

Резюме: Феофанов Алексей Валерьевич

Адрес

Федеральное государственное бюджетное учреждение науки Институт биоорганической химии им. академиков М.М. Шемякина и Ю.А. Овчинникова Российской академии наук, Москва, Россия

Контакты

<https://www.ibch.ru/users/44>

Образование

1970–2006	Россия, Москва	Московский государственный университет имени М.В. Ломоносова (МГУ), биологический факультет	Присуждена учёная степень доктора биологических наук
1970–1991	Россия, Москва	Московский государственный университет имени М.В. Ломоносова (МГУ), биологический факультет	Присуждена учёная степень кандидата физ.-мат. наук
1982–1988	Россия, Москва	Московский инженерно-физический институт (МИФИ)	диплом инженера-физика

Работа в ИБХ

2017–наст.вр.	Главный научный сотрудник
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Членство в советах и комиссиях ИБХ

Ученый совет

Научные интересы

Изучение структуры и функциональных свойств биологически активных соединений с широким использованием методов оптической спектроскопии и микроскопии. Разработка новых методических подходов к изучению биологических молекул на основе методов оптической микроскопии и спектроскопии.

Основные направления исследований включают в себя:

скрининг, структурно-функциональные, доклинические и клинические исследования новых фотосенсибилизаторов для противоопухолевой и антимикробной фотодинамической терапии (ФДТ);

оптимизация структуры и изучение свойств конъюгатов хлорина е6 с наночастицами бора применительно к ФДТ, бор нейтрон-захватной терапии рака и флуоресцентной диагностике;

изучение функциональной роли трансмембранных доменов эфриновых тирозинкиназных рецепторов EphA2;

изучение свойств и механизмов действия на клетки эукариот и прокариот природных пептидов из ядов насекомых;

поиск новых лигандов потенциал-зависимых калиевых каналов, изучение их активности и свойств.

Степени и звания

Доцент

Гранты и проекты

2022– наст.вр.	Гомо- и гетеро- тетрамерные потенциал-зависимые калиевые каналы Kv1 в клетках эукариот и их взаимодействия с поровыми блокаторами
2018– 2020	Разработка флуоресцентных хемосенсоров на основе резонансного переноса энергии для определения биогенных металлов в растворах и клетках
2019– 2022	Эпигенетические механизмы биологических процессов и их роль в патогенезе онкологических заболеваний
2017– 2020	Механизм взаимодействия PARP-1 с хроматином
2016– 2019	Магнито-плазмонные гибридные наносенсоры как многофункциональная платформа для детекции клеток рака груди
2019– 2021	Полифункциональные фотосенсибилизаторы на основе гуанидиновых производных природных порфиринов

Публикации

1. Ignatova AA, Kryukova EV, Novoseletsky VN, Kazakov OV, Orlov NA, Korabeynikova VN, Larina MV, Fradkov AF, Yakimov SA, Kirpichnikov MP, **Feofanov AV**, Nekrasova OV (2024). New High-Affinity Peptide Ligands for Kv1.2 Channel: Selective Blockers and Fluorescent Probes. *Cells* 13 (24), 2096, [10.3390/cells13242096](#)
2. Koshkina DO, Maluchenko NV, Korovina AN, Lobanova AA, **Feofanov AV**, Studitsky VM (2024). Resveratrol Inhibits Nucleosome Binding and Catalytic Activity of PARP1. *Biomolecules* 14 (11), 1398, [10.3390/biom14111398](#)
3. Panchenko PA, Polyakova AS, Ustimova MA, Efremenko AV, **Feofanov AV**, Fedorov YV, Fedorova OA (2024). Ratiometric fluorescent chemosensor for mercury(II) cations in aqueous solution based on the crown-containing bis(chromophoric) 1,8-naphthalimide—styrylpyridine system. *Russ Chem Bull* 73 (10), 2921–2935, [10.1007/s11172-024-4409-1](#)
4. Panchenko PA, Efremenko AV, Polyakova AS, **Feofanov AV**, Ustimova MA, Fedorov YV, Fedorova OA (2024). Application of RET Approach for Ratiometric Response Enhancement of ICT Fluorescent Hg²⁺ Probe Based on Crown-containing Styrylpyridinium Dye. *Chem Asian J*, e202400777, [10.1002/asia.202400777](#)
5. Malinina DK, Armeev GA, Geraskina OV, Korovina AN, Studitsky VM, **Feofanov AV** (2024). Complexes of HMO1 with DNA: Structure and Affinity. *Biomolecules* 14 (9), 1184, [10.3390/biom14091184](#)
6. Plotnikova E, Abramova O, Ostroverkhov P, Vinokurova A, Medvedev D, Tihonov S, Usachev M, Shelyagina A, Efremenko A, **Feofanov A**, Pankratov A, Shegay P, Grin M, Kaprin A (2024). Conjugate of Natural Bacteriochlorin with Doxorubicin for Combined Photodynamic and Chemotherapy. *Int J Mol Sci* 25 (13), 7210, [10.3390/ijms25137210](#)
7. Polyakova AS, Panchenko PA, Efremenko AV, **Feofanov AV**, Fedorov YV, Fedorova OA (2024). A naphthalimide-based fluorescent and colorimetric probe for the detection of mercury(II) ions in aqueous solutions and in living cells. *MENDELEEV COMMUN* 34 (3), 418–420, [10.1016/j.mencom.2024.04.034](#)
8. Akulinichev SV, Glukhov SI, Efremenko AV, Kokontsev DA, Kuznetsova EA, Martynova VV, **Feofanov AV**, Yakovlev IA (2024). The Cellular Response to Exposure to Ionizing Radiation and Light in the Presence of a Photosensitizer. *Biophysics (Oxf)* 68 (5), 783–791, [10.1134/S0006350923050044](#)
9. 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](#)

10. Oleinikov PD, Fedulova AS, Armeev GA, Motorin NA, Singh-Palchevskaia L, Sivkina AL, Feskin PG, Glukhov GS, Afonin DA, Komarova GA, Kirpichnikov MP, Studitsky VM, **Feofanov AV**, Shaytan AK (2023). Interactions of Nucleosomes with Acidic Patch-Binding Peptides: A Combined Structural Bioinformatics, Molecular Modeling, Fluorescence Polarization, and Single-Molecule FRET Study. *Int J Mol Sci* 24 (20), 15194, [10.3390/ijms242015194](https://doi.org/10.3390/ijms242015194)
11. Maluchenko NV, Korovina AN, Saulina AA, Studitsky VM, **Feofanov AV** (2023). The Role of the WGR Domain in the Functions of PARP1 and PARP2. *Mol Biol* 57 (5), 782–791, [10.1134/S0026893323050114](https://doi.org/10.1134/S0026893323050114)
12. Andreeva TV, Maluchenko NV, Efremenko AV, Lyubitelev AV, Korovina AN, Afonin DA, Kirpichnikov MP, Studitsky VM, **Feofanov AV** (2023). Epigallocatechin Gallate Affects the Structure of Chromatosomes, Nucleosomes and Their Complexes with PARP1. *Int J Mol Sci* 24 (18), , [10.3390/ijms241814187](https://doi.org/10.3390/ijms241814187)
13. Stefanova ME, Volokh OI, Chertkov OV, Armeev GA, Shaytan AK, **Feofanov AV**, Kirpichnikov MP, Sokolova OS, Studitsky VM (2023). Structure and Dynamics of Compact Dinucleosomes: Analysis by Electron Microscopy and spFRET. *Int J Mol Sci* 24 (15), , [10.3390/ijms241512127](https://doi.org/10.3390/ijms241512127)
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15. Primak AL, Orlov NA, Peigneur S, Tytgat J, Ignatova AA, Denisova KR, Yakimov SA, Kirpichnikov MP, Nekrasova OV, **Feofanov AV** (2023). AgTx2-GFP, Fluorescent Blocker Targeting Pharmacologically Important Kv1.x (x = 1, 3, 6) Channels. *Toxins (Basel)* 15 (3), 229, [10.3390/toxins15030229](https://doi.org/10.3390/toxins15030229)
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- Venom of Scorpion *Centruroides elegans* and Their Interactions with Hybrid Channels KcsA-Kv1.x (x = 1, 3, 6). *Moscow Univ Biol Sci Bull* 77 (2), 119–125, [10.3103/S0096392522020067](https://doi.org/10.3103/S0096392522020067)
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 27. Denisova KR, Orlov NA, Yakimov SA, Kirpichnikov MP, **Feofanov AV**, Nekrasova OV (2022). Atto488-Agitoxin 2—A Fluorescent Ligand with Increased Selectivity for Kv1.3 Channel Binding Site. *Bioengineering (Basel)* 9 (7), , [10.3390/bioengineering9070295](https://doi.org/10.3390/bioengineering9070295)
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 30. Denisova KR, Orlov NA, Yakimov SA, Kryukova EA, Dolgikh DA, Kirpichnikov MP, **Feofanov AV**, Nekrasova OV (2022). GFP–Margatoxin, a Genetically Encoded Fluorescent Ligand to Probe Affinity of Kv1.3 Channel Blockers. *Int J Mol Sci* 23 (3), , [10.3390/ijms23031724](https://doi.org/10.3390/ijms23031724)
 31. Sivkina AL, Karlova MG, Valieva ME, McCullough LL, Formosa T, Shaytan AK, **Feofanov AV**, Kirpichnikov MP, Sokolova OS, Studitsky VM (2022). Electron microscopy analysis of ATP-independent nucleosome unfolding by FACT. *Commun Biol* 5 (1), 2, [10.1038/s42003-021-02948-8](https://doi.org/10.1038/s42003-021-02948-8)
 32. Sivkina AL, **Feofanov AV**, Kirpichnikov MP, Akhtar MS, Studitsky VM (2021). Role of the Nhp6 Protein in Nucleosome Unfolding by the FACT Factor. *Moscow Univ Biol Sci Bull* 76 (4), 191–195, [10.3103/S009639252104012X](https://doi.org/10.3103/S009639252104012X)
 33. Andreeva TV, Maluchenko NV, Sivkina AL, Chertkov OV, Valieva ME, Kotova EY, Kirpichnikov MP, Studitsky VM, **Feofanov AV** (2021). Na⁺ and K⁺ Ions Differently Affect Nucleosome Structure, Stability, and Interactions with Proteins. *Microsc Microanal* 28 (1), 243–253, [10.1017/S1431927621013751](https://doi.org/10.1017/S1431927621013751)
 34. Tikhonov S, Ostroverkhov P, Suvorov N, Mironov A, Efimova Y, Plutinskaya A, Pankratov A, Ignatova A, **Feofanov A**, Diachkova E, Vasilev Y, Grin M (2021). Tin Carboxylate Complexes of Natural Bacteriochlorin for Combined Photodynamic and Chemotherapy of Cancer è. *Int J Mol Sci* 22 (24), , [10.3390/ijms222413563](https://doi.org/10.3390/ijms222413563)
 35. Sharonov GV, Nekrasova OV, Kudryashova KS, Kirpichnikov MP, **Feofanov AV** (2021). Bioengineered System for High Throughput Screening of Kv1 Ion Channel Blockers. *Bioengineering (Basel)* 8 (11), 187, [10.3390/bioengineering8110187](https://doi.org/10.3390/bioengineering8110187)
 36. Maluchenko NV, Nilov DK, Pushkarev SV, Kotova EY, Gerasimova NS, Kirpichnikov MP, Langelier MF, Pascal JM, Akhtar MS, **Feofanov AV**, Studitsky VM (2021). Mechanisms of nucleosome reorganization by PARP1. *Int J Mol Sci* 22 (22), , [10.3390/ijms222212127](https://doi.org/10.3390/ijms222212127)
 37. Maluchenko NV, **Feofanov AV**, Studitsky VM (2021). PARP-1-Associated Pathological Processes: Inhibition by Natural Polyphenols. *Int J Mol Sci* 22 (21), , [10.3390/ijms222111441](https://doi.org/10.3390/ijms222111441)
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 40. Andreeva TV, Lyubitelev AV, Malyuchenko NV, Studitsky VM, Kirpichnikov MP, **Feofanov AV** (2021). Influence of Linker DNA on Nucleosome Structure according to Single-Particle Fluorescence Microscopy Data. *Moscow Univ Biol Sci Bull* 76 (3), 118–122, [10.3103/S0096392521030019](https://doi.org/10.3103/S0096392521030019)
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- bioengineering tool to study voltage-gated potassium channels and their ligands. *Biochem Pharmacol* 190, 114646, [10.1016/j.bcp.2021.114646](https://doi.org/10.1016/j.bcp.2021.114646)
43. Maluchenko NV, Koshkina DO, **Feofanov AV**, Studitsky VM, Kirpichnikov MP (2021). Poly(ADP-Ribosyl) Code Functions. *Acta Naturae* 13 (2), 58–69, [10.32607/actanaturae.11089](https://doi.org/10.32607/actanaturae.11089)
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