

# Liudmyla Kozeko

## CONTACT INFORMATION

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<https://www.researchgate.net/profile/Liudmyla-Kozeko>

## EDUCATION AND ACADEMIC DEGREE

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2016 – 2019 DSc (Dr Habil) in Biology (Cytology, Cell Biology, Histology) (Institute of Food Biotechnology and Genomics of National Academy of Sciences of Ukraine (NASU), Kyiv, Ukraine).  
Dissertation topic: “Role of molecular chaperones in phenotypic plasticity of plants”.  
The work was carried out at the M.G. Kholodny Institute of Botany of NASU, Kyiv, Ukraine, consultant – Prof. E. Kordyum.  
Field of research: plant cell biology; plant physiology; plant ontogenesis; plant stress response and adaptation; stress proteins.

1988 – 1991 PhD in Biology (Plant Physiology) (Institute of Plant Physiology and Genetics of NASU, Kyiv, Ukraine).  
Thesis topic: “Protein synthesising system in bean seeds”.  
The work was carried out at the M.G. Kholodny Institute of Botany of NASU, Kyiv, Ukraine, supervisor – Dr. L. Musatenko.  
Field of research: plant physiology; seed maturation and germination; transcriptome and proteome; phytohormone regulation.

1981 – 1985 K.A. Timiryazev Agricultural Academy, Moscow, Russia/Soviet Union; Agrochemistry and Soil Science / Master degree.  
Field of research: plant biochemistry; seed maturation; wheat gluten proteins.

1978 – 1981 Technological Institute, St.-Petersburg, Russia/Soviet Union.  
Chemistry, Physical chemistry / Bachelor degree.

## PROFESSIONAL EXPERIENCE

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2022 06 – till now **Senior Researcher** (temporarily), Laboratory of Plant Physiology, Nature Research Centre, Vilnius, Lithuania

2020 02 – till now **Leading Researcher**, Department of Cell Biology and Anatomy, M.G. Kholodny Institute of Botany of NASU, Kyiv, Ukraine

2018 12 – 2020 01 **Senior Researcher**, Department of Cell Biology and Anatomy, M.G. Kholodny Institute of Botany of NASU

2016 09 – 2018 11 **Doctoral Researcher**, Department of Cell Biology and Anatomy, M.G. Kholodny Institute of Botany of NASU

2003 05 – 2016 08 **Senior Researcher**, Department of Cell Biology and Anatomy, M.G. Kholodny Institute of Botany of NASU

2002 04 – 2003 05 **Researcher**, Department of Cell Biology and Anatomy, M.G. Kholodny Institute of Botany of NASU

- 1991 12 – 1998 12     **Researcher**, Department of Plant Physiology, M.G. Kholodny Institute of Botany of NASU
- 1985 10 – 1988 11     **Senior Assistant**, Ukrainian Institute of Fodders, Vinnytsia, Ukraine

## RESEARCH INTERESTS

Fields of research: plant cell biology, plant physiology, environmental studies, space biology. Scientific interest is focused on molecular and cellular mechanisms of plant tolerance and adaptation; heat shock proteins (HSPs)/molecular chaperones of plants: regulation of gene expression, the cytosolic stress protein response, the unfolding protein response (UPR), kinetics of synthesis in connection with plant tolerance, tissue-specificity of expression, roles in plant growth, development and morphogenesis, biomarker of plant state; HSPs in cell response to microgravity, hypergravity and ionizing radiation.

## PUBLICATIONS

*Scientific articles published in journals (books), indexed in „Clarivate Analytics Web of Science“ database (with citation index):*

1. **Kozeko L.** 2021. Different roles of inducible and constitutive HSP70 and HSP90 in tolerance of *Arabidopsis thaliana* to high temperature and water deficit. – *Acta Physiologiae Plantarum*, 43: art. no. 58. <https://doi.org/10.1007/s11738-021-03229-x>.
2. **Kozeko L.** 2019. The role of HSP90 chaperones in stability and plasticity of ontogenesis of plants under normal and stressful conditions (*Arabidopsis thaliana*). – *Cytology and Genetics*, 53 (2): 143-161. <https://doi.org/10.3103/S0095452719020063>.
3. Kordyum E., **Kozeko L.**, Ovcharenko Y., Brykov V. 2017. Assessment of alcohol dehydrogenase synthesis and aerenchyma formation in the tolerance of *Sium* L. species (*Apiaceae*) to water-logging. – *Aquatic Botany*, 142: 71-77. <https://doi.org/10.1016/j.aquabot.2017.07.001>.
4. **Kozeko L.**, Talalaiev O., Neimash V., Povarchuk V. 2015. A protective role of HSP90 chaperone in gamma-irradiated *Arabidopsis thaliana* seeds. – *Life Sciences in Space Research*, 6: 51-58. doi: 10.1016/j.lssr.2015.07.002.
5. **Kozeko L.E.** 2013. Phenotypic variability of *Arabidopsis thaliana* seedlings as a result of inhibition of Hsp90 chaperones. – *Cytology and Genetics*, 47 (2): 75-87. <https://doi.org/10.3103/S0095452713020072>.
6. **Kozeko L.**, Kordyum E. 2009. Effect of hypergravity on the level of heat shock proteins 70 and 90 in pea seedlings. – *Microgravity Science and Technology*, 21 (1): 175-178. doi:10.1007/s12217-008-9044-1.
7. **Kozeko L.**, Kordyum E. 2006. The stress protein level under clinorotation in context of the seedling developmental program and the stress response. – *Microgravity Science and Technology*, XVIII-3/4: 254-256. <https://doi.org/10.1007/BF02870422>.
8. **Kozeko L.E.**, Troyan V.M. 2000. The relationship between the mitotic activity and moisture content of recalcitrant seeds of *Acer saccharinum* (L.) during maturation, post-maturation drying and germination. – *Seed Science Research*, 10: 225-232. doi:10.1017/S0960258500000258.

*Scientific articles published in conference proceedings, indexed in „Clarivate Analytics Web of Science“ database:*

1. Kordyum E., **Kozeko L.**, Ovcharenko Y. 2007. ADH expression in aerial-aquatic plants in response to different water environment. – *The Proceeding of 7<sup>th</sup> International Scientific*

Conference “Eco-physiological aspects of plant responses to stress factors”: *Acta Physiologiae Plantarum*, 29 (Suppl 1): 75. <https://doi.org/10.1007/s11738-007-0082-x>.

2. Kordyum E., **Kozeko L.**, Ovcharenko Y. 2005. The influence of moderate water deficit on the root system in aerial-aquatic plants. – *The Proceeding of 6<sup>th</sup> International Scientific Conference “Eco-physiological aspects of plant responses to stress factors”*: *Acta Physiologiae Plantarum*, 27 (Suppl 4): 60.
3. **Kozeko L.**, Chernyshov D., Kordyum E. 2004. Phenotypic plasticity in aerial-aquatic plants under the changes in water supplying. – *The Proceeding of 14<sup>th</sup> FESPB Congress: Acta Physiologiae Plantarum*, 25 (Suppl 3): 191.

**Other reviewed scientific publications (books, books' chapters, collections of articles, articles, textbooks and etc.):**

1. **Kozeko L.Y.**, Kordyum E. L. 2021. Using of heat shock proteins HSP70 for evaluation of plant state in natural phytocenoses: approaches and problems. – *The Bulletin of Kharkiv National Agrarian University. Series Biology*, 2 (53): 23–40. <https://doi.org/10.35550/vbio2021.02.023>.
2. Kordyum E., Borisova T., Krisanova N., Pozdnyakova N., Shevchenko G., **Kozeko L.**, Romanchuk S., Lobachevska O., Charkavtsiv Y., Kyyak N., Zaimenko N., Ivanytska B., Brykov V., Mischenko L. 2021. Space Biology: Results and Prospects. – In: O Fedorov (ed.) *Space research in Ukraine. 2018–2020 (Report to COSPAR)*, Kyiv: Akadem periodyka: 71-78. ISBN 978-966-360-425-1.
3. Kordyum E.L., Bluma D.A., Ivanenko G.F., **Kozeko E.L.**, Artemenko O.A., Vedenicheva N.P. 2019. Plasticity of morpho-physiological and oxidative metabolism patterns of *Sium species* (Apiaceae) at different soil moisture. – *Journal of Plant Physiology & Pathology*, 7: art. no. 2. doi: 10.4172/2329-955X.1000197.
4. **Kozeko L.Y.**, Buy D.D., Pirko Ya.V., Blume Y.B., Kordyum E.L. 2018. Clinorotation affects induction of the heat shock response in *Arabidopsis thaliana* seedlings. – *Gravitational Space Research*, 6 (1): 2-9. <https://doi.org/10.2478/gsr-2018-0001>.
5. **Kozeko L.Y.** 2017. Heat shock protein HSP70 and alcohol dehydrogenase synthesis in leaves of *Arabidopsis thaliana* i *Sium sisaroidium* in response to soil flooding. *The Bulletin of Kharkiv National Agrarian University. Series Biology*, 3 (42): 46-51. <https://doi.org/10.35550/vbio2017.03.046>. (in Ukrainian)
6. **Kozeko L.Y.** 2016. Chaperones HSP90 as a stabilizer of plant growth and morphogenesis: A microevolutionary aspect. – *Factors of Experimental Evolution of Organisms*, 18: 42-45. ISSN 2219-3782. eISSN 2415-3826. (in Ukrainian)
7. **Kozeko L.Y.**, Rahmetov D.B. 2016. Variation in heat shock proteins HSP70 synthesis dynamics in *Malva silvestris* and *M. pulchella* (Malvaceae) in connection with tolerance to high temperature, flooding and drought. – *Ukrainian Botanical Journal*, 73 (2): 194-203. <https://doi.org/10.15407/ukrbotj73.02.194>. (in Ukrainian)
8. **Kozeko L.Y.**, Ovcharenko Y.V. 2015. Dynamics of structural and functional *Sium latifolium* (Apiaceae) adaptation to root flooding. – *Ukrainian Botanical Journal*, 72 (2): 172-179. <https://doi.org/10.15407/ukrbotj72.02.172>. (in Ukrainian)
9. **Kozeko L.Y.** 2015. Influence of radicicol, an inhibitor of HSP90 chaperons, on growth of *Arabidopsis thaliana* after gamma-irradiation of seeds. – *The Bulletin of Kharkiv National Agrarian University. Series Biology*, 1 (34): 14-21. ISSN 1992-4917. (in Ukrainian)
10. **Kozeko L.Y.** 2014. Changes in heat-shock protein synthesis and thermotolerance of *Arabidopsis thaliana* seedlings resulting from Hsp90 inhibition by geldanamycin. – *Cell Tissue Biology*, 8(5): 416-422. <https://doi.org/10.1134/S1990519X14050046>.
11. **Kozeko L.Y.** 2013. Synthesis of Hsp70 following inhibition of Hsp90 in *Arabidopsis thaliana* seedlings (The evidence for auto-regulation of heat shock protein synthesis). – *Proceedings of*

- the Russian Scientific Conference "Factors of Plant Stability in Extreme Natural Conditions and Technogenic Environment"*, June 10-13, Irkutsk, Russia. – Irkutsk: 119-121. (in Russian)
12. **Kozeko L.Y.**, Kordyum E.L. 2013. The heat shock protein Hsp70 as an indicator of the state and resistance of plants. – *Proceedings of the Russian Scientific Conference "Factors of Plant Stability in Extreme Natural Conditions and Technogenic Environment"*, June 10-13, Irkutsk, Russia. – Irkutsk: 458-461. (in Russian)
  13. **Kozeko L.Y.** 2013. The influence of geldanamycin (GDA) on the synthesis of heat shock proteins 70 and 90 in *Arabidopsis thaliana* seedlings. – *Reports of the National Academy of Sciences of Ukraine*, 2: 152-157. (in Russian)
  14. Kordyum Y.L., **Kozeko L.Y.**, Ovcharenko Y.V. 2012. Phenotypic plasticity of aerial-aquatic plants *Alisma plantago-aquatica* L. and *Sium latifolium* L.: structural and molecular aspects. – *The Scientific Issues of Ternopil Volodymyr Hnatiuk National Pedagogical University. Series: Biology*, 52 (3): 11-16.
  15. **Kozeko L.Y.**, Artemenko O.A., Zaslavsky V.A., Didukh A.Y., Rahmetov D.B., Martynyuk G.M., Didukh Y.P., Kordyum Y.L. 2011. Evaluation of plant state under unfavorable change of environmental conditions using heat shock proteins 70 kDa (HSP70). – *Ukrainian Botanical Journal*, 68 (6): 890-900. (in Ukrainian)
  16. **Kozeko L.Y.** 2010. Heat shock proteins 90 kDa: diversity, structure, functions. – *Tsitologiya*, 52(11): 3-20. (in Russian)
  17. **Kozeko L.Y.** 2009. Quantitative changes of heat shock proteins Hsp70 и Hsp90 in the response of pea seedlings to short-term hypergravity. – *Reports of the National Academy of Sciences of Ukraine*, 1: 140-143. (in Russian)
  18. **Kozeko L.** 2008. Effects of simulated microgravity on thermotolerance of pea seedlings. – *Journal of Gravitational Physiology*, 15 (1): 173-174.
  19. **Kozeko L.**, Ovcharenko Y., Kordyum E. 2008. Alcohol dehydrogenase expression in aerial-aquatic plants in response to different water environment. – *Adv. Agriculturul Sci. Problem*, 524: 167-171.
  20. **Kozeko L.Y.** 2007. Influence of the real and simulated microgravity on gene expression of heat-shock proteins. – *Space Science and Technology*, 13 (2): 57-61. <https://doi.org/10.15407/knit2007.02.057>.
  21. **Kozeko L.Y.**, Kordyum E.L. 2007. Heat shock proteins Hsp70 and Hsp90 in pea seedlings under clinorotation of different duration. – *Journal of Gravitational Physiology*, 14 (1): 115-116.
  22. **Kozeko L.Y.**, Kordyum E.L. 2006. Altered gravity effect on the heat shock protein level in plants. – *Journal of Gravitational Physiology*, 13(1): 117-118.
  23. **Kozeko L.Y.** 2006. Alterations in a soluble protein pattern and quantity of stress proteins HSP90 and HSP70 in pea seedlings in response to clinorotation. – *Biopolymers and Cell*, 22 (2): 136-142. <http://dx.doi.org/10.7124/bc.000728>. (in Russian)
  24. **Kozeko L.Y.**, Shevchenko G.V., Artemenko O.A., Martyn G.G., Kordyum E.L. 2005. Actin organization and gene expression in *Beta vulgaris* seedlings under clinorotation. – *Journal of Gravitational Physiology*, 12 (1): 187-188.
  25. Kordyum E.L., Martyn G.G., Shevchenko G.V., **Kozeko L.E.**, Artemenko O.A. 2005. Differentiation of plant graviperceiving and graviresponding cells in altered gravity. – *Journal of Gravitational Physiology*, 12 (1): 189-190.
  26. Kozeko L.Y. 2004. Actin of *Beta vulgaris* seedlings under clinorotation. – *Space Science and Technology*, 10 (5/6): 218-220. (in Russian)
  27. Chernyshov D.P., Krasutska N.O., **Kozeko L.Y.** 2004. Morphophysiological indicators and protein spectrum of mericarps of aerial-aquatic and terrestrial plants *Sium latifolium* L. – *Materials of the Conference of young botanists "Actual problems of botany and ecology"*, Kaniv, 7-10 September – Kyiv: 101-104. (in Ukrainian)

28. **Kozeko L.E.**, Kordium E.L., Glazko V.I. 2003. Differentiation of morpho-physiological forms of *Sium latifolium* L. using molecular genetic markers. – *Biopolymers and Cell*, 19 (5): 451-456. <http://dx.doi.org/10.7124/bc.000674> (in Russian)
29. Troyan V.M., **Kozeko L.E.**, Overchuk O.V., Babenko V.M., Musatenko L.I., Pidhayetsky A.A., Kolomiets M.V., Gledon R.J., Gannapel D.J. 1999. Activity of lipoxygenase in leaves of *Solanum tuberosum* L., inoculated with virulent races *Phytophthora infestans* (Mont.) de Bary. – *Reports of the National Academy of Sciences of Ukraine*, 10: 168-172. (in Ukrainian)
30. Babenko L.M., **Kozeko L.E.**, Nesterova A.N., Musatenko L.I. 1994. Effect of cold stratification and treatment with jasmonic acid on the intensity of translation in the seeds of the Tatar maple (*Acer tataricum* L.). – *Reports of the National Academy of Sciences of Ukraine*, 8: 155-157.
31. **Kozeko L.E.**, Musatenko L.I. 1994. Osmopriming effects on the protein-synthesizing activity of germinating *Phaseolus vulgaris* L. seeds. – *Ukrainian Botanical Journal*, 51 (2/3): 91-95.
32. **Kozeko L.E.**, Musatenko L.I. 1992. Gene expression regulation in *Phaseolus vulgaris* L. seeds by water status, abscisic and jasmonic acids. – *Proceedings of the 4th International Work-shop of Seeds "Basic and Applied Aspects of Seed Biology"*, Angers, France, July 20-24, IV.5.
33. **Kozeko L.E.**, Berestetsky V.A., Musatenko L.I. 1992. The effect of abscisic and jasmonic acids on RNA and protein synthesis in the embryo of a germinating bean seed. – *Russian Journal of Plant Physiology*, 39 (3): 514-519. ISSN 0038-5719. (in Russian)
34. **Kozeko L.E.**, Musatenko L.I. 1991. The effect of jasmonic acid on RNA synthesis in the embryo organs of a germinating bean seed. – *Reports of the National Academy of Sciences of USSR*, 11: 149-151. (in Russian)
35. **Kozeko L.E.**, Musatenko L.I. 1991. The participation of preformed mRNAs in the protein synthesis in embryo in the first hours of bean seed germination. – *Reports of the National Academy of Sciences of USSR*, 2: 146-147. (in Ukrainian)
36. **Kozeko L.E.**, Musatenko L.I. 1991. The role of preformed mRNAs in seed development. – *Ukrainian Botanical Journal*, 48 (1): 71-78. (in Ukrainian)

**Reviewed scientific articles, published in Lithuania:**

1. Babenko L.M., **Kozeko L.E.**, Musatenko L.I., Sytnik K.M. 1997. Jasmonic acid effect in the protein-synthesizing activity of seeds with different types of dormancy. – *Biologija*, 3: 51-60.

**PARTICIPATION IN INTERNATIONAL AND NATIONAL SCIENTIFIC PROGRAMMES AND PROJECTS**

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2022 – 2023	Project of LRS & MESU International Cooperation Ukrainian-Lithuanian Programme “Investigation of the impact of proline and $\gamma$ -aminobutyric acid on plant tolerance to water deficit”; Principle Investigator (PI), (PI in Lithuania: Dr. Sigita Jurkonienė, Nature Research Centre, Vilnius).
2012	Project of National Space Program of Ukraine (NASU) “Role of Hsp90 chaperones in display of genetic damages generated by the space environment (an exobiological experiment with <i>Arabidopsis thaliana</i> seeds)” (0112U004174), PI.
1991-till now	Implementer of 14 projects of NASU and 2 projects of National Space Agency of Ukraine.

**INTERNSHIP AND TRAINING**

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| 2021 | “Processing and visualization of experimental data of scientific research in the Origin program” training at Scientific and Educational Centre of Applied |
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Informatics of NASU (Kyiv, Ukraine).

2018 Scholarship of German Academic Exchange Service (DAAD, Funding program “Bilateral Exchange of Academics, 2018”) in ZMBP, Tuebingen University, Germany: Project “Regulation of the heat shock response in *Arabidopsis* through modulation of HSP90 chaperone activity” (N 57378439).

## **PARTICIPATION IN SCIENTIFIC CONFERENCES**

### ***International scientific conferences:***

1. **Kozeko L.**, Ovcharenko Y., Kordyum E. 2022. Response of *Hydrocotyle verticillata* to different water levels - molecular mechanisms. – *The 3rd International Conference on the Scientific Actualities and Innovations in Horticulture (SAIH2022)*, 26–28 September, Vilnius, Lithuania.
2. Kordyum E., Polishchuk O., Nedukha O., Akimov Y., **Kozeko L.**, Brykov V. 2022. Plasticity of *Hydrocharis morsus-ranae* photosynthetic apparatus in different solar lighting. – *The 3rd International Conference on the Scientific Actualities and Innovations in Horticulture (SAIH2022)*, 26–28 September, Vilnius, Lithuania.
3. **Kozeko L.** 2022. HSP90 stabilizes plant growth under genotoxic exposure. – *The 44th COSPAR Scientific Assembly 2022*, 16-24 July, Athens, Greece.
4. **Kozeko L.**, Kordyum E. 2021. Tissue-specific expression of heat shock protein gene *AtHSP90-2* during *Arabidopsis thaliana* seedling formation. – *International scientific conference "Stress and adaptation of plants"*, 25-26 February, Kharkiv, Ukraine.
5. **Kozeko L.**, Kordyum E. 2021. Assessment of plant resistance to environmental changes using heat shock proteins HSP70: approaches and problems. – *International scientific conference "Stress and adaptation of plants"*, 25-26 February, Kharkiv, Ukraine.
6. **Kozeko L.**, Kordyum E. 2021. “Cell type-specific expression patterns of heat shock protein *AtHSP90-2* in *Arabidopsis* seedlings”. – *The 6th Edition of Global Conference on Plant Science and Molecular Biology (GPMB 2021)*, 30 September – 01 October.
7. Zaplatnikov Y., Brykov V., **Kozeko L.**, Shevchenko G. 2021. Thermotolerance and HSP70 expression in *Arabidopsis thaliana* from the Chernobyl Zone. – *The 1st International Conference on Experimental Sciences and Biotechnology*, Turkey, 8-10 September.
8. Zaplatnikov Y., Brykov V., **Kozeko L.** 2021. Thermotolerance and HSP70 expression in *Arabidopsis thaliana* from the Chernobyl Zone. – *The 6th International Conference on Environment Specimen Banks (ICESB)*, 28–30 September, Incheon, Korea.
9. **Kozeko L.**, Kordyum E. 2020. Kinetics of HSP70 and HSP90 expression and drought tolerance of *Arabidopsis thaliana*. – *VISCEA III - Plant Abiotic Stress Tolerance VI: International Conference*, 21-22 February, Vienna, Austria.
10. **Kozeko L.** 2019. Analysis of the modular nature of morphoses in *Arabidopsis thaliana hsp* knockout mutants. – *International scientific conference "Plant conservation strategies in botanical gardens and arboretums of Ukraine"*, 25-27 February, Kyiv, Ukraine.
11. **Kozeko L.** 2019. The role of HSP90 chaperones in canalized and non-canalized growth responses of *Arabidopsis* seedlings to altered gravity. – *The 26th ELGRA Biennial symposium and General Assembly*, 24-27 September, Granada, Spain.
12. **Kozeko L.** 2018. HSP90 dependence of plasticity responses to clinorotation and light/darkness in *Arabidopsis* seedlings. – *The 42nd COSPAR Scientific Assembly 2018*, 14-22 July, Pasadena, California, USA.
13. **Kozeko L.** 2018. HSP90s and HSP70s stabilize root gravitropic response in *Arabidopsis*. – *ISGP & ESA Life Sciences Meeting 2018*, 18-22 June, Noordwijk, Netherlands.
14. Kordyum E.L., **Kozeko L.E.**, Vedenicheva N.P., Bluma D.A. 2018. Phenotypic plasticity of *Sium latifolium* and *S. sisaroides* (*Apiaceae*). – *The 11th International conference "Plant Functioning Under Environmental Stress"*, 12-15 September, Cracow, Poland.

***National scientific conferences:***

Oral/poster/distance contribution in 35 Ukrainian conferences.

**PARTICIPATION IN THE STUDY PROCESS**

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***Supervision of bachelor and master students:***

Kateryna Kovin	Bachelor diploma work: „Role of high molecular chaperones HSP70 and HSP90 in plant stress response“ (National University of “Kyiv-Mohyla Academy” (NAUKMA))	2011 – 2012
Natalia Krasutska	Master diploma work: „Morphophysiological indicators and protein spectrum in mericarps of aerial-aquatic and terrestrial plants <i>Sium latifolium</i> L.“ (NAUKMA)	2003 – 2004

**OTHERS**

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1. Academic rank of Senior Researcher (2009).
2. Deputy Head of the Department of Cell Biology and Anatomy, M.G. Kholodny Institute of Botany of NASU (2004-2013, 2021-till now).
3. Member of the Academic Council of the Institute.
4. Reviewer of scientific papers from Ukrainian and international scientific journals, particularly, “Biotechnology Reports”, “Microgravity Science and Technology”, “Plant Cell Biotechnology and Molecular Biology”, “Sustainability”, “Ukrainian Botanical Journal”, “Ukrainian Biochemical Journal”.
5. Reviewer for national funding agencies.
6. Opponent of PhD theses defended in Ukraine.
7. Supervisor of student researches in Junior Academy of Sciences of Ukraine.
8. Membership of Professional Societies: European Low Gravity Research Association (ELGRA), Vavilov Society of Geneticists and Breeders of Ukraine, Ukrainian Biochemical Society, Ukrainian Society of Cell Biology, Ukrainian Botanical Society, non-governmental organization ‘Women in Science’.
9. Awards of NASU "For Professional Achievements" (2021), „For achievements in the investigation of cellular mechanisms of plant adaptation“ (2013).