Eleonora Sadykova

sadykova.leonora@gmail.com • +7 (925) 765-18-16 • Moscow, Russia

EDUCATION

NATIONAL RESEARCH NUCLEAR UNIVERSITY MEPhI (MOSCOW ENGINEERING PHYSICS INSTITUTE) — Moscow, Russia
Master — *September 2019 – June 2021*
Major: Physics, Department of Biomedical Photonics
Thesis: Analysis of the metabolism of immunocompetent cells for their control using photodynamics
GPA: 4.75 (out of 5.0), state-funded student
Out of top 10% of scholarship participants receiving increased state academic scholarship

MOSCOW STATE ACADEMY OF VETERINARY MEDICINE AND BIOTECHNOLOGY — Moscow, Russia
Bachelor — *September 2015 – June 2019*
Major: Biology, Department of Biochemistry
Thesis: Development of systems based on magnetic nanoparticles for the extraction of blood components
GPA: 4.5 (out of 5.0), state-funded student

WORK EXPERIENCE

LABORATORY OF MOLECULAR PATHOLOGY, MEDICAL GENETIC CENTER "GENOMED" — Moscow, Russia
Researcher in production department — *April 2022 – current*

- Developed 2 commercial kits for genome DNA extraction from yeast and from milk through 40+ hours in a team of 5 members; obtain high yields of high-quality DNA, even from specialized samples;
- Mastered the whole-genome shotgun library preparation method for next-generation sequencing using Illumina's MiSeq platform at 2+ weeks, supervised 3 launches on equipment;
- Created in collaboration with other department's 10+ researchers silica-coated magnetic nanoparticles for DNA extraction during 2 month that replicate the result of commercial particles DynaBeads with 100% reproducibility;
- Tutored and assisted 4 interns to mastered molecular biology skills such as real-time PCR and electrophoresis through 3 months; gathered 30+ commercial molecular biology kits for sale by team;
- Devised a dilution buffer for a DNA quantification kit and conducted 8 experimental tests of the buffer to create a commercial kit of an analogue of Qubit™ dsDNA HS Assay Kit.

DEPARTMENT OF LASER TECHNOLOGIES IN MEDICINE, IPG PHOTONICS CORPORATION — Moscow, Russia
Intern — *January – March 2022*

- Conducted research of laser pulse modulation to improve the laser lithotripsy protocol and investigated radial optical fibers under conditions of artificial surgery using optical phantoms as an example;
- Explored of collapsing laser-induced cavitation bubbles under different conditions of laser lithotripsy using a stand with a high-speed camera "Phantom" with shooting speed up to 423,300 fps.

CENTER FOR MAGNETIC SPECTROSCOPY, INSTITUTE OF BIOCHEMICAL PHYSICS RAS — Moscow, Russia
Researcher — *December 2020 – July 2022*

- Invented systems based on magnetic nanoparticles modified with folic acid for targeted delivery *in vivo* in collaboration with National Medical Research Center of Oncology. N. N. Blokhina, which resulted in participated XXI annual youth conference with international participation IBHF RAS-universities;
- Authored the publication of the article "Nonspecific interaction between plasminogen and modified magnetic iron oxide nanoparticles" on the results of the study in the journal "Preparative biochemistry and biotechnology" in 2021;
- Won the UMNIK competition from the Innovation Promotion Fund, receiving a grant of $8500 for research work "Creating a test system based on magnetic particles for the isolation of analyte proteins from blood *in vitro*" among 120 participants.

LABORATORY OF THERMODYNAMICS OF BIOSYSTEMS, INSTITUTE OF BIOCHEMICAL PHYSICS RAS — Moscow, Russia
Senior assistant — *October 2018 – December 2020*

- Developed a system based on magnetic nanoparticles for the extraction of blood protein – plasminogen using monoclonal antibodies in a group of 4 members;
- Made a presentation on the topic "Systems based on magnetic nanoparticles for the extraction of plasminogen from biological fluids" at the conference "Actual problems of biomedicine - 2020" among other 1000 participants.

LABORATORY OF LASER BIOSPECTROSCOPY, PROKHOROV GENERAL PHYSICS INSTITUTE OF THE RAS — Moscow, Russia
Intern — *February – July 2021*

- Mastered the technique of working on a confocal laser scanning microscope “Karl Zeiss” and worked with human macrophage cell cultures and cancer cell lines during 5 months in a team of 2 professors and 4 students;
- Participated in the international grant “Photoactivated iron nanosystems – novel phenomena and their potential for cancer theranostics” with German scientific research community;
- Conducted a study of changes in the metabolism of macrophages during photodynamic therapy of malignant neoplasms and revealed an increase in the level of autofluorescence by 20% compared to healthy cells.

ADDITIONAL INFORMATION

PUBLICATIONS

- A. V. Bychkova, E. A. Kostanova, **E. Z. Sadykova**. Nonspecific interaction between plasminogen and modified magnetic iron oxide nanoparticles // Preparative biochemistry and biotechnology. — 2021.

CONFERENCES

- **Poster presentation** “Self-assembly of hybrid systems based on magnetic nanoparticles for tumor theranostics”, III school-conference for young scientists "Supramolecular Strategies in Chemistry, Biology and Medicine: Fundamental Problems and Prospects", 90 participants; — Kazan, Russia, *October 2021*
- **Oral Presentation** “Creation of systems based on magnetic nanoparticles for the extraction of blood protein components in vitro”, III Annual Summit of young scientists and engineers "Great Challenges for Society, State and Science", 500 participants; — Sochi, Russia, *April 2021*
- **Poster presentation** «Interaction between plasminogen and modified magnetic nanoparticles”, VII international conference of young scientists: virologists, biotechnologists, molecular biologists, and biophysicists “Openbio-2020”, 300 participants. — Koltsovo, Russia, *September 2020*

VOLUNTEER EXPERIENCE AND EXTRACURRICULAR ACTIVITIES

- **University Open Day, National Research Nuclear University MEPhI, *volunteer*** — *Moscow, Russia, January 2021*
  Assisted the Faculty Admissions Committee in holding an open day for prospective students, promoted educational programs and admission, managed communication among other participants.
- **Olympiad "I am a professional", National Research Nuclear University MEPhI, *volunteer*** — *Moscow, Russia, February 2020*
  Moderated and managed All-Russian stage of the Olympiad with 100 finalists, registered participants, supervised the implementation of the event according to the regulations.
- **Kozhukhovskiy animal shelter, *volunteer*** — *Moscow, Russia, July 2020 – August 2020*
  Regularly visited the shelter, taking care of the dogs, helping new animals to acclimatize to the environement and staff.

AWARDS AND HONORS

- Entered the group of 50 finalists of the All-Russian Engineering Competition with the diploma project "Magnetic particles in biomedicine"; — *Moscow, Russia, January 2021*
- 1st degree diploma for a report in the student section: "Actual problems of biomedical materials science" at the XXVI All-Russian conference of young scientists with international participation "Actual problems of biomedicine - 2020"; — *St. Petersburg, Russia, March 2020*
- 1st place of the student team in the scientific tournament "MEPhI Scientific Tournament" in National Research Nuclear University. — *Moscow, Russia, November 2020*

RESEARCH SKILLS

- **Magnetic nanoparticles:** magnetic synthesis, surface modification; **Microscopy:** confocal laser scanning microscopy, fluorescence-lifetime imaging microscopy, optical microscopy; **Cell biology:** maintenance of cell cultures THP1, HeLa, C6 glioma cell line; **Proteins:** PAAG gel electrophoresis, Bradford assay, ELISA; **Molecular biology:** DNA extraction, PCR, RT-PCR, electrophoresis, library preparation for NGS; **Biophotonics:** photodynamic therapy, fluorescence diagnostics.

COMPUTER SKILLS

- **General:** Microsoft Office, OriginLab; **Statistics:** Python (beginner); **Image processing:** ImageJ, ZEN, SPCImage.

LANGUAGES

- **English** – Upper-intermediate, **German** – elementary, **Russian** – native.

SCIENTIFIC INTERESTS

- Bionanotechnology, laser physics, biophotonics, biomedicine, magnetic nanoparticles, confocal laser scanning microscopy, photosensitizers, molecular biology, bioinformatics, oncology.

HOBBIES

- Dance class *2021 – Current*
- Playing piano (Piano Grade 7) *2005 – Current*