



Student Scientific Research Group
Pharmaceutical and Cosmetic Chemistry – Pharm&CosmCHEM
Academic year 2025-2026

Members:

1. Academic Staf Members:

Aura Rusu, PhD, professor (head coordinator)
Gabriel Hancu, PhD, professor (coordinator)
Blanka Székely Szentmiklósi, PhD, lecturer (coordinator)
Katerina Komán, chemist technician

2. PhD students currently involved:

Măgerușan Șoimița Emiliana

3. Master's student currently involved:

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4. Students currently involved:

Csegezi-Balázs Orsolya (FARM V)
Kovács Júlia (FARM V)
Mojolic Andrei (FARM V)
Timiș Gabriela (FARM V)
Ureche Mara (CMTIII)
Cridon Gheorghe (FARM IV)
Jancsó (Orăsan) Elisabeta (FARM IV)
Bucuraș Iulia (CMT II)

Contact:

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Research topics:

**APIs – active pharmaceutical ingredients; CIs – cosmetic ingredients*

1. Rational design and synthesis of compounds with biological properties (APIs and CIs): metal complexes, hybrids, complexes with cyclodextrins, and derivatives of approved compounds or natural compounds;
2. Virtual screening and *in silico* methods for the identification of new potential lead compounds (APIs and CIs);



3. Structural analysis of newly obtained compounds through spectroscopic, chromatographic, electrophoretic methods, and thermal methods;
4. Development & validation of new analytical methods for known APIs and CIs (spectroscopic, chromatographic and electrophoretic techniques, thermal methods) from raw materials, pharmaceuticals or dermocosmetics, biological & environmental samples;
5. Structural analysis of APIs and CIs through computational methods;
6. Structural analysis of metal- and cyclodextrin complexes of APIs and CIs through computational methods;
7. Study of chemical interactions and incompatibilities between APIs / CIs;
8. Drug repositioning strategies in oncology and in the field of cardiovascular agents
9. Exploration of emerging natural therapeutic agents in dermatological and cosmetic treatments;
10. Communication in pharmacy practice

Methods and techniques:

Chromatographic methods (HPLC, EC, TLC), spectroscopic methods (FTIR, LC-MS, UV-VIS), thermal methods (TGA, DSC), elemental analysis, acid-base properties and molar conductance, computational methods (*in silico* studies), scientific literature review, scientific databases review, survey questionnaires

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

1. *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
2. *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
3. *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
4. *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
5. *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
6. *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).
7. *Lungu I.-A., Gâz-Florea Ș.-A., *Popa (Biriș) V., Rusu A. *Synthesis and preliminary characterisation of some fluoroquinolone-tetracycline 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)**
8. *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
9. *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
10. *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
11. *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
12. *Lungu I.-A., Uivarosi V., Imre S., Mare A.D., Rusu A. *Levofloxacin triflate – synthesis, characterization a microbiological activity assessment*, The 11th Conference of PhD Students and Young Doctors, 11 December 2018, Targu Mures, Book of Abstracts 1(109), 2018, ISSN 2602-1609, ISSN-L 2602-1609
13. Rusu A., Hancu G., *Sbanca M.-A. Vari C.E., *Capillary Zone Electrophoresis Applicability for Determination of Some Aromatase Inhibitors*, Scientific Session of University Educational Staff, 11-15 December 2017, Book of Abstracts, Acta Medica Marisiensis, 63(4): 49, ISSN-L/ISSN 2068-3324,
14. *Pavăl A.A., Rusu A. *New design of old antibiotics focused on drug-resistant Mycobacterium tuberculosis*, International Congress for Students, Young Doctors and Pharmacists Marisiensis 29 March - 2 April 2017, Târgu Mureș, Volume of abstracts, Acta Medica Marisiensis, Volume of abstracts, 2017, 63(1):87 ISSN/ISSN-L 2068-3324,
15. *Stratan D., Rusu A. *Screening methods for obtaining new silver complexes of levofloxacin*, International Congress for Students, Young Doctors and Pharmacists Marisiensis 30 March - 3 April 2016, Târgu Mureș, Volume of abstracts, Acta Medica Marisiensis, 2016, 62(4):86 ISSN/ISSN-L 2068-3324,
16. *Moldovan A., *Uilăcan A. Rusu A. *Preliminary UV spectrophotometric study of interaction silver ions-levofloxacin*, International Congress for Students, Young Doctors and Pharmacists Marisiensis 30 March - 3 April 2016, Târgu Mureș, Volume of abstracts, Acta Medica Marisiensis, Volume of abstracts, 2016, 62(4):89 ISSN/ISSN-L 2068-3324,
17. *Iriminescu DN., Hancu G. *Simultaneous equation and first-derivative UV spectrophotometric methods for the simultaneous determination of rifampicin and isoniazid*, International Congress for Students, Young Physicians and Pharmacists, Marisiensis, Tîrgu Mureș, 30 March – 3 April 2016, Acta Medica Marisiensis, 62(4): 93
18. Rusu A. Hancu G. Vancea S. *Stratan D. Kelemen H. *New Methods of Obtaining New Silver Complexes of Ofloxacin and Levofloxacin*, The 8th Conference of PhD Students, The 5th Conference Of Postdoc Fellows in Medicine and Pharmacy, 9-10 December 2015, Book of Abstracts, Acta Medica Marisiensis, 61(7): 1, ISSN-L/ISSN 2068-3324,
19. Rusu A. *Popescu G.-C. Imre S. Ion V. Vancea S. Hancu G. Kelemen H. Uivarosi V. *Preliminary Methods of Obtaining Silver Complexes with Representatives of the Fluoroquinolone Class*, The 15th International Symposium and Summer School on Bioanalysis, 13-18 July 2015, Târgu Mureș, Book of Abstracts, Acta Medica Marisiensis, 61(5): 37, ISSN: 2247-6113



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

A) ISI articles:

1. *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)
2. 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)
3. 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)
4. *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)
5. *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)
6. 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)
7. 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)
8. *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)
9. *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)
10. 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
11. Rusu A., Vari C.-E., Hancu G., Pașca M.D., *Botezatu R., Cucoranu D., Muntean D.L. *Brief Assessment of Pharmacist-Patient Communication Efficiency in Romanian Pharmacies*, Farmacia 2018, 66(6): 1091-1098, ISSN: 0014-8237 (printed edition), ISSN: 2065-0019 (on-line edition), DOI: [HTTP://DOI.ORG/10.31925/FARMACIA.2018.6.25](http://DOI.ORG/10.31925/FARMACIA.2018.6.25), IF 1.527

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>,
5. Rusu A., *Sbanca M.-A., Todoran N., Vari C.-E. *Letrozole Determination by Capillary Zone Electrophoresis and UV Spectrophotometry Methods*, Acta Medica Marisiensis, 2017, 63(2): 80-86, ISSN 2068-3324, on-line: 2247-6113, DOI: <https://doi.org/10.1515/amma-2017-0022>