development now than at any other time in history," he says. "Some of the most exciting new treatments are in the areas of pharmacogenetics and pharmacogenomics, but we offer a broad range of trials, both initiated here at UNC and through national cooperative groups." Goldberg notes that the dedicated early-phase clinical trials unit at the N.C. Cancer Hospital means that more Phase I trials are being offered. "We are very focused on determining whether patients with recurrence or whose disease has been refractory to standard treatments are eligible for appropriate clinical trials," he adds.

Richard Semelka, MD
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For more information or to refer a patient, call 919-966-9164, 919-966-9700, or Toll-Free 1-866-869-1856.

UNC Research Provides New Insights Into Deadly Brain Cancer

Findings published by UNC Lineberger researchers suggest that the most common form of malignant brain cancer in adults, glioblastoma multiforme (GBM), is not a single disease. Instead, they believe GBM is a set of diseases, each with a distinct underlying molecular disease process. The study, published by Cell Press in the journal Cancer Cell, provides a solid framework for investigation of future targeted therapies that may improve the near uniformly fatal prognosis of this devastating cancer.

Previous work established that gene expression profiling can be used to identify distinct subgroups of GBM," says senior study author, medical oncologist Neil Hayes, MD, MPH. "However, the exact number and clinical significance of these was unclear."

Hayes and colleagues at UNC Lineberger expanded on previous GBM classification studies and used expression profiling techniques to comprehensively analyze hundreds of GBM patient samples. The group was able to reliably identify four distinct molecular subtypes of GBM tumors.

The researchers then went on to perform unique integrative analyses across multiple platforms to look for defining characteristics associated with each subtype. Their findings were quite striking, implying that there are distinct types of GBM and that each one is associated with a specific molecular process. "We discovered a bundle of events that unequivocally occur almost exclusively within a subtype," explains Hayes.

The researchers also report that the nature of these events indicate that the underlying disease process for each subtype may involve distinct cells of origin at a specific stage of differentiation. This is finding has potential clinical significance, as determining the cells of origin of GBM is critical for establishing effective treatment regimens.

Given this new information, it makes sense that some drug classes would be expected to work for some tumor subtypes and not others. In support of this conclusion, Hayes's group found that response to aggressive chemotherapy and radiation differed by subtype.

Significant work on this project was shared by Roel Verhaak, PhD, of the Broad Institute of MIT and Harvard in Boston and Katie Hoadley, PhD of UNC Lineberger and the Department of Genetics at UNC-Chapel Hill. Other UNC Lineberger team members include postdoctoral fellow Matthew Wilkerson, PhD, Ryan Miller, MD, PhD, and Charles M. Perou, PhD. Other collaborating institutions include the Dana-Farber Cancer Institute in Boston, MA; The Genome Center at Washington University School of Medicine in St. Louis; MO, the Lawrence Berkeley national Laboratory in Berkeley, CA; the University of California, San Francisco; Mayo Clinic, Rochester, MN; SRA International, Fairfax, VA; and the Walter and Eliza Hall Institute, Victoria, Australia.