

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

EDUCATION

2022
University of Alberta **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 **MSc** in Biology
GPA 4.0 (4.0 max). *Diploma cum laude*
Advisor: Irina Stepanchikova
Thesis title: Globally endangered lichen *Erioderma pedicellatum* in Kamchatka

2015
St. Petersburg University **BSc** in Biology
GPA 3.9 (4.0 max). *Diploma cum laude*
Advisor: Irina Stepanchikova
Thesis title: Epiphytic lichens of aspen in old growth forests of the Valday upland

2017
Additional education: Data Analysis
Online certificate program organized by the St. Petersburg Academic University and Bioinformatics Institute

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

Scholarships:

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

Awards:

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 end of CV for the full list)

1. **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.
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. 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.
4. Spribille T., Resl P., Stanton D., **Tagirdzhanova G.** 2022. Evolutionary biology of lichen symbioses. *New Phytologist* 234(5): 1566–1582.
5. **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.

INVITED TALKS

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| 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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| 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”. <i>St. Petersburg, Russia</i> (poster presentation) |
| 2019 | 30th Fungal Genetics Conference. <i>Pacific Grove, CA, USA</i> (poster presentation) |
| 2018 | International Symbiosis Society Congress. <i>Corvallis, OR, USA</i> (poster presentation) |
| 2017 | International Conference “The use of modern information technologies in botanical investigations”. <i>Apatity, Russia</i> (oral presentation) |
| 2016 | VIII Symposium of the International Association for Lichenology. <i>Helsinki, Finland</i> (poster presentation) |
| 2014 | II international conference “Lichenology in Russia: problems and perspectives”. <i>St. Petersburg, Russia</i> (poster presentation) |

2014 XIX Symposium of the Baltic Mycologists and Lichenologists. *Šķēde, Latvia* (poster presentation)

TEACHING AND SUPERVISING EXPERIENCE

2020–2021 **Co-supervisor** to an undergraduate student working on a research project. The student presented a poster at the 2020 CBA Virtual Meeting

2018–2019 **Teaching assistant**, University of Alberta.
Taught labs for BIO108: Introduction to Biodiversity, BOT306: Biology of the Fungi

2014–2016 **Teaching assistant**, St. Petersburg State University.
Taught labs for Biology of the fungi, lichens, and algae.

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)

SERVICE

2021–2022 **CanFunNet 2022 Conference Organizing Committee, Member**

2019–2021 **Biology Graduate Students' Association UAlberta:**
President (2020–2021), *Co-organizer* of R.E. Peter Biology Conference, *Volunteer*

2019–2020 **EDI (Equity Diversity Inclusion) Committee at the BGSA, Member**

2020–2021 **Working Group for Respect, Equity, Accountability and Departmental Culture,**
Member and grad student representative

2020–2021 **The Science Mentors, Mentor, Speaker:**
TSM is a mentorship program for STEM undergraduate students.

2020– **Journal peer reviewer** for The Lichenologist, Symbiosis, New Phytologist

SCIENCE COMMUNICATION

2019 Member of Research Zone **Science Communication Program** organized by 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. Peer-reviewed Papers

1. 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.
2. Spribille T., Resl P., Stanton D., **Tagirdzhanova G.** 2022. Evolutionary biology of lichen symbioses. *New Phytologist* 234(5): 1566–1582.
3. **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.
4. **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.
5. 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.
6. **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.
7. 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.

8. Motiejunaite 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.
9. 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.
10. 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.
11. 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. (in Russian, English summary).
12. 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.
13. **Tagirdzhanova G. M.**, Kataeva O. A., Stepanchikova I. S. 2014. New lichen records from the Novgorod Region, Russia. *Folia Cryptogamica Estonica* 51: 103–107.
14. 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.
15. 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. (In Russian, English summary).
16. 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.

II. Book Chapters

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

III. Published Conference Abstracts

- Tagirdzhanova G.**, Spribille T. 2019. Genome heterogeneity affecting binning of complex fungal communities. *BMC Bioinformatics* 20 (Suppl 17): P7.