



Understanding  
**tumour-host  
interactions**  
**Cluster**



Horizon Europe **Cancer Mission**



**Funded by  
the European Union**

# Cancer Mission

The EU Cancer Mission aims to tackle the growing challenge of cancer, which affects 2.7 million people and claims 1.3 million lives annually in the EU. It focuses on strategic research and innovation, improving the quality of life for patients and their families and strengthening collaboration within the cancer community to accelerate progress in cancer prevention, diagnosis and treatment.

## GOAL

**Improve the lives of more than 3 million people by 2030.**

## Cluster Mission

The **"Understanding (tumour-host interactions)" Cluster** comprises six projects under the EU Cancer Mission's **"Understanding Cancer"** objective.

These projects explore genetic risks and environmental factors in cancer development.

By fostering collaboration, they contribute to **Europe's Beating Cancer Plan**, generating insights to advance prevention, detection, and treatment strategies, aligning research with public health policies.



### The 4 Mission objectives are:

- Understanding of cancer
- Prevention and early detection
- Diagnosis and treatment
- Quality of life for patients and their families

The **malignant Glioma** immuno-oncology matchmaker: towards data-driven precision medicine using spatially resolved radio-multiomics.

## GLIOMATCH

**MULTIR**  
MULTi-Tumour based prediction and manipulation of Immune Response.

Targeting tumour-host interactions in **paediatric malignant gliomas** to reinvigorate immunity and improve radio- and immunotherapy efficacy.

## HIT-GLIO

GLIOMATCH



MULTIR



HIT  
GLIO

# Fact Sheet

THRIVE

## THRIVE

Tumour-host interactions in **liver cancer** of childhood and adults.



SPACETIME

**SP**atial Analysis of Cancer Evolution in the Tumour Immune MicroEnvironment.

## SPACETIME



ARTURO

## ARTURO

Assessing the role of **intratumoral** microbiota in therapy responses using patient-derived tumor-on-chip.



Project Name:  
**Targeting tumour-host  
 interactions in paediatric malignant gliomas  
 to reinvigorate immunity and improve radio-  
 and immunotherapy efficacy**

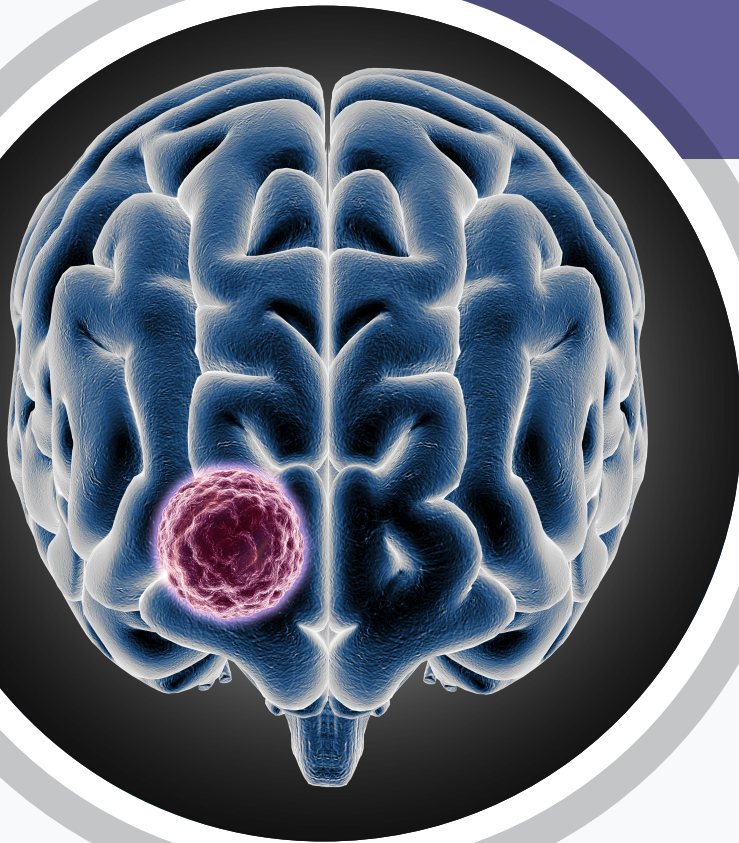
Project #101136835



Start date:  
 1 December **2023**  
 End date:  
 30 November **2027**

Type of cancer  
**Paediatric high-grade glioma**

## PARTNERS





# Research objectives

Malignant brain tumours in children are an unmet clinical need and HIT-GLIO aims to understand how these tumours disable the antitumour immunity.

We will use cutting-edge molecular technologies and imaging to dissect how tumour inactivates host defenses by modelling those interactions in cell culture, brain organoids and animal models. We aim to improve the outcomes of radiotherapy and implement immunotherapy for these currently lethal diseases.

Our innovative therapeutics include immunomodulating peptides, new drug nano-carriers, dual CAR T cells and drugs to modify the tumour microenvironment allowing to boost anti-tumour immunity.

We will determine how the tumours affect brain development and mental health, and search for psychological ways to improve the well-being of affected children and their families.

## Expected impact

We envision to broaden our knowledge of tumour-host interactions in paediatric malignant gliomas and validate innovative approaches to boost immunotherapy (for example through cell-based therapies such as dual CAR T cell strategy or targeting immunosuppressive myeloid cells) or radiotherapy (targeting hypoxic tumour fraction) efficacy.



@Hit Glio 

@HIT GLIO 



hit-glio.eu





Project Name:  
**Tumour-host interactions  
 in liver cancer of  
 childhood and adults**  
 Project #101136622



Start date:  
 1 December **2023**  
 End date:  
 30 November **2028**

Type of cancer  
**Paediatric &  
 adult liver cancer**

#### PARTNERS



# Research objectives

THRIVE is a pioneering initiative advancing research in both paediatric and adult liver cancer.

By identifying factors that help predict which patients are at risk of developing liver cancer, THRIVE aims to improve early detection and outcomes.

From classical biomarker discovery to the development of artificial intelligence-driven tools for predicting patient responses to treatment and exploring new therapeutic strategies, THRIVE tackles liver cancer from every angle.

A key milestone of THRIVE is sharing data with other researchers to promote scientific advancements in the field.

Additionally, THRIVE seeks to contribute to policy-making by supporting clinicians and public health authorities through the development of evidence-based recommendations and guidelines.

With contributions from researchers, healthcare professionals, and patient advocacy groups, THRIVE ensures a patient-centered approach. Together, we are driving innovation and improving lives.

## Expected impact

THRIVE is an ambitious European project aimed at: (1) understanding the mechanisms behind cancer development and progression, (2) proposing innovative treatments for liver cancer patients, (3) ensuring data, models, tools, and technology remain accessible and reusable, and (4) informing health policymakers about the latest advancements in liver cancer research.



@THRIVE\_LiverCan



@THRIVE LIVER CANCER



thrive-liver-cancer.eu



# GLIOMATCH



Project Name:  
The malignant Glioma immuno-oncology  
matchmaker: towards data-driven precision  
medicine using spatially resolved  
radio-multiomics

Project #101136670



Start date:  
1 January **2024**

End date:  
31 December **2028**

Type of cancer  
**Glioblastoma**  
**Paediatric high-grade glioma**

PARTNERS

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**SJD**  
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Fundació de Recerca

**Fondazione I.R.C.C.S.  
Istituto Neurologico Carlo Besta**  
Fondazione  
Fondazione  
Fondazione

**KU LEUVEN**

**UPPSALA  
UNIVERSITET**

**CANCER  
PATIENTS  
EUROPE**

**Aspect  
Analytics**



# Research objectives

The GLIOMATCH project aims to improve treatment for adults with glioblastoma (GBM) and children with paediatric high-grade glioma (pHGG), two aggressive and life-threatening brain tumours.

It focuses on a new type of immunotherapy, a treatment that helps the body's immune system fight cancer. By studying brain tumour samples and MRI scans, the project aims to better understand each patient's tumour.

This information will help doctors choose the best possible treatment for each person. In addition, GLIOMATCH is developing an advanced MRI-based tool to track how well treatments are working over time.

## Expected impact

GLIOMATCH will improve personalised treatment for GBM and pHGG by studying the largest group of patients ever treated with immunotherapy. Using this data, the project will develop smart tools to help doctors make better treatment decisions, match patients to the most suitable therapies, and find new treatment options. The project will also create a secure database that continuously learns and improves using the latest technology. This will help doctors select the best treatments and provide better care for both adults and children with brain tumours-now and in the future.



@GLIOMATCH 

@GLIOMATCH 



[gliomatch.eu](https://gliomatch.eu)







Project Name:  
**MULTi-Tumour based prediction  
 and manipulation of Immune  
 Response**

Project #101136926



Start date:  
 1 January **2024**

End date:  
 31 December **2027**

Type of cancer  
**Melanoma**  
**Lung cancer**  
**Bladder cancer**

PARTNERS



# Research objectives

The MULTIR project aims to better understand how tumours interact with their environment in different types of cancer (melanoma, lung, and bladder). It considers medical, biological, and environmental factors.

The project also studies how the immune system, the tumour's surroundings, and social, ethnic, and cultural factors affect cancer progression and treatment.

By using advanced technologies such as artificial intelligence and biological data generation and modelling, MULTIR aims to improve our understanding of tumour biology.

## Expected impact

MULTIR aims to establish a European healthcare data space equipped with cutting-edge digital tools to analyse and share information securely and transparently. The project seeks to improve treatments for bladder, lung, and melanoma cancers, where the immune system plays a key role, by identifying new therapeutic targets and biomarkers. MULTIR will also develop web-based applications to predict treatment responses and patient outcomes. Through collaboration with patients and regulatory bodies, the project promotes a more personalised approach to treatment, paving the way for more effective cancer care.



@MultirEU

@MULTIR EU PROJECT

@multirproject



**multir.eu**





Project Name:  
**Assessing the role of intratumoral  
 microbiota in therapy responses using  
 patient-derived tumour-on-chip**

Project #101136464



Start date:  
 1 July **2024**

End date:  
 30 June **2028**

Type of cancer  
**Lung cancer**  
**Breast cancer**



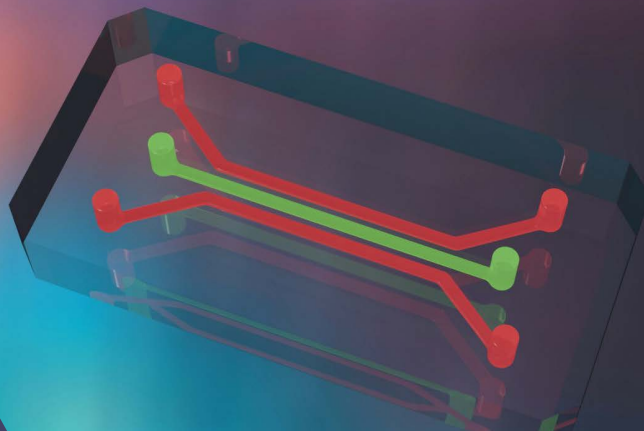
PARTNERS



# Research objectives

Project ARTURO aims to improve cancer understanding by characterising the bacteria (also called microbiota) inside tumours and by studying how they affect tumour behaviour and responses to drugs.

Using innovative experimental models (tumour-on-chip), extensive molecular analysis, and advanced computer-based methods, the project will lead to deep insights on the role of intratumoural microbiota in tumour-host interactions, focusing on non-small cell lung cancer and invasive lobular breast cancer.



@ARTURO PROJECT 

@arturo.project 

# Expected impact

ARTURO's results are expected to help conceive new predictive diagnostic biomarkers and novel treatments based on the microbiota.

The project will also consider the perspectives of patients and other key players, and will evaluate ethical implications to facilitate the translation of its innovations into clinical practice and health policies.

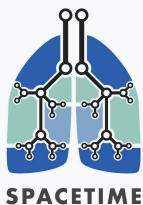
By exploring the poorly understood role of intratumoural bacteria, ARTURO seeks to enhance cancer precision medicine, ultimately benefiting patients with hard-to-treat cancer types.



**arturoproject.eu**







Project Name:  
**SPatial Analysis of Cancer Evolution  
 in the Tumour Immune  
 MicroEnvironment**

Project #101136552



Start date:  
 1 August **2024**

End date:  
 31 July **2029**

Type of cancer  
**Lung cancer**

PARTNERS



HELMHOLTZ MUNICH





# Research objectives

SPACETIME is a research project focused on understanding better how lung cancer develops and changes over time. We study how cancer cells interact with other cells, such as immune cells, inside the tumour.

By using advanced imaging technologies, we can map the different types of cells in a tumour and see how they change as the disease progresses. Powerful computer models will help us find patterns that predict how cancer might behave and how it might respond to treatment. This can lead to better ways to treat lung cancer and overcome resistance to therapy.



@SPACETIME\_EU



@SPACETIME\_EU Project



# Expected impact

- Better understanding of lung cancer, leading to improved future treatments, in particular immunotherapies.
- More personalised treatment, helping doctors choose the right therapy for each patient and improving survival while avoiding undesirable effects.
- Support early detection programmes for lung cancer, helping doctors decide when early intervention is needed to prevent treatment resistance.
- Stronger prevention strategies-providing insights that help shape public health policies. This research could make a real difference in improving lung cancer care and patient outcomes.



[spacetimeproject.eu](https://spacetimeproject.eu)





## Understanding tumour-host interactions Cluster

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