Curriculum vitae

Tamulaitienė, Giedrė

Senior research scientist at Institute of Biotecnology, Life Sciences Center, Vilnius University (Vilnius)

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Gender Female

Date and place of birth May 18, 1975, Vilnius, Lithuania.

Scientific degrees

2002-2007 Vilnius University, Institute of Biotechnology
Vilnius, Lithuania
- PhD, Biochemistry
Crystallographic and Functional Investigations of Type II Restriction Endonucleases Eco57I and SdaI

1997-1999 Vilnius University, Lithuania.
- Master degree, Biochemistry
Determination of sequence specificity of methyltransferases expressed in vivo in H. pylori

1993-1997 Vilnius University, Lithuania.
- Bachelor degree, Biochemistry
Screening for novel specific restriction endonucleases and characterization of new restriction endonucleases BseGI, BseMI and MbiI

Professional positions:

2011-present *senior research scientist*
Laboratory of Protein-DNA Interactions
Institute of Biotechnology,
Life Sciences Center,
Vilnius University, Vilnius

2007-2011 *research scientist*
Laboratory of Protein-DNA Interactions
Institute of Biotechnology, Vilnius

2006-2007 *Junior research scientist*
Laboratory of Protein-DNA Interactions
Institute of Biotechnology, Vilnius

2002-2006	*PhD student*, supervisor Dr. S.Grazulis Laboratory of Protein-DNA Interactions Institute of Biotechnology, Vilnius
1999-2002	*Research assistant* Laboratory of the Nucleic Acid Metabolizing Enzymes Institute of Biotechnology, Vilnius

Major research interests:

Protein crystallography, Cryo-EM, protein-nucleic acids interactions, restriction endonucleases, CRISPR-Cas systems, bacterial antiphage defence systems

Grants

2008	UAB Fermentas and Lithuanian Science and Studies Foundation; „Screening of crystallization conditions of thermophylic polymerase“ ~20000 EUR
2011-2012	Research Council of Lithuania, Researcher teams' project Nr. MIP-90/2011 „Phage T4 praimosome“ (~50700 EUR).
2013-2015	Research Council of Lithuania, Researcher teams' project Nr. MIP-41/2013 „Structural and functional studies of restriction enzyme family“ (~109000 EUR).
2017-2020	Research Council of Lithuania, Researcher teams' project Nr. S-MIP-17-47 „Research and practical applications of a type IF CRISPR-Cas system“ (100000 EUR).
2021-2024	Research Council of Lithuania, Researcher teams' project Nr. S-MIP-21-6 „Structural and functional studies of Thoeris bacterial antiphage defense system“ (150000 EUR).

Awards and distinctions

2002	EMBO travel grant to attend EMBO Course (France).
2005,2006	Doctoral Research Fellowship from the Lithuanian State Science and Studies Foundation, Lithuania.
2005	MAXINF2 (European Macromolecular Crystallography Infrastructure Cooperation Network) travel grant to attend MM4MX Course (United Kingdom)
2006	FEBS accommodation grant for 31st FEBS Congress (Turkey)
2006	IUCr travel grant to attend Biocry2006 Course (Portugal)
2008	Lithuanian Society of Young Researchers award for best PhD thesis in Lithuania of 2007
2012	Research Council of Lithuania fellowship „Promoting gender equality in science (LYMOS)“ 1.2.1 action.

Teaching

Since 2016	Part of Molecular biology course (lectures and seminars) for IV year biochemistry students, Vilnius University

Courses and workshops

2002	EMBO practical course "Crystallization of Macromolecular Complexes", EMBL/Grenoble Outstation, Grenoble, France
2004	EMBO course "Automated Macromolecular Structure Solution", The Netherlands Cancer Institute, Amsterdam, Netherlands
2005	MM4MX course ("Macromolecular Modeling for Macromolecular Crystallographers"), Diamond Light Source, Chilton, Didcot, UK
2005	Practical Course on Training in methods for Macromolecular Crystallography M2M-5: From Measurement to Model", EMBL/DESY, Hamburg, Germany
2006	Biocrys2006 "Fundamentals of modern methods in biocrystallography", Instituto de Tecnologia Química e Biológica; Oeiras; Portugal
2008	EMBO course "Computational Aspects of the Protein Target Selection, Protein Production Management and Structure Analysis Pipeline"; EMBL Hinxton Cambridge, UK
2009	FSB/BCO protein crystallography course „Practical and theoretical aspects of datacollection and dataprocessing", University of Oulu, Oulu, Finland

Conferences

2006	31st FEBS Congress "Molecules in Health and Disease"; FEBS; Istanbul; Turkey. Poster presentation "Novel Domain Architecture of SdaI Restriction Endonuclease"
2010	6th New England Biolabs Meeting on Restriction and Modification. Bremen, Germany, poster presentation: Tamulaitienė G., Gražulis S., Šikšnys V. „DNA recognition by AgeI".
2012	2nd ARIP European Conference on Antimicrobial Resistance and Infection Prevention, Vilnius, Lithuania.
2012	FASEB conference „Nucleic Acid Enzymes", Snowmass Village, Colorado, USA. Poster presentation Tamulaitiene G., Ramonaite I., Grazulis S., Siksnys V „HE+HE=RE: crystal structure of Type IIS restriction endonuclease MnlI".
2012	37th FEBS Congress „From single molecules to systems biology", Sevilla, Spain. Poster presentation: Tamulaitiene, G.; Silanskas, A.; Siksnys, V. „Protein-protein interactions in phage T4 primosome."
2014	"The FEBS EMBO 2014 Conference", Paris, France. Poster presentation: G. Tamulaitiene, V. Jovaisaite, M. Rutkauskas, G. Tamulaitis, E. Manakova, M. Zaremba, V. Siksnys. "From monomer to tetramer: crystal structures of related restriction endonucleases AgeI and BsaWI."
2015	„7th NEB meeting on DNA Restriction and modification" Gdansk, Poland. Poster presentation: G. Tamulaitis, M. Rutkauskas, M. Zaremba, S. Grazulis, G. Tamulaitiene and V. Siksnys. „Crystal

	Structure and DNA Cleavage Mechanism of Restriction Endonuclease BsaWI.“
2018	„CRISPR 2018“Vilnius, Lietuva. Poster presentations: (1) G.Tamulaitienė, I.Mogila, G.Tamulaitis, V.Šikšnys. „Structure and Function of Cas6 from S.thermophilus Type IIIA system“; (2) T. Sinkunas, M.Fiodorovaitė, I.Songailienė, G.Tamulaitienė, and V.Siksnys„Influence of spacer length for DNA interference in a type I-F CRISPR-Cas system“.
2021	EMBL Symposia „New Approaches and Concepts in Microbiology“ Heidelber, Germany (virtual). Poster presentation: „Crystal structure of a TIR-domain protein from Thoeris bacterial antiviral system“

List of publications:

1. Vitkute J, Stankevicius K, **Tamulaitiene G**, Maneliene Z, Timinskas A, Berg DE, Janulaitis A. Specificities of eleven different DNA methyltransferases of Helicobacter pylori strain 26695. J Bacteriol. 2001 Jan;183(2):443-50. doi: 10.1128/JB.183.2.443-450.2001. PMID: 11133936. Impact factor 2019 3.219.

2. **Tamulaitiene G**, Grazulis S, Janulaitis A, Janowski R, Bujacz G, Jaskolski M. Crystallization and preliminary crystallographic studies of a bifunctional restriction endonuclease Eco57I. Biochim Biophys Acta. 2004 May 6;1698(2):251-4. doi: 10.1016/j.bbapap.2003.12.006. PMID: 15134658. Impact factor 2019 4.96

3. Grazulis S., Manakova E., Roessle M., Bochtler M., **Tamulaitiene G**., Huber R., Siksnys V. (2005) Structure of the metal-independent restriction enzyme BfiI reveals fusion of a specific DNAbinding domain with a nonspecific nuclease. Proceedings of the Natlional Academy of Scieneces of the United States of America 102(44):15797-15802. doi: 10.1073/pnas.0507949102. Impact factor 2019 9.412.

4. **Tamulaitiene G**., Jakubauskas A., Urbanke C., Huber R., Grazulis S., Siksnys V. (2006) The crystal structure of the rare-cutting restriction enzyme SdaI reveals unexpected domain architecture. doi: 10.1016/j.str.2006.07.002. Structure 14(9): 1389-1400. Impact factor 2019 4.862.

5. **Tamulaitiene G**, Siksnys V. NotI is not boring. Structure. 2008 Apr;16(4):497-8. doi: 10.1016/j.str.2008.03.003. PMID: 18400171. Impact factor 2019 4.862.

6. Golovenko D, Manakova E, **Tamulaitiene G**, Grazulis S, and Siksnys V. (2009) Structural mechanisms for the 5'-CCWGG sequence recognition bythe N- and C-terminal domains of EcoRII. Nucleic Acids Research37(19): 6613-24. doi: 10.1093/nar/gkp699. Impact factor 2019 11.501.

7. Kostiuk G.; Sasnauskas G.; **Tamulaitiene G**.; Siksnys V. (2011). Degenerate sequence recognition by the monomeric restriction enzyme: single mutation converts BcnI into a strand-specific nicking endonuclease. Nucleic Acids Research 39(9):3744-53. doi: 10.1093/nar/gkq1351. Impact factor 2019 11.501.

8. Tamulaitis G, Rutkauskas M, Zaremba M, Grazulis S, **Tamulaitiene G**, Siksnys V. (2015) Functional significance of protein assemblies predicted by the crystal structure of the restriction endonuclease BsaWI. Nucleic Acids Research. 43(16): 8100-8110. Impact factor 2019 11.501.
9. Sasnauskas G, Zagorskaitė E, Kauneckaitė K, **Tamulaitiene G**, Siksnys V. (2015) Structure-guided sequence specificity engineering of the modification-dependent restriction endonuclease LpnPI. Nucleic Acids Research. 43(12): 6144-6155. Impact factor 2019 11.501.

10. Zaremba M., Toliusis P., Grigaitis G., Manakova M., Silanskas A., **Tamulaitiene G**., Szczelkun M.D. & Siksnys V. (2014) DNA cleavage by CgII and NgoAVII requires interaction between N- and R-proteins and extensive nucleotide hydrolysis. Nucleic Acids Research 42(22):13887-96. Impact factor 2019 11.501.

11. **Tamulaitiene G.**, Silanskas A., Grazulis S., Zaremba M. & Siksnys V. (2014) Crystal structure of the R-protein of the multisubunit ATP-dependent restriction endonuclease NgoAVII. Nucleic Acids Research, 42(22):14022-30. Impact factor 2019 11.501.

12. Manakova E., Grazulis S., Zaremba M., **Tamulaitiene G.**, Golovenko D. & Siksnys V. (2012) Structural mechanisms of the degenerate sequence recognition by Bse634I

restriction endonuclease. Nucleic Acids Research 40(14):6741-51. Impact factor 2019 11.501.

13. Čapkauskaitė E., Zubrienė A., Baranauskienė L., **Tamulaitienė G.**, Manakova E., Kairys V., Gražulis S., Tumkevičius S., Matulis D. (2012) Design of [(2-pyrimidinylthio)acetyl]benzenesulfonamides as inhibitors of human carbonic anhydrases. European Journal of Medicinal Chemistry. . 51:259-70. Impact factor 2019 5.572.

14. **Tamulaitiene G**, Jovaisaite V, Tamulaitis G, Songailiene I, Manakova E, Zaremba M, Grazulis S, Xu SY, Siksnys V. (2017) Restriction endonuclease AgeI is a monomer which dimerizes to cleave DNA. Nucleic Acids Res. 45(6):3547-3558. doi: 10.1093/nar/gkw1310. Impact factor 2019 11.501.

15. Sasnauskas G, **Tamulaitiene G**, Tamulaitis G, Calyševa J, Laime M, Rimšeliene R, Lubys A, Siksnys V. UbaLAI is a monomeric Type IIE restriction enzyme. Nucleic Acids Res. 2017 Sep 19;45(16):9583-9594. doi: 10.1093/nar/gkx634. PMID: 28934493. Impact factor 2019 11.501.

16. Toliusis P, **Tamulaitiene G**, Grigaitis R, Tuminauskaite D, Silanskas A, Manakova E, Venclovas C, Szczelkun MD, Siksnys V, Zaremba M. The H-subunit of the restriction endonuclease CglI contains a prototype DEAD-Z1 helicase-like motor. Nucleic Acids Res. 2018 Mar 16;46(5):2560-2572. doi: 10.1093/nar/gky107. PMID: 29471489. Impact factor 2019 11.501.

17. **Tamulaitiene G**, Manakova E, Jovaisaite V, Tamulaitis G, Grazulis S, Bochtler M, Siksnys V. Unique mechanism of target recognition by PfoI restriction endonuclease of the CCGG-family. Nucleic Acids Res. 2019 Jan 25;47(2):997-1010. doi: 10.1093/nar/gky1137. PMID: 30445642. Impact factor 2019 11.501.

18. Mogila I, Kazlauskiene M, Valinskyte S, **Tamulaitiene G**, Tamulaitis G, Siksnys V. (2019) Genetic Dissection of the Type III-A CRISPR-Cas System Csm Complex Reveals Roles of Individual Subunits. Cell Rep. 2019 Mar 5;26(10):2753-2765.e4. doi: 10.1016/j.celrep.2019.02.029. PMID: 30840895. Impact factor 2019 8.109.

19. Tuminauskaite D, Norkunaite D, Fiodorovaite M, Tumas S, Songailiene I, **Tamulaitiene G**, Sinkunas T. DNA interference is controlled by R-loop length in a type I-F1 CRISPR-Cas system. BMC Biol. 2020 Jun 15;18(1):65. doi: 10.1186/s12915-020-00799-z. PMID: 32539804. Impact factor 2019 6.765.

20. Smalakyte D, Kazlauskiene M, F Havelund J, Rukšėnaitė A, Rimaite A, **Tamulaitiene G**, Færgeman NJ, Tamulaitis G, Siksnys V. Type III-A CRISPR-associated protein Csm6 degrades cyclic hexa-adenylate activator using both CARF and HEPN domains. Nucleic Acids Res. 2020 Aug 7:gkaa634. doi: 10.1093/nar/gkaa634. Online ahead of print. PMID: 32766806. Impact factor 2019 11.501.
21. Songailiene I, Juozapaitis J, **Tamulaitiene G**, Ruksenaite A, Šulčius S, Sasnauskas G, Venclovas Č, Siksnys V. (2020) HEPN-MNT Toxin-Antitoxin System: The HEPN Ribonuclease Is Neutralized by OligoAMPylation. Mol Cell. 2020 Dec 17;80(6):955-970.e7. doi: 10.1016/j.molcel.2020.11.034. Epub 2020 Dec 7. PMID: 33290744
22. Manakova E, Mikutenaite M, Golovenko D, Gražulis S, **Tamulaitiene G.** (2021) Crystal structure of restriction endonuclease Kpn2I of CCGG-family. Biochim Biophys Acta Gen Subj;1865(8):129926. doi: 10.1016/j.bbagen.2021.129926. Epub 2021 May 11. PMID: 33965438