions PRO INVENT (14th Edition) organized by the Technical University of Cluj-Napoca – PROINVENT Diploma of Excellence – for work "ROMLABHOUSE - Automated system for the cultivation of the *Lentinula edodes* mushroom at the laboratory level", 25 Mar. 2016
- The "Justin Capra" Association within the International Exhibition of Research, Innovation and Inventions PRO INVENT (14th Edition) – Diploma of Excellence – for work "ROMLABHOUSE - Automated system for the cultivation of the *Lentinula edodes* mushroom at the laboratory level", 25 Mar. 2016
- The National Innovation and Scientific Creation for Youth Exhibition 2015 organized by the Ministry of Youth and Sport – Honorable Mention – for work "ROMLABHOUSE", 22 Nov. 2015
- Student Scientific Communications Session (12th Edition) organized by the University of Agronomic Sciences and Veterinary Medicine of Cluj-Napoca – Honorable Mention – for work "ROMLABHOUSE - Automated system for the cultivation of the *Lentinula edodes* mushroom at the laboratory level", 10 Apr. 2014