Genomics-2013
International Conference on
OMICS Group Conferences
Accelerating Scientific Discovery
Functional and Comparative Genomics & Pharmacogenomics
November 12-14, 2013 DoubleTree by Hilton Hotel Chicago-North Shore, USA

Pharmacogenomics of Breast Cancer Endocrine Therapy

Richard Weinshilboum

Mayo Clinic, Rochester, USA

Abstract

Breast cancer is the number one invasive cancer of women. Endocrine therapy involving either the blockade of estrogen synthesis with aromatase inhibitors (AIs) or blockade of the estrogen receptor (ER) with selective estrogen receptor modulators (SERMs) represents a major advance in the treatment and prevention of breast cancer. We have conducted genome-wide association studies (GWAS) to identify genes associated with both musculo-skeletal adverse events that occur with the adjuvant AI therapy of post-menopausal women with ER(+) breast cancer and a separate study of women in whom breast cancer occurred during 5 years of preventive SERM therapy with tamoxifen or raloxifene. The single nucleotide polymorphism (SNP) signals and genes identified were then pursued with functional genomic and mechanistic studies. Both the results of these studies and the research strategy employed will be described in this presentation.

Biography

Dr. Weinshilboum received B.A. and M.D. degrees from the University of Kansas, followed by residency training in Internal Medicine at the Massachusetts General Hospital, a Harvard teaching hospital, in Boston. He was also a Pharmacology Research Associate at the National Institutes of Health in Bethesda, Maryland, in the laboratory of Nobel Laureate Dr. Julius Axelrod. Dr. Weinshilboum began his affiliation with the Mayo Medical School and Mayo Clinic in Rochester, Minnesota, in 1972 where he is presently Professor of Molecular Pharmacology & Experimental Therapeutics and Internal Medicine as well as Mary Lou and John H. Dasburg Professor in Cancer Genomics Research. He also directs the Pharmacogenomics Program of the Mayo Center for Individualized Medicine and he is Co-Principal Investigator of the US National Institutes of Health (NIH) Pharmacogenomics Research Network Center at the Mayo Clinic. Dr. Weinshilboum's research has focussed on pharmacogenetics and pharmacogenomics, and he has authored over 370 scientific manuscripts which address these topics.