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За последние пять лет проведен большой комплекс исследований глиальной активности в спинномозговых ганглиях и нейротрансмиттерных систем в спинном и головном мозге у животных с моделью хронической нейропатической боли и терапией несколькими препаратами липидной природы, включая синаптамид (Manzhulo et al., 2021 (DOI:10.3390/brainsci11121561); Tyrtysnaia, Manzhulo et al., 2021 (DOI:10.3390/ijms222312779); Starinets, Manzhulo et al., 2021 (DOI:10.1159/000519376); Tyrtysnaia, Manzhulo et al., 2020 (DOI:10.3390/md18100516); Tyrtysnaia, Manzhulo et al., 2020 (DOI:10.2147/JPR.S238458)). К настоящему времени описаны процессы нейрогенеза в гиппокампе мыши при развитии ЛПС-индуцированного нейровоспаления и терапии синаптамидом (Tyrtysnaia, Manzhulo et al., 2021 (DOI:10.3390/ijms221910728); Tyrtysnaia, Manzhulo et al., 2020 (DOI:10.3390/ijms21249703)). Получены первичные результаты о влиянии синаптамида на показатели процесса нейровоспаления развивающегося при легкой черепно-мозговой травме, в том числе даны поведенческие характеристики экспериментальных животных, морфологическая и иммуногистохимическая характеристика активности микро- и астроглии, экспрессии провоспалительных цитокинов и нейротрофических факторов (Ponomarenko, Manzhulo et al., 2021 (DOI:10.1038/s41598-020-80818-9); Ponomarenko, Manzhulo et al., 2021 (DOI: 10.1159/000519011); Ponomarenko, Manzhulo et al., 2022 (DOI:10.3390/md20080538)). Многие из наших результатов находят подтверждение в работах ведущих отечественных и зарубежных нейробиологов, однако большое количество фактов получены нами впервые и требуют более детального изучения.

#### **Список основных публикаций за последние 5 лет:**

1. Chuang W.H., Pislyagin E., Lin L.Y., Menchinskaya E., Chernikov O., Kozhemyako V., Gorpenchenko T., **Manzhulo I.**, et al. Holothurian triterpene glycoside cucumarioside A2-2 induces macrophages activation and polarization in cancer immunotherapy // *Cancer Cell International*. 2023. Vol. 23. P. 292. (<https://cancerci.biomedcentral.com/articles/10.1186/s12935-023-03141-z>) (Q1, IF 5.8)
2. Brezgunova, A.A., Andrianova, N.V., Saidova, A.A., **Manzhulo I.**, et al. Anti-Inflammatory Effect of Synaptamide in Ischemic Acute Kidney Injury and the Role of G-Protein-Coupled Receptor 110 // *International Journal of Molecular Sciences*. 2024. Vol. 25(3). P. 1500. (<https://www.mdpi.com/1422-0067/25/3/1500>) (Q1, IF 5.6)
3. Tyrtysnaia A., Manzhulo O., **Manzhulo I.** Synaptamide ameliorates hippocampal neurodegeneration and glial activation in mice with traumatic brain injury // *International Journal of Molecular Sciences*. 2023. Vol. 24. P. 10014-10043. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10298132/>) (Q1, IF 5.6)

4. Starinets A., Tyrtysnaia A., **Manzhulo I.** Anti-inflammatory activity of synaptamide in the peripheral nervous system in a model of sciatic nerve injury // *International Journal of Molecular Sciences*. 2023. Vol. 24. P. 6273-6295. (<https://www.mdpi.com/1422-0067/24/7/6273>) (Q1, IF 5.6)
5. Egoraeva A., Tyrtysnaia A., Ponomarenko A., Ivashkevich D., Sultanov R., **Manzhulo I.** Anti-inflammatory effect of polyunsaturated fatty acid n-acylethanolamines mediated by macrophage activity in vitro and in vivo // *Inflammation*. 2023. (<https://link.springer.com/article/10.1007/s10753-023-01879-2>) (Q2, IF 5.1)
6. Kozlovskiy S., Pisyagin E., Menchinskaya E., Chingizova E., Kaluzhskiy L., Ivanov A., Likhatskaya G., Agafonova I., Sabutski Y., Polonik S., **Manzhulo I.**, Aminin D. Tetracyclic 1,4-Naphthoquinone Thioglucoside Conjugate U-556 Blocks the Purinergic P2X7 Receptor in Macrophages and Exhibits Anti-Inflammatory Activity In Vivo // *International Journal of Molecular Sciences*. 2023. Vol. 24. P. 12370-12389. (<https://www.mdpi.com/1422-0067/24/15/12370>) (Q1, IF 5.6)
7. Feng L., Sharma A., Wang Z., Muresanu D.F., Tian Z.R., Lafuente J.V., Buzoianu A.D., Nozari A., Li C., Zhang Z., Lin C., Huang H., **Manzhulo I.**, Wiklund L., Sharma H.S. Nanowired delivery of DL-3-n-butylphthalide with antibodies to alpha synuclein potentiated neuroprotection in Parkinson's disease with emotional stress // *International Review of Neurobiology*. 2023. Vol. 171. P. 47-82. (<https://www.sciencedirect.com/science/article/abs/pii/S0074774223000533>) (Q2, IF 3.2)
8. Ivashkevich D., Ponomarenko A., **Manzhulo I.**, Sultanov R., Dyuzhen I. Effect of oleylethanolamide-based dietary supplement on systemic inflammation in the development of alimentary-induced obesity in mice // *Nutrients*. 2023. Vol. 15. P. 4543-4563. (<https://www.mdpi.com/2072-6643/15/20/4345>) (Q1, IF 5.9)
9. Starinets A.A., Tyrtysnaia A.A., Kipryushina Y.O., **Manzhulo I.V.** Analgesic activity of synaptamide in a rat sciatic nerve chronic constriction injury model // *Cells Tissues Organs*. 2022. Vol. 211. P. 73-84. (<https://www.karger.com/Article/Abstract/519376>, [10.1159/000519376](https://doi.org/10.1159/000519376)) (Q2, IF 2.7)
10. Ponomarenko A., Tyrtysnaia A., Ivashkevich D., Ermolenko E., Dyuzhen I., **Manzhulo I.** Synaptamide modulates astroglial activity in mild traumatic brain injury // *Marine Drugs*. 2022. Vol. 20. P. 538-548. (<https://www.mdpi.com/1660-3397/20/8/538>) (Q1, IF 5.4)
11. Tyrtysnaia A., Konovalova S., Ponomarenko A., Egoraeva A., **Manzhulo I.** Fatty acid-derived N-acylethanolamines dietary supplementation attenuates neuroinflammation and cognitive impairment in LPS murine model // *Nutrients*. 2022. Vol. 14. P. 3879-3900. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9504857/>) (Q1, IF 5.9)
12. Ponomarenko A.I., Tyrtysnaia A.A., Ivashkevich D.N., **Manzhulo I.V.** Mild traumatic brain injury contributes to the development of delayed neuroinflammation // *Neuroimmunomodulation*. 2022. Vol. 29. P. 135-142. (<https://pubmed.ncbi.nlm.nih.gov/34583355/>) (Q2, IF 2.4)
13. Tyrtysnaia A.A., Konovalova S.P., Bondar A.V., Ermolenko E.V., Sultanov R.M., **Manzhulo I.V.** Anti-inflammatory activity of N-docosahexaenylethanolamine and N-eicosapentaenylethanolamine in a mouse model of lipopolysaccharide-induced neuroinflammation // *International Journal of Molecular Sciences*. 2021. Vol. 22. P. 10728-10747. (<https://www.mdpi.com/1422-0067/22/19/10728/htm>, [10.3390/ijms221910728](https://doi.org/10.3390/ijms221910728)) (Q1, IF 5.6)

14. Ponomarenko A.I., Tyrtysnaia A.A., Pislyagin E.A., Dyuzen I.V., Sultanov R.M., **Manzhulo I.V.** N-docosahexaenylethanolamine reduces neuroinflammation and cognitive impairment after mild traumatic brain injury in rats // *Scientific Reports*. 2021. Vol. 11. P. 756-771. (<https://www.nature.com/articles/s41598-020-80818-9>, 10.1038/s41598-020-80818-9) (Q1, IF 4.6)
15. Tyrtysnaia A.A., Bondar A.V., Konovalova S.P., **Manzhulo I.V.** Synaptamide improves cognitive functions and neuronal plasticity in neuropathic pain // *International Journal of Molecular Sciences*. 2021. Vol. 22. P. 12779-12800. (<https://www.mdpi.com/1422-0067/22/23/12779>, 10.3390/ijms222312779) (Q1, IF 5.6)
16. **Manzhulo I.V.**, Manzhulo O.S., Tyrtysnaia A.A., Ponomarenko A.I., Konovalova S.P., Ermolenko E.V., Milkina E.V., Starinets A.A. Synaptamide modulates hippocampal astroglial activity in rats with neuropathic pain // *Brain Sciences*. 2021. Vol. 11. P. 1561-1576. (<https://www.mdpi.com/2076-3425/11/12/1561>, 10.3390/brainsci11121561) (Q3, IF 3.3)
17. Tyrtysnaia A.A., **Manzhulo I.V.** Neuropathic pain causes memory deficits and dendrite tree morphology changes in mouse hippocampus // *Journal of Pain Research*. 2020. Vol. 13. P. 345–354. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7023911/>, 10.2147/JPR.S238458) (Q1, IF 2.8)
18. Tyrtysnaia A.A., Egorova E.L., Starinets A.A., Ponomarenko A.I., Ermolenko E.V., **Manzhulo I.V.** N-Docosahexaenylethanolamine attenuates neuroinflammation and improves hippocampal neurogenesis in rats with sciatic nerve chronic constriction injury // *Marine Drugs*. 2020. Vol. 18. P. 516-534. (<https://www.mdpi.com/1660-3397/18/10/516>, 10.3390/md18100516) (Q1, IF 5.4)
19. Tyrtysnaia A.A., Bondar A.V., Konovalova S.P., Sultanov R.M., **Manzhulo I.V.** N-Docosahexanylethanolamine reduces microglial activation and improves hippocampal plasticity in a murine model of neuroinflammation // *International Journal of Molecular Sciences*. 2020. Vol. 21. P. 9703-9723. (<https://www.mdpi.com/1422-0067/21/24/9703>, 10.3390/ijms21249703) (Q1, IF 5.6)
20. Tyrtysnaia A.A., **Manzhulo I.V.**, Konovalova S.P., Zagliadkina A.A. Neuropathic pain causes a decrease in the dendritic tree complexity of hippocampal CA3 pyramidal neurons // *Cells Tissues Organs*. 2020. Vol. 208. P. 89-100. (<https://pubmed.ncbi.nlm.nih.gov/32460289/>) (Q2, IF 2.7)
21. Tyrtysnaia A., **Manzhulo I.**, Kipryushina Y., Ermolenko E. Neuroinflammation and adult hippocampal neurogenesis in neuropathic pain and alkyl glycerol ethers treatment in aged mice // *International Journal of Molecular Medicine*. 2019. Vol. 43. No. 5. P. 2153-2163. (<https://www.spandidos-publications.com/10.3892/ijmm.2019.4142>, 10.3892/ijmm.2019.4142) (Q1, IF 5.4)
22. Egorova E., Starinets A., Tyrtysnaia A., Ponomarenko A., **Manzhulo I.** Hippocampal neurogenesis in conditions of chronic stress induced by sciatic nerve injury in the rat // *Cells Tissues Organs*. 2019. Vol. 207. P. 58-68. (<https://www.karger.com/Article/Abstract/501236>, 10.1159/000501236) (Q2, IF 2.7)
23. **Manzhulo I.V.**, Tyrtysnaia A.A., Mischenko P.V., Egoraeva A.A., Belova A.S., Kasyanov S.P., Sultanov R.M., Pislyagin E.A. Alkyl glycerols activate RAW264.7 macrophage cell line // *Natural Product Communications*. 2019. Vol. 14. P. 1–6. (<https://journals.sagepub.com/doi/10.1177/1934578X19858516>) (Q2, IF 1.8)