

DR. ELENA V. MITROSHINA

UNIVERSITY	National Research Lobachevsky State University of Nizhny Novgorod
PROFICIENCY IN ENGLISH	Intermediate
MAJOR OF PH.D. PROGRAMME	Biological Science
CODE OF PH.D. PROGRAMME	06.06.01
RESEARCH PROJECTS OF PROSPECTIVE SCIENTIFIC SUPERVISOR	<p>PROJECT LEADER:</p> <ol style="list-style-type: none"> 1. «Investigation of neuronal kinase-induced adaptive mechanisms to damaging ischemic factors». RFBR №18-015-00391, 2018-2020. 2. «Development of an approach to the use of neurotrophic brain factors for the correction of neurodegenerative changes in the treatment of Alzheimer's disease». State project «Provision scientific research» № 6.6379.2017/BP, 2017-2019. 3. «Investigation of the role of some components endocannabinoid system in the implementation of adaptation mechanisms neuron-glia networks in hypoxia» RFBR №16-34-00301, 2016-2017. <p>PROJECT TEAM MEMBER:</p> <ol style="list-style-type: none"> 4. «Investigation of the role of representatives of neuronal kinome in the implementation of CNS adaptive mechanisms under ischemic factors influence». RSF 18-75-10071, 2018-2020. 5. State project «Provision scientific research». 0729-2020-0061 Molecular mechanisms of adaptation of living systems, 2020-2022. 6. «Development of three-dimensional constructs with a given architectonics for neurotransplantation based on biocompatible materials». RFBR №18-315-20003, 2018-2020. 7. «Cell death mechanisms in photodynamic therapy of neurooncological diseases». RSF № 18-15-00279, 2018-2020. 8. «Investigation of selective and antagonistic actions of neurotrophic factors during hypoxia and in the posthypoxic period». RFBR №16-04-00245, 2016-2018. 9. «Adaptive mechanisms of the nervous system to ischemic injury». Grant of the President of the Russian Federation №MD-2634.2017.4, 2017-2018. 10. «Investigation of the Brain-derived neurotrophic factor (BDNF) role in synaptic plasticity processes» RFBR №17-04-01128, 2016-2019. 11. «The effect of BDNF on the maintaining of functional activity of neuron-glia networks after the partial neuronal death under the influence of ischemic conditions» RFBR №13-04-01871, 2013-2015. 12. «Development of tissue-engineering constructs for neurotransplants on the basis of porous polymeric matrix and autologous stem cells of patients with the central nervous system damage» RFBR №13-04-12067, 2013-2015. 13. «Investigation of mechanisms of neuroprotective and antihypoxic effects of brain neurotrophic factors (BDNF, GDNF)» (Nizhny Novgorod Government Grant in science, technology and technics), 2014. 14. «The role of tyrosine kinase receptor (TrkB) in the neuroprotective and antihypoxic effects of brain neurotrophic factor (BDNF) at normobaric hypoxia modelling in vitro» (Russian Foundation for Basic Research №14-04-31601), 2014-2015. 15. «Mathematical and experimental modelling of growing process and restoration of structure and functions of neural tissue with bioactive polymer matrices in case of damaged CNS» (Russian Foundation for Basic Research №15-29-04908), 2015-2017. 16. «The study of the fundamental mechanisms of glial signaling and neuron-glia relationships in the aging brain» (Russian Science Foundation №14-15-00633).

	<p>17. «Dynamics of neuronal networks evolution in dissociated hippocampal cultures while long-term cultivating on multielectrode system MED64» (Departmental Program), 2009-2010.</p> <p>18. «Unique scientific setting for brain information processes research using optogenetic methods» (Federal Target Program «Research and Development», Project ID RFMEFI59114X0004), 2014-2015.</p> <p>19. «Development of methods, technologies and platforms for nervous systems research based on high-resolution informational model of the cortical brain structures», Federal Target Program «Research and Development», Project ID RFMEFI58115X0016, 2015-2017</p> <p>20. «Extracellular matrix as a determinant of intercellular communication and target for therapeutic impact» (Russian Federation Government Grant for support of research conducted by leading scientists at Russian educational institution №11.G34.31.0012), 2010-2012, 2013-2014.</p> <p>21. «Adaptive control and synchronization of living neurons on multielectrode array: theory and experiment» (Federal Target Program «Research and Development»), 2012-2013.</p>
<p>TOPICS FOR PROSPECTIVE PH.D. RESEARCH</p>	<ul style="list-style-type: none"> • Neuroprotective effect of HIF Prolyl Hydroxylase inhibition in modeling beta-amyloidosis in vitro. • Astrocyte-mediated mechanisms of nervous system's adaptation to ischemia. • Evaluation of the role of astrocytes in the pathogenesis of Alzheimer's disease (modeling AD in vitro and in vivo).
<div data-bbox="316 965 657 1393" data-label="Image"> </div> <p>Research supervisor: ELENA V. MITROSHINA Associate Professor, Biological Science, Candidate of Science / Ph.D. (Pirogov Medical University)</p>	<p>RESEARCH AREA: Investigation of Molecular Mechanisms of the Nervous System Adaptation to Stress Conditions.</p> <p>SUPERVISOR'S RESEARCH INTERESTS:</p> <ul style="list-style-type: none"> • Neuroscience, • Neuronal Networks, • Astrocyte, • Neuron-glia Interaction, Imaging in Neurobiology, Ca²⁺ Imaging, • Hypoxia, • Neurodegeneration, • Neuroprotection, • Neurotrophic Factors, • BDNF, • Primary Nervous Cell Cultures. <p>RESEARCH HIGHLIGHTS: The existing infrastructure and logistical support at the University will allow to accomplish the tasks at a high-tech level. We have innovative methods and approaches for imaging (confocal microscope Zeiss LSM 800, Zeiss 7MP, etc.) and electrophysiological research (multielectrode arrays system) in the UNN. The laboratory facilities will help to investigate the mammalian brain at all levels of the living system - from molecular to organismic. More details: https://vk.com/video-97686896_456239059</p> <p>SUPERVISOR'S SPECIFIC REQUIREMENTS:</p> <ul style="list-style-type: none"> • <i>general knowledge of neuroscience required;</i> • <i>work experience with cell cultures is welcomed;</i> • <i>good proficiency in English;</i> • <i>motivation & creativity.</i> <p>SUPERVISOR'S PUBLICATIONS (2015-2020):</p> <ul style="list-style-type: none"> • 41 research publications indexed by Web of Science (inc.28 articles),. • Web of Science Researcher ID: A-6718-2014, h-index 9. <p>LATEST PUBLICATIONS:</p>

	<ul style="list-style-type: none"> • <i>Mitroshina, E. V., Yarkov, R. S., Mishchenko, T. A., Krut', V. G., Gavrish, M. S., Epifanova, E. A., Babaev, A. A., & Vedunova, M. V. (2020). Brain-Derived Neurotrophic Factor (BDNF) Preserves the Functional Integrity of Neural Networks in the β-Amyloidopathy Model in vitro. <i>Frontiers in Cell and Developmental Biology</i>, 8. https://doi.org/10.3389/fcell.2020.00582</i> • <i>Mitroshina, E. V., Mishchenko, T. A., Shirokova, O. M., Astrakhanova, T. A., Loginova, M. M., Epifanova, E. A., Babaev, A. A., Tarabykin, V. S., & Vedunova, M. V. (2019). Intracellular Neuroprotective Mechanisms in Neuron-Glial Networks Mediated by Glial Cell Line-Derived Neurotrophic Factor. <i>Oxidative Medicine and Cellular Longevity</i>, 2019, 1–15. https://doi.org/10.1155/2019/1036907</i> • <i>Turubanova, V. D., Balalaeva, I. V., Mishchenko, T. A., Catanzaro, E., Alzeibak, R., Peskova, N. N., Efimova, I., Bachert, C., Mitroshina, E. V., Krysko, O., Vedunova, M. V., & Krysko, D. V. (2019). Immunogenic cell death induced by a new photodynamic therapy based on photosens and photodithazine. <i>Journal for ImmunoTherapy of Cancer</i>, 7(1). https://doi.org/10.1186/s40425-019-0826-3</i> • <i>Mitroshina, E., Mishchenko, T., Usenko, A., Epifanova, E., Yarkov, R., Gavrish, M., Babaev, A., & Vedunova, M. (2018). AAV-Syn-BDNF-EGFP Virus Construct Exerts Neuroprotective Action on the Hippocampal Neural Network during Hypoxia In Vitro. <i>International Journal of Molecular Sciences</i>, 19(8), 2295. https://doi.org/10.3390/ijms19082295</i> • <i>Mishchenko, T. A., Mitroshina, E. V., Usenko, A. V., Voronova, N. V., Astrakhanova, T. A., Shirokova, O. M., Kastalskiy, I. A., & Vedunova, M. V. (2019). Features of Neural Network Formation and Their Functions in Primary Hippocampal Cultures in the Context of Chronic TrkB Receptor System Influence. <i>Frontiers in Physiology</i>, 9. https://doi.org/10.3389/fphys.2018.01925</i>
<p style="text-align: center;">RESULTS OF INTELLECTUAL ACTIVITY</p>	<p>4 PATENTS / COPYRIGHT CERTIFICATES in the field of:</p> <ul style="list-style-type: none"> • neurobiological research using primary neuronal cell cultures. • morpho-functional bioelectrical and calcium activity of neuronal cells under ischemic factors influence (hypoxia, glucose deprivation, oxidative stress) and neurodegeneration (Alzheimer's disease) in vitro. • neuroprotective role of extracellular signaling molecules (neurotrophic factors BDNF, GDNF, endocannabinoids)
<p style="text-align: center;">FELLOWSHIPS AND HONORS</p>	<ul style="list-style-type: none"> • FENS Member • Russian Physiology Society Member • Russian President Scholarship Awardee (2015-2017) • Diploma of the Ministry of Education of the Nizhny Novgorod Region for the results in the development of the scientific & educational complex of the Nizhny Novgorod Region • Author & compiler of 8 tutorials.