

PROJECT FLYER



Exploiting GLIOblastoma intractability to address European research TRAINING needs in translational brain tumour research, cancer systems medicine and integrative multiomics

What is GLIOTRAIN?

GLIOTRAIN is a multi-sectoral industry-academia collaboration that will work to identify novel strategies to treat Glioblastoma (GBM) as well as investigating resistance mechanisms in this devastating disease. GLIOTRAIN is funded from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie ITN initiative. 15 Early Stage Researchers (ESRs) will be trained over the next 3 – 4 years under this Programme. Ultimately GLIOTRAIN will address currently unmet translational research and clinical needs in the GBM field by interrogating innovative therapeutic strategies and improving the mechanistic understanding of disease resistance. We will do this by identifying and interrogating novel therapeutic strategies for application in GBM, while simultaneously implementing state of the art next generation sequencing (NGS) and 'omics technologies to unravel disease resistance mechanisms. Drawing on unique consortium expertise each ESR project will further be underpinned by innovative systems medicine and/or integrative genomic analysis approaches. The GLIOTRAIN network brings together leading European and international academics, clinicians and private sector partners which cover the fields of tumour biology, genomics, proteomics, drug development, clinical research, data integration, computational modelling and systems biology.

Why carry out research in GBM?

Worldwide, there are an estimated 240,000 cases of brain and nervous system tumours per year. GBM is the most frequent, aggressive and lethal of these tumours. The disease belongs to a group of heterogeneous and invasive brain tumours (WHO Grade IV glioma). Despite significant efforts over forty years, clinicians are as yet unable to offer GBM patients a curative therapy. A number of elements underpin the challenge of finding new ways to treat GBM, namely (1) the diffuse and infiltrative nature of the tumour limiting the scope for surgical removal; (2) rapid proliferative rate of malignant cells; (3) appearance of treatment resistant cell clones, (4) impediment of the blood brain barrier precluding access of systemic agents to the brain parenchyma (5) activation of multiple signal transduction pathways/specific gene mutations within the tumour (6) somatic/clonal evolution underpinning intra/inter-tumoural heterogeneity.

What will GLIOTRAIN do?

GLIOTRAIN unites multiple disciplines, including tumour biology, multi-omics, drug development, clinical research, data integration, computational modelling and systems biology, thereby providing the foundation for a comprehensive research strategy that goes significantly beyond the current state-of-the-art in GBM translational research. Two major R&D work packages (GLIOTREAT and GLIORESIST) address complementary objectives consisting of Individual Research Projects (IRPs) for ESRs. Each R&D Work Package comprises individual tasks each of which is addressed through intersectoral and interdisciplinary research in which individual ESRs conduct clinically relevant studies appropriately informed by systems medicine / integrative 'omic analyses approaches within both academic and private sector environments. This strategy will help us to predict patient response and enable the design of more targeted and personalised treatments.



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The Training Network

Over the next 3 – 4 years ESRs will receive state-of-the-art scientific training in tumour biology, multi-omics, drug development, clinical research, data integration, computational modelling and systems biology, and will further participate in a broad transferable skills programme including modules in entrepreneurship, scientific innovation, project management, commercialisation, grant writing, communication skills, and gender balance in research. ESRs will engage with the International Brain Tumour Alliance over the course of the project to consider bench to bedside research from the patient's perspective. By the end of the GLIOTRAIN programme we expect to produce 15 scientists who have been trained in a multi-sectoral environment and who can therefore navigate confidently between clinical, academic and private sector settings to progress applied research findings towards improved patient outcomes.

Where can I find more about GLIOTRAIN?

Please log on to our website, www.gliotrain.eu. Different sections of the website will be of interest to researchers and clinicians, patients and the general public. You can also follow us on Twitter (@gliotrain), Facebook (<https://www.facebook.com/gliotraineu/>) or contact the Project Coordinator or Programme Manager.



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Meet the Team - The GLIOTRAIN Consortium

The GLIOTRAIN consortium (launched in September 2017) comprises 23 international organisations including leading international academics, clinicians, private sector and not-for-profit partners across the fields of brain tumour biology, multi-omics, drug development, clinical research, bioinformatics, computational modelling and systems biology.



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