CENTER FOR RNA BIOMEDICINE

RNA Innovation Seminar
Monday, February 19th at 3:00pm
ABC Seminar rooms, Biomedical Research Science Building (BSRB), 109 Zina Pitcher

David Beer, PhD,
Professor of Surgery, Section of Thoracic Surgery,
Professor of Radiation Oncology

"Insights into Racial Differences in Esophageal Adenocarcinoma"

Abstract:
Esophageal adenocarcinoma (EAC) is the fastest increasing cancer and is associated with gastroesophageal reflux disease (GERD). African Americans (AA) and European Americans (EA) have a similar prevalence of GERD yet EAC disproportionately affects EA. We hypothesized that AA esophageal squamous mucosa possesses protective mechanisms against GERD-induced damage that differ from EA. Transcriptional profiling revealed that the detoxifying enzyme, GSTT2, is significantly overexpressed in AA squamous mucosa. We examined two previously identified genomic events within the GSTT2 locus, a 37kb deletion and a 17bp promoter duplication, contribute towards lower GSTT2 expression in EA. These observations were validated using genomic sequence and expression data in lymphoblastoid cells from the 1000 Genomes Project. The non-duplicated 17bp promoter is highly conserved in African descendant populations. We examined GSTT2 protective function in Het-1A esophageal squamous cells and in vivo model using a rat esophagus adenocarcinoma model. Increased esophageal GSTT2 expression protects against GERD damage and may underlie the low incidence of EAC in AA.