



# LUBOMIR RAJTER

Paulinenstr. 107, 45131,  
Essen, Germany

Mobile: 0042 901 804 941  
lubomir.rajter@gmail.com

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## SUMMARY

I'm a biologist that is passionate about bioinformatics and programming. I have a Ph.D. in biology and years of experience working in a molecular laboratory and utilizing various microscopy and staining techniques. But my biggest passion is analyzing data.

I also recently took the Le Wagon data science comprehensive course to broaden my data analysis skills in data engineering and machine learning.

In my free time, I like cooking, repairing old electronics, studying math, and coding for fun.

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## APPOINTMENTS

University of Duisburg-Essen,  
Germany  
2020-2022

### Alexander von Humboldt Postdoctoral Fellow

- Developing a new fluorescence method for ciliate identification
- Phylogenetic analyses
- Teaching: Microscopic Methods to Observe Protist Grazing, Practical Course of Light Microscopy, Phylogenetic Placement

University of Duisburg-Essen,  
Germany, department of  
Eukaryotic Microbiology,  
2019-2020

### Postdoctoral position

- Fluorescence and silver staining of ciliates
- Analyzing metabarcoding data
- Teaching: Microscopic Methods to Observe Protist Grazing, Practical Course of Light Microscopy, Aquatic Biology
- Protist cultures

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## EDUCATION

Le Wagon  
Munich, Germany  
2022

### Data Science Bootcamp

- Data Analytics: SQL, BigQuery, Pandas, Numpy, and Matplotlib
- Statistics: Scipy, Seaborn, and Statsmodels
- Machine Learning: Scikit-learn, TensorFlow, Keras, Torch

Comenius University in  
Bratislava, Slovakia  
2015-2019

### Ph.D.

- Thesis: Phylogenetic reconstruction of free-living ciliates from the class Litostomatea (Protista: Ciliophora)
- Teaching: Animal Anatomy and Morphology, Zoology

Comenius University in  
Bratislava, Slovakia  
2013-2015

### M.S. with honors

- Thesis: Phylogenetic of free-living ciliates of the class Litostomatea (Protista: Ciliophora)
- Graduated with an award for the best Master Thesis

Comenius University in  
Bratislava, Slovakia  
2010-2013

### B.S. in Biology

- Thesis: Phylogenetic reconstruction of ciliates from the order Pleurostomatida (Ciliophora: Litostomatea: Haptoria)

## INTERNSHIPS

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Boise State University Idaho,  
USA  
2017

### Research stay

- Investigation of ciliate morphology using silver staining and scanning electron microscopy
- DNA extracting and sequencing
- Molecular phylogenetics

## AWARDS & SCHOLARSHIPS

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Federal Government of  
Germany  
2020-2022

Humboldt Research Fellowship

Comenius University in  
Bratislava, Slovakia  
2016-2018

Funding for Ph.D. Students and Young Scientists

Slovak Zoological Society  
Zvolen, Slovakia  
2018

Award for the best talk

Comenius University in  
Bratislava, Slovakia  
2015

Award for the best Master Thesis

## TALKS

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Protistology UK Meeting  
(invited talk), (online)  
2021

Rajter: Global patterns of ciliate alpha and beta diversity across aquatic and terrestrial ecosystems

German Society for  
Protozoology (Essen, Germany)  
2021

Rajter, Dunthorn: Ciliate SSU-rRNA reference alignments for phylogenetic placement

German Society for  
Protozoology (Kaiserslautern,  
Germany)  
2020

Rajter, Lu, Rassoshanska, Naderipour, Dunthorn: A 3-step fluorescence staining technique to visualize ciliates

German Society for  
Protozoology (Vienna, Austria)  
2019

Rajter, Vďačný: Selection and paucity of phylogenetic signal challenge the utility of alpha-tubulin in reconstruction of evolutionary history of free-living litostomateans (Protista, Ciliophora)

Slovak Zoological Society  
(Zvolen, Slovakia)  
2018

Rajter, Vďačný: Evolution relationships of predatory ciliates from the class Litostomatea

## PRESENTATIONS

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- International Society for Evolutionary Protistology (Droushia, Cyprus) 2018  
Rajter, Vďačný: Phylogenetic relationships among free-living litostomateans in the light of 18S rRNA gene-ITS region sequences and secondary structure of the ITS2 molecule
- International Congress of Protistology (Prague, Czech) 2017  
Rajter, Vďačný: Molecular phylogenies challenge generic classification of spathidiids

## VOLUNTEER AND LEADERSHIP EXPERIENCE

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- World of Animals Magazine - Editorial Team Member 2018-2020  
A biology specialist consultant for the World of Animals magazine (Slovak edition – “Svet Zvierat”) focusing on the popularization of science
- Head of the Student Zoology Club at Comenius University 2015-2019  
Organization of scientific lectures for a wider public, and planning social events

## RESEARCH SKILLS

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- Microscopy**
  - light
  - fluorescence
  - electron
  - staining techniques
  - ImageJ, ZEN
  - protist culturing
- Molecular techniques**
  - DNA isolation
  - PCR amplification
  - molecular cloning
- Bioinformatics**
  - DNA & genome assembly
  - quality control
  - gene prediction
  - alignment mapping
  - transcriptome analysis
  - differential expression
  - metatranscriptomics
  - metabarcoding data analysis
  - phylogenetic placement
  - phylogenetic inference
  - molecular-clock dating
- Statistics & ML**
  - descriptive statistics
  - hypothesis testing
  - statistical data modeling
  - Bayesian inference
  - machine learning
  - geometric morphometrics
- Programming and Graphics**
  - Python, R, BASH
  - HTML, CSS
  - Git, GitHub
  - SQL
  - CorelDraw
  - Abode Photoshop
  - Inkscape, GIMP

## PUBLICATIONS

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- Rajter L.**, Lu B., Rassoshanska E., Dunthorn M. (2022 - accepted). Future prospects for investigating ciliate biodiversity. *Acta Protozoologica* 61: NA-NA
- Rajter L.**, Dunthorn M. (2021). Ciliate SSU-rDNA reference alignments and trees for phylogenetic placements of metabarcoding data. *Metabarcoding and Metagenomics* 5: e69602.
- Rajter L.**, Ewers I., Graupner N., Vďačný, P., & Dunthorn, M. (2021). Colpodean ciliate phylogeny and reference alignments for phylogenetic placements. *European Journal of Protistology* 77: 125747.

- **Rajter L.**, Bourland W., Vďačný P. (2019). Morpho-molecular characterization of the litostomatean predatory ciliate *Phialina pupula* (Müller, 1773) Foissner, 1983 (Haptoria, Lacrymariidae). *Acta Protozoologica* 58: 53-68.
- Vďačný P., **Rajter L.**, Stoeck T. Foissner W. (2019). A Proposed Timescale for the Evolution of Armophorean Ciliates: Clevelandellids Diversify More Rapidly Than Metopids. *Journal of Eukaryotic Microbiology* 66: 167-181.
- **Rajter L.**, Vďačný P. (2018). Selection and paucity of phylogenetic signal challenge the utility of alpha-tubulin in reconstruction of evolutionary history of free-living litostomateans (Protista, Ciliophora). *Molecular Phylogenetics and Evolution* 127: 534-544.
- **Rajter L.**, Vďačný P. (2017). Constraints on phylogenetic interrelationships among four free-living litostomatean lineages inferred from 18S rRNA gene-ITS region sequences and secondary structure of the ITS2 molecule. *Acta Protozoologica* 56: 255-281.
- Vďačný P., **Rajter L.**, Shazib S.U.A., Jang S.W., Shin M.K. (2017). Diversification dynamics of rhynchostomatian ciliates: the impact of seven intrinsic traits on speciation and extinction in a microbial group. *Scientific Reports* 7: 9918.
- **Rajter L.**, Vďačný P. (2016). Rapid radiation, gradual extinction and parallel evolution challenge generic classification of spathidiid ciliates (Protista, Ciliophora). *Zoologica Scripta* 45: 200-223
- Vďačný P., **Rajter L.** (2015). Reconciling morphological and molecular classification of predatory ciliates: Evolutionary taxonomy of dileptids (Ciliophora, Litostomatea, Rhynchostomatia). *Molecular Phylogenetics and Evolution* 90: 112-128.
- Vďačný P., **Rajter L.**, Shazib S.U.A., Jang S.W., Kim J.H., Shin M.K. (2015). Reconstruction of evolutionary history of pleurostomatid ciliates (Ciliophora, Litostomatea, Haptoria): interplay of morphology and molecules. *Acta Protozoologica* 54: 9-29.
- Vďačný P., **Rajter L.** (2014). An annotated and revised checklist of pleurostome ciliates (Protista: Ciliophora: Litostomatea) from Slovakia, Central Europe. *Zootaxa* 3760: 501-521.