

Curriculum vitae

MANAKOVA Elena

born on 30 November, 1968 in Novosibirsk, Russia

Current addresses

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Vilnius, Lithuania

Research interests

Protein-nucleic acids interaction, restriction-modification systems, bacterial defense systems, protein crystallography, structure-function relationships, small angle x-ray scattering

Education

1986-1991

Novosibirsk State University, faculty of Natural Sciences. Graduated with the diploma work "Polyadenylate synthesis by eukaryotic α polymerase-primase complexes".

1995-2001

Completed the PhD thesis in Natural Sciences "Study of structure and function of GroESL chaperonin system using small angle scattering" and passed doctoral examination in the Technical University of Munich.

Research experience

1991-1995

Trainee and junior researcher at the Limnological Institute of the Siberian Branch of Russian Academy of Sciences (Irkutsk, Russia) working on the biodiversity of the bacteria from the lake Baikal sediments.

Since 2001

Working in the Institute of Biotechnology, Protein-DNA interaction department on the structural studies of restriction endonucleases and other bacterial defense systems.

2002-2005 as junior researcher,

2005-2013 as researcher

Since 2013 as senior researcher

Pedagogical activity

2007

Supervising a summer practice of Vilnius University student Lina Juknaite (Molecular Biology) „Crystallization of the mutant form of restriction endonuclease Bse 634I“.

2008

Supervising the summer practice of Vilnius University student Simina Vasyte (Biochemistry) "T4 phage replication system protein homologs from other related phages".

2010-2011

Supervising BSc work of Ruta Zalyte, (Vilnius University, Biochemistry) "The Structural and biochemical studies of phage T4 primase and helicase", that was successfully defended.

2012

Supervising the summer and autumn practice of Vilnius University student Alexey Smirnov.

2013

Supervising successfully defended MSc work of Vilnius University (Biochemistry) student Alexey Smirnov "Crystallographic studies of human carbonic anhydrases isoforms II, XII and XIII complexes with inhibitors".

2013-2018

Together with Dr. Prof. D. Matulis supervising the PhD student Alexey Smirnov working on the thesis "Crystallographic studies of human carbonic anhydrases isoforms and their interaction with inhibitors".

Conferences

24-26.09.2008

ScanBalt Forum and ScanBalt biomaterials days. Poster title „Novel thaidiazole inhibitors of human carbonic anhydrases“, Vilnius, Lithuania

1-6.08.2010

6th New England Biolabs meeting on DNA restriction and modification Jacobs university, Bremen. Poster title „Crystal structure of the restriction endonuclease Bse634I with cognate DNA“.

4-9.09.2012

22th IUBMB and 37th FEBS Congress, Sevilla, Spain. Poster title “Structural mechanism of cognate DNA recognition by the BfiI restriction enzyme”.

24-29.08.2015

7th NEB meeting on DNA restriction and modification, Gdansk University. Poster title „Crystallographic and functional studies of the restriction endonucleases recognizing 5'-CCGG tetranucleotide core: Kpn2I and PfoI “, Elena Manakova, Giedre Tamulaitiene, Gintautas Tamulaitis, Migle Mikutenaite, Virginijus Siksnys.

Grants

01.05-30.10.2008

Participating in the project "The search of the crystallization conditions of thermophilic DNA polymerase". The Contract number 766 was funded by "Fermentas", the head of the project Dr. G. Tamulaitiene.

2008-2010

Working in the project funded by Lithuanian Science and Studies Foundation (N-06/09), Lithuanian Government, and EEA Grants 2004-LT0019-IP-1EEE "Creation of anticancer compounds using structural biothermodynamics", the head of the project Dr. Prof. D. Matulis.

2008-2010

Working in the project Nr. C-01/2008 (registered as C-08027) "The structure and function studies of the Phage T4 replisoma", funded by Lithuanian scientific research and experimental development program. The head of the project Dr. Prof. V. Šikšnys.

2010-2011

Working in the Researcher team's project MIP-102/2010 funded by Lithuanian Research Council "Interconnection between nuclease structure and specificity". The head of the project Dr. M. Zaremba.

2011-2014

Working in project (Nr. VP1-3.1-ŠMM-07-K-01-100) funded by the European Social Fund under Global Grant measure "The structure and molecular mechanisms of bacterial defense systems". The head of the project Dr. Prof. V. Šikšnys.

2011-2012

E. Manakova was a head of the Researcher team's project MIP-086/2011 funded by Lithuanian Research Council "The structural investigation of the proteins and protein-nucleic acids complexes in the solution".

2013-2015

Working in the Researcher team's project MIP-41/2013 funded by Lithuanian Research Council "The studies of the structure and function of the related restriction endonucleases family". The head of the project Dr. G. Tamulaitiene.

2014-2016

Working in the Researcher team's project MIP-027/2014 funded by Lithuanian Research Council "The role of Cas1 and Cas2 proteins in the adaptation mechanism of CRISPR/Cas systems". The head of the project Dr. G. Gasiunas.

2015-2017

E. Manakova takes part in the Researcher team's project MIP-106/2015 funded by Lithuanian Research Council "Structure and function interconnection in the B3 DNA binding domains family". The head of the project Dr. G. Sasnauskas.

2017-2019

E. Manakova was a head of Researcher team's project funded by Lithuanian Research Council S-MIP-17-59 "Surface nano-structures for mechanistic studies of DNA - protein interaction at the single- molecule level " in the collaboration with Center for Physical sciences and Technology.

2018-2022

E. Manakova worked in the funded by the European Social Fund under Global Grant measure (Nr. 09.3.3-LMT-K-712-01-0126) "New molecular mechanisms of bacterial antivirus defence". The head of the project Dr. Prof. V. Šikšnys.

2019-2022

E. Manakova worked in the Researcher team's project funded by Lithuanian Research Council S-MIP-19-32 "Studies of the Type II CRISPR-Cas systems adaptation mechanisms", the head of the project Dr. G. Sasnauskas.

Since 2020

E. Manakova participates in the Researcher team's project funded by Lithuanian Research Council S-MIP-20-37 "Structural and functional studies of split prokaryotic Argonaute proteins". Head of the project Dr. M. Zaremba.

Since 2022

E. Manakova participates in EMBL Partnership Institute hosted in VU LSC funded by EU (Nr. 01.2.2-CVPA-V-716-01-0001) in Dr. L. Malinauskaite group "Structural Biology of Proteins Involved in Gene Editing".

Courses

24.10-1.11.2010

„EMBO practical course on solution scattering from biological macromolecules“
DESY EMBL outstation, Hamburg.

2020-2021

E. Manakova participated in the Cryo EM Single Particle Analysis training courses carried out by Thermo Fisher.

3.06.2021-30.06.2021

E. Manakova studied Cryo EM data processing in the group of Dr. Irina Gutsche (IBS CNRS in Grenoble, France).

Publications

1. Podust V.N., Vladimirova O.V., **Manakova E.N.** & Lavrik O.I. Eukaryotic DNA primase. Abortive synthesis of oligoadenylates. *FEBS Lett*, 1991, 280:281-283. doi: 10.1016/0014-5793(91)80312-q. PMID: 2013323

2. Podust V.N., Vladimirova O.V., **Manakova E.N.** & Lavrik O.I. Eukaryotic DNA primase appears to act as oligomer in DNA-polymerase-alpha--primase complex. *Eur J Biochem*, 1992, 206:7-13. doi: 10.1111/j.1432-1033.1992.tb16895.x. PMID: 1587285
3. Bel'kova N.L., Denisova L.I., **Manakova E.N.**, Zaichikov E.F. & Grachev M.A. [Species diversity of deep water microorganisms in Lake Baikal, detected by 16S rRNA sequences]. *Dokl Akad Nauk*, 1996, 348(5):692-695. PMID: 8963207
4. Belikov S.I., Grachev M.A., Zemskaia T.I., **Manakova E.N.** & Parfenova V.V. [Determination of the taxonomic position of bacteria from Lake Baikal using sequence analysis of 16S rRNA fragments]. *Mikrobiologija*, 1996, 65:855-864. PMID: 9102557
5. Tulokhonov I.I., **Manakova E.N.**, Flegentov G.I., Belikov S.I. & Zaichikov E.F. [Nucleotide sequence of a fragment of the *Cottocomephorus grewingki* phosphofructokinase gene]. *Bioorg Khim*, 1996, 22:596-598. PMID: 8985003
6. Stegmann R., **Manakova E.**, Rössle M., Heumann H., Nieba-Axmann S.E., Plückthun A., Hermann T., May R.P. & Wiedenmann A. Structural changes of the *Escherichia coli* GroEL-GroES chaperonins upon complex formation in solution: a neutron small angle scattering study. *J Struct Biol*, 1998, 121:30-40. doi: 10.1006/jsbi.1997.3938. PMID: 9573618
7. Maier G., **Manakova E.** & Heumann H. Effect of *Escherichia coli* chaperonin GroEL on heterologously expressed human immunodeficiency virus type 1 reverse transcriptase in vivo and in vitro. *Applied Biochemistry and Biotechnology*, 2000, 87:103-115. doi: 10.1385/abab:87:2:103. PMID: 10949691
8. Bartolucci C., Lamba D., Grazulis S., **Manakova E.** & Heumann H. Crystal structure of wild-type chaperonin GroEL. *J Mol Biol*, 2005, 354:940-951. doi: 10.1016/j.jmb.2005.09.096. PMID: 16288915
9. Grazulis S., **Manakova E.**, Roessle M., Bochtler M., Tamulaitiene G., Huber R. & Siksnys V. Structure of the metal-independent restriction enzyme BfiI reveals fusion of a specific DNA-binding domain with a nonspecific nuclease. *Proc Natl Acad Sci USA*, 2005, 102:15797-15802. doi: 10.1073/pnas.0507949102. PMID: 16247004
10. Bochtler M., Szczepanowski R.H., Tamulaitis G., Grazulis S., Czapinska H., **Manakova E.** & Siksnys V. Nucleotide flips determine the specificity of the Ecl18kI restriction endonuclease. *EMBO J*, 2006, 25:2219-2229. doi: 10.1038/sj.emboj.7601096. PMID: 16628220
11. Golovenko D., **Manakova E.**, Tamulaitiene G., Grazulis S. & Siksnys V. Structural mechanisms for the 5'-CCWGG sequence recognition by the N- and C-terminal domains of EcoRII. *Nucleic Acids Res*, 2009, 37:6613-6624. doi: 10.1093/nar/gkp699. PMID: 19729506
12. Gražulis S., Chateigner D., Downs R.T., Yokochi A.F.T., Quirós M., Lutterotti L., **Manakova E.**, Butkus J., Moeck P. & Bail A.L. Crystallography Open Database - an open-access collection of crystal structures. *J Appl Crystallogr*, 2009, 42:726-729. doi: 10.1107/S0021889809016690. PMID: 22477773

13. Baranauskienė, L. Hilvo M., Matulienė J., Golovenko D., **Manakova E.**, Dudutienė V., Michailovienė V., Torresan J., Jachno J., Parkkila S., Maresca A., Supuran C.T., Gražulis S. & Matulis D. Inhibition and binding studies of carbonic anhydrase isozymes I, II and IX with benzimidazo[1,2-c][1,2,3]thiadiazole-7-sulphonamides. *J Enzyme Inhib Med Chem*, 2010, 25:863-870. doi: 10.3109/14756360903571685. PMID: 20166809
14. Sūdžius J., Baranauskienė L., Golovenko D., Matulienė J., Michailovienė V., Torresan J., Jachno J., Sukackaitė R., **Manakova E.**, Gražulis S., Tumkevičius S. & Matulis D. 4-[N-(substituted 4-pyrimidinyl)amino]benzenesulfonamides as inhibitors of carbonic anhydrase isozymes I, II, VII, and XIII. *Bioorg Med Chem*, 2010, 18:7413-7421. doi: 10.1016/j.bmc.2010.09.011. PMID: 20889345
15. Čapkauskaitė E., Baranauskienė L., Golovenko D., **Manakova E.**, Gražulis S., Tumkevičius S. & Matulis D. Indapamide-like benzenesulfonamides as inhibitors of carbonic anhydrases I, II, VII, and XIII. *Bioorg Med Chem*, 2010, 18:7357-7364. doi: 10.1016/j.bmc.2010.09.016. PMID: 20926301
16. **Manakova E.**, Gražulis S., Zaremba M., Tamulaitienė G., Golovenko D. & Siksnys V. Structural mechanisms of the degenerate sequence recognition by Bse634I restriction endonuclease. *Nucleic Acids Res*, 2012, 40:6741-6751. doi: 10.1093/nar/gks300. PMID: 22495930
17. Čapkauskaitė E., Zubrienė A., Baranauskienė L., Tamulaitienė G., **Manakova E.**, Kairys V., Gražulis S., Tumkevičius S. & Matulis D. Design of [(2-pyrimidinylthio)acetyl]benzenesulfonamides as inhibitors of human carbonic anhydrases. *Eur J Med Chem*, 2012, 51:259-270. doi: 10.1016/j.ejmech.2012.02.050. PMID: 22440859
18. Dudutienė V., Zubrienė A., Smirnov A., Gylytė J., Timm D., **Manakova E.**, Gražulis S. & Matulis D. 4-Substituted-2,3,5,6-tetrafluorobenzenesulfonamides as inhibitors of carbonic anhydrases I, II, VII, XII, and XIII. *Bioorg Med Chem*, 2013, 21:2093-2106. doi: 10.1016/j.bmc.2013.01.008. PMID: 23394791
19. Čapkauskaitė E., Zubrienė A., Smirnov A., Torresan J., Kišonaitė M., Kazokaitė J., Gylytė J., Michailovienė V., Jogaitė V., **Manakova E.**, Gražulis S., Tumkevičius S. & Matulis D. Benzenesulfonamides with pyrimidine moiety as inhibitors of human carbonic anhydrases I, II, VI, VII, XII, and XIII. *Bioorg Med Chem*, 2013, 21:6937-6947. doi: 10.1016/j.bmc.2013.09.029. PMID: 24103428
20. Golovenko D., **Manakova E.N.**, Zakrys L., Zaremba M., Sasnauskas G., Gražulis S. & Siksnys V. Structural insight into the specificity of the B3 DNA-binding domains provided by the co-crystal structure of the C-terminal fragment of BfiI restriction enzyme. *Nucleic Acids Res*, 2014 Apr, 42(6):4113-4122. doi: 10.1093/nar/gkt1368. Epub 2014 Jan 13. PMID: 24423868
21. Rutkauskas K., Zubrienė A., Tumosienė I., Kantminienė K., Kažemėkaitė M., Smirnov A., Kazokaitė J., Morkūnaitė V., Čapkauskaitė E., **Manakova E.**, Gražulis S., Beresnevičius Z. J. & Matulis D. 4-Amino-substituted Benzenesulfonamides as Inhibitors of Human Carbonic Anhydrases. *Molecules*, 2014, 19:17356-17380; doi:10.3390/molecules191117356. PMID: 25353386

22. Tamulaitis G., Kazlauskienė M., **Manakova E.**, Venclovas C., Nwokeoji A.O., Dickman M. J., Horvath P. & Siksnys V. Programmable RNA Shredding by the Type III-A CRISPR-Cas System of *Streptococcus thermophilus*. *Molecular Cell*, 2014, 56(4):506-517; doi: 10.1016/j.molcel.2014.09.027; <http://dx.doi.org/10.1016/j.molcel.2014.09.027> PMID: 25458845
23. Dudutienė V., Matulienė J., Smirnov A., Timm D. D., Zubrienė A., Baranauskienė L., Morkūnaitė V., Smirnovienė J., Michailovienė V., Juozapaitienė V., Mickevičiūtė A., Kazokaitė J., Bakšytė, S., Kasiliauskaitė A., Jachno J., Revuckienė J., Kišonaitė M., Pilipuitytė V., Ivanauskaitė E., Milinavičiūtė G., Smirnovas V., Petrikaitė V., Kairys V., Petrauskas V., Norvaišas P., Lingė D., Gibieža P., Capkauskaitė E., Zakšauskas A., Kazlauskas E., **Manakova E.**, Gražulis S., Ladbury J. E. & Matulis D. Discovery and Characterization of Novel Selective Inhibitors of Carbonic Anhydrase IX. *J Med Chem*, 2014, 57:9435-9446 <https://doi.org/10.1021/jm501003k>. doi: 10.1021/jm501003k. PMID: 25358084
24. Kišonaitė M., Zubrienė A., Capkauskaitė E., Smirnov A., Smirnovienė J., Kairys V., Michailovienė V., **Manakova E.**, Gražulis S. & Matulis D. Intrinsic Thermodynamics and Structure Correlation of Benzenesulfonamides with a Pyrimidine Moiety Binding to Carbonic Anhydrases I, II, VII, XII, and XIII. *PLoS One*, 2014, 9:e114106. doi: 10.1371/journal.pone.0114106. PMID: 25493428
25. Zaremba M., Toliūsis P., Grigaitis R., **Manakova E.**, Silanskas A., Tamulaitienė G., Szczelkun M. D. & Siksnys V. DNA cleavage by CgII and NgoAVII requires interaction between N- and R-proteins and extensive nucleotide hydrolysis. *Nucleic Acids Res*, 2014, 42:13887-13896; doi: 10.1093/nar/gku1236; PMC4267653; PMID: 25429977
26. Zubrienė A., Smirnovienė J., Smirnov A., Morkūnaitė V., Michailovienė V., Jachno J., Juozapaitienė V., Norvaišas P., **Manakova E.**, Gražulis S. & Matulis D. Intrinsic thermodynamics of 4-substituted-2,3,5,6-tetrafluorobenzenesulfonamide binding to carbonic anhydrases by isothermal titration calorimetry. *Biophys Chem*, 2015, 205:51-65, doi: 10.1016/j.bpc.2015.05.009. Epub 2015 Jun 6, PMID: 26079542
27. Dudutienė V., Zubrienė A., Smirnov A., Timm D.D., Smirnovienė J., Kazokaitė J., Michailovienė V., Zakšauskas A., **Manakova E.**, Gražulis S. & Matulis D. Functionalization of Fluorinated Benzenesulfonamides and Their Inhibitory Properties toward Carbonic Anhydrases. *ChemMedChem*, 2015, 10:662-687, doi: 10.1002/cmdc.201402490. Epub 2015 Mar 10. PMID: 25758852
28. Tamulaitienė G., Jovaisaitė V., Tamulaitis G., Songailienė I., **Manakova E.**, Zaremba M., Gražulis S., Xu S.Y. & Siksnys V. Restriction endonuclease AgeI is a monomer which dimerizes to cleave DNA. *Nucleic Acids Res*, 2017, Apr 7, 45(6):3547-3558. doi: 10.1093/nar/gkw1310. PMID: 28039325
29. Zubrienė A., Smirnov A., Dudutienė V., Timm D.D., Matulienė J., Michailovienė V., Zakšauskas A., **Manakova E.**, Gražulis S. & Matulis D. Intrinsic Thermodynamics and Structures of 2,4- and 3,4-Substituted Fluorinated Benzenesulfonamides Binding to Carbonic Anhydrases.

ChemMedChem, 2017 Jan 20, 12(2):161-176. doi: 10.1002/cmdc.201600509. Epub 2016 Dec 21. PMID: 28001003

30. Mickevičiūtė A., Timm D.D., Gedgaudas M., Linkuvienė V., Chen Z., Waheed A., Michailovienė V., Zubrienė A., Smirnov A., Čapkauskaitė E., Baranauskienė L., Jachno J., Revuckienė J., **Manakova E.**, Gražulis S., Matulienė J., Di Cera E., Sly W.S. & Matulis D. Intrinsic thermodynamics of high affinity inhibitor binding to recombinant human carbonic anhydrase IV. *Eur Biophys J*, 2017 Oct 3, 47:271-290, doi: 10.1007/s00249-017-1256-0, PMID: 28975383, PMC6276378
31. Capkauskaite E., Linkuviene V., Smirnov A., Milinaviciute G., Timm D.D., Kasiliauskaite A., **Manakova E.**, Grazulis S. & Matulis D. Combinatorial Design of Isoform-Selective N-Alkylated Benzimidazole-Based Inhibitors of Carbonic Anhydrases. *Chemistry Select*, 2017 July 4, 2 (19): 5360–5371, DOI: 10.1002/slct.201700531
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33. Zakšauskas A., Čapkauskaitė E., Jezepčikas L., Linkuvienė V., Kišonaitė M., Smirnov A., **Manakova E.**, Gražulis S. & Matulis D. Design of two-tail compounds with rotationally fixed benzenesulfonamide ring as inhibitors of carbonic anhydrases. *European journal of medicinal chemistry*, 2018, 156: 61-78, PMID: 30006175, doi: 10.1016/j.ejmech.2018.06.059. Epub 2018 Jun 27.
34. Czapsinska H., Kowalska M., Zagorskaite E., **Manakova E.**, Slyvka A., Xu S.-Y., Siksnys V., Sasnauskas G. & Bochtler M. Activity and structure of EcoKMcrA. *Nucleic Acids Res*, 2018, 46(18):9829-9841. doi: 10.1093/nar/gky731. PMID: 30107581
35. Sasnauskas G., **Manakova E.**, Lapėnas K., Kauneckaitė K. & Siksnys V. DNA recognition by Arabidopsis transcription factors ABI3 and NGA1. *The FEBS Journal*, 2018, 285:4041–4059; <https://doi.org/10.1111/febs.14649>; doi: 10.1111/febs.14649; PMID: 30183137
36. Zagorskaitė E., **Manakova E.** & Sasnauskas G. Recognition of modified cytosine variants by the DNA-binding domain of methyl-directed endonuclease McrBC. *The FEBS Letters*, 2018, 592(19):3335-3345 DOI: 10.1002/1873-3468.13244. PMID: 30194838
37. Toliūsis P., Tamulaitiene G., Grigaitis R., Tuminauskaite D., Silanskas A., **Manakova E.**, Venclovas C., Szczelkun M.D., Siksnys V. & Zaremba M. The H-subunit of the restriction endonuclease CglI contains a prototype DEAD-Z1 helicase-like motor. *Nucleic Acids Res*, 2018 Feb 20, 46(5):2560-2572; doi: 10.1093/nar/gky107; PMC5861437; PMID: 29471489
38. Linkuvienė V., Zubrienė A., **Manakova E.**, Petrauskas V., Baranauskienė L., Zakšauskas A., Smirnov A., Gražulis S., Ladbury J.E. & Matulis D. Thermodynamic, kinetic, and structural parameterization of human carbonic anhydrase interactions toward enhanced inhibitor design. *Quarterly Reviews of Biophysics, Cambridge University Press*, 2018, 51, e10, 1-48 doi: 10.1017/S0033583518000082, PMID: 30912486

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40. Tutkus M., Rakickas T., Kopustas A., Ivanovaitė S.N., Venckus O., Navikas V., Zaremba M., **Manakova E.** & Valiokas R.N. Fixed DNA Molecule Arrays for High-Throughput Single DNA-Protein Interaction Studies. *Langmuir*. 2019, 35 (17):5921-5930. doi:10.1021/acs.langmuir. 8b03424. PMID: 30955328
41. Kazokaitė J., Kairys V., Smirnovienė J., Smirnov A., **Manakova E.**, Tolvanen M., Parkkila S. & Matulis D. Engineered Carbonic Anhydrase VI-Mimic Enzyme Switched the Structure and Affinities of Inhibitors. *Scientific Reports*, 2019, 9:12710; doi.org/10.1038/s41598-019-49094-0, PMC6722136, PMID: 31481705
42. Songailiene I., Rutkauskas M., Sinkunas T., **Manakova E.**, Wittig S., Schmidt C., Siksnys V. & Seidel R. Decision-Making in Cascade Complexes Harboring CrRNAs of Altered Length. *Cell Rep*. 2019, 28 (12), 3157-3166.e4. <https://doi.org/10.1016/j.celrep.2019.08.033>. PMID: 31533038. PMC6859484
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44. Dudutienė V., Zubrienė A., Kairys V., Smirnov A., Smirnovienė J., Leitans J., Kazaks A., Tars K., **Manakova L.**, Gražulis S. & Matulis D. Isoform-Selective Enzyme Inhibitors by Exploring Pocket Size According to the Lock-and-Key Principle. *Biophys J*. 2020 119(8):1513-1524. doi: 10.1016/j.bpj.2020.08.037. PMID: 32971003. PMC7642266
45. **Manakova E.**, Mikutenaite M., Golovenko D., Gražulis S. & Tamulaitiene G. Crystal structure of restriction endonuclease Kpn2I of CCGG-family. *Biochimica et Biophysica Acta (BBA) - General Subjects*. Volume 1865, Issue 8, August 2021, 129926. doi: 10.1016/j.bbagen.2021.129926, PMID: 33965438
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47. Golovinas E., Rutkauskas D., **Manakova E.**, Jankunec M., Silanskas A., Sasnauskas G. & Zaremba M. Prokaryotic Argonaute from *Archaeoglobus fulgidus* interacts with DNA as a homodimer. *Sci Rep*. 2021; 11: 4518. doi: 10.1038/s41598-021-83889 PMCID: PMC7907199 PMID: 33633170
48. Baronas D., Dudutienė V., Paketurytė V., Kairys V., Smirnov A., Juozapaitienė V., Vaškevičius A., **Manakova E.**, Gražulis S., Zubrienė A. & Matulis D.

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BOOK PARTS

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