EU Cancer Mission Cluster
Understanding
tumour-host interactions
Cluster

HIT-GLIO
THRIVE
GLIOMATCH
MULTIR
ARTURO
SPACETIME

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

Fact
Sheet

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

SPatial Analysis of Cancer Evolution in the Tumour Immune MicroEnvironment.

SPACETIME

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

Call: HORIZON-MISS-2023-CANCER-01

HIT GLIO

Project Name:
Targeting tumour-host interactions in paediatric malignant gliomas to reinvigorate immunity and improve radio- and immunotherapy efficacy
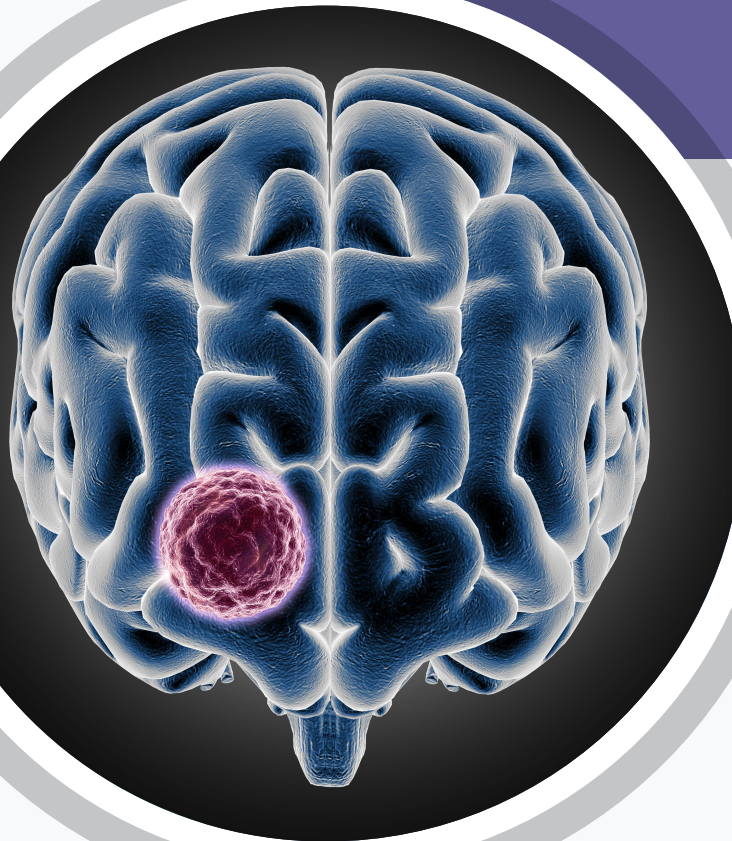
Project #101136835

Start date:
1 December **2023**

End date:
30 November **2027**

Type of cancer
Paediatric high-grade glioma

PARTNERS

nencki institute of experimental biology

cnrs

GUSTAVE ROUSSY CANCER CAMPUS GRAND PARIS

DEPARTMENT OF ONCOLOGY Medical Sciences Division · CANCER

TEL AVIV UNIVERSITY

Sanquin

ISTITUTO SVPERIORE DI SANITA

THE CHILDREN'S MEMORIAL HEALTH INSTITUTE

geneXplain

Research objectives

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

@Hit Glio

@HIT GLIO

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.eu

THRIVE

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

IDIBAPS

Newcastle University

NHS
The Newcastle upon Tyne Hospitals
NHS Foundation Trust

Université Paris Cité

Instituto de Investigación
CONTRA LA LEUCEMIA
Josep Carreras

WEIZMANN
INSTITUTE
OF SCIENCE

LUMC Leiden University
Medical Center

IGTP
Germans Trias i Pujol Research Institute

EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

dkfz.
DEUTSCHES
KREBSFORSCHUNGSZENTRUM
IN DER HELMHOLTZ-GEMEINSCHAFT

Inn·Acta

ELPA
European Liver
Patients' Association

EASL
The Home of Hepatology

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

KU LEUVEN

UPPSALA UNIVERSITET

CANCER PATIENTS EUROPE

Aspect Analytics

hhu Heinrich Heine Universität Düsseldorf

THE UNIVERSITY of EDINBURGH

Maastricht University

TIMELEX

accelopment takes you further

Oslo University Hospital

Erasmus MC University Medical Center Rotterdam

RAMBAM Health Care Campus

SJD Sant Joan de Déu Fundació de Recerca

Fondazione I.R.C.C.S. Istituto Neurologico Carlo Besta
Regione Lombardia

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.

@GLIOMATCH in

@GLIOMATCH ▶

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.eu

MULTIR

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

Inserm

CENTRE HOSPITALIER UNIVERSITAIRE DE NANTES

University Medicine Essen
University Hospital

mosaiques diagnostics

BRFAA
BIOMEDICAL RESEARCH FOUNDATION ACADEMY OF ATHENS

Radboud umc
university medical center

UCD DUBLIN
University College Dublin
Ireland's Global University

atomic
INTELLIGENCE

AARHUS UNIVERSITY

MEDICAL UNIVERSITY OF VIENNA

HELLENIC ONCOLOGY RESEARCH GROUP 2002

EXELIXIS

eticas
FOUNDATION

NIPH
Norwegian Institute of Public Health

SORBONNE UNIVERSITÉ

University of Zurich

McGILL UNIVERSITY

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.

@MultirEU
@MULTIR EU PROJECT
@multirproject

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.

multir.eu

ARTURO

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

institut **Curie**

UNIVERSIDADE CATÓLICA PORTUGUESA

ASSISTANCE PUBLIQUE HÔPITAUX DE PARIS

TOR VERGATA UNIVERSITÀ DEGLI STUDI DI ROMA

HU HUMANITAS UNIVERSITY

Inserm

Cnrs

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.
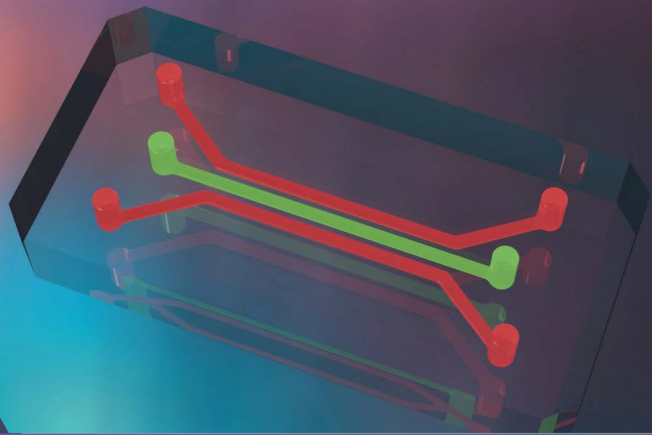
@ARTURO PROJECT

@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

SPACETIME

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

Amsterdam UMC
University Medical Centers

HELMHOLTZ MUNICH

Stockholm University

LUMC Leids Universitair Medisch Centrum

Cima Universidad de Navarra

Universiteit Utrecht

NIB NACIONALNI INŠTITUT ZA BIOLOGIJO NATIONAL INSTITUTE OF BIOLOGY

PangaeaBiotech S.L.

UNIWERSYTET WARSZAWSKI

KTH VETENSKAP OCH KONST

Universidad de Navarra

iKNL integraal kankercentrum Nederland

LUCE Lung Cancer Europe

ETOP·IBCSG PARTNERS FOUNDATION

ISTITUTO NAZIONALE TUMORI IRCCS - Fondazione Pascale

Research objectives

SPACETIME is a research project focused on having a better understanding of 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

Understanding tumour-host interactions
Cluster

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the European Union**

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Fonds Nouvelles Frontières en recherche

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UKRI Innovate UK

Swiss Confederation
Federal Department of Economic Affairs,
Education and Research EAER
**State Secretariat for Education,
Research and Innovation SERI**