2021

CURRICULUM VITAE

OLEKSANDRA B. ABRAT

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Vasyl Stefanyk Precarpathian National University (PNU)

I. ADDRESS

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II. PERSONAL INFORMATION

Ukrainian, married, born May 16, 1983
Languages: Ukrainian, Russian, English (professional working proficiency)

III. EDUCATION

Ph.D. thesis

Mechanisms of defense of yeast *Saccharomyces cerevisiae* against weak acid stress [in Ukrainian], defended in Scientific Council D 76.06.051 at Yurij Fed'kovych Chernivtsi National University, Ukraine (October, 2009). Supervisor – D. Sc., Ph.D., Prof Lushchak V.I., Head of Department of Biochemistry PNU.

M.Sc. Thesis

Role catalases in protection of yeast *Saccharomyces cerevisiae* from oxidative stress [in Ukrainian], September 2004-May 2005. Supervisor – D. Sc., Ph.D., Prof Lushchak V.I., Head of Department of Biochemistry PNU.

IV. TEACHING EXPERIENCE

2018-present Associate Professor, Biochemistry and Biotechnology Dept., PNU.
2007-2017 Assistant of Professor, Biochemistry Dept., PNU.

Courses:

Biochemistry with the basics of microbiology and virology, general course (lectures & practice, 2021, PNU);

Molecular basis of immunity, special course for masters in biochemistry (lectures & practice, 2021, PNU);

Immunology, general course (lectures & practice, 2018– present, PNU);

Immune mechanisms, special course for masters in biochemistry (lectures & practice, 2015–2017, PNU);

Molecular endocrinology, special course for bachelors in biochemistry (lectures & practice, 2014– present, PNU);
Biochemistry, general course (lectures & practice, 2008– present, PNU);
Microbiology, general course (lectures & practice, 2008– present, PNU);
Virology, general course (lectures & seminars, 2008–2011 2016– present, PNU);
Biochemistry of adaptations, masters in biology (seminars, 2007–2008, PNU);
Molecular biology, general course (seminars, 2007–2008, PNU)

V. PROFESSIONAL EXPERIENCE / TRAINING / SCHOLARSHIP:

2019: Research Assistant, Kielanowski Institute of Animal Physiology and Nutrition, Jablonna, Poland.
2009–present: Research Assistant, Department of Biochemistry and Biotechnology PNU;
2005–2008: Postgraduate student, Department of Biochemistry, PNU;
2007: Laboratory of Microbiology, Faculty of Biochemistry, Biophysics and Biotechnology, Jagiellonian University, Krakow, Poland.

Training / scholarship

1. Course certificate «*Fundamentals of Immunology: Innate Immunity and B-Cell Function*» (Coursera 2020, Rice University);
2. Course certificate «*Antimicrobial resistance - theory and methods*» (Coursera 2020, Technical University of Denmark (DTU));
3. Course certificate «*Biochemical Principles of Energy Metabolism*» (Coursera 2020, Korea Advanced Institute of Science and Technology(KAIST);
4. Internship*: "Testing the stability of enteric coating delay release ALLN-346 tablets along gastrointestinal tract in fed and fasted state, ALLN-346 PK study in the gut"* (2019, Lund University, Lund, Sweden);
5. PolLASA courses on proper breeding, maintenance, and usage of laboratory animals (2019, Polish laboratory animal science association, Warsaw, Poland);
6. Theoretical training (total credits 2 ECTS) "Perspectives in Biomedicine with a Focus on Cancer Immunotherapy" (2019, DAAD, Ivano-Frankivsk, Ukraine);
7. Researcher in in the project funded by Ministry of Education and Science of Ukraine: "Development of new non-medicinal methods for correction of metabolic syndrome: normalization of physiological and biochemical indices in animals" (#0118U003477, 2018-2020).
8. The Queen Jadwiga Fund (2013, Jagiellonian University, Krakow, Poland);
9. The Queen Jadwiga Fund (2007, Jagiellonian University, Krakow, Poland)

VI.CURRENT AREAS OF INTEREST

Metabolic syndrome and obesity
Antioxidant, adaptogenic, antiglycemic, stress-protective, and geroprotective effects of natural products und drugs
Oxidative stress and antioxidants

VII. SKILLS

*P*reparation of tissue and cell extracts, enzyme activities assays, measurement of content of proteins, carbohydrates and lipids; measurement of major marker of oxidative stress, blood chemistry and blood enzymes tests; leukocyte formula and enzyme-linked immunosorbent assay (ELISA); fluorometric analysis of fluorescein extrusion; light microscopy, cultivation of microorganisms, isolation of microbial cultures, study of physiologic-biochemical properties of microorganisms.

VIII. PROFESSIONAL SOCIETIES

Ukrainian Biochemical Society
Ukrainian Society of Cell Biology
Society of Microbiologists of Ukraine

IX. INTERNATIONAL GRANTS

Cross-border project ”Personalized prevention tools in obesity and diabetes – a joint Romanian-Ukrainian Programme of health education (PrePOD)“. Grant 2SOFT / 4.1 / 56. - Research associate, http://www.prepod.org.ua/en/home_en/

X. OTHER ACTIVITIES

Jury member of National Biological Olympiads
Jury member of National Tournament for Young Biologists
Activity manager of Organizing Committee and Lecturer at Carpathian Summer School in Biochemistry held annually at Department of Biochemistry and Biotechnology, PNU
Member of Organizing Committee and Lecturer at Autumn School for Young Biochemists held annually at Department of Biochemistry and Biotechnology, PNU.

X. PUBLICATIONS

Articles – 15
Abstracts – 23
Teaching works – 20

LIST OF PUBLICATIONS

Monograph chapters:

1. Bayliak, Maria M., and **Oleksandra B. Abrat**. "Role of Nrf2 in Oxidative and Inflammatory Processes in Obesity and Metabolic Diseases." Nrf2 and its Modulation in Inflammation. Springer, Cham. – 2020. –P.153–187.

Review an experimental articles in Q1 and Q2 journals:

2. Bayliak, M. M., Demianchuk, I., Gospodaryov, D. V., **Abrat, O. B.**, Lylyk, M. P., Storey, K. B., & Lushchak, V. I. (2020). Mutations in genes cnc or dKeap1 modulate stress resistance and metabolic processes in Drosophila melanogaster. Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology, 248, 110746.

3. Interplay between diet-induced obesity and oxidative stress: Comparison between Drosophila and mammals / Bayliak, M. M., **Abrat, O.** B., Storey, J. M., Storey, K. B., & Lushchak, V. I.// Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology. – 2019. – Vol. 228, P. 12–18.
4. High amylose starch consumption induces obesity in Drosophila melanogaster and metformin partially prevents accumulation of storage lipids and shortens lifespan of the insects / **Abrat Oleksandra B.**, Storey Janet M., Storey Kenneth B., Lushchak Volodymyr I. // Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology. – 2018. – Vol. 215, P. 55–62.
5. Acetate but not propionate induces oxidative stress in bakers' yeast Saccharomyces cerevisiae / Semchyshyn H., **Abrat O.**, Miedzobrodzki J., Inoue Y., Lushchak V. // Red. Report. – 2011. – Vol. 16, N 1. – P. 1–9.
6. Pdr12p-dependent and -independent fluorescein extrusion from baker's yeast cells / V. Lushchak, **O. Abrat**, J. Międzobrodzki, H. Semchyshyn // Acta biochimica polonica. – 2008. – Vol. 55, N 3. – P. 595–601.
7. Acid stress in yeast Saccharomyces cerevisiae / **Abrat O.B.**, Semchyshyn H.M., Lushchak V.I. [in Ukrainian] // Ukr. Biochem. J. 2008. 80 (6), P. 19–31.
8. Fluorescein transport and antioxidant systems in the yeast Saccharomyces cerevisiae under acid stress / **Abrat O.B.**, Semchyshyn H.M., Międzobrodzki J., Lushchak V.I. [in Ukrainian] // Ukr. Biochem. J. 2008. 80 (3), P. 70-77.
9. Acid stress increases the activity of superoxide dismutase and catalase in the yeast Saccharomyces cerevisiae / **Abrat O.**, Semchyshyn H., Lushchak V. [in Ukrainian] // Ukr. Biochem. J. 2007. 79 (2), P. 17-23.
10. Survival and antioxidant defense of the yeast Saccharomyces cerevisiae under starvation and oxidative stress / Bailyak M., **Abrat O.**, Semchyshyn H., Lushchak V. [in Ukrainian] // Ukr. Biochem. J. 2005. 77 (2), P. 162-165.
11. Survival and antioxidant defense of Esherichia coli in response to alloxan exposure / **Abrat O.**, Semchyshyn H., Lushchak V. [in Ukrainian] // Ukr. Biochem. J. 2005. 77 (2), P. 123-129.

Other articles:

12. **Abrat O.**, Diduch J. Influence of dietary yeast restriction on pathological changes in the body of the fruit fly under high consumption of amylose starch // Ukrainian journal of medicine, biology and sport – 2017. – Vol. 4, N 6. – P. 148–154.
13. **Abrat O.** Influence of amylose starch on development and lifespan of fruit fly *Drosophila melanogaster //* Journal of Vasyl Stefanyk Precarpathian National University. Vol. 2, No. 1 (2015), 100–106.

14. Effect of alloxan and hydrogen peroxide on yeast *Saccharomyces cerevisiae* survival / **Abrat O.,** Markovych O., Lohaza L. [in Ukrainian] // Newsletter of Precarpathian University. Ivano-Frankivsk. 2004. P. 5-9.

15. Effect of different oxygen levels on the growth of *Esherichia coli* strains MC4100, GS071 and GS047 / Demyanchuk Yu., **Abrat O.** [in Ukrainian] // Newsletter of Precarpathian University. Ivano-Frankivsk. 2003. P. 130-137.