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Адрес

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Институт биоорганической химии им.
академиков М.М. Шемякина и Ю.А.
Овчинникова Российской академии
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Контакты

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Образование

1970– 2007	Россия, Москва	Московский государственный университет имени М.В. Ломоносова (МГУ), Биологический факультет	Присвоено ученое звание профессора по специальности «биофизика».
1970– 1999	Россия, Москва	Московский государственный университет имени М.В. Ломоносова (МГУ), Биологический факультет	Диплом доктора физико-математических наук (тема диссертации: «Молекулярное моделирование мембрано- связанных участков белков и пептидов»)
1970– 1986	Россия, Москва	Московский государственный университет имени М.В. Ломоносова (МГУ), Биологический факультет	Диплом кандидата физико-математических наук (тема диссертации: «Топография и микроокружение хромофоров в бактериальном и зрительном родопсинах (спектроскопия комбинационного рассеяния света и квантовохимические расчеты)»)
1977– 1983	Россия, Москва	Московский инженерно- физический институт (МИФИ), Факультет экспериментальной и теоретической физики	Диплом с отличием (тема: «Математические методы определения вторичной структуры белков и полипептидов на основании спектров КР и полуэмпирических расчетов»)

Работа в ИБХ

Заместитель директора по науке

Заведующий лабораторией

Ведущий научный сотрудник

Членство в советах и комиссиях ИБХ

Методическая комиссия

Диссертационный совет

Ученый совет

Аттестационная комиссия

Членство в сообществах

Член редколлегии журналов «Биоорганическая химия», Москва; «The Open Structural Biology Journal», «The Open Bioinformatics Journal».

Член Ученого Совета ИБХ РАН.

Член специализированных диссертационных советов (МГУ, ГУ НИИ БМХ РАМН).

Степени и звания

Профессор

Доктор наук (Физико-математические науки, 03.00.02 — Биофизика)

Гранты и проекты

2018–2020 [Молекулярно-биофизические аспекты олигомеризации мембранных доменов рецепторов, определяющие клеточную сигнализацию в норме и онкогенезе](#)

2018–наст.вр. [Управление димеризацией сиалидазы NEU1 как перспективный подход к лечению атеросклероза](#)

2019–наст.вр. [Динамический «молекулярный портрет» клеточной мембраны и его биологическая роль](#)

2019–наст.вр. [Структурная биология мембранных белков для создания новых лекарственных и диагностических средств](#)

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- Tabakmakher VM, Gigolaev AM, Peigneur S, Krylov NA, Tytgat J, Chugunov AO, Vassilevski AA, **Efremov RG** (2021). Potassium channel blocker crafted by α -hairpinin scaffold engineering. *Biophys J* 120 (12), 2471–2481, [10.1016/j.bpj.2021.04.020](#)
- Efremov RG** (2021). Dynamic “molecular portraits” of biomembranes drawn by their lateral nanoscale inhomogeneities. *Int J Mol Sci* 22 (12), , [10.3390/ijms22126250](#)
- Krylov NA, **Efremov RG** (2021). libxtc: an efficient library for reading XTC-compressed MD trajectory data. *BMC Res Notes* 14 (1), 124, [10.1186/s13104-021-05536-5](#)
- Nadezhdin KD, Neuberger A, Trofimov YA, Krylov NA, Sinica V, Kupko N, Vlachova V, Zakharian E, **Efremov RG**, Sobolevsky AI (2021). Structural mechanism of heat-induced opening of a temperature-sensitive TRP channel. *Nat Struct Mol Biol* 28 (7), 564–572, [10.1038/s41594-021-00615-4](#)
- Albrecht C, Kuznetsov AS, Appert-Collin A, Dhaideh Z, Callewaert M, Bershatsky YV, Urban AS, Bocharov EV, Bagnard D, Baud S, Blaise S, Romier-Crouzet B, **Efremov RG**, Dauchez M, Duca L, Gueroult M, Maurice P, Bennisroune A (2020). Transmembrane Peptides as a New Strategy to Inhibit Neuraminidase-1 Activation. *Front Cell Dev Biol* 8, 611121, [10.3389/fcell.2020.611121](#)
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- Kuznetsov AS, Zamaletdinov MF, Bershatsky YV, Urban AS, Bocharova OV, Bennisroune A, Maurice P, Bocharov EV, **Efremov RG** (2020). Dimeric states of transmembrane domains of insulin and IGF-1R receptors: Structures and possible role in activation. *BIOCHIM BIOPHYS ACTA* 1862 (11), 183417, [10.1016/j.bbamem.2020.183417](#)
- Sosorev A, Dominskiy D, Chernyshov I, **Efremov R** (2020). Tuning of Molecular Electrostatic Potential

- Enables Efficient Charge Transport in Crystalline Azaacenes: A Computational Study. *Int J Mol Sci* 21 (16), 1–18, [10.3390/ijms21165654](https://doi.org/10.3390/ijms21165654)
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 11. Gigolaev AM, Kuzmenkov AI, Peigneur S, Tabakmakher VM, Pinheiro-Junior EL, Chugunov AO, **Efremov RG**, Tytgat J, Vassilevski AA (2020). Tuning Scorpion Toxin Selectivity: Switching From KV1.1 to KV1.3. *Front Pharmacol* 11, 1010, [10.3389/fphar.2020.01010](https://doi.org/10.3389/fphar.2020.01010)
 12. Zalygin A, Solovyeva D, Vaskan I, Henry S, Schaefer M, Volynsky P, Tuzikov A, Korchagina E, Ryzhov I, Nizovtsev A, Mochalov K, **Efremov R**, Shtykova E, Oleinikov V, Bovin N (2020). Structure of Supramers Formed by the Amphiphile Biotin-CMG-DOPE. *ChemistryOpen* 9 (6), 640, [10.1002/open.202000139](https://doi.org/10.1002/open.202000139)
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 15. Albrecht C, Appert-Collin A, Bagnard D, Blaise S, Romier-Crouzet B, **Efremov RG**, Sartelet H, Duca L, Maurice P, Bennisroune A (2020). Transmembrane Peptides as Inhibitors of Protein-Protein Interactions: An Efficient Strategy to Target Cancer Cells? *Front Oncol* 10, 519, [10.3389/fonc.2020.00519](https://doi.org/10.3389/fonc.2020.00519)
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 34. Alekseeva AS, Chugunov AO, Volynsky PE, Onishchenko NR, Molotkovsky JG, **Efremov RG**, Boldyrev IA, Vodovozova EL (2018). Behavior of Doxorubicin Lipophilic Conjugates in Liposomal Lipid Bilayers. *Russ. J. Bioorganic Chem.* 44 (6), 732–739, [10.1134/S1068162019010023](https://doi.org/10.1134/S1068162019010023)
 35. Dubovskii PV, Ignatova AA, Volynsky PE, Ivanov IA, Zhmak MN, Feofanov AV, **Efremov RG** (2018). Improving therapeutic potential of antibacterial spider venom peptides: coarse-grain molecular dynamics guided approach. *Future Med Chem* 10 (19), 2309–2322, [10.4155/fmc-2018-0170](https://doi.org/10.4155/fmc-2018-0170)
 36. Bocharov EV, Lesovoy DM, Bocharova OV, Urban AS, Pavlov KV, Volynsky PE, **Efremov RG**, Arseniev AS (2018). Structural basis of the signal transduction via transmembrane domain of the human growth hormone receptor. *BIOCHIM BIOPHYS ACTA* 1862 (6), 1410–1420, [10.1016/j.bbagen.2018.03.022](https://doi.org/10.1016/j.bbagen.2018.03.022)
 37. Крылов НА, Нольде ДЕ, Телегин ПН, **Ефремов РГ**, Шабанов БМ (2018). Производительность современных вычислительных платформ при обработке данных расчетов молекулярной динамики мембранных и белок-мембранных систем. *Труды НИИСИ РАН* 8 (6), 74–77.
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 41. **(конференция)** Kuznetsov AS, Smirnov KV, Antonov MY, Nikolaev IN, **Efremov RG** (2017). Molecular modeling of biomembranes and their complexes with protein transmembrane α -helices. *AIP Conf Proc* 1907, , [10.1063/1.5012645](https://doi.org/10.1063/1.5012645)
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46. Kuzmenkov AI, Peigneur S, Chugunov AO, Tabakmakher VM, **Efremov RG**, Tytgat J, Grishin EV, Vassilevski AA (2017). C-Terminal residues in small potassium channel blockers OdK1 and OSK3 from scorpion venom fine-tune the selectivity. *BIOCHIM BIOPHYS ACTA* 1865 (5), 465–472, [10.1016/j.bbapap.2017.02.001](https://doi.org/10.1016/j.bbapap.2017.02.001)
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55. (конференция) Панина ИС, Нольде ДЕ, Чугунов АО, **Ефремов РГ** (2016). Структурно-динамическая модель комплекса лантибиотика низин с липидом-II в биомембране. 1, 263–267.
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