



# Maria Anghelache

PHD STUDENT (SCIENTIFIC RESEARCHER)

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- Calea Vacaresti 302, Bucharest, Romania

## EDUCATION

### PhD in Cellular Biology

Romanian Academy  
2020-Present

### MSc in Biochemistry and Molecular Biology

University of Bucharest  
2018 -2020

### BSc in Biochemistry

University of Bucharest  
2015-2018

## SKILLS

- Communication
- Attention to detail
- Critical thinking
- Technical skills
- Statistical & Graphical Analysis of Data

## LANGUAGES

ROMANIAN | *native*

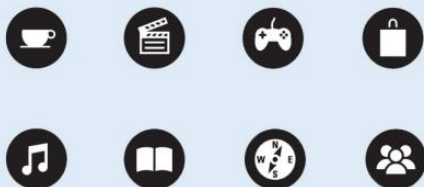
ENGLISH | *second language*

SPANISH | *third language*

## COURSES

- Communication & Decision Making
- Project Management
- Managing Interpersonal Relationships

## INTERESTS



## PROFESSIONAL PROFILE

PhD student with 5+ years of experience in drug delivery systems and cardiovascular disease research, assisting in projects involving nanoparticle preparation and characterization, isolating and analyzing RNA, DNA, and protein. Professional skills include cell culture and animal research, biochemistry tests and techniques such as Flow Cytometry, Western Blotting, Elisa, and PCR.

## WORK EXPERIENCE

### RESEARCH ASSISTANT

*INSTITUTE OF CELLULAR BIOLOGY AND PATHOLOGY "NICOLAE SIMIONESCU"* / October 2018 – June 2023

### SCIENTIFIC RESEARCHER

*INSTITUTE OF CELLULAR BIOLOGY AND PATHOLOGY "NICOLAE SIMIONESCU"* / June 2023 – Present

- Medical and Pharmaceutical Bionanotechnologies Laboratory: Performing research experiments in the field of cardiovascular disease, with a focus on the suppression of vascular inflammation via drug delivery systems.

- Conduct in vitro and in vivo experiments;
- Optimized protocols and adapted them to the research objectives;
- Conduct statistical analyses of data sets;
- Check facts, proofread, and edit research documents to ensure accuracy; Write and contribute to publications;
- Collaborated in projects with other researchers;
- Compile data for progress reports and writing of research reports.

1. **Anghelache, M.**; Turtoi, M.; Petrovici, A.R.; Fifere, A.; Pinteala, M.; Calin, M. Development of Dextran-Coated Magnetic Nanoparticles Loaded with Protocatechuic Acid for Vascular Inflammation Therapy. *Pharmaceutics* 2021, 13, 1414. <https://doi.org/10.3390/pharmaceutics13091414>.
2. **Anghelache, M.**, Voicu, G., Deleanu, M., Turtoi, M., Safciuc, F., Anton, R., Boteanu, D., Fenyo, I. M., Manduteanu, I., Simionescu, M., & Calin, M. (2023). Biomimetic nanocarriers of Pro - resolving lipid mediators for resolution of inflammation in atherosclerosis. *Advanced Healthcare Materials*. <https://doi.org/10.1002/adhm.202302238>.
2. Turtoi, M. †; **Anghelache, M.** †; Bucatariu, S.-M.; Deleanu, M.; Voicu, G.; Safciuc, F.; Manduteanu, I.; Fundueanu, G.; Simionescu, M.; Calin, M. A novel platform for drug testing: Biomimetic three-dimensional hyaluronic acid-based scaffold seeded with human hepatocarcinoma cells. *Int. J. Biol. Macromol.* 2021, 185, 604–619.
3. Movileanu C †, **Anghelache M** †, Turtoi M, Voicu G, Neacsu IA, Ficai D, Trusca R, Oprea O, Ficai A, Andronescu E, Calin M. Folic acid-decorated PEGylated magnetite nanoparticles as efficient drug carriers to tumor cells overexpressing folic acid receptor. *Int J Pharm.* 2022 Aug 8; 625:122064. doi: 10.1016/j.ijpharm.2022.122064.
4. Constantin, M., Bucatariu, S., Sacarescu, L., Daraba, O., **Anghelache, M.** and Fundueanu, G. Pullulan derivative with cationic and hydrophobic moieties as an appropriate macromolecule in the synthesis of nanoparticles for drug delivery. *International Journal of Biological Macromolecules*, 164, pp.4487-4498, 2020. doi: 10.1016/j.ijbiomac.2020.09.064.
5. Bucatariu, S., Constantin, M., Varganici, C., Rusu, D., Nicolescu, A., Prisacaru, I., Carnuta, M., **Anghelache, M.**, Calin, M., Ascenzi, P. and Fundueanu, G. A new sponge-type hydrogel based on hyaluronic acid and poly (methylvinylether-alt-maleic acid) as a 3D platform for tumor cell growth. *International Journal of Biological Macromolecules*, 165, pp.2528-2540, 2020. doi: 10.1016/j.ijbiomac.2020.10.095.
6. Fuior, E., Mocanu, C., Deleanu, M., Voicu, G., **Anghelache, M.**, Rebleanu, D., Simionescu, M. and Calin, M. Evaluation of VCAM-1 Targeted Naringenin/Indocyanine Green-Loaded Lipid Nanoemulsions as Theranostic Nanoplatfoms in Inflammation. *Pharmaceutics*, 12(11), p.1066, 2020. doi:10.3390/pharmaceutics12111066.
7. Popescu, I., Turtoi, M., Suflet, D., Dinu, M., Darie-Nita, R., **Anghelache, M.**, Calin, M. and Constantin, M. Alginate/poloxamer hydrogel obtained by thiol-acrylate photopolymerization for the alleviation of the inflammatory response of human keratinocytes. *International Journal of Biological Macromolecules*, 180, pp.418-431, 2021. doi: 10.1016/j.ijbiomac.2021.03.082.
8. Turtoi, M.; **Anghelache, M.**; Patrascu, A.A.; Maxim, C.; Manduteanu, I.; Calin, M.; Popescu, D.-L. Synthesis, Characterization, and in Vitro Insulin-Mimetic Activity Evaluation of Valine Schiff Base Coordination Compounds of Oxidovanadium(V). *Biomedicines* 2021, 9, 562. <https://doi.org/10.3390/biomedicines9050562>.
9. Fundueanu G., Constantin M., Turtoi M, Bucatariu, S.-M., Cosman B., **Anghelache M.**, Voicu G. And Calin M. Bio-Responsive Carriers for Controlled Delivery of Doxorubicin to Cancer Cells. *Pharmaceutics* 2022, 14(4), 865; <https://doi.org/10.3390/pharmaceutics14040865>.
10. Turtoi, M.; **Anghelache, M.**; Patrascu, A.A.; Deleanu, M.; Voicu, G.; Raduca, M.; Safciuc, F.; Manduteanu, I.; Calin, M.; Popescu, D.-L. Antitumor Properties of a New Macrocyclic Tetranuclear Oxidovanadium(V) Complex with 3-Methoxysalicylidenvalline Ligand. *Biomedicines* 2022, 10, 1217. <https://doi.org/10.3390/biomedicines10061217>.
11. Voicu G., Mocanu C.A., Safciuc F., **Anghelache M.**, Deleanu M., Cecoltan S., Pinteala M., Uritu C.M., Droc I., Simionescu M., Manduteanu I., Calin M., Nanocarriers of shRNA-Runx2 directed to collagen IV as a nanotherapeutic system to target calcific aortic valve disease, *Materials Today Bio*, 20, 2023, doi:10.1016/j.mtbio.2023.100620.

## *PARTICIPATION AND POSTERS AT NATIONAL AND INTERNATIONAL SCIENTIFIC EXHIBITIONS*

- **First author posters:**

**Maria Anghelache**, Cornelia-Ioana Ilie, Denisa Ficai, Anton Ficai, Manuela Calin, Cytotoxicity evaluation of polyphenol-loaded magnetic nanoparticles on human endothelial cells, “Achievements and Perspectives of Modern Chemistry”, Chişinău, Republic of Moldova, 9-11 of October, 2019.

**Maria Anghelache**, Florentina Safciuc, Geanina Voicu, Mihaela Turtoi, Cornelia Ioana Ilie, Anton Ficai, Manuela Calin, Chitosan-coated iron oxide nanoparticles as a promising nanocarriers for gallic acid targeted delivery, “International Conferences & Exhibition on Nanotechnologies, Organic Electronics & Nanomedicine”, Thessaloniki, 06-09 of July 2021.

**Maria Anghelache**, Mariana Deleanu, Mihaela Turtoi, Geanina Voicu, Manuela Calin, Preparation and physico-chemical characterization of specialized pro-resolving lipid mediators (SPMs)-loaded nanoemulsions as nanocarriers for inflammation resolution, “International Conferences & Exhibition on Nanotechnologies, Organic Electronics & Nanomedicine”, Thessaloniki, 06-09 of July 2021.

**Maria Anghelache**, Mariana Deleanu, Mihaela Turtoi, Geanina Voicu, Manuela Calin, Development of Biomimetic Nanocarriers for delivery of Specialized Pro-Resolving Lipid Mediators (SPMs) to atherosclerotic plaque, “Materials, Methods & Technologies”, Burgas, Bulgaria, 19-22 of August 2022.

**Maria Anghelache**, Mariana Deleanu, Ruxandra Anton, Mihaela Turtoi, Geanina Voicu, Ileana Manduteanu, Maya Simionescu, Manuela Calin, Development of Biomimetic Nanocarriers for Delivery of Pro-Resolving Mediators to Atherosclerotic Plaque, “The 39th Annual Scientific Session of The Romanian Society for Cell Biology”, 21-23 of October, 2022.

**Maria Anghelache**, Mariana Deleanu, Ruxandra Anton, Mihaela Turtoi, Geanina Voicu, Ileana Manduteanu, Maya Simionescu, Manuela Calin, Specialized pro-resolving mediators (SPMs)-loaded Nanoemulsions as promising biomimetic nanocarriers for inflammation resolution, The 47<sup>th</sup> FEBS Congress, Tours, France, 8-12 July 2023.

- **Co-authored posters:**

Mihaela Carnuta, Andrei A. Patrascu, Catalin Maxim, **Maria Anghelache**, Ileana Manduteanu, Delia-Laura Popescu, Manuela Calin, A new family of vanadium compounds stimulates insulin receptor phosphorylation in HepG2 cells in a time and dose-dependent manner, “The 37th Annual Scientific Session of the Romanian Society for Cell Biology and the 11th National Congress with International Participation”, Constanţa, România, 20-23 of June, 2019.

Mihaela Carnuta, Andrei A. Patrascu, Catalin Maxim, **Maria Anghelache**, Manuela Calin, Delia-Laura Popescu, Synthesis and characterization of a new vanadium (V) complex based on D/L-valine Schiff base with anti-cancer properties, "21 Romanian International Conference on Chemistry and Chemical Engineering (RICCCE)", Mamaia-Constanţa, Romania, 4-7 of September, 2019.

Mihaela Carnuta, **Maria Anghelache**, Andrei A. Patrascu, Catalin Maxim, Delia-Laura Popescu, Manuela Calin, Synthesis, characterization and in vitro antitumor evaluation of new binuclear oxovanadium (v) compounds, “Achievements and Perspectives of Modern Chemistry”, Chişinău, Republic of Moldova, 9-11 of October, 2019.

Geanina Voicu, Mihaela Turtoi, **Maria Anghelache**, Sanda Maria Bucatariu, Mariana Deleanu, Florentina Safciuc, Ileana Manduteanu, Gheorghe Fundueanu, Maya Simionescu, Manuela Calin, A three-dimensional hyaluronic acid-based scaffold seeded with human cancer cells functions as a suitable platform for antitumoral drug screening, “International Conferences & Exhibition on Nanotechnologies, Organic Electronics & Nanomedicine”, Thessaloniki, 06-09 of July 2021.

M. Turtoi, **M. Anghelache**, A.A. Patrascu, C. Maxim, D-L. Popescu, I. Manduteanu, M. Calin, Designing of new biocompatible coordinating compounds of oxidovanadium (V), “International Conferences & Exhibition on Nanotechnologies, Organic Electronics & Nanomedicine”, Thessaloniki, 06-09 of July, 2021.

Mihaela Turtoi, **Maria Anghelache**, Delia-Laura Popescu, Ileana Manduteanu, Manuela Calin, DESIGN OF NEW OXIDOVANADIUM(V) COMPOUNDS AS INSULIN-MIMETICS, 38th Annual Scientific Session of The Romanian Society for Cell Biology, 4-7 of November, 2021.

Geanina Voicu, **Maria Anghelache**, Mariana Deleanu, Mihaela Turtoi, Florentina Safciuc, Manuela Calin, Dual targeted lipid nanoemulsions for vascular delivery of specialized pro-resolving lipid mediators in atherosclerosis, “Materials, Methods & Technologies”, Burgas, Bulgaria, 19-22 of August, 2022.

Geanina Voicu, **Maria Anghelache**, Mariana Deleanu, Mihaela Turtoi, Florentina Safciuc, Ruxandra Anton, Ileana Manduteanu, Maya Simionescu, Manuela Calin, Dual targeting of resolvins-loaded nanoparticles to VCAM-1 and collagen IV assure their delivery to the aorta of atherosclerotic mice, The 47<sup>th</sup> FEBS Congress, Tours, France, 8-12 July 2023.

- **Oral Presentations:**

**Maria Anghelache**, Preparation and characterization of macrophage-membrane coated nanoemulsions for delivery of specialized pro-resolving lipid mediators of inflammation, 38th Annual Scientific Session of The Romanian Society for Cell Biology, 4 November 2021.

**Maria Anghelache**, Pro-resolving Lipid Mediators-loaded Biomimetic Nanoparticles as Promising Carriers for Inflammation Resolution in Atherosclerosis, The 47<sup>th</sup> FEBS Congress, Oral presentation, Tours, France, 8-12 July 2023.

**Maria Anghelache**, Macrophage Membranes-Functionalized Lipid Nanoemulsions as Promising Carriers of Pro-Resolving Lipid Mediators to Atherosclerotic Lesions, 40<sup>th</sup> Annual Scientific Session of The Romanian Society for Cell Biology, Oral presentation, 16-17 November 2023.

#### *PATENTS*

OSIM application no. A/00339/ 15.06.2021, inventors: Movileanu C, Fikai D, Fikai A, Calin M, **Anghelache M**, Gafencu A, Fundueanu-Constantin G, Pinteala M, Simionescu M, Andronescu E, “Smart nanoparticle systems for cellular internalization”.

#### *AWARDS*

Gold Medal – „Smart nanoparticle systems for cellular internalization”, Authors: Movileanu C, Fikai D, Fikai A, Calin M, **Anghelache M**, Gafencu A, Fundueanu-Constantin G, Pinteala M, Simionescu M, Andronescu E.; "Traian Vuia" International Salon of Inventions and Innovations, 12-14 of October 2021, Timisoara, Romania.

Gold Medal – „Smart nanoparticle systems for cellular internalization”, Authors: Movileanu C, Fikai D, Fikai A, Calin M, **Anghelache M**, Gafencu A, Fundueanu-Constantin G, Pinteala M, Simionescu M, Andronescu E.; "PRO INVENT" International Exhibition of Scientific Research, Innovation and Invention – 19<sup>th</sup> Edition, 20-22 of October 2021, Cluj-Napoca, Romania.

Gold Medal – Inventions, plant varieties, industrial design: „Smart nanoparticle systems for cellular internalization”, Authors: Movileanu C, Fikai D, Fikai A, Calin M, **Anghelache M**, Gafencu A, Fundueanu-Constantin G, Pinteala M, Simionescu M, Andronescu E.; International Specialized Exhibition "INFOINVENT 2021"- 17<sup>th</sup> Edition, 17-20 of November 2021, Chisinau, Republic of Moldova.

## *PROJECTS*

- Research assistant:
  - a) Smart Therapies for Non-Communicable Diseases, Based On The Controlled Release Of Pharmacology Compounds From Cells Encapsulated After Genetic Manipulation or Vectorized Bionanoparticles (INTERA); Sub-Project: Intelligent nanobioparticles designed for the vectorization of bioactive compounds for the therapy of vascular inflammation (INTERA-3); PN-III-P1-1.2-PCCDI-2017-0697 (13PCCDI/2018).
- PhD Student:
  - a) Targeted Therapy Based on Biomimetic Nanocarriers For the Resolution of Inflammation in Atherosclerosis (NANORES); PN-III-P4-ID-PCE-2020-2465 (PCE 68/2021).
  - b) New Nanotherapeutic Strategies for Cardiac Fibrosis Targeting the Mechanisms Underlying the Fibroblast to Myofibroblast Transition (HEARTCURE); PNRR-III-C9-2022-1.

## *TRAINING & WORKSHOPS*

- Workshop – INTERA-3 Summer School "Smart nanoparticles for targeted delivery of bioactive compounds: preparation, characterization, applications", Bucharest, Romania, 23-24 of May 2019.
- Flow Cytometry Training School. Romanian Cytometry Association, Bucharest, 14-15 of December, 2020.
- 9th International Lab Animal Course Crete FELASA, Heraklion, May-June 2023.