Association of single nucleotide polymorphisms (SNPs) in ESR1 and PRMT8 and response to treatment with abiraterone acetate (AA) in men with metastatic castration refractory prostate cancer (mCRPC)

Neeraj Agarwal1, Anitha B. Alex1, James M. Farnham2, Srinivas K. Tantravahi1, Shiven B. Patel1, Craig T. Teerlink2, Frederick S. Albright3, Robert A. Stephenson1,4, Lisa A. Cannon-Albright1,2
1Huntsman Cancer Institute, University of Utah, Salt Lake City, UT; 2Division of Genetic Epidemiology, University of Utah, Salt Lake City, UT; 3Department of Pharmacology, College of Pharmacy, University of Utah, Salt Lake City, UT; 4Division of Urology, Department of Surgery, School of Medicine, University of Utah, Salt Lake City, UT

Abstract # 5048

Background
Association of single nucleotide polymorphisms (SNPs) in ESR1 and PRMT8 and response to treatment with abiraterone acetate (AA) in men with metastatic castration refractory prostate cancer (mCRPC).

Methods
975 single nucleotide polymorphisms (SNPs) from the Illumina OmniExpress genotyping platform within the boundaries of 60 genes reported by Kohli et al and Sun et al to be involved in the androgen metabolic pathway were investigated for association with the time to treatment failure in 49 Caucasian men with mCRPC receiving treatment with AA.

Table 1. Genes evaluated for the time to onset of castration resistance in Caucasian men with advanced Prostate Cancer.

Table 1. (cont.)

Table 2.

Results
Polymorphisms in two genes (ESR1, PRMT8) were significantly associated with the time to treatment failure (TTF) after starting treatment with AA while controlling for Gleason Score. Table 2, summarizes the genes found to be significantly associated with the time to treatment failure under an additive model. (Only SNPs found to be significant (p < .005) controlling for Gleason score in at least one model are shown.)

Table 2.

Conclusions and Future Directions
• SNPs in ESR1 and PRMT8 are significantly associated with TTF on AA therapy, and may serve as predictive markers to treatment with AA.

References

Acknowledgements
Supported by:
• The U.S. Department of Defense Prostate Cancer Research Program of the Office of the Congressionally Directed Medical Research Programs, Grant number W81XWH-11-1-0342 awarded to Lisa Cannon-Albright.
• The Utah Cancer Registry (Contract No. HHSN26120100026C, National Cancer Institute's SEER Program and the Utah State Department of Health and the University of Utah).
• Partial support for all data sets within the Utah Population Database, by Huntsman Cancer Institute's Cancer Center Support grant (P30 CA42014, National Cancer Institute).

Presented at the ASCO 51st Annual Meeting | Chicago, IL | May 29-June 2, 2015 | Correspondence: Neeraj.Agarwal@hci.utah.edu