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EDUCATION

1986	Ph.D. in Polymer Chemistry, Nesmeyanov Institute of Element-Organic Compounds (INEOS, Moscow).
1968-1974	IvaneJavakhishvili Tbilisi State University,Faculty of Chemistry, MSc (Organic Chemistry of Natural Compounds)

RESEARCH AREA

- Synthesis and study of new heterochain biodegradable polymers composed on naturally occurring amino acids and other nontoxic building blocks;
- Synthesis of biodegradable functional elastomers for biomedical applications;
- Genetic identification of bacteria and viruses using biochips for medical and ecological diagnostics.
- Genetic instability and defense mechanisms against heavy metals.
- Search biomarkers of inflammatory processes accompanied ischemic stroke.

GRANTS COMPLETED:

- STCU-SRNSF grant #6306 (2017-2019) “DNA diagnostic technology for identification of GM crops” (*Experimental Investigator*)
- STCU-SRNSF grant #6304 (2017-2019) “Development of Quick Response Strategy against Chemical Pollution of Soils by Using Biochips and Biosorbents” (*Expert in biochip*).
- CONTRACT #6600028240 FOR RESEARCH AND DEVELOPMENT from SAUDI ARAMCO OIL COMPANY (2012-2015) “Biochips as tools for rapid detection and enumeration of oilfield microorganisms” (*Experimental investigator*)
- ISTC grant G-1761p (2010-2012) “Manufacture of biochips for diagnosis of viral and bacterial diseases” (*Experimental investigator*) (Department of Energy and Climate Change (DECC) of the United Kingdom of Great Britain and Northern Ireland)
- STCU-GNSF grant #5012 (2009-2011) “Study of the antioxidant system status and blood metalloproteinases cross influence at acute ischemic stroke” (*Expert in biochemistry*) (E.O. Lawrence Berkeley National Laboratory (LBNL, Berkeley, USA)
- STCU grant #4330 (2007-2009) “Heavy Metals Detoxification by Basalt Inhabitant Bacteria” (*Experimental Investigator*) (LBNL, Berkeley, USA)
- CRDF-GE-B2-2597-TB-03 (2004-2006) “Mechanisms of Microbial reduction and Detoxification of Heavy Metal Ions”, (*Experimental Investigator*) (LBNL, Berkeley, USA)
- ISTC Grant G-349 (2001-2003) “ In vitro Study of Mechanisms of Intracellular Responses to Low-Dose and Low-Dose rate Exposure to Cr(VI) Compounds” (*Leading expert in chemistry*) (LBNL, Berkeley, USA)
- ISTC grant G-348 (2000-2002) “Heavy Metal Transformation on Microbial-Mineral Surfaces” (LBNL, Berkeley, USA) (*Leading expert in chemistry*)

RESEARCH/WORK EXPERIENCE

2005 - present	Senior Researcher I.Javakhishvili Tbilisi State University, Andronikashvili Institute of Physics, Tbilisi, Georgia
1990-2005	Senior Researcher,Institute of Molecular Biology and Biophysics, Tbilisi, Georgia
1986-1990	Researcher, Institute of Molecular Biology and Biophysics, Tbilisi, Georgia
1978-1986	Junior Researcher, Beritashvili Institute of Physiology, Tbilisi, Georgia
1974-1978	Senior Technician, Beritashvili Institute of Physiology, Tbilisi, Georgia

AWARDS AND HONORS:

- JSPS(Kyoto University, Research Center for Biomedical Engineering, now Institute for Frontier Medical Sciences, Japan) 1995- Research grant -Synthesis of biodegradable, bioresorbable polyurethanes and polyureas by Active Polycondensation
- Cornell University(USA) 2000- Research grant

Society memberships:

2003-2005**–**Member of the Scientific Council of Institute of Molecular Biology and Biophysics (Tbilisi, Georgia)

Mentorships:

1. *2014 (9-13 June)* Summer School "Current Advances in Biochip Technology" *for* PhD students from the School of Pharmacy and Biomedical Sciences of the University of Portsmouth, UK. http://www.tsu.edu.ge/ge/government/administration/departments/pr/announcement/Mf4kCw6J0hpGZxQmF

2. *2006-2008* Instructor of the International Control Program for Mass Destruction of Non-Proliferation (DOE, USA) Lecture course: Chemical Weapon

TECHNICAL SKILLS:

1. Organic synthesis
2. Polymer synthesis
3. Low density microarrays for bacterial and viral identification
4. Synthesis of matrixes for low density microarrays by active condensation reactions
5. Protein isolation, purification and electrophoretic characterization
6. DNA isolation, purification and electrophoretic characterization
7. Enzyme-in gel assay activity
8. ELISA
9. Bacterial culture
10. Infrared spectroscopy

PARTICIPATION IN INTERNATIONAL CONFERENCES:

1. 1st GHI World Congress on Food Safety and Security, 24-28 March, 2019, Leiden, The Netherlands.
2. 5th International Conference "Nanotechnologies", 19-22 November, 2018, Tbilisi, Georgia.
3. International conference „Innovations in Food Analytics", 19-21 September 2018, Munich, Germany.
4. 6th International Symposium on Biosorption and Biodegradation/Bioremediation, June 25-29, 2017, Prague, Czech Republic.

5. The First SDSU-Georgia STEM WORKSHOP on Nanotechnology and Environmental Sciences, 5 September 2015, Tbilisi, Georgia.
6. International Conference on Nanotechnology in Medicine, Nano-Med-2012, 7-9 November 2012, London, UK.
7. 21st European Stroke Conference, Lisbon, Portugal, May 22-25, 2012.
8. Workshop “Biomedical Science and Engineering”, 20-22 December 2011, Shanghai, China.
9. Environmental Forensics, Tbilisi, Georgia, September 12-16, 2011.
10. 36th FEBS Congress “Biochemistry for Tomorrow’s Medicine”, Torino, Italy, June 25-30, 2011.
11. 20th European Stroke Conference, Hamburg, Germany, May 24-27, 2011.
12. The Matchmaking Event, 1-2 December 2010, Lappeenranta, Finland.
13. Health Technology Seminar, 12 – 14 October 2010, Tbilisi, Georgia.
14. 10th International Symposium on Metal Ions in Biology and Medicine, May 19-22 2008, Bastia, Corsica, France.
15. International Conference “Protection and Restoration of the Environment VIII” Chania, Greece, July 2006.
16. 12th International Symposium on Environmental Pollution and its Impact on Life in the Mediterranean Region, October 4-8, Antalya, Turkey, 2003.
17. 28th Meeting of the Federation of European Biochemical Societies (FEBS), Istanbul, Turkey, October 20-25, 2002.
18. International Conference “Protection and Restoration of the Environment VI”, Skiathos, Greece, July 1-5, 2002.
19. 11th International Symposium on Environmental Pollution and its Impact on Life in the Mediterranean Region, October 6-10, 2001, Limassol, Cyprus.

PUBLICATIONS (78); H-INDEX: 7; I-INDEX: 6

Selected Publication List:

1. Datukishvili, N., Kutateladze, T., Gabriadze, I., Vishnepolsky, B., Bitskinashvili, K., Karseladze M., Kartvelishvili, T., Asatiani, N., Sapojnikova, N. “DNA-based multiplex technologies for identification of genetically modified foods”. 1st GHI World Congress on Food Safety and Security, 24-28 March, 2019, Leiden, The Netherlands, Abstract book, p. 102, https://ghiworldcongress.org/wp-content/uploads/2019/04/Abstract_Book-2.pdf
2. A. A. Al-Humam, V. Zinkevich, N. Sapojnikova, T. Kartvelishvili, N. Asatiani.USA patent 15/949,400 “Biochips and rapid methods for detecting organisms involved in microbially influenced corrosion (MIC)” (2018) http://www.freepatentsonline.com/20180298429.pdf
3. Nino Asatiani, Tamar Kartvelishvili, Nelly Sapojnikova, Marina Abuladze, LaliAsanishvili, Mariam Osepashvili. “Effect of the Simultaneous Action of Zinc and Chromium on Arthrobacter spp.”, Water, Air and Soil Pollution 229, 395 (2018) https://doi.org/10.1007/s11270-018-4046-0
4. N. Sapojnikova, N. Asatiani, T. Kartvelishvili, L. Asanishvili, V. Zinkevich, I. Bogdarina, J.Mitchell, A.Al-Humam. “A comparison of DNA fragmentation methods

− Applications for the biochip technology", J. Biotechnology 256, 1-5 (2017) http://www.sciencedirect.com/science/article/pii/S0168165617314980
5. N. Sapojnikova, T. Kartvelishvili, N. Asatiani, V. Zinkevich, I. Kalandadze, D. Gugutsidze, R. Shakarishvili, A. Tsiskaridze. "Correlation between MMP-9 and extracellular cytokine HMGB1 in prediction of human ischemic stroke outcome", BBA-Molecular Basis of Disease 1842, 1379-1384 (2014) http://www.sciencedirect.com/science/article/pii/S0925443914001264?via%3Dihub
6. V. Zinkevich, N. Sapojnikova, J. Mitchell, T. Kartvelishvili, N. Asatiani, S. Alkhalil, I. Bogdarina, A. Al-Humam. "A novel cassette method for probe evaluation in the designed biochips". PLOS ONE 9, e98596. (2014) http://dx.doi.org/10.1371/journal.pone.0098596
7. N. Sapojnikova, N. Asatiani, T. Kartvelishvili, T. Vashadze, R. Shakarishvili, I. Kalandadze, A. Tsiskaridze. "MMP-9, antioxidant defense system and extracellular cytokine HMGB1 as predictors of acute ischemic stroke outcome", Cerebrovasc Dis 33 (suppl 2); 418-419 (2012)
8. Nelly Sapojnikova, Nino Asatiani, Tamar Kartvelishvili, IagorKalandadze and Alexander Tsiskaridze. "Plasma Antioxidant Activity as a Marker for a Favourable Outcome in Acute Ischemic Stroke". Invited Chapter in Collected Book "Antioxidant Enzyme" (Ed. M. Amr El-Missiry), ISBN 978-953-51-0789-7; INTECH Publisher, Open access, 2012, Chapter 6, pp. 141-168. http://www.intechopen.com/articles/show/title/plasma-antioxidant-activity-as-a-marker-for-a-favourable-outcome-in-acute-ischemic-stroke
9. T. Kartvelishvili, N. Asatiani, N. Sapojnikova, L. Asanishvili, I. Kalandadze, A. Tsikaridze. "Temporal profile of oxidant/antioxidant balance in plasma at acute ischemic stroke" The FEBS Journal,v.278, Supplement S1, p.265 (2011)
10. N. Asatiani, T. Kartvelishvili, M. Abuladze, L. Asanishvili, N. Sapojnikova. "Chromium (VI) can activate and impair antioxidant defense system", Biol. Trace Elem. Res. 142, 388-397 (2011) https://doi.org/10.1007/s12011-010-8806-y
11. N. Asatani, M. Abuladze, T. Kartvelishvili, N. Kulikova, L. Asanishvili, H-Y. Holman, N. Sapojnikova. "Response of antioxidant defence system to chromium (VI)-induced cytotoxicity in human diploid cells", Biometals, 23, 161-172 (2010) https://doi.org/10.1007/s10534-009-9276-6
12. N. Sapojnikova, T. Kartvelishvili, M. Abuladze, N. Asatiani. "How a Cell Defends Itself against Genomic Instability Caused by Chromium". Invited Chapter in Collected Book "New Research on Genomic Instability" (Ed. E. Gloscow), NOVA SCIENCE Publisher, New York, 2007, pp. 204-260. www.novapublisher.com
13. T. Kartvelishvili, M. Abuladze, N. Asatiani, J. Akhvlediani, E. Kiziria, L. Asanishvili, L. Lejava, H-Y. Holman, N. Sapojnikova. "Estimation of the Cellular Antioxidant Response to Chromium Action using ESR Method". TheScientificWorldJOURNAL, 4, 785-794 (2004) http://dx.doi.org/10.1100/tsw.2004.136
14. T. Kartvelishvili, M. Abuladze, N. Asatiani, J. Akhvlediani, L. Asanishvili, H-Y. Holman, N. Sapojnikova. "Antioxidant Capacity of Cultured Mammalian Cells

Estimated by ESR Method". TheScientificWorldJOURNAL, 4, 490-499 (2004) http://dx.doi.org/10.1100/tsw.2004.99

15. N.V. Asatiani, N.A. Sapojnikova, M.K. Abuladze, T.M. Kartvelishvili, N.O. Kulikova, E.N. Namchevadze, H-Y. Holman. "Effect of Long-Term Action of Cr(VI) on Antioxidant Enzymes in Cultured Mammalian Cells (an in vitro Study)". J. Inorg. Biochem., 98, 490-496 (2004) https://doi.org/10.1016/j.jinorgbio.2003.12.014
16. N. Sapojnikova, T. Kartvelishvili**,** N. Asatiani, M. Abuladze, I. Akhvlediani, H-Y. Holman. "Characterization of the Antioxidant Capacity in Cultured Mammalian Cells in Response to Low-Dose Exposure to Chromium Compounds." European Journal of Biochemistry, 269/Supplement 1/, 119 (2002).
17. T. Kartvelishvili, G. Tsitlanadze, L. Edilashvili, N. Japaridze, R. Katsarava. "Aminoacid Based Bioanalogous Polymers. Novel Regular Poly(esterurethane)s and Poly(esterurea)s Based on Bis(L-Phenylalanine)-α,ωAlkyleneDiesters". Macromol. Chem. Phys., 198, 1921-1932 (1997).
18. T. Kartvelishvili, A. Kvintradze, R. Katsarava. "Aminoacid Based Bioanalogous Polymers. Synthesis of Novel Poly(urethaneamide)s Based on N,N'-(TrimethyleneDioxydicarbonyl)Bis(Phenylalanine)". Macromol. Chem. Phys., 197, 249-257 (1996).
19. R. Katsarava, T. Kartvelishvili, T. Khosruashvili, V. Beridze. "Synthesis of Polyurethanes by Polycondensation of Active Biscarbonates of Diols with Hexamethylene Diamines and its Derivatives". Macromol. Chem. Phys., 196, 3062-3074 (1995).
20. R.D. Katsarava, T.M. Kartvelishvili, N.N. Japaridze, Ts.A. Goguadze, T.A. Khosruashvili. "Synthesis of Polyurethanes by Polycondensation of Diamines with Active Derivatives of Carbonic Acid". Macromol. Chem. 194, 3209-3228 (1993).
21. T. Kartvelishvili, R. Katsarava. "Research of Some Synthesis of Polyurethanes by Active Polycondensation". 12th International Microsymposium "Polycondensation", Schwerin, Germany. Abstact Book, 54 (1989).
22. T. Kartvelishvili, R. Katsarava, N. Japaridze, P. Berlin, P. Tiger, P. Toidze, R. Katsarava. "Synthesis of Polyurethanes by Active Polycondensation". 11th International .Microsymposium,,Polycondensation", Prague, Czech Republic, Abstract Book, 24 (1987).
23. R.D. Katsarava, T.M. Kartvelishvili, M.M. Zaalishvili. "Heterochain Polymers Based on Naturally Occurring Aminoacids. Synthesis of Novel Optically Active Polyurethanes Based on Ethylesters of N,N'-Biscarbonyllysine and Diols". Dokl. Akad. NaukUSSR. 281, 591-596 (1985)