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Alexander V. Sidorov - Department of Human and Animal Physiology, Belarusian State University.

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ALEXANDER V. SIDOROV

Personal:

Born: 1974, Minsk, Belarus, male

Nationality: Belarusian

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Dept. of Physiology, Belarusian State University, Nezhaleznasti Av., 4, 220030, Minsk, Belarus

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Education & Degrees:

2018: Professor (Physiology) - Higher Attestation Commission of Belarus;

2013: Doctor of Sciences in Biology (Physiology and Neurobiology) - Institute of Physiology, National Academy of Sciences of Belarus and Higher Attestation Commission of Belarus, Dissertation title: "Nervous centers functional activity at volume transmission";

2005: Docent (Biology) - Higher Attestation Commission of Belarus;

2001: Candidate of Sciences (equivalent to Ph.D.) in Biology (Physiology) - Institute of Physiology, National Academy of Sciences of Belarus, Dissertation title: "Temperature dependence of Lymnaea stagnalis nervous system functional activity";

1996-1999: Department of Physiology, School of Biology, Belarusian State University, Minsk, Belarus (Post-Graduate Course);

1991-1996: School of Biology, Belarusian State University, Minsk, Belarus (5-year Education Diploma in Biology, with First Class Honours, equivalent to M.Sc. and a professional qualification for teaching in Higher Education, June 1996);

1981-1991: Secondary School № 32, Minsk, Belarus (School leaving certificate and Silver Medal)

Positions held:

2024 - present: Professor (part-time); Department of Biochemistry, School of Biology, Belarusian State University, Minsk, Belarus

2019: Visiting Professor (Erasmus+ Staff Mobility for Teaching); Department of Biomedical Science, Faculty of Biology and Pharmacy, University of Cagliari, Cagliari, Italy

2014 - present: Professor; Department of Physiology, School of Biology, Belarusian State University, Minsk, Belarus

2004 - 2014: Docent (equivalent to U.S. Associate Professor); Department of Physiology, School of Biology, Belarusian State University, Minsk, Belarus

2003 - 2004: Research Fellow; MRC Dunn Human Nutrition Unit (at present: MRC Mitochondrial Biology Unit, University of Cambridge School of Clinical Medicine), Cambridge, UK

2000 - 2003: Assistant (equivalent to U.S. Assistant Professor); Department of Physiology, School Of Biology,

Belarusian State University, Minsk, Belarus

Awards:

2021 – Charter, Ministry of Education, Republic of Belarus;
2018 – Honours Board, Belarusian State University;
2016 – Chancellor's Commendation, Belarusian State University;
2016 – Scholarship for Talented Young Scientists (D.Sc. under 45);
2014 – A.N. Sevchenko Prize, Belarusian State University [Pdf 1,37 Mb \(in Russian\)](#);
2012, 2024 – Honorary Charter, Belarusian State University;
2007 – Charter, Belarusian State University;
2002 – Charter, Ministry of Defense, Republic of Belarus

Teaching experience:

Faculty lecture/practical* course (specialities "biology", "biochemistry", "microbiology", "ecology" and "biotechnology"): Human Anatomy (28h lectures, 30h practicals and 6h seminars), Developmental Biology (28h lectures, 20h practicals and 4h seminars);

Faculty lecture/practical course (speciality "biology", Master's degree): Neurobiology (24h lectures, 12h practicals and 18h seminars for Russian-speaking students; 24h lectures, 18h practicals and 12h seminars for English-speaking students);

Department lecture/practical course (speciality "biology"): Physiology of Intercellular Communication (26h lectures, 10h practicals and 4h seminars);

Department lecture/practical course (speciality "biochemistry"): Molecular Mechanisms of Hormonal Regulation (34h lectures, 16h practicals and 6h seminars);

Supervising Professor for yearly projects and undergraduate theses (successfully graduated - 51).

Scientific adviser for Masters (successfully graduated - 3) and PhD students (successfully graduated - 3)

* - for each group of students

Research support grants:

2022-2024 : Research Grant from Belarusian Republican Foundation for Fundamental Research. Project name "Membrane mechanisms of adaptation to hyperglycemia in neurons of different chemical type" (# B22-105);

2016-2020 : State Program for Scientific Researches "Convergence-2020" (task 3.10.2). Project name: "Design and creation of educational complex in Neurobiology";

2016-2018 : State Program for Scientific Researches "Fundamental and Applied Sciences for Medicine" (task 1.08). Project name: "Membrane mechanisms of age-dependent changes in different types of neurons";

2011-2015 : State Program for Scientific Researches "Convergence" (task 3.3.03.4). Project name: "Study of neurophysiological mechanisms underlying learning during bioradicals level changes in brain";

2008-2010 : Research Grant from Belarusian Republican Foundation for Fundamental Research (joint with the Institute of Higher Nervous Activity and Neurophysiology, Russian Academy of Sciences). Project name "Regulation of neuronal networks properties by free radicals" (# B08R-075);

2005-2007 : Youth Research Grant from Belarusian Republican Foundation for Fundamental Research "Synaptic conductance modulation in mollusk *Lymnaea stagnalis* nervous system during internal environment pH changes" (# B05M-055);

2003–2004 : Royal Society / NATO Postdoctoral Fellowship;

2002-2004 : Youth Research Grant from Belarusian Republican Foundation for Fundamental Research "pH-Dependent reactions in identified neurones of mollusc *Lymnaea stagnalis*" (# B02M-045).

Research interests:

Cell Physiology and Electrophysiology, Neurophysiology, Animal Behaviour, Invertebrate Neuroscience.

Results of research activity are presented in **221** scientific (17 of them - on educational practice) publications and **31** tutorials (2024)

Selected Publications:

Books & Book's Chapters:

Sidorov A.V. Nervous centers functional activity in invertebrates (2011) Minsk: BSU, 247 p. (in Russian)

Sidorov A.V. Neuronal networks properties during modulation of conductance via identified *Lymnaea* synapses (2011)

In: Signal Transduction in Nervous Cells / Ed. Sergei V. Fedorovich. Trivandrum (Kerala, India): Research Signpost. P. 63-74. [340 Kb](#)

Articles in peer reviewed journals:

Sidorov A.V., Shadenko V.N. Passive membrane properties and spike characteristics in a pair of identified electrically coupled Lymnaea stagnalis neurons under long-term experimental hyperglycemia // J. Evol. Biochem. Physiol. 2023. Vol. 59, № 2. P. 369–381. DOI 10.1134/S0022093023020060 [1,25 Mb](#) SharedIt link

Sidorov A.V., Shadenko V.N. Electrical activity of identified neurons in the central nervous system of a mollusk Lymnaea stagnalis under acute hyperglycemia (2021) J. Evol. Biochem. Physiol. Vol. 57, № 6. P. 1257–1266. DOI 10.1134/S0022093021060065 [626 Kb](#), SharedIt link

Shadenko V.N., Sidorov A.V. Antioxidative defense in the hepatopancreas and nerve ganglia of the mollusk Lymnaea stagnalis after acute experimental hyperglycemia (2020) J. Evol. Biochem. Physiol. Vol. 56, № 3. P. 235–242. DOI 10.1134/S0022093020030060 [250 Kb](#), SharedIt link

Sidorov A.V. Neuromodulation effects of hydrogen peroxide on central neurons within feeding network in the mollusk Lymnaea stagnalis (2017) J. Evol. Biochem. Physiol. Vol. 53, № 6. P. 493–500. [1,28 Mb](#) SharedIt link

Sidorov A.V. Evolution of cell-to-cell communication and structural brain organization (2012) J. Evol. Biochem. Physiol. Vol. 48, № 4. P. 377–384. [100 Kb](#)

Sidorov A.V. Effect of hydrogen peroxide on electrical coupling between identified Lymnaea neurons (2012) Invert. Neurosci. Vol. 12, № 1. P. 63–68. ([324 Kb](#), [preprint](#))

Sidorov A.V. Temperature dependence of monoamine-induced pulmonary respiration of mollusk Lymnaea stagnalis (2012) J. Evol. Biochem. Physiol. Vol. 48, № 3. P. 287–294. [511 Kb](#)

Sidorov A.V. Cellular basis of temperature dependence of the food-procuring activity of the molluscs Lymnaea stagnalis (2009) J. Evol. Biochem. Physiol. Vol. 45, № 3. P. 365–371. [511 Kb](#)

Sidorov A.V., Maslova G.T. State of antioxidative protection in central nervous ganglia of the mollusk Lymnaea stagnalis at modulation of activity of the NO-ergic system (2008) J. Evol. Biochem. Physiol. Vol. 44, № 5. P. 435–441. [384 Kb](#)

Sidorov A.V. Coordination of locomotor activity of mollusk Lymnaea stagnalis at nutrition: role of the internal medium acid-base balance (pH) (2006) J. Evol. Biochem. Physiol. Vol. 42, № 1. P. 43–48. [180 Kb](#)

Sidorov A.V. Effect of acute temperature change on lung respiration of the mollusk Lymnaea stagnalis (2005) J. Therm. Biol. Vol. 30, № 2. P. 163–171. [510 Kb](#)

Sidorov A.V. Effects of temperature on respiration, defensive behavior and locomotion of fresh-water snail Lymnaea stagnalis (2003) J. Vysch. Nerv. Deyat. I.P. Pavlova. Vol. 53, № 4. P. 521–525. [836 Kb](#), [in Russian](#)

Sidorov A.V., Polyanina I.P. Acid-base balance modulates respiratory and alimentary behaviour of the mollusk Lymnaea stagnalis (2003) J. Evol. Biochem. Physiol. Vol. 39, № 5. P. 555–561. [220 Kb](#)

Sidorov A.V. Effect of temperature on synaptic transmission between identified neurones of the mollusk Lymnaea stagnalis (2002) Neurosci. Lett. Vol. 333 (1). P. 1–4. [132 Kb](#)

Sidorov A.V., Kazakevich V.B. Electrical coupling between identified Lymnaea neurons: Nitric monoxide and temperature action (2001) In: Protein Modules in Cellular Signalling / Ed. L. Heilmeyer and P. Friedrich. NATO Science Series: Life Sciences. Vol. 318. P. 150–153. [292 Kb](#)

Sidorov A.V., Kazakevich V.B. Dependence of electric activity of motoneurons and locomotor behavior of Lymnaea stagnalis on environmental temperature (2001) J. Evol. Biochem. Physiol. Vol. 37, № 3. P. 252–258. [128 Kb](#)

Sidorov A.V., Kazakevich V.B., Moroz L.L. Nitric oxide selectively enhances cAMP levels and electrical coupling between identified RPaD2/VD1 neurons in the CNS of Lymnaea stagnalis (L.) (1999) Acta Biol. Hung. Vol. 50, № 1–3. P. 229–233. [585 Kb](#)

Selected tutorials (all in Russian):

Textbooks:

Sidorov A.V. Foundations in Cellular Neurobiology. Minsk: BSU, 2020. 395 p. [11,03 M6](#)

Sidorov A.V. Foundations in Neurobiology: Cells and Contacts of the Nervous Tissue. Minsk: BSU, 2019. 139 p. [19,5 M6](#)

Maslova G.T., Sidorov A.V. Foundations in Developmental Biology. Minsk: BSU, 2013. 374 p. (Classical University Edition)

Sidorov A.V. Physiology of Intercellular Communication. Minsk: BSU, 2008. 215 p. [9,1 Mb](#)

Practicals:

Chumak A.G., Sidorov A.V., Sandakov D.B., Rutkevich S.A., Polukhovich G.S., Semeiko L.N., Kazakevich V.B., Karman E.K. Human and Animal Physiology: Practicals / – Minsk : BSU, 2023. — 179 p.

Sidorov A.V., Rutkevich S.A., Karavai T.V., Karman E.K., Polukhovich G.S. Human Anatomy: Practicals. Ed. by A.V. Sidorov / Minsk: BSU, 2022. 191 p.



idorov A.V., Maslova G.T., Lusina K.M., Karman E.K. Foundations in Developmental Biology: Practicals. Ed. by A.V. Sidorov / Minsk: BSU, 2016. 239 p.

Chumak A.G., Sandakov D.B., Sidorov A.V. et al. Human and Animal Physiology [Electronic resource]: Access mode: <http://www.elib.bsu.by>, restricted access: practicals for biology students / Ed. A.G. Chumak. Minsk : BSU, 2011.

Maslova G.T., Sidorov A.V. Brief Atlas in Developmental Biology. Minsk: BSU, 2008. 108 p. + CD. [40,2 Mb](#)

Gourine V.N., Semenemya I.N., Gourine A.V., Dunai V.I., Zakharevskaya G.I., Maslova G.T., Solodovnikova I.I., Tsariuk V.V., Sandakov D.B., Sidorov A.V., Polukhovich G.S., Semeiko L.N., Karman E.K. et al. Human and Animal Physiology: Practicals. Ed. by V.N. Gourine / Minsk: BSU, 2002. 120 p. [466 Kb](#)

Lecture Courses:

Maslova G.T., Sidorov A.V. Foundations in Developmental Biology [Electronic resource]: Course of Lectures / Minsk: BSU, 2015. 1 CD.  [all in one file \(173,47 Mb\)](#),  [discrete presentations \(select and download\)](#)

Maslova G.T., Sidorov A.V. Developmental Biology: Organogenesis and Mechanisms of Embriogenesis (Course of Lectures) / Minsk: BSU, 2012. 104 p. [5,2 Mb](#)

Maslova G.T., Sidorov A.V. Developmental Biology: Comparative Embriology (Course of Lectures) / Minsk: BSU, 2009. 96 p. [44,1 Mb](#)

Maslova G.T., Sidorov A.V. Developmental Biology: early stages (Course of Lectures) / Minsk: BSU, 2009. 95 p. [2,15 Mb](#)

ADDITIONAL INFORMATION:

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2. Research Gate [Research Gate Profile](#)

3. Scopus [Scopus Author Profile](#)

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