ASCA 2023 WORKSHOP

21-25 August 2023 | Tomsk

ASCA TOMSK NRMC RUDN DPA

Association of Single Cell Analysis

The ASCA is a global community of professionals
who use different methods of single-cell analysis.
The ASCA mission is "The increase in educational level
and scientific communication in the field of single-cell analysis
in order to accelerate investigations of biological objects
and to understand mechanisms of disease development".

ASCA 2023 WORKSHOP

ASCA 2023 Workshop is the continuation of the annual workshops «Single-cell sequencing» (2019-2021) and «Single-cell analysis» (2022).

Through this 5-day event participants will get information about different methods of single-cell sequencing, digital PCR and bioinformatic analysis. The program includes presentations of expert users and technology developers, practical works, and hands-on bioinformatics. Participants will have the opportunity to network with leading experts and to present their results on the round table "Experience in Single-Cell Analysis".

ASCA 2023
WORKSHOP PARTNERS

PLATINUM PARTNERS

SkyGen SEQANA GeneMind

GOLD PARTNERS

ДИАЛМ 35 лет BioLine группа компаний 寻因生物 SEEKGENE

BiVitrum RWD helicon

SILVER PARTNERS

РУСМЕДТОРГ Biolabmix®

PARTNERS

10x GENOMICS nanoString maccura RainSure SCIENTIFIC OPTOLANE Technologies, Inc.

ASCA 2023 WORKSHOP

21.08.2023 MONDAY PROGRAM

09.00 - 10.00	**Registration** Conference hall, The First Museum of Slavic Mythology, 12 Zagornaya Street
10.00 - 10.30	**Welcome** Vadim Stepanov, Ph.D., Professor, Full Member of the Russian Academy of Sciences, Director of TNRMC, Russia Evgeny Choynzonov, M.D., Ph.D., Professor, Full Member of the Russian Academy of Sciences, Director of Cancer Research Institute of TNRMC, Russia Nadezhda Cherdyntseva, Ph.D., Professor, Corresponding Member of the Russian Academy of Sciences, Deputy Director for Science of Cancer Research Institute of TNRMC, Russia Evgeny Denisov, Ph.D., Head of the Laboratory of Cancer Progression Biology, Cancer Research Institute, TNRMC; Head of the Laboratory of Single Cell Biology, Peoples' Friendship University of Russia, Russia
10.30 - 10.45	Timur Yagudin, SkyGen, Russia *Fixing achievements with 10x Genomics*
10.45 - 11.00	Svetlana Bozrova, Sesana, Russia *Digital PCR from Maccura - advantages and disadvantages of the method*
11.00 - 11.15	Elena Vorontsova, Dia-m, Russia *Microfluidics - new possibilities for working with single cells*
11.15 - 11.35	**Coffee break**
11.35 - 11.50	Alexey Anikaev, Helicon, Russia *The Digital PCR Solution for Liquid Biopsy Companion Diagnosis*
11.50 - 12.05	Alexey Anikaev, Helicon, Russia Omics technologies: from single target analysis to Stereo-seq
12.05 - 12.20	Nick Kim, OPTOLANE Technologies, Republic of Korea *LOAA (LAB ON AN ARRAY) Real-Time Digital PCR System - The Semiconductor Revolution Reaches Molecular Diagnostics*
12.20 - 12.35	Victoria Chernetsova, BioVitrum, Russia *Overview of NanoString technology. From Gene Expression Analysis Digital Spatial Profiling*
12.35 - 13.30	**Lunch**

ASCA 2023 WORKSHOP

21.08.2023 MONDAY PROGRAM

13.30 - 18.00 **WET LAB PRACTICES**

Sample preparation, including mechanical and enzymatic dissociation, flow cytometry and cell sorting
Venue: Laboratory of Molecular Oncology and Immunology, Cancer Research Institute, TNRMC (5 Kooperativny Street)
Practice leader - Marina Patysheva

Single-cell transcriptomics (10x Genomics Chromium)
Venue: Laboratory of Cancer Progression Biology, Cancer Research Institute, TNRMC (7/1 Kooperativny Street)
Practice leader - Tatiana Gerashchenko, Anastasia Schegoleva

Spatial transcriptomics (10x Genomics Visium)
Venue: Laboratory of Cancer Progression Biology, Cancer Research Institute, TNRMC (7/1 Kooperativny Street)
Practice leader - Maxim Menyailo

Spatial transcriptomics (Nanostring GeoMx)
Venue: Central Research Laboratory of Siberian State Medical University (2 Moskovsky Trakt)
Practice leader - Irina Larionova

13.30 - 18.00 **HANDS-ON ADVANCED BIOINFORMATICS**
Venue: The First Museum of Slavic Mythology, 12 Zagornaya Street

13.30 - 14.30 Vadim Chechekhin, Lomonosov Moscow State University, Russia
Gene regulatory networks: methods of analysis and interpretation (Lecture)

14.30 - 16.30 Sergey Isaev, Medical University of Vienna, Austria
Approaches to the analysis of multimodal single cell omics (Lecture/Training)

16.30 - 16.50 **Coffee break**

16.50 - 17.50 Konstantin Okonechnikov, German Cancer Research Center, Germany
Somatic variation discovery from single cell sequencing data (Lecture)

ASCA 2023 WORKSHOP

22.08.2023 TUESDAY PROGRAM

10.00 - 19.00 **WET LAB PRACTICES (continuation)**

Sample preparation, including mechanical and enzymatic dissociation, flow cytometry and cell sorting
Venue: Laboratory of Cancer Progression Biology, Cancer Research Institute, TNRMC (7/1 Kooperativny Street)
Practice leader - Marina Patysheva

Single-cell transcriptomics (10x Genomics Chromium)
Venue: Laboratory of Cancer Progression Biology, Cancer Research Institute, TNRMC (7/1 Kooperativny Street)
Practice leader - Tatiana Gerashchenko, Anastasia Schegoleva

Spatial transcriptomics (10x Genomics Visium)
Venue: Laboratory of Cancer Progression Biology, Cancer Research Institute, TNRMC (7/1 Kooperativny Street)
Practice leader - Maxim Menyailo

Spatial transcriptomics (Nanostring GeoMx)
Venue: Central Research Laboratory of Siberian State Medical University (2 Moskovsky Trakt)
Practice leader - Irina Larionova

10.00 - 21.00 **HANDS-ON ADVANCED BIOINFORMATICS (continuation)**
Venue: The First Museum of Slavic Mythology, 12 Zagornaya Street

9.00 - 10.00 Mark-Phillip Pebworth, Allen Institute for Immunology, USA
MOCHA: Advanced statistical modeling of scATAC-seq from large human disease cohorts

10.00 - 11.00 Ruslan Soldatov, Memorial Sloan Kettering Cancer Center, USA
Computational analysis of dynamics processes in single-cell data (Lecture)

11.00 - 11.20 **Coffee break**

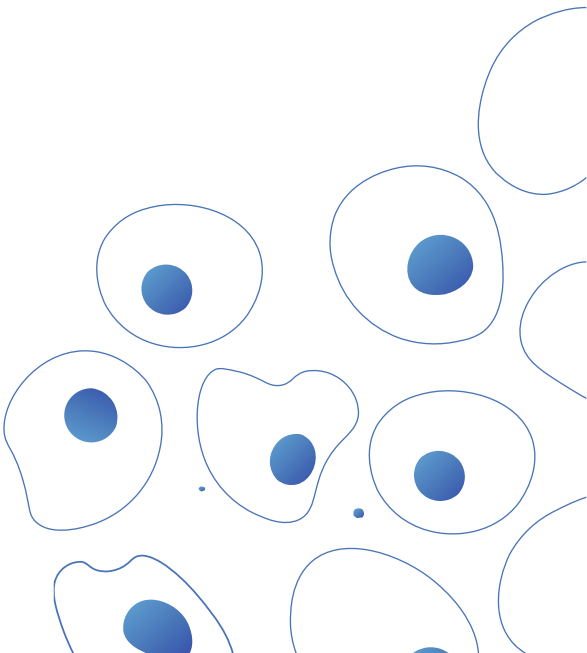
11.20 - 13.20 Pavel Yamshikov, TSU, TNRMC, Russia
The main approaches to the analysis of spatial transcriptomics data on the example of 10x Genomics Visium (Lecture)

13.20 - 14.30 **Lunch**

ASCA 2023 WORKSHOP

22.08.2023 TUESDAY PROGRAM

14.30 - 16.30	Marat Sabirov, Koltzov Institute of Developmental Biology, Russia *Analysis of transcribed cis-regulatory elements with 5'-scRNA-seq (Lecture/Training)*
16.30 - 16.50	**Coffee break**
16.50 - 18.50	Dmitry Tychinin, Dmitry Svetlichnyy, Centre for Strategic Planning, Russia *Prediction of cell communication based on ligand-receptor interactions (Lecture/Training)*
18.50 - 19.10	**Coffee break**
19.10 - 21.10	Dmitry Tychinin, Dmitry Svetlichnyy, Centre for Strategic Planning, Russia *Application of ML methods to identify biological pathways and cell types associated with diseases by single-cell data (Lecture/Training)*



ASCA 2023 WORKSHOP

23.08.2023 WEDNESDAY PROGRAM

10.00 - 18.30 **HANDS-ON BASIC BIOINFORMATICS**
Venue: The First Museum of Slavic Mythology, 12 Zagornaya Street

10.00 - 10.30 Pavel Yamshikov, TSU, TNRMC, Russia
Introduction to NGS Bioinformatics (Lecture)

10.30 - 12.00 Rostislav Vorobev, TNRMC, Russia
Introduction to Server Work (Training)

12.00 - 12.20 **Coffee break**

12.20 - 14.20 Pavel Yamshikov, TSU, TNRMC, Russia
Basics of RNA-seq bioinformatics (Workshop)

14.20 - 15.30 **Lunch**

15.30 - 17.00 Pavel Yamshikov, TSU, TNRMC, Russia
Introduction into single-cell RNA-seq. Cell Ranger (Lecture/Training)

17.00 - 18.30 Timur Yagudin, SkyGen, Russia
Loupe Browser (Lecture/Training)

10.00 - 18.00 **MASTER-CLASSES ON DIGITAL PCR**
Absolute quantification of mitochondrial DNA in cells using D600 digital PCR system (Maccura)
Venue: Laboratory of Population Genetics, Research Institute of Medical Genetics, TNRMC, 10 Naberezhnaja Ushajki
Practice leader - Aleksei Sleptcov

Analysis of individual markers of tumor cells by real-time digital PCR system using LOAA instrument (Optolane)
Venue: Laboratory of Population Genetics, Research Institute of Medical Genetics, TNRMC, 10 Naberezhnaja Ushajki
Practice leader - Matvey Tsyganov

Drop-DX digital PCR system (RainSure) in molecular diagnostics of cancer
Venue: Laboratory of Cytogenetics, Research Institute of Medical Genetics, TNRMC, 10 Naberezhnaja Ushajki
Practice leader - Andrey Zuev

19.00 - 20.30 Sightseeing tour of the city of Tomsk
Start: The First Museum of Slavic Mythology, 12 Zagornaya Street
Contact – **Ustinya Bokova, +7-953-915-70-12**
A coffee break will be on the 2nd floor of the Museum of Slavic Mythology before the tour.

ASCA 2023 WORKSHOP

24.08.2023 THURSDAY PROGRAM

10.00 - 19.20 **HANDS-ON BASIC BIOINFORMATICS (continuation)**
Venue: The First Museum of Slavic Mythology, 12 Zagornaya Street

10.00 - 12.00 Alexey Zarubin, TNRMC, Russia
Basic scRNA-seq data processing (Training)

12.00 - 12.20 **Coffee break**

12.20 - 13.50 Vadim Chechekhin, Lomonosov Moscow State University, Russia
Cell typing methods: from gene expression to neural networks (Training)

13.50 - 15.00 **Lunch**

15.00 - 17.00 Pavel Yamshikov, TSU, TNRMC, Russia
Sample integration in scRNAseq (Training)

17.00 - 17.20 **Coffee break**

17.20 - 19.20 Pavel Yamshikov, TSU, TNRMC, Russia
Basic analysis of spatial transcriptomic data (Lecture/Training)

10.00 - 18.00 **MASTER-CLASSES ON DIGITAL PCR (continuation)**
Absolute quantification of mitochondrial DNA in cells using D600 digital PCR system (Maccura)
Venue: Laboratory of Population Genetics, Research Institute of Medical Genetics, TNRMC, 10 Naberezhnaja Ushajki
Practice leader - Aleksei Sleptcov

Analysis of individual markers of tumor cells by real-time digital PCR system using LOAA instrument (Optolane)
Venue: Laboratory of Population Genetics, Research Institute of Medical Genetics, TNRMC, 10 Naberezhnaja Ushajki
Practice leader - Matvey Tsyganov

Drop-DX digital PCR system (RainSure) in molecular diagnostics of cancer
Venue: Laboratory of Cytogenetics, Research Institute of Medical Genetics, TNRMC, 10 Naberezhnaja Ushajki
Practice leader - Andrey Zuev

ASCA 2023 WORKSHOP

25.08.2023 FRIDAY PROGRAM

10.00 - 18.00	**ROUND TABLE "EXPERIENCE IN SINGLE-CELL ANALYSIS"** Venue: The First Museum of Slavic Mythology, 12 Zagornaya Street
10.00 - 10.15	Pyotr Tyurin-Kuzmin, Lomonosov Moscow State University, Russia *Using single cell analysis to reveal the mechanisms of stem cell differentiation regulation*
10.15 - 10.30	Egor Volchkov, Dmirty Rogachev NMRC, Russia *scDNAseq technology on the Tapestri platform: own results and development prospects*
10.30 - 10.40	Samvel Melkonyan, Bioline, Russia *Ensuring the work of the laboratory of a molecular genetic profile in the conditions of Western sanctions. Company Solutions*
10.40 - 10.55	Olga Perik-Zavodskaia, Research Institute of Fundamental and Clinical Immunology, Russia *Discovering new horizons in tumor immunotherapy: Sequencing complete sequences of CD8+ T-cell receptors specific to HER2-neu and MAGE-A3*
10.55 - 11.10	Tatiana Gerashchenko, TNRMC, Tomsk; RUDN, Russia *Functional changes in immune blood cells and breast tumors under the influence of chemotherapy*
11.10 - 11.25	Alexey Doroshkov, Institute of Cytology and Genetics, Russia *Reconstruction of cell type evolution based on mass analysis of single cell transcriptomic data: problems and prospects*
11.25 - 11.45	**Coffee break**
11.45 - 11.55	Susan Wu, RWD Life Science, China *Premium Tissue Processing Technology—Single cell suspension dissociator and cell sepration product in Improving Single Cell Sequencing Workflow Efficiency*
11.55 - 12.10	Marina Patysheva, TNRMC, Russia *New insights into the mechanisms of tongue tumor development in young adults using spatial transcriptomics*
12.10 - 12.25	Daria Zhigalina, TNRMC, Russia *Embryoid cells as a model for early human embryogenesis*
12.25 - 12.40	Marat Sabirov, Koltzov Institute of Developmental Biology, Russia *Cellular identity of the rat hypothalamus in a model of hereditary domestication and aggression*

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25.08.2023 FRIDAY PROGRAM

12.40 - 12.50	Ivan Tarasov, Sesana, Russia *Sesana - modern solutions in NGS*
12.50-13.05	*Timur Fatkhudinov, RUDN,* Russia *Network form of research organization*
13.05 - 14.00	**Lunch**
14.00 - 14.15	Oleg Gusev, Kazan Federal University, Russia; Juntendo University, RIKEN, Japan *scRNAseq + exotic bioresources as a survival strategy in competitive science*
14.15 - 14.25	Tatyana Bukanova, SkyGen, Russia *Products for single cell sequencing*
14.25 - 14.35	T.K. Peng, SeekGene, China *Innovative scFAST-seq technology accessing analysis from Mutation, Regulation to Expression*
14.35 - 14.50	Irina Larionova, TSU, TNRMC, SibMed, Russia *Application of spatial transcriptomics technologies in fundamental oncology*
14.50 - 15.05	Roman Sankowski, University of Freiburg, Germany *Molecular dissection of malignant gliomas in the perivascular compartment*
15.05 - 15.25	**Coffee break**
15.25 - 15.40	Jing He, RainSure Scientific, China *The Digital PCR Solution for Liquid Biopsy Companion Diagnosis*
15.40 - 15.55	Konstantin Okonechnikov, German Cancer Research Center, Germany *Single cell spatial techniques application on pediatric brain tumors*
15.55 - 16.10	Anna Arutyunyan, Wellcome Sanger Institute, United Kingdom *Spatial multiomics map of trophoblast development in early pregnancy*
16.10 - 16.25	Sergei Popov, Endocrinology Research Center, Russia *Application of single cell transcriptomic analysis methods in the investigation of different types of endocrine cancers*

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25.08.2023 FRIDAY PROGRAM

16.25 - 16.40 Yulia Medvedeva, Federal Research Center for Biotechnology RAS, Russia
Immune cell repertoire in adults: the role of ethnic factors in health and disease

16.40 - 16.55 Vadim Chechekhin, Lomonosov Moscow State University, Russia
ScRNA-seq analysis of adipose tissue vessels indicates the key role of pericytes in the regulation of vasoconstriction

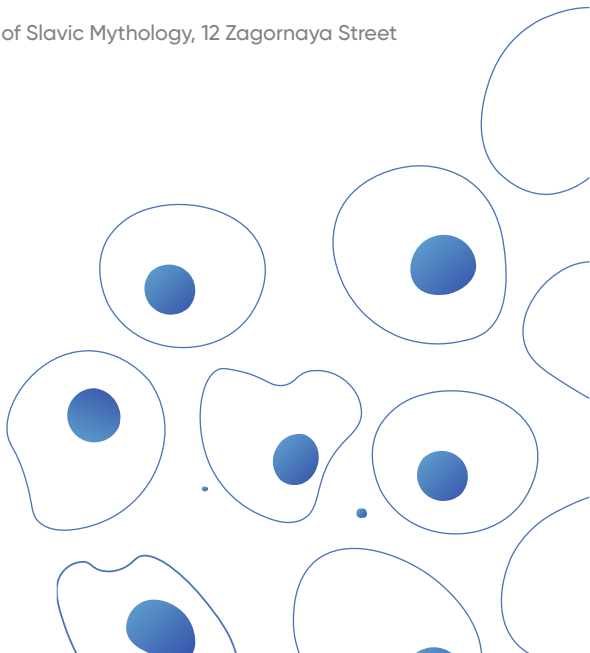
16.55 - 17.30 **Closing summary**

Evgeny Choynzonov, M.D., Ph.D., Professor, Full Member of the Russian Academy of Sciences, Acting Director of Cancer Research Institute of TNRMC, Russia

Nadezhda Cherdyntseva, Ph.D., Professor, Corresponding Member of the Russian Academy of Sciences, Deputy Director for Science of Cancer Research Institute of TNRMC, Russia

Evgeny Denisov, Ph.D., Head of the Laboratory of Cancer Progression Biology, Cancer Research Institute, TNRMC; Head of the Laboratory of Single Cell Biology, Peoples' Friendship University of Russia, Russia

18.00 - 22.00 **Party**
Venue: The First Museum of Slavic Mythology, 12 Zagornaya Street



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+7 3822 282676 (ext. 3375)
+7 3822 282676 (ext. 3358)

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