



# **PROGRAM**

## **ASCA WORKSHOP 2024**

**AUGUST 26-30, TOMSK**



## Association for 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".

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



## Organizers



## Chairpersons

**Evgeny Choyzonov**  
Cancer Research  
Institute, Tomsk NRMС\*



**Evgeny Denisov**  
Cancer Research Institute,  
Tomsk NRMС;  
RUDN University\*\*



**Nadezhda Cherdyntseva**  
Cancer Research  
Institute, Tomsk NRMС



**Timur Fatkhudinov**  
RUDN University



\*Tomsk NRMС - Tomsk National Research Medical Center

\*\*RUDN University - Peoples' Friendship University of Russia

## Organizing committee



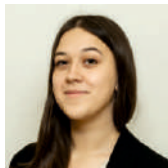
**Tatiana Gerashchenko**  
Cancer Research  
Institute,  
Tomsk NRCM;  
RUDN University



**Maxim Menyailo**  
Cancer Research  
Institute,  
Tomsk NRCM;  
RUDN University



**Ustinya Bokova**  
Cancer Research  
Institute,  
Tomsk NRCM



**Anastasia Korobeynikova**  
Cancer Research  
Institute,  
Tomsk NRCM;  
RUDN University



**Marina Patysheva**  
Cancer Research  
Institute,  
Tomsk NRCM



**Anastasia Lokhonina**  
RUDN University



**Aleksei Sleptcov**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRCM



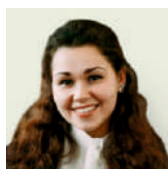
**Anton Fedorov**  
Cancer Research  
Institute,  
Tomsk NRCM



**Maria Tretyakova**  
Cancer Research  
Institute,  
Tomsk NRCM



**Anna Khozyainova**  
Cancer Research  
Institute,  
Tomsk NRCM



**Anastasia Frolova**  
Cancer Research  
Institute,  
Tomsk NRCM



**Elizaveta Prostakishina**  
Cancer Research  
Institute,  
Tomsk NRCM

## Organizing committee



**Pavel Yamshikov**  
Cancer Research  
Institute,  
Tomsk NRMC;  
Tomsk State  
University



**Rostislav Vorobev**  
Cancer Research  
Institute,  
Tomsk NRMC



**Marat Sabirov**  
Koltzov Institute  
of Developmental  
Biology



**Anna Valyaeva**  
Lomonosov Moscow  
State University



**Arina Ibragimova**  
Cancer Research  
Institute,  
Tomsk NRMC

## Technical committee



**Elizaveta Fonova**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRMC



**Matvey Tsyganov**  
Cancer Research  
Institute,  
Tomsk NRMC



**Nikita Ermak**  
Cancer Research  
Institute,  
Tomsk NRMC



**Tatiana Kireeva**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRMC

## Technical committee



**Irina Zhalsanova**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRMC



**Andrew Zuev**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRMC



**Daria Zhigalina**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRMC



**Elena Kolegova**  
Cancer Research  
Institute,  
Tomsk NRMC



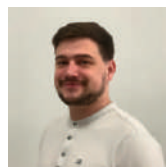
**Nikita Kolesnikov**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRMC



**Svetlana Siarkina**  
Tomsk State  
University



**Daria Sultanova**  
Siberian State  
Medical University



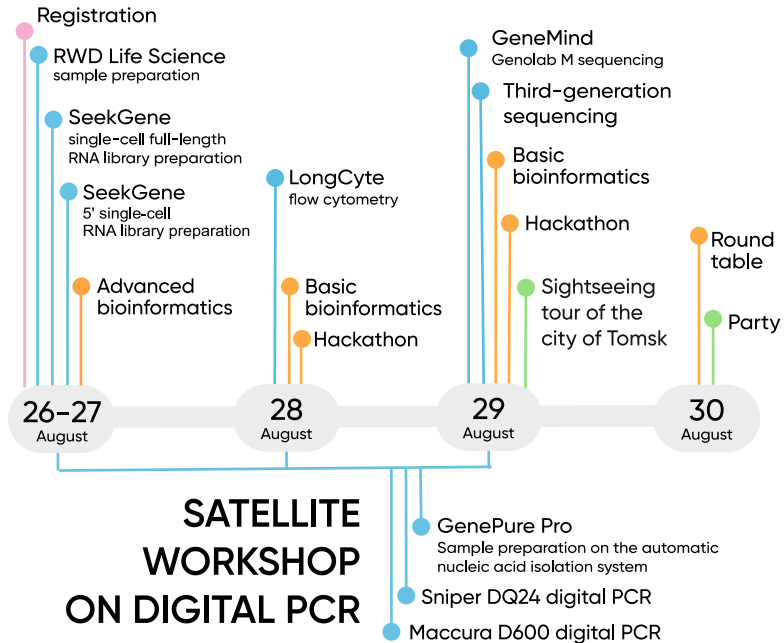
**Vyacheslav  
Korobeynikov**  
Cancer Research  
Institute,  
Tomsk NRMC



**Sofya Gosudarkina**  
Research  
Institute of  
Medical Genetics,  
Tomsk NRMC

## Timeline

# ASCA WORKSHOP



## Venue

- Cancer Research Institute, Tomsk NRC (5 Kooperativny Street)
- Laboratory Building, Tomsk NRC (7/1 Kooperativny Street)
- Tomsk Regional Universal Scientific Library named after A.S. Pushkin (14 Karl Marx Street)
- The First Museum of Slavic Mythology (12 Zagornaya Street)



The First Museum of Slavic Mythology,  
12 Zagornaya Street



Cancer Research  
Institute, Tomsk NRMС,  
5 Kooperativny Street



Laboratory Building,  
Tomsk NRMС,  
7/1 Kooperativny Street



Tomsk Regional Universal  
Scientific Library named  
after A.S. Pushkin,  
14 Karl Marx Street



# PROGRAM

AUGUST 26, 2024

mon

Venue: Cancer Research Institute,  
Tomsk NRMC, 5 Kooperativny Street,  
Conference Room

09.00 - 09.30 **REGISTRATION**

09.30 - 09.45 **WELCOME**

Vadim Stepanov, Ph.D., D.Sc., Professor,  
Full Member of the Russian Academy of  
Sciences, Director of Tomsk NRMC

Evgeny Choyznzonov, M.D., Ph.D., D.Sc.,  
Professor, Full Member of the Russian  
Academy of Sciences, Director of Cancer  
Research Institute of Tomsk NRMC

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

Anastasia Lokhonina, M.D., Ph.D., Deputy  
Director of Research Institute of Molecular  
and Cellular Medicine, RUDN University

09.45 - 10.15 Evgeny Denisov, Tomsk NRMC;  
RUDN University  
*Single-cell and spatial analysis:  
opportunities and applications*

10.15 - 11.00 **INTRODUCTION TO WET LAB PRACTICES,  
MASTER-CLASSES, and  
HANDS-ON BIOINFORMATICS**

Marina Patysheva, Tomsk NRMC  
*Sample preparation: solutions from RWD  
Life Science*

# PROGRAM

AUGUST 26, 2024

mon

**Maxim Menyailo, Tomsk NRMС;  
RUDN University**  
*SeekGene single-cell full-length RNA library  
preparation*

**Tatiana Gerashchenko, Tomsk NRMС;  
RUDN University**  
*SeekGene 5' single-cell RNA library  
preparation*

**Elizaveta Prostakishina, Tomsk NRMС**  
*Master-class on LongCyte flow cytometry*

**Anastasia Korobeynikova, Tomsk NRMС;  
RUDN University**  
*Master-class on GeneMind Genolab M  
sequencing*

**Timur Yagudin, SkyGen**  
*Master-class on Third-generation  
sequencing*

**Aleksei Sleptcov, Tomsk NRMС**  
*Master-class on digital PCR*

**Anna Khozyainova, Tomsk NRMС  
Pavel Yamshikov, Tomsk NRMС;  
Tomsk State University**  
*Hands-on bioinformatics*

**Marat Sabirov, Koltzov Institute of  
Developmental Biology  
Anna Valaeva, Lomonosov Moscow State  
University**  
*Hackathon on bioinformatics*

11.00 - 12.00 **Break, free time**



# PROGRAM

AUGUST 26, 2024

mon

**12.00 - 18.00**    **WET LAB PRACTICES ON SINGLE CELL SEQUENCING**

Venue: Laboratory of Cancer Progression  
Biology, Cancer Research Institute,  
Tomsk NRC (7/1 Kooperativny Street)

**Sample preparation: solutions from  
RWD Life Science**

Room 308

Practice leaders - Marina Patysheva and  
Maria Tretyakova

**SeekGene single-cell 5' RNA library  
preparation**

Room 307

Practice leader - Tatiana Gerashchenko

**SeekGene single-cell full-length RNA  
library preparation**

Room 309

Practice leader - Maxim Menyailo

**Coffee break, Partner exhibition**



# PROGRAM

AUGUST 26, 2024

mon

## SATELLITE WORKSHOP ON DIGITAL PCR

Venue: Laboratory of Molecular Oncology and Immunology, Cancer Research Institute, Tomsk NRC (7/1 Kooperativny Street)

**12.00 - 16.00 Master-class on Sample preparation using the GenePure Pro automatic nucleic acid isolation system**

**Master-class on Maccura D600 digital PCR**

Room 1

Master-class leaders - Aleksei Sleptcov and Nikita Kolesnikov

**12.00 - 16.00 Master-class on Sniper DQ24 digital PCR**

Room 2

Master-class leader - Matvey Tsyganov

Coffee break, Partner exhibition

# PROGRAM

AUGUST 26, 2024

mon

- 12.00 - 19.30 HANDS-ON ADVANCED BIOINFORMATICS**  
Venue: Tomsk Regional Universal Scientific Library named after A.S. Pushkin, 14 Karl Marx Street, Room 401  
Moderators: Pavel Yamshikov and Anna Khozyainova
- 12.00 - 13.30 **Pavel Yamshikov, Tomsk NRMС; Tomsk State University**  
*The main approaches to the analysis of NGS-based spatial transcriptomics (Lecture)*
- 13.30 - 15.00 **Pavel Yamshikov, Tomsk NRMС; Tomsk State University**  
*Denoising and cell-type deconvolution of NGS-based spatial transcriptomics (Training)*
- 15.00 - 15.15 Coffee break**
- 15.15 - 16.45 **Vadim Chechekhin, Lomonosov Moscow State University**  
*Gene regulatory networks: methods of analysis and interpretation (Lecture/Training)*
- 16.45 - 17.45 **Konstantin Okonechnikov, German Cancer Research Center**  
*Somatic variation discovery from single-cell sequencing data (Lecture)*
- 17.45 - 18.00 Coffee break**
- 18.00 - 19.30 **Konstantin Okonechnikov, German Cancer Research Center  
Anna Khozyainova, Tomsk NRMС**  
*Somatic variation discovery from single-cell sequencing data (Training)*

# PROGRAM

AUGUST 27, 2024

tues

**10.00 - 18.00 WET LAB PRACTICES ON SINGLE CELL SEQUENCING (continuation)**

Venue: Laboratory of Cancer Progression  
Biology, Cancer Research Institute,  
Tomsk NRCMC (7/1 Kooperativny Street)

**Sample preparation: solutions from RWD Life Science**

Room 308

Practice leaders - Marina Patysheva and  
Maria Tretyakova

**SeekGene single-cell 5' RNA library preparation**

Room 307

Practice leader - Tatiana Gerashchenko

**SeekGene single-cell full-length RNA library preparation**

Room 309

Practice leader - Maxim Menyailo

Coffee break, Partner exhibition



# PROGRAM

AUGUST 27, 2024

tues

## SATELLITE WORKSHOP ON DIGITAL PCR

Venue: Laboratory of Molecular Oncology and Immunology, Cancer Research Institute, Tomsk NRC (7/1 Kooperativny Street)

- 10.00 - 14.00** Master-class on Sample preparation using the GenePure Pro automatic nucleic acid isolation system  
Master-class on Maccura D600 digital PCR  
Room 1  
Master-class leaders - Aleksei Sleptcov and Nikita Kolesnikov
- 10.00 - 14.00** Master-class on Sniper DQ24 digital PCR  
Room 2  
Master-class leader - Matvey Tsyganov

Coffee break, Partner exhibition

# PROGRAM

AUGUST 27, 2024

tues

**10.00 - 19.30 HANDS-ON ADVANCED BIOINFORMATICS  
(continuation)**

Venue: Tomsk Regional Universal Scientific  
Library named after A.S. Pushkin,  
14 Karl Marx Street, Room 401

Moderators: Pavel Yamshikov and  
Anna Khozyainova

**10.00 - 11.30 Anna Valyaeva, Lomonosov Moscow State  
University**  
*Exploring cellular dynamics (Lecture/Training)*

**11.30 - 13.00 Marat Sabirov, Koltzov Institute of  
Developmental Biology**  
*Analysis of transcribed cis-regulatory  
elements with 5'-scRNA-seq (Training)*

**13.00 - 14.00 Lunch break (on your own)**

**14.00 - 15.30 Anna Valyaeva, Lomonosov Moscow State  
University**  
*Decoding cell-cell communication: ligand-  
receptor analysis in single-cell RNA-seq  
(Lecture/Training)*

**15.30 - 17.00 Dmitry Tychinin, Centre for Strategic Planning**  
*Lessons in Speculation: How to Make  
Discoveries in scRNA-seq data and How AI  
Can Help Us? (Training)*

**17.00 - 17.30 Coffee break**

**17.30 - 19.30 Sergey Isaev, Medical University of Vienna**  
*Approaches to the analysis of multimodal  
single cell omics (Lecture/Training)*



# PROGRAM

AUGUST 28, 2024

wed

- 10.00 - 14.00**    **Master-class on LongCyte flow cytometry**  
Venue: Laboratory of Cancer Progression  
Biology, Cancer Research Institute,  
Tomsk NRMС (7/1 Kooperativny Street),  
Room 308  
Master-class leaders - Olga Shikshina and  
Elizaveta Prostakishina

## SATELLITE WORKSHOP ON DIGITAL PCR

Venue: Laboratory of Molecular Oncology  
and Immunology, Cancer Research Institute,  
Tomsk NRMС (7/1 Kooperativny Street)

- 10.00 - 14.00**    **Master-class on Sample preparation using  
the GenePure Pro automatic nucleic acid  
isolation system**  
**Master-class on Sniper DQ24 digital PCR**  
Room 1  
Master-class leaders - Nikita Kolesnikov and  
Matvey Tsyganov
- 10.00 - 14.00**    **Master-class on Maccura D600 digital PCR**  
Room 2  
Master-class leader - Aleksei Sleptcov

Coffee break, Partner exhibition



# PROGRAM

AUGUST 28, 2024

wed

**10.00 - 19.00 HANDS-ON BASIC BIOINFORMATICS**

Venue: Tomsk Regional Universal Scientific Library named after A.S. Pushkin, 14 Karl Marx Street, Room 48

Moderators: Pavel Yamshikov and Anna Khozyainova

10.00 - 11.30 Rostislav Vorobev, Tomsk NRMС  
*Introduction to Server Work (Training)*

11.30 - 13.00 Pavel Yamshikov, Tomsk NRMС;  
Tomsk State University  
*Basics of RNA-seq bioinformatics (Training)*

**13.00 - 14.00 Lunch break (on your own)**

14.00 - 15.30 Pavel Yamshikov, Tomsk NRMС;  
Tomsk State University  
*Introduction into SeekGene single-cell RNA-seq (Lecture/Training)*

15.30 - 17.30 Anna Khozyainova, Tomsk NRMС  
*Basic scRNA-seq data processing (Training)*

**17.30 - 18.00 Coffee break**

18.00 - 19.00 Anna Khozyainova, Tomsk NRMС  
*Pseudobulk differential expression analysis (Training)*



# PROGRAM

AUGUST 28, 2024

wed

**10.00 - 18.00 HACKATHON ON BIOINFORMATICS**

Venue: Tomsk Regional Universal Scientific  
Library named after A.S. Pushkin, 14 Karl Marx  
Street,  
Room 401

Moderators: Marat Sabirov and Anna Valyaeva

10.00 - 12.30 Proposed project overview

12.30 - 13.00 Final teams formation

**13.00 - 14.00 Lunch break (on your own)**

14.00 - 15.30 Work on projects

**15.30 - 15.45 Coffee break**

15.45 - 18.00 Work on projects

# PROGRAM

AUGUST 29, 2024

thurs

10.00 - 13.00 **Master-class on GeneMind Genolab M sequencing**  
Venue: Laboratory of Cancer Progression Biology, Cancer Research Institute, Tomsk NRCM (7/1 Kooperativny Street), Room 309  
Master-class leaders - Anastasia Korobeynikova and Viktoryia Yakimakha

10.00 - 13.00 **Master-class on Third-generation sequencing**  
Venue: Laboratory of Cancer Progression Biology, Cancer Research Institute, Tomsk NRCM (7/1 Kooperativny Street), Room 307  
Master-class leader - Timur Yagudin

## SATELLITE WORKSHOP ON DIGITAL PCR

Venue: Laboratory of Molecular Oncology and Immunology, Cancer Research Institute, Tomsk NRCM (7/1 Kooperativny Street)

10.00 - 14.00 **Master-class on Sample preparation using the GenePure Pro automatic nucleic acid isolation system**  
**Master-class on Sniper DQ24 digital PCR**  
Room 1  
Master-class leaders - Nikita Kolesnikov and Matvey Tsyganov

10.00 - 14.00 **Master-class on Maccura D600 digital PCR**  
Room 2  
Master-class leader - Aleksei Sleptcov

Coffee break, Partner exhibition

# PROGRAM

AUGUST 29, 2024

thurs

**10.00 - 17.30 HANDS-ON BASIC BIOINFORMATICS  
(continuation)**

Venue: Tomsk Regional Universal Scientific  
Library named after A.S. Pushkin,  
14 Karl Marx Street, Room 48  
Moderators: Pavel Yamshikov and Anna  
Khozyainova

**10.00 - 11.30 Vadim Chechekhin, Lomonosov Moscow State  
University**

*Cell type annotation methods: from gene  
expression to neural networks (Training)*

**11.30 - 13.00 Pavel Yamshikov, Tomsk NRMС;  
Tomsk State University**

*Sample integration in scRNAseq (Training)*

**13.00 - 14.00 Lunch break (on your own)**

**14.00 - 15.30 Dmitry Tychinin, Centre for Strategic Planning**  
*Lessons in Speculation: How to Make Discoveries  
in scRNA-seq data and How AI Can Help Us?  
(Training)*

**15.30 - 16.00 Coffee break**

**16.00 - 17.30 Pavel Yamshikov, Tomsk NRMС;  
Tomsk State University**  
*Basic analysis of NGS-based spatial  
transcriptomics (Lecture/Training)*



# PROGRAM

AUGUST 29, 2024

thurs

**10.00 - 17.00 HACKATHON ON BIOINFORMATICS**

Venue: Tomsk Regional Universal Scientific  
Library named after A.S. Pushkin,  
14 Karl Marx Street, Room 401

Moderators: Marat Sabirov and Anna Valyaeva

10.00 - 13.00 Continuing work on projects

**13.00 - 14.00 Lunch break (on your own)**

14.00 - 15.30 Discussion of the results obtained

**15.30 - 15.45 Coffee break**

15.45 - 17.00 Preparation of reports



# PROGRAM

AUGUST 29, 2024

thurs

**14.00 - 16.00** The ASCA Advisory Council Meeting

Venue: Laboratory of Cancer Progression Biology,  
Cancer Research Institute, Tomsk NRMC  
(7/1 Kooperativny Street), Room 305

**Only for The ASCA Advisory Council's members**

**18.00 - 20.00** Tomsk sightseeing tour

Start: The First Museum of Slavic Mythology,  
12 Zagornaya Street

Contact – Ustinya Bokova, +7-(953)-915-70-12

You will see the amazing architecture of Tomsk, numerous monuments and temples, get an experience of the charming atmosphere of the old city, and visit the Resurrection Mountain - the place from which this magnificent city began to develop.



# PROGRAM

## AUGUST 30, 2024

fri

- 10.00 - 18.00** **ROUND TABLE**  
**"EXPERIENCE IN SINGLE-CELL ANALYSIS"**  
Venue: Tomsk Regional Universal Scientific  
Library named after A.S. Pushkin,  
14 Karl Marx Street, Conference room 53
- 10.00 - 10.15** **Pyotr Tyurin-Kuzmin, Lomonosov Moscow  
State University**  
*Signaling mechanisms for postnatal stem  
cells fate decisions*
- 10.15 - 10.25** **Marc Yi, SeekGene**  
*SeekSpace Single Cell Spatial  
Transcriptome-seq Technology  
Introduction*
- 10.25 - 10.40** **Alexandra Pershina, Siberian State  
Medical University**  
*Single-cell sequencing for research of  
magnetic nanoparticles  
behavior in vivo*
- 10.40 - 10.50** **Tatyana Bukanova, SkyGen**  
*Never stop evolving: solutions for your best  
single-cell research*
- 10.50 - 11.05** **Tatiana Gerashchenko, Tomsk NRMС;  
RUDN University**  
*Single-cell resolution of blood Immune  
landscape during chemotherapy*
- 11.05 - 11.15** **Susan Wu, RWD Life Science**  
*High-quality single-cell suspension and  
cell separation strategies in Improving  
Single-Cell Sequencing Workflow  
Efficiency*
- 11.15 - 12.00** **Coffee-break, Partner exhibition**



# PROGRAM

## AUGUST 30, 2024

fri

- 12.00 - 12.15 **Egor Volchkov, Dmitry Rogachev NMRC, RUDN University**  
*Using of multi-omics single-cell technologies in the study of JMML and RALD*
- 12.15 - 12.25 **Natalya Belichenko, Chimmed**  
*Life Science Laboratories*
- 12.25 - 12.40 **Elizaveta Prostackishina, Tomsk NRMС**  
*Unravelling the transcriptional landscape of early-onset tongue cancer using single-cell sequencing and spatial profiling*
- 12.40 - 12.50 **Anton Steblov, Sesana**  
*GeneMind equipment for process automation and high-throughput sequencing*
- 12.50 - 13.05 **Kadria Enikeeva, Bashkir State Medical University**  
*Single-cell and bulk sequencing in prostate cancer*
- 13.05 - 13.20 **Anna Valyaeva, Lomonosov Moscow State University**  
*Study of low-expressed genes using single-cell RNA sequencing data*
- 13.20 – 14.00 Coffee-break, Partner exhibition**
- 14.00 - 14.15 **Daria Zhigalina, Tomsk NRMС**  
*Common transcriptional programs in malignant cells and embryonic bodies*

# PROGRAM

## AUGUST 30, 2024

fri

- 14.15 - 14.25 **Tatyana Rodionova, Qvados-Bio**  
*Sniper DQ24 All-in-one Droplet Digital PCR System*
- 14.25 - 14.40 **Vadim Chechekhin, Lomonosov Moscow State University**  
*scParadise: Tunable highly accurate multi-class cell type annotation and modality prediction*
- 14.40 - 14.50 **Olga Petrachuk, Helicon**  
*Available methods and equipments for single-cell analysis*
- 14.50 - 15.05 **Elena Kopantseva, RUDN University**  
*Single-cell analysis of soft tissue sarcoma tumor cell populations and microenvironment*
- 15.05 - 15.20 **Marat Sabirov, Koltzov Institute of Developmental Biology**  
*Functional activity and structural organization of transcribed cis-regulatory elements in the developing rat hypothalamus*
- 15.20 - 15.35 **Roman Perik-Zavodskii, Research Institute of Fundamental and Clinical Immunology; Sechenov University**  
*Determination of thresholds for activation of peripheral blood mononuclear cells by TNF $\alpha$  depending on the expression of its surface receptors*
- 15.35 - 16.10 **Coffee-break, Partner exhibition**



# PROGRAM

AUGUST 30, 2024

fri

16.10 - 17.30 **HACKATHON'S RESULTS**

16.10 - 16.15 Introduction to hackathon

16.15 - 17.10 Presentations from bioinformatics  
hackathon teams

17.10 - 17.30 Summing-up and awarding

17.30 **CLOSING**

18.00 - 22.00 **PARTY**

Venue: Roof of the First Museum of Slavic  
Mythology, 12 Zagornaya Street

ascanet.org/events/  
asca-2024-workshop  
+7 3822 282676 (ext. 3375)  
+7 3822 282676 (ext. 3358)

# ASCA WORKSHOP 2024



ascanet.org



tnimc.ru



rudn.ru



dpa-workshop.ru

## PARTNERS



SEEKGENE

RWD

SEANA

SkyGen



ХИММЕД

helicon

QVADROS



Bio

BioLine