Patients with Head and Neck Cancer Who Have the KRAS-variant Genetic Mutation Live Longer When Treated with Cetuximab and Radiotherapy (ASCO Abstract No: 6000)

Chicago, Illinois—Results of a study conducted by Radiation Therapy Oncology Group (RTOG) investigators found that patients with locally advanced head and neck squamous cell cancer (HNSCC), who have an inherited KRAS-variant gene mutation, significantly benefit from a treatment regimen that includes the drug cetuximab. RTOG investigator Joanne B. Weidhaas, MD (Yale School of Medicine, New Haven, CT) will report the study results at the American Society of Clinical Oncology Annual Meeting during the head and neck session scheduled for Monday, June 2, from 8:00 AM to 11:00 AM, which showed both improved progression free survival (PFS) and overall survival (OS) in this patient population treated with cetuximab.

“These study results further show the power of the KRAS-variant in predicting treatment response, and suggest that further investigation is warranted to enable the appropriate incorporation of this marker into risk stratification to help direct personalized medicine for head and neck cancer patients,” says Weidhaas. The KRAS gene provides instructions for making a protein called KRAS that is involved primarily in regulating cell division. The KRAS-variant is an inherited genetic mutation that alters microRNA (gene expression regulators) communication with KRAS and is associated with increased risk for specific types of cancer, as well as predicts response to cancer therapy across many cancers. Approximately 6 percent of the population, and from 15 to 25 percent of all patients with cancer, carry the KRAS-variant.

To test the hypothesis that the KRAS-variant will predict treatment response to cetuximab in patients with HNSCC, data and tissue collected as part of the RTOG 0522 clinical trial were used. This study evaluated whether the addition of cetuximab to a concurrent radiation-cisplatin regimen would improve progression-free survival in patients with locally advanced HNSCC. Of the 891 eligible patients enrolled in the RTOG 0522 trial, 413 were tested retrospectively for the KRAS-variant with 70 (16.9%) of the patients testing positive for the gene mutation. The improved PFS and OS cetuximab benefit lasted for 1 and 2 years post study enrollment, respectively.

“The work by Dr. Weidhaas is personalized oncomedicine at its best, using the power of genomics to potentially tailor a patient's treatment. This research had its roots in Dr. Weidhaas's laboratory over 5 years ago. Her work in microRNAs and KRAS identified certain patients who may benefit from particular cancer treatments,” says Adam Dicker, MD, PhD, NRG Oncology Translational Science Committee Co-chair and professor and chair of the Radiation Oncology Department at Thomas Jefferson University. “Using the power of a prospective randomized clinical trial conducted by the RTOG allowed us to test the KRAS-variant hypothesis. This work exemplifies our mission in the Translational Science Committee in 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 strengths of the National Adjuvant Breast and Bowel Project, the Radiation Therapy Oncology Group and the Gynecologic Oncology Group. The research organization seeks to carry 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 is comprised of multidisciplinary investigators including medical oncologists, radiation oncologists, surgeons, physicists, pathologists, and statisticians and encompasses more than 1300 research sites located worldwide with predominance in North America. 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.