Personal Information

ELENA ESIMBEKOVA

Address: *50/50 Akademgorodok, Krasnoyarsk*

Phone: *telephone number+7(931)249-42-42*

E-mail address: *EEsimbekova @sfu-kras.ru*

Personal Webpage (s) *http://structure.sfu-kras.ru/node/1820 (rus)*

http://www.ibp.ru/labs/esimbekova.php

Google Scholar: *https://scholar.google.ru/citations?hl=en&user=zuuc2isAAAAJ*

Profile on another site(s): *https://www.researchgate.net/profile/Elena_Esimbekova*

Current Position

- *Senior Researcher, Institute of Biophysics of RAS, Krasnoyarsk*
- *Assistant Professor, Siberian Federal University*

Research Interests

- *bioluminescence*
- *luciferase*
- *immobilization of enzymes*
- *stabilization of proteins*
- *bioluminescent assay*
- *ecological monitoring*

Education and Academic Degrees

- 2000 — *Kandidatskaya degree (Ph.D.), Biological Sciences (Biophysics), Institute of Biophysics, Siberian Branch of Russian Academy of Sciences, Krasnoyarsk, Russia*
- 1986-1991 — *Diploma in Biophysics, Krasnoyarsk State University, Krasnoyarsk, Russia*

Professional Career

- 1992-2018 — *laboratory assistant, post-graduate student, junior researcher, researcher, Photobiology Laboratory, Institute of Biophysics, Siberian Branch of Russian Academy of Sciences, Krasnoyarsk*
- 1998–2004 — *engineer, senior teacher, Krasnoyarsk State University*

Recent Publications

- 2021 —
  - Esimbekova E.N., Torgashina I.G., Kalyabina V.P., Kratasyuk V.A. Enzymatic Biotesting: Scientific Basis and Application // Contemporary Problems of Ecology, 2021, Vol. 14, No. 3, pp. 290–304.
  - Lonshakova-Mukina V.I., Esimbekova E.N., Kratasyuk V.A. Thermal inactivation of butyrylcholinesterase in starch and gelatin gels // Catalysts, 2021. N 11, V. 492. 10 p.
  - Esimbekova E.N., Kalyabina V.P., Kopylova K.V., Torgashina I.G., Kratasyuk V.A. Design of bioluminescent biosensors for assessing contamination of complex matrices // Talanta, 2021. V. 233. N 122509.
  - Kalyabina V.P., Esimbekova E.N., Kopylova K.V., Kratasyuk V.A. Pesticides: formulants, distribution pathways and effects on human health – a review // Toxicology Reports, 2021. V. 8. P. 1179-1192.
- 2020 —
  - Esimbekova E.N., Govorun A.E., Lonshakova-Mukina V.I. and Kratasyuk V.A. Gelatin and starch: What better stabilizes the enzyme activity? // Doklady Biological Sciences, 2020. V. 491, N 2. P. 43–46.
- 2019 —
  - Kolosova E. M., Sutormin O. S., Esimbekova E. N., Lonshakova-Mukina V. I. and Kratasyuk V. A. Set of enzymatic bioassays for assessment of soil contamination // Doklady Biological Sciences, 2019. V. 489, N 1. P. 165–168.
  - Belobrov P.I., Evstrapov A.A., Esimbekova E.N., Denisov I.A., Lukyanenko K.A., Osipova E.D., Yakimov A.S. Towards biological quantity theory for nominal property metrology in polyenzymatic devices with living cells // Journal of Physics: Conference Series, IOP Publishing, 2019. V. 1379, N 1. 6 p. 012036

- Govorun A.E., Esimbekova E.N., Kratasyuk V.A. NAD(P)H:FMN-oxidoreductase functioning under macromolecular crowding: in vitro modeling // Doklady Biochemistry and Biophysics, 2019. V. 486, N 4. P. 213–215.
- Kirillova M.A., Ranjan R., Esimbekova E.N., Kratasyuk V.A. Role of Hsp90 and ATP in modulating apyrase activity and firefly luciferase kinetic // International Journal of Biological Macromolecules, 2019. V. 131. P. 691–696. DOI: 10.1016/ j.ijbiomac.2019.03.110 https://doi.org/10.1016/j.ijbiomac.2019.03.110
- Lukyanenko K.A., Denisov I.A., Sorokin V.V., Yakimov A.S., Esimbekova E.N., Belobrov P.I. Handheld enzymatic luminescent biosensor for rapid detection of heavy metals in water samples // Chemosensors, Special Issue "Chemical Sensors for Heavy Metals/Toxin Detection", 2019. V. 7, Issue 1, 16. 10 p.
- Torgashina I.G., Kopylova K.V., Kratasyuk V.A. Principles for construction of bioluminescent enzyme biotests for analysis of complex media // Doklady Biochemistry and Biophysics, 2019. V. 485, N 1. P. 107–110.

- 2018 —
  - Sutormin O.S. , Kolosova E.M., Nemtseva E.V., Iskorneva O.V, Lisitsa A.E., Matvienko V.S., Esimbekova E.N., Kratasyuk V.A. Enzymatic bioassay of soil: Sensitivity comparison of mono-, double- and triple-enzyme systems to soil toxicants // Tsitologiya, 2018. V. 60, N 10. P. 826-829.
  - Denisov I., Lukyanenko K., Yakimov A., Kukhtevich I., Esimbekova E., Belobrov P. Disposable luciferase-based microfluidic chip for rapid assay of water pollution // Luminescence, 2018. V. 33, Issue 6. P. 1054-1061.
  - Ranjan R., Kirillova M.A., Esimbekova E.N., Zharkov S.M., Kratasyuk V.A. Agglomeration behavior of lipid capped gold nanoparticles // Journal of Nanoparticle Research, 2018. V. 20, N 4. Article 107. 11 p. (Q2) IF = 2,009 DOI: 10.1007/s11051-018-4215-5
  - Kirillova M.A., Esimbekova E.N., Ranjan R., Torgashina I.G., Kratasyuk V.A. Bioluminescent system of luminous bacteria for detection of microbial contamination // Journal of Siberian Federal University. Biology, 2018. N 11(2). P. 174-180.
  - Esimbekova E.N., Kratasyuk V.A., Nemtseva E.V., Kudryasheva N.S., Medvedeva S.E., Kirillova M.A. Bioluminescent bioassays: current state and prospects. Monograph edited by Dr. V. A. Kratasyuk, Doctor of Biological Sciences. Krasnoyarsk: SibFU Publishing House, 2018. – 256 p.
  - Lonshakova-Mukina V. I., Esimbekova E. N., Kratasyuk V.A. Stabilization of butyrylcholinesterase by the entrapment into the natural polymer-based gels // Doklady Biochemistry and Biophysics, 2018. V. 479, N 1. P. 98-100.
- 2017 —
  - Ranjan R., Esimbekova E.N. and Kratasyuk V.A. Rapid biosensing tools for cancer biomarkers // Biosensors and Bioelectronics, 2017. V. 87. P. 918-930.
  - Esimbekova E.N., Nemtseva E.V., Kirillova M.A., Asanova A.A. and Kratasyuk V.A. Bioluminescent assay for toxicological assessment of nanomaterials // Doklady Biochemistry and Biophysics, 2017. V. 472 N 1. P. 60–63.
  - Lukyanenko K.A., Belousov K.I., Denisov I.A., Yakimov A.S., Esimbekova E.N., Bukatin A.S., Evstrapov A.A., Belobrov P.I. Active mixing of immobilized enzymatic system in microfluidic chip // Micro & Nano Letters, 2017. V. 12, N 6. P. 377-381.
  - Esimbekova E.N., Asanova A.A., Deeva A.A., Kratasyuk V.A. Inhibition effect of food preservatives on endoproteinases // Food Chemistry, 2017. V. 235. P. 294-297.
  - Ranjan R., Esimbekova E.N., Kirillova M. A. and Kratasyuk V.A. Metal enhanced luminescence: Current trend and future Perspectives – A review // Analytica Chimica Acta, 2017. V. 971. P. 1-13.
  - Fritsler Y.V., Esimbekova E.N., Kratasyuk V.A. Bioluminescent enzyme inhibition based assay of metal nanoparticles // Journal of Siberian Federal University. Biology 1, 2017. N 2. P. 187-198.
  - Esimbekova E.N., Nemtseva E.V., Bezrukikh A.E., Jukova G.V., Lisitsa A.E., Lonshakova-Mukina V.I., Rimatskaya N.V., Sutormin O.S., Kratasyuk V.A. Bioluminescent enzyme inhibition-based assay to predict the potential toxicity of carbon nanomaterials // Toxicology in Vitro, 2017. V. 45, Part 1. P. 128-133.
  - Lukyanenko K.A., Denisov I.A., Yakimov A.S., Esimbekova E.N., Belousov K.I., Bukatin A.S., Kukhtevich I.V., Sorokin V.V., Evstrapov A.A., Belobrov P.I. Analytical Enzymatic Reactions in Microfluidic Chips // Applied Biochemistry and Microbiology, 2017, Vol. 53, No. 7, pp. 775–780.
  - Evstrapov A.A., Belobrov P.I., Bulyanitsa A.L., Belousov K.I., Bukatin A.S., Denisov I.A., Esimbekova E.N., Kukhtevich I.V., Lukyanenko K.A., Posmitnaya Ya.S., Sorokin V.V., Yakimov A.S. Microfluidic technologies of biological analysis of natural and industrial waters – Novosibirsk: SB RAS Publishing House, 2017. 162 p.

Research Project Grants

- 2020-2022 — RFBR together with the Government of the Krasnoyarsk Territory, the Krasnoyarsk Regional Fund for Support of Scientific and Scientific-Technical Activity № 20-44-242001 р_мк "Mechanisms of toxic effect of pesticides' active ingredients and their formulants on in vitro and in vivo test systems", The Project Manager.
- 2019-2020 — RFBR № 19-14-50238 "Enzymatic bioassay: scientific foundations and applications", Competition for financial support for the preparation and publication of scientific review articles (Expansion).
- 2018-2019 — RFBR together with the Government of the Krasnoyarsk Territory, the Krasnoyarsk Regional Fund for Support of Scientific and Scientific-Technical Activity № 18-44-242003 р_мк "Designing an Enzymatic Reagent for Bioluminescent Analysis: Mechanisms for Increasing Sensitivity and Accuracy", The Project Manager.
- 2016-2018 — RNF № 16-14-10115 "New Methodology for Integrated Express Assessment of Soil Quality and Pollution Based on Enzyme Bioluminescent Systems".
- 2015 2017 — RNF № 15-19-10041 "Analytical system for the rapid assessment of the integral toxicity of physiological fluids, natural and industrial waters based on microfluidic technologies and enzymatic biotesting methods" under the program "Conducting fundamental and exploratory research with the involvement of young researchers".
- 2016-2018 — RFBR № 16-06-00439 "Expert assessment of human health: basic research".

- 2016-2017 — RFBR № 16-44-242126 together with the Government of the Krasnoyarsk Territory, the Krasnoyarsk Regional Fund for Support of Scientific and Technological Activities “Development of the Scientific Foundations of Express Biotechnology for Biotesting for Food Security and Quality Control of Vegetables and Fruits”.

Conferences

- 2021 —
  - SETAC Europe 31st Annual Meeting «Global challenges. An emergency for environmental sciences», 3–6 May 2021.
  - International Conference “Ecological Monitoring: Methods and Approaches” within the frames of the XX-th All-Russian Symposium «Complex systems under extreme conditions», 20-24th September 2021, Krasnoyarsk, Russia.
- 2019 —
  - VI Congress of Biophysicists of Russia, September 16-21, 2019, Sochi.
  - II Joint Scientific Forum, VI Congress of CIS Physiologists, VI Congress of Russian Biochemists, IX Russian Symposium "Proteins and Peptides", October 1-6, 2019, Dagomys, Sochi.
  - SETAC Europe 29th Annual Meeting, Helsinki, Finland. 26–30 May 2019 г.
- 2018 —
  - 27 International Conference on Ecology and Safety, 23-27 June 2018, Elenite, Bulgaria.
  - 20th International Symposium on Bioluminescence & Chemiluminescence, 28-31 May 2018. Nantes, France.
  - 12th International Conference on Protein Stabilization, 16-18 May 2018, Vilnius, Lithuania.
  - SETAC Europe 28th Annual Meeting, 13-17 May 2018, Rome, Italy.
  - 3rd International Scientific Conference "Biotechnology of New Materials - Environment - Quality of Life". Krasnoyarsk, September 30-October 4, 2018.
- 2017 —
  - The International Conference on Food and Biosystems Engineering, 1- 4 June 2017, Rhodes Island, Greece.
  - 2nd International Scientific Conference "Biotechnology of New Materials - Environment - Quality of Life". Krasnoyarsk, September 24-29, 2017.

Patents

- Patent RF 2734621. Enzymatic method for assessing the integral toxicity of the air environment. Rimatskaya N.V., Nemtseva E.V., Kratasyuk V.A, Esimbekova E.N. Published 21.10.2020.
- Patent RF 2704264. Express method for the determination of butyrylcholinesterase inhibitors in water and aqueous extracts. Esimbekova E.N., Lonshakova-Mukina V.I., Kratasyuk V.A. Published 25.10.2019.
- Patent RF 2665144. The method of determining the level of stress tolerance of a person. Kratasyuk V.A., Jukova G.V., Kolenchukova O.A., Stepanova L.V., Sutormin O.S., Esmbekova E.N., Gulnov D.V. Published 28 August 2018.
- Patent RF No. 2654672. Complex of reagents for the quantitative analysis of adenosine-5’-triphosphate. Esimbekova E.N., Kirillova M.A., Kratasyuk V.A. Published 21 June 2017.
- Patent RF No. 2665144. The method of determining the level of stress tolerance of a person. Kratasyuk V.A., Jukova G.V., Kolenchukova O.A., Stepanova L.V., Sutormin O.S., Esmbekova E.N., Gulnov D.V. Published 28 August 2018.
- Patent RF No. 2546245. Enzyme preparation based on immobilized butyrylcholinesterase and method of its preparation Esimbekova E.N., Lonshakova-Mukina V.I., Kratasyuk V.A. Published 10 April 2015.
- Patent RF No. 2413772. Bioluminescent biomodul for analyses of various media toxicity and method of its preparation. Kratasyuk V.A., Esimbekova E.N. Published 10 March, 2011.
- Patent RF No. 2413771. Express method for biotesting of natural, manufactoring waters and water solutions. Kratasyuk V.A., Esimbekova E.N. Published 10 March, 2011.
- Patent RF No. 2252963. Method of preparation for immobilized multicomponent reagents for bioluminescent analysis. Kratasyuk VA, Esimbekova EN . Published 27 May 2005.
- Technical specification 2639-001-93879568-2009 on reagent «Enzymolum» № 003534.
- Sertificate N 224.0137/01.00258/2010 (2010) Method to measure the intensity of bioluminescence with the help of the “Enzymolum” reagent to detect the toxicity of drinking, natural, waste and treated waste water

Honors and awards

- 2002 – Terskov I.A. Award of Siberian Branch of RAS
- 1997 – Honorary rank "Soros Postgraduate Student"

Memberships

- Member of Asian Federation of Biotechnology
- Member of the Russian Photobiological Society
- Member of the Society of Environmental Toxicology and Chemistry (SETAC)
- Reviewing of articles for journals: Biosensors and Bioelectronics (Q1), Enzyme and Microbial Technology (Q1), Analytica Chimica Acta (Q1), Luminescence (Q2), Food Chemistry (Q1), Photochemistry and Photobiology (Q1), Environmental Science and Pollution Research (Q2), Environmental Engineering and Management Journal (Q3), Environmental Advances

Upskilling

- 2021 —
  - Additional professional program of the REC "Institute of Continuing Education" of the Siberian Federal University "Development of electronic courses in the LMS Moodle system", 36 hours, Krasnoyarsk.
  - Additional professional program of the REC "Institute of Continuing Education" of the Siberian Federal University "Interactive e-learning tools", 36 hours, Krasnoyarsk.
- 2020 —
  - Additional professional program of the REC "Institute of Continuing Education" of the Siberian Federal University "Cloud technologies in educational and scientific activities", 36 hours, Krasnoyarsk.
  - Additional professional program of the REC "Institute of Continuing Education" of the Siberian Federal University "Scientific project: idea, financing, publication", 144 hours, Krasnoyarsk.
- 2019 —
  - Additional professional program of the Siberian Federal University "Preparation for Cambridge exams - RET (B1)", 240 hours, Krasnoyarsk.
- 2018 —
  - Additional professional program of the Siberian Federal University "Modern problems of immunogenetics", 18 hours, Krasnoyarsk.
  - The training program of the Siberian Federal University "Corporate services SFU", 18 hours, Krasnoyarsk.
- 2017 —
  - Additional professional program of the Siberian Federal University "Modern problems of proteomics", 18 hours, Krasnoyars.

Other relevant information

International professional travels

- 2009 (September) Centre for Genomic Regulation, Barcelona (Spain). Short research visit.
- 2007 (October- November) University of Florida (USA). Collaborative research.
- 2006 (July-August) University of Florida (USA). Collaborative research.
- 2002 International practical workshop «Bioluminescent Alarm Signal for Early Detection of a Terrorist Attack with Toxins and Infection Agents» (Washington, USA).
- 2003 (August), workshop on bioluminescent assays for participants of the Summer School “Biophotons and applications of biophotons” (Neuss, Germany)
- 2001 (November), the educational workshop “Bioluminescence as educational tool” presented on “Da Vinci-Darwin-Linnaeus initiative (Public understanding of science and health 2001), meeting of European Science and Technology Week (Florence, Italy)
- 2000 (April-June) Wageningen Agricultural University (the Netherlands). Collaborative research.