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Адрес

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

Контакты

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Образование

2007–2013	Москва, Россия	Московский Физико-Технический Институт (ГУ)	Диплом магистра с отличием по направлению "Биотехнология".

Работа в ИБХ

2021–наст.вр.	Старший научный сотрудник
2021–наст.вр.	Старший научный сотрудник
	Старший научный сотрудник

Награды

2017	Медали РАН для молодых ученых и студентов с премией	За работу «Комплексное исследование многофункциональных надмолекулярных комплексов, контролируемо воздействующих на клетки эукариот, с целью создания эффективных агентов для тераностики»

Научные интересы

Наночастицы, адресная доставка лекарственных препаратов, биосенсоры, умные материалы

Членство в сообществах

IEEE

Степени и звания

Кандидат наук (Биологические науки, 03.00.03 — Молекулярная биология)

Гранты и проекты

2020–2021	Распознающие скаффолдовые полипептиды как инструмент для адресной доставки наноструктур in vitro и in vivo
2020–2021	Разработка агентов для онкотераностики на основе эффекта усиления биолюминесценции плазмонными наноструктурами
2018–2020	Создание агентов для тераностики на основе нано- и микроструктур
2017–2022	Комплексное исследование мультифункциональных супрамолекулярных систем, контролируемо воздействующих на клетки эукариот, с целью создания эффективных агентов для тераностики
2017–	Новые подходы к адресной терапии злокачественных новообразований с использованием

2021 инновационного направляющего модуля неиммуноглобулиновой природы

Публикации

1. Shaban N, Raevskiy M, Zakharova G, **Shipunova V**, Deyev S, Suntsova M, Sorokin M, Buzdin A, Kamashev D (2024). Human Blood Serum Counteracts EGFR/HER2-Targeted Drug Lapatinib Impact on Squamous Carcinoma SK-BR-3 Cell Growth and Gene Expression. *Biochemistry (Mosc)* 89 (3), 487–506, 10.1134/S000629792403009X
2. Kotelnikova PA, **Shipunova VO**, Deyev SM (2023). Targeted PLGA–Chitosan Nanoparticles for NIR-Triggered Phototherapy and Imaging of HER2-Positive Tumors. *Pharmaceutics* 16 (1), 9, 10.3390/pharmaceutics16010009
3. Komedchikova EN, Kolesnikova OA, Syuy AV, Volkov VS, Deyev SM, Nikitin MP, **Shipunova VO** (2023). Targosomes: Anti-HER2 PLGA nanocarriers for bioimaging, chemotherapy and local photothermal treatment of tumors and remote metastases. *J Control Release* 365, 317–330, 10.1016/j.jconrel.2023.11.036
4. Shlepova OV, Shulepko MA, **Shipunova VO**, Bychkov ML, Kukushkin ID, Chulina IA, Azev VN, Shramova EI, Kazakov VA, Ismailova AM, Palikova YA, Palikov VA, Kalabina EA, Shaykhutdinova EA, Slashcheva GA, Tukhovskaya EA, Dyachenko IA, Murashev AN, Deyev SM, Kirpichnikov MP, Shenkarev ZO, Lyukmanova EN (2023). Selective targeting of α7 nicotinic acetylcholine receptor by synthetic peptide mimicking loop I of human SLURP-1 provides efficient and prolonged therapy of epidermoid carcinoma in vivo. *Front Cell Dev Biol* 11, 1256716, 10.3389/fcell.2023.1256716
5. Tselikov GI, Danilov A, **Shipunova VO**, Deyev SM, Kabashin AV, Grigorenko AN (2023). Topological Darkness: How to Design a Metamaterial for Optical Biosensing with Ultrahigh Sensitivity. *ACS Nano* 17 (19), 19338–19348, 10.1021/acsnano.3c06655
6. Mochalova EN, Egorova EA, Komarova KS, **Shipunova VO**, Khabibullina NF, Nikitin PI, Nikitin MP (2023). Comparative Study of Nanoparticle Blood Circulation after Forced Clearance of Own Erythrocytes (Mononuclear Phagocyte System-Cytoblockade) or Administration of Cytotoxic Doxorubicin- or Clodronate-Loaded Liposomes. *Int J Mol Sci* 24 (13), 10623, 10.3390/ijms241310623
7. Sogomonyan AS, Deyev SM, **Shipunova VO** (2023). Internalization-Responsive Poly(lactic-co-glycolic acid) Nanoparticles for Image-Guided Photodynamic Therapy against HER2-Positive Breast Cancer. *ACS Applied Nano Materials* 6 (13), 11402–11415, 10.1021/acsanm.3c01446
8. **Shipunova VO**, Komedchikova EN, Kotelnikova PA, Nikitin MP, Deyev SM (2023). Targeted Two-Step Delivery of Oncotheranostic Nano-PLGA for HER2-Positive Tumor Imaging and Therapy In Vivo: Improved Effectiveness Compared to One-Step Strategy. *Pharmaceutics* 15 (3), 833, 10.3390/pharmaceutics15030833
9. Petrunina NA, Shtork AS, Lukina MM, Tsvetkov VB, Khodarovich YM, Feofanov AV, Moysenovich AM, Maksimov EG, **Shipunova VO**, Zatsepin TS, Bogomazova AN, Shender VO, Aralov AV, Lagarkova MA, Varizhuk AM (2023). Ratiometric i-Motif-Based Sensor for Precise Long-Term Monitoring of pH Micro Alterations in the Nucleoplasm and Interchromatin Granules. *ACS Sens* 8 (2), 619–629, 10.1021/acssensors.2c01813
10. Kalinin RS, **Shipunova VO**, Rubtsov YP, Ukrainskay VM, Schulga A, Konovalova EV, Volkov DV, Yaroshevich IA, Moysenovich AM, Belogurov AA, Telegin GB, Chernov AS, Maschan MA, Terekhov SS, Knorre VD, Khurs E, Gnuchev NV, Gabibov AG, Deyev SM (2023). Barnase-barstar Specific Interaction Regulates Car-T Cells Cytotoxic Activity toward Malignancy. *Dokl Biochem Biophys* 508 (1), 17–20, 10.1134/S1607672922700041
11. Drozdov AS, Komarova KS, Mochalova EN, Komedchikova EN, **Shipunova VO**, Nikitin MP (2023). Fluorescent Magnetic Nanoparticles for Bioimaging through Biomimetic Surface Modification. *Int J Mol Sci* 24 (1), 134, 10.3390/ijms24010134
12. Kovalenko VL, Komedchikova EN, Sogomonyan AS, Tereshina ED, Kolesnikova OA, Mirkasymov AB, Iureva AM, Zvyagin AV, Nikitin PI, **Shipunova VO** (2023). Lectin-Modified Magnetic Nano-PLGA for Photodynamic Therapy In Vivo. *Pharmaceutics* 15 (1), 92, 10.3390/pharmaceutics15010092
13. Komedchikova EN, Kolesnikova OA, Tereshina ED, Kotelnikova PA, Sogomonyan AS, Stepanov AV, Deyev SM, Nikitin MP, **Shipunova VO** (2023). Two-Step Targeted Drug Delivery via Proteinaceous Barnase-Barstar Interface and Doxorubicin-Loaded Nano-PLGA Outperforms One-Step Strategy for Targeted Delivery to HER2-Overexpressing Cells. *Pharmaceutics* 15 (1), 52, 10.3390/pharmaceutics15010052

14. Kotelnikova PA, Iureva AM, Nikitin MP, Zvyagin AV, Deyev SM, **Shipunova VO** (2022). Peroxidase-like activity of silver nanowires and its application for colorimetric detection of the antibiotic chloramphenicol. *Talanta Open* 6, 100164, 10.1016/j.talo.2022.100164
15. Stepanov AV, Kalinin RS, **Shipunova VO**, Zhang D, Xie J, Rubtsov YP, Ukrainskaya VM, Schulga A, Konovalova EV, Volkov DV, Yaroshevich IA, Moysenovich AM, Belogurov AA, Zhang H, Telegin GB, Chernov AS, Maschan MA, Terekhov SS, Wu P, Deyev SM, Lerner RA, Gabibov AG, Altman S (2022). Switchable targeting of solid tumors by BsCAR T cells. *Proc Natl Acad Sci U S A* 119 (46), e2210562119, 10.1073/pnas.2210562119
16. Novoselova M, Chernyshev VS, Schulga A, Konovalova EV, Chuprov-Netochin RN, Abakumova TO, German S, **Shipunova VO**, Mokrousov MD, Prikhozhdenko E, Bratashov DN, Nozdriukhin DV, Bogorodskiy A, Grishin O, Kosolobov SS, Khlebtsov BN, Inozemtseva O, Zatsepin TS, Deyev SM, Gorin DA (2022). Effect of Surface Modification of Multifunctional Nanocomposite Drug Delivery Carriers with DARPin on Their Biodistribution In Vitro and In Vivo. *ACS Applied Bio Materials* 5 (6), 2976–2989, 10.1021/acsabm.2c00289
17. **Shipunova VO**, Belova MM, Kotelnikova PA, Shilova ON, Mirkasymov AB, Danilova NV, Komedchikova EN, Popovtzer R, Deyev SM, Nikitin MP (2022). Photothermal Therapy with HER2-Targeted Silver Nanoparticles Leading to Cancer Remission. *Pharmaceutics* 14 (5), , 10.3390/pharmaceutics14051013
18. Sogomonyan AS, **Shipunova VO**, Soloviev VD, Larionov VI, Kotelnikova PA, Deyev SM (2022). 3D Models of Cellular Spheroids As a Universal Tool for Studying the Cytotoxic Properties of Anticancer Compounds In Vitro. *Acta Naturae* 14 (1), 92–100, 10.32607/actanaturae.11603
19. **Shipunova VO**, Deyev SM (2022). Artificial Scaffold Polypeptides As an Efficient Tool for the Targeted Delivery of Nanostructures In Vitro and In Vivo. *Acta Naturae* 14 (1), 54–72, 10.32607/actanaturae.11545
20. Shramova EI, Chumakov SP, **Shipunova VO**, Ryabova AV, Telegin GB, Kabashin AV, Deyev SM, Proshkina GM (2022). Genetically encoded BRET-activated photodynamic therapy for the treatment of deep-seated tumors. *Light Sci Appl* 11 (1), 38, 10.1038/s41377-022-00729-4
21. Zelepukin IV, Mashkovich EA, Lipey NA, Popov AA, **Shipunova VO**, Griaznova OY, Deryabin MS, Kurin VV, Nikitin PI, Kabashin AV, Bakunov MI, Deyev SM, Zvyagin AV (2022). Direct photoacoustic measurement of silicon nanoparticle degradation promoted by a polymer coating. *Chem Eng J* 430, , 10.1016/j.cej.2021.132860
22. **(конференция)** Kotelnikova PA, **Shipunova VO**, Deyev SM, Zvyagin AV (2022). Targeted silver nanoparticles for cancer phototherapy and diagnostics. , , 10.1109/ICLO54117.2022.9840281
23. **Shipunova VO**, Kovalenko VL, Kotelnikova PA, Sogomonyan AS, Shilova ON, Komedchikova EN, Zvyagin AV, Nikitin MP, Deyev SM (2022). Targeting cancer cell tight junctions enhances plga-based photothermal sensitizers' performance in vitro and in vivo. *Pharmaceutics* 14 (1), , 10.3390/pharmaceutics14010043
24. **Shipunova VO**, Nikitin MP, Belova MM, Deyev SM (2021). Label-free methods of multiparametric surface plasmon resonance and MPQ-cytometry for quantitative real-time measurements of targeted magnetic nanoparticles complexation with living cancer cells. *Mater Today Commun* 29, , 10.1016/j.mtcomm.2021.102978
25. Proshkina GM, Shramova EI, Shilova MV, Zelepukin IV, **Shipunova VO**, Ryabova AV, Deyev SM, Kotlyar AB (2021). DARPin_9-29-Targeted Gold Nanorods Selectively Suppress HER2-Positive Tumor Growth in Mice. *Cancers (Basel)* 13 (20), , 10.3390/cancers13205235
26. Yashchenok AM, Gusliakova OI, Konovalova EV, Novoselova MV, **Shipunova VO**, Abakumova TO, Efimova OI, Kholodenko R, Schulga AA, Zatsepin TS, Gorin DA, Deyev SM (2021). Barnase encapsulation into submicron porous CaCO3 particles: studies of loading and enzyme activity. *J Mater Chem B Mater Biol Med* 9 (42), 8823–8831, 10.1039/d1tb01315g
27. Ukrainskaya V, Rubtsov Y, Pershin D, Podoplelova N, Terekhov S, Yaroshevich I, Sokolova A, Bagrov D, Kulakovskaya E, **Shipunova V**, Deyev S, Ziganshin R, Chernov A, Telegin G, Maksimov E, Markov O, Oshchepkova A, Zenkova M, Xie J, Zhang H, Gabibov A, Maschan M, Stepanov A, Lerner R (2021). Antigen-Specific Stimulation and Expansion of CAR-T Cells Using Membrane Vesicles as Target Cell Surrogates. *Small* 17 (45), e2102643, 10.1002/smll.202102643
28. **Shipunova VO**, Sogomonyan AS, Zelepukin IV, Nikitin MP, Deyev SM (2021). PLGA Nanoparticles Decorated with Anti-HER2 Affibody for Targeted Delivery and Photoinduced Cell Death. *Molecules* 26 (13), , 10.3390/molecules26133955

29. **Shipunova VO**, Kolesnikova OA, Kotelnikova PA, Soloviev VD, Popov AA, Proshkina GM, Nikitin MP, Deyev SM (2021). Comparative Evaluation of Engineered Polypeptide Scaffolds in HER2-Targeting Magnetic Nanocarrier Delivery. *ACS Omega* 6 (24), 16000–16008, 10.1021/acsomega.1c01811
30. Zelepukin IV, Popov AA, **Shipunova VO**, Tikhonowski GV, Mirkasymov AB, Popova-Kuznetsova EA, Klimentov SM, Kabashin AV, Deyev SM (2021). Laser-synthesized TiN nanoparticles for biomedical applications: Evaluation of safety, biodistribution and pharmacokinetics. *Mater Sci Eng C Mater Biol Appl* 120, 111717, 10.1016/j.msec.2020.111717
31. **Шипунова ВО**, Шрамова ЕИ, Шульга АА, Шилова МВ, Деев СМ, Прошкина ГМ (2020). Доставка барназы к клеткам в составе липосом, функционализированных HER2-специфичным модулем DARPin. *Bioorg Khim* 46 (6), 701–707, 10.31857/S0132342320060305
32. **Shipunova VO**, Shramova EI, Schulga AA, Shilova MV, Deyev SM, Proshkina GM (2020). Delivery of Barnase to Cells in Liposomes Functionalized by Her2-Specific DARPin Module. *Russ. J. Bioorganic Chem.* 46 (6), 1156–1161, 10.1134/S1068162020060308
33. Shramova E, Proshkina G, **Shipunova V**, Ryabova A, Kamyshinsky R, Konevega A, Schulga A, Konovalova E, Telegin G, Deyev S (2020). Dual targeting of cancer cells with darpin-based toxins for overcoming tumor escape. *Cancers (Basel)* 12 (10), 1–15, 10.3390/cancers12103014
34. **Shipunova VO**, Komedchikova EN, Kotelnikova PA, Zelepukin IV, Schulga AA, Proshkina GM, Shramova EI, Kutscher HL, Telegin GB, Kabashin AV, Prasad PN, Deyev SM (2020). Dual Regioselective Targeting the Same Receptor in Nanoparticle-Mediated Combination Immuno/Chemotherapy for Enhanced Image-Guided Cancer Treatment. *ACS Nano* 14 (10), 12781–12795, 10.1021/acsnano.0c03421
35. Nikitin MP, Zelepukin IV, **Shipunova VO**, Sokolov IL, Deyev SM, Nikitin PI (2020). Enhancement of the blood-circulation time and performance of nanomedicines via the forced clearance of erythrocytes. *Nat Biomed Eng* 4 (7), 717–731, 10.1038/s41551-020-0581-2
36. Mitiouchkina T, Mishin AS, Somermeyer LG, Markina NM, Chepurnyh TV, Guglya EB, Karataeva TA, Palkina KA, Shakhova ES, Fakhranurova LI, Chekova SV, Tsarkova AS, Golubev YV, Negrebetsky VV, Dolgushin SA, Shalaev PV, Shlykov D, Melnik OA, **Shipunova VO**, Deyev SM, Bubyrev AI, Pushin AS, Choob VV, Dolgov SV, Kondrashov FA, Yampolsky IV, Sarkisyan KS (2020). Author Correction: Plants with genetically encoded autoluminescence. *Nat Biotechnol* 38 (8), 1001, 10.1038/s41587-020-0578-0
37. Artykov AA, Belov DA, **Shipunova VO**, Trushina DB, Deyev SM, Dolgikh DA, Kirpichnikov MP, Gasparian ME (2020). Chemotherapeutic Agents Sensitize Resistant Cancer Cells to the DR5-Specific Variant DR5-B more Efficiently than to TRAIL by Modulating the Surface Expression of Death and Decoy Receptors. *Cancers (Basel)* 12 (5), , 10.3390/cancers12051129
38. Mitiouchkina T, Mishin AS, Somermeyer LG, Markina NM, Chepurnyh TV, Guglya EB, Karataeva TA, Palkina KA, Shakhova ES, Fakhranurova LI, Chekova SV, Tsarkova AS, Golubev YV, Negrebetsky VV, Dolgushin SA, Shalaev PV, Shlykov D, Melnik OA, **Shipunova VO**, Deyev SM, Bubyrev AI, Pushin AS, Choob VV, Dolgov SV, Kondrashov FA, Yampolsky IV, Sarkisyan KS (2020). Plants with genetically encoded autoluminescence. *Nat Biotechnol* 38 (8), 944–946, 10.1038/s41587-020-0500-9
39. **(конференция)** Kabashin AV, Kravets VG, Wu F, Imaizumi S, **Shipunova VO**, Deyev SM, Grigorenko AN (2020). Fourier nanotransducers for phase-sensitive plasmonic biosensing. *Proc SPIE Int Soc Opt Eng* 11269, , 10.1117/12.2551438
40. Belova MM, **Shipunova VO**, Kotelnikova PA, Babenyshev AV, Rogozhin EA, Cherednichenko MY, Deyev SM (2019). «Green» Synthesis of Cytotoxic Silver Nanoparticles Based on Secondary Metabolites of Lavandula Angustifolia Mill. *Acta Naturae* 11 (2), 47–53, 10.32607/20758251-2019-11-2-47-53
41. Kabashin AV, Kravets VG, Wu F, Imaizumi S, **Shipunova VO**, Deyev SM, Grigorenko AN (2019). Phase-Responsive Fourier Nanotransducers for Probing 2D Materials and Functional Interfaces. *Adv Funct Mater* 29 (26), , 10.1002/adfm.201902692
42. Zelepukin IV, Yaremenko AV, **Shipunova VO**, Babenyshev AV, Balalaeva IV, Nikitin PI, Deyev SM, Nikitin MP (2019). Nanoparticle-based drug delivery via RBC-hitchhiking for the inhibition of lung metastases growth. *Nanoscale* 11 (4), 1636–1646, 10.1039/c8nr07730d
43. **Shipunova VO**, Kotelnikova PA, Aghayeva UF, Stremovskiy OA, Novikov IA, Schulga AA, Nikitin MP, Deyev SM (2019). Self-assembling nanoparticles biofunctionalized with magnetite-binding protein for the targeted delivery to HER2/neu overexpressing cancer cells. *J Magn Magn Mater* 469, 450–455,

10.1016/j.jmmm.2018.09.015
44. **Shipunova VO**, Kotelnikova PA, Aghayeva UF, Stremovskiy OA, Schulga AA, Nikitin MP, Deyev SM (2018). Data on characterization of magnetic nanoparticles stabilized with fusion protein of Barstar and C-term part of Mms6. *Data Brief* 21, 1659–1663, 10.1016/j.dib.2018.10.173
45. Kotelnikova PA, **Shipunova VO**, Aghayeva UF, Stremovskiy OA, Nikitin MP, Novikov IA, Schulga AA, Deyev SM, Petrov RV (2018). Synthesis of Magnetic Nanoparticles Stabilized by Magnetite-Binding Protein for Targeted Delivery to Cancer Cells. *Dokl Biochem Biophys* 481 (1), 198–200, 10.1134/S1607672918040051
46. **(конференция)** Миронова КЕ, Апарин ИО, **Шипунова ВО**, Генералова АН, Деев СМ (2018). UV-emitting upconversion nanoparticles for the treatment of estrogen-dependent tumors. *FEBS Open Bio* 8, 274–274.
47. **(конференция)** Zelepukin IV, **Shipunova VO**, Mirkasymov AB, Nikitin PI, Nikitin MP, Deyev SM (2018). Synthesis of luminescent magnetic nanoparticles with controllable surface properties. , 576, 10.1109/LO.2018.8435620
48. **Shipunova VO**, Zelepukin IV, Stremovskiy OA, Nikitin MP, Care A, Sunna A, Zvyagin AV, Deyev SM (2018). Versatile Platform for Nanoparticle Surface Bioengineering Based on SiO2-Binding Peptide and Proteinaceous Barnase, Barstar Interface. *ACS Appl Mater Interfaces* 10 (20), 17437–17447, 10.1021/acsami.8b01627
49. **Shipunova VO**, Shilova ON, Shramova EI, Deyev SM, Proshkina GM (2018). A Highly Specific Substrate for NanoLUC Luciferase Furimazine Is Toxic in vitro and in vivo. *Russ. J. Bioorganic Chem.* 44 (2), 225–228, 10.1134/S1068162018020085
50. Zelepukin IV, **Shipunova VO**, Mirkasymov AB, Nikitin PI, Nikitin MP, Deyev SM (2018). Synthesis and characterization of hybrid core-shell Fe3O4/SiO2nanoparticles for biomedical applications. *Acta Naturae* 9 (4), 58–65, 10.32607/2075-8251-2017-9-4-58-65
51. **(конференция) Shipunova VO**, Nikitin MP, Nikitin PI, Deyev SM (2016). Lectin-based nanoagents for specific cell labelling and optical visualization. *Proceedings - 2016 International Conference Laser Optics, LO 2016* , S237, 10.1109/LO.2016.7550004
52. **Shipunova VO**, Nikitin MP, Nikitin PI, Deyev SM (2016). MPQ-cytometry: A magnetism-based method for quantification of nanoparticle-cell interactions. *Nanoscale* 8 (25), 12764–12772, 10.1039/c6nr03507h
53. **Shipunova VO**, Nikitin MP, Zelepukin IV, Nikitin PI, Deyev SM, Petrov RV (2015). A comprehensive study of interactions between lectins and glycoproteins for the development of effective theranostic nanoagents. *Dokl Biochem Biophys* 464 (1), 315–318, 10.1134/S1607672915050117
54. **Shipunova VO**, Nikitin MP, Mironova KE, Deyev SM, Nikitin PI (2015). Complexes of magnetic nanoparticles and scFv antibodies for targeting and visualizing cancer cells. *IEEE-NANO 2015 - 15th International Conference on Nanotechnology* , 13–16, 10.1109/NANO.2015.7388956
55. Nikitin MP, **Shipunova VO**, Deyev SM, Nikitin PI (2014). Biocomputing based on particle disassembly. *Nat Nanotechnol* 9 (9), 716–722, 10.1038/nnano.2014.156
56. Orlov AV, Burenin AG, **Shipunova VO**, Lizunova AA, Gorshkov BG, Nikitin PI (2014). Development of immunoassays using interferometric real-time registration of their kinetics. *Acta Naturae* 6 (1), 85–95, 10.32607/20758251-2014-6-1-85-95
57. **Shipunova VO**, Nikitin MP, Lizunova AA, Ermakova MA, Deyev SM, Petrov RV (2013). Polyethyleneimine-coated magnetic nanoparticles for cell labeling and modification. *Dokl Biochem Biophys* 452 (1), 245–247, 10.1134/S1607672913050062