



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP140606

Project Title:  
Optimizing Therapy for Glioblastoma Through Genomic Profiling of  
Treatment Failure

Award Mechanism:  
Individual Investigator

Principal Investigator:  
Roeland Verhaak

Entity:  
The University of Texas M.D. Anderson Cancer Center

### Lay Summary:

Glioblastoma (GBM) are the most common and aggressive type of adult brain tumors. Despite the standard of care, concomitant radiation and temozolomide based chemotherapy treatment, disease relapse typically occurs within a year for most patients. Through ultra high throughput sequencing, the genetic DNA profile of GBM has been analyzed for the presence of abnormal molecular changes that might relate to the disease. The first goal of this grant is to utilize these methods to identify molecular changes that occur in GBM cells as a result of the treatment. Alterations that are detected after treatment but not before therapy may provide a basis for new types of treatment. Through computational and mathematical approaches, the genomic abnormality profile can be deconstructed into tumor cells are resistant to therapy and tumor cells that are sensitive to therapy. Applying such methodology to tumors before and after therapy will help to identify tumor biology characteristics that could explain better why some tumors respond to treatment whereas others show no response at all. In summary, by evaluating the DNA sequences of matching primary and post-treatment tumors from the same GBM patients, this proposal aims to improve our understanding of why GBMs are so resistant to the toxic effects of therapy.