

HORIZON-MISS-2023-CANCER-01-01

GLIOMATCH

Project No. 101136670

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

Deliverable 7.2

Joint cluster deliverable

Common work plan for scientific collaboration under the 'Understanding (tumour-host interactions) cluster'

WP 7 – Stakeholder involvement, communication and dissemination

Version 1.0

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Lead participant	KUL
Delivery date	12 August 2024
Dissemination level	PU = Public
Type	R = Document, report



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Health and Digital Executive Agency (HaDEA). Neither the European Union nor the granting authority can be held responsible for them.



This work is supported by Innovate UK [grant number 10113516].

This work has received funding from the Swiss State Secretariat for Education, Research and Innovation (SERI).

Revision history

Author(s)	Description	Date
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All partners after meeting	Revision 1	06 August 2024
Eva Avilla Royo (accelCH), Alexandra Furio (accelCH)	Formatting and formal check	12 August 2024

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Projects

Short name	Short description
ARTURO	ARTURO ethically tackles the lack of experimental approaches to address the role of microbiota in human cancers by using an innovative state-of-the-art 3D tumour-on-chip model, as part of the emerging field of Micro-Physiological Systems.
GLIOMATCH	GLIOMATCH will improve the clinical outcome of malignant brain tumours in adults and children with tailored immunotherapy treatments using spatially resolved radio-multi-omics.
HIT-GLIO	HIT-GLIO targets tumour-host interactions in paediatric malignant gliomas to reinvigorate immunity and improve radio- and immunotherapy efficacy.
MULTIR	MULTIR aims to revolutionise our understanding of tumour-host interactions in melanoma, lung and bladder cancer.
SPACETIME	SPACETIME addresses the spatial analysis of cancer evolution in the tumour immune microenvironment.
THRIVE	THRIVE aims to improve the outcome of paediatric and adult liver cancer patients by understanding at-risk populations, tumour-host molecular interactions, developing biomarkers for current therapies and identifying novel treatments to overcome resistance.

Abbreviations

Abbreviation	Term
CM	Cancer Mission
D	Deliverable
EC	European Commission
EU	European Union
HaDEA	European Health and Digital Executive Agency
HEU	Horizon Europe
IARC	International Agency for Research on Cancer
RIA	Research and Innovation Action
U-THI-Clust	Understanding (tumour-host) interactions Cluster
WG	Working Group

Executive summary

Deliverable 7.2 outlines the initial collaborative work plan for scientific cooperation within the 'Understanding (tumour-host interactions)' cluster (U-THI-Clust). It establishes the strategy for coordinating projects in this cluster for the upcoming period. This deliverable is a collective document developed in agreement with the project coordinators involved in the cluster. It begins by introducing the Mission Cancer program and the participating projects, highlighting their current organisational structure and how they are aligning efforts by sharing best practices. The document then explores potential collaboration areas, focusing on two main pillars that, so far, have matured enough for concrete actions: a) data management, including common data management strategies, alignment with the European Health Data Space, and the promotion of secondary data usage that is Open and FAIR (i.e. findable, accessible, interoperable and reusable) and b) joint communication activities. Additionally, the deliverable presents a range of collaborative opportunities, such as joint publications, living labs, shared end-user requirements, observation of inequalities, and financial mechanisms to reinforce cancer screening programs. However, these ideas require further evaluation in future cluster meetings. A proposed pathway for the next steps has been developed, advocating for increased engagement of project partners in joint working groups to enhance collaborative efforts. Finally, the document calls for exploring ways to strengthen joint impact and synergies with other cancer clusters, especially in terms of joint policy recommendations. To ensure the cluster's success, active engagement from project partners and coordinators is crucial, supported by the European Health and Digital Executive Agency.

1 Introduction

This deliverable aims to align joint efforts and foster cross-fertilisation of activities to significantly contribute to the Cancer Mission (CM) goal of enhancing the lives of over 3 million people by 2030. The 'Understanding (tumour-host interactions)' cluster (U-THI-Clust) is designed to support the CM's objectives, add value, and amplify the impact of European Union (EU) funding by focusing on the following strands:

- Data Management
- Communication & Dissemination
- Research & Innovation
- Addressing Inequalities
- Citizen Engagement
- Annual Meetings and Events

The collaboration aims to minimise overlaps, standardise research methodologies, and improve science and policy outcomes, with a focus on building research capacity and co-designing policy briefs. The projects will also facilitate exchanges with citizens, including patients, to involve them and consider their perspectives. These engagements can be integrated into annual meetings where cluster members will share strategies, best practices, and workshop results.

Additionally, the projects must formulate common strategies to reduce healthcare inequalities and enhance access to care. The cluster's work will be coordinated through various joint activities, beginning with the creation of a unified work plan for scientific collaboration.

This deliverable provides an initial common work plan for all participating projects and highlights the similarities and approaches that can be further leveraged through this collaboration.

2 EU Missions: Cancer Mission

Five EU Missions have been launched together with the Horizon Europe (HEU) research and innovation programme (2021-2027) to deliver concrete results by 2030 in the European Commission's (EC) priority topics (climate change, cancer, ocean and waters, climate-neutral cities, soil deal) ([source](#)). They represent a new approach to address major societal challenges by setting ambitious goals to be achieved by 2030. They were developed to support Europe's transformation into a greener, healthier, more inclusive and resilient continent by bringing concrete solutions to key issues.

The common aim of the EU Missions is to deliver tangible benefits to people in Europe through a coordinated effort that pools resources from various policies, regulations, and activities. They aim to mobilise and engage public and private actors, including EU member states, regional and local authorities, research institutes, entrepreneurs, investors, and citizens, to create real and lasting impact.

Each mission operates as a portfolio of actions, such as research projects, policy measures, or legislative initiatives, to achieve a measurable goal that could not be achieved through individual actions alone. The missions contribute to the goals of the European Green Deal, Europe's Beating Cancer Plan, and the Sustainable Development Goals.

The five EU Missions under the HEU program are:

- **'Conquering Cancer: Mission Possible'** - Aims at saving over 3 million lives and improving quality of life for cancer patients and their families by 2030 through better understanding, prevention, diagnosis, treatment, and equitable access to care.
- **'100 Climate-neutral Cities by 2030 - By and for the Citizens'** - Supporting 100 European cities in transforming towards climate neutrality by 2030 through green innovations and citizen engagement.
- **'Mission Starfish 2030: Restore our Ocean and Waters'** - Addressing threats to healthy oceans and waters by 2030 through targets on sustainable use, climate resilience, governance, and public engagement.
- **'Caring for Soil is Caring for Life'** - Putting Europe on a path towards sustainable land and soil management by 2030, with at least 75% of soils being healthy in each EU country.
- **'A Climate Resilient Europe'** - Preparing Europe for climate disruptions and accelerating societal transformation towards deep climate resilience by 2030.

2.1.1 The global burden of cancer

Based on the International Agency for Research on Cancer (IARC) observations (Figure 1), the World Health Organisation expects a 77% increase in cancer cases from an estimated 20 million new cancer cases in 2022 to over 25 million new cases in 2050 (source). In Europe alone each year 2,7 million people are diagnosed with cancer and 1,3 million lose their lives due to this disease (source). The rapidly growing societal burden of cancer calls for an increased need for cancer research and services.

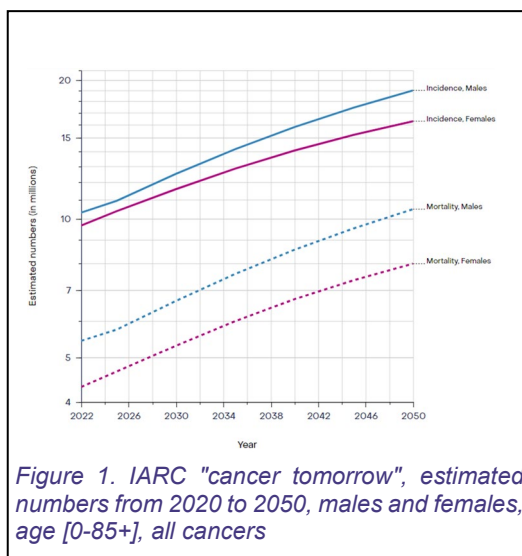
2.1.2 A European response

The EU CM, which has a dedicated logo (Figure 2), is aligned with Europe's Beating Cancer Plan - a political commitment for a more resilient Union (source). The CM aims to "improve the lives of more than 3 million people by 2030 through prevention, cure and for those affected by cancer including their families, to live longer and better". The CM plans to achieve this aim through a comprehensive approach focused on 4 objectives (source):

- **Understanding Cancer** - Improve our understanding of cancer by studying its biology, risk factors, and prevention methods, and developing new screening techniques.
- **Prevention and Early Detection** - Enhance cancer prevention through lifestyle interventions, and vaccination programs, and develop affordable early detection tools and programs to diagnose cancer at earlier stages.
- **Diagnosis and Treatment** - Optimise cancer diagnosis and treatment by supporting research into new therapies, and personalised medicine approaches, and improving access to innovative treatments across Europe.
- **Quality of Life** - Improve the quality of life of cancer patients and survivors by providing better supportive and palliative care, addressing mental health needs, and ensuring equitable access to high-quality care.

2.1.3 A digital health strategy

The EU's "Shaping Europe's Digital Future" strategy, implemented in February 2020, aims to facilitate the shift to a digitally empowered society and integrate effective digital technologies into people's lives and healthcare. The CM aligns with this strategy by establishing new digital infrastructures to hasten the digitalisation of healthcare systems. This initiative will enable patients with cancer and survivors to share data and maintain communication with healthcare providers. Notably, the proposed European Cancer Patient Digital Center, where patients can share their health data, will be integrated into the forthcoming European Health Data Space, facilitating secure health data exchange across the EU (source).



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2.1.4 Cancer Mission clusters

The EU CM (2021-2023) brings together around 50 EU-financed projects. These are split into eight clusters depending on which of the four CM objectives they are most closely aligned with (Figure 3). Within each cluster, the EU projects work together in collaboration areas, or “cluster strands of work”, which are pre-defined by the EC. The main objectives of CM clusters are to:

- Support Mission objectives
- Increase impact of EU-funding
- Create added value
- Increase networking across sectors and disciplines
- Establish policy feedback loop

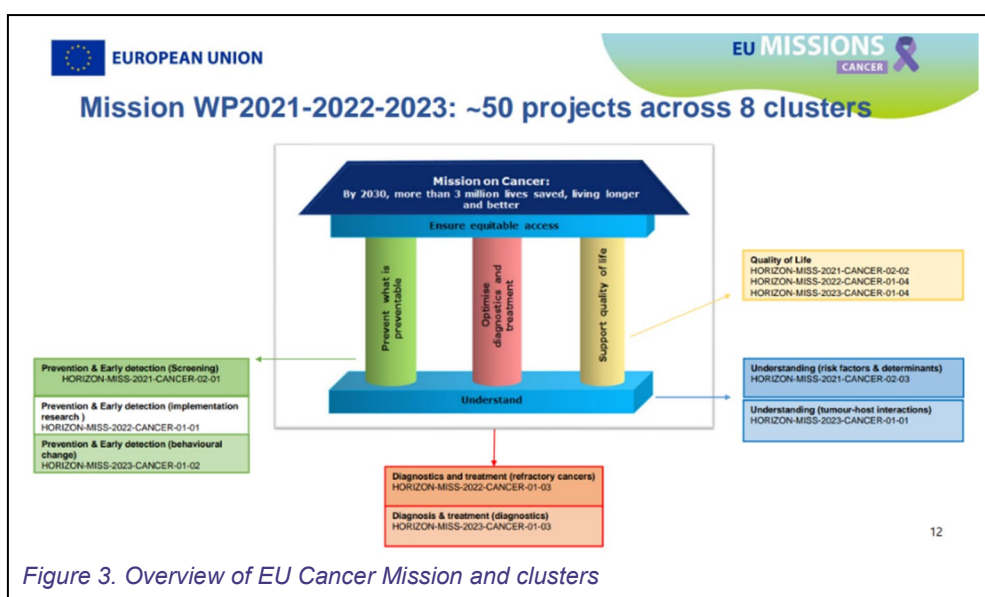


Figure 3. Overview of EU Cancer Mission and clusters

3 ‘Understanding (tumour-host) interactions’ cluster

The U-THI-Clust aligns with the CM objective: Understanding Cancer mentioned above. The participating projects (next section) and the areas of collaboration are determined by the EC, however, it is up to the projects to decide how to work together, with the Commission acting as a facilitator.

The U-THI-Clust includes the ARTURO, GLIOMATCH, HIT-GLIO, MULTIR, THRIVE and SPACETIME projects, which are all part of the HORIZON-MISS-2023-CANCER-01-01 call. A short description of each project is presented below.

3.1.1 ARTURO



Project website: *Under construction*

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

Primary or acquired resistance to therapies is a major challenge in oncology. Recent research suggests that intratumoural microbiota may contribute to anti-cancer drug resistance, in particular to immunotherapies such as immune checkpoint inhibitors. However, experimental approaches to address the role of microbiota in human cancers are lacking.

Project ARTURO will ethically tackle this problem by using an innovative state-of-the-art 3D tumour-on-chip model, as part of the emerging field of Micro-Physiological Systems. The role of patient-derived bacteria, and of their postbiotics and released extra-cellular vesicles, in tumour ecosystem behaviours and drug responses, will be deciphered by integrating clinical data, omics analysis, and novel ToC-based information (by live imaging and single-cell transcriptomics).

The development of advanced computational methods to extract ToC-based information constitutes a major force and innovation in the field, with high potential to accelerate future applications of ToC technology in clinics. The focus will be on two frequent poorly understood cancer subtypes: Non-small cell lung cancer and invasive lobular breast cancer (ILC). End-users' perspectives will be addressed using a co-design approach to develop ethically sound and evidence-based cancer-related innovation and health policies.

ARTURO results are expected to lead to a deep understanding of processes underpinning tumour-host interactions, helping to conceive novel microbiota-based intervention strategies, in particular for NSCLC and ILC patients. ARTURO will take social, ethnical, cultural, and gender aspects into account, facilitating the translation of ARTURO's innovations to clinical practice and co-design of policies. Ultimately, the ARTURO impacts will be far-reaching, contributing to future developments in cancer precision medicine and diagnostics and to the EU CM.

3.1.2 GLIOMATCH



Project website: <https://gliomatch.eu/>

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

Adult glioblastoma (GBM) and paediatric high-grade gliomas (pHGG) remain among the most difficult-to-treat cancers with 5-year survival rates of <5% despite intensive standard-of-care therapy. The differences among patients and the heterogeneous and plastic nature of each individual tumour have resulted in all therapeutic clinical trials failing during the past 20 years.

Recently, immunotherapy has been showing great promise, but only in subsets of patients. Identifying those patients cannot be done a priori as biomarkers are still largely missing, nor are we able to follow-up on therapeutic efficacy when patients get treated.

The GLIOMATCH project aims at improving the clinical outcome of GBM/pHGG patients by enabling immunology-based patient stratification to empower personalised matching of appropriate immunotherapy, while improving follow-up of clinical responses to existing/novel therapeutics. This will be achieved by integrating spatially resolved, multi-layered tissue maps (using integrated single-cell multiomics), with non-invasive MRI images. This integration will fuel into a novel MRI Radio-multiomics hub, that will be made available to clinical professionals through which they can perform tumour-host based patient stratification and personalised therapy matching while interpreting longitudinal follow-up and treatment efficacy.

The proposed data-driven models will be developed by analysing the largest cohort of immuno-oncology (I/O) treated GBM/pHGG patients ($n > 300$, including pre-post treatment samples) with matched controls ($n > 300$) and exceptionally long-term surviving GBM patients ($n \sim 140$), in which various tumour-host niches will be studied in how they respond to I/O perturbations and lead to improved clinical outcome. This will be empowered by deploying an UNCAN-compatible data lake, to which incremental data collection will be used to further refine the machine learning models, while proposing novel treatment options.

3.1.3 HIT-GLIO



Project website: https://genexplain.com/research_posts/hit-glio/

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

PHGGs are malignant, deadly tumours in infants and children. Mutations in histone coding genes disturb epigenetic regulation and in cooperation with other oncogenes promote tumour initiation and progression. pHGGs are fast-growing and diffusive which makes them hard to remove or treat. Surgery (unattainable in midline brain regions) and radiotherapy remain the only options with only transient benefits as median survival is 9-15 months. Those tumours are immunosuppressed, thus immunotherapy is ineffective.

We propose that understanding tumour-host interactions in the tumour microenvironment (TME) would reveal novel targets allowing to find new ways to eradicate mutated tumour cells, improve efficacy of RT, and reinvigorate anti-tumour immunity.

To achieve these ambitious goals we built up the international, multidisciplinary consortium HIT-GLIO. We will i) use the latest single-cell technologies and multimodal imaging to characterise tumour-immune cell interactions in a large spectrum of pHGG patient samples; ii) create cellular and animal models of increasing complexity: human glioma-microglia co-cultures, DIPG-derived organoids complemented with iPSC-derived immune cells and syngeneic pHGG mouse models which would be platforms for mechanistic studies and drug screening; iii) evaluate hypoxia-inducible epigenetic inhibitors and blockers of tumour-host interactions to improve RT and immunotherapy responses; iv) generate nanocarriers functionalised to target immune cells and deliver drugs to the brain; v) develop more effective CAR-T cells that together with TME reprogramming and

RT would boost anti-tumour immunity; vi) assess neurodevelopmental alterations and psychological consequences of disease and foster psychological approaches to increase quality-of-life of patients and caregivers. The expected outcomes of HIT-GLIO would ultimately pave ways to new clinical trials to improve the way pHGGs are treated.

3.1.4 MULTIR



Project website: <https://www.multir.eu/>

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

Only few patients respond to tumour treatment as desired. Treatment heavily relies on host tumour interactions, including exploiting the host immune response against the tumour. The underlying mechanisms of host-tumour interaction are largely unknown, guidance on specific intervention is missing. To improve outcome, better understanding of tumour-host interaction is needed. Large numbers of molecular snapshots will provide increased phenotyping coverage and better represent tumour-host evolution over time.

In an innovative approach, MULTIR aims at investigating not a single tumour entity, but at compiling data from melanoma, lung and bladder cancer (most drugs target specific molecular features, irrespective of the tumour origin) to identify with high power the critical elements in the tumour-host interaction responsible for therapy response.

In a multi-disciplinary approach involving leading clinicians, immunologists, experts in omics, digital technologies, social sciences and patient representatives from 10 EU countries and beyond, and an extensive outreach plan to ensure rapid transfer of MULTIR output to society, MULTIR combines existing multi-layer (epidemiological, genetic, clinical, pathologic, imaging, molecular) data from major studies on these tumours, using AI-based approaches to unveil functional modules regulating tumour-host interactions followed by validation of findings in models and synthetic patients.

Harmonisation with major EU initiatives will maximise use of European resources. Impact on all scientific, technological and societal levels is expected, including increased understanding of tumour-host interactions, generation of a unique resource of harmonised data on three major cancer types available to the community in compliance to the legal and ethics framework, boost of drug discovery, and an AI-based predictor for treatment response. MULTIR outreach plan includes policymakers and regulators, to support prompt assessment and uptake into the health systems.

3.1.5 THRIVE



Project website: <https://thrive-liver-cancer.eu/>

Project title: *Tumour-host interactions in liver cancer of childhood and adults*

Liver cancer is a major health problem, with approximately 1 million cases diagnosed each year (around 90,000 annual cases in Europe). It is the 3rd cause of cancer-related mortality worldwide. Hepatocellular carcinoma (HCC) in adults and hepatoblastoma (HB) in children are considered poorly understood cancers. HCC is a difficult-to-cure cancer, with a curation rate of about 30% and a poor prognosis, as the median survival is less than 2 years in advanced stages. This is due to limited understanding of at-risk populations, resistance to therapies, and lack of precision oncology. In HB, outcomes are hampered in one-fourth of cases due to disease progression after surgical intervention and adjuvant chemotherapy.

The THRIVE project aims to improve the outcome of both paediatric and adult liver cancer patients by understanding at-risk populations and tumour-host interactions, and by developing biomarkers for current therapies and novel treatments to overcome resistance. THRIVE brings together a strong, multidisciplinary team of 13 partners from 8 countries, with complementary expertise to leverage cutting-edge technologies (such as single-cell RNA sequencing, spatial transcriptomics, microbiota analysis, artificial intelligence, mouse models and patient-derived organoids), sectors (including academia, SMEs, hospitals, and patient associations) and 15 patient cohorts (~6,700 samples).

THRIVE expects to define molecular features of cancer predisposition and at-risk populations for the development of liver cancer; develop a complete human liver cancer blueprint of the tumour, immune, stromal cells and intra-tumoral microbiomes; identify AI-based and molecular markers of response to treatments; discover novel therapies to overcome resistance; and maximise the impact in the European society by integrating Social Sciences and Humanities disciplines, delivering accessible and re-usable data and tools to support EU initiatives such as the UNCAN.eu platform, and by sharing the project findings with policymakers and health professionals.

3.1.6 SPACETIME



Project website: *Under construction.*

Project title: *SPatial Analysis of Cancer Evolution in the Tumour Immune Micro-Environment*

The introduction of immune checkpoint therapy for Non-Small Cell Lung Cancer (NSCLC) has improved clinical outcomes. However, due to primary or secondary resistance, only a minority of patients show long-term responses, leading to exploration of a multiplicity of new agents and combinatorial strategies. Due to a lack of biomarkers that can predict response, many patients are submitted to treatments that will not have clinical benefit. A thorough understanding of the biological processes causing resistance to immunotherapy in NSCLC could facilitate informed personalised therapy choices. This requires a multifactorial assessment of the tumour microenvironment, a complex and dynamic milieu, encompassing the majority of tumour-host interactions.

SPACETIME brings together interdisciplinary expertise to achieve a superior understanding of the spatial and temporal tumour-host co-evolution, and drive translation into predictive biomarkers for precision immunotherapy. We will integrate spatial proteomics, transcriptomics, metabolomics and glycomics to analyse patient biopsies from early stage to metastatic disease, complemented with tissues from representative mouse models to cover the developments early after tumour initiation. Environmental and systemic factors that may influence this co-evolutionary process will be included to identify potential risk factors for therapy resistance.

Ex-vivo, in vitro and in vivo assays will bring functional understanding of immune resistance mechanisms and identify key cellular interactions and therapeutic targets. This will be brought together by advanced computational approaches, to define spatial signatures, that will lead to a limited panel of potential prognostic and/or predictive markers for immunotherapy.

Supported by the engagement of key stakeholders, SPACETIME will pave the way towards development of a spatial signature test for patient stratification, to sidestep immunotherapy resistance and improve survival for NSCLC patients.

4 Cluster strands of work for the 'Understanding (tumour-host) interactions' cluster

Throughout the duration of their project, the six EU-funded Research and Innovation Actions (RIA) are expected to collaborate in the five U-THI-Clust strands of work below which were defined by the EC:

1. Data Management and Sharing

Projects are supposed to develop a common data management plan and strategies for data sharing and integration across projects within the cluster. They are also to contribute to and leverage shared data platforms like UNCAN.eu to enable access to cancer research data.

2. Communication and Dissemination

Projects will establish a cluster identity and coordinated communication strategy to raise awareness about the cluster's activities, and develop joint communication materials like brochures, videos, and websites to disseminate the cluster's work.

3. Research and Innovation

Projects within the cluster are to establish a common work plan outlining areas for joint scientific activities and collaborations within the cluster, and to harmonise research methods, protocols, and approaches to enable cross-project comparisons and meta-analyses. In addition, they should aim to identify synergies and complementarities to avoid duplication of efforts.

4. Addressing Inequalities

Projects within the cluster will develop common recommendations and strategies to address inequalities in cancer prevention, diagnosis, treatment, and care across different populations and regions.

5. Citizen and Patient Engagement

Projects will coordinate citizen engagement and patient involvement activities and produce a joint citizen engagement summary report highlighting best practices and lessons learned.

Additionally, the U-THI-Clust has defined a sixth working group dedicated to the U-THI-Clust's annual meetings:

6. Annual Cluster Meetings

Annual in-person or virtual meetings will be organised to review progress, exchange knowledge, and plan future collaborations within the cluster. The cluster will produce joint annual policy briefs synthesising key

findings and recommendations from the cluster projects and engage with policymakers and stakeholders through coordinated dissemination and advocacy efforts.

5 Joint agreement on common workplan

In this context, ARTURO, GLIOMATCH, HIT-GLIO, MULTIR, THRIVE and SPACETIME have developed a work plan for the U-THI-Clust . The goal of such an agreement is to develop an approach to collaboration which benefits the U-THI-Clust projects and is in line with the CM's goals.

5.1 Collaboration agreement

Projects will generally avoid sharing confidential or sensitive information. However, if sharing such information becomes necessary, a Non-Disclosure Agreement (NDA) will be prepared and signed for those specific instances.

5.2 Organisation

The common workplan is organised by Working Groups (WGs). Each WG is responsible for the activities, materials and deliverables under its strand of work. Each WG is led by one of the U-THI-Clust projects. These WG representatives were decided on jointly by all U-THI-Clust project representatives and the U-THI-Clust Project Officer.

Working Groups (WG)	Representative/s
WG1-Data Management and Sharing	GLIOMATCH
WG2-Communication and Dissemination	MULTIR
WG3-Research and Innovation	SPACETIME
WG4-Addressing Inequalities	GLIOMATCH
WG5-Citizen and Patient Engagement	HIT-GLIO
WG6-Annual Meetings and Events	THRIVE (1 st Year), HIT-GLIO (2 nd Year), TBD from then on

The WG lead is responsible for organising cooperation within the group, however, all projects are jointly responsible for the planning and carrying out of activities as well as decision-making within the WG.

5.3 Strategy and goals

As agreed during the U-THI-Clust meetings, the purpose of the cluster's work is to identify common challenges, find synergies, and share best practices. The goal is to jointly contribute to the EU's CM and avoid duplication of efforts amongst EU-funded projects.

5.4 Working groups

This section outlines the materials, activities and deliverables for each WG.

5.4.1 WG1: Data Management and Sharing

LEAD: GLIOMATCH

Contacts: Frederik De Smet, Abhishek Garg (KUL)

The purpose of this WG is to harmonise data standards, foster data exchange, data validation, and potentially division of labour to achieve economy of scale. Of particular interest will be to discuss the implementation of the future UNCAN.eu research and data platform. This WG will work on:

- Developing a common chapter in the Data Management Plan (DMP) (see Annex 1).
- Exchanging best practices in the field of data management

5.4.2 WG2: Communication and Dissemination

LEAD: MULTIR

Contacts: Lise Boussemar, Kalliopi Thanopoulou (EXELIXIS)

The purpose of this WG is to develop a joint communication and dissemination strategy. The goal of such a strategy is to inform relevant stakeholders about the mission of the U-THI-Clust as a whole. This working group will cover following tasks and areas:

- For external communication: within each project's website, there will be a dedicated Cluster page, that will introduce the U-THI-Clust and participating projects, including links to the joint materials (such as the brochure) and to the other project websites.
- For internal communication: MULTIR has already created an internal workspace with restrictive access to only Cluster members, which will be used to share materials within the cluster.
- Whenever needed, project members will agree to create joint templates (e.g. for deliverables, policy briefs etc.).
- All U-THI-Clust members will share their Communication and Dissemination plan strategies so that they can be used to create a common stakeholder map: an overview of common stakeholders (while cooperating with WG5) to ensure that all U-THI-Clust communications target relevant groups.
- Generation of a common cluster brochure (see Annex 1). The language used in the brochure will be clear and accessible to a wide audience, with visual elements included to engage the target audience effectively. The link to the web brochure will be shared with the other U-THI-Clust projects of the to facilitate wider dissemination. Additionally, patients' associations affiliated with projects conforming to the Cluster will help to reach out to patients.
- Create a common calendar for U-THI-Clust events, meetings, workshops etc. in collaboration with WG6.
- Projects within the U-THI-Clust commit to regularly share project updates, press releases and social media posts (X, Facebook, LinkedIn) within the cluster regarding their deliverables and milestones. During the annual meeting, we will discuss and refine the logistics to structure and crystallise these processes.
- Projects within the U-THI-Clust will share information about their communication activities and events, extending invitations to projects from other clusters to participate.

Below is a preliminary list of planned activities:

- THRIVE will organise two EU-Joint Workshops. U-THI-Clust projects as well as other projects, organisations and clusters working on similar topics will be invited to these EU-Joint Workshops. The objective of these workshops will be to actively foster synergies among different EU-funded initiatives in the cancer research domain, facilitate knowledge exchange, and exploit common interests. Target stakeholders, such as regulators, policymakers, funding bodies and citizens (including patients) will be invited to participate in these EU-Joint Workshops. During the EU-Joint Workshops, project leaders or representatives will identify how their projects contribute to CM objectives, including:
 - Understanding of the development of cancer,
 - Cancer prevention strategies,
 - Cancer diagnostics and treatment,
 - The quality of life of cancer patients, and
 - Digital transformation of research, innovation and health systems.
- THRIVE will organise two training courses for young researchers and students. These courses will have the following objectives:
 - Sharing knowledge regarding tumour-host interactions.
 - Providing training on FAIR principles
 - Providing training on developing whitepapers and policy recommendations.
 - Facilitating discussion on the ethical implications of emerging health policies.

5.4.3 WG3: Research and Innovation

LEAD: SPACETIME

Contact: Silvia Calpe (AUMC)

The goal of this WG will be to reduce overlaps, harmonise research methods and models to enhance science and policy outcomes, working together on research capacity building. This WG will address the following tasks and areas:

- Define a common scientific workplan (see Annex 1).
- Within each Cluster Meeting, there will be a session to discuss specific areas of collaboration. These will include:
 - Consent related areas for clinical trials: Exploration of future collaborations contributing to clinical trials (patient information, data, protocols).

- Possibility for either joint publications and/or review(s): State of the art and/or summary of results of all projects within Cluster.
- Share templates for MTAs and Personal Data Sharing (GDPR): Sharing problems consortia projects ran into, and harmonised course of action.
- Harmonisation of research methods.
- Common actions/protocols to liaise with national data hubs within UNCAN.

5.4.4 WG4: Addressing Inequalities

LEADs: GLIOMATCH / ARTURO

GLIOMATCH contact: Juan Ventura (CPE)

ARTURO contact: Pablo Hernández-Marrero (UCP)

The goal of this WG is to develop common ideas on how the projects can contribute to reducing inequalities of care and improving access to care. In addition, common challenges will be addressed in the uptake of the projects in terms of improved screening methods and technologies in national health systems. This WG will address following tasks and areas:

- Generate the document: Addressing inequalities recommendations (see Annex 1).
- Involving patients and patient representatives in the co-design of policies via specific events such as webinars or in person events.
- Define methodological approaches to improve the participation of marginal populations in clinical studies.
- Ensure that regional genetic diversity is included to reach a broader understanding of the tumour-host interactions.
- Define the technological and therapeutical treatments that can facilitate future accessibility to most patients in the EU.
- Projects within the U-THI-Clust will share information about their communication activities and events related to this strand, extending invitations to other projects in U-THI-Clust to participate. Planned activities so far:
 - The THRIVE Partner ELPA will organise 2 laymen events (year 2 and year 5), including ELPA members, representatives of national liver patients' associations from different countries, and project investigators from U-Clusters to present the aims and results of their project and answer questions from patients' representatives. ELPA will also aim to organise an event at the European Parliament to enhance the project's visibility, engage with European delegates, and translate findings of liver cancer to various clinical settings across Europe, ensuring that both national and European policymakers are reached. Representatives from other clusters will be invited to participate and foster discussions on other cancer fields.

5.4.5 WG5: Citizen Engagement

LEAD: HIT-GLIO

Contact: Bozana Kaminska (NENCKI)

The purpose of this WG is to organise exchanges with citizens, including patients, to engage them and to address their views. This WG will cover following areas:

- Generation of the Citizen engagement summary report (see Annex 1).
- Provide input for WG2 to ensure that communication contributes to citizen engagement.
- Define common guidelines and best practices for citizen engagement for all U-THI-Clust projects to implement.
- Projects within the U-THI-Clust will share information about their communication activities and events related to this strand, extending invitations to other projects in U-THI-Clust to participate. Planned activities so far:
 - HIT-GLIO is planning to organise the 10K run event in Year 2025 and engage citizens. We will also organise fundraising for our local charities supporting children's brain tumour charities. Other projects are welcome to join.

- HIT-GLIO plans to organise a series of talks promoting knowledge about malignant pediatric brain tumours and their therapy during Brain Awareness Week 2025 and via Nencki Foundation lectures.
- HIT-GLIO plans to organise public lectures/lay talks to school children, e.g. at the Nencki Institute we have a yearly Brain Awareness Week where citizens are invited to join.
- To discuss in future meetings the possibility to generate a common awareness campaign to attract the attention of authorities and decision-makers to put more effort into research and clinical care of these detrimental, rare diseases (this could be linked with the point above). Additionally, we will discuss lessons learned from specific activities where projects engage with local initiatives. For example, HIT-GLIO will collaborate with local pediatric brain tumour charities to help raise public awareness and secure financial support. Lessons learned from this activity will be discussed in one of our annual meetings.

5.4.6 WG6: Annual meetings and events

Year 1 LEAD (1st annual meeting): THRIVE

Contact: Josep M Llovet (FRCB-IDIBAPS), Paola Cesaroni (INN-ACTA)

Year 2 LEAD (2nd annual meeting): HIT-GLIO

Contact: Bozena Kaminska (NENCKI)

U-THI-Clust projects will meet yearly. The project will agree in advance on one organiser for each yearly meeting which can be held in person or online. The organisation of the 1st and 2nd annual meetings has already been discussed during the U-THI-Clust 's meetings. The organisers of the next meetings will be discussed during that first Annual Meeting. These annual meetings will provide a platform to discuss U-THI-Clust WGs with a focus on identifying common challenges, finding synergies and sharing best practices in each of the five cluster strands (data management, communication and dissemination, research and innovation, addressing inequalities, citizen engagement). This WG will cover following tasks and areas:

- Annual meetings: 1st one to take place end of 2024 or beginning of 2025 and to be organised by THRIVE (date has been set for January 31st 2025, at FRCB-IDIBAPS, Barcelona, Spain).
- Yearly report on "*Conclusions of common annual meeting*" of the U-THI-Clust in the form of deliverables (one per meeting and one for final conclusions; see Annex 1).
- Yearly "*Policy brief*" (one per meeting and one final; see Annex 1).
- We will organise joint events with other clusters, specifically the U-THI-Clust (HORIZON-MISS-2021-CANCER-02-03), which focuses on the influence of risk factors and health determinants on cancer initiation and progression. Since some partners of the U-THI-Clust are also members of this cluster, the aim is to maximise impact and results, particularly in communication and dissemination, by coordinating these events. Identify opportunities to co-host or attend events by other projects (e.g. in person or webinars). This will be done as mentioned above.
- Identify events related to U-THI-Clust topics and that could be of relevance for projects from the cluster.
- Create an overview of planned trainings by all projects and identify synergies or opportunities to attend or collaborate across trainings.

6 Conclusions

The "Common Work Plan for Scientific Collaboration under the U-THI-Clust outlines a strategic framework for coordinating efforts among six EU-funded projects: ARTURO, GLIOMATCH, HIT-GLIO, MULTIR, THRIVE, and SPACETIME. The document aims to enhance the collective impact of these projects by focusing on six key strands of work: data management, communication and dissemination, research and innovation, addressing inequalities, citizen engagement, and annual meetings and events.

The plan emphasizes the importance of harmonizing data standards, developing joint communication strategies, and fostering collaborative research to avoid duplication of efforts. It also highlights the need to address healthcare inequalities and actively engage with citizens and patients to incorporate their perspectives into research and policy-making.

Each working group (WG) within the cluster is tasked with specific responsibilities, such as creating a common data management plan, generating joint communication materials, and organizing annual meetings to

review progress and plan future collaborations. The document also proposes joint events with other cancer clusters to maximize impact and results.

Overall, the work plan calls for active engagement from all project partners and coordinators, supported by the HaDEA to achieve the Mission Cancer goal of improving the lives of over 3 million people by 2030 through enhanced cancer prevention, diagnosis, treatment, and care.

Annex 1: Overview of joint deliverables

This table provides an overview of all U-THI-Clust joint deliverables, the WG that each deliverable is assigned to and the main contact responsible for monitoring progress on each deliverable.

No.	Title	WG	Responsible (contact, project)
1	Common chapter DMP	WG1	Chiara Caprioli (GLIOMATCH)
2	Common work plan for scientific collaboration under the 'Understanding (tumour-host interactions)' cluster	WG3	Silvia Calpe (SPACETIME)
3	Common video and/or a common cluster brochure	WG2	Lise Boussemar, Kalliopi Thanopoulou (MULTIR)
4	First conclusions of common annual meeting of the U-THI-Clust	WG6	Josep M Llovet, Paola Cesaroni (THRIVE)
5	First policy brief	WG3	Josep M Llovet, Paola Cesaroni (THRIVE)
6	Second conclusions of common annual meeting of the U-THI-Clust	WG6	Bozena Kaminska, Katarzyna Leszczyńska (HIT-GLIO)
7	Second policy brief	WG3	Bozena Kaminska, Katarzyna Leszczyńska (HIT-GLIO)
8	Third conclusions of common annual meeting of the U-THI-Clust	WG6	TBD
9	Third policy brief	WG3	TBD
10	Fourth conclusions of common annual meeting of the U-THI-Clust	WG6	TBD
11	Fourth policy brief	WG3	TBD
12	Addressing inequalities recommendations	WG4	Juan Ventura (GLIOMATCH), Pablo Hernández-Marrero (ARTURO)
13	Citizen engagement summary report	WG5	Bozena Kaminska, Katarzyna Leszczyńska (HIT-GLIO)
14	Final conclusions of common annual meeting of the U-THI-Clust	WG6	TBD
15	Final policy brief	WG3	TBD