

Curriculum vitae: Elena Vodovozova



Address

Shemyakin–Ovchinnikov Institute of bioorganic chemistry RAS, Moscow, Russia

Contacts

elvod@lipids.ibch.ru
+7(495)330-66-10
<https://www.ibch.ru/en/users/16>

Education

2008	Russia, Moscow	M.M. Shemyakin and Yu.A. Ovchinnikov Institute of Bioorganic Chemistry RAS	DSc in chemistry, biochemistry
1985	Russia, Moscow	M.M. Shemyakin and Institute of Bioorganic Chemistry AS USSR	PhD in biochemistry
1975–1981	Russia, Moscow	M.V. Lomonosov Moscow State University (chemical faculty)	Ms in chemistry (Cum laude)

Teaching

IBCh positions

2008–to date	Head of Laboratory
2019–to date	Principal research fellow
2026–2026	Professor

IBCh memberships

Scientific council

Scientific interests

Dr. Vodovozova has specialized in the design of targeted drug delivery systems (nanocarriers) on the basis of liposomes, lipid derivatives of anticancers (lipophilic prodrugs) and lipophilic glycoconjugates (vectors) from the middle of 1990 years. Another field of the research, which she has developed, relates to the synthesis of photoaffinity probes bearing new high-performance photophore — diazocyclopentadien-2-ylcarbonyl group.

Titles

2007	Doctor of Science (Chemistry)
1985	Doctor of Philosophy (Chemistry)

Grants and projects

2021–2024	-Белковая корона липосом и ее влияние на взаимодействия с клетками кровеносного русла
2021–2023	Development of means of prevention and treatment of COVID-19 and concomitant infectious diseases using genetic technologies

2021– [Protein corona of liposomes and its effect on interactions with cells of the bloodstream](#)
2024

2020– [Development of a prototype vaccine design for the treatment and prevention of a new coronavirus](#)
2022 [infection COVID-19 based on liposomes with a set of T-cell epitopes](#)

2019– [Interactions of antitumor liposomes carrying lipophilic prodrugs in the bilayer with endothelial cells and](#)
2021 [blood plasma proteins under dynamic conditions: biomodelling in a microchannel of a microfluidic device](#)

Publications

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, Malabuik 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–allocalchicinoid conjugate enhances their anti-inflammatory potential. *Colloids Surf B Biointerfaces* 253, 114746, [10.1016/j.colsurfb.2025.114746](#)
6. Shirokov A, Zlatogorskaya 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, Manzhayeva M, Krupnova V, Semiachkina-Glushkovskaya 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1134/S1068162023020061)
16. Gretskeya 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](https://doi.org/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](https://doi.org/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](https://doi.org/10.3390/pharmaceutics15020567)
19. Semyachkina-Glushkovskaya 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, Rafailov E (2023). Intranasal Delivery of Liposomes to Glioblastoma by Photostimulation of the Lymphatic System. *Pharmaceutics* 15 (1), 36, [10.3390/pharmaceutics15010036](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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–Allocholchicinoid Conjugate: Stability and Activity Studies In Vitro. *Int J Mol Sci* 23 (3), 1034, [10.3390/ijms23031034](https://doi.org/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](https://doi.org/10.1515/nanoph-2021-0212)
25. Gracheva IA, Tretiakova DS, Zamyshlyayeva OG, Kudryashova ES, **Vodovozova EL**, Fedorov AY, Boldyrev IA (2021). Cy5-Labeled Phosphatidylcholine. *Russ. J. Bioorganic Chem.* 47 (5), 1114–1117, [10.1134/S1068162021050265](https://doi.org/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](https://doi.org/10.1016/j.actbio.2021.07.074)
 27. **(conference)** 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1134/S1068162019010023)
 37. Zhang C, Feng WEI, **Vodovozova E**, Tretiakova D, Boldyrev 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1016/j.bbamem.2015.01.016)
 46. Alekseeva AS, Korotaeva AA, Samoiloa 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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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-aryl coumarins. *Russ Chem Bull* 62 (4), 1103–1110, [10.1007/s11172-013-0149-3](https://doi.org/10.1007/s11172-013-0149-3)
 51. Krasnov VP, Korolyova MA, **Vodovozova EL** (2013). Nano-sized melphalan and sarcosine drug delivery systems: Synthesis and prospects of application. *RUSS CHEM REV* 82 (8), 783–814, [10.1070/RC2013v082n08ABEH004358](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1016/j.jconrel.2011.12.010)

57. Moiseeva EV, Kuzitsetsova 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-aryl coumarin analog prodrugs: Antitumor effect in the mouse model of breast cancer. *Biomed Khim* 58 (3), 326–338, [10.18097/pbmc20125803326](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1134/S1068162009040116)
65. Kuznetsova N, Kandyba A, Vostrov I, Kadykov V, Gaenko G, Molotkovskiy 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](https://doi.org/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](https://doi.org/10.1134/S1995078008030105)
67. Parfinovich EV, Mochalova LV, Molotkovskiy 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](https://doi.org/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](https://doi.org/10.1007/s10628-008-1008-2)
69. **Vodovozova EL**, Kuznetsova NR, Gaenko GP, Molotkovskiy 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](https://doi.org/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](https://doi.org/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](https://doi.org/10.1134/S0006297907010014)
72. Kholodenko IV, **Vodovozova EL**, Molotkovskiy 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, Molotkovskiy 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, Molotkovskiy 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](https://doi.org/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, Molotkovskii 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:RUJI.0000023101.76277.a1](https://doi.org/10.1023/B:RUJI.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](https://doi.org/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 F₀ subcomplex that contact membrane lipids. *Russ. J. Bioorganic Chem.* 28 (5), 371–384, [10.1023/A:1020415927018](https://doi.org/10.1023/A:1020415927018)
 80. Zaitseva LG, Ovchinnikova TV, **Vodovozova EL**, Molotkovskii 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 diazocyclopentadiene-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](https://doi.org/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](https://doi.org/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](https://doi.org/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 sarcosine, methotrexate, and rubomycin. *Russ. J. Bioorganic Chem.* 22 (7), 468–475.
 90. **Vodovozova EL**, Pavlova YB, Polushkina MA, Rzhabinina 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, Rzhabinina 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](https://doi.org/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](https://doi.org/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](https://doi.org/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. Slepishkin 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](https://doi.org/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](https://doi.org/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.