



Olga S. Kolosova

PhD in Organic
Chemistry

Personal Info

Date and place of birth: July 05, 1981, Kharkiv, Ukraine

Citizenship: Ukraine

Present Affiliation: Senior Researcher in Krasovitsky's Department of Luminescent Materials and Dyes, Institute of Chemistry of Functional Materials, State Scientific Institution "Scientific and Technological Complex 'Institute of Single Crystals' of the NASU" (SSI ISC NASU) (60 Nauki Ave., 61072 Kharkov, Ukraine)

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Scientific Degree: PhD in Organic Chemistry 2014, (SSI ISC NASU)

Scientific-research profile:

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Scientific Background and Research Interests:

- Fluorescence-based probes and labels for biomedical, pharmaceutical and environmental applications and life sciences: development, investigation and application
- Development, investigation and application of organic dyes and luminophores
- Organic and physical organic chemistry
- Synthesis and reactivity of organic compounds
- Molecular spectroscopy and fluorescence

Education:

2004 – 2007	State Scientific Institution "Institute for Single Crystals" of the National Academy of Sciences of Ukraine
Post-graduate student	
1998 – 2003	Department of Functional Materials, Faculty of Chemistry, V.N. Karazin Kharkiv National University, Ukraine
Student (M.Sc.)	

Previous Affiliations:

12.2020 – present time	Senior Researcher, SSI "Institute for Single Crystals" NASU
05.2022 – 09.2023	Research Assistant, Brandenburg University of Technology Cottbus–Senftenberg, Germany
08.2019 – 11.2020	Researcher, SSI "Institute for Single Crystals" NASU
06.2013 – 07.2019	Junior Researcher, SSI "Institute for Single Crystals" NASU
01.2008 – 05.2013	Senior Engineer, SSI "Institute for Single Crystals" NASU
01.2005 – 12.2007	Engineer 2 deg., SSI "Institute for Single Crystals" NASU
07.2004 – 12.2004	Engineer 2 deg., Institute for Scintillation materials NASU
06.2013 – 07.2019	Junior Researcher, SSI "Institute for Single Crystals" NASU

Participation in Ukrainian and International Grants and Projects (several selected):

International:

- Brandenburg Technical University Cottbus-Senftenberg research project "*Synthesis and characterization of thin films and nano-particles from novel conductive chemosensitive polymer with receptors for sugars*" (2022–2023) – Main Implementer;
- STCU Partnership Project (Grant No.P548b supported by SETA BioMedicals, USA): "*Fluorescent Probes and Labels for Biomedical Applications*" (2022 - Present time) –Participant;
- STCU Partnership Project (Grant No.P313 supported by SETA BioMedicals, USA) (2007–2012) – Project Manager;
- STCU Regular Project (Grant No.3795 supported by the Canada and EU governments): "*Improving Multiplexed Analysis Systems for Environmental Pollution Monitoring and Medical Diagnostics Using Novel Classification Dyes*" (2007 - 2009).

Ukrainian:

- 2024–Present time — NRFU competition "Infrastructures for

- Chemistry of cyanine and squaraine dyes
- HPLC methods development

Publications:

h-index 8

17 Scientific publications
(Including 11 in Q1 & Q2 quartile journals)

25 Ukrainian and International patents

Advanced Research "Development of New Materials Based on Supramolecular Systems for Biomedical and Veterinary Applications" (Application ID: 2023.05/0003);

- 2020–2021 — NRFU competition "Science for the safety of human and society" "Development of fluorescent diagnostic materials for hybridization assays and studies by polymerase chain reaction" (Application ID: 2020.01/0516);
- 2017–2021 — Project No. 0117U001281 supported by the NAS of Ukraine: "Fundamentals of creating organic dyes for fluorescent medical diagnostics, display elements and photonic devices";
- 2017–2019 — Projects No. 0119U101294 and No. 0117U005088 supported by the NAS of Ukraine: "Development of new dyes as fluorescent labels and labeling methods for fuels and lubricants".

List of several selected publications of Dr. Olga Kolosova

Papers

1. Kulyk, O., Krivoshey, A., Kolosova, O., Prylutska, I., Vasiliu, T., Puf, R., ... & Tatarets, A. (2024). Nucleic acid-binding bis-acridine orange dyes with improved properties for bioimaging and PCR applications. *Journal of Materials Chemistry B*, 12(46), 11968-11982. DOI: 10.1039/D4TB01775G
2. Kolosova, O. S., Efremenko, Y., Laurinavichyute, V. K., Nizamov, S., Petrushenko, S. I., & Mirsky, V. M. (2024). Poly-3-thienylboronic Acid Nanoparticles: Synthesis, Characterization, and Interaction with Saccharides Studied at the Level of Individual Nanoparticles. *ACS Applied Nano Materials*. DOI: 10.1021/acsanm.4c00216
3. Kulyk, O. G., Kolosova, O. S., Svoiakov, R. P., Kobzev, D. V., Hovor, I. V., Kraievska, I. M., ... & Tatarets, A. L. (2022). Novel dimeric dyes based on the acridine orange chromophore: Synthesis, characterization and application in real-time PCR. *Dyes and Pigments*, 200, 110148. DOI: 10.1016/j.dyepig.2022.110148
4. Mass, O. A., Wilson, C. K., Barcenas, G., Terpetschnig, E. A., Obukhova, O. M., Kolosova, O. S., ... & Lee, J. (2022). Influence of hydrophobicity on excitonic coupling in DNA-templated indolenine squaraine dye aggregates. *The Journal of Physical Chemistry C*, 126(7), 3475-3488. DOI: 10.1021/acs.jpcc.1c08981
5. Semenova, O., Kobzev, D., Yazbak, F., Nakonechny, F., Kolosova, O., Tatarets, A., ... & Patsenker, L. (2021). Unexpected effect of iodine atoms in heptamethine cyanine dyes on the photodynamic eradication of Gram-positive and Gram-negative pathogens. *Dyes and Pigments*, 195, 109745. DOI: 10.1016/j.dyepig.2021.109745
6. Barcenas, G., Biagagne, A., Mass, O. A., Wilson, C. K., Obukhova, O. M., Kolosova, O. S., ... & Li, L. (2021). First-principles studies of substituent effects on squaraine dyes. *RSC advances*, 11(31), 19029-19040. DOI: 10.1039/D1RA01377G
7. Hovor, I. V., Kolosova, O. S., Sanin, E. V., Obukhova, O. M., Tatarets, A. L., Terpetschnig, E. A., & Patsenker, L. D. (2019). Water-soluble norsquaraine dyes for protein labeling and pH-sensing applications. *Dyes and Pigments*, 170, 107567. DOI: 10.1016/j.dyepig.2019.107567
8. Kolosova, O. S., Shishkina, S. V., Marks, V., Gellerman, G., Hovor, I. V., Tatarets, A. L., ... & Patsenker, L. D. (2019). Molecular structure and spectral properties of indolenine based norsquaraines versus squaraines. *Dyes and Pigments*, 163, 318-329. DOI: 10.1016/j.dyepig.2018.12.007
9. Matveeva, E. G., Terpetschnig, E. A., Stevens, M., Patsenker, L., Kolosova, O. S., Gryczynski, Z., & Gryczynski, I. (2009). Near-infrared squaraine dyes for fluorescence enhanced surface assay. *Dyes and Pigments*, 80(1), 41-46. DOI: 10.1016/j.dyepig.2008.04.008.
10. Patsenker, L., Tatarets, A., Kolosova, O., Obukhova, O., Povrozin, Y., Fedyunyayeva, I., ... & Terpetschnig, E. (2008). Fluorescent probes and labels for biomedical applications. *Annals of the New York Academy of Sciences*, 1130(1), 179-187. DOI: 10.1196/annals.1430.035.

Patents

1. Tatarets AL, Kolosova OS, Obukhova OM, Svoiakov RP, Semenova OM, Stepanenko OYu, Fediuniaieva IA; Ukrainian patent for an invention № 127869 Derivatives of the quaternized salt of bis(3,6-bis(dimethylamino)acridin-10-ium and a method for their preparation. Published on 31.01.2024.
2. Kulyk OH, Tatarets AL, Kolosova OS, Sanin EV, Hovor IV, Kobzev DV, Kryvoshei OI; Ukrainian patent for an invention № 128702 Method of detection of double-strand DNA using dimer dyes-intercalators. Published on 11.01.2023.
3. Kulyk OH, Yermolenko IH, Kryvoshei OI, Mykhailenko VV, Stepanenko OYu, Kolosova OS, Tatarets AL; Ukrainian patent for an invention № 127873 Derivatives of the quaternized salt of bis(3,6-bis(dimethylamino)acridin-10-ium and a method for their preparation. Published on 11.01.2023.

4. Kobzev DV, Kolosova OS, Obukhova OM, Semenova OM, Svoyakov RP, Tatarets AL, Terpetschnig EA, inventors; SETA BioMedicals LLC, assignee. Luminescent squaraine rotaxane compounds. United States patent *US 11,091,646*. 2021 Aug 17.

5. Terpetschnig EA, Patsenker LD, Markova L, Fedyunyaeva IA, Kolosova OS, Obukhova OM, Tatarets A, inventors; SETA BioMedicals LLC, assignee. Luminescent compounds. United States patent *US 9,110,069*. 2015 Aug 18.

6. Terpetschnig EA, Patsenker LD, Markova L, Fedyunyaeva IA, Kolosova OS, Starko S, Tatarets A, inventors; SETA BioMedicals LLC, assignee. Luminescent compounds. United States patent *US 8,552,027*. 2013 Oct 8.

7. Terpetschnig EA, Tatarets A, Galkina O, Fedyunyaeva I, Patsenker L, inventors; Terpetschnig Ewald A, assignee. Luminescent compounds. United States patent *US 7,411,068*. 2008 Aug 12.