CURRICULUM VITAE

PERSONAL INFORMATION

Last Name:	Khvedelidze
First Name:	Mariam
Date of Birth:	18.01.1966
Place of Birth:	Gori, Georgia
Citizenship:	Georgian
Office Address:	3, Chavchavadze ave., 0179, Tbilisi, Georgia
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ACADEMIC APPOINTMENTS:

2017– to present	Assistant Professor, Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences.
2012-2016	Lecturer, Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences.
2011-to present	Supervisor of Drug Delivery Nanoparticle Research Laboratory, Institute of Medical and Applied Biophysics, I. Javakhishvili Tbilisi State University
2008–2012	Assistant Professor, Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences.
2007- 2008	Lecturer, Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences.
2006-2008	Senior Research Scientist, Institute of Molecular Biology and Biophysics of Georgian Academy of Sciences.
2004-2006	Associate Professor, Ivane Javakhishvili Tbilisi State University, Faculty of Exact and Natural Sciences, Department of Physics.
2000-2004	Assistant Professor, Ivane Javakhishvili Tbilisi State University, Department of Physics, Chair of Physics of Macromolecules.

POSTDOCTORAL TRAINING:

2016, 2013, 2011, 2010, 2006	Postdoctoral Fellow, Faculty of Natural Sciences and Technology, Department of Biopharmaceutics and Pharmaceutical Technology

EDUCATIONAL BACKGROUND:

1997	PhD in Biology (speciality biophysics), Ivane Javakhishvili Tbilisi State University, Tbilisi, Georgia
1992	B.S., Ivane Javakhishvili Tbilisi State University, Faculty of Social Relations, speciality "*International relations*", Tbilisi, Georgia
1987	M.S., Ivane Javakhishvili Tbilisi State University, Faculty of Physics, speciality "*Biophysics*", Tbilisi, Georgia
1982	Secondary School with Physics and mathematics bias N42, Tbilisi, Georgia

HONORS, MISSIONS AND MEMBERSHIP:

2007	Georgian representative, accreditated by European Commission, at Conference "FP7 - Research in the field of biotechnology, agriculture, food, fishery and forestry – a cooperation between EU, *Balkan region and Eastern European neighborhood are*a", which was held in Bucharest, Romania on the 25th-26th of January.

GRANTS:

2017	DAAD (German Academic Exchange Service) "Preparation and investigation of PLGA nanoparticles using different stabilizers (PVA, Pluronic L31, Pluronic L35, Pluronic L64, Pluronic F68, Pluronic Pluronic 10RS, Pluronic F127 and Pluronic 17R4)", Department of Biopharmaceutics and Pharmaceutical Technology (Faculty-8, Natural Sciences and Technology), Saarland University, Germany, Senior Research Scientist
2014-2015	GNSF/CNRS – Call 2014, grant № 04/21 "Effective antimicrobial cocktail against bacteria and biofilms", Senior Research Scientist
2014	DAAD (German Academic Exchange Service) "Study of structure of DPPC-chol, DMPC-chol, DPPA-chol, DOPE-chol liposomes and their permeability through RBC and Caco-2 cells", Department of Biopharmaceutics and Pharmaceutical Technology and Central Isotope

Laboratory/AG Biophysics (Faculty-8, Natural Sciences and Technology), Saarland University, Germany, Senior Research Scientist

2012 National Scholarship Programme of the Slovak Republic for mobility of foreign university researchers, "Study the mechanisms of interaction of nanoparticles with model lipid membranes", Faculty of Mathematics, Physics and Computer Sciences Department of Nuclear Physics and Biophysics, Comenius University, Bratislava, Slovakia, Senior Research Scientist

2011 DAAD (German Academic Exchange Service) "Study of structure of drug delivery DPPA and DPPC liposomes with ligands", Department of Biopharmaceutics and Pharmaceutical Technology and Central Isotope Laboratory/AG Biophysics (Faculty-8, Natural Sciences and Technology), Saarland University, Senior Research Scientist.

2009-2012 Georgian National Scientific Foundation grant, GNSF/ST08-369, "Biophysical investigation of interaction mechanism for bacteriophage and bacterial membrane", Senior Research Scientist.

2009-2011 GNSF/CNRS - Call 2009, grant № 09/560 "Study of Bacterial Reproduction Speeds and Action in Biologically Active Materials: Turbidity research", Senior Research Scientist.

2007 DAAD (German Academic Exchange Service) "Study of liposomal nanoparticle preparation", Department of Biopharmaceutics and Pharmaceutical Technology (Faculty-8, Natural Sciences and Technology), Saarland University, Germany, Senior Research Scientist

2005-2006 Georgian National Scientific Foundation grant, № 76, "Thermodynamic, radiospectroscopy and hydrodynamic study of protein, nucleic acids and their complexes", Senior Research Scientist.

PUBLICATIONS:

1. E.Shekiladze, T.Mdzinarashvili, **M.Khvedelidze** "Calorimetric study the stability of DPPC liposomes and C and E vitamins complexes" *Experimental and Clinical medicine*, Vol.2, pp. 71-73, 2017.

2. **M.Khvedelidze,** T.Mdzinarashvili, E.Shekiladze „Incorporation of Vitamins in DPPC Nanoparticles as Novel Approach for Drug Delivery to Tumorous MDCK Cells" *Joint*

scientific meeting "NutRedOx COST Action CA16112 & Postgraduate Training Atelier "NutriOx" 2017", Strasbourg, France, September 27th-28th, p.61, 2017.

3. T.Mdzinarashvili, **M.Khvedelidze**, N.Turkadze, I.Papukashvili, E.Lomadze "Physical-Chemical Factors Influence on Bacteria Behavior" *Joint scientific meeting "NutRedOx COST Action CA16112 & Postgraduate Training Atelier "NutriOx" 2017"*, Strasbourg, France, September 27th-28th, p.63, 2017.

4. E.Shekiladze, T.Mdzinarashvili, **M. Khvedelidze** " Calorimetric researches of stability of complexes DPPC liposomes with Vitamin C and Vitamin E" *International Conference on Advances in Science and Arts*, Istanbul, Turkey, March 29th-31th, 2017.

5. T.Mdzinarashvili, **M.Khvedelidze**, E.Shekiladze, R.Machaidze "Novel technology for the fast production of complex nanoliposomes" *Journal of Biological Physics and Chemistry*, Vol.16/4, pp. 172-176, 2016.

6. E.Shekiladze, T.Mdzinarashvili, **M.Khvedelidze** "Study the permeability of liposomes loaded with different ligands through Caco-2 cells" *IV International Scientific-practical Conference* "*Chemistry, Bio- and Nanotechnology, Ecology and Economics in Food and Cosmetic industry",* Kharkov, Ukraine, October 17th-18 th, 2016.

7. **M.Khvedelidze**, T.Mdzinarashvili, E.Shekiladze, M.Schneider, D.Moersdorf, I.Bernhardt "Structure of drug delivery DPPA and DPPC liposomes with ligands and their permeability through cells" *Journal of Liposome Research*, Vol. 25, №1, pp. 20-31, 2015.

8. T.Mdzinarashvili, I.Papukashvili, N.Shengelia, **M.Khvedelidze** "Features of membrane receptors in bacterial multiplication process and necessary conditions for phage infection of bacteria" *Current Microbiology*, Vol. 69, №6, pp. 858-865, 2014.

9. T.Mdzinarashvili, **M.Khvedelidze**, E.Shekiladze "Structural organization of DPPA and DPPC liposomes with ligands and permeability of incorporated Gold nanoparticles into cells" *Second Scientific Conference in Exact and Natural Sciences ENS-2014*, Tbilisi, Georgia, January 29th-31th, 2014.

10. T.Mdzinarashvili, **M.Khvedelidze**, E.Shekiladze "Thermodynamic properties of DPPA and DPPC liposomes" *Second Scientific Conference in Exact and Natural Sciences ENS-2014*, Tbilisi, Georgia, January 29th-31th, 2014.

11. T.Mdzinarashvili, Partskhaladze T., **M.Khvedelidze**, J.Kereselidze, G.Bogatkevich. "Thermodynamic properties of DNA in different acidity environment and about possible recognition DNA district models" *International Conference "Physical Concepts of Nucleic-Acid Structure and Behavior Funded by VolkswagenStiftung, the State Committee of Science (Armenia) and ICTP network NET68",* Yerevan, Armenia, May 27th-29th, pp. 46-47, 2013.

12. T.Mdzinarashvili, Papukashvili I., Partskhaladze T., Shengelia N., M.Khvedelidze. „Study of Environmental and Antimicrobial Agents Impact on Features of Bacterial Growth" *Cell Biochemistry and Biophysics,* Vol. 66, №3, pp. 759-764, 2013.

13. **M.Khvedelidze**, T.Mdzinarashvili, M.Schneider and U.F.Schaefer "Drug delivery Nanoparticles biophysical investigation" *International Scientific Conference "Physical Research Methods in Medicine",* Tbilisi, Georgia, October 27th-29th, p. 71-72, 2011.

14. T.Mdzinarashvili, **M.Khvedelidze**, Papukashvili I., Shengelia N. "Turbidity method for fast determination the species viruses of infectious diseases" *International Scientific Conference "Physical Research Methods in Medicine"*, Tbilisi, October 27th-29th, p. 92, 2011.

15. T.Mdzinarashvili, Papukashvili I., Shengelia N., **M.Khvedelidze** "Bacteriophages and Antibiotic Comcentration effects in Relationship to Bacterial Growth" *19th Evergreen International Phage Biology Meeting,* Olimpia, USA, August 7th-12th, p. 92, 2011.

16. **M.Khvedelidze**, T.Mdzinarashvili, T.Partskhaladze, N.Nafee, C.-M.Lehr, U.F.Schaefer, M.Schneider "Calorimetric and spectrophotometric investigation of PLGA nanoparticles and their complex with DNA" *Journal of Thermal Analysis and Calorimetry,* Vol.99, №1, pp. 337-348, 2010.
17. **M.Khvedelidze**, T.Mdzinarashvili, E.Sarukhanyan, T.Partskhaladze, N. Nafee, U.F. Schaefer, M. Schneider "Influence of conditions of preparation on PLGA nanoparticles' thermal stability" *Journal of Biological Physics and Chemistry,* Vol.10, pp. 67-70, 2010.

18. T.Mdzinarashvili, **M.Khvedelidze**, T.Partskhaladze, M.Schneider, U.F.Schaefer, N.Nafee, C.-M. Lehr "Stability of Drug Delivery PLGA Nanoparticles: Calorimertric Approach". Chapter 10 in *Book: Advanced Biologically Active Polyfunctional Compounds and Composites: Health, Cultural Heritage and Environmental Protection,* Copyright © 2010 by Nova Science Publishers Inc. New York. (https://www.novapublishers.com/catalog/product_info.php?products_id=10787)

19. T.Mdzinarashvili, **M.Khvedelidze**, T.Partskhaladze, N.Nafee, U.F.Schaefer, C.-M. Lehr, M.Schneider "Biophysical approach for evaluate DNA transfer by PLGA nanoparticles" *Journal of Biological Physics and Chemistry,* Vol.9, pp. 83-87, 2009.

20. **T.Mdzinarashvili,** T.Partskhaladze, M.Khvedelidze, T.Lomidze "Consequeces of an acidic environment for the structural and functional abilities of DNA" *Journal of Biological Physics and Chemistry,* Vol.9, pp. 77-82, 2009.

21. **T.Mdzinarashvili**, M.Khvedelidze, A.Ivanova, T.Partskhaladze, N.Shengelia "Biophysical properties and mechanisms of phage DNA ejection" *7th European Biophysics Congress,* Genoa, Italy, July 11-15, p.44 (*also published in European Biophysics Journal, Vol. 38),* 2009.

22. **M.Khvedelidze**, T.Mdzinrashvili, T.Partskhaladze, N.Nafee, M.Schneider "Biophysical investigation of PLGA nanoparticles and their interaction with DNA" *7th European Biophysics Congress*, Genoa, Italy, July 11-15, p.87 (*also published in European Biophysics Journal, Vol. 38),* 2009.

23. M.Schneider, **M.Khvedelidze**, T.Mdzinarashvili, T.Partskhaladze, N.Nafee, U.F.Schaefer "Thermal behavior of polymeric drug delivery system composed of PLGA" *Analyse, Manipulation und Simulation auf der Nanometerskala*, Kurzvortrag - Biophysikalische Chemie, Deutsche Bunsen-Gesellschaft fur Physikalische Chemie, Bunsentagung, Saarbrucken, Germany, May 1-3, p.47, 2008.

24. **M.Khvedelidze**, T.Mdzinrashvili, A.Trapaidze, E.Kortkhondjia, G.Mrevlishvili. "Calorimetric study of bovine and human serum albumin and their complex with bilirubin" *Journal of Biological Physics and Chemistry*, Vol. 7(3), pp., 97-102, 2007.

25. T.Mdzinarashvili, V.Betaneli, **M.Khvedelidze**, T.Eliashvili, Z.Machablishvili, M.Tediashvili. "Identification of wild and mutant bacterial E. Coli M17 cells by means of capillary electrophoresis" *Journal of Biological Physics and Chemistry*, Vol. 7(3), pp. 117-120, 2007.
26. **M.Khvedelidze, "**The possibility of using the FP7 programme in the field of biotechnology, agriculture, food, fishery and forestry for Georgian scientists", *Georgian Experts and the Project Study Tour Participants Survey of the Status of the R&D Sector in Georgia and Options for Adopting EU Best Practices*, Iv.Javakhishvili Tbilisi State University, 22 February, pp.. 53-61, 2007.

27. T.Mdzinarashvili, G.Mrevlishvili, **M.Khvedelidze**, A.Ivanova, N.Janelidze, E.Kiziria, D.Tushishvili, M.Tediashvili, R.Kemp "Pycnometric, viscometric and calorimetric studies of the process to release the double-stranded DNA from the Un bacteriophage" *Biophysical Chemistry*, Vol. 124, pp. 43-51, 2006.

28. **M.Khvedelidze,** T.Mdzinarashvili, A.Ivanova, M.Tediashvili, G.Mrevlishvili. "The role of amino acids in bacterial infection by phage" *1stTexas/ Evergreen Phage/ Virus Genomics and Ecology Meeting,* Kingsville, Texas, U.S.A., May 12 – 15, p. 35, 2006.

29. T.Mdzinarashvili, **M.Khvedelidze,** A.Ivanova, M.Tediashvili, V.Betaneli, G.Mrevlishvili. "The effect of external factors on phage DNA ejection" *1stTexas/ Evergreen Phage/ Virus Genomics and Ecology Meeting*, Kingsville, Texas, U.S.A, May 12 – 15, p. 38, 2006.

30. M.Javakhishvili, S.Veshaguri, **M.Khvedelidze.** "Determination of Ratio of DNA-Protein in Phages and Thermodynamic Study of *Cb, Un, DDVI* Bacteriophages", *International Conference "Advanced Materials and Technologies"*, Tbilisi, Georgia, (Book of Abstracts), March 10-11th, p. 35-36, 2006.

31. T.Mdzinarashvili, **M.Khvedelidze,** A.Ivanova, M.Kutateladze, N.Balarjishvili, H.Celia, F.Pattus "Biophysics of *T5, IRA* phages, *E.coli* outer membrane protein FhuA and *T5-FhuA* interaction" *European Biophysical Journal*, Vol. 35, № 3, pp. 231-238, 2006.

32. **M.Khvedelidze**, T.Mdzinarashvili, G.Khelashvili, G.Gogoladze, G.Mrevlishvili, A.Ivanova "On the mechanism of influence of anticancer antibiotic adriablastin on DNA" *Journal of Biological Physics and Chemistry*, Vol. 5, №2/3, pp. 111-113, 2005.

33. A.Ivanova, T.Mdzinarashvili, **M.Khvedelidze,** G.Mrevlishvili "Thermal and functional properties of E.coli outer membrane protein-receptor FhuA" *European Biophysics Journal*, Vol. 34, № 6, p. 789, 2005.

34. **M.Khvedelidze**, T.Mdzinarashvili, G.Khelashvili, G.Gogoladze, G.Mrevlishvili "Thermodynamic and hydrodynamic study of DNA-anticancer antibiotic (adriablastin) interaction" *Bulletin of the Georgian Academy of Sciences*, 171, № 3, pp. 533-534, 2005.

35. **M.Khvedelidze**, T.Mdzinarashvili, A.Ivanova, M.Tediashvili, G.Mrevlishvili "Bacterial infection by phage in a model system" *International Congress of Virology*, San Francisco, California, U.S.A., (Book of Abstracts), July 23-27, p.113-114, 2005.

36. T.Mdzinarashvili, **M.Khvedelidze**, A.Ivanova, M.Kutateladze, G.Mrevlishvili "Phage-receptor interaction" *International Congress of Virology*, San Francisco, California, U.S.A., (Book of Abstracts), July 23-27, p.66, 2005.

37. A.Ivanova, T.Mdzinarashvili, **M.Khvedelidze**, M.Kutateladze, N.Balarjishvili, H.Celia, F.Pattus "Thermal and hydrodynamical properties of bacteriophages and *E.coli* outer membrane protein-receptor *FhuA* and investigation of first steps of bacterial infection by phage" *International Conference on Environmental, Industrial and Applied Microbiology*, (BioMicroWorld-2005), Badajoz, Spain, (Book of Abstracts), March 15-18th, p.906, 2005.

38. A.O.Ivanova, T.J.Mdzinarashvili, **M.M.Khvedelidze**, G.M. Mrevlishvili "Thermal and functional properties of *E.coli* outer membrane protein-receptor FhuA" 15th IUPAB & 5th EBSA International Biophysics Congress, Montpellier, France, August 27th - September 1st , 2005.

39. **M.Khvedelidze,** T.Mdzinarashvili, A.Ivanova, M.Tediashvili, D.Tushishvili, G.Mrevlishvili "The influence of pH on thermal and hydrodynamic properties of DDVI phage and on DNA ejection from phage induced by bacterial membrane fragments" *Journal of Biological Physics and Chemistry*, Vol. 4, № 4, pp.209-213, 2004.

40. T.Mdzinarashvili, A.Ivanova, **M.Khvedelidze,** M.Tediashvili, D.Tushishvili, N.Janelidze, G.Mrevlishvili "Phage DNA ejection induced by membrane fragments obtained from a host cell" *Journal of Biological Physics and Chemistry*, Vol. 4, № 1, pp.2-6, 2004.

41. A.T.Ivanova, T.J.Mdzinarashvili, **M.M.Khvedelidze**, M.I.Tediashvili, N.T.Janelidze and G.M.Mrevlishvili "Bacterial membrane fragments as phage DNA ejection stimulants" *Georgian Engineering News*, № 3, pp.163-166, 2003.

42. G.M.Mrevlishvili, T.J.Mdzinarashvili, A.T.Ivanova, **M.M.Khvedelidze**, T.Z.Tarielashvili "Thermal Properties of Bacterial Viruses and their Genome" *17th IUPAC Conference on Chemical Thermodynamics, ICCT, Rostock, Germany* (Book of Abstracts), July 28 – August 02, S70-10, p. 251, 2002.

43. Г.Мревлишвили, Т.Мдзинарашвили, Д.Тушишвили, **М.Хведелидзе** "Тепловые свойства бактериофагов, комплекса липосома-ДНК и проблема взаимодействия фаговой хромосомы с клеточной мембраной" *II Съезд Биофизиков России*, 23-27 августа, Москва, Тезисы докладов, том I, стр.143, 1999.

44. G.Mrevlishvili, T.Mdzinarashvili, M.Al-Zaza, L. Tsinadze, D.Tushishvili, **M.Khvedelidze** "Thermal properties of bacteriophage and the problem of phage chromosome-membranes interaction" *XXth AICAT-GICAT Congress*, Roma, Workshop "biothermodynamics", Bio-PL3, December 14-18, 1998.

45. G.Mrevlishvili, T.Mdzinarashvili, T.Brelidze**, M.Khvedelidze,** N.Metreveli, G.Razmadze "Liposome-DNA Interaction. Microcalorimetric Study" *15th International Conference on Chemical Thermodynamics,* (Book of Abstract), July 26-August 1, Porto, Portugal, P3-6, 1998.

46. G.Mrevlishvili, N.Metreveli, G.Razmadze, T.Mdzinarashvili, **M.Khvedelidze** "Partial heat capacity change – fundamental characteristic of the process of thermal denaturation of biological macromolecules (proteins and nucleic acids)" *Termochimica Acta*, Vol. 308, pp. 41-48, 1998.

47. G.Mrevlishvili, B.Kankia, T.Mdzinarashvili, T.Brelidze, **M.Khvedelidze,** N.Metreveli, G.Razmadze "Liposome-DNA interaction: microcalorimetric study" *Chemistry and Physics of Lipids*, Vol. 94, pp. 139-143, 1998.

48. G.Mrevlishvili, **M.Khvedelidze,** T.Mdzinarashvili "The physical nature of phase transition in the aqueous solution of "molten globule" *Bulletin of the Georgian Academy of Sciences*, Vol. 156, № 1, pp. 132-135, 1997.

49. Mrevlishvili G.M., Mdzinarashvili T.J., Metreveli N.O., Razmadze G.Z., Kakabadze G., **Khvedelidze M.M.** *Partial specific heat capacity change – fundamental characteristic of the process of thermal denaturation of biological macromolecules (proteins and nucleic acids)* International Symposium: The Physical-Chemical Basis of the Organization and Function of Biological Systems, Proceedings, September 24-27, Tbilisi, pp. 171-172, 1996.

50. G.Mrevlishvili, **M.Khvedelidze,** T.Mdzinarashvili, N.Metreveli "About the physical nature of phase transition in the aqueous solutions of "molten globule"" *14th IUPAC Conference on Chemical Thermodynamics,* ICCT-96, Osaka, Japan, August 25-30, S7-26p04, 1996.