

# Sergey Isaev

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## About Me

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I'm doing a PhD in neuroscience at Igor Adameyko's lab at the Medical University of Vienna. Mostly I'm focused on developing approaches for the analysis and interpretation of multimodal single-cell omics and lineage tracing experiments. Previously worked (and still am interested) in cancer immunology and evolutionary zoology.

## Education

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### Medical University of Vienna

*PhD in Neuroscience*

*Vienna, Austria*

*July 2022 – present*

(supervision by Igor Adameyko and Peter Kharchenko)

- Development of methods for lineage tracing analysis based on scRNA-Seq
- Managing of lab's computational servers and research services

### Moscow State University

*Specialist in Bioengineering and Bioinformatics*

*Moscow, Russia*

*Sept 2015 – June 2021*

- Combined BSc and MSc program for both computational and experimental expertise in biology

## Professional Experience

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### Research Fellow

*Endocrinology Research Center*

*Moscow, Russia*

*Sept 2021 – June 2022*

(supervision by Peter Kharchenko)

- Developing diffusion-based methods for comparison of different single-cell embeddings
- Single-cell analysis in immunological studies

### Bioinformatics Scientist

*BostonGene*

*Moscow, Russia*

*Nov 2019 – Dec 2021*

(supervision by Katerina Nuzhdina)

- Bulk and single-cell RNA-Seq pipelines creation and curation for tumor microenvironment research
- Managing of corporate educational courses helping to introduce best practices of NGS analysis to new employees

### Undergraduate Research Fellow

*Institute for Information Transmission Problems of Russian Academy of Sciences*

*Moscow, Russia*

*Nov 2017 – Aug 2021*

(supervision by Yuri Panchin)

- Comparative and functional genomics of non-model animals (Dicyemids, Orthonectids)

## Packages

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### scLiTr [🔗](#)

*2022 – present*

Python package for single-cell Lineage Tracing analysis

- Development and curation of the package
- Development and application of *clone2vec* algorithm

### symphony [🔗](#)

*2022*

Port of Symphony algorithm of single-cell reference atlas mapping to Python

- Supervision of development (and co-development) of the package
- Curation of the package

## Publications

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**Unbiased profiling of multipotency landscapes reveals spatial modulators of clonal fate biases**

Alek G Erickson\*, **Sergey Isaev**\*, Jingyan He, et al. (*\*equal contribution*)

*bioRxiv*, 2024.11.15.623687, 2024 [🔗](#)

**Multi-omic profiling of follicular lymphoma reveals changes in tissue architecture and enhanced stromal remodeling in high-risk patients**

Andrea J Radtke\*, Ekaterina Postovalova\*, Arina Varlamova, ..., **Sergey Isaev**, et al. (*\*equal contribution*)

*Cancer cell* 42 (3), 444-463. e10, 2024 [🔗](#)

**Complex analysis of single-cell RNA sequencing data**

Anna A Khozyainova, Anna A Valyaeva, Mikhail S Arbatsky, **Sergey V Isaev**, et al.

*Biochemistry (Moscow)* 88 (2), 231-252, 2023 [🔗](#)

**Thymic mesenchymal niche cells drive T cell immune regeneration**

Karin Gustafsson, **Sergey Isaev**, Kameron A Kooshesh, et al.

*bioRxiv*, 2022.10.12.511184, 2022 [🔗](#)

**Follicular lymphoma microenvironment characteristics associated with tumor cell mutations and MHC class II expression**

Guangchun Han, Qing Deng, Mario L Marques-Piubelli, ..., **Sergey Isaev**, et al.

*Blood cancer discovery* 3 (5), 428-443, 2022 [🔗](#)

**Multiregional single-cell proteogenomic analysis of ccRCC reveals cytokine drivers of intratumor spatial heterogeneity**

Natalia Mihecheva, Ekaterina Postovalova, Yang Lyu, ..., **Sergey Isaev**, et al.

*Cell Reports* 40 (7), 2022 [🔗](#)

**Dicyemida and Orthonectida: two stories of body plan simplification**

Oleg A Zverkov, Kirill V Mikhailov, **Sergey V Isaev**, et al.

*Frontiers in Genetics* 10, 443, 2019 [🔗](#)

## Conferences

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**Oral presentation "Clonal embeddings"**

19th YSA PhD Symposium 2024

Vienna, Austria

May 2024

**Oral presentation "How to deal with single-cell multi-omics? Comparison of single-cell multimodal data vertical integration methods"**

*Computational biology and artificial intelligence for personalized medicine-2022*

Moscow, Russia (remote)

Aug 2022

**Poster "Metagenomic study of eukaryotic microbiota of meromictic lakes on the coast of Kandalaksha Bay of the White Sea"**

VII International conference "Marine Research and Education"

Moscow, Russia

Nov 2019

**Poster "Circular DNA in *Dicyema sp.* genome"**

*Information Technologies and Systems 2018*

Moscow, Russia

Sept 2018

## Teaching Experience

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**Transcriptomics Data Analysis** [🔗](#)

Moscow State University

Moscow, Russia (remote)

Sept 2022 – present

Development and teaching of both theoretical and practical parts of the course at the Faculty of Bioengineering and Bioinformatics

**NGS data analysis (RNA-Seq part)**

Higher School of Economics

Moscow, Russia

2021 – 2024

Teaching of RNA-Seq analysis part of the course for bachelor's and master's students

### Single cell profiling and analysis in neuroscience

*Bordeaux School of Neuroscience*

*Bordeaux, France*

*June 2022*

Assisting on practical workshops dedicated to scRNA-Seq analysis in neuroscience

### Introduction to NGS analysis (*RNA-Seq part*)

*Moscow Institute of Physics and Technology*

*Moscow, Russia*

*2020*

Development and teaching of RNA-Seq analysis part of the BostonGene's course for bachelor's students

### Introduction to Bioinformatics

*Letovo*

*Moscow, Russia*

*Sept 2018 – May 2021*

Development and teaching of the introductory course for high school students

## Skills

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**Programming:** proficient with Python; comfortable with R, bash, PyTorch, and Nextflow; familiar with C++, Docker, Git, nginx, and a basic server management

**Mathematics and computer science:** good understanding of probability theory, statistics, and linear algebra, and their applications to data analysis

**Languages:** English (fluent), Russian (native)

## Extracurricular Activities

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- In 2017–2020 I co-organized department's **cinema club** where we watched and discussed modern arthouse movies
- As much as I can I'm trying to participate in **popular science events** as a speaker ([example](#) [🔗](#))
- I'm an active member of the [FBB Alumni Club](#) [🔗](#)