

RESEARCH INTERESTS

I study the evolution of fungal-algal symbioses, known as lichens. For my current project, I apply cutting-edge bioinformatics methods combined with wet-lab techniques to try to understand how microbial partners communicate in the symbiotic setting and what each of them contributes to the system.

ACADEMIC APPOINTMENTS

2022– **PostDoctoral Scientist**, Nick Talbot Group, The Sainsbury Laboratory (Norwich, UK)

EDUCATION

2022 University of Alberta <i>Edmonton AB, Canada</i>	PhD in Systematics and Evolution GPA 3.9 (4.0 max). Advisor: Toby Spribille Thesis title: How Lichens Work: Functional Aspects of Symbiosis Viewed through Metagenomics and other Culture-Free Methods
2017 St. Petersburg University <i>St. Petersburg, Russia</i>	MSc in Biology GPA 4.0 (4.0 max). <i>Diploma cum laude</i> Advisor: Irina Stepanchikova Thesis title: Globally endangered lichen <i>Erioderma pedicellatum</i> in Kamchatka
2015 St. Petersburg University <i>St. Petersburg, Russia</i>	BSc in Biology GPA 3.9 (4.0 max). <i>Diploma cum laude</i> Advisor: Irina Stepanchikova Thesis title: Lichens epiphytic on aspen in the old growth forests of the Valday upland

AWARDS AND FUNDING (TOTAL ~\$102,000)

Scholarships:

2021–2022	Alberta Graduate Excellence Scholarship (UAlberta, \$12,000)
2020–2021	Alberta Innovates Graduate Student Scholarship (UAlberta, \$62,000)
2020	Alberta Graduate Excellence Scholarship (UAlberta, \$12,000)
2013–2017	Increased State Scholarship for Academic Excellence (St.PU, \$10,000)

Awards:

2023	University of Alberta nominee for the CAGS/ProQuest Distinguished Dissertation Award
2022	Andrew Stewart Memorial Graduate Prize (\$5,000)
2020	Lionel Cinq-Mars Award for the best oral presentation (\$500)
2018	St. Petersburg Naturalist Society Award for the best MSc thesis (\$100)

SELECTED PUBLICATIONS (see the full list at the end of the document)

1. **Tagirdzhanova G.**, Saary P., Cameron E.S., ... & Spribille T. 2023. Evidence for a core set of microbial lichen symbionts from a global survey of metagenomes. *bioRxiv* doi.org/10.1101/2023.02.02.524463
2. **Tagirdzhanova G.**, Saary P., Tingley J., Diaz Escandon D., Abbott W., Finn R., Spribille T. 2021. Predicted input of uncultured fungal symbionts to a lichen symbiosis from metagenome-assembled genomes. *Genome Biology and Evolution* 13(4): evab047.
3. **Tagirdzhanova G.**, Scharnagl K., Yan X., Talbot N. J. 2023. Genomic analysis of *Coccomyxa viridis*, a common low-abundance alga associated with lichen symbioses. *Scientific Reports* 13: 21285.
4. **Tagirdzhanova G.**, McCutcheon J. P., Spribille T. 2021. Lichen fungi do not depend on the alga for ATP production: a comment on Pogoda et al. (2018). *Molecular Ecology* 30(17): 4155–4159.
5. Díaz-Escandón D., **Tagirdzhanova G.**, Vanderpool D., ... & Spribille T. 2022. Genome-level analyses resolve an ancient lineage of symbiotic ascomycetes. *Current Biology* 32: 1–10.

INVITED TALKS

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| 2023 | Seminar series of Oslo Mycology Group (University of Oslo) |
| 2022 | Seminar series of Royal Botanic Gardens in Kew (London, UK) |
| 2022 | Seminar series of the Finnish Museum of Natural History (University of Helsinki) |
| 2021 | Students Mycology Colloquium (Mycological Society of America) |

SELECTED CONFERENCES

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| 2023 | EMBL Symposium: The cellular mechanics of symbiosis (oral presentation) |
| 2022 | Canadian Fungal Research Network Meeting (oral presentation) |
| 2021 | IX Symposium of the International Association for Lichenology (oral presentation) |
| 2021 | Canadian Fungal Research Network Meeting (oral presentation) |
| 2021 | The British Lichen Society Annual General Meeting (oral presentation) |
| 2020 | Canadian Botanical Association Virtual Meeting (oral presentation) |
| 2019 | 3rd International Conference “Bioinformatics: from Algorithms to Applications” (poster presentation) |
| 2019 | 30th Fungal Genetics Conference (poster presentation) |
| 2018 | International Symbiosis Society Congress (poster presentation) |
| 2016 | VIII Symposium of the International Association for Lichenology (poster presentation) |
| 2014 | XIX Symposium of the Baltic Mycologists and Lichenologists (poster presentation) |

TEACHING EXPERIENCE

- 2023–2024 Data Science (MSc course), The Sainsbury Laboratory. **Co-Instructor**
- 2018 BOT306: Biology of the Fungi (BSc course), UAlberta. **Teaching assistant**
- 2018, 2019 BIO108: Introduction to Biodiversity (BSc course), UAlberta. **Teaching assistant**
- 2014, 2016 Fungi, Lichens, and Algae (BSc course), St. Petersburg University. **Teaching assistant**

Guest lectures:

- 2021 BIO46: Introduction to research in ecology and evolutionary biology (Stanford University)
- 2020 BOT306: Biology of the Fungi (UAlberta), MATH322: Introduction to Graph Theory (UAlberta)
- 2019 BOT306: Biology of the Fungi (UAlberta), BIOL322: Microbial Diversity and Evolution (UAlberta), BIOL430: Experimental Biology (UAlberta)

SUPERVISING AND MENTORING

- 2024 Benjamin Adjei (MSc student, TSL): **MSc thesis project**, TSL
- 2023 Flurin Lauchli (MSc student, University of Zurich): **3-month research internship**, TSL
- 2020–2021 Samantha Pedersen (BSc student, UAlberta): **two term research projects and a summer internship** (12 months in total), UAlberta
- 2020–2023 **Mentor, Speaker** at The Science Mentors, a career mentorship program for STEM undergraduate students. Mentored four students

SERVICE AND BOARD MEMBERSHIP

- 2023–2024 **Postdoc Committee**, The Sainsbury Laboratory, *Member*
- 2021–2022 CanFunNet 2022 **Conference Organizing Committee**, *Member*
- 2020–2021 **Department Council**, UAlberta Department of Biological Sciences, *Member*
- 2020–2021 **Working Group for Respect, Equity, Accountability and Departmental Culture**, UAlberta Department of Biological Sciences, *Member*
- 2019–2021 **Biology Graduate Students' Association UAlberta:**
President (2020-2021), *Co-organizer* of R.E. Peter Biology Conference, *Member* of EDI (Equity Diversity Inclusion) Committee
- 2019– **Journal peer reviewer** for Nature Communications, New Phytologist, eLife, FEMS Microbiology Ecology, Microbial Ecology, The Lichenologist, Symbiosis, American Journal of Botany

ADDITIONAL EDUCATION

- 2023 **Instructor Training Program with [The Carpentries](#)**. Covers evidence-based teaching practices applied to the teaching of data science and programming
- 2017 **Data Analysis**. Online certificate program, St. Petersburg Academic University

SCIENCE COMMUNICATION

- 2019 Member of Research Zone **Science Communication Program**, Telus World of Science
- 2019 **Invited speaker** at The Great Alberta Mushroom Foray
- 2018 **Lichen expert** at the Tombstone Park BioBlitz in Yukon, Canada (BioBlitz is an event bringing together biologists and nature enthusiasts from public, and focused on describing biodiversity of a certain area)
- 2017 Presented at the **workshop** “Lichen Revival III: Rediscovering Macrolichens in the Canadian Rockies”
- 2017 Co-teacher at the **field seminar** for students and NGO volunteers “Nature Conservation and biologically valuable forests”
- 2011–2017 Co-organizer and judge for **biological conferences** and contests for high school students (Student conference “Future Scientists” 2011, 2017; Biology Olympiad 2011–2017; Youth Biology Tournament 2011–2013).

NATURE CONSERVATION EFFORTS

- 2017 **Contributed** to project of Valhalla Wilderness Society dedicated to the protection of Inland Temperate Rainforests in British Columbia
- 2012–2017 Participated in research leading to establishment of several **Nature Reserves** in Russia, Participated in monitoring of **endangered species**

PUBLICATIONS

I. Preprints

1. **Tagirdzhanova G.**, Saary P., Cameron E.S., ... & Spribille T. 2023. Evidence for a core set of microbial lichen symbionts from a global survey of metagenomes. *bioRxiv* doi.org/10.1101/2023.02.02.524463.

II. Peer-reviewed Papers

1. **Tagirdzhanova G.**, Scharnagl K., Yan X., Talbot N. J. 2023. Genomic analysis of *Coccomyxa viridis*, a common low-abundance alga associated with lichen symbioses. *Scientific Reports* 13: 21285.
2. Scharnagl K., **Tagirdzhanova G.**, Talbot N. J. 2023. The coming golden age for lichen biology. *Current Biology* 33(11): PR512–R518. doi.org/10.1016/j.cub.2023.03.054.

3. Díaz-Escandón D., **Tagirdzhanova G.**, Vanderpool D., ... & Spribille T. 2022. Genome-level analyses resolve an ancient lineage of symbiotic ascomycetes. *Current Biology* 32: 1–10. doi.org/10.1016/j.cub.2022.11.014.
4. Resl P., Bujold A. R., **Tagirdzhanova G.**, ... & Spribille T. 2022. Large differences in carbohydrate degradation and transport potential in the genomes of lichen fungal symbionts. *Nature Communications* 13: 2634 doi.org/10.1038/s41467-022-30218-6.
5. Spribille T., Resl P., Stanton D., **Tagirdzhanova G.** 2022. Evolutionary biology of lichen symbioses. *New Phytologist* 234(5): 1566–1582. doi.org/10.1111/nph.18048.
6. **Tagirdzhanova G.**, McCutcheon J. P., Spribille T. 2021. Lichen fungi do not depend on the alga for ATP production: a comment on Pogoda et al. (2018). *Molecular Ecology* 30(17): 4155–4159 doi.org/10.1111/mec.16010.
7. **Tagirdzhanova G.**, Saary P., Tingley J., Diaz Escandon D., Abbott W., Finn R., Spribille T. 2021. Predicted input of uncultured fungal symbionts to a lichen symbiosis from metagenome-assembled genomes. *Genome Biology and Evolution* 13(4): evab047, doi.org/10.1093/gbe/evab047.
8. Spribille T., **Tagirdzhanova G.**, Goyette S., Tuovinen V., Case R., Zandberg W. 2020. 3D biofilms: in search of the polysaccharides holding together lichen symbioses. *FEMS Microbiology Letters* 367(5): p.fnaa023.
9. **Tagirdzhanova G.**, Stepanchikova I., Himelbrant D., Vyatkina M., Dyomina A., Dirksen V., Scheidegger C. 2019. Distribution and assessment of the conservation status of *Erioderma pedicellatum* in Asia. *Lichenologist* 51(6): 575–585.
10. Himelbrant D. E., Stepanchikova I. S., Motiejūnaitė J., Kuznetsova E. S., **Tagirdzhanova G.**, Frolov I. V. 2019. New records of lichens and allied fungi from the Leningrad Region, Russia. X. *Folia Cryptogamica Estonica* 56: 23–29.
11. Motiejūnaitė J., Chesnokov S. V., Czarnota P., ..., **Tagirdzhanova G.**, Thell A., Stepanchikova, I. 2016. Ninety-One Species of Lichens and Allied Fungi New to Latvia with a List of Additional Records from Kurzeme. *Herzogia* 29(1): 143–163.
12. Himelbrant D. E., Stepanchikova I. S., **Tagirdzhanova G. M.** 2016. The lichens and allied fungi of the Oranienbaumsky Prospective Protected Area (St. Petersburg). *Novitates systematicae plantarum non vascularum* 50: 210–230.
13. Himelbrant D. E., Stepanchikova I. S., Motiejūnaitė J., Vondrak J., **Tagirdzhanova G. M.**, Gagarina L. V., Kuznetsova E. S. 2015. New records of lichens and allied fungi from the Leningrad Region, Russia. VI. *Folia Cryptogamica Estonica* 52: 21–28.
14. Stepanchikova I. S., Gagarina L. V., **Tagirdzhanova G. M.**, Himelbrant D. E. 2015. The lichens of juniper communities of Shuryagsky Cape (Leningrad Region). *Vestnik Tverskogo Gosudarstvennogo Universiteta, Biology and Ecology series* 34: 121–126.

15. Stepanchikova I. S., Himelbrant D. E., Dyomina A. V., **Tagirdzhanova G. M.** 2015. The lichens and allied fungi of the Zapadny Kotlin protected area and its vicinities (Saint Petersburg). *Novitates systematicae plantarum non vascularum* 49: 265–281.
16. **Tagirdzhanova G. M.**, Kataeva O. A., Stepanchikova I. S. 2014. New lichen records from the Novgorod Region, Russia. *Folia Cryptogamica Estonica* 51: 103–107.
17. Himelbrant D. E., Motiejūnaitė J., Stepanchikova I. S., **Tagirdzhanova G. M.** 2014. New records of lichens and allied fungi from the Leningrad Region, Russia. V. *Folia Cryptogamica Estonica* 51: 49–55.
18. Sorokina I. A., Himelbrant D. E., Stepanchikova I. S., ... & **Tagirdzhanova G. M.** 2013. Forest certification as a tool for detection and conservation of biologically valuable forests and scientific research in the eastern part of Leningrad Region. *Vestnik Tverskogo Gosudarstvennogo Universiteta, Biology and Ecology series* 32: 246–264.
19. Stepanchikova I. S., **Tagirdzhanova G. M.**, Himelbrant D. E. 2013. The lichens and allied fungi of the Smorodinka River valley (Leningrad Region). *Novitates systematicae plantarum non vascularum* 47: 262–278.

III. Book Chapters

1. **Tagirdzhanova G.** 2022. Boreal Felt Lichen, an endangered cyanolichen *Erioderma pedicellatum*. In: DiPaolo D., Villella J. (Eds.). *Imperiled: The Encyclopedia of Conservation*.
2. **Tagirdzhanova G. M.** 2018. *Lobaria scrobiculata*. In Geltman D. (Ed.). *Red Data Book of Leningrad Region: Plants*. P. 519–520.
3. **Tagirdzhanova G. M.** 2018. *Lobaria pulmonaria*. In Geltman D. (Ed.). *Red Data Book of Leningrad Region: Plants*. P. 781–782.