

CURRICULUM VITAE

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Contact Information

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Date of birth November 03, 1973, Lithuania

Scientific career

2018 – present Research Professor at Vilnius University, Life Science Centre, Institute of Biotechnology
2011 – 2018 Senior Researcher at Vilnius University, Institute of Biotechnology
2006 – 2011 Researcher at the Institute of Biotechnology
1998 – 2006 PhD student at Vilnius University (supervisor prof. Virginijus Siksnys) and Research assistant at the Institute of Biotechnology
1991 – 1998 Vilnius University bachelor and master student

Degrees

2008 PhD in Physical Sciences, Biochemistry, Vilnius University
1998 MSc in Biochemistry, Vilnius University
1996 BSc in Biochemistry, Vilnius University

Bibliometric data according to

<https://scholar.google.com/citations?hl=en&user=08uz4BMAAAAJ>
peer reviewed publications 30, H-index 20, citations >1700

Projects led as Principal Investigator

2022 – present Research Council Lithuania (RCL) project S-MIP-22-09, ongoing
2022 – present Vilnius University LSC-EMBL Partnership Institute project, ongoing
2018 – 2023 Polish-Lithuanian research project with prof. Matthias Bochtler (International Institute of Molecular and Cell Biology, Poland) funded by RCL, SLL-18/7, ongoing
2016 – 2018 Open Partnership research project with prof. Ralf Seidel (Leipzig University, Germany) funded by RCL, APP-3/2016, completed
2013 – 2015 RCL project MIP-40/2013, completed
2010 – 2011 RCL project MIP-107/2010, completed

Patent applications

1. Siksnyš V, Kazlauskienė M, Kostiuk G, Tamulaitis G (2017) Production of cyclic adenylates and their use as allosteric regulators. US patent application 16618238
2. Siksnyš V, Kazlauskienė M, Kostiuk G, Tamulaitis G (2017) Production of cyclic adenylates and their use as allosteric regulators. EP patent application 18732 909.9

Patents

1. Fricke T, Bochtler M, Siksnyš V, Kazlauskienė M, Tamulaitis G (2017) Targeted RNA knockdown and knockout by Type III-A Csm complexes. US patent US 2018105835 (A1)
2. Siksnyš V, Kazlauskienė M, Tamulaitis G (2014) Programmable RNA shredding by the Type III-A CRISPR-Cas system of *Streptococcus thermophilus*. US patent US10385336 (B2)
3. Siksnyš V, Kazlauskienė M, Tamulaitis G (2014) Programmable RNA shredding by the Type III-A CRISPR-Cas system of *Streptococcus thermophilus*. EP patent EP3189140 (B1)

Academic training

2010	60 th Meeting with Nobel laureates, Lindau, Germany
2007	Scientific practice in the prof. David Dryden laboratory (University Edinburgh, UK)
2002	Scientific practice in the prof. Alfred Pingoud laboratory (Justus-Liebig University, Giessen, Germany)
2002	International Quality Network summer school <i>Modern Trends in Nucleic Acid Biochemistry</i> at Justus-Liebig University, Giessen, Germany

Awards

2017	Vilnius University Rector's award
2014	Lithuanian State Science award „Novel DNA regulation and catalysis mechanisms of target specific endonucleases” (2002–2013) (together with dr. Giedrius Sasnauskas and dr. Mindaugas Zaremba)
2009	Winner of the Best Dissertation 2008 in Lithuania in the field of physical, technological and biomedical sciences
2007	Lithuanian Academy of Science award for young scientists
1997	Lithuanian Academy of Science award for student scientific works

List of publications

1. Smalakyte D, Kazlauskienė M, Havelund JF, Rukšėnaitė A, Rimaite A, Tamulaitienė G, Færgeman NJ, Tamulaitis G, Siksnys V (2020) "Type III-A CRISPR-associated protein Csm6 degrades cyclic hexa-adenylate activator using both CARF and HEPN domains". *Nucleic Acids Research*, 18;48(16):9204-9217. DOI: 10.1093/nar/gkaa634 (2021 JCR Impact factor 19.16) (*Tamulaitis G corresponding author*)
2. Fricke T, Smalakyte D, Lapinski M, Pateria A, Weige C, Pastor M, Kolano A, Winata C, Siksnys V, Tamulaitis G, Bochtler M (2020) Targeted RNA Knockdown by a Type III CRISPR-Cas Complex in Zebrafish. *CRISPR Journal* 3(4):299-313. DOI:10.1089/crispr.2020.0032 (2021 JCR Impact factor 4.32) (*Tamulaitis G corresponding author*)
3. Mogila I, Kazlauskienė M, Valinskyte S, Tamulaitienė G, Tamulaitis G, Siksnys V (2019) Genetic Dissection of the Type III-A CRISPR-Cas System Csm Complex Reveals Roles of Individual Subunits. *Cell Reports* 26(10), 2753–2765, e4. DOI: 10.1016/j.celrep.2019.02.029. (2021 JCR Impact factor 10.00) (*Tamulaitis G corresponding author*)
4. Tamulaitienė G, Manakova E, Jovaisaitė V, Tamulaitis G, Gražulis, S, Bochtler M, Siksnys V (2019) Unique mechanism of target recognition by PfoI restriction endonuclease of the CCGG-family. *Nucleic Acids Research* 47(2), 997-1010. DOI: 10.1093/nar/gky1137 (2021 JCR Impact factor 19.16)
5. Sasnauskas G, Tamulaitienė G, Tamulaitis G, Čalyševa J, Laime M, Rimšėlienė R, Lubys, A, Siksnys V (2017) UbaLAI is a monomeric Type IIE restriction enzyme. *Nucleic Acids Research* 45(16), 9583-9594. DOI:10.1093/nar/gkx634 (2021 JCR Impact factor 19.16)
6. Kazlauskienė M, Kostiuk G, Venclovas Č, Tamulaitis G, Siksnys V. (2017) A cyclic oligonucleotide signaling pathway in type III CRISPR-Cas systems. *Science*, 357(6351), 605-609. DOI:10.1126/science.aao0100 (2021 JCR Impact factor 63.80) (*Tamulaitis G corresponding author*)
7. Tamulaitienė G, Jovaisaitė V, Tamulaitis G, Songailienė I, Manakova E, Zaremba M, Gražulis S, Xu SY, Siksnys V (2017) Restriction endonuclease Agel is a monomer which dimerizes to cleave DNA. *Nucleic Acids Research*, 7; 45(6), 3547-3558. DOI:10.1093/nar/gkw1310 (2021 JCR Impact factor 19.16)
8. Tamulaitis G, Venclovas Č, Siksnys V (2017) Type III CRISPR-Cas Immunity: Major Differences Brushed Aside. *Trends in Microbiology* 25(1), 49-61. DOI:10.1016/j.tim.2016.09.012 (2021 JCR Impact factor 18.23).
9. Kazlauskienė M, Tamulaitis G, Kostiuk G, Venclovas Č, Siksnys V (2016) Spatiotemporal Control of Type III-A CRISPR-Cas Immunity: Coupling DNA Degradation with the Target RNA Recognition. *Molecular Cell* 62, 295-306.

DOI:10.1016/j.molcel.2016.03.024 (2021 JCR Impact Factor 19.33) (*Tamulaitis G corresponding author*)

10. 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* 18; 43(16), 8100-8110. DOI:10.1093/nar/gkv768 (2021 JCR Impact factor 19.16)
11. Tamulaitis G, Kazlauskienė M, Manakova E, Venclovas Č, Nwokeoji AO, Dickman MJ, Horvath P, Siksnys V (2014) Programmable RNA shredding by the Type III-A CRISPR-Cas system of *Streptococcus thermophilus*. *Molecular Cell* 56 (4), 506-517. DOI:10.1016/j.molcel.2014.09.027 (2021 JCR Impact Factor 19.33)
12. Rutkauskas D, Petkelyte M, Naujalis P, Sasnauskas G, Tamulaitis G, Zaremba M, Siksnys V (2014) Restriction enzyme Ecl18kl-induced DNA looping dynamics by single-molecule FRET. *The Journal of Physical Chemistry B* 118, (29), 8575-8582. DOI:10.1021/jp504546v (2021 JCR Impact factor 3.47).
13. Sukackaite R, Grazulis S, Tamulaitis G, Siksnys V (2012) The recognition domain of the methyl-specific endonuclease McrBC flips out 5-methylcytosine. *Nucleic Acids Research* 40, (15), 7552-7562. DOI:10.1093/nar/gks332 (2021 JCR Impact factor 19.16)
14. Sasnauskas G, Kostiuk G, Tamulaitis G, Siksnys V (2011) Target site cleavage by the monomeric restriction enzyme BcnI requires translocation to a random DNA sequence and a switch in enzyme orientation. *Nucleic Acids Research* 39, (20), 8844-8856. DOI:10.1093/nar/gkr588 (2021 JCR Impact factor 19.16)
15. Zaremba M, Owsicka A, Tamulaitis G, Sasnauskas G, Shlyakhtenko LS, Lushnikov AY, Lyubchenko YL, Laurens N, van den Broek B, Wuite GJ, Siksnys V (2010) DNA synapsis through transient tetramerization triggers cleavage by Ecl18kl restriction enzyme. *Nucleic Acids Research* 38, (20), 7142-7154. DOI:10.1093/nar/gkq560 (2021 JCR Impact factor 19.16)
16. Gilmore JL, Suzuki Y, Tamulaitis G, Siksnys V, Takeyasu K, Lyubchenko YL (2009) Single molecule dynamics of the DNA-EcoRII protein complexes revealed with high-speed Atomic Force Microscopy. *Biochemistry* 48, (44), 10492-10498. DOI:10.1021/bi9010368 (2021 JCR Impact factor 3.32)
17. Neely RK, Tamulaitis G, Chen K, Kubala M, Siksnys V, Jones AC (2009) Time-resolved fluorescence studies of nucleotide flipping by restriction enzymes. *Nucleic Acids Research* 37, (20), 6859-6870. DOI:10.1093/nar/gkp688 (2021 Impact factor 19.16)
18. Tamulaitis G, Zaremba M, Szczepanowski RH, Bochtler M, Siksnys V (2008) How PspGI, catalytic domain of EcoRII and Ecl18kl acquire specificities for different DNA targets. *Nucleic Acids Research* 36, (19), 6101-8. DOI:10.1093/nar/gkn621 (2021 JCR Impact factor 19.16)

19. Szczepanowski RH, Carpenter MA, Czapinska H, Zaremba M, Tamulaitis G, Siksnys V, Bhagwat AS, Bochtler M (2008) Central base pair flipping and discrimination by PspGI. *Nucleic Acids Research* 36, (19), 6109-17. DOI:10.1093/nar/gkn622 (2021 JCR Impact factor 19.16)
20. Gasiunas G, Sasnauskas G, Tamulaitis G, Urbanke C, Razaniene D, Siksnys V (2008) Tetrameric restriction enzymes: expansion to the GIY-YIG nuclease family. *Nucleic Acids Research* 36, (3), 938-949. DOI:10.1093/nar/gkm1090 (2021 Impact factor 19.16)
21. Daujotytė D, Liutkevičiūtė Z, Tamulaitis G, Klimašauskas S (2008) Chemical mapping of cytosines enzymatically flipped out of the DNA helix. *Nucleic Acids Research* 36, (10), e57. DOI:10.1093/nar/gkn200 (2021 JCR Impact factor 19.16)
22. Shlyakhtenko LS, Gilmore J, Portillo A, Tamulaitis G, Siksnys V, Lyubchenko YL (2007) Direct visualization of the EcoRII-DNA triple synaptic complex by atomic force microscopy. *Biochemistry* 46, (39), 11128-11136. DOI:10.1021/bi701123u (2021 JCR Impact factor 3.32)
23. Tamulaitis G, Zaremba M, Szczepanowski RH, Bochtler M, Siksnys V (2007) Nucleotide flipping by restriction enzymes analyzed by 2-aminopurine steady-state fluorescence. *Nucleic Acids Research* 35, (14), 4792-4799. DOI: 10.1093/nar/gkm513 (2021 JCR Impact factor 19.16)
24. Sokolowska M, Kaus-Drobek M, Czapinska H, Tamulaitis G, Siksnys V, Bochtler M (2007) Restriction endonucleases that resemble a component of the bacterial DNA repair machinery. *Cellular and Molecular Life Sciences* 64, (18), 2351-2357. DOI:10.1007/s00018-007-7124-9 (2021 JCR Impact factor 9.21)
25. Sokolowska M, Kaus-Drobek M, Czapinska H, Tamulaitis G, Szczepanowski RH, Urbanke C, Siksnys V, Bochtler M (2007) Monomeric restriction endonuclease BcnI in the apo-form and in an asymmetric complex with target DNA. *Journal of Molecular Biology* 369, (3), 722-734. DOI: 10.1016/j.jmb.2007.03.018 (2021 Impact factor 6.15)
26. Kaus-Drobek M, Czapinska H, Sokolowska M, Tamulaitis G, Szczepanowski RH, Urbanke C, Siksnys V, Bochtler M (2007) Restriction endonuclease MvaI is a monomer that recognizes its target sequence asymmetrically. *Nucleic Acids Research* 35, (6), 2035-2046. DOI:10.1093/nar/gkm064 (2021 JCR Impact factor 19.16)
27. Bochtler M, Szczepanowski RH, Tamulaitis G, Grazulis S, Czapinska H, Manakova E, Siksnys V (2006) Nucleotide flips determine the specificity of the Ecl18kI restriction endonuclease. *The EMBO Journal* 25, 2219-2229. DOI: 10.1038/sj.emboj.7601096 (2021 JCR Impact factor 14.01)
28. Tamulaitis G, Sasnauskas G, Mucke M, Siksnys V (2006) Simultaneous binding of three recognition sites is necessary for a concerted plasmid DNA cleavage by

EcoRII restriction endonuclease. *Journal of Molecular Biology* 358(2), 406–419. DOI:10.1016/j.jmb.2006.02.024 (2021 JCR Impact factor 6.15)

29. Tamulaitis G, Mucke M, Siksnyš V (2006) Biochemical and mutational analysis of EcoRII functional domains reveals evolutionary links between restriction enzymes. *FEBS Letters* 580, 1665–1671. DOI:10.1016/j.febslet.2006.02.010 (2021 JCR Impact factor 3.86)
30. Tamulaitis G, Solonin AS, Siksnyš V (2002) Alternative arrangements of catalytic residues at the active sites of restriction enzymes. *FEBS Letters* 518, 17-22. DOI:10.1016/s0014-5793(02)02621-2 (2021 JCR Impact factor 3.86)