



Student Scientific Research Group
Pharmaceutical and Cosmetic Chemistry – Pharm&CosmCHEM
The academic year 2022-2023

Members:

Aura Rusu, PhD, professor (head coordinator)
Gabriel Hancu, PhD, associate professor (coordinator)
Blanka Székely Szentmiklósi, PhD, lecturer (coordinator)
Attila Lajos Papp, PhD, assistant professor (coordinator)
Katerina Komán, chemist technician

PhD students currently involved:

Buta Lorena
Lungu Ioana-Andreea
Măgerușan Șoimița Emiliană
Moldovan Octavia

Masters students currently involved:

Pinti Ottilia

Students currently involved:

Arbănași Eliza-Mihaela
Biriș Victoria
Blaga Alexandra
Boje Mara-Alexandra
Boros Andrea
Farcaș Andreea-Maria
Gidofalvi Krisztina
Gurghian Mara
Hamza Patrícia
Hărțăgan Paula-Hermina
Kádár Emőke
Lukács Henrietta
Mazilu Raluca
Moga Ioana-Maria
Munteanu Sabina-Elena
Püszök Beáta-Júlia

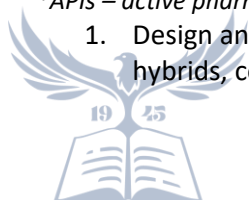
Contact

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Research topics:

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

1. Design and synthesis of compounds with biological properties (APIs and CIs): metal complexes, hybrids, complexes with cyclodextrins, derivatives of known compounds;





2. Structural analysis of newly obtained compounds through spectroscopic, chromatographic, electrophoretic methods, and thermal methods;
3. Structural analysis, development & validation of new analytical methods for known APIs and CIs (spectroscopic, chromatographic and electrophoretic methods, thermal methods) from raw materials, pharmaceuticals or dermocosmetics, biological & environmental samples;
4. Structural analysis of APIs and CIs through computational methods;
5. Structural analysis of metal- and cyclodextrin complexes of APIs and CIs through computational methods;
6. The study of chemical interactions and incompatibilities between APIs / CIs;
7. Literature review of the latest achievements in drug design; novel methods, and advancements in drug discovery.
8. Communication in pharmacy and cosmetic practice.

Relevant techniques:

Chromatographic methods (HPLC, TLC)

Electrophoretic methods (CE)

Spectroscopic methods (FTIR, LC-MS, UV-VIS)

Thermal methods (TGA, DSC)

Elemental analysis

Acid-base properties and molar conductance

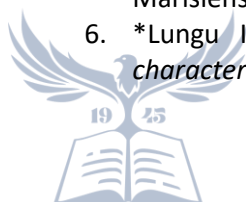
Molecular modelling and docking

Survey questionnaires

Scientific research of databases

Papers presented at scientific meetings by students' members of the scientific research group (highlighted name):

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, pag. 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, pag. 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, pag. 151
4. *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, pag. 59
5. *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, pag. 77
6. *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
7. 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,
 8. *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 - 2nd of April 2017, Târgu Mureș, Volume of abstracts, Acta Medica Marisiensis, Volume of abstracts, 2017, 63(1):87 ISSN/ISSN-L 2068-3324,
 9. *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,
 10. *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,
 11. *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
 12. 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,
 13. 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
 14. Kelemen H. *Papp L.A. Hancu G. Rusu A. Cârje AG. Szentmiklósi-Székely B. *Simultaneous determination of amoxicillin and clavulanic acid: UV-spectrometry versus capillary electrophoresis*, The 15th International Symposium and Summer School on Bioanalysis, Tîrgu Mureș, 13-18 Julie 2015, Acta Medica Marisiensis, 2015, 61(5): 31.

Relevant *in extenso* articles of the student scientific research team (students are marked with *):

ISI articles:

1. *Lungu, I.-A., *Moldovan, O.-L., *Biriș, V., Rusu, A. *Fluoroquinolones Hybrid Molecules as Promising Antibacterial Agents in the Fight against Antibacterial Resistance*. Pharmaceutics 2022, 14 (8), 1749. <https://doi.org/10.3390/pharmaceutics14081749> , FI 6.525 (Q1)
2. Rusu, A., Chereches, M. C., Popa, C., Botezatu, R., *Lungu, I.-A., *Moldovan, O.-L., *Community pharmacist's perspective regarding patient-centred communication in conjunction with pharmaceutical practice: a cross-sectional survey*. Saudi Pharmaceutical Journal 2022, xx (xx), xx(In Press). <https://doi.org/10.1016/j.jsps.2022.06.014>, FI 4.562 (Q2)





3. 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> , FI 6,321, zona roșie (Q1)
4. *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> , FI 6,023, zona roșie (Q1)
5. *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> , FI 2,117, zona roșie (Q1)
6. 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> , FI 0,617
7. 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) , FI: 1,527
8. Tilinca M., Hancu G., Mircia E., *Iriminescu D., Rusu A., *Vlad R.A., Barabás E. *Simultaneous determination of isoniazid and rifampicin by UV spectrophotometry*, *Farmacia* 2017, 65(2): 219-224, ISSN: 0014-8237 (printed edition), ISSN: 2065-0019 (on-line edition), <https://farmaciajournal.com/issue-articles/simultaneous-determination-of-isoniazid-and-rifampicin-by-uv-spectrophotometry/> FI: 1,507
9. Pașca M.D., Hancu G., *Soare R., *Budău M., Rusu A. *Logistic and constructive attitude perception of pharmacist students towards medicine*, *Farmacia* 2015, 5: 720-725, ISSN: 0014-8237 (printed edition), ISSN: 2065-0019 (on-line edition), <https://farmaciajournal.com/issue-articles/logistic-and-constructive-attitude-perception-of-pharmacy-students-towards-medicine/> FI: 1,162

BDI articles:

1. 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 (Online)
2. 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
3. *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> ,
4. 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>
5. *Rusu A. *Popescu G.-C. Imre S. Ion V. Vancea S. Grama A.-L. Kelemen H. Hancu G. *A New Silver Complex with Ofloxacin – Preliminary Study*, *Acta Medica Marisiensis*, 2016, 62: 192-198, ISSN: 2247-6113, DOI: <https://doi.org/10.1515/amma-2015-0091>
6. *Gorea D. Hancu G. Rusu A. Cârje A. Barabás E. *Indicatori de evaluare a calitatii apelor de suprafata si solurilor in proximitatea fostei exploatare de sulf din Muntii Calimani*. *Forum Geografic*, 2014, XIII(2): 212-218. DOI: <http://dx.doi.org/10.5775/fg.2067-4635.2014.166.d>

