Curriculum Vitae
Dr. Olesia KULYK

PERSONAL DATA

Date of birth 03.08.1988
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RESEARCH EXPERIENCE

CURRENT POSITION(S):

12.2021 – up to now Senior researcher at the Department of Luminescent Materials and Dyes, IFMC, Kharkiv.

PREVIOUS POSITION(S):

04.2022 – 10.2023 Postdoctoral fellow in Ariel University (Ariel, Israel)
09.2020 – 11.2021 Research scientist at the Department of Organic Luminophores and Dyes, IFMC, Kharkiv.
09.2019 – 08.2022 Docent at the Department of Organic Chemistry, V.N. Karazin Kharkiv National University, Ukraine.
09.2016 – 09.2017 Research Associate in Cardiff University (Cardiff, UK).
07.2015 – 06.2016 Postdoctoral Researcher in Namur University (Namur, Belgium).
09.2015 – 08.2016 Senior Teacher at the Department of Organic Chemistry, V.N. Karazin Kharkiv National University.
09.2014 – 08.2015 Teacher at the Department of Organic Chemistry, V.N. Karazin Kharkiv National University.
09.2013 – 08.2014 Assistant at the Department of Organic Chemistry, V.N. Karazin Kharkiv National University.
02.2012 – 06.2012 Visiting PhD student, École nationale supérieure de Chimie de Paris (France).

EDUCATION AND QUALIFICATIONS

08.2005 – 07.2010 Student of V.N. Karazin Kharkiv National University
11.2010 – 11.2013 PhD student of V.N. Karazin Kharkiv National University

Candidate of Science - Organic Chemistry, 22nd of December 2014 (DC № 02556022), V.N. Karazin Kharkiv National University.
Docent - Department of Organic Chemistry, 7th of April 2022 (AD № 010354), V.N. Karazin Kharkiv National University

SCIENTIFIC AND EDUCATIONAL-METHODICAL PUBLICATIONS

The total number of publications is 73, including 71 scientific and 2 educational-methodical ones. Among them are 3 patents (2 for utility models and 1 for an invention) and scientific papers published in domestic and international peer-reviewed journals, including 22 publications indexed in the Scopus database. (https://www.scopus.com/authid/detail.uri?authorId=55437563100).

SELECTED PUBLICATIONS

1. A. Panda, D. Kobzev, **O. Kulyk**, A. Bazylevich, G. Gellerman, L. Patsenker. Synthesis and evaluation of novel mitochondria-specific near-IR stains based on triphenylphosphonium-heptamethine cyanines // *Dyes Pigm*., 2023, 219, 111648.
2. R.P. Svoiakov, **O.G. Kulyk**, I.V. Hovor, S.V. Shishkina, A.L. Tatarets. Environment-sensitive indolenine-based hemisquaraine dyes: Synthesis, molecular structure, and spectral properties // *Dyes Pigm*. 2023, 219, 111612.
3. D. Poplinger, **O. Kulyk**, A. Bazylevich, G. Gellerman, L. Patsenker. First example of oxonol dyes with activatable fluorescence // *Dyes Pigm*. 2023, 211, 111095.
4. A.V. Prakash, F. Yazabak, I. Hovor, F. Nakonechny, **O. Kulyk**, O. Semenova, A. Bazylevich, G. Gellerman, L. Patsenker. Highly efficient near-IR cyclohexene cyanine photosensitizers for antibacterial photodynamic therapy // *Dyes Pigm.* 2023, 211, 111053.

5. O. Semenova, D. Kobzev, I. Hovor, M. Atrash, F. Nakonechny, **O. Kulyk**, A. Bazylevich, G. Gellerman, L. Patsenker. Effect of solubilizing group on the antibacterial activity of heptamethine cyanine photosensitizers // *Pharmaceutics* 2023, 15(1), 247.
6. **O.G. Kulyk**, O.S. Kolosova, R.P. Svoiakov, D.V. Kobzev, I.V. Hovor, I.M. Kraievska, E.V. Sanin, A.I. Krivoshey, Z.Yu. Tkachuk, A.L. Tatarets. Novel dimeric dyes based on the Acridine Orange chromophore: synthesis, char-acterization and application in real-time PCR // *Dyes Pigm*. 2022, 200, 110148.
7. **O. Kulyk**, L. Rocard, L. Maggini, D. Bonifazi. Synthetic strategies tailoring colours in multichromophoric organic nanostructures // *Chem. Soc. Rev*. 2020, 49(23), 8400–8424.
8. **Kulyk, O.G.**, Biloborodov, D.A., Cherevatenko, M.A., Shyriakin, Y.Y., Lyapunov, A.Yu., Mazepa, A.V., Vashchenko, V.V., Orlov, V.D., Kolosov, M.A. // Versatile approaches to a library of building blocks based on 5-acylthiazole skeleton. *Synth. Commun*. 2020, 50(23), 3616–3628.
9. Renaud, A., Bonnaud, L., Dumas, L., Zhang, T., Paint, Y., Fasano, F., **Kulyk, O.**, Pospisilova, E., Nysten, B., Delcorte, A., Bonifazi, D., Dubois, Ph., Olivier, M.-G., Poorteman M. A benzoxazine/substituted borazine composite coating: A new resin for improving the corrosion resistance of the pristine benzoxazine coating applied on aluminum // *Eur. Polymer J.* 2018, 109, 460–472.
10. Char, J., **Kulyk, O.G.**, Brule, E., Montigny, F., Guerineau, V., Roisnel, Th., Tschan, M.J.-L., Thomas, Ch.M. Microstructurally controlled polymers of rac-lactide by lithium complexes // *C. R. Chimie* 2016, 19, 167–172.

CONFERENCES

- Oral and poster presentations at both Ukrainian and international conferences, including the "6th International Caparica Conference on Chromogenic and Emissive Materials – IC^{3}EM 2024" (Portugal, 2024), the VII International (XVII Ukrainian) Scientific Conference of Students, Postgraduates, and Young Scientists "Chemical Problems of Today" (Vinnytsia, Ukraine, 2024), the XIX Scientific Conference "Lviv Chemical Readings – 2023" (Lviv, Ukraine, 2023), the "5th International Caparica Conference on Chromogenic and Emissive Materials – IC^{3}EM 2022" (Portugal, 2022), the 7th International Conference "NANOBIOPHYSICS: Fundamental and Applied Aspects" (Kharkiv, Ukraine, 2021), and others.
- Organization of conferences as part of organizing committees, including the Ukrainian Conference of Scientific Researchers (September 19-25, 2021, Lviv) and the Conference-Competition of Scientific Papers by Young Scientists of the SSI "Institute for Single Crystals" of the NASU (2021, 2022, Kharkiv).

RESEARCH EXPERIENCE OUTSIDE UKRAINE

November 2, 2023 – present time: Science communication coordinator of COST Action «CA22147 - European metal-organic framework network: combining research and development to promote technological solutions (EU4MOFs)».

February 3, 2012 – June 30, 2012: Internship at ChimieParisTech (Paris, France) in the research group of Prof. Christoph Thomas; synthesis of new Li(I) complexes based on N-heterocyclic carbenes to promote the ring-opening polymerization of lactide for the development of biodegradable polymers.

January 6, 2015 – February 8, 2015: Internship at Namur University (Namur, Belgium) in the research group of Prof. Davide Bonifazi; synthesis of new dyes based on non-symmetrical naphthalene diimides.

July 1, 2015 – June 30, 2016: Postdoc at Namur University (Namur, Belgium) in the research group of Prof. Davide Bonifazi; synthesis and modification of BN nanoparticles and borazine derivatives for the development of new corrosion-resistant coatings based on benzoxazine polymers.

September 13, 2016 – September 12, 2017: Postdoc at Cardiff University (Cardiff, UK) in the research group of Prof. Davide Bonifazi; supramolecular chemistry, in particular synthesis of artificial antennas capable of absorbing and transporting solar energy to the reaction center, thus mimicking the natural photosynthetic systems.

April 10, 2022 – October 30, 2023: Postdoc at Ariel University (Ariel, Israel) in the research group of Prof. Gary Gellerman; synthesis and investigation of novel polymethine dyes for biomedical applications; data processing of biological experiments, data analysis and generalization, writing the articles.

UKRAINIAN AND INTERNATIONAL RESEARCH PROJECTS

Curriculum Vitae
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The total number of NRFU projects, competitive thematic programs, departmental research topics, as well as Ukrainian and international grants, is 12. Among them:

Experience as a PI:

02.2022 — 12.2023 "Modern approaches to the determination of toxic elements to control the quality of pharmaceutical products and the state of environmental safety", Grant of the National Academy of Sciences of Ukraine to research laboratories/groups of young scientists of the National Academy of Sciences of Ukraine for conducting research in priority areas of science and technology (№ 0122U002200), SSI "Institute for Single Crystals" NAS of Ukraine.

Experience as participant (selected projects):

08.2024 — present time: «Development of new materials based on supramolecular systems for biomedical and veterinary applications», NRFU competition «Infrastructures for advanced research» (2023.05/0003), SSI "Institute for Single Crystals" NAS of Ukraine.

10.2020 — 12.2021: "Development of fluorescent diagnostic materials for hybridization assays and studies by polymerase chain reaction", NRFU competition "Science for the safety of human and society" (Application ID: 2020.01/0516), SSI "Institute for Single Crystals" NAS of Ukraine.

01.2016 — 12.2016: «COLOR Ordering Templated by Hierarchized Supramolecular Porous FlatLANDS», European Research Council, ERC Grant, COLORLANDS (№ 280183), Namur University (Belgium) and Cardiff University (UK).

07.2015 — 06.2016: «Résines biosourcées nanorenforcées pour coatings sur aluminium: du procédé de production «solvent-free» aux applications durables et multifonctionnelles dans le transport», FLYCOAT (Programme d'excellence Région Wallonne), Namur University (Belgium).

AWARDS

Laureate of the Prize of the Verkhovna Rada of Ukraine for Young Scientists in 2022.

Laureate of the Prize of the President of Ukraine for Young Scientists in 2021.

Scholar of the Yuri Sapronov Kharkiv Charitable Foundation (2014–2015).

Laureate of the Professor I.E. Tarapov Scholarship (2012–2013).

TEACHING EXPERIENCE

V.N. Karazin Kharkiv National University:

- "Organic chemistry", (3rd year full-time students, chemical faculty), seminars, laboratory works.
- "Bioorganic chemistry", (5th year full-time students, chemical faculty), seminars, laboratory works.
- "Bioorganic chemistry", (1st year full-time students, medical faculty), seminars, laboratory works.

SSI "Institute for Single Crystals" of NAS of Ukraine:

- "The structure of organic substances" (lectures and seminars for PhD students)