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პუბლიკაციების სია:

1. V. A. Buckin, **B. I. Kankiya**, N. V. Bulichev, A. V. Lebedev, I. Ya. Gukovsky, V. P. Chuprina, A. P. Sarvazyan & A. R. Williams, "Measurement of Anomalously High Hydration of (dA)_n(dT)_n Double Helices in Dilute Solutions", *Nature* **340**, 321-322 (1989).
2. V. A. Buckin, **B. I. Kankiya**, A. P. Sarvazyan & H. Uedaira, "Acoustical Investigation of Poly(dA)·poly(dT), Poly(d(A-T))·poly(d(A-T)), Poly(A)·poly(U) and DNA Hydration in Dilute Aqueous Solutions", *Nucleic Acids Res.* **17**, 4189-4201 (1989).
3. V. A. Buckin, **B. I. Kankiya** & R. L. Kazaryan, "Hydration of Nucleosides in Dilute Aqueous Solutions. Ultrasonic Velocity and Density Measurements", *Biophys. Chem.* **34**, 211-223 (1989).
4. V. A. Buckin, **B. I. Kankiya**, D. Rentzeperis & L. A. Marky, "Mg²⁺ Recognizes DNA Sequence Through its Hydration Shell", *J. Am. Chem. Soc.* **116**, 9423-9429 (1994).
5. **B. I. Kankia**, "A Possible Evolution of the Genetic Code", *Proc. Acad. Sci. Georgia, Biological Series* **20**, 11-14 (1994).
6. I. G. Khutsishvili, **B. I. Kankia**, J. G. Chkhaberidze & V. G. Bregadze, "Spectrophotometric Investigation of DNA Complex with Bromide Dodecyltrimethylammonium", *Biofizika* **42**, 343- 346 (1997).
7. **B. I. Kankia**, Th. Funck, H. Uedaira & V. A. Buckin, "Volume and Compressibility Effects in the Formation of Metal-EDTA Complexes", *J. Sol. Chem.* **26**, 877-888 (1997).

8. E. A. Jares-Erijman, R. Klement, R. Machinek, R. M. Wadkins, L. A. Marky, **B. I. Kankia** & T. M. Jovin, "Binding of Actinomycin D to Single-Stranded DNA", *Nucleosides and Nucleotides* **16**, 661-667 (1997).
9. G. M. Mrevlishvili, **B. I. Kankia**, T. J. Mdzinarashvili, T. I. Brelidze, M. M. Khvedelidze, N. O. Metreveli & G. Z. Razmadze, "Liposome-DNA interaction: microcalorimetric study", *Chemistry and Physics of Lipids* **94**, 139-143 (1998).
10. **B. I. Kankia**, Th. Funck & L. A. Marky, "Hydrolysis of *cis*- and *trans*-Diammineplatinum(II) Complexes: Hydration, Equilibrium, and Kinetic Properties", *J. Sol. Chem.* **28**, 1249-1261 (1999).
11. **B. I. Kankia** & L. A. Marky, "DNA, RNA and DNA/RNA Oligomer Duplexes: A Comparative Study of their Stability, Heat, Hydration and Mg²⁺ Binding Properties", *J. Phys. Chem. B* **103**, 8759-8767 (1999).
12. **B. I. Kankia**, "Hydration Effects of Ni²⁺ Binding to Synthetic Polynucleotides with Regularly Alternating Purine-pyrimidine Sequences", *Nucleic Acids Res.* **28**, 911-916 (2000).
13. **B. I. Kankia**, "Interaction of Alkaline-earth Metal Ions with Calf Thymus DNA. Volume and Compressibility Effects in Diluted Aqueous Solutions", *Biophys. Chem.* **84**, 227-237 (2000).
14. T. Bronich, **B. I. Kankia**, A. V. Kabanov & L. A. Marky, "A Thermodynamic Investigation of the Interaction of Polycations with DNA", *Polymer Preprints* **41(2)** 1611-1612 (2000).
15. L. A. Marky, D. W. Kupke & **B. I. Kankia**, "Volume Changes Accompanying the Interaction of Ligands with Nucleic Acids" *Methods Enzymol.* **340**, 149-165 (2001).
16. **B. I. Kankia**, V. Buckin & V. A. Bloomfield, "Hexamminecobalt(III) – Induced Condensation of Calf Thymus DNA: Circular Dichroism, and Hydration Measurements", *Nucleic Acids Res.* **29**, 2795-2801 (2001).
17. **B. I. Kankia** & L. A. Marky, "Folding of the Thrombin Aptamer into a G-Quadruplex with Sr²⁺: Stability, Heat and Hydration", *J. Am. Chem. Soc.* **123**, 10799-10804 (2001).
18. A. M. Soto, **B. I. Kankia**, P. Dande, B. Gold, & L. A. Marky, "Incorporation of 5-(3-aminopropyl)-2'-deoxyuridine in DNA Hairpins: Thermodynamics and Hydration", *Nucleic Acids Res.* **29**, 3638-3645 (2001).
19. **B. I. Kankia**, D. W. Kupke & L. A. Marky, "Incorporation of Cisplatin into Duplex DNA Immobilizes Structural Water Molecules", *J. Phys. Chem. B* **105**, 11402-11405 (2001).
20. A. M. Soto, **B. I. Kankia**, P. Dande, B. Gold, & L. A. Marky, "Thermodynamic and Hydration Effects for the Incorporation of a Cationic Aminopropyl Chain into DNA", *Nucleic Acids Res.* **30**, 3171-3180 (2002).
21. **B. I. Kankia**, A, M, Soto, N. Burns, R. Shikiya, C. Tung and L. A. Marky, "DNA Oligonucleotide Duplexes Containing Intramolecular Platinated Crosslinks: Energetics, Hydration, Sequence and Ionic Effects", *Biopolymers* **65**, 218-227 (2002).

22. **B. I. Kankia**, “Binding of Mg^{2+} to Single-stranded Polynucleotides: Hydration and Optical Studies”, ”, *Biophys. Chem.* **104**, 643-654 (2003).
23. **B. I. Kankia**, “ Mg^{2+} -induced Triplex Formation of An Equimolar Mixture of Poly(rA) and Poly(rU)”, *Nucleic Acids Res.* **31**, 5101-5107 (2003).
24. **B. I. Kankia**, “Innere-sphere Complexes of Divalent Cations with Single Stranded RNA polymers”, (2004) *Biopolymers* **74**, 232-239 (2004).
25. **B. I. Kankia**, “Optical Absorption Assay for Strand-exchange Reactions in Unlabeled Nucleic Acids” *Nucleic Acids Res.* **32**, e154 (2004).
26. **B. I. Kankia**, G. Barany and K. Musier-Forsyth, “Unfolding of Thrombin Binding Aptamer DNA Quadruplex Induced by HIV-1 Nucleocapsid Protein” *Nucleic Acids Res.* **33**, 4395-4403 (2005).

27. **B. I. Kankia**, “A Real-time Assay for Monitoring Nucleic Acid Cleavage by Quadruplex Formation” *Nucleic Acids Res.* **34**, e141 (2006).
28. **B. I. Kankia**, K. Musier-Forsyth “The HIV-1 DNA Flap Region Contains “Flapping” Third Strand” *Biophys. Chem.* **127**, 64-68 (2007).
29. K. Post, **B. Kankia**, S. Gopalakrishnan, V. Yang, E. Cramer, P. Saladores, R.J. Gorelick, J. Guo, K. Musier-Forsyth and J.G. Levin. “Fidelity of plus-strand priming requires the nucleic acid chaperone activity of HIV-1 nucleocapsid protein” *Nucleic Acids Res.* **37**, 1755-66 (2009).
30. **B. I. Kankia**, “Self-dissociative primers for nucleic acid amplification and detection based on DNA quadruplexes with intrinsic fluorescence” *Anal. Biochem.* **409**, 59-65 (2011).
31. S. Kelley, S. Boroda, K. Musier-Forsyth, **B.I. Kankia**, “HIV-integrase aptamer folds into a parallel quadruplex: A thermodynamic study” *Biophys. Chem.* **155**, 82-88 (2011).
32. S. Maiti, **B.I. Kankia**, I.Khutsishvili, L. Marky “Melting behavior and ligand binding of DNA intramolecular secondary structures.” *Biophys. Chem.* **159**, 162-71 (2011).
33. J. Johnson, R. Okyere, A. Joseph, K. Musier-Forsyth, **B. Kankia**, “Quadruplex formation as a molecular switch to turn on intrinsically fluorescent nucleotide analogs” *Nucleic Acids Res.* **41**, 220-28 (2013).
34. A. Taylor, A. Joseph, R. Okyere, Sh. Gogichaishvili, K. Musier-Forsyth, **B. Kankia**, “Isothermal quadruplex priming amplification for DNA-based diagnostics” *Biophys. Chem.* **171**, 1-8 (2013).
35. Sh. Gogichaishvili, J. Johnson, D. Gvarjaladze, L. Lomidze, **B. Kankia**, “Isothermal amplification of DNA using quadruplex primers with fluorescent pteridine base analogue 3-methyl isoxanthopterin” *Biopolymers* **101**, 583-590 (2014).
36. J. Mathias, R. Okyere, L. Lomidze, D. Gvarjaladze, K. Musier-Forsyth, **B. Kankia**, “Thermodynamic properties of quadruplex primers for highly versatile isothermal DNA amplification” *Biophys. Chem.* **185**, 14-18 (2014).
37. N. M. Adams, K. Wang, A. Caprioli, L. Thomas, **B. Kankia**, F. Haselton, D. Wright, “Quadruplex priming amplification for the detection of mRNA from surrogate patient samples” *Analyst* **139**, 1644-1652 (2014).
38. **B. Kankia**, “Tetrahelical Monomolecular Architecture of DNA: A New Building Block for Nanotechnology” *J. Phys. Chem. B* **118**, 6134-6140 (2014).
39. Sh. Gogichaishvili, L. Lomidze, **B. Kankia**, “Quadruplex priming amplification combined with nicking enzyme for diagnostics” *Anal. Biochem.* **466**, 44-48 (2014).
40. T. Partskhaladze, A. Taylor, D. Gvarjaladze, L. Lomidze, **B. Kankia**, “Exponential quadruplex priming amplification for DNA-based isothermal diagnostics ” *Biopolymers* **103**, 88-95 (2015).
41. **B. Kankia**, “Quadruplex-and-Mg²⁺ (QMC) connection of DNA” *Sci. Rep.* **5**, 12996, (2015).
42. **B. Kankia**, D. Gvarjaladze, A. Rabe, L. Lomidze, N. Metreveli, K. Musier-Forsyth, “Stable domain assembly of monomolecular DNA quadruplex: implications for DNA-based nanoswitches” *Biophys. J.* **110**, 2169-2175 (2016).
43. L. Lomidze, S. Kelley, S. Gogichaishvili, N. Metreveli, K. Musier-Forsyth, **B. Kankia**, “Sr²⁺

induces unusually stable d(GGGTGGGTGGGTGGG) quadruplex dimers” *Biopolymers* **105**, 811-818 (2016).

44. L. Lomidze, T. H. Williford, K. Musier-Forsyth, **B. Kankia**, “Isothermal amplification of long DNA segments by quadruplex priming amplification” *Analytical Methods* **10**, 2972 (2018).
45. **B. Kankia**, “Monomolecular tetrahelix of polyguanine with a strictly defined folding pattern” *Sci. Rep.* **8**, 12996 (2018).

46. C. Pease, G.E. Plum, **B. Kankia**, J.J. Kwiek, R. Sooryakumar, "On chip quadruplex priming amplification for quantitative isothermal diagnostics" *Biomed. Microdevices* 20, 56 (2018).
47. **B. Kankia**, "Stability Factors of the Parallel Quadruplexes: DNA versus RNA" *J. Phys. Chem. B* 123, 1060-1067 (2019).
48. **B. Kankia**, "Quadruplex-Based Reactions for Dynamic DNA Nanotechnology" *J. Phys. Chem. B* 124, 4263-4269 (2020).
49. **B. Kankia**, "Quadruplex- templated and catalyzed ligation of nucleic acids" *ChemBioChem* 22, 1261-67 (2021).
50. C. Harpster, E. Boyle, K. Musier-Forsyth, **B. Kankia** "HIV-1 genomic RNA U3 region forms a more stable quadruplex-hairpin structure than the corresponding U3-DNA sequence" *Biophys. Chem.* 272, 106567 (2021).
51. **B. Kankia**, "Quadruplex world" *Origin of Life and Evolution of Biospheres* 51, 273-286 (2021).
52. L. Lomidze, M. Yang, D. Khutsishvili, N. Metreveli, K. Musier-Forsyth, **B. Kankia**, "Structure of tetrahelical DNA homopolymers support quadruplex world hypothesis" *ACS Chemistry* 7, 4311-4316 (2022).
53. E. Boyle, L. Lomidze, K. Musier-Forsyth, **B. Kankia**, "A Chimeric DNA/RNA Antiparallel Quadruplex with Improved Stability" *ChemistryOpen* 11, e202100276 (2022).
54. **B. Kankia**, "Trinity of G-tetrads and origin of translation" *Biology Direct* 17, 12 (2022) <https://doi.org/10.1186/s13062-022-00327-9>

პატენტები:

1. **B. I. Kankia**, "Isothermal Amplification of Nucleic Acid", US Application Serial No. 61/940,045, publication No. 20140051086.
2. **B. I. Kankia**, "Primers and Methods for Nucleic Acid Amplification Including Acute Inflammation" US Application Serial No. 13/579,486, publication No. 20120315642.
3. **B. I. Kankia**, "Primers and Methods for Nucleic Acid Amplification", European Application Serial No. 11745310.0, publication No. EP2536739.
4. **B. I. Kankia**, "Primers and Methods for Nucleic Acid Amplification", Canadian Application Publication No. 2,790,342, issued on October 1, 2019.
5. **B. I. Kankia**, "Isothermal Amplification of Nucleic Acid, and Library Preparation and Clone Generation in Sequencing", PCT/US2014/021165, pending.

თავი წიგნები

1. **B. I. Kankiya**, S. N. Buckina, S. R. Valaeva & V. A. Buckin, "Ultrasonic Investigation of Solute-Solvent Interactions in Dilute Aqueous Solutions of Nucleic Bases", in *Ultrasound* 86, Bratislava, Czechoslovakia, 126-131 (1986).

2. **B. I. Kankia**, V. A. Buckin & Th. Funck, “Acoustical Study of EDTA-Metal (Magnesium, Calcium, Strontium & Barium) Complex Formation in Aqueous Solutions”, *Radiation Research* 6, 116-123 (1991).
3. **B. I. Kankia**, V. A. Buckin & Th. Funck, “Alteration of Apparent Volume and Apparent Adiabatic Compressibility During Interaction of Mg^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} with EDTA Aqueous Solutions”, *Radiation Research* 6, 124-131 (1991).
4. V. N. Belonenko, T. Chalikian, T. Funck, **B. Kankia** & A. P. Sarvazyan, “High Resolution Ultrasonic Measurements as a Tool for Studies on Biochemical Systems under Variation of Pressure”, in *High Pressure Research in Bioscience and Biothechnology*, K. Heremans, Ed., Leuven University Press, Leuven, 147-150 (1997).
5. V. N. Belonenko, E. Bunau, T. Chalikian, L. De Maeyer, T. Funck, **B. Kankia**, V. Nikolashev & A. P. Sarvazyan, “Measurements of the Compressibility of Small Fluid Samples As a Function of Pressure”, in *High Pressure Research in Bioscience and Biothechnology*, K. Heremans, Ed., Leuven University Press, Leuven, 150-153 (1997).
6. **B. Kankia**, “Quadruplex priming amplification (QPA) for nucleic acid diagnostics” in *RNA and DNA Diagnostics*, V.A. Erdmann, S.Jurga, J.Barciszewski, Ed. Springer, 281-295 (2015).

გამოქვეყნებული თეზისები:

1. V. A. Buckin, S. V. Tshelikova, R. L. Kazaryan & **B. I. Kankiya**, “Acoustical Investigation of Ionic Atmosphere of Nucleic Acids in Aqueous Solutions”, in Proc. Int. Symp. *Structure of Liquids and Solutions*, Vezprem, Hungary, pp.12-13 (1987).
2. **B. I. Kankiya** & V. A. Buckin, “Ultrasonic Investigation of Hydration of Double-Stranded Polynucleotides”, in Proc. Int. Symp. *UBIOMED VIII*, Brno, Czechoslovakia, p. 20 (1989).
3. V. A. Buckin, L. De Maeyer, Th. Funck, E. Kudrjashov, F. Braginskaya, **B. I. Kankia** & L. A. Marky, “Application of Ultrasonic Velocity Technic for the Direct Measurements of the Hydration Changes that Results from the Interaction of Ligands to DNA”, *J. Biomed. Struct. and Dyn.* 10, p.021 (1993).
4. V. A. Buckin, L. De Maeyer, T. Funck, **B. I. Kankia** & L. A. Marky, “Hydration Effects in DNA-Magnesium Binding”, in Proc. *11th Int. Biophys. Cong.*, Budapest, Hungary, p.165 (1993).
5. V. Buckin, L. De Maeyer, T. Funck, E. Kudrjashov, F. Braginskaya, **B. I. Kankiya** & L. A. Marky, “Ultrasonic Velocity Measurements Are a New Method for Investigations of DNA-Ligand Interactions”, in Proc. *21th Int. Workshop on DNA-Drug Interactions*, Madrid, Spain, p.50 (1993).
6. V. Buckin, **B. I. Kankiya** & L. A. Marky, “Hydration Effects in the Ionic Atmosphere of Nucleic Acids”, *Prog. in Biophys. & Mol. Biol.* 65, A75 (1996).
7. G. M. Mrevlishvili, **B. I. Kankia**, T. J. Mdzinarashvili, N. O. Metreveli, M. M. Khvedelidze & T. Brelidze, “Calorimetric study of lipid-DNA interactions”, in Proc. *14th IUPAC Conf. on*

Chemical Thermodynamics, Osaka, Japan, p. 376 (1996).

8. V. Buckin, **B. I. Kankiya**, V. Morozov & L. A. Marky, “What Are the Main Factors Determining the Structure of the Ionic Atmosphere of Nucleic Acids”, *Biophysical Journal* 70, p. A155 (1996).

9. S. Maiti, **B. I. Kankia** & L. A. Markey, “Interaction of Distamycin with DNA Oligomers Containing One A₃T₂ Binding Site: Contribution of Secondary Structure” in Proc. *14th Annual Gibbs Conference on Biothermodynamics*, Carbondale, Illinois, p.4.61 (2000).
10. S. Maiti, **B. I. Kankia** & L. A. Markey, “Interaction of Minor Groove Ligands to DNA Oligomers Containing One or Two AAATT/TTTAA Sites” in Proc. *220th American Chemical Society National Meeting*, Washington, DC, Phys. 286 (2000).
11. S. Maiti, **B. I. Kankia** & L. A. Markey, “Folding and Ligand Binding to DNA Oligonucleotides with Single and double Hairpin Loops”, in Proc. *16th Annual Gibbs Conference on Biothermodynamics*, Carbondale, Illinois, p.15 (2002).

ზეპირი მოხსენებები:

1. **B. I. Kankiya**, S. V. Tshelikova, R. L. Kazaryan & V. A. Buckin, “Acoustical Investigation of Interactions of DNA with Mg²⁺”, *7th International Symposium Spectroscopy of Biopolymers*, Kharkov, USSR (1988).
2. **B. I. Kankia** & L. A. Markey, “Hydration Effects Resulting from the Interaction of Mg²⁺ with DNA, RNA, DNA/RNA Undecamer Duplexes and their Component Single Strands”, *42nd Biophysical Society Meeting*, USA (1998).
3. **B. I. Kankia** & L. A. Markey, “Differential Hydration Resulting from the Inclusion of W-C Base Pairs, Mismatches and Loops into DNA Duplexes”, *43rd Biophysical Society Meeting*, USA (1999).
4. **B. I. Kankia** & L. A. Markey, “Thermodynamic Investigation of the Hydration Effects Accompanying the Binding of Mg²⁺ to Nucleic Acids”, *13th Annual Gibbs Conference on Biothermodynamics*, USA (1999).
5. **B. I. Kankia** & L. A. Markey, “Formation of G-quadruplexes with Alkaline and Alkaline-earth Metal Ions: Folding and Hydration”, *14th Annual Gibbs Conference on Biothermodynamics*, USA (2000).
6. **B. I. Kankia**, “Inner-sphere Complexes of Mg²⁺ with Poly(rA) and Delocalized Binding to Poly(dA)”, *16th Annual Gibbs Conference on Biothermodynamics*, USA (2002).
7. **B. I. Kankia**, George Barany, Karin Musier-Forsyth “Unfolding of DNA Quadruplexes Induced by HIV-1 Nucleocapsid Protein”, *5th International Retroviral NC Symposium*, USA (2005).
8. **B. I. Kankia**, “Thermodynamics of DNA quadruplexes” *3rd Forum of Georgian Scientists* Tbilisi, Georgia (2010).
9. **B. I. Kankia**, “Quadruplex-Based Technology for Isothermal Quadruplex Priming Amplification and Non-Enzymatic Detection”, Bill and Melinda Gates Foundation Meeting, Vancouver, Canada 2011.
10. **B. I. Kankia**, “DNA quadruplexes in diagnostics” *4th Forum of Georgian Scientists* Tbilisi, Georgia (2011).
11. J. Johnson, R. Okyere, A. Taylor, A. Joseph, K. Musier-Forsyth, **B. Kankia**, “Quadruplex-based technology for nucleic acid amplification and detection” *56th Biophysical Society Meeting*,

USA (2012)

12. **B. Kankia**, “Quadruplex-Based Technology for Isothermal Quadruplex Priming Amplification and Non-Enzymatic Detection”, Bill and Melinda Gates Foundation Meeting, Seattle, USA, 2012.
13. **B. I. Kankia**, “DNA thermodynamics in Georgia” *5th Forum of Georgian Scientists* Batumi, Georgia (2012).

14. **B. Kankia**, “Quadruplex priming amplification for DNA diagnostics and isothermal clone generation”, Bill and Melinda Gates Foundation Meeting, Seattle, USA (2013).
15. **B. Kankia**, “Tetrahelical Monomolecular Architecture of DNA for biotechnological applications”, 1st Conference on Biomotors, Virus Assembly, and Nanotechnology Applications", Columbus, USA (2017).
16. **B. Kankia**, “Tetrahelical Monomolecular Architecture of DNA for biotechnological applications”, *31st Annual Gibbs Conference on Biothermodynamics*, USA (2017).
17. **B. Kankia**, “Quadruplex-based technologies for point-of-care DNA diagnostics”, 2nd Conference on Biomotors, Virus Assembly, and Nanotechnology Applications", Columbus, USA (2019).
18. **B. Kankia**, “The Quadruplex World Hypothesis” 8th International Meeting on Quadruplex Nucleic Acids, Marienbad, Czech Republic, 27 June – 1 July (2022).