

## For your physician

**The Brain Cancer Project** is an IRB-approved research study that is part of *Count Me In*, a nonprofit organization that brings together patients and researchers as partners to accelerate discoveries in cancer research. Count Me In is stewarded by four leading organizations: Emerson Collective, a California-based social change organization; the Broad Institute of MIT and Harvard, a leading nonprofit biomedical research institution; the Biden Cancer Initiative, an independent nonprofit organization that builds on the federal government's Cancer Moonshot; and the Dana-Farber Cancer Institute, a leading cancer hospital. The project also works in collaboration with a growing coalition of nonprofit advocacy partners. With this project, we are exploring a new approach to genomics research in which we partner directly with patients with brain cancer in order to speed discoveries. All de-identified, clinically annotated genomic data will be shared widely with the biomedical research community as it is generated.

If you have any questions about this study, please reach out to us at [info@BrainCancerProject.org](mailto:info@BrainCancerProject.org) or 651-229-3480.

Over the past decade, genomic characterization of brain cancer has shed enormous light on the molecular underpinnings of cancer. These discoveries have led to the development of novel therapies and preventive measures that have already revolutionized cancer care. Despite this progress, the genomics of brain cancer remain poorly understood.

The types of questions we strive to answer include:

- What explains why some patients show extraordinary responses to a particular treatment?
- What explains why some tumors never respond to a particular treatment?
- What genetic changes explain why some tumors initially respond to therapy but later recur?
- How can we develop better treatments for brain cancer?

Despite the progress that has been made to begin to answer these questions, we remain far from the goal. To get there, the detailed genomic characterization of many clinically annotated cancer samples will be required.

In order to meet this aim, The Brain Cancer Project seeks to empower patients to accelerate cancer research through sharing their samples and clinical information. We have developed a nationwide outreach program in collaboration with a number of brain cancer advocacy organizations to connect brain cancer patients around the country with the genomics research performed at the Broad Institute, allowing them to participate regardless of where they live.

Working with brain cancer patients and advocates, we designed a website (<http://www.BrainCancerProject.org>) with an online questionnaire that allows patients with brain cancer to provide information about themselves and their cancer. Patients with brain cancer are then offered an electronic consent form that explains the risks and benefits of the study and asks for permission to obtain a portion of their stored tumor tissue (if available), a blood sample, a saliva sample, and copies of their medical records. Enrolled patients are sent a saliva kit and asked to mail back a saliva sample, which is used to extract germline DNA. The clinical research team may also contact the patient's pathology department and request a portion of the tumor to be sent to the Broad Institute for genomic analysis. We will ask pathology departments to share only a part of the tumor tissue, and not to share anything with us that might be needed for clinical care. Next generation sequencing (whole exome and transcriptome sequencing) is performed on tumor and germline DNA.

We are also exploring the use of blood biopsies for investigating tumor genomics through sequencing circulating tumor DNA (ctDNA). Your patient may be asked to provide a blood sample, which will be obtained at a regularly scheduled blood draw.

Sequencing data are linked to de-identified clinical information, and the resulting data are used to identify drivers of tumorigenesis, mechanisms of response and resistance to therapies, and diagnostic, prognostic, and therapeutic biomarkers. The database of clinically annotated genomic information will be shared with the NIH and the cancer research community. Study updates and discoveries are shared at regular intervals with all patients who complete the initial questionnaire.

This direct-to-patient approach should be particularly enabling for patients with brain cancer to participate directly in genomics research squarely focused on this disease. This project seeks to establish a patient-researcher partnership to accelerate genomic discoveries and improve outcomes in brain cancer, and may ultimately serve as a means to build a new clinical and translational research model for all patients with cancer.

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