

MISAME: Understanding immune activation in innovative glioma macrophage therapy

PROJECT HIGHLIGHTS | JUNE 2025 – MAY 2026



A new approach to one of the most challenging cancers

Glioblastoma remains one of the most aggressive and difficult-to-treat forms of cancer, with a major unmet need for new therapeutic approaches.

The **MISAME project** brings together Cellis and the University Hospital of Zürich to investigate how an innovative macrophage-drug conjugate, **MDC-735**, interacts with the glioblastoma tumour microenvironment.

The project focuses on a key question: **how can the tumour microenvironment be understood and modulated to support more effective anti-cancer responses?**

MISAME combines preclinical cancer research, immunology, advanced cellular profiling and spatial analysis to build a stronger scientific foundation for the further development of MDC-735 and its future clinical translation.

MISAME at a glance

Project duration

June 2025 – May 2028

Reporting period covered here

June 2025 – May 2026

Partners

Cellis, Poland

University Hospital of Zürich, Switzerland

Principal Investigator

Prof. dr hab. Magdalena Król

Initial technology readiness level

TRL 4

Target final technology readiness level

TRL 5

What are we working on?

MDC-735

An innovative macrophage-drug conjugate platform designed to deliver an anticancer payload within the tumour microenvironment.

Immune activation

Understanding how treatment interacts with macrophages, dendritic cells, NK cells and other components of the immune system.

Tumour microenvironment

Investigating how treatment-associated changes affect the organisation and biological state of the tumour ecosystem.

Biomarkers

Identifying cellular and molecular features that may help explain and predict treatment response.

Year 1: from experimental models to an integrated view of the tumour ecosystem

During the first year, the MISAME team focused on **Work Package 1 – Identification of the mechanisms of immune activation and memory in glioblastoma patients/models**. The work combined complementary experimental and analytical approaches.

1. Building and optimising experimental models

Human glioblastoma co-culture models were established and optimised to investigate interactions between tumour cells and immune cells.

The team standardised workflows for:

- NK-cell isolation and culture;
- monocyte-derived dendritic-cell differentiation and maturation;
- macrophage and dendritic-cell profiling;
- tumour-immune-cell co-culture experiments;
- quantitative analysis of cellular responses.

These workflows provide a reproducible foundation for subsequent studies within MISAME.

2. Mapping the immune environment

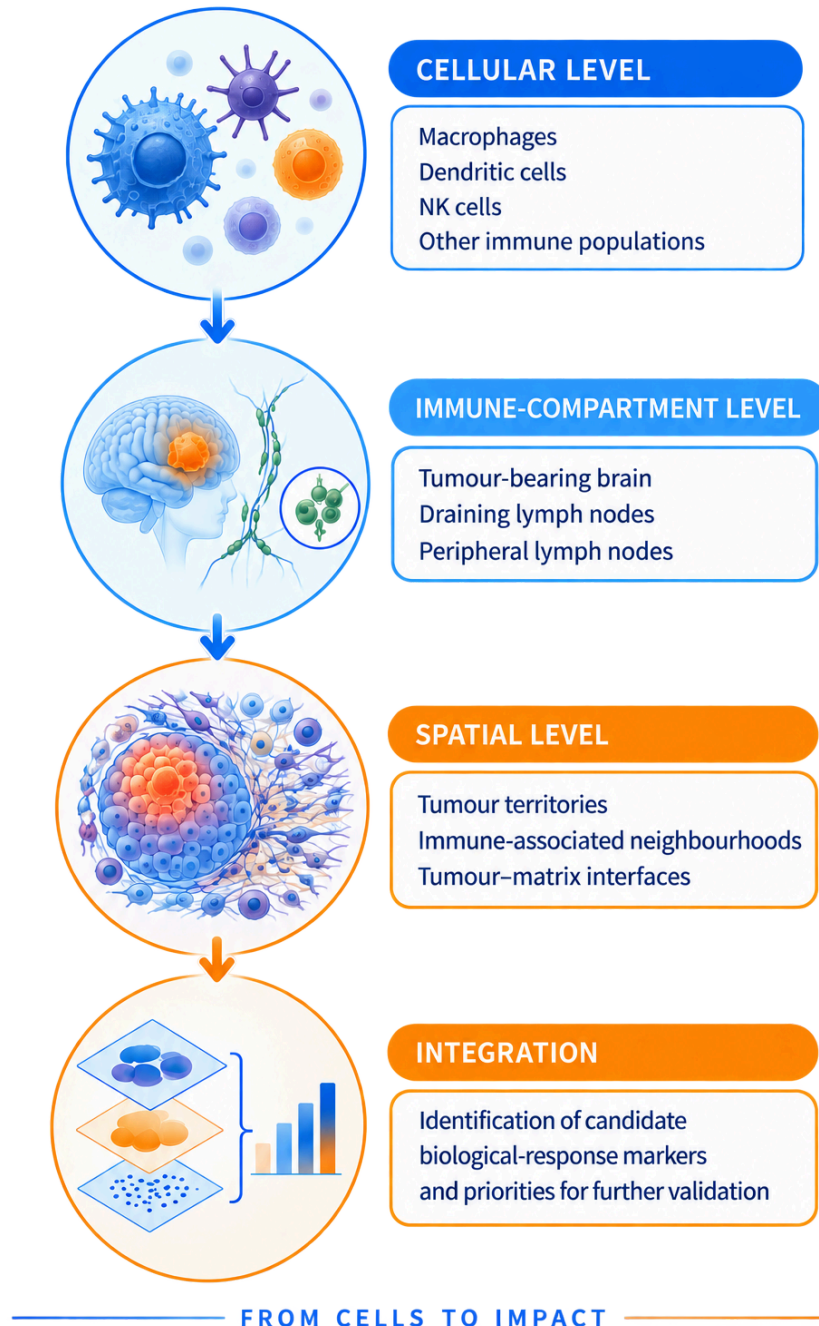
The project used high-dimensional **spectral flow cytometry** to characterise immune-cell populations in orthotopic glioma models. The analysis covered multiple biological compartments, including the tumour-bearing brain, tumour-draining lymph nodes, and peripheral lymph nodes. This approach allows the project team to examine the immune response not as a single event, but as a process occurring across different tissues and biological compartments.

3. Looking at the tumour in its spatial context

MISAME also introduced **spatial transcriptomics** to investigate the organisation of the tumour microenvironment. Rather than analysing cells only as isolated populations, spatial approaches make it possible to investigate biological programmes in the context of their location within the tumour tissue. This provides an additional layer of information for understanding interactions between tumour, immune and stromal compartments.

A project built around integration

One of the defining features of MISAME is the combination of several complementary levels of analysis.



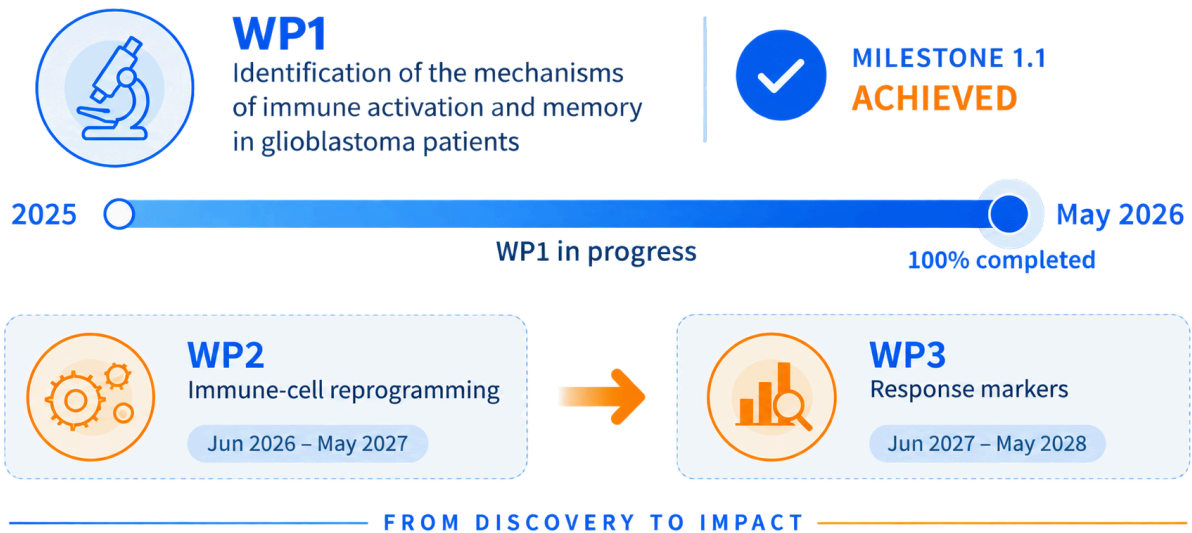
First-year milestones

Milestone 1.1

Mapping treatment-associated changes in the tumour microenvironment

Due: May 2026

Achieved: May 2026



The first major project milestone was achieved on schedule.

The work performed during WP1 established an integrated analytical framework for studying treatment-associated changes in the glioblastoma tumour microenvironment.

It also helped define priorities for the next stages of MISAME, including further investigation of immune-cell function, myeloid and dendritic-cell responses, tumour–immune interactions and candidate response markers.

What has been delivered?

The first reporting period generated a number of concrete project outputs.



D.1.1

Integrated report on tumour microenvironment alterations

A detailed technical report consolidating the work performed within WP1.



D.1.4

Experimental protocols

Three practical protocols were developed and documented:

- differentiation and maturation of human monocyte-derived dendritic cells;
- isolation and culture of human peripheral-blood NK cells;
- human glioma organotypic tissue-slice culture.



D.1.3

Scientific and stakeholder dissemination

Project activities and progress were communicated through scientific conferences, innovation events and stakeholder-focused meetings.

Connecting Poland and Switzerland

MISAME is built around collaboration between two complementary research environments.



Cellis — Poland

Cellis coordinates the project and contributes expertise in the development and preclinical advancement of the MDC-735 platform, cancer biology and translational research.



University Hospital of Zürich — Switzerland

UHZ contributes complementary expertise in biomedical research and the investigation of immune and tumour-microenvironment mechanisms.

Together, the partners combine **preclinical development, immunology, advanced analytical methods and translational expertise.**

People behind MISAME

Scientific progress depends on people.

MISAME supports researchers working across experimental biology, immunology, data analysis and translational cancer research.

The project also contributes to the development of early-career researchers through participation in advanced research activities, scientific discussions and international scientific exchange.

During the first year:

- 4 Polish researchers** were supported
- 1 Swiss researcher** was supported
- 2 mentoring relationships** were established

International scientific exchange also provided opportunities for young researchers to present their work and build connections within the European research community.

MISAME beyond the laboratory

The project is designed not only to generate scientific knowledge, but also to create connections with the wider cancer research and innovation ecosystem.

During the first year, MISAME-related activities reached scientific, clinical, industrial and innovation audiences.

Selected events

June 2025

Leiden, Netherlands

JLABS CEO Summit

Presentation: “MDC: Smart Immunotherapy. Functionally Bispecific”

October 2025

Berlin, Germany

J&J JLABS INTO Berlin

Panel: “Inside Out: Breakthroughs in Intratumoral Approaches”

October 2025

Basel, Switzerland

J&J JLABS INTO Basel

Panel: “Beyond the Needle: Building the Future of Intratumoral Oncology”

December 2025

Copenhagen, Denmark

EU Cancer Mission Conference

Panel: “Cancer Immunology and Biomarkers of Immunotherapy”

March 2026

Bergamo, Italy

EACR Conference

Poster: “Macrophage–dendritic cell crosstalk in a glioma model”

May 2026

Warsaw, Poland

Horizon Europe for Business

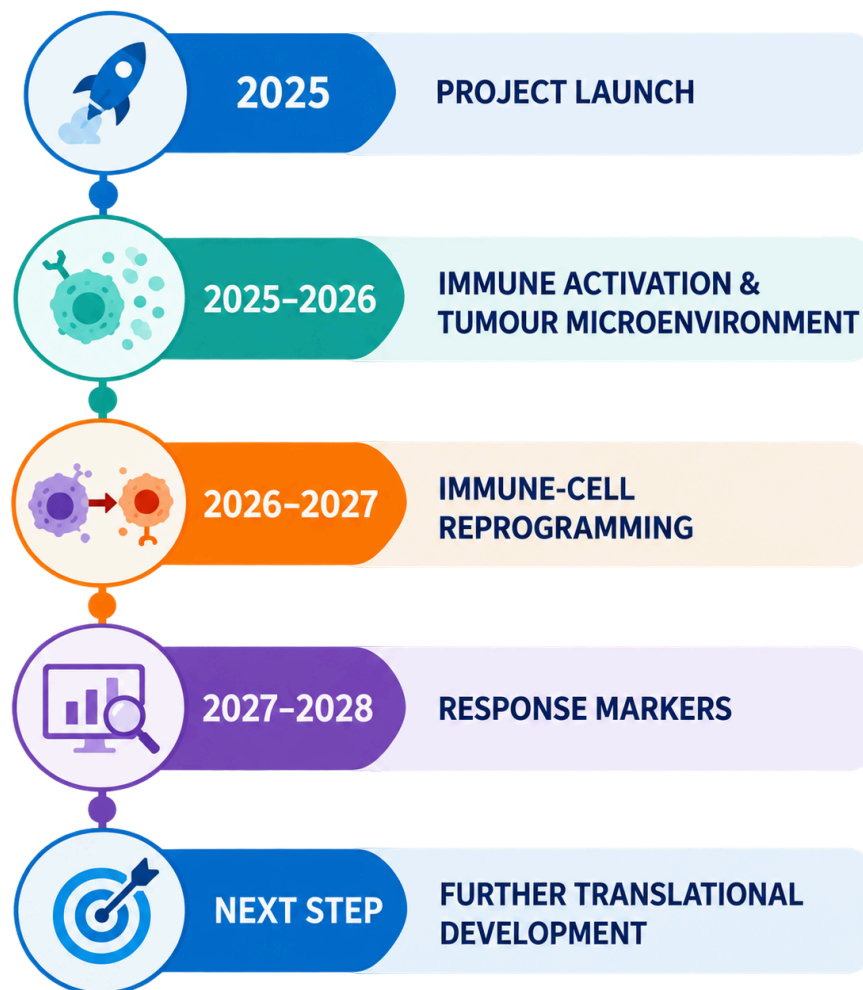
Project presentation during the “Success stories” panel



From research to future clinical translation

MISAME is part of a longer development pathway.

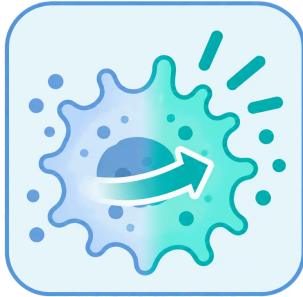
The project starts from a technology that has already been validated in the laboratory and aims to strengthen the evidence required for further development in a relevant environment.



The first year established the scientific and methodological foundations for this pathway.

What comes next?

The next stages of MISAME will build on the framework established during WP1.



WP2

Can immunosuppressed immune cells become immunostimulatory following MDC-735 treatment?

The project will investigate whether cells characterised by an immunosuppressed state can be functionally redirected following treatment.



WP3

Which markers can help identify the outcome of MDC-735 therapy?

The final work package will focus on selecting and evaluating potential markers associated with treatment response.

Together, these activities are intended to move MISAME from **understanding mechanisms** towards **identifying measurable indicators of response**.

Research today. Translation tomorrow.

MISAME brings together advanced cancer research, immune biology and translational development to address one of the central challenges in glioblastoma therapy.

By combining complementary experimental models, high-dimensional immune profiling and spatial analysis, the project is building a more detailed understanding of how the tumour microenvironment responds to MDC-735.

The first year has established the research framework, delivered key methodological outputs and achieved the first major project milestone.

The work now moves towards the next questions:

Can immune cells be functionally reprogrammed?

Which biological features are associated with treatment response?

How can this knowledge support the further development of MDC-735?



A note on scientific results

The MISAME project is an ongoing research programme. Detailed experimental results and underlying datasets are not included in this public communication material. Scientific findings are currently being further validated and prepared for dissemination through peer-reviewed scientific publications.

This approach ensures that research outputs can undergo appropriate scientific review and publication before detailed findings are made publicly available.

MISAME

**Understanding the mechanism of immune system activation
and identifying the markers of the efficacy of innovative glioma macrophage therapy**

Project duration: 01.06.2025–31.05.2028

Partners: Cellis · University Hospital of Zürich

Programme: Research and Innovation Programme, Applied Research

Project no.: SPPW/MISAME/0006/2024-00

Learn more:

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