Genomic analysis of racial differences in triple negative Breast Cancer

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Triple negative breast cancer (TNBC) is more prevalent in African Americans (AAs), has a more aggressive clinical course including a higher mortality rate and increased occurences of metastases. This study was designed to determine if racial differences at the molecular level might explain the more aggressive phenotype in AAs. Mutation profiling, was performed on 51 AA and 77 CA tumor/ normal pairs. Transcript expression analysis was performed on 35AA and 37CA. Genes with high frequency mutation rates such as MUC4 and TP53 were common to both racial populations, however genes that were less frequently mutated differed between the races suggesting that those cause the more aggressive nature of TNBC in AA women. Overall, AA patients had a higher freaquency of mutations in a wider array of genes suggesting increased levels of genomic instability. JAK-Stat and HER2 signaling were unique to the AA and PTEN and mTOR were unique to the CA profiles. Many pathways identified by the mutational profiles were predicted to be down-regulated by the transcript expression profiles.

Speaker Biography

Lesleyann Hawthorn recieved her Ph.D. from the University of London, UK. She completed a postdoc at the Cleveland Clinic, OH, USA. Subsequently she obtained an Assistant Professorship at Rosewell Park Cancer Institute, NY, USA. She was awarded an Associate Professorship at Georgia Health Sciences University, GA, USA and is currently a Professor at the Georgia Cancer Institute at Augusta University, GA, USA. Her research interests include genomic analysis of solid and hematological cancers using mutational and transcript expression analyses and she has published over 60 peer reviewed manuscripts and book chapters in the field.

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