in AA and CA with or without BPH. **Methods:** To examine the impact of race on BPH, we examined prostate tissue from 66 men. We utilized 21 normal transition zone controls from radical prostatectomies, 8 normal transition zone controls from organ donors, and 37 BPH samples divided between CA and AA men. Using multispectral quantitative multiplex IHC, we examined the steroid hormone related protein expression of ERα, ERβ, CYP7B1, and AKR1C1 on each FFPE tissue section. We quantified the optical density of each protein of interest as well as examined colocalization and coexpression through cell and tissue segmentation. **Results:** In CA men, there is a dysregulation of ERα, ERβ homeostasis with BPH relative to normal as an increase in ERα and a decrease in ERβ expression was observed. Furthermore, an increase in CYP7B1, an enzyme that degrades ERβ ligands, was also observed. In AA men, we observed no difference between normal and BPH states, however in both normal and BPH prostate tissues, ERα and ERβ were increased relative to CA men. In addition, there is a decrease in AKR1C1, the enzyme that metabolizes DHT to an ERβ ligand. **Conclusions:** Our study supports the concept that differences in hormone pathways exist between AA and CA men. Understanding how these racial difference in steroid metabolism enzymes as well as ERs between CA and AA men with BPH could enhance treatment strategies for men with BPH.

**Diabetes Mellitus and Glucose Metabolism**

**CLINICAL AND TRANSLATIONAL GLUCOSE METABOLISM AND DIABETES**

**Difference in Risk Factors Between Adults with Early Onset (<40 Years Old) Versus Late Onset (≥40 Years Old) Diabetes Mellitus Type 2 at the University of Santo Tomas Hospital from January 2015-December 2017**

Marilyn Katrina Castro Caro, MD1, Elaine Cheeay Cunanan, MD2.

1UNIVERSITY OF SANTO TOMAS HOSPITAL, Manila, Philippines, 2Univ of Santo Tomas Hoop, Quezon City, Philippines.

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**INTRODUCTION:** Diabetes will remain a threat to global health. The global burden of type 2 diabetes mellitus is significant and rising, with most of the increase occurring in the last two decades. While most of the rise in the prevalence of Type 2 diabetes mellitus occurs in the middle-aged and the elderly, it is becoming more common in younger patients. No longer just a disorder of mature age, there is now a well-recognized trend toward younger people presenting with the disease.

**METHODS:** This was a cross sectional study of medical records of adult patients at the University of Santo Tomas Hospital who met the inclusion criteria from January 2015 to December 2017. The subjects were divided into early onset (<40 years of age) and the late onset (≥40 years of age) group. Mean, standard deviation, counts and percentages were used to summarize data. The mean values of continuous variables between the two groups were analyzed using the independent sample t-test while categorical variables were analyzed using Chi square test. Logistic regression analysis was used to determine the association of age of onset and duration of diabetes to its complications.

Silencing of circVPS13C effectively suppressed NFPA cell proliferation, invasiveness and promoted apoptosis, *in vitro*, and suppressed tumor growth, *in vivo*. The oncogenic effects were significantly enhanced when circVPS13C was overexpressed. By whole exome sequencing, interferon induced transmembrane protein 1 (IFITM1) was found significantly increased in cells with circVPS13C knockout. Decreased level of IFITM1 protein was confirmed in NFPA samples, and negatively correlated with the level of circVPS13C and tumor invasiveness. Upregulation of IFITM1 could partly reverse the effect of IFITM1 on tumor cells, and IFITM1 downregulating enhanced the oncogenic effect of circVPS13C. CHIPR analysis suggested that circVPS13C may inhibit the IFITM1 transcription by competitively binding the RNA-associated proteins.

**Conclusions**

CircVPS13C promotes NFPA growth and invasiveness by regulating tumor suppressor IFITM1, revealing a therapeutic target in preventing the tumorigenesis of NFPA.

**Key words**

Pituitary adenoma, Circular RNA, CircVPS13C, IFITM1