Резюме: Водовозова Елена Львовна

Адрес

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

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Образование

2008	Россия, Москва	Институт биоорганической химии им. академиков М.М. Шемякина и Ю.А. Овчинникова РАН (ИБХ)	Диплом доктора химических наук "биохимия"
1985	Россия, Москва	Институт биоорганической химии имени М.М. Шемякина АН СССР (ИБХ)	Диплом кандидата химических наук по специальности «биохимия»
1975–1981	Россия, Москва	Московский государственный университет имени М.В. Ломоносова (МГУ), химический факультет	Диплом химика (с отличием)

Преподавание

Работа в ИБХ

2008–наст.вр.	Заведующий лабораторией
2019–наст.вр.	Главный научный сотрудник
2026–2026	Профессор

Членство в советах и комиссиях ИБХ

	Ученый совет

Научные интересы

Более 20 лет одним из главных направлений работы Е. Л. Водовозовой являются исследования в области создания систем направленной доставки лекарств на основе липосом, липидных производных противоопухолевых химиотерапевтических средств (липофильных пролекарств) и липофильных гликоконъюгатов (молекулярных адресов). Другое направление исследований, которое развивает Е. Л. Водовозова — это разработка фотоаффинных зондов с новым высокоэффективным фотофором (диазоциклопентадиен-2-илкарбонильной меткой).

Степени и звания

2007	Доктор наук (Химические науки, 03.00.04 — Биохимия)
1985	Кандидат наук (Химические науки, Биохимия)

Гранты и проекты

2021–	Белковая корона липосом и ее влияние на взаимодействия с клетками кровеносного русла

2024	
2021–2023	Разработка средств профилактики и лечения COVID-19 и сопутствующих инфекционных заболеваний с использованием генетических технологий
2021–2024	Белковая корона липосом и ее влияние на взаимодействия с клетками кровеносного русла
2020–2022	Разработка прототипа вакцинной конструкции для лечения и профилактики новой коронавирусной инфекции COVID-19 на основе липосом с набором Т-клеточных эпитопов
2019–2021	Взаимодействия противоопухолевых липосом, несущих в бислое липофильные пролекарства, с эндотелиальными клетками и белками плазмы в динамических условиях: биомоделирование в микроканале микрофлюидного устройства

Публикации

1. Fedorova OV, Ovchinnikova IG, Rusinov GL, Avdeeva VV, Zhdanov AP, Zhizhin KY, Kuznetsov NT, Zakharova LY, Kuznetsova DA, Razuvaeva YS, Zhiltsova EP, Sinyashin OG, Alekseeva AS, **Vodovozova EL**, Abdrakhmanova II, Ibrahim A, Solovyeva VV, Maltsev AV, Fisenko VP, Bachurin SO, Mikhailov YM, Aleksandrova YI, Shurpik DN, Stoikov II, Ziganshina AY, Solovieva SE, Antipin IS, Agafonov MA, Terekhova IV, Ilicheva PM, Pidenko PS, Burmistrova NA, Moustafine RI, Timergalieva VR, Zabolotnaya YN, Khutoryanskiy VV, Demin AM, Levit GL, Charushin VN, Krasnov VP, Goryacheva OA, Mayorova OA, Mesheryakova SM, Goryacheva IY, Ayupova AI, Fattakhova AA, Rizvanov AA, Inozemtseva OA, Gusliakova OI, Gorin DA, Gerasimov AV, Zubaidullina LS, Ziganshin MA, Valiulin SV, Onischuk AA, Bezrukov AN, Galyametdinov YG, Padnya PL, Nazarova AA, Sultanova ED, Burilov VA (2025). Modern Strategies of Drug Therapy: Multi-Target Drug Delivery, Bioimaging, Diagnostics. *RUSS J GEN CHEM* 95 (Suppl 1), S1–S448, 10.1134/S1070363225606726
2. Svirshchevskaya EV, Shchegravina ES, Gracheva IA, Konovalova MV, Akopov SB, Tretiakova DS, Rysina YD, Zapevalova MV, Schmalz HG, Koroev DO, Gavryushin AE, **Vodovozova EL**, Fedorov AY (2025). Hydrophilic and lipophilic colchicinoid formulations for therapy of liver fibrosis in murine model. *Bioorg Chem* 169, 109397, 10.1016/j.bioorg.2025.109397
3. Gaisin KS, Ryabukhina EV, Koroev DO, Mikhalyov II, Zhuravlev ES, Stepanov GA, Boldyrev IA, **Vodovozova EL** (2025). An Ionizable Cationic Lipid for Intracellular RNA Delivery. *Russ. J. Bioorganic Chem.* 51 (5), 1982–1989, 10.1134/S1068162025602149
4. Rubtsova M, Mokrushina Y, Andreev D, Poteshnova M, Shepelev N, Koryagina M, Moiseeva E, Malabuiok D, Prokopenko Y, Terekhov S, Chernov A, **Vodovozova E**, Smirnov I, Dontsova O, Gabibov A, Rubtsov Y (2025). A Luciferase-Based Approach for Functional Screening of 5′ and 3′ Untranslated Regions of the mRNA Component for mRNA Vaccines. *Vaccines (Basel)* 13 (5), 530, 10.3390/vaccines13050530
5. Ryabukhina E, Kobanenko M, Tretiakova D, Shchegravina E, Khaidukov S, Alekseeva A, Boldyrev I, Zgoda V, Tikhonova O, Fedorov AY, Onishchenko N, **Vodovozova E** (2025). Plasma protein corona of liposomes loaded with a phospholipid–allocolchicinoid conjugate enhances their anti-inflammatory potential. *Colloids Surf B Biointerfaces* 253, 114746, 10.1016/j.colsurfb.2025.114746
6. Shirokov A, Zlatogosrkaya D, Adushkina V, **Vodovozova E**, Kardashevskaya K, Sultanov R, Kasyanov S, Blokhina I, Terskov A, Tzoy M, Evsyukova A, Dubrovsky A, Tuzhilkin M, Elezarova I, Dmitrenko A, Manzhaeva M, Krupnova V, Semiachkina-Glushkovskaia A, Ilyukov E, Myagkov D, Tuktarov D, Popov S, Inozemzev T, Navolokin N, Fedosov I, Semyachkina-Glushkovskaya O (2024). Plasmalogens Improve Lymphatic Clearance of Amyloid Beta from Mouse Brain and Cognitive Functions. *Int J Mol Sci* 25 (23), , 10.3390/ijms252312552
7. Tretiakova DS, Volynsky PE, Kobanenko MK, Alekseeva AS, Le-Deygen IM, **Vodovozova EL**, Boldyrev IA (2024). Phosphatidylglycerol in lipid bilayer. Molecular recognition, conformational transitions, hydrogen bonding and microviscosity. *J Mol Liq* 411, , 10.1016/j.molliq.2024.125688

8. Navolokin N, Adushkina V, Zlatogorskaya D, Telnova V, Evsiukova A, **Vodovozova E**, Eroshova A, Dosadina E, Diduk S, Semyachkina-Glushkovskaya O (2024). Promising Strategies to Reduce the SARS-CoV-2 Amyloid Deposition in the Brain and Prevent COVID-19-Exacerbated Dementia and Alzheimer's Disease. *Pharmaceuticals (Basel)* 17 (6), 788, 10.3390/ph17060788
9. **Vodovozova EL** (2024). Editorial for Special Issue: Liposomal and Lipid-Based Drug Delivery Systems and Vaccines. *Pharmaceutics* 16 (2), , 10.3390/pharmaceutics16020238
10. Kobanenko M, Samofalov P, Kapitonova I, Alekseeva A, Kapkaeva M, Scheglovitova O, Tuzikov A, Tretiakova D, **Vodovozova E** (2024). Plasma Protein Adsorption on Melphalan Prodrug Bearing Liposomes - Bare, Stealth, and Targeted. *Drug Deliv Lett* 14 (4), 320–328, 10.2174/0122103031297263240612110749
11. Shchegravina ES, Tretiakova DS, Sitdikova AR, Usova SD, Boldyrev IA, Alekseeva AS, Svirshchevskaya EV, **Vodovozova EL**, Fedorov AY (2023). Design and preparation of pH-sensitive cytotoxic liposomal formulations containing antitumor colchicine analogues for target release. *J Liposome Res* 34 (3), 1–17, 10.1080/08982104.2023.2274428
12. Tretiakova DS, Azhikina TL, Boldyrev IA, Svirshchevskaya EV, **Vodovozova EL** (2023). Synthesis of Liposomes Conjugated with CpG-Oligonucleotide and Loaded with a Set of T-Cell Epitopes of the SARS-CoV-2 Virus. *Russ. J. Bioorganic Chem.* 49 (4), 905–911, 10.1134/S1068162023040210
13. Tretiakova D, Kobanenko M, Alekseeva A, Boldyrev I, Khaidukov S, Zgoda V, Tikhonova O, **Vodovozova E**, Onishchenko N (2023). Protein Corona of Anionic Fluid-Phase Liposomes Compromises Their Integrity Rather than Uptake by Cells. *Membranes (Basel)* 13 (7), 681, 10.3390/membranes13070681
14. Onishchenko NR, Moskovtsev AA, Kobanenko MK, Tretiakova DS, Alekseeva AS, Kolesov DV, Mikryukova AA, Boldyrev IA, Kapkaeva MR, Shcheglovitova ON, Bovin NV, Kubatiev AA, Tikhonova OV, **Vodovozova EL** (2023). Protein Corona Attenuates the Targeting of Antitumor Sialyl Lewis X-Decorated Liposomes to Vascular Endothelial Cells under Flow Conditions. *Pharmaceutics* 15 (6), 1754, 10.3390/pharmaceutics15061754
15. Boldyrev IA, Shendrikov VP, Vostrova AG, **Vodovozova EL** (2023). A Route to Synthesize Ionizable Lipid ALC-0315, a Key Component of the mRNA Vaccine Lipid Matrix. *Russ. J. Bioorganic Chem.* 49 (2), 412–415, 10.1134/S1068162023020061
16. Gretskaya N, Akimov M, Andreev D, Zalygin A, Belitskaya E, Zinchenko G, Fomina-Ageeva E, Mikhalyov I, **Vodovozova E**, Bezuglov V (2023). Multicomponent Lipid Nanoparticles for RNA Transfection. *Pharmaceutics* 15 (4), , 10.3390/pharmaceutics15041289
17. Tretiakova DS, Alekseeva AS, Onishchenko NR, Boldyrev IA, Egorova NS, Vasina DV, Gushchin VA, Chernov AS, Telegin GB, Kazakov VA, Plokhikh KS, Konovalova MV, Svirshchevskaya EV, **Vodovozova EL** (2023). Proof-of-Concept Study of Liposomes with a Set of SARS-CoV-2 Viral Peptidic T-Cell Epitopes as a Vaccine. *Russ. J. Bioorganic Chem.* 48 (S1), S23–S37, 10.1134/S1068162022060255
18. Semyachkina-Glushkovskaya O, Bragin D, Bragina O, Socolovski S, Shirokov A, Fedosov I, Ageev V, Blokhina I, Dubrovsky A, Telnova V, Terskov A, Khorovodov A, Elovenko D, Evsukova A, Zhoy M, Agranovich I, **Vodovozova E**, Alekseeva A, Kurths J, Rafailov E (2023). Low-Level Laser Treatment Induces the Blood-Brain Barrier Opening and the Brain Drainage System Activation: Delivery of Liposomes into Mouse Glioblastoma. *Pharmaceutics* 15 (2), 567, 10.3390/pharmaceutics15020567
19. Semyachkina-Glishkovskaya O, Shirokov A, Blokhina I, Telnova , **Vodovozova E**, Alekseeva A, Boldyrev I, Fedosov I, Dubrovsky A, Khorovodov A, Terskov A, Evsukova A, Elovenko D, Adushkina V, Tzoy M, Kurthz J, Rafilov E (2023). Intranasal Delivery of Liposomes to Glioblastoma by Photostimulation of the Lymphatic System. *Pharmaceutics* 15 (1), 36, 10.3390/pharmaceutics15010036
20. Tretiakova DS, **Vodovozova EL** (2022). Liposomes as Vaccine Delivery Systems and Adjuvants. *BIOL MEMBRANY* 39 (2), 85–106, 10.31857/S0233475522020074
21. Tretiakova D, Kobanenko M, Le-Deygen I, Boldyrev I, Kudryashova E, Onishchenko N, **Vodovozova E** (2022). Spectroscopy Study of Albumin Interaction with Negatively Charged Liposome Membranes: Mutual Structural Effects of the Protein and the Bilayers. *Membranes (Basel)* 12 (11), , 10.3390/membranes12111031
22. Tretiakova DS, **Vodovozova EL** (2022). Liposomes as Adjuvants and Vaccine Delivery Systems. *Biochemistry (Moscow), Supplement Series A: Membrane and Cell Biology* 16 (1), 1–20, 10.1134/S1990747822020076

23. Kobanenko MK, Tretiakova DS, Shchegravina ES, Antipova NV, Boldyrev IA, Fedorov AY, **Vodovozova EL**, Onishchenko NR (2022). Liposomal Formulation of a PLA2-Sensitive Phospholipid–Allocolchicinoid Conjugate: Stability and Activity Studies In Vitro. *Int J Mol Sci* 23 (3), 1034, 10.3390/ijms23031034
24. Semyachkina-Glushkovskaya O, Fedosov I, Shirokov A, **Vodovozova E**, Alekseeva A, Khorovodov A, Blokhina I, Terskov A, Mamedova A, Klimova M, Dubrovsky A, Ageev V, Agranovich I, Vinnik V, Tsven A, Sokolovski S, Rafailov E, Penzel T, Kurths J (2021). Photomodulation of lymphatic delivery of liposomes to the brain bypassing the blood-brain barrier: New perspectives for glioma therapy. *Nanophotonics* 10 (12), 3215–3227, 10.1515/nanoph-2021-0212
25. Gracheva IA, Tretiakova DS, Zamyshlyaeva OG, Kudriashova ES, **Vodovozova EL**, Fedorov AY, Boldyrev IA (2021). Cy5-Labeled Phosphatidylcholine. *Russ. J. Bioorganic Chem.* 47 (5), 1114–1117, 10.1134/S1068162021050265
26. Onishchenko N, Tretiakova D, **Vodovozova E** (2021). Spotlight on the Protein Corona of Liposomes. *Acta Biomater* 134, 57–78, 10.1016/j.actbio.2021.07.074
27. **(конференция)** Tretiakova DS, Le-Deygen I, Kudryashova E, **Vodovozova EL** (2021). Serum albumin penetration in the fluid lipid bilayer of liposomes loaded with a melphalan lipophilic prodrug can be prevented by inclusion of phosphatidylinositol or ganglioside GM1. *FEBS Open Bio 11 (Suppl. 1) 2021, 256* 11, 256, 10.1002/2211-5463.13205
28. Tuzikov AB, Ryabukhina EV, Paramonov AS, Chizhov AO, Bovin NV, **Vodovozova EL** (2021). A convenient route to conjugates of 1,2-diglycerides with functionalized oligoethylene glycol spacer arms. *MENDELEEV COMMUN* 31 (4), 538–541, 10.1016/j.mencom.2021.07.034
29. Alekseeva AS, Volynsky PE, Krylov NA, Chernikov VP, **Vodovozova EL**, Boldyrev IA (2021). Phospholipase A2 way to hydrolysis: Dint formation, hydrophobic mismatch, and lipid exclusion. *BIOCHIM BIOPHYS ACTA* 1863 (1), 183481, 10.1016/j.bbamem.2020.183481
30. Tretiakova D, Le-Deigen I, Onishchenko N, Kuntsche J, Kudryashova E, **Vodovozova E** (2021). Phosphatidylinositol stabilizes fluid-phase liposomes loaded with a melphalan lipophilic prodrug. *Pharmaceutics* 13 (4), , 10.3390/pharmaceutics13040473
31. Tretiakova DS, Khaidukov SV, Babayants AA, Frolova IS, Shcheglovitova ON, Onishchenko NR, **Vodovozova EL** (2020). Lipophilic Prodrug of Methotrexate in the Membrane of Liposomes Promotes Their Uptake by Human Blood Phagocytes. *Acta Naturae* 12 (1), 99–109, 10.32607/actanaturae.10946
32. Tretiakova D, Svirshchevskaya E, Onishchenko N, Alekseeva A, Boldyrev I, Kamyshinsky R, Natykan A, Lokhmotov A, Arantseva D, Shobolov D, **Vodovozova E** (2020). Liposomal Formulation of a Melphalan Lipophilic Prodrug: Studies of Acute Toxicity, Tolerability, and Antitumor Efficacy. *Curr Drug Deliv* 17 (4), 312–323, 10.2174/1567201817666200214105357
33. Shchegravina ES, Tretiakova DS, Alekseeva AS, Galimzyanov TR, Utkin YN, Ermakov YA, Svirshchevskaya EV, Negrebetsky VV, Karpechenko NY, Chernikov VP, Onishchenko NR, **Vodovozova EL**, Fedorov AY, Boldyrev IA (2019). Phospholipidic Colchicinoids as Promising Prodrugs Incorporated into Enzyme-Responsive Liposomes: Chemical, Biophysical, and Enzymological Aspects. *Bioconjug Chem* 30 (4), 1098–1113, 10.1021/acs.bioconjchem.9b00051
34. Tretiakova DS, Alekseeva AS, Galimzyanov TR, Boldyrev AM, Chernyadyev AY, Ermakov YA, Batishchev OV, **Vodovozova EL**, Boldyrev IA (2018). Lateral stress profile and fluorescent lipid probes. FRET pair of probes that introduces minimal distortions into lipid packing. *BIOCHIM BIOPHYS ACTA* 1860 (11), 2337–2347, 10.1016/j.bbamem.2018.05.020
35. Arantseva DA, **Vodovozova EL** (2018). Platinum-Based Antitumor Drugs and Their Liposomal Formulations in Clinical Trials. *Russ. J. Bioorganic Chem.* 44 (6), 619–630, 10.1134/S1068162018060031
36. 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
37. Zhang C, Feng WEI, **Vodovozova E**, Tretiakova D, Boldyrevd I, Li Y, Kürths J, Yu T, Semyachkina-Glushkovskaya O, Zhu DAN (2018). Photodynamic opening of the blood-brain barrier to high weight molecules and liposomes through an optical clearing skull window. *Biomed Opt Express* 9 (10), 4850, 10.1364/BOE.9.004850
38. Tretiakova D, Onishchenko N, Boldyrev I, Mikhalyov I, Tuzikov A, Bovin N, Evtushenko E, **Vodovozova E**

(2018). Influence of stabilizing components on the integrity of antitumor liposomes loaded with lipophilic prodrug in the bilayer. *Colloids Surf B Biointerfaces* 166, 45–53, 10.1016/j.colsurfb.2018.02.061

39. Tretiakova DS, Onishchenko NR, Vostrova AG, **Vodovozova EL** (2017). Interactions of liposomes carrying lipophilic prodrugs in the bilayer with blood plasma proteins. *Russ. J. Bioorganic Chem.* 43 (6), 678–689, 10.1134/S1068162017060139
40. Alekseeva AS, Tretiakova DS, Chernikov VP, Utkin YN, Molotkovsky JG, **Vodovozova EL**, Boldyrev IA (2017). Heterodimeric V. nikolskii phospholipases A2 induce aggregation of the lipid bilayer. *Toxicon* 133, 169–179, 10.1016/j.toxicon.2017.05.015
41. Alekseeva AA, Moiseeva EV, Onishchenko NR, Boldyrev IA, Singin AS, Budko AP, Shprakh ZS, Molotkovsky JG, **Vodovozova EL** (2017). Liposomal formulation of a methotrexate lipophilic prodrug: Assessment in tumor cells and mouse T-cell leukemic lymphoma. *Int J Nanomedicine* 12, 3735–3749, 10.2147/IJN.S133034
42. Третьякова ДС, Онищенко НР, Вострова АГ, **Водовозова ЕЛ** (2017). Взаимодействия противоопухолевых липосом, несущих липофильные пролекарства в бислое, с белками плазмы крови. 43 (6), 661–673, 10.7868/S0132342317060100
43. German SV, Navolokin NA, Kuznetsova NR, Zuev VV, Inozemtseva OA, Aniskov AA, Volkova EK, Bucharskaya AB, Maslyakova GN, Fakhrullin RF, Terentyuk GS, **Vodovozova EL**, Gorin DA (2015). Liposomes loaded with hydrophilic magnetite nanoparticles: Preparation and application as contrast agents for magnetic resonance imaging. *Colloids Surf B Biointerfaces* 135, 109–115, 10.1016/j.colsurfb.2015.07.042
44. Privalova AM, Uglanova SV, Kuznetsova NR, Klyachko NL, Golovin YI, Korenkov VV, **Vodovozova EL**, Markvicheva EA (2015). Microencapsulated multicellular tumor spheroids as a tool to test novel anticancer nanosized drug delivery systems in vitro. *J Nanosci Nanotechnol* 15 (7), 4806–4814, 10.1166/jnn.2015.10508
45. Alekseeva A, Kapkaeva M, Shcheglovitova O, Boldyrev I, Pazynina G, Bovin N, **Vodovozova E** (2015). Interactions of antitumour Sialyl Lewis X liposomes with vascular endothelial cells. *BIOCHIM BIOPHYS ACTA* 1848 (5), 1099–1110, 10.1016/j.bbamem.2015.01.016
46. Alekseeva AS, Korotaeva AA, Samoilova EV, Volynsky PE, **Vodovozova EL**, Boldyrev IA (2014). Secretory phospholipase A2 activity in blood serum: The challenge to sense. *Biochem Biophys Res Commun* 454 (1), 178–182, 10.1016/j.bbrc.2014.10.069
47. Kuznetsova NR, Stepanova EV, Peretolchina NM, Khochenkov DA, Boldyrev IA, Bovin NV, **Vodovozova EL** (2014). Targeting liposomes loaded with melphalan prodrug to tumour vasculature via the Sialyl Lewis X selectin ligand. *J Drug Target* 22 (3), 242–250, 10.3109/1061186X.2013.862805
48. Kuznetsova NR, **Vodovozova EL** (2014). Differential binding of plasma proteins by liposomes loaded with lipophilic prodrugs of methotrexate and melphalan in the bilayer. *Biochemistry (Mosc)* 79 (8), 797–804, 10.1134/S0006297914080070
49. Vlasenko YV, Alekseeva AS, **Vodovozova EL** (2014). Synthesis of a fluorescent analogue of methotrexate lipophilic prodrug. *Russ. J. Bioorganic Chem.* 40 (1), 114–117, 10.1134/S1068162014010129
50. Malysheva YB, Voitovich YV, Sharonova EA, Combes S, Svirshchevskaya EV, **Vodovozova EL**, Fedorov AY (2013). Novel water-soluble anticancer agents derived from 4-arylcoumarins. *Russ Chem Bull* 62 (4), 1103–1110, 10.1007/s11172-013-0149-3
51. Krasnov VP, Korolyova MA, **Vodovozova EL** (2013). Nano-sized melphalan and sarcolysine drug delivery systems: Synthesis and prospects of application. *RUSS CHEM REV* 82 (8), 783–814, 10.1070/RC2013v082n08ABEH004358
52. Kuznetsova NR, Svirshchevskaya EV, Sitnikov NS, Abodo L, Sutorius H, Zapke J, Velder J, Thomopoulou P, Oschkinat H, Prokop A, Schmalz HG, Fedorov AY, **Vodovozova EL** (2013). Lipophilic prodrugs of a triazole-containing colchicine analogue in liposomes: Biological effects on human tumor cells. *Russ. J. Bioorganic Chem.* 39 (5), 543–552, 10.1134/S1068162013050105
53. Kuznetsova NR, Svirshchevskaya EV, Skripnik IV, Zarudnaya EN, Benke AN, Gaenko GP, Molotkovskii YG, **Vodovozova EL** (2013). Interaction of liposomes bearing a lipophilic doxorubicin prodrug with tumor cells. *Biochem (Mosc) Suppl Ser A Membr Cell Biol* 7 (1), 12–20, 10.1134/S1990747812050108
54. Kuznetsova NR, Svirshchevskaya EV, Sitnikov NS, Abodo L, Sutorius H, Zapke J, Velder J, Thomopoulou P, Oschkinat H, Prokop A, Schmalz HG, Fedorov AY, **Vodovozova EL** (2013). Lipophilic prodrugs of a triazole-containing colchicine analogue in liposomes: biological effects on human tumor cells. *Bioorg Khim* 39 (5), 609–618, 10.7868/S0132342313050102

55. Kuznetsova NR, Svirshchevskaya EV, Skripnik IV, Zarudnaya EN, Benke AN, Gaenko GP, Molotkovsky JG, **Vodovozova EL** (2012). Interaction of the liposomes bearing lipophilic doxorubicin derivative in the lipid bilayer with tumor cells. *BIOL MEMBRANY* 29 (5), 329–339.
56. Kuznetsova NR, Sevrin C, Lespineux D, Bovin NV, **Vodovozova EL**, Mészáros T, Szebeni J, Grandfils C (2012). Hemocompatibility of liposomes loaded with lipophilic prodrugs of methotrexate and melphalan in the lipid bilayer. *J Control Release* 160 (2), 394–400, 10.1016/j.jconrel.2011.12.010
57. Moiseeva EV, Kuzitetsova NR, Svirshchevskaya EV, Bovin NV, Sitnikov NS, Shavyrin AS, Beletskaya IP, Combes S, Fedorov AY, **Vodovozova EL** (2012). Liposome formulations of combretastatin A4 and 4-arylcoumarin analog prodrugs: Antitumor effect in the mouse model of breast cancer. *Biomed Khim* 58 (3), 326–338, 10.18097/pbmc20125803326
58. **Vodovozova EL**, Pazynina GV, Bovin NV (2011). Synthesis of diglyceride conjugate of selectin ligand SiaLeX as a vector for targeting of drug-loaded liposomes. *MENDELEEV COMMUN* 21 (2), 69–71, 10.1016/j.mencom.2011.03.002
59. Sitnikov NS, Boldyrev IA, Moiseeva EV, Shavyrin AS, Beletskaya IP, Combes S, Bovin NV, Fedorov AY, **Vodovozova EL** (2010). Antitumor liposomes bearing a prodrug of combretastatin A-4 and a tetrasaccharide ligand of selectins. *Russ Chem Bull* 59 (12), 2290–2296, 10.1007/s11172-010-0390-y
60. Tsoy AM, Zaytseva-Zotova DS, Edelweiss EF, Bartkowiak A, Goergen JL, **Vodovozova EL**, Markvicheva EA (2010). Microencapsulated multicellular tumor spheroids as a novel in vitro model for drug screening. *Biochemistry (Moscow) Supplement Series B: Biomedical Chemistry* 4 (3), 243–250, 10.1134/S1990750810030054
61. Kuznetsova N, Bovin N, Sevrin C, Lespineux D, Grandfils C, **Vodovozova E** (2010). Hemocompatibility of liposomes loaded with diglyceride esters of methotrexate and melphalan. *Eur Cell Mater* 20 (3), 152.
62. Tsoy AM, Zaytseva-Zotova DS, Edelweiss EF, Bartkowiak A, Goergen JL, **Vodovozova EL**, Markvicheva EA (2010). Microencapsulated multicellular tumor spheroids: Preparation and use as a novel in vitro model for drug screening. *Biomed Khim* 56 (6), 674–685, 10.18097/pbmc20105606674
63. Gaenko GP, Moiseeva EV, Savelev OY, Molotkovskii YG, **Vodovozova EL** (2009). Antitumor activity of the lipid fraction of the spores of an anaerobic bacterium Clostridium butyricum. *Microbiology* 78 (5), 580–584, 10.1134/S0026261709050087
64. Kuznetsova NR, Gaenko GP, Haidukov SV, Bovin NV, **Vodovozova EL** (2009). The influence of carbohydrate ligands on the cytotoxicity of liposomes bearing a methotrexate-diglyceride conjugate in human acute leukemia cell cultures. *Russ. J. Bioorganic Chem.* 35 (4), 490–496, 10.1134/S1068162009040116
65. Kuznetsova N, Kandyba A, Vostrov I, Kadykov V, Gaenko G, Molotkovsky J, **Vodovozova E** (2009). Liposomes loaded with lipophilic prodrugs of methotrexate and melphalan as convenient drug delivery vehicles. *J Drug Deliv Sci Technol* 19 (1), 51–59, 10.1016/S1773-2247(09)50007-X
66. **Vodovozova EL** (2008). Liposomes as nanocarriers of lipid-conjugated antitumor drugs melphalan and methotrexate. Nanotechnol Russia. *Nanotechnol Russ* 3 (3-4), 226–237, DOI:10.1134/S1995078008030105
67. Parfinovich EV, Mochalova LV, Molotkovsky YG, Bovin NV, **Vodovozova EL** (2008). Identification of a new carbohydrate-binding site of influenza virus. *Russ. J. Bioorganic Chem.* 34 (5), 642–646, 10.1134/S1068162008050154
68. Kholodenko IV, Kholodenko RV, **Vodovozova EL**, Oleinikov VA, Polyakov NB, Molotkovskaya IM, Petrov RV (2008). Ganglioside GM1-binding sites in Interleukin-4: A photoaffinity labeling study. *Dokl Biochem Biophys* 418 (1), 31–35, 10.1007/s10628-008-1008-2
69. **Vodovozova EL**, Kuznetsova NR, Gaenko GP, Molotkovsky JG (2007). Liposomal formulation of a methotrexate diglyceride conjugate: Activity toward a culture of methotrexate-resistant leukemia cells. *Russ. J. Bioorganic Chem.* 33 (4), 436–438, 10.1134/S1068162007040103
70. **Vodovozova EL**, Gaenko GP, Bobrikova ES, Pazynina GV, Molotkovskii YG (2007). A diglyceride derivative of methotrexate: Synthesis and cytotoxic activity in addressed liposomes. *PHARM CHEM J* 41 (6), 297–301, 10.1007/s11094-007-0067-5
71. **Vodovozova EL** (2007). Photoaffinity labeling and its application in structural biology. *Biochemistry (Mosc)* 72 (1), 1–20, 10.1134/S0006297907010014
72. Kholodenko IV, **Vodovozova EL**, Molotkovsky JG, Kholodenko RV, Vasilenko RN, Mikhalyov II, Molotkovskaya IM (2006). Interaction of different interleukin-2 and -4 receptor subunits with ganglioside GM1

in activated T lymphocytes. *BIOL MEMBRANY* 23 (1), .
73. **Vodovozova EL**, Gordienko AV, Gaenko GP, Pazynina GV, Bovin NV, Molotkovsky JG (2005). Detection of the tumor cell lectins with the help of photoaffine labeling. *BIOL MEMBRANY* 22 (4), 308–321.
74. **Vodovozova EL**, Evdokimov DV, Molotkovsky JG (2004). Synthesis of a lipid derivative of the antitumor agent methotrexate. *Russ. J. Bioorganic Chem.* 30 (6), 599–601, 10.1023/B:RUBI.0000049779.60159.c5
75. **Vodovozova EL**, Nazarova AI, Feofanov AV, Kholodenko RV, Pazynina GV, Gaenko GP, Bovin NV, Molotkovsky JG (2004). Interaction of Liposomes Bearing Carbohydrate Determinants with Melanoma Cells. *BIOL MEMBRANY* 21 (1), 53–64.
76. **Vodovozova EL**, Pazynina GV, Tuzikov AB, Grechishnikova IV, Molotkovskiĭ IG (2004). Synthesis of photoreactive inorganic probes--instruments for studying membrane lectins. *Bioorg Khim* 30 (2), 174–181.
77. **Vodovozova EL**, Pazynina GV, Tuzikov AB, Grechishnikova IV, Molotkovsky JG (2004). The synthesis of photoaffinity neoglycolipid probes as tools for studying membrane lectins. *Russ. J. Bioorganic Chem.* 30 (2), 154–160, 10.1023/B:RUBI.0000023101.76277.a1
78. Tsibizova EV, **Vodovozova EL**, Mikhalyov II, Molotkovsky YG (2002). Synthesis of new photoaffine probes on the basis of ganglioside GM1. *Russ. J. Bioorganic Chem.* 28 (2), 152–157, 10.1023/A:1015025609230
79. Zaitseva LG, Ovchinnikova TV, **Vodovozova EL**, Molotkovsky YG, Polyakov NB, Titov MI, Esipov SE, Grinkevich VA (2002). Mitochondrial H+-ATPase: Identification of subunits of the F0subcomplex that contact membrane lipids. *Russ. J. Bioorganic Chem.* 28 (5), 371–384, 10.1023/A:1020415927018
80. Zaĭtseva LG, Ovchinnikova TV, **Vodovozova EL**, Molotkovskiĭ IG, Poliakov NB, Titov MI, Esipov SE, Grinkevich VA (2002). Mitochondrial H+-ATPase: identification of subunits of the F0 subcomplex contacting with membrane lipids. *Bioorg Khim* 28 (5), 411–425.
81. Tsibizova EV, **Vodovozova EL**, Mikhalev II, Molotkovsky YG (2002). Synthesis of new photoaffine probes on the basis of ganglioside GM1. *Bioorg Khim* 28 (2), 178–179.
82. **Vodovozova EL**, Tsibizova EV, Molotkovsky JG (2001). One-step iodination of the diazocyclopentadien-2-ylcarbonyl group - A new and convenient preparation of effective radiolabelled photoaffinity probes. *J Chem Soc Perkin 1* 1 (18), 2221–2228, 10.1039/b104945n
83. **Vodovozova EL**, Moiseeva EV, Grechko GK, Gayenko GP, NifantEv NE, Bovin NV, Molotkovsky JG (2000). Antitumour activity of cytotoxic liposomes equipped with selectin ligand SiaLe(X), in a mouse mammary adenocarcinoma model. *Eur J Cancer Clin Oncol* 36 (7), 942–949, 10.1016/S0959-8049(00)00029-0
84. **Vodovozova EL**, Tsibizova EV, Molotkovsky JG (1998). The iodination of diazocyclopentadiene-2-carbonyl substituent. *Russ. J. Bioorganic Chem.* 24 (4), 280–281.
85. **Vodovozova EL**, Khaidukov SV, Gaenko GP, Bondarchuk TN, Mikhalev II, Grechishnikova IV, Molotkovsky JG (1998). The transport of cytotoxic liposomes to malignant cells by means of carbohydrate determinants. *Russ. J. Bioorganic Chem.* 24 (10), 676–682.
86. **Vodovozova EL**, Gayenko GP, Razinkov VI, Korchagina EY, Bovin NV, Molotkovsky JG (1998). Saccharide-assisted delivery of cytotoxic liposomes to human malignant cells. *Biochem Mol Biol Int* 44 (3), 543–553, 10.1080/15216549800201582
87. **Vodovozova EL**, Khaidukov SV, Gaenko GP, Bondarchuk TN, Mikhalev II, Grechishnikova IV, Molotkovsky JG (1998). The Transport of Cytotoxic Liposomes to Malignant Cells by Means of Carbohydrate Determinants. *Bioorg Khim* 24 (10), 767.
88. Moiseeva EV, **Vodovozova EL**, Mikhalyov II, Molotkovsky JG (1997). Testing of liposomal formulations of DL-melphalan and rubomycin lipid derivatives on new breast cancer mouse model. *Mouse Genome* 95 (4), 895–897.
89. **Vodovozova EL**, Nikolskii PY, Mikhalev II, Molotkovsky YG (1996). Lipid derivatives of sarcolysine, methotrexate, and rubomycin. *Russ. J. Bioorganic Chem.* 22 (7), 468–475.
90. **Vodovozova EL**, Pavlova YB, Polushkina MA, Rzhaninova AA, Garaev MM, Molotkovsky JG (1996). Novel phospholipid inhibitors of human immunodeficiency virus replication: Synthesis and antiviral activity. *Russ. J. Bioorganic Chem.* 22 (6), 390–396.
91. **Vodovozova EL**, Pavlova YB, Polushkina MA, Rzhaninova AA, Garaev MM, Molotkovsky JG (1996). Novel Phospholipid Inhibitors of Human Immunodeficiency Virus Replication: Synthesis and Antiviral Activity. *Bioorg Khim* 22 (6), 457.
92. **Vodovozova EL**, Molotkovsky JG (1994). A novel catalyst for O-acylation in lipid chemistry. *Tetrahedron Lett*

35 (12), 1933–1936, 10.1016/S0040-4039(00)73199-6
93. UVAROV VY, SOTNICHENKO AI, **VODOVOZOVA EL**, MOLOTKOVSKY JG, KOLESANOVA EF, LYULKIN YA, STIER A, KRUEGER V, ARCHAKOV AI (1994). Determination of membrane-bound fragments of cytochrome P-450 2B4. *FEBS J* 222 (2), 483–489, 10.1111/j.1432-1033.1994.tb18889.x
94. Manevich EM, Martynova MA, Muzya GI, **Vodovozova EL**, Molotkovsky JG, Bergeison LD (1988). The interaction of prostaglandins with serum low-density lipoproteins. *Biochim Biophys Acta* 963 (2), 302–310, 10.1016/0005-2760(88)90295-0
95. Martynova MA, Manevich EM, **Vodovozova EL**, Muzya GI, Bezuglov VV, Molotkovsky Yu G, Bergelson LD (1988). Interaction of prostaglandins with human plasma low density lipoproteins. *Biochemistry (Mosc)* 53 (5), 721–727.
96. Slepushkin VA, Starov AI, Bukrinskaya AG, Imbs AB, Martynova MA, Kogtev LS, **Vodovozova EL**, Timofeeva NG, Molotkovsky JG, Bergelson LD (1988). Interaction of influenza virus with gangliosides and liposomes containing gangliosides. *Eur J Biochem* 173 (3), 599–605, 10.1111/j.1432-1033.1988.tb14041.x
97. Bukrinskaya AG, Molotkovsky JG, **Vodovozova EL**, Manevich YM, Bergelson LD (1987). The molecular organization of the influenza virus surface. Studies using photoreactive and fluorescent labeled phospholipid probes. *BIOCHIM BIOPHYS ACTA* 897 (2), 285–292, 10.1016/0005-2736(87)90424-X
98. **VODOVOZOVA EL**, VOROBYEVA , KOMISSAROV , Nazarova , Avaeva (1982). Production of inorganic pyrophosphatase preparations with modified active and regulatory centers. *Izdatel'stva Nauka* 8 (2), 187–190.