

## RESEARCH INTERESTS

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I study the evolution of fungal-algal symbioses, known as lichens. For my current project, I apply 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.

## EDUCATION

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Present <b>University of Alberta</b> <i>Edmonton AB, Canada</i>	<b>PhD candidate</b> in Systematics and Evolution GPA 3.9 (4.0 max). Expected graduation: Aug 2022 Advisor: Dr. Toby Spribille Projects: Metagenomics of lichen symbiosis (PhD project), Lichens of Alberta
2017 <b>St. Petersburg University</b> <i>St. Petersburg, Russia</i>	<b>MSc.</b> in Biology GPA 4.0 (4.0 max). <i>Diploma cum laude</i> Supervisor: Dr. Irina Stepanchikova Projects: Globally endangered lichen <i>Erioderma pedicellatum</i> in Kamchatka (MSc. Thesis)
2015 <b>St. Petersburg University</b> <i>St. Petersburg, Russia</i>	<b>BSc.</b> in Biology GPA 3.9 (4.0 max). <i>Diploma cum laude</i> Supervisor: Dr. Irina Stepanchikova Projects: Epiphytic lichens of aspen in old growth forests of the Valday upland (BSc. Thesis), Lichens of Leningrad region and St. Petersburg

## SKILLS

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- **Dry lab:** Genomics toolkit, Metagenomics, Phylogenetics and Phylogenomics, Data analysis
- **Programming:** R, Python, shell, SQL
- **Wet lab:** NGS library preparation, MinIon sequencing, qPCR.

## AWARDS AND FUNDING (TOTAL ~\$86,000)

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<b>Scholarships:</b>	
2020–	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)
<b>Awards:</b>	
2020	Lionel Cinq-Mars Award for the best oral presentation (\$500)
2019	Second prize at the departmental 3 Minute Thesis Competition (\$100)
2018	St. Petersburg Naturalist Society Award for the best MSc thesis (\$100)
<b>Grants:</b>	
2014–2021	Various travel grants (\$1300 in total)

**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*, [doi/10.1111/mec.16010](https://doi.org/10.1111/mec.16010).
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, [doi.org/10.1093/gbe/evab047](https://doi.org/10.1093/gbe/evab047).
3. 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.
4. **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.
5. **Tagirdzhanova G. M.**, Kataeva O. A., Stepanchikova I. S. 2014. New lichen records from the Novgorod Region, Russia. *Folia Cryptogamica Estonica* 51: 103–107.

**INVITED TALKS**

2021        Students Mycology Colloquium (Mycological Society of America)

**SELECTED CONFERENCES**

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”.  
*St. Petersburg, Russia* (poster presentation)

2019        30th Fungal Genetics Conference. *Pacific Grove, CA, USA* (poster presentation)

2018        International Symbiosis Society Congress. *Corvallis, OR, USA* (poster presentation)

2017        International Conference “The use of modern information technologies in botanical investigations”. *Apatity, Russia* (oral presentation)

2016        VIII Symposium of the International Association for Lichenology. *Helsinki, Finland* (poster presentation)

2014        II international conference “Lichenology in Russia: problems and perspectives”.  
*St. Petersburg, Russia* (poster presentation)

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

## TEACHING AND SUPERVISING EXPERIENCE

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- 2020– **Co-supervisor** to an undergraduate student working on a research project (BIOL398, BIOL498). 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

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- 2021– **CanFunNet 2022 Conference Organizing Committee, Member**
- Biology Graduate Students' Association UAlberta:**
- 2020–2021 *President.*
- 2020–2021 *Graduate student representative* at the Departmental Council.
- 2020–2021 *Co-organizer* of Dr. Richard E. Peter Biology Conference (UAlberta).
- 2019–2020 *Volunteer:* Co-organizer of the weekly BGSA Coffee Hour.
- 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– **The Science Mentors, Mentor, Speaker:**  
TSM is a mentorship program for STEM undergraduate students.
- 2020– **Journal peer reviewer** for The Lichenologist, Symbiosis, American Journal of Botany
- 2017 **Volunteer** at the 1st International Conference “Bioinformatics: from Algorithms to Applications”.

## SCIENCE COMMUNICATION

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- 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

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- 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

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### I. Preprints

1. Resl P., Bujold A. R., **Tagirdzhanova G.**, ... Spribille T. 2021. Large differences in carbohydrate degradation and transport potential in the genomes of lichen fungal symbionts. *bioRxiv*, [doi.org/10.1101/2021.08.01.454614](https://doi.org/10.1101/2021.08.01.454614).

### II. Peer-reviewed Papers

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*, published online [doi.org/10.1111/mec.16010](https://doi.org/10.1111/mec.16010).
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, [doi.org/10.1093/gbe/evab047](https://doi.org/10.1093/gbe/evab047).
3. 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.
4. **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.
5. 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.

6. 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.
7. Himelbrant D. E., Stepanchikova I. S., **Tagirdzhanova G. M.** 2016. The lichens and allied fungi of the Oranienbaumsy Prospective Protected Area (St. Petersburg). *Novitates systematicae plantarum non vascularum* 50: 210–230.
8. 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.
9. 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).
10. 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.
11. **Tagirdzhanova G. M.**, Kataeva O. A., Stepanchikova I. S. 2014. New lichen records from the Novgorod Region, Russia. *Folia Cryptogamica Estonica* 51: 103–107.
12. 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.
13. 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).
14. 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.