

**CURRICULUM VITAE**

**2024-11-25**

| <b>Name(-s), Surname (-s)</b>                          | RENATA GUDIUKAITĖ   |                   |
|--|---|-------------------|
| <b>Date of birth</b>                                   | 1987-03-04  |                   |
| <b>Languages</b>                                       | German, English, Russian  |                   |
| <b>E-mail</b>  | <a href="mailto:renata.gudiukaite@gf.vu.lt">renata.gudiukaite@gf.vu.lt</a>  |                   |
| <b>Education Background</b>                            |   |                   |
| <b>Institution</b>                                     | <b>Academic and Science Degree</b>  | <b>Year</b>       |
| Vilnius University                                     | PhD Biomedical Sciences (Biology)   | 2016              |
| Vilnius University                                     | MSc Microbiology  | 2012              |
| Vilnius University                                     | BSc Biology (Molecular Biology)   | 2010              |
| <b>Work experience</b>                                 |   |                   |
| <b>Workplace</b>                                       | <b>Position</b>   | <b>Period</b>     |
| Vilnius University                                     | Associate Professor<br><br><b>Lectures of Microbiology</b> (I cycle study program: Microbiology; additional Biology study program);<br><b>Lectures of Industrial Microbiology</b> (I cycle study programs: Microbiology; Molecular biology);<br>Lectures and seminars of <b>Systems Biology</b> (II cycle study program: Microbiology);<br>Lectures of <b>Microbiology and Biotechnology</b> (I cycle study programs: Biology; Genetics; Neurophysics; Subject pedagogy: science education (biology));<br>Lectures of <b>Microorganisms in Industrial Processes</b> (till 2022) (II cycle study program: Microbiology);<br>Lectures of <b>Microbiology and Microorganisms in Industrial Processes</b> (I cycle study program: Molecular biotechnology);<br>Lectures of <b>Microorganism's World</b> (till 2022) (course for General University Studies, various study programs) | From 2021 09      |
| Vilnius University                                     | Senior Researcher   | From 2023 04      |
| Vilnius University                                     | Research Fellow   | 2019 08 – 2022 09 |
| Vilnius University                                     | Assistant Professor<br><br>Laboratory works and lectures of Microbiology;<br>Lectures and seminars of Industrial Biotechnology;<br>Lectures and seminars of Systems Biology<br>Lectures of Microbiology and Biotechnology<br>Lectures of Microorganisms in Industrial Processes<br>Lectures of Microbiology and Microorganisms in Industrial Processes<br>Lectures and seminars of Microorganism's World  | 2017 09 – 2021 09 |
| Vilnius University                                     | Junior Research Associate   | 2016 09 -2017 09  |
| National Centre of Physical and Technological Sciences | Research Fellow   | 2017 03- 2017 04  |

| Vilnius University                            | Lecturer<br><br>Laboratory works of Microbiology; Laboratory works of Biotechnology; Lectures of Industrial Microbiology; Lectures of Industrial Biotechnology  | 2014 09 – 2017 09 |
|---|---|-------------------|
| Vilnius University                            | Specialist  | 2014-2015         |
| Vilnius University                            | Junior Research Associate   | 2014-2015         |
| Vilnius University                            | Specialist  | 2011-2013         |
| Vilnius University                            | Specialist  | 2010              |
| <b>Publications</b>                           |   |                   |
| Study field                                   | List of publications  | Year              |
|   | <b>After PhD thesis defense</b>   |                   |
| Biology, N010                                 | Čekuolytė K., Šapaitė D., Žemgulytė E., Gudiukaitė R., Lastauskienė E. Induction of Apoptosis by Silver Nanoparticles Obtained Using Thermophilic Bacteria. Journal of Functional Biomaterials 15, no. 6: 142. <a href="https://doi.org/10.3390/jfb15060142">https://doi.org/10.3390/jfb15060142</a>  | 2024              |
| Biology, N010 (80%),<br>Agronomy, A 001 (20%) | Daunoras, J., Kačergius, A., <b>Gudiukaitė, R.</b> Role of Soil Microbiota Enzymes in Soil Health and Activity Changes Depending on Climate Change and the Type of Soil Ecosystem. Biology 2024, 13(2), 85. <a href="https://doi.org/10.3390/biology13020085">https://doi.org/10.3390/biology13020085</a>   | 2024              |
| Biology, N010                                 | Malunavicius, V., Vaskevicius, L., Gusaite, A., <b>Gudiukaite, R.</b> Rational and random mutagenesis of GDEst-95 carboxylesterase: New functionality insights. Int J Biol Macromol. 2024, 256, 128331. <a href="https://doi.org/10.1016/j.ijbiomac.2023.128331">https://doi.org/10.1016/j.ijbiomac.2023.128331</a>   | 2024              |
| Biology, N010                                 | Malunavicius, V., Padaiga, A., Stankevičiute, J. Pakalniskis, A., <b>Gudiukaite, R.</b> Engineered <i>Geobacillus</i> lipolytic enzymes – attractive polyesterases that degrade polycaprolactones and simultaneously produce esters. Int J Biol Macromol. 2023, 253(8), 127656. <a href="https://doi.org/10.1016/j.ijbiomac.2023.127656">https://doi.org/10.1016/j.ijbiomac.2023.127656</a>                           | 2023              |
| Biology, N010 (20%),<br>Agronomy, A 001 (80%) | Kačergius, A., Sivojienė, D., <b>Gudiukaitė, R.</b> , Bakšienė, E., Masevičienė, A., Žičkienė, L., Comparison of the structure of soil microbial communities of different ecosystems using microbiome sequencing approach. Soil Syst. 2023, 7(3), 70; <a href="https://doi.org/10.3390/soilsystems7030070">https://doi.org/10.3390/soilsystems7030070</a>   | 2023              |
| Biology, N010                                 | Vaskevicius, L., Malunavicius, V., Jankunec, M., Lastauskiene, E., Talaikis, M., Mikoliunaite, L., Maneikis, A., <b>Gudiukaite, R.</b> , Insights in MICP dynamics in urease-positive <i>Staphylococcus</i> sp. H6 and <i>Sporosarcina pasteurii</i> bacterium. Environmental Research (2023), 234, 116588. <a href="https://doi.org/10.1016/j.envres.2023.116588">https://doi.org/10.1016/j.envres.2023.116588</a> . | 2023              |
| Biology, N010                                 | Venckus P, Endriukaitytė I, Čekuolytė K, <b>Gudiukaitė R</b> , Pakalniškis A, Lastauskienė E. Effect of Biosynthesized Silver Nanoparticles on the Growth of the Green Microalga <i>Haematococcus pluvialis</i> and Astaxanthin Synthesis. Nanomaterials. 2023; 13(10):1618. <a href="https://doi.org/10.3390/nano13101618">https://doi.org/10.3390/nano13101618</a>  | 2023              |
| Biology, N010                                 | K. Cekuolyte, <b>R. Gudiukaite</b> , V. Klimkevicius, V. Mazrimaitė, A. Maneikis, E. Lastauskiene. Biosynthesis of Silver Nanoparticles Produced Using <i>Geobacillus</i> spp. Bacteria. Nanomaterials 2023, 13(4), 702; <a href="https://doi.org/10.3390/nano13040702">https://doi.org/10.3390/nano13040702</a>  | 2023              |
| Biology, N010                                 | Greicius A, Baliutavicius T, Lastauskiene E, <b>Gudiukaite R.</b> Application of Milk Permeate as an Inducer for the Production of Microbial Recombinant Lipolytic Enzymes. Fermentation. 2023, 9(1):27. <a href="https://doi.org/10.3390/fermentation9010027">https://doi.org/10.3390/fermentation9010027</a>  | 2023              |

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|---------------|---|-------|
| Biology, N010 | <b>Gudiukaite R</b> , Kumar Nadda A, Gricajeva A, Shanmugam S, Duc Nguyen D, Lam SS. Bioprocesses for the recovery of bioenergy and value-added products from wastewater: A review. <i>J Environ Manage.</i> 2021, 300, 113831. <a href="https://doi.org/10.1016/j.jenvman.2021.113831">https://doi.org/10.1016/j.jenvman.2021.113831</a>   | 2021  |
| Biology, N010 | Gricajeva A, Kumar Nadda A, <b>Gudiukaite R</b> . Insights into polyester plastic biodegradation by carboxyl ester hydrolases. <i>J Chem Technol Biotechnol.</i> 2022, 97(2), 359-380. DOI: 10.1002/JCTB.6745. First published 2021 April   | 2021  |
| Biology, N010 | Savickaite A, Sadauskas M, <b>Gudiukaite R</b> . Immobilized GDEst-95, GDEst-lip and GD-95RM lipolytic enzymes for continuous flow hydrolysis and transesterification reactions. <i>Int J Biol Macromol.</i> 2021, 173(15), 421-434. <a href="https://doi.org/10.1016/j.ijbiomac.2021.01.133">https://doi.org/10.1016/j.ijbiomac.2021.01.133</a>  | 2021b |
| Biology, N010 | Savickaite A, Druteika G, Sadauskas M, Malunavicius V, Lastauskiene E, <b>Gudiukaite R</b> . Study of individual domains' functionality in fused lipolytic biocatalysts based on <i>Geobacillus</i> lipases and esterases. <i>Int J Biol Macromol.</i> 2021, 168, 261-271. <a href="https://doi.org/10.1016/j.ijbiomac.2020.12.026">https://doi.org/10.1016/j.ijbiomac.2020.12.026</a>  | 2021a |
| Biology, N010 | Druteika G, Sadauskas M, Malunavicius V, Lastauskiene E, Statkevičiute R, Savickaite A, <b>Gudiukaite R</b> . New engineered <i>Geobacillus</i> lipase GD-95RM for industry focusing on the cleaner production of fatty esters and household washing product formulations. <i>World Journal of Microbiology and Biotechnology.</i> 2020, 36, 41. DOI: 10.1007/s11274-020-02816-3  | 2020b |
| Biology, N010 | Kumar A, <b>Gudiukaite R</b> , Gricajeva A, Sadauskas M, Malunavicius V, Kamyab H, Sharma S, Sharma T, Pant D. Microbial lipolytic enzymes – promising energy-efficient biocatalysts in bioremediation. <i>Energy.</i> 2020, 192, 116674. <a href="https://doi.org/10.1016/j.energy.2019.116674">https://doi.org/10.1016/j.energy.2019.116674</a>   | 2020  |
| Biology, N010 | Druteika G, Sadauskas M, Malunavicius V, Lastauskiene E, Taujenis L., Gegeckas A, <b>Gudiukaitė R</b> . Development of a new <i>Geobacillus</i> lipase variant GDlip43 via directed evolution leading to identification of new activity-regulating amino acids. <i>Int J Biol Macromol.</i> 2020, 151, 1194-1204. <a href="https://doi.org/10.1016/j.ijbiomac.2019.10.163">https://doi.org/10.1016/j.ijbiomac.2019.10.163</a> | 2020a |
| Biology, 01B  | Novickij V, Staigvila G, <b>Gudiukaitė R</b> , Zinkevičienė A, Girkontaitė I, Paškevičius A, Švedienė J, Markovskaja S, Novickij J, Lastauskienė E. Nanosecond duration pulsed electric field together with formic acid triggers caspase-dependent apoptosis in pathogenic yeasts. <i>Bioelectrochemistry</i> , 2019, 128:148-154.  | 2019  |
| Biology, 01B  | Stumbriene K., <b>Gudiukaite R</b> ., Semaskiene R., Svegzda P., Jonaviciene A., Suproniene S. Screening of new bacterial isolates with antifungal activity and application of selected <i>Bacillus</i> sp. cultures for biocontrol of <i>Fusarium graminearum</i> under field conditions. <i>Crop protection</i> , 2018, 113, 22-28.   | 2018  |
| Biology, 01B  | Malunavicius V., Druteika G., Sadauskas M., Veteikyte A., Matijosyte I., Lastauskiene E., Gegeckas A., <b>Gudiukaite R</b> . Usage of GD-95and GD-66 lipases as fusion partners leading to improved chimeric enzyme LipGD95-GD66. <i>International Journal of Biological Macromolecules</i> , 2018, 118, 1594-1603.   | 2018  |
| Biology, 01B  | Gegeckas A., Šimkutė A., <b>Gudiukaitė R</b> ., Čitavičius D. Characterization and application of keratinolytic peptidases from <i>Bacillus</i> spp. <i>International Journal of Biological Macromolecules</i> , 2018, 113, 1206-1213   | 2018  |

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| Biology, 01B                     | <b>Gudiukaitė R.</b> , Gricajeva A. Microbial lipolytic fusion enzymes: current state and future perspectives.<br><i>World J Microbiol Biotechnol</i> , 2017, 33:216, 1-8  | 2017 |
| Biology, 01B                     | <b>Gudiukaitė R.</b> , Sadauskas M., Gegeckas A., Malunavicius V., Citavicius D. Construction of a novel lipolytic fusion biocatalyst GDEst-lip for industrial application.<br><i>J Ind Microbial Biotechnol</i> , 2017, 44(6), 799-815.                             | 2017 |
| <b>Before PhD thesis defense</b> |  |      |
| Biology, 01B                     | <b>Gudiukaitė R.</b> , Gegeckas A., Sadauskas M., Citavicius D. Detection of Asp371, Phe375 and Tyr376 influence on GD-95-10 lipase using alanine scanning mutagenesis.<br><i>Appl Biochem Biotechnol</i> , 2016, 178(4), 654-69.                                    | 2016 |
| Biology, 01B                     | Gegeckas A., <b>Gudiukaitė R.</b> , Debski J., Citavicius D. Keratinous waste decomposition and peptide production by keratinase from <i>Geobacillus stearothermophilus</i> AD-11.<br><i>International journal of biological macromolecules</i> , 2015, 75, 158-165. | 2015 |
| Biology, 01B                     | Gegeckas A., <b>Gudiukaitė R.</b> , Citavicius D. Keratinolytic proteinase from <i>Bacillus thuringiensis</i> AD-12.<br><i>International journal of biological macromolecules</i> , 2014, 69, 46-51.   | 2014 |
| Biology, 01B                     | <b>Gudiukaitė R.</b> , Gegeckas A., Kazlauskas D., Citavicius D. Influence of N- and/or C-terminal regions on activity, expression, characteristics and structure of lipase from <i>Geobacillus</i> sp. 95. <i>Extremophiles</i> , 2014, 18, 131-145                 | 2014 |

#### Presentations at conferences

| Date | Most important last presentations at conferences (full list includes 72 presentations)  |
|------|---|
| 2023 | A.Padaiga, V. Malūnavičius, <b>R. Gudiukaitė</b> . Geobacillus lipolytic enzymes – attractive biocatalysts for the decomposition of polycaprolactones. 5th Congress of Baltic Microbiologists 2023, October 11-13, Vilnius, Lithuania. Poster presentation.   |
| 2023 | Malūnavičius V., <b>Gudiukaitė R.</b> . Research of Geobacillus lipases and esterases – new insights and possible applications. 5th Congress of Baltic Microbiologists. October 11-13, Vilnius, Lithuania. Oral presentation.   |
| 2023 | I. Lenkaitė, J. Daunoras, <b>R. Gudiukaitė</b> . In silico analysis of novel microbial lipolytic and lipolytic-like enzymes. 5th Congress of Baltic Microbiologists 2023, October 11-13, Vilnius, Lithuania. Poster presentation.   |
| 2022 | V. Malūnavičius, A. Gusaitė, S. Pronckutė, <b>R. Gudiukaitė</b> . <i>Geobacillus</i> sp. 95 esterase: analysis of important amino acids for substrate binding and activity. FEBS3+2022 Conference of Estonian, Latvian and Lithuanian Biochemical Societies, 15 June – 17 June 2022, Estonia, Tallinn. Poster presentation. |
| 2022 | Greičius A., Adomaitis L., <b>Gudiukaitė R.</b> . Activity and functionality analysis of Streptomyces and Arthrobacter bacterial cutinases. FEBS3+2022 Conference of Estonian, Latvian and Lithuanian Biochemical Societies, 15 June – 17 June 2022, Estonia, Tallinn. Poster presentation.                                 |
| 2022 | Greičius A., Savickaitė A., <b>Gudiukaitė R.</b> . Analysis of site-directed mutant (Asp94Ala) of <i>Streptomyces scabiei</i> 87.22cutinase. 65th International conference for students of physics and natural sciences Open Readings 2022, 15 March – 18 March. Poster presentation. Best poster presentation award.       |
| 2021 | Savickaitė A., <b>Gudiukaitė R.</b> . Linker's influence on the catalytic behaviour of fused microbial lipolytic enzymes. 15th International Symposium on Biocatalysis and Biotransformations (Biotrans 2021), July 19-22, 2021. Graz, Austria. Worldwide online. Poster presentation                                       |

| 2020                          | Malūnavičius V., <b>Gudiukaitė R.</b> Protein engineering of <i>Geobacillus</i> lipolytic enzymes – from enzyme fusions to directed evolution. The COINS International conference of Life sciences 2020, 25 February – 27 February. Vilnius, Lithuania. Oral presentation. Best oral presentation award.  |
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| 2020                          | Savickaitė A., Malūnavičius V., Druteika G., <b>Gudiukaitė R.</b> Physicochemical characterization of immobilized lipolytic GD-95RM, GDEst-95 and GDEst-lip enzymes. The COINS International conference of Life sciences 2020, 25 February – 27 February. Vilnius, Lithuania. Poster presentation. Best Poster Award.   |
| 2020                          | Malūnavičius V., Savickaitė A., Peleckas R., <b>Gudiukaitė R.</b> Functionality analysis of organic solvents tolerant carboxylesterase from <i>Geobacillus</i> sp. 95. Vita Scientia 2020, 03 January 2020, Vilnius, Lithuania. Poster presentation. Best Poster Award.   |
| 2019                          | <b>Gudiukaitė R.</b> , Druteika G., Malunavicius V., Lastauskiene E. New lipolytic biocatalysts designed via protein engineering strategies: characterization of GD-95RM and GDEst-lip lipases. 14th International symposium on Biocatalysis and Biotransformations BioTrans 2019, 2019 07 7-11, Groningen, The Netherlands. Poster presentation.   |
| 2019                          | Malūnavičius V., Maneikis A., Gegeckas A., Lastauskienė E., <b>Gudiukaitė R.</b> Analysis into the possible biominerallisation using <i>Staphylococcus</i> sp. H6 and <i>Arthrobacter</i> sp. G7 strains. The COINS International conference of Life sciences 2019, 26 February – 28 February. Vilnius, Lithuania. Poster presentation. 1 <sup>st</sup> place in poster presentation session of The COINS 2019. |
| <b>Experience in projects</b> |   |
| Period                        | Project title, position   |
| 2024 07 01 – 2024 08 31       | "Development of scientific competence of scientists, other researchers, students through practical scientific activities", measure "Student research during the summer". Project "Functionality research of DEst-95 esterase", No. P-SV-24-118; project leader.   |
| 2024 02 – 2024 03             | Research "Determination of micromycetes on plywood panels", Scientific research contract with UAB "Actona Lithuania", No. (1.57) 15600-INS-34; responsible researcher.  |
| 2023 10 01 – 2024 04 31       | "Development of scientific competence of scientists, other researchers, students through practical scientific activities", Funding for student's research projects. Project "Development and analysis of cysteine as catalytic amino acid containing lipolytic enzymes from <i>Geobacillus</i> bacteria", P-ST-23-21; project leader.   |
| 2023 04 20 – 2024 12 31       | Colorectal adenoma-carcinoma sequence rediscovered: interaction of intestinal microbiota and local immune system in health and carcinogenesis (MIMICA-1), proposal registration No. P-MIP-22-38; senior researcher.   |
| 2022 07 01 – 2022 08 31       | "Development of scientific competence of scientists, other researchers, students through practical scientific activities", measure "Student research during the summer". Project "Use milk permeate as an alternative inducer for the synthesis of recombinant biocatalysts", No. P-SV-22-160; project leader.  |
| 2021 11 17 – 2022 02 17       | Research "Investigation of the effectiveness of robots for disinfection", Scientific research contract with UAB "R and R Technology", No. (1.57) 15600-INS-180; responsible researcher.   |
| 2021 10 13 – 2021 11 13       | Research of microbiological cleanliness "Assessment of microbial cleanliness of parcel machines"; Research contract with UAB "Berta And", no. (1.57) 15600-INS-152; responsible researcher.   |

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| 2021 09 01 – 2022 03 31 | The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3-LMT-K-712-25-0030, Project “Research of fused biocatalysts containing GDEst-95, GD-95 and Kut-SP domains”, project leader.  |
| 2021 06 22 – 2021 07 20 | “Research of microbiological cleanliness of surfaces”; Research contract with UAB Gravitas Partners, no. (1.57) 15600-INS-121; responsible researcher.  |
| 2021 07 01 – 2021 08 31 | The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3.-LMT-K-712-24-0002, Project “Activity analysis of recombinant bacterial cutinases and application for polyesters degradation”, project leader.  |
| 2021 03 22 – 2021 04 12 | “Assessment of bacteriocidal effects”; Research contract with UAB BOD GROUP, Nr. (1.57) 15600-INS-44; responsible researcher.   |
| 2020 11 03 – 2021 04 30 | The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3-LMT-K-712-22-0074, Project “Functionality research of microbial cutinases”, project leader.   |
| 2020 05 12-present      | The European Social Fund under Investment Operational Program for 2014–2020 “Promotion of Competence Centers and Innovation and Technology Transfer Centers”, Priority 1 “Promotion of Research, Experimental Development and Innovation” project “New Generation Industrial Enzyme Engineering Center”, Grant No. 01.2.2-CPVA-K-703-03-0023, research fellow.                              |
| 2019 10 11 – 2020 04 30 | The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3-LMT-K-712-16-0020, Project “The Development of a continuous system based on thermostable lipolytic enzymes for the synthesis and / or hydrolysis of fatty acid esters”, project leader.   |
| 2019 07 01 – 2020 06 31 | By Science Promotion Fund of Vilnius University funded project “Design of new for industrial application attractive biocatalysts and more effective protein engineering methods development”. Grant No. MSF-JM-1, project leader/ research fellow.  |
| 2019 07 01 – 2019 08 31 | Project: The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3.-LMT-K-712-15-0028, Project “The research of activity and stability of bifunctional biocatalyst, fused through different peptidic linkers”, project leader.                      |
| 2018 10 01 – 2019 04 30 | Project: The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3.-LMT-K-712-10-0028, Project “The research of fused lipolytic enzymes: structural and functional analysis”, project leader.   |
| 2018 07 01 – 2018 08 31 | Project: The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3.-LMT-K-712-09-0005, Project “The research of characteristics important for industrial application of new active and thermostable lipolytic biocatalyst GD-95RM”, project leader. |

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| 2017 10 01 – 2018 05 01 | The European Social Fund under the No 09.3.3-LMT-K-712 “Development of Competences of Scientists, other Researchers and Students through Practical Research Activities” measure, Grant No. 09.3.3.-LMT-K-712-03-0002, Project “The research of ureases produced by <i>Geobacillus</i> bacteria”, project leader. |
| 2014-2015               | High-level international research promotion, no. VPI-3.1-MES-10-V, “BIOKONVERSA” Selection and development of the biocatalysts for biogas production and utilization of biomass conversion process control”. Junior research associate.  |
| 2014-2015               | National science programme “Healthy and safe food” project: “Chemotype composition, pathogenicity & control of trichothecene producing <i>Fusarium spp.</i> in cereals”. No. SVE-14023. Specialist.  |
| 2011-2013               | Program “Development of industrial biotechnology in Lithuania 2011-2013”, project “Innovative tools for cosmetic industry (COSMETIZYM)”, Grant No. MITA 31V-18. Specialist.  |

#### Patent application

R. Meskys, N. Urbeliene, R. Gasparavičiute, R. Gudiukaite; „A method for screening the polymer-degrading enzymes“; Application number EP23187384.5; Reference V83-110EP. Patent application submitted at 2023 July 24 to EPO

#### Experience as an expert in research fields

**Expert of Vilnius University Life Sciences Center:** Research interests – Protein/enzyme engineering; isolation of microorganisms from environmental samples; industrial microbiology and biotechnology; lipolytic enzymes in biocatalysis

<https://www.gmc.vu.lt/en/services/list-of-experts-at-lsc>

#### Experience in development of R&D solutions and innovations for industry

<https://www.vu.lt/en/business/innovations-and-research/inventions-technologies/r-d-solutions#new-engineered-geobacillus-lipase-gd-95rm-for-industry>

<https://www.vu.lt/en/business/innovations-and-research/inventions-technologies/r-d-solutions#engineered-geobacillus-lipolytic-enzymes-for-decomposition-of-polyester-plastics>

#### Experience as supervisor or consultant of bachelor, master and PhD thesis

| Year | Title of thesis, study program. Only the thesis of the last five years are presented.<br>Full list includes 19 thesis.  |
|------|---|
| 2019 | Analysis of Structure-Function Relationship in <i>Geobacillus</i> Lipases and Design of Lipolytic Enzymes with Improved Characteristics via Different Mutagenesis Strategies. Vilnius University, Supervisor. Bachelor thesis, Microbiology and biotechnology |
| 2019 | Gram-positive bacteria application in biomineralisation: studies of recombinant and native systems. Vilnius University, Supervisor. Master thesis, Microbiology   |
| 2019 | A Study of Antibacterial Compounds Produced by <i>Bacillus</i> and <i>Streptomyces</i> Bacteria. Vilnius University, Supervisor. Bachelor thesis, Microbiology and biotechnology  |
| 2020 | Application of GD-95RM, GDEst-lip and GDEst-95 Lipolytic Enzymes for Hydrolysis of Lipid Substrates and Transesterification Reaction. Vilnius University, Supervisor. Bachelor thesis, Microbiology and biotechnology   |
| 2020 | Screening of New Biological Control Agents Against <i>Fusarium</i> sp. Vilnius University, Supervisor. Bachelor thesis, Microbiology and biotechnology  |
| 2021 | Synthesis Optimization of Recombinant Lipolytic Enzymes. Vilnius University, Supervisor. Bachelor thesis, Microbiology and biotechnology  |
| 2021 | A Study of Nitrate Reductase Produced by <i>Geobacillus</i> Bacteria. Vilnius University, Supervisor. Master thesis, Microbiology   |
| 2022 | Analysis of <i>Streptomyces scabiei</i> 87.22 cutinase by using different enzyme engineering strategies. Vilnius University, Supervisor. Master thesis, Microbiology  |
| 2022 | Analysis of chimeric RecGEOker GDEst 95/GD 95 fusion proteins. Vilnius University, Supervisor. Master thesis, Microbiology  |

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| 2023    | Analysis and synthesis optimization of the cutinase enzyme from <i>Streptomyces scabiei</i> 87.22. Vilnius University, Supervisor. Bachelor thesis, Molecular biotechnology  |
| 2023    | Selection of new polyesterase producers. Vilnius University, Supervisor. Bachelor thesis, Microbiology   |
| 2023    | Research of cutinase from <i>Arthrobacter</i> sp. SLBN-53 strain. Vilnius University, Supervisor. Master thesis, Microbiology  |
| Present | Supervisor of four bachelor thesis   |
| Present | <b>Supervisor of PhD thesis</b> <ol style="list-style-type: none"> <li>1. "The uncharacterized or low characterized microbial lipolytic and lipolytic-like enzymes: analysis of substrate specificity and thermostability", Biology (N010). 2022-2026</li> <li>2. "Screening and characterization of new bacterial polyesters", Biology (N010). 2022-2026</li> </ol> |

#### Experience in PhD studies

##### Defended PhD thesis:

1. "Geobacillus lipolytic enzymes: structure-function research and application in polycaprolactone recycling", Biology (N010), 2019-2024; defended at 2024-08-27, PhD student – Vilius Malūnavičius.

##### Reviewer and/or member of the defense committee of the PhD thesis:

1. "Investigation of the characteristics and dynamics of the spread of pathogenic microorganisms from the perspective of molecular epidemiology" (Natural sciences, Biology (N 010))
2. "Chemoenzymatic synthesis of nucleoside 5'-monophosphates" (Natural sciences, Biochemistry (N 004))

##### Coordinator of PhD course:

- Industrial microbiology, <https://www.gmc.vu.lt/en/doctoral-school/phd-studies/73-doctoral-school/1711-industrial-microbiology>
- Microbiology, <https://www.gmc.vu.lt/en/doctoral-school/phd-studies/73-doctoral-school/1718-microbiology>
- Environmental Microbiology, <https://www.gmc.vu.lt/en/doctoral-school/phd-studies/73-doctoral-school/1684-environmental-microbiology>

#### Administrative work experience

| Year              | Activities   |
|-------------------|--|
| From 2024         | Member of the Board of the Lithuanian Microbiological Society (LMD); Secretary of the Microbiologists Society of Lithuania |
| 2023              | Head of the Microbiology study program development group (Vilnius University)  |
| 2021-2022         | Head of the Microbiology study field Self-Evaluation Group (Vilnius University)  |
| From 2021         | Head of the Microbiology bachelor and master study program committees (Vilnius University)                                 |
| From 2017 to 2021 | Member of the Microbiology and biotechnology bachelor and master study program committees (Vilnius University)             |

#### Most important public education and science dissemination activities

| Year      | Social activities  |
|-----------|--|
| From 2013 | Lithuanian Biochemical Society member  |
| From 2015 | Microbiologists Society of Lithuania member  |
| 2016-2020 | Lectures and practical works for the "School of Young Biochemists"                                     |
| 2016      | Membership in the Organizing committee of 3 <sup>rd</sup> Congress of Baltic Microbiologists (CBM2016) |

|             |   |
|-------------|---|
| 2017        | Human practices of project SynORI (iGEM, Vilnius, 2017)   |
| 2017 - 2018 | Participation in promoting activities for educating the public about science on national television, Channel 3 (TV3) News reports, activities in Health day of VU Life Sciences Center  |
| 2018 09 17  | Membership in Organizing committee of International Day of Microorganisms 2018  |
| 2018 -2022  | Contributing to the activity “Student for one day” in Vilnius University.   |
| 2019 - 2020 | Participation in the International Study and Career Planning Exhibition “STUDIES 2019”, “STUDIES 2020” by representing Vilnius University<br><br><a href="https://www.youtube.com/watch?v=rjTH_6SpCQE">https://www.youtube.com/watch?v=rjTH_6SpCQE</a> ;<br><a href="https://www.youtube.com/watch?v=ERJSE6DOOCY">https://www.youtube.com/watch?v=ERJSE6DOOCY</a>   |
| 2019 - 2023 | Contributed to the international conference The COINS 2019/2020/2021/2022/2023 Workshops and laboratory works for high school students.   |
| 2019 09 17  | Membership in Organizing committee of International Day of Microorganisms 2019. Interactive presentations „Amazing world of microorganisms“ and Lecture „Bacteria – infectious agents or biocement producers?“  |
| 2019 09     | Interviews during the national broadcaster (LRT) radio show 10–12. The Spaceship Earth Festival tells the story of how disease-causing bacteria can be useful in creating biocement.  |
| 2019 09     | Interview for the national broadcaster (LRT) LRT Plus show "Curiosity Gene", Topic - Microorganism Training or Genetic Modification - a method used in industries that can solve the plastic problem.<br><br><a href="https://www.lrt.lt/mediateka/irasas/2000082913/smalsumo-genas-mikroogranizmu-dresura-arpa-genetinis-modifikavimas-pramones-sakose-naudojamas-ir-plastiko-problema-galintis-isspresti-budas">https://www.lrt.lt/mediateka/irasas/2000082913/smalsumo-genas-mikroogranizmu-dresura-arpa-genetinis-modifikavimas-pramones-sakose-naudojamas-ir-plastiko-problema-galintis-isspresti-budas</a>  |
| 2019 09     | Workshop for high school students and lecture “Microorganisms in production of organic acids” at BiotechWeek 2019 event.  |
| 2021        | Human practices of project AmeBye (iGEM, Vilnius, 2021)<br><a href="https://2021.igem.org/Team:Vilnius-Lithuania/Attributions">https://2021.igem.org/Team:Vilnius-Lithuania/Attributions</a>  |
| 2021 01 28  | <a href="#">Interview: In the field of microbiologists' research - worlds invisible to the naked eye</a><br><a href="https://naujienos.vu.lt/mikrobiologu-tyrimu-lauke-plika-akimi-nematomi-pasauliai/">https://naujienos.vu.lt/mikrobiologu-tyrimu-lauke-plika-akimi-nematomi-pasauliai/</a>   |
| 2021 04-07  | Project: Smartphone hygiene.<br><br><a href="https://www.lrt.lt/naujienos/mokslas-ir-it/11/1442197/pirmasis-lietuvoje-ismaniuju-higienos-tyrimas-nustebino-ant-telefono-daugiau-bakteriju-nei-ant-viesojo-tualeteto-klozeto-dangcio">https://www.lrt.lt/naujienos/mokslas-ir-it/11/1442197/pirmasis-lietuvoje-ismaniuju-higienos-tyrimas-nustebino-ant-telefono-daugiau-bakteriju-nei-ant-viesojo-tualeteto-klozeto-dangcio</a><br><br><a href="https://www.lrt.lt/mediateka/irasas/2000157898/ismaniuju-higienos-tyrimas-priverte-susirupinti-ant-telefono-gali-buti-daugiau-bakteriju-nei-ant-viesojo-tualeteto-klozeto-dangcio">https://www.lrt.lt/mediateka/irasas/2000157898/ismaniuju-higienos-tyrimas-priverte-susirupinti-ant-telefono-gali-buti-daugiau-bakteriju-nei-ant-viesojo-tualeteto-klozeto-dangcio</a><br><br><a href="https://www.lrytas.lt/it/laboratorija/2021/06/30/news/pirmasis-lietuvoje-ismaniuju-higienos-tyrimas-nustebino-bakteriju-ant-telefono-daugiau-nei-lifte-19926317/">https://www.lrytas.lt/it/laboratorija/2021/06/30/news/pirmasis-lietuvoje-ismaniuju-higienos-tyrimas-nustebino-bakteriju-ant-telefono-daugiau-nei-lifte-19926317/</a> |
| 2021 09 17  | Lecture „The little extremophiles and their daily life“, International Day of Microorganisms 2021.  |
| 2021 11 19  | Presentation “Microbiology today: from enzyme engineering to bacteria found on the screen of smartphones” at VU Innovation Day 2021.<br><br><a href="https://www.youtube.com/watch?v=e9QPsQtlc5A">https://www.youtube.com/watch?v=e9QPsQtlc5A</a>   |

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|--|--|
| 2021 11 24   | Evaluation of microbial cleanliness of parcel machines<br><br><a href="https://www.15min.lt/verslas/naujiena/mokslas-it/mokslininko-istyre-pastomatu-pavirsius-perspeja-kad-didzioji-ju-dalis-perpildyta-mikrobais-1290-1601424">https://www.15min.lt/verslas/naujiena/mokslas-it/mokslininko-istyre-pastomatu-pavirsius-perspeja-kad-didzioji-ju-dalis-perpildyta-mikrobais-1290-1601424</a><br><br><a href="https://venipak.lt/naujienos/2021-11-23/mokslininko-istyre-pastomatu-pavirsius-perspeja-kad-didzioji-ju-dalis-perpildyta-mikrobais/">https://venipak.lt/naujienos/2021-11-23/mokslininko-istyre-pastomatu-pavirsius-perspeja-kad-didzioji-ju-dalis-perpildyta-mikrobais/</a> |
| 2022 01 06   | Lab works for the National Student Academy   |
| 2022 03 10, 03 17                                    | Lectures for High school teachers: 1. "We are in the world of microorganisms"; 2. On the safety of mold "Mold: destroy, cannot be left to remain". Lectures were part of initiative "Training for the improvement of the competences of teachers in the field of natural sciences".<br><br><a href="https://www.facebook.com/mokslastau/photos/a.102689245127208/348379380558192/">https://www.facebook.com/mokslastau/photos/a.102689245127208/348379380558192/</a>   |
| 2022 06 13   | STEAM activity for schoolchildren from Ferdinand Rusčicas high school (Rudamina, Vilnius region)   |
| 2023   | Membership in Organizing committee of CBM2023 – 5th Congress of Baltic Microbiologists; <a href="https://cbm2023.com/committees">https://cbm2023.com/committees</a>  |
| From 2023 11   | Member of mentors group for students:<br><a href="https://www.idialogue.lt/l/mentors/renata-gudiukaite-6650">https://www.idialogue.lt/l/mentors/renata-gudiukaite-6650</a>   |
| 2023   | Member of the judging panel of the science popularization contest organized by the science popularization show "Science Soup" together with the astrophysics blog "Konstanta42"<br><a href="http://mokslosriuba.lt/kartumesgalime/mokslo-popularinimo-konkursas-2023/">http://mokslosriuba.lt/kartumesgalime/mokslo-popularinimo-konkursas-2023/</a>   |
| 2023 03 15   | Event: Laboratories - who, where, how and when? Discussions: "From a student to an intern - what happens behind closed doors?" speaker.<br><br><a href="https://www.facebook.com/photo/?fbid=667163158746900&amp;set=gm.163259528384720&amp;id=1628725607567521">https://www.facebook.com/photo/?fbid=667163158746900&amp;set=gm.163259528384720&amp;id=1628725607567521</a>   |
| 2023 03 30-31  | Participation in the International Study and Career Planning Exhibition "STUDIES 2023", by representing Vilnius University   |
| 2023 04 24-25; 2023 10 27;<br>2024 04 22, 2024 04 23 | Contributing to the activity "Student for one day" in Vilnius University.  |
| 2023 09 18   | Lab works in International Day of Microorganisms 2023.   |
| 2024 01 18<br>2024 02 09<br>2024 03 28-29            | Participation in the International Study and Career Planning Exhibition "STUDIES 2024", by representing Vilnius University in Vilnius, Kaunas and Klaipeda   |
| 2024 02 01   | Lecture for the "School of Young Biochemists"  |
| 2024 02 09   | Presentation of research activities:<br><a href="https://www.linkedin.com/feed/update/urn:li:activity:716169908654965552/">https://www.linkedin.com/feed/update/urn:li:activity:716169908654965552/</a>  |
| 2024 06 27   | Steam lab works for methodical teachers<br><a href="https://mikrobiologija.lt/mokymai-steam-centru-metodininkams">https://mikrobiologija.lt/mokymai-steam-centru-metodininkams</a>   |

| 2024 06 21  | Conference Digi Green 2024. „The Science for a Cleaner Future: Deploying Engineered Enzymes Against Polyester Pollution“<br><a href="https://www.gmc.vu.lt/apie-gmc/naujienos/3723-vu-gvybes-mokslu-centro-mokslininkai-digigreen-2024-konferencijoje-pristate-inovatyvius-sprendimus-plastikotarsai-mazinti">https://www.gmc.vu.lt/apie-gmc/naujienos/3723-vu-gvybes-mokslu-centro-mokslininkai-digigreen-2024-konferencijoje-pristate-inovatyvius-sprendimus-plastikotarsai-mazinti</a><br><br><a href="https://naujienos.vu.lt/vu-gmc-mokslininkai-digigreen-2024-konferencijoje-pristate-fermentus-polisteriniams-plastikams-skaidyti/">https://naujienos.vu.lt/vu-gmc-mokslininkai-digigreen-2024-konferencijoje-pristate-fermentus-polisteriniams-plastikams-skaidyti/</a>  |
|---|---|
| 2024 08 01  | Interview for LRT radio show "10-12" about fermentation and its importance.<br><br><a href="https://www.lrt.lt/mediateka/irasas/2000352960/rauginimo-patrimais-pasidalinusimokslininke-gerai-paruostas-produktas-gali-zudyti-ligas">https://www.lrt.lt/mediateka/irasas/2000352960/rauginimo-patrimais-pasidalinusimokslininke-gerai-paruostas-produktas-gali-zudyti-ligas</a><br><br><a href="https://www.lrt.lt/naujienos/gyvenimas/13/2332100/mokslininke-apie-rauginta-maista-valgome-mikroorganizmu-pasalintus-produktus?utm_source=facebook&amp;utm_medium=komentarai&amp;utm_campaign=may&amp;fbclid=IwY2xjawEe1zxleHRuA2FlbQIxMQABHaKrLmq5-Y8Fql2LZF88HDX8uiyQ5erjJth77sb8_OJBJCkPPez-m06btA_aem_wCiqRQne-BToWyZKtLNJtQ">https://www.lrt.lt/naujienos/gyvenimas/13/2332100/mokslininke-apie-rauginta-maista-valgome-mikroorganizmu-pasalintus-produktus?utm_source=facebook&amp;utm_medium=komentarai&amp;utm_campaign=may&amp;fbclid=IwY2xjawEe1zxleHRuA2FlbQIxMQABHaKrLmq5-Y8Fql2LZF88HDX8uiyQ5erjJth77sb8_OJBJCkPPez-m06btA_aem_wCiqRQne-BToWyZKtLNJtQ</a> |
| 2024 08 09  | Discussion participant at the science popularization festival SynFolk "Rügutis" organized by the iGEM2024 team.<br><br><a href="https://www.facebook.com/photo/?fbid=808588034593323&amp;set=gm.421934830891050&amp;idorvany=409413135476553&amp;locale=lt_LT">https://www.facebook.com/photo/?fbid=808588034593323&amp;set=gm.421934830891050&amp;idorvany=409413135476553&amp;locale=lt_LT</a>  |
| 2024 09 04  | Publication of science dissemination:<br><br><a href="https://www.lrytas.lt/it/laboratorija/2024/09/03/news/archeos-ypatingos-mikroorganizmu-pasaulio-atstoves-34011294">https://www.lrytas.lt/it/laboratorija/2024/09/03/news/archeos-ypatingos-mikroorganizmu-pasaulio-atstoves-34011294</a><br><br><a href="https://www.mokslofestivalis.eu/archeos-ypatingos-mikroorganizmu-pasaulio-atstoves/">https://www.mokslofestivalis.eu/archeos-ypatingos-mikroorganizmu-pasaulio-atstoves/</a>   |
| 2024 09 17  | Lab works in International Day of Microorganisms 2024.<br><a href="https://www.mokslofestivalis.eu/renginys/2024/mikroorganizmai-is-arciau-2/">https://www.mokslofestivalis.eu/renginys/2024/mikroorganizmai-is-arciau-2/</a><br><br><a href="https://www.mokslofestivalis.eu/xxi-mokslo-festivalis-erdvelai-vis-zeme-pristato-doc-dr-renata-gudiukaite/">https://www.mokslofestivalis.eu/xxi-mokslo-festivalis-erdvelai-vis-zeme-pristato-doc-dr-renata-gudiukaite/</a>  |
| 2024 09 28  | Science dissemination activity at Vilnius University Alumni festival.   |
| <b>Scholarships, other grants and activities (in the last five years)</b> |   |
| Year  | Activity  |
| 2023-2024   | Co-editor, Special Issue: Recent Advance in Soil Health: Influence of Organic Carbon and Microbiota. Biology-Basel (MDPI, Q1, IF 5,168).  |
| 2021  | Recipient of the Rector's Award for young scientists (2021)   |
| 2021  | Recipient of The best lecturer of the VU LSC award (2021)   |
| 2019  | Grant for participation in BioTrans 2019. Supported by the European Social Fund under No 01.2.2-LMT-K-718/09.3.3-LMT-K-712. Grant No. 09.3.3.-LMT-K-712-13-0003.  |