



Student Scientific Research Group
Pharmaceutical and Cosmetic Chemistry – Pharm&CosmCHEM
Academic year 2026-2027

Members:

1. Academic Staf Members:

Aura Rusu, PhD, professor (head coordinator)
Gabriel Hancu, PhD, professor (coordinator)
Blanka Székely Szentmiklósi, PhD, lecturer (coordinator)
Győző Török, analyst

2. PhD students currently involved:

Stroia (Moga) Ioana-Maria
Măgerușan Șoimița Emiliană
Ledan-Muntean Szende

3. Master's student currently involved:

Murgoci Elena (MCD II)

4. Students currently involved:

Cridon Gheorghe (FARM V)
Jancsó (Orășan) Elisabeta (FARM V)
Godra Zsanett (FARM V)
Csuka Mona (FARM V)
Major Szende (FARM V)
Nagy Annamária (FARM V)
Csáki-Nagy Klaudia (FARM V)
Hoha Alisa (FARM IV)
Bucuraș Iulia (CMT III)
Mărieș (Bodnar) Georgiana (CMT III)
Kató Kincső (CMT III)

Contact:

George Emil Palade University of Medicine, Pharmacy, Science and Technology of Targu Mures
Faculty of Pharmacy
38 Gheorghe Marinescu Street, Targu Mures, 540139, ROMANIA
Telephone: +40-265-21 55 51, +40-265-20 89 50; Email: aura.rusu@umfst.ro

Research topics:

(*APIs – Active Pharmaceutical Ingredients; CIs – Cosmetic Ingredients)

1. Drug Design, Medicinal Chemistry and Drug Repurposing

- Rational design and synthesis of biologically active compounds (APIs and CIs), including metal complexes, cyclodextrin inclusion complexes, hybrid molecules, derivatives of approved drugs and natural products;
- Virtual screening and *in silico* approaches for the identification of new lead compounds;
- Structure-based computational studies of APIs, CIs, metal complexes and cyclodextrin complexes;
- Medicinal chemistry of ergoline derivatives targeting the 5-HT_{2A} serotonin receptor;
- Potassium-competitive acid blockers (P-CABs): medicinal chemistry, structure optimization and emerging development strategies;
- Drug repurposing strategies.



2. Structural Characterization and Analytical Sciences

- Structural characterization of newly synthesized compounds;
- Development and validation of analytical methods for APIs and CIs in: raw materials, pharmaceutical formulations, dermocosmetic products, biological samples, environmental samples;
- Investigation of chemical interactions, compatibility and stability of APIs and CIs.

3. Medicinal Chemistry and Advanced Delivery Systems of Bioactive Compounds

- Microfluidic technologies for droplet generation and microcapsule-based delivery systems;
- Innovative pharmaceutical and cosmetic formulations based on encapsulation and controlled-release approaches;
- Cyclodextrin-based systems for improving solubility, stability and bioavailability of active compounds.

4. Natural Products, Dermatopharmacy and Cosmetic Sciences

- Exploration of emerging natural therapeutic agents for dermatological and cosmetic applications;
- Structure-property relationships between chemical structure, UV absorption and photostability of next-generation UV filters;
- Development and evaluation of innovative dermato-cosmetic active ingredients and formulations.

5. Pharmaceutical Communication, Pharmaceutical Care, Pharmacovigilance and Patient Safety

- Communication in pharmacy practice;
- Patient-centered pharmaceutical care and optimization of pharmacist-patient interactions;
- Assessment of cardiotoxicity associated with anticancer therapies;
- Drug-drug and drug-supplement interactions.

Methods and techniques:

Chromatographic and electrophoretic techniques (HPLC, CE, TLC), spectroscopic methods (FTIR, UV-VIS, LC-MS), thermal analysis (TGA, DSC), elemental and physicochemical characterization, computational methods (in silico studies, molecular modeling and virtual screening), synthesis and characterization of bioactive compounds, drug interaction and safety assessment, scientific literature and database review, bibliometric analysis, and survey-based research.

Papers presented at scientific meetings by student members (and former student members) of the scientific research group (*highlighted) 2015-2025:

1. *Mojolic A., Rusu A., *Self-medication with antibiotics in Romania: a cross-sectional study*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 20th – 24th, May 2026, Târgu Mureș, Romania, Acta Marisiensis – seria Medica, Volume 72, Suppl. 3, 2026, pag. 464-465, ISSN: 2668-7755, Online ISSN: 2668-7763
2. *Oancea O.L., Rusu A., *Evaluarea in silico a unor derivați ai acidului glutamic ca potențiali inhibitori ai glutaminazei în terapia anticanceroasă (In Silico Evaluation of Glutamic Acid Derivatives as Potential Glutaminase Inhibitors for Anticancer Therapy)*, Volum de rezumate, Congresul Național de Farmacie, Ediția a XX-a, 24-26 Septembrie 2025, Târgu Mureș, Editura University Press, ISBN 978-973-169-929-5, pagina 65
3. *Stoleru G.R., Rusu A., *Antibacterial effect, synergy with antibiotics, and therapeutic applications of silver nanoparticles*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 21th – 25th, May 2025, Târgu Mureș, Romania, Acta Marisiensis – seria Medica, Volume 71, Suppl. 4, 2025, pag. 126-127, ISSN: 2668-7755, Online ISSN: 2668-7763
4. *Bucuraș I., Rusu A., *Exosomes derived from stem cells for dermato-cosmetics applications*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 21th – 25th, May 2025, Târgu Mureș, Romania, Acta Marisiensis – seria Medica, Volume 71, Suppl. 4, 2025, pag. 389-390, ISSN: 2668-7755, Online ISSN: 2668-7763
5. *Moldovan O.L., Hancu G., Rusu A., *Identification of new fluoroquinolone-glutamic acid hybrids and evaluation of their biological activity by computational methods*, Book of Abstracts, National Congress of Pharmacy, 19th edition, 27-29 September, 2023, Cluj-Napoca, Editura Medicală Universitară “Iuliu Hațieganu” Cluj-Napoca, ISBN 978-606-075-203-5



6. *Boje M.-A., Rusu A. *Dangerous chemical incompatibilities during the administration of some newly approved drugs*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 17th – 21st, May 2023, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 69, Suppl. 1, 2022, page 130
7. *Sandor R.-D., Rusu A. *Innovative topical peptides used in anti-ageing therapy*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 17th – 21st, May 2023, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 69, Suppl. 1, 2022, page 131
8. *Antal I.-K., Czompa A., Székely-Szentmiklósi B., Mándity I. *Synthesis Of Azobenzenes From Nitroso Compounds*, 30th Students' Scientific Conference 10–13 May 2023, Târgu Mureș, Orvostudományi Értesítő, 96(2):101, ISSN 1453-0953 (print), ISSN 2537-5059 (online).
9. *Lungu I.-A., Gâz-Florea Ș.-A., *Popa (Biriș) V., Rusu A. *Synthesis and preliminary characterisation of some fluoroquinolonetetracycline hybrids*, International Conference of PhD Students and Young Doctors, December 5-9, 2022, Targu Mures, Book of Abstracts 5/2022, page 130, ISSN 2602-1609, ISSN-L, 2602-1609 (print)
1. *Buta E. L., Rusu A. *Structure-activity relationships among the newest tetracyclines*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 04th – 08th, May 2022, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 68, Suppl. 3, 2022, page 121
2. *Arbănași E. M., *Buta E. L., Rusu A. *Achilles' heel of modern antibacterial (fluoro)quinolones – the side effects*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 04th – 08th, May 2022, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 68, Suppl. 3, 2022, page 124
3. *Sandulea A., *Moldovan O.-L., Rusu A. *Shaping new glutamic acid derivatives with anticancer potential by computational methods*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 04th – 08th, May 2022, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 68, Suppl. 3, 2022, page 151, (The third prize)
10. *Moga I.-M., Rusu A. *The importance of the five-atom heterocycles in drug design*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 17th – 21st, May 2023, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 69, Suppl. 1, 2022, page 132
11. *Salanki T.-I., Rusu A. *Dermalinfusion - an innovative patented cosmetic procedure*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 17th – 21st, May 2023, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 69, Suppl. 1, 2022, page 132
12. *Moldovan O.-L., *Sandulea A., Rusu A. *A new perspective about glutamic acid: from the toxicity of monosodium glutamate to the anticancer potential of some derivatives*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 12th– 16th, May 2021, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 67, Suppl. 1, 2021, page 59
13. *Vișcă I., Rusu A. *Metal complexation of doxycycline investigated through UV-VIS spectroscopy and thin layer chromatography*, Book of Abstracts, International Congress For Students, Young Doctors And Pharmacists Marisiensis, 25th– 29th, March 2020, Târgu Mureș, Romania Acta Marisiensis – seria Medica, 66, Suppl. 3, 2020, page 77

Relevant *in extenso* articles of the student members (and former student members) of the scientific research team (*highlighted) 2015-2025:

A) ISI articles:

1. Rusu, A.; *Stroia, I.-M.; Hancu, G.; Tanase, C.; Uncu, L. *The Role of Pyrrolidine in Antibacterial Drug Discovery: Clinically Approved Antibiotics, Novel Derivatives, and Future Perspectives*. Int. J. Mol. Sci. 2026, 27, 7225. <https://doi.org/10.3390/ijms27167225> IF 5.6 (Q1)
2. *Măgerușan, Ș.E.; Hancu, G.; Rusu, A. *Evaluation of Combined Chemical Peeling and Microneedling Protocols in the Treatment of Acne-Prone Skin: A Pilot Study*. Cosmetics 2026, 13, 30. <https://doi.org/10.3390/cosmetics13010030> IF 3,2 (Q1)
3. Rusu, A.; *Mazilu, R.-D.; Székely-Szentmiklósi, B.; Oancea, O.-L.; Tanase, C.; Lungu, I.-A.; Hancu, G. *Bioactive Compounds for Topical and Minimally Invasive Cellulite Treatment and Skin Rejuvenation*. Cosmetics 2026, 13, 35. <https://doi.org/10.3390/cosmetics13010035> IF 3.2 (Q1)



4. Rusu, A.; *Oancea, O.-L.; Donici, E.; Uncu, L. *Recent Developments in Penem Antibiotics: Structural and Therapeutic Perspectives*. *Molecules* 2025, 30, 2126. <https://doi.org/10.3390/molecules30102126> IF 4.2, (Q2)
5. Rusu A., *Farcaș AM, Oancea OL, Tanase C. *Cannabidiol in Skin Health: A Comprehensive Review of Topical Applications in Dermatology and Cosmetic Science*. *Biomolecules*. 2025 Aug 23;15(9):1219. doi: 10.3390/biom15091219 IF 4.8 (Q1)
6. *Oancea (Moldovan), O.-L.; Ciurea, C.N.; Mare, A.D.; Man, A.; Stefanescu, R.; Rusu, A. *In Vitro Evaluation of the Antibacterial Effect and Influence on the Bacterial Biofilm Formation of Glutamic Acid and Some Structural Analogues*. *Antibiotics* 2025, 14, 415. <https://doi.org/10.3390/antibiotics14040415> IF 4.3 (Q1)
7. Măgerușan, Ș*, Hancu G., Rusu A. *Current understanding of microneedling procedures for acne skin: A narrative review*, *Cosmetics*, 2024, 11(6), 193, <https://doi.org/10.3390/cosmetics11060193> IF 3,40 (Q2)
8. Rusu, A., *Moga, I.-M., Uncu, L., Hancu, G., *The Role of Five-Membered Heterocycles in the Molecular Structure of Antibacterial Drugs Used in Therapy*. *Pharmaceutics* 2023, 15(11), 2554. <https://doi.org/10.3390/pharmaceutics15112554> IF 4.9 (Q1)
9. *Măgerușan Ș.E., Hancu G., Rusu, A. *A Comprehensive Bibliographic Review Concerning the Efficacy of Organic Acids for Chemical Peels Treating Acne Vulgaris*. *Molecules* 2023, 28, 7219. <https://doi.org/10.3390/molecules28207219> IF 4.2, (Q2)
10. *Moldovan, O.-L., *Sandulea A., *Lungu, I.-A., Gâz S.A., Rusu, A. *Identification of Some Glutamic Acid Derivatives with Biological Potential by Computational Methods*, *Molecules* 2023 28(10), 4123; <https://doi.org/10.3390/molecules28104123>, IF 4.927 (Q2)
11. Rusu, A., Munteanu A.-C., *Arbănași E.-M. Uivarosi V. *Overview of Side-Effects of Antibacterial Fluoroquinolones: New Drugs versus Old Drugs, a Step Forward in the Safety Profile?*. *Pharmaceutics* 2023, 15 (3), 804. <https://doi.org/10.3390/pharmaceutics15030804>, IF 6.525 (Q1)
12. Rusu, A., *Lungu, I.-A., *Moldovan, O.-L., Tanase, C., Hancu, G. *Structural Characterization of the Millennial Antibacterial (Fluoro)Quinolones—Shaping the Fifth Generation*. *Pharmaceutics* 2021, 13 (8), 1289. DOI: <https://doi.org/10.3390/pharmaceutics13081289>, IF 6.321 (Q1)
13. *Moldovan O.L., Rusu A., Tanase C., Vari C.-E., *Glutamate - a multifaceted molecule: endogenous neurotransmitter, controversial food additive, design compound for anti-cancer drugs. A critical appraisal*, *Food and Chemical Toxicology* 2021, 153, 112290, ISSN: 0278-6915, DOI: <https://doi.org/10.1016/j.fct.2021.112290>, IF 6.023 (Q1)
14. *Coman A.N., Mare A., Tanase C., Bud E, Rusu A. *Silver-Deposited Nanoparticles on the Titanium Nanotubes Surface as a Promising Antibacterial Material into Implants*. *Metals*. 2021, 11 (1):92, ISSN 2075-4701, DOI: <https://doi.org/10.3390/met11010092>, IF 2,117 (Q1)
15. Rusu A., Imre S., Mare A.D., *Lungu I.-A., *Pascu G.-A., Uivarosi V. *Synthesis, characterization and antibacterial activity of a new derivative of levofloxacin*, *Journal of the Chilean Chemical Society*, 2020, 65, 3, ISSN 0717-9324, DOI: <http://dx.doi.org/10.4067/s0717-97072020000204857>, IF 0.617

B) BDI articles:

1. *Lungu, I.A.; Farczádi, L.; Szabó, Z.I.; Gâz, Șerban A.; Moldovan, O.L.; Rusu, A. *Preliminary Study to Obtain Some Fluoroquinolone-Tetracycline Hybrids*. *Acta Marisiensis - Seria Medica* 2024, 70, doi:10.2478/amma-2024-0034.
2. Rusu A., *Arbănași E.-M., *Lungu I.-A., *Moldovan O.-L., *Perspectives on antiviral drugs development in the treatment of COVID-19*, *ABMJ* 4(1): 44-59, DOI: <https://doi.org/10.2478/abmj-2021-0005>, ISSN: 2601 – 6141 (Print), ISSN-L: 2601 – 6141, ISSN: 2668 – 5124 (On-line)
3. Rusu A., *Lungu I.-A., *The new fifth-generation cephalosporins – a balance between safety and efficacy*, *Ro J Pharm Pract.* 2020, vol. XIII, 3(52), 121-125, DOI: 10.37897/RJPhP.2020.3.2, https://farma.com.ro/articles/2020.3/RJPhP_2020_3_Art-02.pdf ISSN 2066-5563
4. *Moldovan O.-L., *Brihan D.-N., Todoran N., Rusu A., *Thin layer chromatographic compatibility study in preformulation of new transdermal therapeutic systems*, *Acta Medica Marisiensis*, 2020, 66(1):23-29. ISSN: 2668-7755, DOI: <https://doi.org/10.2478/amma-2020-0004>