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## **NRG-RTOG 9813 is the First Study to Identify the Impact of *MGMT* Gene Expression on Overall Survival for Patients with Anaplastic Glioma Tumors**

**SAN ANTONIO, TX** – Analysis of the NRG Oncology clinical trial RTOG 9813 revealed for the first time that elevated *MGMT* gene expression is independently associated with worse overall survival for patients with anaplastic grade III gliomas. These findings were presented during the Central Nervous System – Gliomas session at the 60<sup>th</sup> Annual Meeting of the American Society for Radiation Oncology (ASTRO).

NRG-RTOG 9813 is a phase III trial that compared radiotherapy plus temozolomide with radiotherapy plus nitrosourea for patients with astrocytoma-dominant anaplastic grade III gliomas. Researchers aimed to find the prognostic significance of *MGMT* gene expression. Univariate and multivariate analyses were conducted to determine the effect of *MGMT* expression as a continuous variable on progression-free survival (PFS) and overall survival (OS). Univariate analyses indicated that elevated *MGMT* gene expression was significantly associated with worse OS and PFS. In the multivariate analyses, it was determined that elevated *MGMT* gene expression significantly correlated with worse OS and PFS, independent of age, *IDH* mutation, resection status, Karnofsky performance status, and most importantly, *MGMT* promoter methylation. This study suggests that *MGMT* gene expression may provide additional prognostic value for patients beyond the clinical and molecular biomarkers currently utilized.



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NRG-RTOG 9813  
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“NRG-RTOG 9813 is the first phase III trial that has identified the statistical significance of *MGMT* gene expression on overall survival, independent of *MGMT* promoter methylation status, while utilizing rigorous multivariate analyses,” stated Jessica Fleming of The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC – James) and first author of this abstract. “The findings from this study suggest that *MGMT* gene expression can be used as an independent prognostic biomarker for anaplastic glioma tumors”.

Gene expression data on this trial was generated using the Affymetrix Clariom D Human Transcriptome Array. The *MGMT*-STP27 prediction model was used to calculate *MGMT* promoter methylation status from Illumina HM-450K data. Univariate and multivariate analyses were conducted using Cox proportional hazards model and log-rank test. Efforts are ongoing for the validation of prognostic significance of *MGMT* gene expression and to increase sample size.

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*Expression is Independently Associated with Worse Overall Survival in NRG Oncology/RTOG 9813: A Phase III Study of Radiation Therapy (RT) and Temozolomide (TMZ) Versus RT and Nitrosourea (NU) in Anaplastic Grade III Glioma (Astrocytoma Dominant).* Abstract presented at the annual meeting of the American Society for Radiation Oncology (ASTRO). San Antonio, TX.

### **About NRG Oncology**

*NRG Oncology conducts practice-changing, multi-institutional clinical and translational research to improve the lives of patients with cancer. Founded in 2012, NRG Oncology is a Pennsylvania-based nonprofit corporation that integrates the research of the National Surgical Adjuvant Breast and Bowel Project (NSABP), the Radiation Therapy Oncology Group (RTOG), and the Gynecologic Oncology Group (GOG). The research network seeks to carry out clinical trials with emphases on gender-specific malignancies, including gynecologic, breast, and prostate cancers, and on localized or locally advanced cancers of all types. NRG Oncology's extensive research organization comprises multidisciplinary investigators, including medical oncologists, radiation oncologists, surgeons, physicists, pathologists, and statisticians, and encompasses more than 1,300 research sites located world-wide with predominance in the United States and Canada. NRG Oncology is supported primarily through grants from the National Cancer Institute (NCI) and is one of five research groups in the NCI's National Clinical Trials Network.*

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### **About the OSUCCC – James**

*The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute strives to create a cancer-free world by integrating scientific research with excellence in education and patient-centered care, a strategy that leads to better methods of prevention, detection and treatment. Ohio State is one of only 49 National Cancer Institute-designated Comprehensive Cancer Centers and one of only a few centers funded by the NCI to conduct both phase I and phase II clinical trials on novel anticancer drugs. As the cancer program's 308-bed adult patient-care component, The James is one of the top cancer hospitals in the nation as ranked by U.S. News & World Report and has achieved Magnet® designation, the highest honor an organization can receive for quality patient care and professional nursing practice. At 21 floors with more than 1.1 million square feet, The James is a transformational facility that fosters collaboration and integration of cancer research and clinical cancer care. For more information, visit [cancer.osu.edu](http://cancer.osu.edu).*