

## Резюме: Уткин Юрий Николаевич

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### Адрес

Федеральное государственное  
бюджетное учреждение науки  
Институт биорганической химии им.  
академиков М.М. Шемякина и Ю.А.  
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### Контакты

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## Работа в ИБХ

2017–наст.вр.                                  Главный научный сотрудник

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## Членство в советах и комиссиях ИБХ

Диссертационный совет

Ученый совет

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## Награды

2014    Премия имени Л.С. Лахири              За заслуги в исследованиях природных ядов и токсинов

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## Научные интересы

Научные интересы Ю.Н. Уткина лежат в области исследования ядов животных, включая поиск в ядах, выделение и изучение биологической активности белков с новыми фармакологическими свойствами. Основное направление исследований – полипептидные соединения, взаимодействующие с Gys-петельными рецепторами.

## Членство в сообществах

Член

международного общества токсикологии, европейского нейрхимического общества

## Степени и звания

Доктор наук (Химические науки, 02.00.10 — Биорганическая химия)

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## Гранты и проекты

2024–    [Пептидные и белковые соединения на основе структур змеиных токсинов как перспективные средства для коррекции патологий сердечно-сосудистой системы](#)  
наст.вр.

2021–    [Белки и пептиды из ядов змей, влияющие на сердечно-сосудистую систему – фундаментальная основа новых кардиопротекторных и гипотензивных препаратов.](#)  
2023

2021–    [Вьет: Соединения с антипротозойной активностью из ядов животных и растений Вьетнама и России](#)  
2022

2018–    [Дизинтегрины яда гадюк как модуляторы активности интегринов в процессах пролиферации опухолевых клеток и агрегации тромбоцитов](#)  
2019

2019–    [Применение наноматериалов для повышения терапевтического потенциала пептидов и белков животных ядов](#)  
2020

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- 2018– [Влияние блокаторов никотиновых холинорецепторов на развитие опухолей в условиях](#)  
2019 [совместного применения с противовоспалительными средствами и антикомплементарным фактором яда кобры](#)
- 
- 2018– [Флуоресцентные наноконъюгаты пептидных и белковых нейротоксинов для идентификации](#)  
2020 [никотиновых холинорецепторов](#)
- 

## Публикации

1. Severyukhina MS, Ojomoko LO, Shelukhina IV, Kudryavtsev DS, Kryukova EV, Epifanova LA, Denisova DA, Averin AS, Ismailova AM, Shaykhutdinova ER, Dyachenko IA, Egorova NS, Murashev AN, Tsetlin VI, **Utkin YN** (2024). Non-conventional toxin WTX and its disulfide-fixed synthetic fragments: Interaction with nicotinic acetylcholine receptors and reduction of blood pressure. *Int J Biol Macromol* 288, 138626, [10.1016/j.ijbiomac.2024.138626](#)
2. **Utkin Y** (2024). Animal Venoms and Their Components: Molecular Mechanisms of Action V 2.0. *Toxins (Basel)* 16 (11), , [10.3390/toxins16110461](#)
3. Chaudary AS, Guo Y, **Utkin YN**, Barancheshmeh M, Dagda RK, Gasanoff ES (2024). Sphingomyelin Inhibits Hydrolytic Activity of Heterodimeric PLA2 in Model Myelin Membranes: Pharmacological Relevance. *J Membr Biol* , , [10.1007/s00232-024-00327-y](#)
4. Pham TT, Le TD, Pham HN, Nguyen TT, Nguyen CK, Hoang NA, Osipov AV, Cheremnykh EG, **Utkin YN** (2024). Anti-inflammatory and antiprotozoal effect of *Hedyotis diffusa* and *Scutellaria barbata*. *TROP J PHARM RES* 23 (9), 1467–1473, [10.4314/tjpr.v23i9.9](#)
5. Dubovskii PV, **Utkin YN** (2024). Specific Amino Acid Residues in the Three Loops of Snake Cytotoxins Determine Their Membrane Activity and Provide a Rationale for a New Classification of These Toxins. *Toxins (Basel)* 16 (6), 262, [10.3390/toxins16060262](#)
6. Osipov AV, Kryukova EV, Ojomoko LO, Shelukhina IV, Ziganshin RH, Starkov VG, Andreeva TV, Tsetlin VI, **Utkin YN** (2024). A New Protein Glosaxin Composed of Noncatalytic Domains of Class PIII Metalloproteinase from the Pit Viper *Gloydius saxatilis* Venom Inhibits Nicotinic Acetylcholine Receptor. *Russ. J. Bioorganic Chem.* 50 (3), 706–714, [10.1134/S106816202403004X](#)
7. Mozhaeva VA, Starkov VG, Kudryavtsev DS, Prokhorov KA, Garnov SV, **Utkin YN** (2024). Analysis of intra-specific variations in the venom of individual snakes based on Raman spectroscopy. *Spectrochim Acta A* 314, 124239, [10.1016/j.saa.2024.124239](#)
8. Son L, Kost V, Maiorov V, Sukhov D, Arkhangelskaya P, Ivanov I, Kudryavtsev D, Siniavin A, **Utkin Y**, Kasheverov I (2024). Efficient Expression in *Leishmania tarentolae* (LEXSY) of the Receptor-Binding Domain of the SARS-CoV-2 S-Protein and the Acetylcholine-Binding Protein from *Lymnaea stagnalis*. *Molecules* 29 (5), , [10.3390/molecules29050943](#)
9. Averin A, Starkov V, Tsetlin V, **Utkin Y** (2024). Effects of the Heterodimeric Neurotoxic Phospholipase A2 from the Venom of *Vipera nikolskii* on the Contractility of Rat Papillary Muscles and Thoracic Aortas. *Toxins (Basel)* 16 (2), , [10.3390/toxins16020100](#)
10. Dubova M, Dubovskii V, **Utkin N**, Samygina R (2024). Effect of Microgravity on the Crystallization of Cardiotoxin from the Venom of Spectacled Cobra *Naja naja*. *Cryst. Rep* 68 (6), 900–904, [10.1134/S1063774523601144](#)
11. Gondarenko E, Mazur D, Masliakova M, Ryabukha Y, Kasheverov I, **Utkin Y**, Tsetlin V, Shahparonov M, Kudryavtsev D, Antipova N (2024). Subtype-Selective Peptide and Protein Neurotoxic Inhibitors of Nicotinic Acetylcholine Receptors Enhance Proliferation of Patient-Derived Glioblastoma Cell Lines. *Toxins (Basel)* 16 (2), 80, [10.3390/toxins16020080](#)
12. Pham , Le , Nguyen , Nguyen , Hoang , Osipov V, Cheremnykh G, **Utkin N** (2024). ANTI-INFLAMMATORY, ANTI-PROTOZOAL ACTIVITIES OF SCOPARIA DULCIS. *VMJ* 534 (1B), 123–129, [10.51298/vmj.v534i1B.8258](#)
13. Severyukhina MS, Ismailova AM, Shaykhutdinova ER, Dyachenko IA, Egorova NS, Murashev AN, Tsetlin VI, **Utkin YN** (2024). Erratum to: Synthetic Peptide Fragments of the Wtx Toxin Reduce Blood Pressure in Rats under General Anesthesia. *Dokl Biochem Biophys* 513 (1), 355, [10.1134/S1607672923050095](#)
14. Дубова КМ, Дубовский ПВ, **Уткин ЮН**, Самыгина ВР (2023). ВЛИЯНИЕ МИКРОГРАВИТАЦИИ НА

- КРИСТАЛЛИЗАЦИЮ КАРДИОТОКСИНА ИЗ ЯДА ОЧКОВОЙ КОБРЫ *Naja naja*. *Кристаллография* 68 (6), 902–906, [10.31857/S0023476123600465](https://doi.org/10.31857/S0023476123600465)
15. Kost V, Sukhov D, Ivanov I, Kasheverov I, Ojomoko L, Shelukhina I, Mozhaeva V, Kudryavtsev D, Feofanov A, Ignatova A, **Utkin Y**, Tsetlin V (2023). Comparison of Conformations and Interactions with Nicotinic Acetylcholine Receptors for E. coli-Produced and Synthetic Three-Finger Protein SLURP-1. *Int J Mol Sci* 24 (23), 16950, [10.3390/ijms242316950](https://doi.org/10.3390/ijms242316950)
  16. Kini RM, **Utkin YN** (2023). Molecular Mechanisms of Animal Toxins, Venoms and Antivenoms. *Int J Mol Sci* 24 (22), 16389, [10.3390/ijms242216389](https://doi.org/10.3390/ijms242216389)
  17. Shaykhutdinova ER, Severyukhina MS, Kholoshenko IV, Gondarenko EA, Shelukhina IV, Kryukova EV, Ismailova AM, Sadovnikova ES, Dyachenko IA, Murashev AN, Tsetlin VI, **Utkin YN** (2023). Anti-smoking drugs cytisine and varenicline reduce cardiac reperfusion injury in rat model of myocardial ischemia. *Biochimie* 216, 108–119, [10.1016/j.biochi.2023.10.011](https://doi.org/10.1016/j.biochi.2023.10.011)
  18. Severyukhina MS, Ismailova AM, Shaykhutdinova ER, Dyachenko IA, Egorova NS, Murashev AN, Tsetlin VI, **Utkin YN** (2023). Synthetic Peptide Fragments of the Wtx Toxin Reduce Blood Pressure in Rats under General Anesthesia. *Dokl Biochem Biophys* 513 (1), 319–323, [10.1134/S1607672923700497](https://doi.org/10.1134/S1607672923700497)
  19. Mozhaeva V, Starkov V, Kudryavtsev D, Prokhorov K, Garnov S, **Utkin Y** (2023). Differentiation of snake venom using Raman spectroscopic analysis. *J Mater Chem B Mater Biol Med* 11 (27), 6435–6442, [10.1039/d3tb00829k](https://doi.org/10.1039/d3tb00829k)
  20. Kryukova EV, Ivanov DA, Kopylova NV, Starkov VG, Andreeva TV, Ivanov IA, Tsetlin VI, **Utkin YN** (2023). A New Peptide from the Venom of the Madagascar Cat-Eyed Snake *Madagascarophis colubrinus* Blocks Nicotinic Acetylcholine Receptor. *Russ. J. Bioorganic Chem.* 49 (3), 529–537, [10.1134/S1068162023030159](https://doi.org/10.1134/S1068162023030159)
  21. Averin AS, Berezhnov AV, Pimenov OY, Galimova MH, Starkov VG, Tsetlin VI, **Utkin YN** (2023). Effects of Cobra Cardiotoxins on Intracellular Calcium and the Contracture of Rat Cardiomyocytes Depend on Their Structural Types. *Int J Mol Sci* 24 (11), 9259, [10.3390/ijms24119259](https://doi.org/10.3390/ijms24119259)
  22. Osipov AV, Cheremnykh EG, Ziganshin RH, Starkov VG, Nguyen TTT, Nguyen KC, Le DT, Hoang AN, Tsetlin VI, **Utkin YN** (2023). The Potassium Channel Blocker  $\beta$ -Bungarotoxin from the Krait *Bungarus multicinctus* Venom Manifests Antiprotozoal Activity. *Biomedicines* 11 (4), 1115, [10.3390/biomedicines11041115](https://doi.org/10.3390/biomedicines11041115)
  23. Shelukhina I, Siniavin A, Kasheverov I, Ojomoko L, Tsetlin V, **Utkin Y** (2023).  $\alpha$ 7- and  $\alpha$ 9-Containing Nicotinic Acetylcholine Receptors in the Functioning of Immune System and in Pain. *Int J Mol Sci* 24 (7), 6524, [10.3390/ijms24076524](https://doi.org/10.3390/ijms24076524)
  24. Osipov AV, **Utkin YN** (2023). What Are the Neurotoxins in Hemotoxic Snake Venoms? *Int J Mol Sci* 24 (3), 2919, [10.3390/ijms24032919](https://doi.org/10.3390/ijms24032919)
  25. Osipov AV, Averin AS, Shaykhutdinova ER, Dyachenko IA, Tsetlin VI, **Utkin YN** (2023). Muscarinic and Nicotinic Acetylcholine Receptors in the Regulation of the Cardiovascular System. *Russ. J. Bioorganic Chem.* 49 (1), 1–18, [10.1134/S1068162023010211](https://doi.org/10.1134/S1068162023010211)
  26. Dubovskii PV, Ignatova AA, Alekseeva AS, Starkov VG, Boldyrev IA, Feofanov AV, **Utkin YN** (2023). Membrane-Disrupting Activity of Cobra Cytotoxins Is Determined by Configuration of the N-Terminal Loop. *Toxins (Basel)* 15 (1), 6, [10.3390/toxins15010006](https://doi.org/10.3390/toxins15010006)
  27. Cheremnykh EG, Osipov AV, Starkov VG, Trang NTT, Khoa NC, Anh HN, Dung LT, Tsetlin VI, **Utkin YN** (2022). New Plant Species Showing Antiprotozoian Activity. *Dokl Biochem Biophys* 507 (1), 334–339, [10.1134/S160767292234004X](https://doi.org/10.1134/S160767292234004X)
  28. Kalita , **Utkin YN**, Mukherjee AK (2022). Current Insights in the Mechanisms of Cobra Venom Cytotoxins and Their Complexes in Inducing Toxicity: Implications in Antivenom Therapy. *Toxins (Basel)* 14 (12), 839, [10.3390/toxins14120839](https://doi.org/10.3390/toxins14120839)
  29. Tran TV, Nguyen TT, Hoang AN, **Utkin YN** (2022). Comparative study of the analgesic effects of *Bungarus fasciatus* snake venom from Vinh Phuc and Tien Giang Provinces of Vietnam. *TROP J PHARM RES* 21 (9), 1915 – 1921, [10.4314/tjpr.v21i9.15](https://doi.org/10.4314/tjpr.v21i9.15)
  30. Mozhaeva V, Kudryavtsev D, Prokhorov K, **Utkin Y**, Gudkov S, Garnov S, Kasheverov I, Tsetlin V (2022). Toxins' classification through Raman spectroscopy with principal component analysis. *Spectrochim Acta A* 278, 121276, [10.1016/j.saa.2022.121276](https://doi.org/10.1016/j.saa.2022.121276)
  31. Cao Z, Shahbazzadeh D, Kovacic H, McNutt PM, Wang JL, Wulff H, **Utkin Y**, Sabatier JM (2022). Editorial:

- Venoms, animal and microbial toxins, volume II. *Front Pharmacol* 13, 973628, [10.3389/fphar.2022.973628](https://doi.org/10.3389/fphar.2022.973628)
32. Averin A, Tyurin F, Samodurova K, Starkov V, Andreeva TV, **Utkin YN** (2022). THE EFFECTS OF COBRA CARDIOTOXINS ON THE PAPILLARY MUSCLE AND LANGENDORF PERFUSED RAT HEART ARE NOT ASSOCIATED WITH ADRENALINE RELEASE. *RJBPC* 7 (2), 280–285, [10.29039/rusjbpc.2022.0515](https://doi.org/10.29039/rusjbpc.2022.0515)
  33. Averin AS, Goltyaev MV, Andreeva TV, Starkov VG, Tsetlin VI, **Utkin YN** (2022). S- and P-type cobra venom cardiotoxins differ in their action on isolated rat heart. *J Venom Anim Toxins Incl Trop Dis* 28, e20210110, [10.1590/1678-9199-JVATITD-2021-0110](https://doi.org/10.1590/1678-9199-JVATITD-2021-0110)
  34. Cheremnykh EG, Osipov AV, Starkov VG, Trang NTT, Khoa NC, Anh HN, Dung LT, Tsetlin VI, **Utkin YN** (2022). Comparative Study of the Effect of Snake Venoms on the Growth of Ciliates *Tetrahymena pyriformis*: Identification of Venoms with High Antiprotozoal Activity. *Dokl Biochem Biophys* 503 (1), 98–103, [10.1134/S1607672922020041](https://doi.org/10.1134/S1607672922020041)
  35. Shaykhutdinova ER, Kondrakhina AE, Ivanov IA, Kudryavtsev DS, Dyachenko IA, Murashev AN, Tsetlin VI, **Utkin YN** (2022). Synthetic Analogs of 6-Bromohypaphorine, a Natural Agonist of Nicotinic Acetylcholine Receptors, Reduce Cardiac Reperfusion Injury in a Rat Model of Myocardial Ischemia. *Dokl Biochem Biophys* 503 (1), 47–51, [10.1134/S1607672922020132](https://doi.org/10.1134/S1607672922020132)
  36. **Utkin Y**, Siniavin A, Kasheverov I, Tsetlin V (2022). Antiviral Effects of Animal Toxins: Is There a Way to Drugs? *Int J Mol Sci* 23 (7), , [10.3390/ijms23073634](https://doi.org/10.3390/ijms23073634)
  37. Dubovskii PV, Dubova KM, Bourenkov G, Starkov VG, Konshina AG, Efremov RG, **Utkin YN**, Samygina VR (2022). Variability in the Spatial Structure of the Central Loop in Cobra Cytotoxins Revealed by X-ray Analysis and Molecular Modeling. *Toxins (Basel)* 14 (2), , [10.3390/toxins14020149](https://doi.org/10.3390/toxins14020149)
  38. Kasheverov I, Kudryavtsev D, Shelukhina I, Nikolaev G, **Utkin Y**, Tsetlin V (2022). Marine Origin Ligands of Nicotinic Receptors: Low Molecular Compounds, Peptides and Proteins for Fundamental Research and Practical Applications. *Biomolecules* 12 (2), 189, [10.3390/biom12020189](https://doi.org/10.3390/biom12020189)
  39. Siniavin A, Grinkina S, Osipov A, Starkov V, Tsetlin V, **Utkin Y** (2022). Anti-HIV Activity of Snake Venom Phospholipase A2s: Updates for New Enzymes and Different Virus Strains. *Int J Mol Sci* 23 (3), 1610, [10.3390/ijms23031610](https://doi.org/10.3390/ijms23031610)
  40. Averin AS, Nenov MN, Starkov VG, Tsetlin VI, **Utkin YN** (2022). Effects of Cardiotoxins from *Naja oxiana* Cobra Venom on Rat Heart Muscle and Aorta: A Comparative Study of Toxin-Induced Contraction Mechanisms. *Toxins (Basel)* 14 (2), 88, [10.3390/toxins14020088](https://doi.org/10.3390/toxins14020088)
  41. Dyachenko IA, Palikova YA, Palikov VA, Korolkova YV, Kazakov VA, Egorova NS, Garifulina AI, **Utkin YN**, Tsetlin VI, Kryukova EV (2022).  $\alpha$ -Conotoxin Rg1A and oligoarginine R8 in the mice model alleviate long-term oxaliplatin induced neuropathy. *Biochimie* 194, 127–136, [10.1016/j.biochi.2021.12.013](https://doi.org/10.1016/j.biochi.2021.12.013)
  42. Tsetlin V, Haufe Y, Safronova V, Serov D, Shadamarsan P, Son L, Shelukhina I, Kudryavtsev D, Kryukova E, Kasheverov I, Nicke A, **Utkin Y** (2021). Interaction of  $\alpha 9\alpha 10$  Nicotinic Receptors With Peptides and Proteins From Animal Venoms. *Front Cell Neurosci* 15, 765541, [10.3389/fncel.2021.765541](https://doi.org/10.3389/fncel.2021.765541)
  43. Modica MV, Ahmad R, Ainsworth S, Anderluh G, Antunes A, Beis D, Caliskan F, Serra MD, Dutertre S, Moran Y, Nalbantsoy A, Oukkache N, Pekar S, Remm M, von Reumont BM, Sarigiannis Y, Tarallo A, Tytgat J, Undheim EAB, **Utkin Y**, Verdes A, Violette A, Zancolli G (2021). Corrigendum to: The new COST Action European Venom Network (EUVEN)-synergy and future perspectives of modern venomomics. *Gigascience* 10 (12), , [10.1093/gigascience/giab102](https://doi.org/10.1093/gigascience/giab102)
  44. Kasheverov IE, Kuzmenkov AI, Kudryavtsev DS, Chudetskiy IS, Shelukhina IV, Barykin EP, Иванов Ivanov IA, Siniavin AE, Ziganshin RH, Baranov MS, Tsetlin VI, Vassilevski AA, **Utkin YN** (2021). Snake Toxins Labeled by Green Fluorescent Protein or Its Synthetic Chromophore are New Probes for Nicotinic acetylcholine Receptors. *Front Mol Biosci* 8 (8), 753283, [10.3389/fmolb.2021.753283](https://doi.org/10.3389/fmolb.2021.753283)
  45. Siniavin AE, Streltsova MA, Nikiforova MA, Kudryavtsev DS, Grinkina SD, Gushchin VA, Mozhaeva VA, Starkov VG, Osipov AV, Lummis SCR, Tsetlin VI, **Utkin YN** (2021). Snake venom phospholipase A2s exhibit strong virucidal activity against SARS-CoV-2 and inhibit the viral spike glycoprotein interaction with ACE2. *Cell Mol Life Sci* 78 (23), 7777–7794, [10.1007/s00018-021-03985-6](https://doi.org/10.1007/s00018-021-03985-6)
  46. Dubinnyi MA, Dubovskii PV, Starkov VG, **Utkin YN** (2021). Corrigendum to “The omega-loop of cobra cytotoxins tolerates multiple amino acid substitutions” [Biochem. Biophys. Res. Commun. 558 (2021) 141–146]. *Biochem Biophys Res Commun* 579, 188, [10.1016/j.bbrc.2021.09.077](https://doi.org/10.1016/j.bbrc.2021.09.077)
  47. Averin AS, **Utkin YN** (2021). Cardiovascular Effects of Snake Toxins: Cardiotoxicity and Cardioprotection.



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48. **Utkin Y** (2021). Animal Venoms and Their Components: Molecular Mechanisms of Action. *Toxins (Basel)* 13 (6), , [10.3390/toxins13060415](https://doi.org/10.3390/toxins13060415)
49. Cao Z, Wang JL, McNutt PM, **Utkin YN**, Shahbazzadeh D, Wulff H, Kovacic H, Sabatier JM (2021). Editorial: Venoms, Animal and Microbial Toxins. *Front Pharmacol* 12, 706573, [10.3389/fphar.2021.706573](https://doi.org/10.3389/fphar.2021.706573)
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51. Modica MV, Ahmad R, Ainsworth S, Anderluh G, Antunes A, Beis D, Caliskan F, Serra MD, Dutertre S, Moran Y, Nalbantsoy A, Oukkache N, Pekar S, Remm M, von Reumont BM, Sarigiannis Y, Tarallo A, Tytgat J, Undheim EAB, **Utkin Y**, Verdes A, Violette A, Zancolli G (2021). The new COST Action European Venom Network (EUVEN)—synergy and future perspectives of modern venomics. *Gigascience* 10 (3), , [10.1093/gigascience/giab019](https://doi.org/10.1093/gigascience/giab019)
52. Terpinskaya TI, Osipov AV, Kryukova EV, Kudryavtsev DS, Kopylova NV, Yanchanka TL, Palukoshka AF, Gondarenko EA, Zhmak MN, Tsetlin VI, **Utkin YN** (2021).  $\alpha$ -Conotoxins and  $\alpha$ -Cobratoxin Promote, while Lipoxygenase and Cyclooxygenase Inhibitors Suppress the Proliferation of Glioma C6 Cells. *Mar Drugs* 19 (2), , [10.3390/md19020118](https://doi.org/10.3390/md19020118)
53. Son L, Kryukova E, Ziganshin R, Andreeva T, Kudryavtsev D, Kasheverov I, Tsetlin V, **Utkin Y** (2021). Novel Three-Finger Neurotoxins from *Naja melanoleuca* Cobra Venom Interact with GABAA and Nicotinic Acetylcholine Receptors. *Toxins (Basel)* 13 (2), , [10.3390/toxins13020164](https://doi.org/10.3390/toxins13020164)
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