

CURRICULUM VITAE

Maria M. Bayliak (Mariia M. Bailiak)

Professor, Ph.D., D.Sc., Head of the Department of Biochemistry and Biotechnology, Vasyl Stefanyk Carpathian National University (CNU)

RESEARCH PROFILES

[Scopus](#), **h-index: 19**

[ORCID](#)

[Web of Science](#)

[ResearchGate](#)

[LinkedIn](#)

[Google Scholar](#)

PERSONAL/CONTACT DETAILS

- Ukrainian, 1981
- **Work address:** Department of Biochemistry and Biotechnology, Vasyl Stefanyk Carpathian National University, 57 Shevchenko Str., Ivano-Frankivsk, 76018, Ukraine.
- **Phone:** +38(0342)596171
- **E-mail:** bayliak@ukr.net, mariia.bailiak@cnu.edu.ua
- **Languages:** Ukrainian, English (B1)
- **Hobbies:** embroidering, travelling, reading adventure and detective stories

EDUCATION

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| 2014-2017 | Doctorate student, Department of Biochemistry and Biotechnology, PNU. Thesis title: "Enhancement of the adaptive capacity of the yeast <i>Saccharomyces cerevisiae</i> and the fruit fly <i>Drosophila melanogaster</i> by using plant extracts, keto acids, and arginine", Thesis for a scientific degree of Doctor of Biological Sciences in "Biochemistry", defended at Yuriy Fed'kovych Chernivtsi National University, Ukraine (December 2019). Supervisor: Prof. Volodymyr Lushchak, Head of the Department of Biochemistry and Biotechnology, Vasyl Stefanyk Precarpathian National University (PNU). |
| 2003-2006 | Postgraduate student, Department of Biochemistry, PNU. PhD thesis in Biochemistry: "Peculiarities of antioxidant defense of the yeast <i>Saccharomyces cerevisiae</i> at the different growth phases", defended at Yuriy Fed'kovych Chernivtsi National University, |

Ukraine (October 2007). Supervisor: Prof. Volodymyr Lushchak, Head of Department of Biochemistry, PNU.

1998-2003 Student, Department of Biology, Vasyl Stefanyk Carpathian National University (PNU). **M.Sc. Thesis (in Biology):** "Biomorphological peculiarities of *Convallaria majalis* in the Precarpathian region", May 2002 – May 2003. Supervisor: Dr. Nadija V. Shums'ka, Department of Biology.

TEACHING EXPERIENCE

2022-present Head of Biochemistry and Biotechnology Dept., PNU. **Courses:** "Microbiology", "Virology", "Molecular Biology", "Basics of neuropathology", "Bioethics and Biosafety", "Neurobiology", "Pathophysiology of obesity", "Neuroscience in education", "Human and animal physiology".

2020-2022 Professor, Biochemistry and Biotechnology Dept., PNU. **Theoretical and practical courses:** "Biologically active natural compounds", "Practicum on Biochemistry", "Microbiology", "Virology", "Molecular Biology".

2008-2020 Associate Professor, Biochemistry and Biotechnology Dept., PNU. **Theoretical and practical courses:** "Biologically active natural compounds", "Practicum on Biochemistry", "Microbiology", "Virology", "Molecular Biology".

2006-2008 Assistant Professor, Biochemistry Dept., PNU. **Theoretical and practical courses:** "Biochemistry" (practice), "Microbiology" (practice), "Virology" (seminars), "Molecular Biology" (practice), "Hydrobiology" (lectures & practice), "Ichthyology" (lectures & practice).

PROFESSIONAL EXPERIENCE / TRAINING / SCHOLARSHIPS / GRANTS:

Trainings

21-25 10/2024 Participant of Una Europa Staff week "Embracing AI for Professional Development", 17 hours, Jagiellonian University in Krakow (Poland)

June 2024 Training course "University of the Future: Secrets of successful management in education", 15 hours (0.5 ECTS credits), Vasyl Stefanyk Precarpathian National University

02/2023-05/2023 Participant of the courses "Molecular and Cellular Neurophysiology" - 30 hours (1 ECTS credit), "Mastering online teaching of life science" - 30 hours (1 ECTS credit). in the project "Modular online course 'Integrative Life Sciences' for Ukrainian biology students", funded by the German Academic Exchange Service (DAAD) within the framework of the program "Ukraine digital: Ensuring academic success in times of crisis 2023".

September 2022 Online courses "Google Digital Tools for Education". Basic level - 30 hours (1 ECTS credit). Intermediate level – 15 h (0.5 ECTS credit)

June 6-30, 2019 Attendance at DAAD Summer School “Perspectives in Biomedicine with a Focus on Cancer Immunotherapy”, PNU, Ivano-Frankivsk, Ukraine.

February 11-15, 2019 Training at PolLASA courses on breeding, maintenance, welfare and use of laboratory animals (Polish Laboratory Animals Science Association, Warsaw, Poland)

May 25 – June 4, 2011 Attendance at IV Summer School “Molecular microbiology and biotechnology”, Odesa I.I. Mechnykov National University, Odesa, Ukraine.

English language courses (level B1), Vasyl Stefanyk Precarpathian National University, certificate CI No. 00932-25 dated August 6, 2025, 4.3 credits, 130 hours.

Scholarships and Grants

2025 Participation in the project “Combining Nanotechnology and Biotechnology for Business and Development (NanoBioTech Nexus)” (project manager – Associate Professor Iryna Hryhoruk). The role in the project is a Lecturer at the First Summer School for Students 2025 “Innovation-Driven Nanobiotech Entrepreneurship”.

2025-2026 Fellowship from VUIAS (Virtual Ukrainian Institute of Advanced Studies)

01/2024-06/2025 project “Advanced inter-university life science block for Ukrainian biology students”, funded by DAAD within the framework of the program “Ukraine digital: Ensuring academic success in times of crisis 2024”. The role in the project is a co-lecturer for the courses “Microbes, Viruses and Infections” and “Bioethics and Biosafety: practical aspects”.

03/2023 – 12/2025 Project: Searching for markers of post-traumatic stress disorder based on oxidative stress and inflammation, funded by the Ministry of Education and Science of Ukraine: (#0123U101790, 2023-2024) (project leader).

02/2023-12/2023 Project “Modular online course „Integrative Life Sciences” for Ukrainian biology students”, funded by DAAD within the framework of the program “Ukraine digital: Ensuring academic success in times of crisis 2023”. The role in the project is a lecturer of the course "Microbes, Viruses and Infections".

09/2022-12/2022 Project “Blended course "integrative life sciences” for Ukrainian biology students", funded by the German Academic Exchange Service (DAAD) within the framework of the program “Ukraine digital: Ensuring academic success in times of crisis”. The role of the project is a lecturer of the Molecular Biology course.

01/2022 – 04/2023 Researcher in the project funded by the Ministry of Education and Science of Ukraine: “Correction of metabolic syndrome by sulforaphane-enriched preparations of broccoli sprouts” (#0122U000894). Project leader – Prof. Volodymyr Lushchak.

11/020 – 11/2023 Project “Intermediates of phenylpropanoid pathway as substances to prolong lifespan and healthspan”, funded by National Research Fund of Ukraine (#2020.02/0118, 2020-2023) (project leader).

May 2021 Winner of the Small Research Grant Application (2021) program from the US-Ukraine Foundation Biotech Initiative

01/2018-12/2020 Researcher in the project “Development of new non-medicinal methods for correction of metabolic syndrome: normalization of physiological and biochemical indices in animals” (#0118U003477), funded by the Ministry of Education and Science of Ukraine. Project leader – Prof. V. Lushchak.

04/2018-02/2020 Post-doc in the project “Cellular mechanisms of healthy brain ageing under caloric restriction” (#90233) funded by Volkswagenstiftung, German. (Project leaders: Ukrainian team– Prof. V. Lushchak, German Team – Prof. Olga Garaschuk (Tubingen University)).

June 1-30, 2009 Scholarship from Queen Jadwiga Fund was received for the realization of research project “Budding yeast *Saccharomyces cerevisiae* as a model to study the role of oxidative stress in ageing”. The experimental work was done at the Faculty of Biochemistry, Biophysics and Biotechnology of Jagiellonian University (Krakow, Poland).

01/2009-12/2011 Researcher in the project “Regulation of free radical processes under response of living organisms to harmful environmental factors” (#0109U001412), funded by the Ministry of Education and Science of Ukraine. Project leader – Prof. V. Lushchak.

05/2008-12/2008 Researcher in the project funded by the State Fund for Fundamental Research of Ukraine (SFSF): “Adaptation of the yeast *Saccharomyces cerevisiae* to free radicals” (05.2008-06.2009, #0108U006932). Project leader – Prof. V. Lushchak.

10/2006-12/2006, 6/2007-12/2007 Researcher in projects funded by the SFSF: “Yeast *Saccharomyces cerevisiae* as a model to study the effects of carbonate radical on eukaryotic cells”, “Adaptive response of the yeast *Saccharomyces cerevisiae* to carbonic radical effect” (#0107U009804); “Toxicity of iron and copper ions in the presence of carbonates” (#0107U009805). Project leader – Prof. V. Lushchak.

LABORATORY METHODS (PROFICIENCY):

- *Microbiological methods*: light microscopy, cultivation of microorganisms (bacteria, yeast, microalgae), isolation of pure microbial cultures, study of physiological and biochemical properties of microorganisms (yeast), and determination of the life span of yeast cells.
- *Physiological methods*: fruit fly *D. melanogaster* maintaining and lifespan assay; fruit fly age-related functional declines (fecundity, mobility, sensitivity to stresses, etc.), mouse housing, behavior reactions in mice.
- *Biochemical and molecular biology methods*: preparation of tissue and cell extracts, enzyme activities assays, measurement of contents of major metabolites; protein and DNA electrophoresis; western blot; classical PCR and RT-PCR; classical histology; blood chemistry and blood enzyme tests; urine analysis; ELISA assay; spectrophotometric determination of

antioxidant properties of plant compounds and major markers of oxidative stress, and fluorometrical assays of metabolites and reactive oxygen species.

SCIENTIFIC INTERESTS AND CURRENT RESEARCH WORK

- Biochemical and molecular aspects of adaptation of living organisms (yeast, *Drosophila*, mice) to environmental conditions, in particular to oxidative stress
- Aging and anti-aging approaches
- Free radicals, oxidative stress, and antioxidants
- Antioxidant, adaptogenic, antiglycemic, neuroprotective, and geroprotective effects and detoxifying properties of natural products (alpha-ketoglutarate, arginine, quercetin, plant extracts, etc.) on fruit fly *Drosophila melanogaster* and mice
- Nutrition, metabolic syndrome, and obesity (on fruit flies and mice)
- Brain aging
- Functions of Nrf2 and Keap1 proteins
- Post-traumatic stress disorder in the mouse model
- Bacterial cellulose for wound healing

Supervision of undergraduate and post-graduate students

- I supervise students who research two model objects: mice and fruit flies, as well as kombucha. Under my guidance, students have won several times the All-Ukrainian competition of student research papers in the field of “Biological Sciences”: Nadiia Burdyliuk and Khrystyna Hryshuk in 2013 (III place), Maria Lilyk in 2015 (III place), Oleh Demianchuk and Nataliia Butenko in 2018 (II place), Oleh Demianchuk and Mariana Sitko in 2019 (I place). Students also regularly participate in scientific conferences, which is confirmed by published abstracts and co-authorship of articles in professional journals in Ukraine and abroad.
- Student Anna Okhovych received an academic scholarship from the President of Ukraine in 2023 and a scholarship from the Institute of East European Studies Foundation in the same year.
- **Post-graduate students**
 - 2024 - present Andrii Divnych, Oles Luhovyi, Stanislav Tymochkin
 - 2023 - present Vitalii Derkachov
 - 2014-2017 Maria Lylyk, PhD thesis “Protective effect of alpha-ketoglutarate in the fruit fly *Drosophila melanogaster* under the influence of xenobiotics”, 03.00.04 - Biochemistry, defended in 2022.

AWARDS

- 2022 – Diploma of the Mayor of Ivano-Frankivsk on the occasion of the 20th anniversary of the department of Biochemistry and Biotechnology
- 2021 – Order of Princess Olga of the third grade
- 2020 – Diploma of PNU for high professionalism, conscientious work, and on the occasion of celebrating the 80th anniversary of the university

- 2018 – Laureate of the Ukrainian L'Oréal-UNESCO program “For women in science 2018”
- 2017 – Diploma of Ivano-Frankivsk state administration and head of district council, Ivano-Frankivsk, Ukraine
- 2016 – Diploma of PNU for significant achievements in research work

VOLUNTEER, EDITOR ROLE, ORGANIZING, AND OTHER ACTIVITIES

- Academic Editor in the Journal “Biomed Research International” (since 2020)
- Editor of Journal of Vasyl Stefanyk Precarpathian University (“Series of Biology”) (2015 - 2024)
- Jury member of the National Biological and Ecological Olympiads (since 2011)
- Jury member of the Contest of research works of members of the Junior Academy of Sciences (2015)
- Jury member of the National Tournament for Young Biologists (2012-2020)
- Member of the Organizing Committee and Lecturer at Carpathian Summer School in Biochemistry held annually at the Department of Biochemistry and Biotechnology, PNU (2013-2019)
- Member of the Organizing Committee and Lecturer at the Young Biochemist School held annually at the Department of Biochemistry and Biotechnology, PNU (since 2013)
- Member of the jury of the competition “Implementing Sustainable Development Goals at the School Level”, which lasted from December 2023 to April 2014, and was organized by Epson
- Membership in the Ukrainian Biochemical Society (since 2015)
- **Reviewer in over 60 Journals for 5 years:**
 - Annals of Microbiology, Biocatalysis and Agricultural Biotechnology, Biology open, Brazilian Journal of Pharmaceutical Sciences, Drug and Chemical Toxicology, FASEB Journal, Industrial Crops and Products, Journal of Experimental Biology, Journal of Food Biochemistry, Neurotoxicity Research, Oxidative Medicine And Cell Longevity, PLOS ONE, Preparative Biochemistry and Biotechnology, The Journal of Basic and Applied Zoology, Journal of Pure and Applied Microbiology, Ageing and Disease, Antonie van Leeuwenhoek, Applied Microbiology and Biotechnology, Biochemistry and Biophysics Reports, BMC Complementary and Alternative Medicine, Molecular & Cellular Toxicology, Pharmaceutical Biology, National Academy Science Letters, Journal of Insect Physiology, Environmental Toxicology and Pharmacology, Critical Reviews in Biotechnology, Experimental Biology and Medicine, Journal of Microbiology, Biotechnology and Food Sciences, BBA - General Subjects, Ecotoxicology, Scientific Reports, Heliyon, Mutation Research, Natural Product Research, Molecular and Cellular Biochemistry, Lipids, Medical Oncology, Frontiers in Pharmacology, Aging Cell, Biofactors, Neuroprotection, Journal of Applied Toxicology, Plant Foods for Human Nutrition, ACS Omega, British Journal of Pharmacology, Journal of Applied Microbiology, International Journal of Biological Macromolecules, Journal of Food Quality, Food Bioscience, International Journal of Endocrinology, Letters in Applied Microbiology, Photochemistry and Photobiology, Journal of Applied Entomology, SAGE Open Medicine, LWT, Insect Biochemistry and Physiology, Journal of Nutrition and Metabolism, Food Research International, Brain X.

Review of research projects and research

- SPS Research Open call 2020 (France)

- Reviewing projects in the competition of scientific projects from the Ministry of Education and Science of Ukraine (main competition): three projects in 2024, one in 2025.
- Reviewing the impact of scientific results during state certification of scientific fields (Ukraine) – three expert reviews

PUBLICATIONS

Papers: monograph – 1, monograph chapters – 5, articles in Scopus – 58 (82 articles in total). Abstracts – 61. h-index in the SCOPUS database – 19.

Monograph and monograph chapters

1. Strilbytska O., **Bayliak M.**, Lushchak O., Lushchak V. Laboratory mouse in the study of post-traumatic stress disorder. Practical recommendations: study guide for students and postgraduate students of specialty 091 Biology and Biochemistry, PNU. 1st ed. Ivano-Frankivsk, PE Goliney O., 2024. 124 pp. [in Ukrainian]. <https://doi.org/10.5281/zenodo.17308650>
2. Lushchak O., Gospodaryov D., Strilbytska O., **Bayliak M.** Changing ROS, NAD and AMP: A path to longevity via mitochondrial therapeutics. In: Advances in protein chemistry and structural biology, 2023. Vol. 136. P. 157–196. <https://doi.org/10.1016/bs.apcsb.2023.03.005> (SCOPUS) Q1
3. Husak V., **Bayliak M.** Molecular Mechanisms of Chromium Tolerance in Plants: A Key Role of Antioxidant Defense. In: Kumar, N., Walther, C., Gupta, D.K. (eds) Chromium in Plants and Environment. Environmental Science and Engineering. Springer, Cham, 2023. https://doi.org/10.1007/978-3-031-44029-8_16
4. **Bayliak M.M.**, Abrat O.B. Role of Nrf2 in Oxidative and Inflammatory Processes in Obesity and Metabolic Diseases. In: Deng H. (eds) Nrf2 and its Modulation in Inflammation. Progress in Inflammation Research, vol 85. Springer, Cham, 2020. P. 153-187. https://doi.org/10.1007/978-3-030-44599-7_7 (SCOPUS)
5. Stambulska U.Y., **Bayliak M.M.** Legume-Rhizobium Symbiosis: Secondary Metabolites, Free Radical Processes, and Effects of Heavy Metals. In: Merillon JM., Ramawat K. (eds) Co-Evolution of Secondary Metabolites. Reference Series in Phytochemistry. Springer, Cham, 2020. P. 291-322. https://doi.org/10.1007/978-3-319-96397-6_43 (SCOPUS)
6. Semchyshyn H.M., **Bayliak M.M.**, Lushchak V.I. Starvation in yeast: biochemical aspects. In: Biology of starvation in human and other organisms / Edited by T.C. Merkin. Nova Science Publishers, Inc., 2011. Chapter 2. P. 103-150) (SCOPUS)

Review and experimental articles**2025**

1. Strilbytska O.M., Semaniuk U., Yurkevych I., Berezovskyi V., Glovyak A., Gospodaryov D.V., **Bayliak M.M.**, Lushchak O. 2,4-Dinitrophenol is toxic on a low caloric diet but extends lifespan of *Drosophila melanogaster* on nutrient-rich diets without an impact on metabolism. Biogerontology. 2025, Vol. 26, 27. <https://doi.org/10.1007/s10522-024-10169-9>. Q1
2. Balatskyi V., Strilbytska O., Abrat O., Tkachyk A., Lylyk M., Lushchak V., **Bayliak M.** Behavioral and metabolic effects of escapable electric foot shock stress in male mice. BMC research notes. 2025. Vol. 18, N 1, 127. <https://doi.org/10.1186/s13104-025-07189-0> Q3
3. Demianchuk O., **Bayliak M.**, Vatachchuk M., Gospodaryov D., Hurza V., Derkachov V., Berezovskyi V., Lushchak V.I. Alpha-ketoglutarate promotes anxiety, activates autophagy, and suppresses antioxidant enzymes in the cerebral cortex of female mice on cafeteria diet. Brain

research bulletin, 2025. Vol. 222, 111255. <https://doi.org/10.1016/j.brainresbull.2025.111255>

Q2

4. Ivanochko, M.V., Fediv, K.V., Shvadchak, V.V. **Bayliak M.M.**, Lushchak V.I. Nutritional analysis of aqueous and ethanol broccoli sprout extracts. *J. Plant Biochem. Biotechnol.* (2025). <https://doi.org/10.1007/s13562-025-00974-9> **Q2**
5. Hurza, V. V., **Bayliak, M. M.**, Vatachchuk, M. V., Sorochnynska, O. M., Lylyk, M. P., Abrat, O. B., Gospodaryov, D. V., Storey, K. B., & Lushchak, V. I. (2025). Intermittent fasting partially alleviates dietary margarine-induced morphometrical, hematological, and biochemical changes in female mice, but not in males. *Biochemistry research international*, 2025, 2163104. <https://doi.org/10.1155/bri/2163104> **Q2**
6. Balatskyi, V., Gospodaryov, D., Abrat, O., Strilbytska, O., Demianchuk, O., Tkachyk, A., Vasylyshyn, O., Lushchak, O., Lushchak, V. I., & **Bayliak, M.** (2025). Differential long-term effects of physical, social, and psychological stressors in male mice: down-regulation of inflammatory markers and unresponsiveness of the antioxidant system. *Physiology & behavior*, 301, 115065. <https://doi.org/10.1016/j.physbeh.2025.115065> **Q2**
7. Vatachchuk, M. V., Hurza, V. V., Abrat, O. B., Lylyk, M. P., Matvieieva, K., Gospodaryov, D. V., Demianchuk, O. I., Storey, K. B., **Bayliak, M. M.**, & Lushchak, V. I. (2025). Alpha-ketoglutarate supplementation differently modifies hematological parameters and oxidative stress in mice fed a standard diet and high-fat high-fructose diet. *Journal of physiology and biochemistry*, 10.1007/s13105-025-01115-5. Advance online publication. <https://doi.org/10.1007/s13105-025-01115-5> **Q1**
8. Okhovych, A. R., Demianchuk, O. I., & **Bayliak, M. M.** (2025). Optimization of paraoxonase organophosphatase activity assessment in mouse plasma using paraoxon-ethyl. *Biotechnologia Acta*, 18(2), 71-73 <https://doi.org/10.15407/biotech17.02.029>
9. **Bayliak, M.**, Lapkovskyi, E., Furman, Y., Levchenko, V., & Levchuk, O. (2025). Modern approaches to physical rehabilitation of patients after stroke: analysis of effective methods of movement therapy. *Ukraine. Nation's Health*, (3), 204–213. <https://doi.org/10.32782/2077-6594/2025.3/23>
10. Furman, I.O. M., **Bayliak, M. M.**, & Lapkovskyi, E. Y. (2025). Quality of life of patients after intracerebral stroke of varying severity: a prospective cohort study in Ukraine. *ISSUES OF MEDICAL REHABILITATION, PHYSICAL THERAPY AND OCCUPATIONAL THERAPY*, (2), 245-249. <https://doi.org/10.32782/spmed.2025.2.35>
11. **Bayliak, M.**, Sorochnynska, O., Kuzniak, O., Gospodaryov, D., Demianchuk, O., Vasylyk, Y., Mosiichuk, N., Storey, K., Garaschuk, O., & Lushchak, V. (2025). Cellular mechanisms of healthy brain ageing under caloric restriction: effects of intermittent fasting and age on body mass in C57Bl6/J mice [Data set]. Zenodo. <https://doi.org/10.5281/zenodo.17328319>

2024

12. Demianchuk O., Vatachchuk M., Gospodaryov D., Hurza V., Ivanochko M., Derkachov V., Berezovskyi V., Lushchak O., Storey K. B., **Bayliak M.**, Lushchak, V. I. High-fat high-fructose diet and alpha-ketoglutarate affect mouse behavior that is accompanied by changes in oxidative

stress response and energy metabolism in the cerebral cortex. *Biochimica et biophysica acta. General subjects*. 2024. Vol. 1868(1), 130521. <https://doi.org/10.1016/j.bbagen.2023.130521> Q1

13. Vatashchuk M. V., Hurza V. V., Stefanyshyn N., **Bayliak M. M.**, Gospodaryov D. V., Garaschuk O., Lushchak V. I. (2024). Impact of caloric restriction on oxidative stress and key glycolytic enzymes in the cerebral cortex, liver and kidney of old and middle-aged mice. *Neuropharmacology*. 2024. Vol. 247, 109859. <https://doi.org/10.1016/j.neuropharm.2024.109859> Q1
14. Demianchuk O., Lylyk M., Balatskiy V., Gospodaryov D., **Bayliak M.** Alpha-ketoglutarate supplementation in long-lived *Drosophila melanogaster*: Impact on lifespan and metabolic responses. *Archives of Insect Biochemistry and Physiology*. 2024. Vol. 116(1), e22116. <https://doi.org/10.1002/arch.22116> O2
15. Derkachov V.P., **Bayliak M. M.** The effect of cafeteria diet and social isolation on some biochemical, physiological and behavior parameters in mice. *Biotechnologia Acta*. 2024. Vol. 17, N2. P. 29-32.

2023

16. Vatashchuk M. V., **Bayliak M. M.**, Hurza V. V., Demianchuk O. I., Gospodaryov D. V., Lushchak, V. I. (2023). Alpha-ketoglutarate partially alleviates effects of high-fat high-fructose diet in mouse muscle. *EXCLI Journal*. 2023. Vol. 22. P. 1264–1277. <https://doi.org/10.17179/excli2023-6608> Q1
17. Lushchak O., Orru M., Strilbytska O., Berezovskyi V., Cherkas A., Storey K. B., **Bayliak M.** Metabolic and immune dysfunctions in post-traumatic stress disorder: what can we learn from animal models?. *EXCLI Journal*. 2023. Vol. 22. P. 928–945. <https://doi.org/10.17179/excli2023-6391>. Q1
18. **Bayliak M. M.**, Gospodaryov D. V., Lushchak V. I. Homeostasis of carbohydrates and reactive oxygen species is critically changed in the brain of middle-aged mice: Molecular mechanisms and functional reasons. *BBA advances*. 2023. Vol. 3, 100077. Q3. <https://doi.org/10.1016/j.bbadv.2023.100077>
19. **Bayliak M. M.**, Demianchuk O. I., Gospodaryov D. V., Balatskiy V. A., Lushchak, V. I. Specific and combined effects of dietary ethanol and arginine on *Drosophila melanogaster*. *Drug and chemical toxicology*. 2023. Vol. 46, N 5. P. 895–905. Q2. <https://doi.org/10.1080/01480545.2022.2105863>
20. Demianchuk O. I., Ivanochko M. V., Gospodaryov D. V., **Bayliak M. M.** *Rhodiola rosea* and ferulic acid activate expression of genes related to autophagy and resistance to heat shock in mice of different age. *Biotechnologia Acta*. 2023. Vol. 16, N2. P. 26-29. <https://doi.org/10.15407/biotech16.02.018>

21. Derkachov V.P., Ivanochko M. V., **Bayliak M. M.** The effect of broccoli sprouts on oxidative stress markers in mice fed with cafeteria diet. *Biotechnologia Acta*. 2023. Vol. 16, N2. P. 18-20.
22. Ivanochko M. V., Demianchuk O. I., **Bayliak M. M.**, Lushchak V.I. consumption of broccoli sprouts increased the activity of glutathione-dependent antioxidant enzymes in murine liver. *Biotechnologia Acta*. 2023. Vol. 16, N2. P. 15-17.
23. **Bayliak M.**, Abrat O., Shmihel H., Lushchak V., Shvadchak V. Interuniversity online courses as possible approach to improve teaching during crisis: A Ukrainian case study. *Journal of Vasyl Stefanyk Precarpathian National University*. 2023. Vol. 10, N 1 (Apr. 2023). P. 49-60. <https://doi.org/10.15330/jpnu.10.1.49-60>.
24. Demianchuk O., Butenko N., Gospodaryov D., **Bayliak M.** Effects of feeding with non-autoclaved and autoclaved fructose-arginine mixture on stress resistance of *Drosophila melanogaster*. *Journal of Vasyl Stefanyk Precarpathian National University*. 2023. Vol. 9, N 4 (Jan. 2023). P. 15-24. <https://doi.org/10.15330/jpnu.9.4.15-24>.
25. Vatashchuk M., Hurza V., **Bayliak M.** Adapting of spectrophotometric assay of paraoxonase activity with 4-nitrophenylacetate for murine plasma and liver. *Journal of Vasyl Stefanyk Precarpathian National University*. 2023. Vol. 9, N 4 (Jan. 2023). P. 6-14. <https://doi.org/10.15330/jpnu.9.4.6-14>.

2022

26. **Bayliak M. M.**, Vatashchuk M. V., Gospodaryov D. V., Hurza V. V., Demianchuk O. I., Ivanochko M. V., Burdyliuk N. I., Storey K. B., Lushchak O., Lushchak V. I. High fat high fructose diet induces mild oxidative stress and reorganizes intermediary metabolism in male mouse liver: Alpha-ketoglutarate effects. *Biochimica et biophysica acta. General subjects*. 2022. Vol. 1866(12), 130226. <https://doi.org/10.1016/j.bbagen.2022.130226>
27. Semaniuk U. V., Gospodaryov D. V., Strilbytska O. M., Kucharska A. Z., Sokół-Łętowska A., Burdyliuk N. I., Storey K. B., **Bayliak M. M.**, Lushchak O. Chili pepper extends lifespan in a concentration-dependent manner and confers cold resistance on *Drosophila melanogaster* cohorts by influencing specific metabolic pathways. *Food & function*. Vol. 13(15). P. 8313–8328. <https://doi.org/10.1039/d2fo00930g>
28. **Bayliak M.M.**, Sorochnytska O.M., Kuzniak O.V., Drohomiretska I.Z., Klonovskyi A.Y., Hrushchenko A.O., Vatashchuk M.V., Mosiichuk N.M., Storey K.B., Garaschuk O., Lushchak V.I. High stability of blood parameters during mouse lifespan: sex-specific effects of every-other-day fasting. *Biogerontology*. 2022. Vol. 23(5). P. 559–570. <https://doi.org/10.1007/s10522-022-09982-x>
29. **Bayliak M.M.**, Demianchuk O.I., Gospodaryov D.V., Balatskyi V.A., Lushchak V.I. Specific and combined effects of dietary ethanol and arginine on *Drosophila melanogaster*. *Drug Chem. Toxicol*. 2022. Vol. 28. P. 1-11. <https://doi.org/10.1080/01480545.2022.2105863>

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