

## Резюме: Мирошников Анатолий Иванович



### Адрес

Федеральное государственное  
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Институт биоорганической химии им.  
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### Контакты

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## Образование

1989	Россия, Москва	НПО "ВИЛР" Министерства медицинской и микробиологической промышленности СССР	присуждена ученая степень доктора химических наук за диссертацию "Структурно-функциональные исследования полимиксина В, фосфолипазы А2 и апамина"
1981	Россия, Москва	Московский институт тонкой химической технологии им. М.В. Ломоносова (МИТХТ), ф-т тонкой химической технологии	Присуждено учёное звание доцента кафедры химии и технологии тонких органических соединений
1968	Россия, Москва	Институт химии природных соединений АН СССР (ИХПС)	Присуждена учёная степень кандидата наук за диссертацию: "Масс-спектрометрическое определение аминокислотной последовательности в пептидах, содержащих остатки моноаминодикарбоновых кислот и их ω-амидов"
1957– 1963	Россия, Москва	Московский институт тонкой химической технологии им. М.В. Ломоносова (МИТХТ), ф-т тонкой химической технологии	диплом химика

## Работа в ИБХ

2018–2022	Научный руководитель
2020–2022	Заведующий отделом
2022–2022	Руководитель

## Членство в советах и комиссиях ИБХ

	Диссертационный совет
	Ученый совет
	Аттестационная комиссия
2022–наст.вр.	Методическая комиссия

## Награды

1999	<a href="#">Медаль Ордена «За заслуги перед Отечеством» II степени</a>	
2012	<a href="#">Орден Почёта</a>	
2005	<a href="#">Орден Дружбы</a>	
1975	<a href="#">Медаль «За трудовую доблесть»</a>	1975 и 1981 гг.
1996	Премии Правительства РФ в области науки и техники	1996 - За разработку и создание биотехнологического производства ликопида нового иммунокорректирующего лекарственного препарата, 2005 - За создание производства и внедрение в практику отечественного здравоохранения генно-инженерного инсулина человека
2024	<a href="#">Орден Александра Невского</a>	За большой вклад в развитие отечественной науки, многолетнюю плодотворную деятельность и в связи с 300-летием со дня основания Российской академии наук.

## Членство в сообществах

**1987—наст. вр.:** Член редколлегии журнала "Биотехнология";

**1991—1998:** член редколлегии "Химико-фармацевтического журнала";

**1994:** Член-корреспондент Российской академии наук;

**1996—наст. вр.:** вице-президент Российского общества биохимиков и молекулярных биологов;

**1996—наст. вр.:** заметитель председателя Национального комитета биохимиков и молекулярных биологов;

**1998—наст. вр.:** член редколлегии журнала "Вопросы биологической, медицинской и фармацевтической химии";

**2000:** действительный член Российской академии наук;

**2003—наст. вр.:** заместитель преседателя Научного совета РАН по научному приборостроению;

**2003—наст. вр.:** вице-президент Общероссийской общественной организации ["Общество биотехнологов России имени академика Ю.А. Овчинникова"](#);

**2004—наст. вр.:** член Координационного совета РАН по инновационной деятельности;

**2005—наст. вр.:** председатель Президиума [Пушкинского научного центра РАН](#);

**2008—наст. вр.:** член Президиума РАН.

## Степени и звания

Академик

Доктор наук (Химические науки)

## Публикации

1. Azev VN, Mustaeva LG, Gorbunova EY, Baidakova LK, Chulin AN, Maslov LN, Mukhomedzyanov AV, Molchanov MB, **Miroshnikov AI** (2024). Boc/Bzl Solid-Phase Synthesis of Deltorphan II and Its Analogs without the Utilization of Anhydrous Hydrogen Fluoride. *Russ. J. Bioorganic Chem.* 50 (5), 1701–1709, [10.1134/S1068162024050297](https://doi.org/10.1134/S1068162024050297)
2. Eletskaia BZ, Mironov AF, Fateev IV, Berzina MY, Antonov KV, Smirnova OS, Zatsepina AB, Arnautova AO, Abramchik YA, Paramonov AS, Kayushin AL, Khandazhinskaya AL, Matyugina ES, Kochetkov SN, **Miroshnikov AI**, Mikhailopulo IA, Esipov RS, Konstantinova ID (2024). Enzymatic Transglycosylation Features in Synthesis of 8-Aza-7-Deazapurine Fleximer Nucleosides by Recombinant E. coli PNP: Synthesis and Structure Determination of Minor Products. *Biomolecules* 14 (7), 798, [10.3390/biom14070798](https://doi.org/10.3390/biom14070798)
3. Fateev IV, Sasmakov SA, Abdurakhmanov JM, Ziyaev AA, Khasanov SS, Eshboev FB, Ashirov ON, Frolova VD, Eletskaia BZ, Smirnova OS, Berzina MY, Arnautova AO, Abramchik YA, Kostromina MA, Kayushin AL, Antonov KV, Paramonov AS, Andronova VL, Galegov GA, Esipov RS, Azimova SS, **Miroshnikov AI**, Konstantinova ID (2024). Synthesis of Substituted 1,2,4-Triazole-3-Thione Nucleosides Using E. coli Purine Nucleoside Phosphorylase. *Biomolecules* 14 (7), 745, [10.3390/biom14070745](https://doi.org/10.3390/biom14070745)
4. Azev VN, Chulin AN, Molchanov MV, **Miroshnikov AI** (2024). (5-Oxooxazolidin-4-yl)acetic Acid Derivatives as a Protection for the  $\alpha$ -Carboxyl Group of Aspartic Acid: A Word of Caution. *Russ. J. Bioorganic Chem.* 50 (3), 733–740, [10.1134/S1068162024030117](https://doi.org/10.1134/S1068162024030117)
5. Kayushin AL, Antonov KV, Dorofeeva EV, Berzina MY, Arnautova AO, Prohorenko IA, **Miroshnikov AI**, Konstantinova ID (2024). A New Approach to the Synthesis of Anti-Reverse Cap Analog (ARCA) 2mGpppG. *Russ. J. Bioorganic Chem.* 50 (1), 1–7, [10.1134/S106816202402033X](https://doi.org/10.1134/S106816202402033X)
6. Azev VN, Baidakova LK, Chulin AN, Tuzikov AB, Kisilitsyn PG, Molchanov MV, **Miroshnikov AI** (2023). Regiospecific Preparation of a Suitably Protected  $\beta$ -Branched Aspartic Acid Dipeptide. *Russ. J. Bioorganic Chem.* 49 (4), 775–784, [10.1134/S1068162023040052](https://doi.org/10.1134/S1068162023040052)
7. Berzina MY, Eletskaia BZ, Kayushin AL, Dorofeeva EV, Lutonina OI, Fateev IV, Zhavoronkova ON, Bashorin AR, Arnautova AO, Smirnova OS, Antonov KV, Paramonov AS, Dubinnyi MA, Esipov RS, **Miroshnikov AI**, Konstantinova ID (2023). Intramolecular Hydrogen Bonding in N6-Substituted 2-Chloroadenosines: Evidence from NMR Spectroscopy. *Int J Mol Sci* 24 (11), 9697, [10.3390/ijms24119697](https://doi.org/10.3390/ijms24119697)
8. Azev VN, Chulin AN, Molchanov MV, **Miroshnikov AI** (2023). Convenient Preparation of t-Butyl N $\alpha$ -Protected Amino Acid Esters from t-Butanol. *Russ. J. Bioorganic Chem.* 49 (3), 524–528, [10.1134/S1068162023030056](https://doi.org/10.1134/S1068162023030056)
9. Eletskaia BZ, Berzina MY, Fateev IV, Kayushin AL, Dorofeeva EV, Lutonina OI, Zorina EA, Antonov KV, Paramonov AS, Muzyka IS, Zhukova OS, Kiselevskiy MV, **Miroshnikov AI**, Esipov RS, Konstantinova ID (2023). Enzymatic Synthesis of 2-Chloropurine Arabinonucleosides with Chiral Amino Acid Amides at the C6 Position and an Evaluation of Antiproliferative Activity In Vitro. *Int J Mol Sci* 24 (7), 6223, [10.3390/ijms24076223](https://doi.org/10.3390/ijms24076223)
10. Likhvantseva VG, Gevorgyan AS, Kapkova SG, Kuzmin KA, **Miroshnikov AI**, Esipov RS (2022). Development of criteria for a comprehensive assessment of the effectiveness of antiangiogenic drugs on models of neovascularization of the eye (experimental studies). *Glaz* 24 (3), 39–47, [10.33791/2222-4408-2022-3-39-47](https://doi.org/10.33791/2222-4408-2022-3-39-47)
11. Smirnova OS, Berzina MY, Fateev IV, Eletskaia BZ, Kostromina MA, Kayushin AL, Paramonov AS, Prutkov AN, Grebenkina LE, Chudinov MV, Andronova VL, Galegov GA, Deryabin PG, **Miroshnikov AI**, Esipov RS, Konstantinova ID (2022). Chemo-enzymatic synthesis of 5-substituted ribavirin analogs: Unexpected cooperative effect in the interaction of 5-alkyloxymethyl 1,2,4-triazol-3-carboxamides with E. coli purine nucleoside phosphorylase active site. *Sustainable Chemistry and Pharmacy* 30, 100881, [10.1016/j.scp.2022.100881](https://doi.org/10.1016/j.scp.2022.100881)
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- hinder 2-fluoro-cordycepin synthesis. *Biomolecules* 11 (4), , [10.3390/biom11040539](https://doi.org/10.3390/biom11040539)
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  15. (книга) Konstantinova ID, Kayushin AL, Arnautova AO, Antonov KV, Yeletskaia BZ, Berzina MY, Dorofeeva EV, Lutonina OI, Fateev IV, Esipov RS, **Miroshnikov AI** (2020). Convenient Approach to the Biosynthesis of C2,C6-Disubstituted Purine Nucleosides Using E. coli Purine Nucleoside Phosphorylase and Arsenolysis. *Wiley-VCH, John Whittall (Editor), Peter W. Sutton (Editor)* , 211–215.
  16. Eletskaia BZ, Gruzdev DA, Krasnov VP, Levit GL, Kostromina MA, Paramonov AS, Kayushin AL, Muzyka IS, Muravyova TI, Esipov RS, Andronova VL, Galegov GA, Charushin VN, **Miroshnikov AI**, Konstantinova ID (2019). Enzymatic Synthesis of Novel Purine Nucleosides Bearing a Chiral Benzoxazine Fragment. *Chem Biol Drug Des* 93 (4), 605–616, [10.1111/cbdd.13458](https://doi.org/10.1111/cbdd.13458)
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  18. (конференция) Esipov RS, Timofeev VI, Kuranova IP, Kostromina MA, Tuzova ES, Abramchik YA, Esipova LV, Sinitsyna EV, Fateev IV, Muravieva TI, **Miroshnikov AI** (2018). A new approach for the synthesis of biologically important nucleotides using a thermostable multi-enzymatic cascade. *J Bioenerg Biomembr* 50 (6), 467–603, [10.1007/s10863-018-9775-7](https://doi.org/10.1007/s10863-018-9775-7)
  19. Esipov RS, Stepanenko VN, Zvereva IO, Makarov DA, Kostromina MA, Kostromina TI, Muravyova TI, **Miroshnikov AI**, Grishin EV (2018). Erratum to: Biotechnological Method for Production of Recombinant Peptide Analgesic (Purotoxin-1) from *Geolycosa* sp. Spider Poison (Russian Journal of Bioorganic Chemistry, (2018), 44, 1, (32–40), [10.1134/S1068162018010065](https://doi.org/10.1134/S1068162018010065)). *Russ. J. Bioorganic Chem.* 44 (4), 472, [10.1134/S1068162018040064](https://doi.org/10.1134/S1068162018040064)
  20. Esipov RS, Stepanenko VN, Zvereva IO, Makarov DA, Kostromina MA, Kostromina TI, Muravyova TI, **Miroshnikov AI**, Grishin EV (2018). Biotechnological Method for Production of Recombinant Peptide Analgesic (Purotoxin-1) from *Geolycosa* sp. Spider Poison. *Russ. J. Bioorganic Chem.* 44 (1), 32–40, [10.1134/S1068162018010065](https://doi.org/10.1134/S1068162018010065)
  21. Kharitonova MI, Konstantinova ID, **Miroshnikov AI** (2018). Benzimidazole nucleosides: Antiviral and antitumour activities and methods of synthesis. *RUSS CHEM REV* 87 (11), 1111–1138, [10.1070/RCCR4832](https://doi.org/10.1070/RCCR4832)
  22. Zhurilo NI, Chudinov MV, Matveev AV, Smirnova OS, Konstantinova ID, **Miroshnikov AI**, Prutkov AN, Grebenkina LE, Pulkova NV, Shvets VI (2017). Isosteric ribavirin analogues: Synthesis and antiviral activities. *Bioorg Med Chem Lett* 28 (1), 11–14, [10.1016/j.bmcl.2017.11.029](https://doi.org/10.1016/j.bmcl.2017.11.029)
  23. Denisova AO, Tokunova YA, Fateev IV, Breslav AA, Leonov VN, Dorofeeva EV, Lutonina OI, Muzyka IS, Esipov RS, Kayushin AL, Konstantinova ID, **Miroshnikov AI**, Stepchenko VA, Mikhailopulo IA (2017). The Chemoenzymatic Synthesis of 2-Chloro- and 2-Fluorocordycepins. *Synthesis (Stuttg)* 49 (21), 4853–4860, [10.1055/s-0036-1590804](https://doi.org/10.1055/s-0036-1590804)
  24. Kharitonova MI, Antonov KV, Fateev IV, Berzina MY, Kaushin AL, Paramonov AS, Kotovskaya SK, Andronova VL, Konstantinova ID, Galegov GA, Charushin VN, **Miroshnikov AI** (2017). Chemoenzymatic Synthesis of Modified 2'-Deoxy-2'-fluoro-β- d -arabinofuranosyl Benzimidazoles and Evaluation of Their Activity Against Herpes Simplex Virus Type 1. *Synthesis (Stuttg)* 49 (5), 1043–1052, [10.1055/s-0036-1588625](https://doi.org/10.1055/s-0036-1588625)
  25. Kharitonova MI, Denisova AO, Andronova VL, Kayushin AL, Konstantinova ID, Kotovskaya SK, Galegov GA, Charushin VN, **Miroshnikov AI** (2017). New modified 2-aminobenzimidazole nucleosides: Synthesis and evaluation of their activity against herpes simplex virus type 1. *Bioorg Med Chem Lett* 27 (11), 2484–2487, [10.1016/j.bmcl.2017.03.100](https://doi.org/10.1016/j.bmcl.2017.03.100)
  26. Stepchenko VA, **Miroshnikov AI**, Seela F, Mikhailopulo IA (2016). Enzymatic synthesis and phosphorolysis of 4(2)-thio- and 6(5)-azapyrimidine nucleosides by E. coli nucleoside phosphorylases. *Beilstein J Org Chem* 12, 2588–2601, [10.3762/bjoc.12.254](https://doi.org/10.3762/bjoc.12.254)
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- 42 (6), 631–637, [10.1134/S1068162016040154](https://doi.org/10.1134/S1068162016040154)
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29. Lebedev VG, Faskhiev VN, Kovalenko NP, Shestibratov KA, **Miroshnikov AI** (2016). Testing transgenic aspen plants with bar gene for herbicide resistance under semi-natural conditions. *Acta Naturae* 8 (2), 92–106, [10.32607/20758251-2016-8-2-92-101](https://doi.org/10.32607/20758251-2016-8-2-92-101)
30. Konstantinova ID, Fateev IV, **Miroshnikov AI** (2016). The arsenolysis reaction in the biotechnological method of synthesis of modified purine  $\beta$ -D-arabinonucleosides. *Russ. J. Bioorganic Chem.* 42 (4), 372–380, [10.1134/S1068162016040105](https://doi.org/10.1134/S1068162016040105)
31. Esipov RS, Makarov DA, Stepanenko VN, **Miroshnikov AI** (2016). Development of the intein-mediated method for production of recombinant thymosin  $\beta$ 4 from the acetylated in vivo fusion protein. *J Biotechnol* 228, 73–81, [10.1016/j.jbiotec.2016.02.021](https://doi.org/10.1016/j.jbiotec.2016.02.021)
32. Esipov RS, Abramchik YA, Fateev IV, Konstantinova ID, Kostromina MA, Muravyova TI, Artemova KG, **Miroshnikov AI** (2016). A Cascade of Thermophilic Enzymes As an Approach to the Synthesis of Modified Nucleotides. *Acta Naturae* 8 (4), 82–90, [10.32607/20758251-2016-8-4-82-90](https://doi.org/10.32607/20758251-2016-8-4-82-90)
33. Eletskaya BZ, Konstantinova ID, Paramonov AS, Esipov RS, Gruzdev DA, Vigorov AY, Levit GL, **Miroshnikov AI**, Krasnov VP, Charushin VN (2016). Chemoenzymatic arabinosylation of 2-aminopurines bearing the chiral fragment of 7,8-difluoro-3-methyl-3,4-dihydro-2H-[1,4]benzoxazines. *MENDELEEV COMMUN* 26 (1), 6–8, [10.1016/j.mencom.2016.01.003](https://doi.org/10.1016/j.mencom.2016.01.003)
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35. Esipov RS, Abramchik YA, Fateev IV, Muravyova TI, Skoblov YS, Kostromina MA, **Miroshnikov AI** (2016). Preparation and study of the substrate specificity of thermophilic ribokinase from *Thermus* sp. 2.9. *Russian Journal of Biopharmaceuticals* 8 (2), 3–12.
36. Fateev IV, Kharitonova MI, Antonov KV, Konstantinova ID, Stepanenko VN, Esipov RS, Seela F, Temburnikar KW, Seley-Radtke KL, Stepchenko VA, Sokolov YA, **Miroshnikov AI**, Mikhailopulo IA (2015). Recognition of Artificial Nucleobases by *E. coli* Purine Nucleoside Phosphorylase versus its Ser90Ala Mutant in the Synthesis of Base-Modified Nucleosides. *Chemistry* 21 (38), 13401–13419, [10.1002/chem.201501334](https://doi.org/10.1002/chem.201501334)
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39. Deryabin PG, Galegov GA, Konstantinova ID, Muzyka IS, **Miroshnikov AI**, Lvov DK (2014). The combination of ribavirin and ozeltamivir effectively inhibits reproduction of influenza A virus resistant to rimantadine (Amantadine) in vitro and in vivo. *Dokl Biochem Biophys* 455 (1), 80–83, [10.1134/S1607672914020100](https://doi.org/10.1134/S1607672914020100)
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42. Konstantinova ID, Chudinov MV, Fateev IV, Matveev AV, Zhurilo NI, Shvets VI, **Miroshnikov AI** (2013). Chemoenzymatic method of 1,2,4-triazole nucleoside synthesis: Possibilities and limitations. *Russ. J. Bioorganic Chem.* 39 (1), 53–71, [10.1134/S1068162013010056](https://doi.org/10.1134/S1068162013010056)



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