

Сведения об официальном оппоненте

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Список основных публикаций по теме диссертации за последние 5 лет:

1. Garafutdinov RR, Sakhabutdinova AR, Kupryushkin MS, Pyshnyi DV. Prevention of DNA multimerization using phosphoryl guanidine primers during isothermal amplification with Bst exo- DNA polymerase. *Biochimie*. 2020 Jan;168:259-267. doi: 10.1016/j.biochi.2019.11.013
2. Garafutdinov RR, Sakhabutdinova AR, Kupryushkin MS, Pyshnyi DV. Data on multimerization efficiency for short linear DNA templates and phosphoryl guanidine primers during isothermal amplification with Bst exo- DNA polymerase. *Data Brief*. 2020 Jan 25; 29:105188. doi: 10.1016/j.dib.2020.105188.
3. Markov OV, Filatov AV, Kupryushkin MS, Chernikov IV, Patutina OA, Strunov AA, Chernolovskaya EL, Vlassov VV, Pyshnyi DV, Zenkova MA. Transport Oligonucleotides- A Novel System for Intracellular Delivery of Antisense Therapeutics. *Molecules*. 2020 Aug 11;25(16):3663. doi: 10.3390/molecules25163663.
4. Pavlova AS, Dovydenko IS, Kupryushkin MS, Grigor'eva AE, Pyshnaya IA, Pyshnyi DV. Amphiphilic "Like-a-Brush" Oligonucleotide Conjugates with Three Dodecyl Chains: Self-Assembly Features of Novel Scaffold Compounds for Nucleic Acids Delivery. *Nanomaterials (Basel)*. 2020 Sep 29;10(10):1948. doi: 10.3390/nano10101948.
5. Levina A, Repkova M, Shikina N, Ismagilov Z, Kupryushkin M, Pavlova A, Mazurkova N, Pyshnyi D, Zarytova V. Pronounced therapeutic potential of oligonucleotides fixed on inorganic nanoparticles against highly pathogenic H5N1 influenza A virus in vivo. *Eur J Pharm Biopharm*. 2021 May; 162: 92-98. doi: 10.1016/j.ejpb.2021.03.006.
6. Pavlova AS, Yakovleva KI, Epanchitseva AV, Kupryushkin MS, Pyshnaya IA, Pyshnyi DV, Ryabchikova EI, Dovydenko IS. An Influence of Modification with Phosphoryl Guanidine Combined with a 2'-O-Methyl or 2'-Fluoro Group on the Small-Interfering-RNA Effect. *Int J Mol Sci*. 2021 Sep 10;22(18):9784. doi: 10.3390/ijms22189784.
7. Kupryushkin MS, Filatov AV, Mironova NL, Patutina OA, Chernikov IV, Chernolovskaya EL, Zenkova MA, Pyshnyi DV, Stetsenko DA, Altman S, Vlassov VV. Antisense oligonucleotide gapmers containing phosphoryl guanidine groups reverse MDR1-mediated

- multiple drug resistance of tumor cells. *Mol Ther Nucleic Acids*. 2021 Nov 29; 27:211-226. doi: 10.1016/j.omtn.2021.11.025.
8. Chernyshova IA, Zakharenko AL, Kurochkin NN, Dyrkheeva NS, Kornienko TE, Popova NA, Nikolin VP, Ilina ES, Zharkov TD, Kupryushkin MS, Oslovsky VE, Drenichev MS, Lavrik OI. The Lipophilic Purine Nucleoside-Tdp1 Inhibitor- Enhances DNA Damage Induced by Topotecan In Vitro and Potentiates the Antitumor Effect of Topotecan In Vivo. *Molecules*. 2022 Dec 31;28(1):323. doi: 10.3390/molecules28010323
 9. Pavlova AS, Ilyushchenko VV, Kupryushkin MS, Zharkov TD, Dyudeeva ES, Bauer IA, Chubarov AS, Pyshnyi DV, Pyshnaya IA. Complexes and Supramolecular Associates of Dodecyl-Containing Oligonucleotides with Serum Albumin. *Biochemistry (Mosc)*. 2023 Aug;88(8):1165-1180. doi: 10.1134/S0006297923080102.
 10. Zharkov TD, Mironova EM, Markov OV, Zhukov SA, Khodyreva SN, Kupryushkin MS. Fork- and Comb-like Lipophilic Structures: Different Chemical Approaches to the Synthesis of Oligonucleotides with Multiple Dodecyl Residues. *Int J Mol Sci*. 2023 Sep 27;24(19):14637. doi: 10.3390/ijms241914637.
 11. Bauer I, Ilina E, Zharkov T, Grigorieva E, Chinak O, Kupryushkin M, Golyshev V, Mitin D, Chubarov A, Khodyreva S, Dmitrienko E. Self-Penetrating Oligonucleotide Derivatives: Features of Self-Assembly and Interactions with Serum and Intracellular Proteins. *Pharmaceutics*. 2023 Dec 14;15(12):2779. doi: 10.3390/pharmaceutics15122779.
 12. Zharkov TD, Markov OV, Zhukov SA, Khodyreva SN, Kupryushkin MS. Influence of Combinations of Lipophilic and Phosphate Backbone Modifications on Cellular Uptake of Modified Oligonucleotides. *Molecules*. 2024 Jan 17;29(2):452. doi: 10.3390/molecules29020452.
 13. Prokhorova DV, Kupryushkin MS, Zhukov SA, Zharkov TD, Dovydenko IS, Yakovleva KI, Pereverzev IM, Matveeva AM, Pyshnyi DV, Stepanov GA. Effect of the Phosphoryl Guanidine Modification in Chimeric DNA-RNA crRNAs on the Activity of the CRISPR-Cas9 System *In Vitro*. *ACS Chem Biol*. 2024 Jun 21; 19(6):1311-1319. doi: 10.1021/acscchembio.4c00147
 14. Oshchepkova A, Chernikov I, Miroshnichenko S, Patutina O, Markov O, Savin I, Staroseletz Y, Meschaninova M, Puchkov P, Zhukov S, Kupryushkin M, Maslov M, Sen'kova A, Vlassov V, Chernolovskaya E, Zenkova M. Extracellular vesicle mimetics as delivery vehicles for oligonucleotide-based therapeutics and plasmid DNA. *Front Bioeng Biotechnol*. 2024 Oct 17; 12: 1437817. doi: 10.3389/fbioe.2024.1437817.