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Адрес

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Контакты

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Образование

1996–1998	Пушино	ПущГУ	нейробиолог
1991–1996	Нижний Новгород	ННГУ	биофизик

Работа в ИБХ

2025–наст.вр.	Заведующий отделом
2021–2025	Заместитель директора по науке
2018–2025	Главный научный сотрудник
2018–2022	Заведующий лабораторией

Членство в сообществах

С 2019 – действительный член Европейской Академии;
С 2017 – член ученого совета Института биоорганической химии;
С 2016 – член-корреспондент Российской Академии Наук;
С 2016 – член диссертационного совета по физиологии/ биофизике (Д 212.166.21)
2014 – 2018 – член ученого совета Нижегородского государственного университета.

Участие в научных обществах

С 2017 – действительный член Физиологического Общества Великобритании;
С 2006 – член Общества Нейронаук, Япония;
С 2003 – член Общества изучения мозга, Финляндия;
С 2002 – 2017 – член Физиологического общества Великобритании;
1999 – 2002 – аффилированный член Физиологического общества Великобритании;
С 1999 – член Общества Нейронаук, США (ID# 100006439).

Степени и звания

2016	Член-корреспондент РАН
	Профессор
2002	Доктор наук (Биологические науки)

Гранты и проекты

2023– наст.вр.	Эффект морфологической перестройки астроцитов на функции мозга
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2021– 2022	ГФЕН: Влияние диеты с высоким содержанием жиров и сахаров на нейрон-глиальные взаимодействия в мозге
2020– 2022	Влияние сокращения потребляемых калорий на нейрон-глиальные взаимодействия при старении и в модели болезни Альцгеймера
2019– 2019	Международная научная конференция «Baikal Neuroscience Meeting 2019»
2017– 2021	Физиологические изменения в астроцитах при синаптической пластичности и патологических процессах в мозге

Публикации

1. Sergeeva AD, Panova AS, Ivanova AD, Khramova YV, Morozova KI, Kotova DA, Guryleva AV, Khokhlov DD, Kelmanson IV, Vasilev AV, Kostyuk AI, **Semyanov AV**, Oleinikov VA, Belousov VV, Machikhin AS, Brazhe NA, Bilan DS (2024). Where in the tissues of Danio rerio is more H₂O₂ produced during acute hypoxia? *Antioxid Redox Signal* , , [10.1089/ars.2024.0563](#)
2. Kostyuk AI, Rapota DD, Morozova KI, Fedotova AA, Jappy D, **Semyanov AV**, Belousov VV, Brazhe NA, Bilan DS (2024). Modern optical approaches in redox biology: Genetically encoded sensors and Raman spectroscopy. *J Free Radic Biol Med* 217, 68–115, [10.1016/j.freeradbiomed.2024.03.010](#)
3. Christie IN, Theparambil SM, Braga A, Doronin M, Hosford PS, Brazhe A, Mascarenhas A, Nizari S, Hadjihambi A, Wells JA, Hobbs A, **Semyanov A**, Abramov AY, Angelova PR, Gourine AV (2023). Astrocytes produce nitric oxide via nitrite reduction in mitochondria to regulate cerebral blood flow during brain hypoxia. *Cell Rep* 42 (12), 113514, [10.1016/j.celrep.2023.113514](#)
4. Popov A, Brazhe N, Morozova K, Yashin K, Bychkov M, Nosova O, Sutyagina O, Brazhe A, Parshina E, Li L, Medyanik I, Korzhhevskii DE, Shenkarev Z, Lyukmanova E, Verkhatsky A, **Semyanov A** (2023). Mitochondrial malfunction and atrophy of astrocytes in the aged human cerebral cortex. *Nat Commun* 14 (14), 8380, [10.1038/s41467-023-44192-0](#)
5. Ivanova AD, Kotova DA, Khramova YV, Morozova KI, Serebryanaya DV, Bochkova ZV, Sergeeva AD, Panova AS, Katrukha IA, Moshchenko AA, Oleinikov VA, **Semyanov AV**, Belousov VV, Katrukha AG, Brazhe N, Bilan DS (2023). Redox differences between rat neonatal and adult cardiomyocytes under hypoxia. *J Free Radic Biol Med* 211, 145–157, [10.1016/j.freeradbiomed.2023.11.034](#)
6. Kotova DA, Ivanova AD, Pochechuev MS, Kelmanson IV, Khramova YV, Tiaglik A, Sudoplatov MA, Trifonova AP, Fedotova A, Morozova K, Katrukha VA, Sergeeva AD, Raevskii RI, Pestriakova MP, Solotnikov MA, Stepanov EA, Tsopina AS, Moshchenko AA, Shestopalova M, Zalygin A, Fedotov IV, Fedotov AB, Oleinikov V, Belousov VV, **Semyanov A**, Brazhe N, Zheltikov AM, Bilan DS (2023). Hyperglycemia exacerbates ischemic stroke not through increased generation of hydrogen peroxide. *J Free Radic Biol Med* 208, 153–164, [10.1016/j.freeradbiomed.2023.08.004](#)
7. Barshutina M, Doroshina N, Baizhumanov A, Nikelsparg E, Fedotova A, Popov A, **Semyanov A**, Yakubovsky D, Tselikov G, Luneva O, Kirilyuk I, Maksimov G, Volkov V, Arsenin A, Brazhe N, Novikov S (2023). SERS substrates based on rose petal replicas for the oxidative stress detection. *Appl Surf Sci* 626, , [10.1016/j.apsusc.2023.157281](#)
8. Verkhatsky A, **Semyanov A** (2023). Decline of astrocyte Ca²⁺ signalling in Alzheimer's disease: STIM1 to the rescue! *Cell Calcium* 113, 102756, [10.1016/j.ceca.2023.102756](#)
9. Lin SS, Zhou B, Chen BJ, Jiang RT, Li B, Illes P, **Semyanov A**, Tang Y, Verkhatsky A (2023). Electroacupuncture prevents astrocyte atrophy to alleviate depression. *Cell Death Dis* 14 (5), 343, [10.1038/s41419-023-05839-4](#)
10. Fedotova A, Brazhe A, Doronin M, Toptunov D, Pryazhnikov E, Khiroug L, Verkhatsky A, **Semyanov A** (2023). Dissociation Between Neuronal and Astrocytic Calcium Activity in Response to Locomotion in Mice. *Function* 4 (4), zqad019, [10.1093/function/zqad019](#)
11. (книга) Verkhatsky A, **Semyanov A** (2023). Astrocytes in Ageing. *Subcell Biochem* 103, 253–277, [10.1007/978-3-031-26576-1_11](#)
12. Xiong XY, **Semyanov A**, Tang Y (2022). Restored oligodendrogenesis by fibroblast growth factor 17:

- molecular mechanism for rejuvenating ageing-related memory deficit. *Signal Transduct Target Ther* 7 (1), 237, [10.1038/s41392-022-01092-x](https://doi.org/10.1038/s41392-022-01092-x)
13. Postnikova TY, Trofimova AM, Zakharova MV, Nosova OI, Brazhe AR, Korzhevskii DE, **Semyanov AV**, Zaitsev AV (2022). Delayed Impairment of Hippocampal Synaptic Plasticity after Pentylentetrazole-Induced Seizures in Young Rats. *Int J Mol Sci* 23 (21), , [10.3390/ijms232113461](https://doi.org/10.3390/ijms232113461)
 14. Popov A, Brazhe N, Fedotova A, Tiaglik A, Bychkov M, Morozova K, Brazhe A, Aronov D, Lyukmanova E, Lazareva N, Li L, Ponimaskin E, Verkhatsky A, **Semyanov A** (2022). A high-fat diet changes astrocytic metabolism to promote synaptic plasticity and behavior. *Acta Physiol (Oxf)* 236 (1), e13847, [10.1111/apha.13847](https://doi.org/10.1111/apha.13847)
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 16. Verkhatsky A, Lazareva N, **Semyanov A** (2022). Glial decline and loss of homeostatic support rather than inflammation defines cognitive aging. *Neural Regen Res* 17 (3), 565–566, [10.4103/1673-5374.320979](https://doi.org/10.4103/1673-5374.320979)
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36. Tyurikova O, Zheng K, Nicholson E, Timofeeva Y, **Semyanov A**, Volynski K, Rusakov DA (2020). Fluorescence lifetime imaging reveals regulation of presynaptic Ca²⁺ by glutamate uptake and mGluRs, but not somatic voltage in cortical neurons. *J Neurochem* 156 (1), 48–58, [10.1111/jnc.15094](https://doi.org/10.1111/jnc.15094)
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38. Popov A, Denisov P, Bychkov M, Brazhe A, Lyukmanova E, Shenkarev Z, Lazareva N, Verkhratsky A, **Semyanov A** (2020). Caloric restriction triggers morphofunctional remodeling of astrocytes and enhances synaptic plasticity in the mouse hippocampus. *Cell Death Dis* 11 (3), 208, [10.1038/s41419-020-2406-3](https://doi.org/10.1038/s41419-020-2406-3)
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