Curriculum vitae: Diana Maltseva



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Education

2005–2008	Russian Federation	Department of Chemistry, Lomonosov Moscow State University	PhD
2000–2005	Russian Federation	Department of Chemistry, Lomonosov Moscow State University	Master's degree, diploma magna cum laude

IBCh positions

2020–to date	Leading research fellow	

Language Proficiency

Russian, English

Scientific interests

- Molecular mechanisms of the dissemination and metastasis of cancer;
- Role of extracellular matrix in cancer;
- Role of extracellular matrix in metastasis;
- Cell adhesion;
- Role of cell adhesion molecules in metastasis;
- Organ-on-a-chip microphysiological system;
- Human intestine in vitro model;
- Epigenetic regulation of gene expression, miRNAs, DNA methylation.

Titles

	Doctor of Philosophy (Chemistry)

Grants and projects

2019–2023	Microfluidic technologies for the search of physiologically active metabolites, microbiotic agents, diagnosis of autoimmune and oncological diseases

Publications

1. **Maltseva D**, Tonevitsky A (2026). Molecular mechanisms regulating differential expression of individual miRNAs within polycistronic clusters. *Front Mol Biosci* 13, 1913118, 10.3389/fmolb.2026.1913118
2. Zhiyanov A, Kirillov I, Suvorov R, **Maltseva D**, Tonevitsky A (2026). Targetome profile of hsa-miR-93-5p is resistant to isoform formation in prostate adenocarcinoma. *PeerJ* 14, e20642, 10.7717/peerj.20642

3. Yanova M, **Maltseva D**, Tonevitsky A (2025). Sidedness matters: single-cell perspectives on left- and right-sided colorectal cancer. *Front Cell Dev Biol* 13, 1720996, 10.3389/fcell.2025.1720996
4. **Maltseva D**, Zhiyanov A, Lange T, Tonevitsky A (2025). CD44 knockdown alters miRNA expression and their target genes in colon cancer. *Front Immunol* 16, 1552665, 10.3389/fimmu.2025.1552665
5. **Maltseva D**, Nersisyan A, Tonevitsky A (2025). Interplay of integrins and selectins in metastasis.*Mol Oncol* 19 (6), 1582–1611, 10.1002/1878-0261.70026
6. Yanova M, Stepanova E, **Maltseva D**, Tonevitsky A (2025). CD44 variant exons induce chemoresistance by modulating cell death pathways. *Front Cell Dev Biol* 13, 1508577, 10.3389/fcell.2025.1508577
7. **Maltseva D**, Kirillov I, Zhiyanov A, Averinskaya D, Suvorov R, Gubani D, Kudriaeva A, Belogurov A, Tonevitsky A (2024). Incautious design of shRNAs for stable overexpression of miRNAs could result in generation of undesired isomiRs. *BIOCHIM BIOPHYS ACTA* 1867 (3), 195046, 10.1016/j.bbagrm.2024.195046
8. Makarova J, **Maltseva D**, Tonevitsky A (2023). Challenges in characterization of transcriptomes of extracellular vesicles and non-vesicular extracellular RNA carriers. *Front Mol Biosci* 10, 1327985, 10.3389/fmolb.2023.1327985
9. **Maltseva DV**, Tonevitsky AG (2023). RNA-binding proteins regulating the CD44 alternative splicing. *Front Mol Biosci* 10, 1326148, 10.3389/fmolb.2023.1326148
10. Everest-Dass A, Nersisyan S, Maar H, Novosad V, Schröder-Schwarz J, Freytag V, Stuke JL, Beine MC, Schiecke A, Haider MT, Kriegs M, Elakad O, Bohnenberger H, Conradi LC, Raygorodskaya M, Krause L, von Itzstein M, Tonevitsky A, Schumacher U, **Maltseva D**, Wicklein D, Lange T (2023). Spontaneous metastasis xenograft models link CD44 isoform 4 to angiogenesis, hypoxia, EMT and mitochondria-related pathways in colorectal cancer. *Mol Oncol* 18 (1), 62–90, 10.1002/1878-0261.13535
11. Novosad VO, **Maltseva DV** (2023). The RNA-Binding Proteins OAS1, ZFP36L2, and DHX58 Are Involved in the Regulation of CD44 mRNA Splicing in Colorectal Cancer Cells. *Bull Exp Biol Med* 175 (1), 144–149, 10.1007/s10517-023-05826-x
12. Nersisyan S, Zhiyanov A, Engibaryan N, **Maltseva D**, Tonevitsky A (2022). A novel approach for a joint analysis of isomiR and mRNA expression data reveals features of isomiR targeting in breast cancer. *Front Genet* 13, 1070528, 10.3389/fgene.2022.1070528
13. Shilova N, Bovin N, **Maltseva D**, Polyakova S, Sablina M, Niwa H, Zakharova G, Raygorodskaya M, Bufeeva L, Belyi Y, Hushpulian D, Tonevitsky A (2022). Specificity of viscumin revised. As probed with a printed glycan array. *Biochimie* 202, 94–102, 10.1016/j.biochi.2022.08.009
14. Volynsky P, **Maltseva D**, Tabakmakher V, Bocharov EV, Raygorodskaya M, Zakharova G, Britikova E, Tonevitsky A, Efremov R (2022). Differences in Medium-Induced Conformational Plasticity Presumably Underlie Different Cytotoxic Activity of Ricin and Viscumin. *Biomolecules* 12 (2), , 10.3390/biom12020295
15. Knyazev E, **Maltseva D**, Raygorodskaya M, Shkurnikov M (2021). HIF-Dependent NFATC1 Activation Upregulates ITGA5 and PLAUR in Intestinal Epithelium in Inflammatory Bowel Disease. *Front Genet* 12, 791640, 10.3389/fgene.2021.791640
16. **Maltseva DV**, Poloznikov AA, Artyushenko VG (2020). Selective changes in expression of integrin α-subunits in the intestinal epithelial Caco-2 cells under conditions of hypoxia and microcirculation. *Bulletin of Russian State Medical University* (06), 2020, 10.24075/brsmu.2020.078
17. Nersisyan SA, Galatenko AV, **Maltseva DV**, Ushkaryov YuA, Tonevitsky AG (2020). Interrelation between miRNA and mRNA expression in HT-29 line cells under hypoxia. *Bulletin of Russian State Medical University* (06), 2020, 10.24075/brsmu.2020.074
18. Raigorodskaya MP, Turchinovich A, Tsypina IM, Zgoda VG, Nikulin SV, **Maltseva DV** (2020). Laminin 521 Modulates the Cytotoxic Effect of 5-Fluorouracil on HT29 Colorectal Cancer Cells. *APPL BIOCHEM MICRO*+ 56 (8), 870–874, 10.1134/S0003683820080074
19. **Maltseva DV**, Raigorodskaya MP, Zgoda VG, Tonevitsky EA, Knyazev EN (2020). Intracellular Transport of Ribosome-Inactivating Proteins Depends on Annexin 13. *Dokl Biochem Biophys* 494 (1), 219–221, 10.1134/S1607672920040092

20. Shkurnikov MY, Nersisyan SA, Osepyan AS, **Maltseva DV**, Knyazev EN (2020). Differences in the Drosha and Dicer Cleavage Profiles in Colorectal Cancer and Normal Colon Tissue Samples. *Dokl Biochem Biophys* 493 (1), 208–210, 10.1134/S1607672920040122
21. **Maltseva DV**, Raigorodskaya MP, Tikhonova OV, Knyazev EN, Tonevitsky EA (2020). Relationship between the Expression Level of PSMD11 and Other Proteasome Proteins with the Activity of Ricin and Viscumin. *Dokl Biochem Biophys* 493 (1), 198–200, 10.1134/S1607672920040080
22. **Maltseva DV**, Shkurnikov MY, Nersisyan SA, Nikulin SV, Kurnosov AA, Raigorodskaya MP, Osipyants AI, Tonevitsky EA (2020). Hypoxia enhances transcytosis in intestinal enterocytes.*Bulletin of Russian State Medical University* (4), 60–66, 10.24075/brsmu.2020.049
23. **Maltseva D**, Raygorodskaya M, Knyazev E, Zgoda V, Tikhonova O, Zaidi S, Nikulin S, Baranova A, Turchinovich A, Rodin S, Tonevitsky A (2020). Knockdown of the α5 laminin chain affects differentiation of colorectal cancer cells and their sensitivity to chemotherapy. *Biochimie* 174, 107–116, 10.1016/j.biochi.2020.04.016
24. Knyazev EN, Nikulin SV, Khristichenko AYu, Gerasimenko TN, Kindeeva OV, Petrov VA, Belyakova GA, **Maltseva DV** (2019). Transport and toxicity of 5-fluorouracil, doxorubicin, and cyclophosphamide in in vitro placental barrier model based on BeWo b30 cells. *Russ Chem Bull* 68 (12), 2344–2349, 10.1007/s11172-019-2709-7
25. **Maltseva DV**, Raigorodskaya MP, Tsypina IM, Turchinovich A, Zgoda VG, Nikulin SV (2019). Participation of laminin α5-Chain in the regulation of colorectal cancer cell differentiation. *Biotekhnologiya* 35 (6), 3–11, 10.21519/0234-2758-2019-35-6-3-11
26. Nikulin SV, Knyazev EN, **Maltseva DV**, Sakharov DA, Gerasimenko TN (2019). Use of impedance spectroscopy to assess the effect of laminins on the in vitro differentiation of intestinal cells. *Biotekhnologiya* 35 (6), 102–107, 10.21519/0234-2758-2019-35-6-102-107
27. **Maltseva DV**, Raigorodskaya MP, Belyakova GA, Turchinovich AA (2019). Effect of endogenous expression of the laminin α5 chain on chemotherapy resistance of colorectal cancer cells. *Biotekhnologiya* 35 (5), 29–35, 10.21519/0234-2758-2019-35-5-29-35
28. **(conference)** Knyazev EN, Khristichenko AY, **Maltseva DV**, Gerasimenko TN, Kindeeva OV, Petrov VA, Sakharov DA (2019). Placenta-on-a-chip model for assessing the transport and toxicity of xenobiotics in vitro. *Placenta* 83, e59–e60, 10.1016/j.placenta.2019.06.195
29. Sakharov D, **Maltseva D**, Knyazev E, Nikulin S, Poloznikov A, Shilin S, Baranova A, Tsypina I, Tonevitsky A (2019). Towards embedding Caco-2 model of gut interface in a microfluidic device to enable multi-organ models for systems biology. *BMC Syst Biol* 13 (Suppl 1), 19, 10.1186/s12918-019-0686-y
30. Raigorodskaya MP, Turchinovich A, Tsypina IM, Zgoda VG, Nikulin SV, **Maltseva DV** (2019). Laminin 521 Modulates the Cytotoxic Effect of 5-Fluorouracil on Colorectal Cancer HT29 Cells. *Biotekhnologiya* 35 (6), 73–79, 10.21519/0234-2758-2019-35-6-73-79
31. Baranova A, **Maltseva D**, Tonevitsky A (2019). Adipose may actively delay progression of NAFLD by releasing tumor-suppressing, anti-fibrotic miR-122 into circulation. *Obes Rev* 20 (1), 108–118, 10.1111/obr.12765
32. Knyazeva EA, Knyazev EN, Gerasimenko TN, Kindeeva OV, **Maltseva DV**, Turchinovich A, Sergievich AA (2019). Laminin 521 alters the SNAI1, ZNF708 and GRN gene expression in BeWo b30 cells and creates physiological conditions for the placental barrier. *Biotekhnologiya* 35 (5), 87–93, 10.21519/0234-2758-2019-35-5-87-93
33. **(conference)** Knyazev EN, Poloznikov AA, **Maltseva DV**, Khristichenko AY (2018). Oxyquinoline derivative activates HIF-1 and increases transepithelial resistance of BeWo b30 monolayer. *Placenta* 69, e47, 10.1016/j.placenta.2018.06.004
34. Shkurnikov MY, **Maltseva DV**, Knyazev EN, Alekseev BY (2018). Expression of Stroma Components in the Lymph Nodes Affected by Prostate Cancer Metastases. *Mol Biol* 52 (5), 701–706, 10.1134/S0026893318050126
35. Nikulin SV, Mnafki Krainova NA, Shilin SA, Gazizov IN, **Maltseva DV** (2018). Ribosome Inactivation and

the Integrity of the Intestinal Epithelial Barrier. *Mol Biol* 52 (4), 583–589, 10.1134/S0026893318040143
36. **Maltseva DV**, Rodin SA (2018). Laminins in Metastatic Cancer. *Mol Biol* 52 (3), 350–371, 10.1134/S0026893318030093
37. Knyazev EN, **Maltseva DV**, Zacharyants AA, Zakharova GS, Zhidkova OV, Poloznikov AA (2018). TNFα-Induced Expression of Transport Protein Genes in HUVEC Cells Is Associated with Enhanced Expression of Transcription Factor Genes RELB and NFKB2 of the Non-Canonical NF-κB Pathway. *Bull Exp Biol Med* 164 (6), 757–761, 10.1007/s10517-018-4074-1
38. Knyazev EN, **Maltseva DV**, Zakharyants AA, Zakharova GS, Zhidkova OV, Poloznikov AA (2018). Expression of microRNA Genes MIR221, MIR222, and MIR181B1 Increases during Induction of Inflammation in the Endothelial Barrier Model. *Bull Exp Biol Med* 164 (6), 749–752, 10.1007/s10517-018-4072-3
39. Galatenko VV, **Maltseva DV**, Galatenko AV, Rodin S, Tonevitsky AG (2018). Cumulative prognostic power of laminin genes in colorectal cancer. *BMC Med Genomics* 11 (Suppl 1), 9, 10.1186/s12920-018-0332-3
40. Khaustova NA, **Maltseva DV**, Oliveira-Ferrer L, Stürken C, Milde-Langosch K, Makarova JA, Rodin S, Schumacher U, Tonevitsky AG (2017). Selectin-independent adhesion during ovarian cancer metastasis. *Biochimie* 142, 197–206, 10.1016/j.biochi.2017.09.009
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42. Kudriaeva A, Galatenko VV, **Maltseva DV**, Khaustova NA, Kuzina E, Tonevitsky AG, Gabibov A, Belogurov A (2017). The transcriptome of type i murine astrocytes under interferon-gamma exposure and remyelination stimulus. *Molecules* 22 (5), , 10.3390/molecules22050808
43. Kostarnoy AV, Gancheva PG, Lepenies B, Tukhvatulin AI, Dzharullaeva AS, Polyakov NB, Grumov DA, Egorova DA, Kulibin AY, Bobrov MA, Malolina EA, Zykin PA, Soloviev AI, Riabenko E, **Maltseva DV**, Sakharov DA, Tonevitsky AG, Verkhovskaya LV, Logunov DY, Naroditsky BS, Gintsburg AL (2017). Receptor Mincle promotes skin allergies and is capable of recognizing cholesterol sulfate. *Proc Natl Acad Sci U S A* 114 (13), E2758–E2765, 10.1073/pnas.1611665114