FIGURE 13

Genetic Differences between Cancers from Individuals of Different Races

Most, if not all, cancers are caused by alterations (mutations) to the genetic material of a cell. There are numerous different types of genetic mutations that can lead to cancer, including single base changes, which involve deletion, insertion, or exchange of a single DNA base, and copy number alterations, which involve the deletion or duplication of long stretches of DNA. Knowledge of the genetic mutations that drive cancer has led to the development of molecularly targeted therapeutics that rectify the cellular changes that arise because of the mutations. Molecularly targeted therapeutics are the mainstay of precision medicine. It is increasingly clear that we have limited knowledge of the genetic mutations driving cancer in racial and ethnic minorities, which diminishes the potential of precision medicine in these populations. As shown here using data from the AACR Project Genomics Evidence Neoplasia Information Exchange (GENIE) database, there are differences in the frequency of single base changes (top) and copy number alterations (bottom) in selected genes among African American and white patients. This information is invaluable for future efforts to develop molecularly targeted therapeutics with the potential to benefit African Americans.