

Sergey Isaev

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About Me

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

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

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

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

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

Alek G Erickson*, **Sergey Isaev***, Jingyan He, et al.

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.

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

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

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

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

- 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](#) [🔗](#)