



KCRS22 **Kidney Cancer Research Summit**

Abdominal Adiposity in Early-Onset and Aggressive Clear Cell Renal Cell Carcinoma and Health Disparities

Preliminary Report

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Background: Disparities in Hispanic Americans (HAs) and American Indians (AIs) in Arizona

HAs and AIs are more likely to have

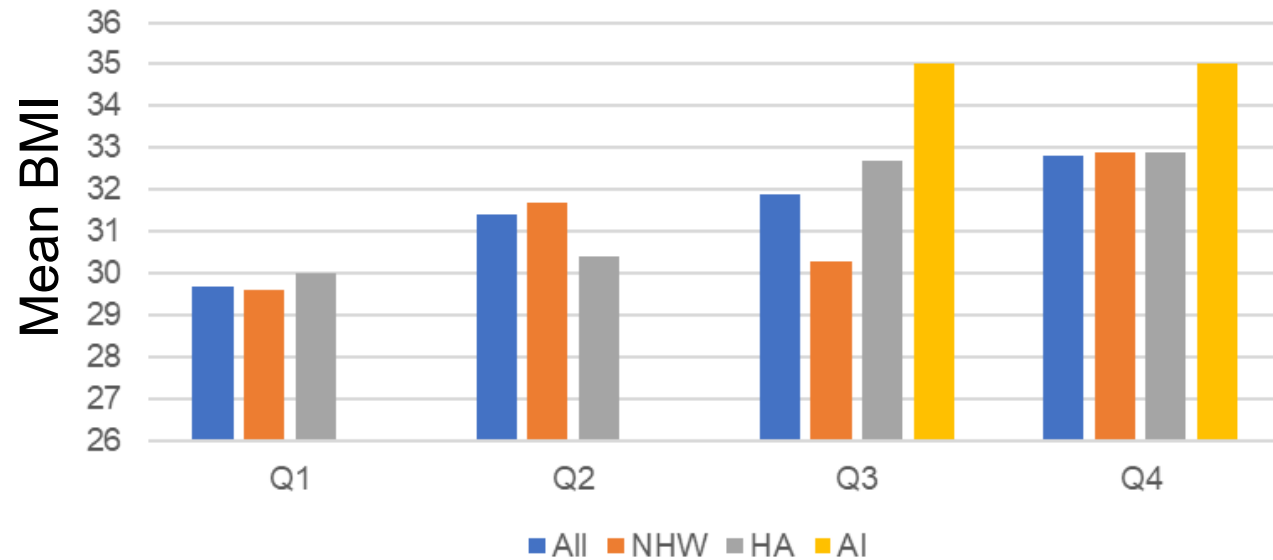
- Higher kidney cancer incidence and mortality
- Earlier age of diagnosis
- Predominantly clear cell subtype
- Advanced stage diagnosis
- More invasive treatment
 - Radical rather than partial nephrectomy among Stage I RCC patients
- Higher rate of obesity and diabetes

Data Source

- Banner University Medical Center Tucson (BUMCT)
- Arizona Cancer Registry
- National Cancer Database (NCDB)

Neighborhood Socioeconomic Challenges and RCC Patients (BUMCT)

Mean BMI in RCC patients stratified by SDI quartile



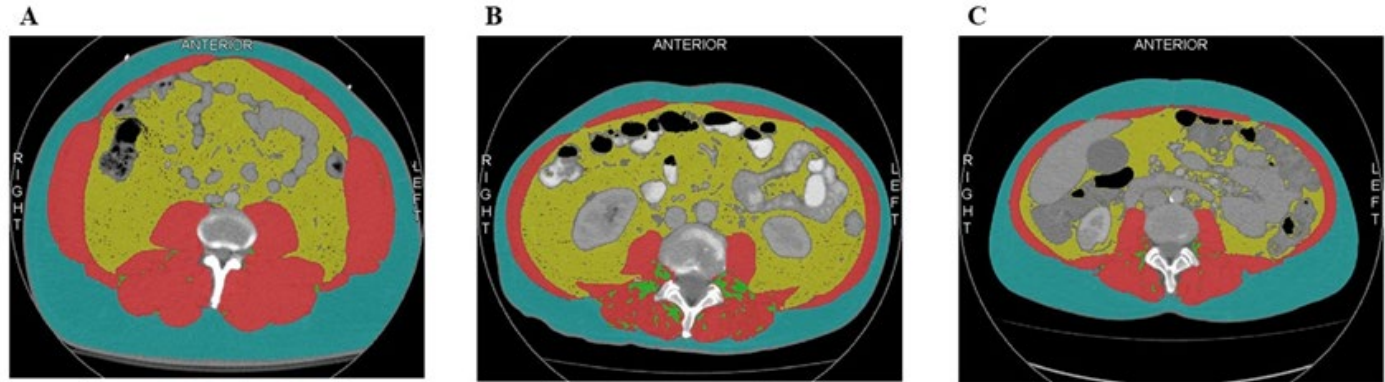
SDI and AI associated with higher BMI

	OR (95% CI)
BMI ≥ 30 vs. < 30	
SDI 10% increment	1.05 (0.97-1.14)
AI vs. NHW	3.38 (1.12-2.56)
BMI ≥ 35 vs. < 30	
SDI 10% increment	1.10 (1.01-1.21)
AI vs. NHW	4.31 (1.18-15.74)

Patient's zip code linked Social Deprivation Index (SDI) calculated from American Community Survey

Adiposity and Heterogeneity of RCC?

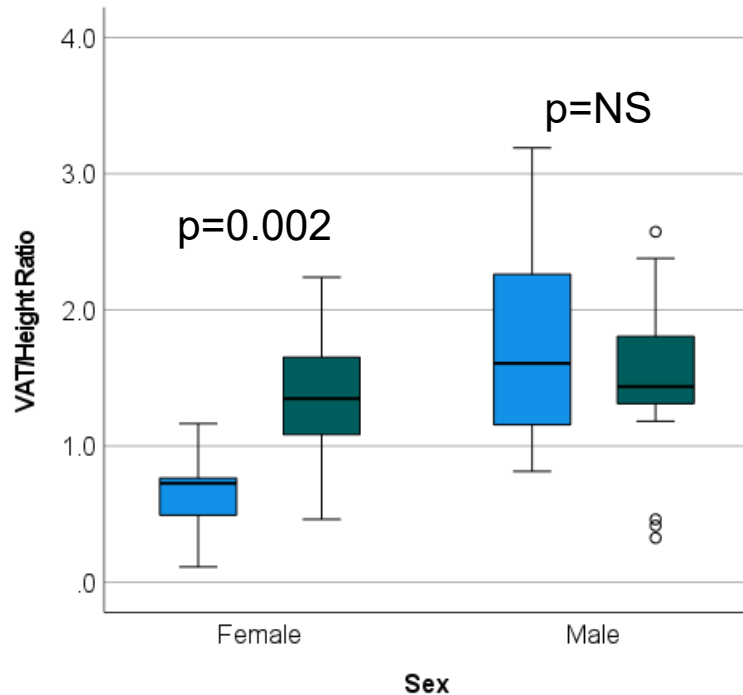
Yellow – Visceral adipose tissue (VAT)
 Green – Subcutaneous adipose tissue (SAT)
 Orange – Skeletal muscle



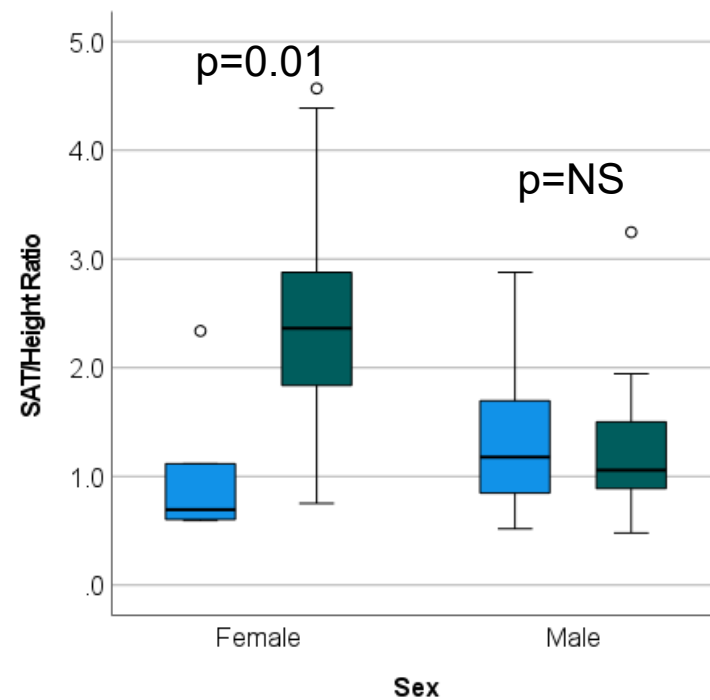
Age	40	69	43
Sex	Male	Male	Female
Race/ethnicity	HA	NHW	NHW
BMI	36	23	24
Visceral Adipose Tissue (cm²)	227.1	214.4	74.7
Total Fat Area (cm²)	493.7	351.6	286.7
Tumor Grade	3	3	2
TNM Stage	I	I	I
VHL Somatic Mutation	No mutation	Synonymous	Deletion/frameshift

Body Composition Difference between HA and NHW RCC Patients Stratified by Sex

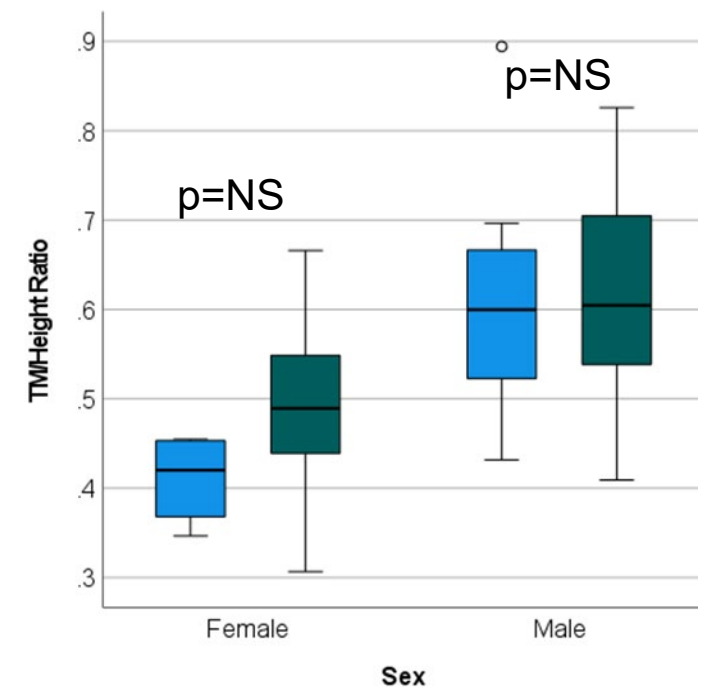
VAT/Height Ratio



SAT/Height Ratio



Total Muscle/Height Ratio



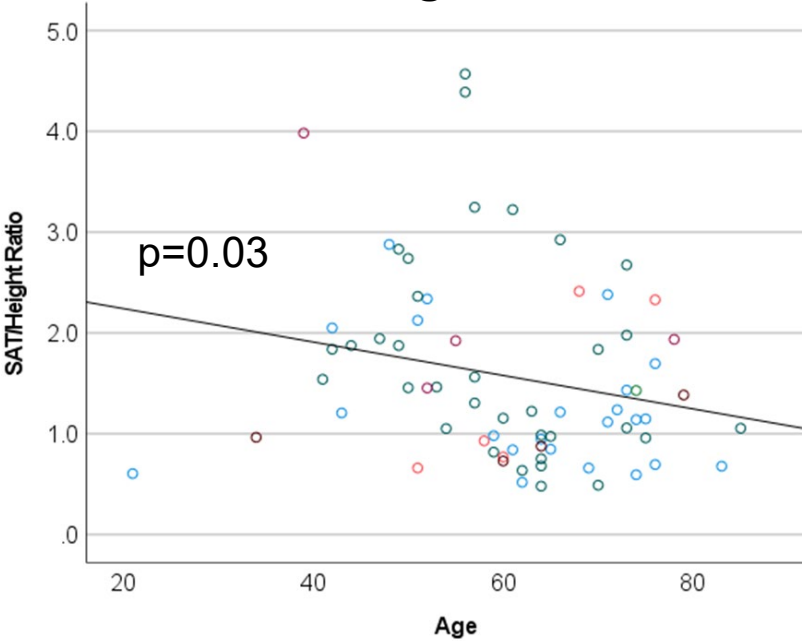
HA vs. NHW

■ NHW
■ Hispanic

19 HA males and 15 HA females,
18 NHW males and 5 NHW females

Body Composition and Clinical Characteristics (n=71)

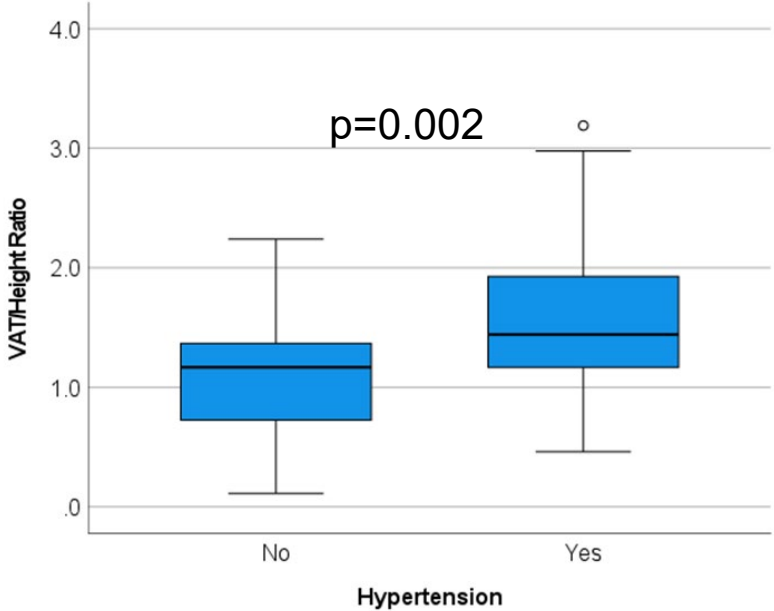
Correlation between age and SAT/height ratio



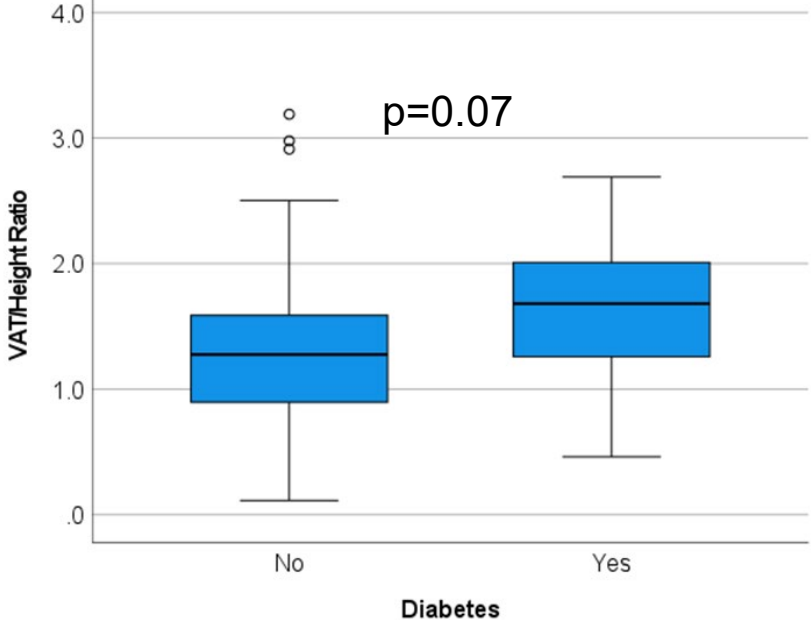
Spearman's correlation efficient -0.255

- RaceEthnicity
- NHW
- Hispanic
- AI
- NHB
- Asian
- Unknown

Higher VAT/height ratio in patients with hypertension and diabetes



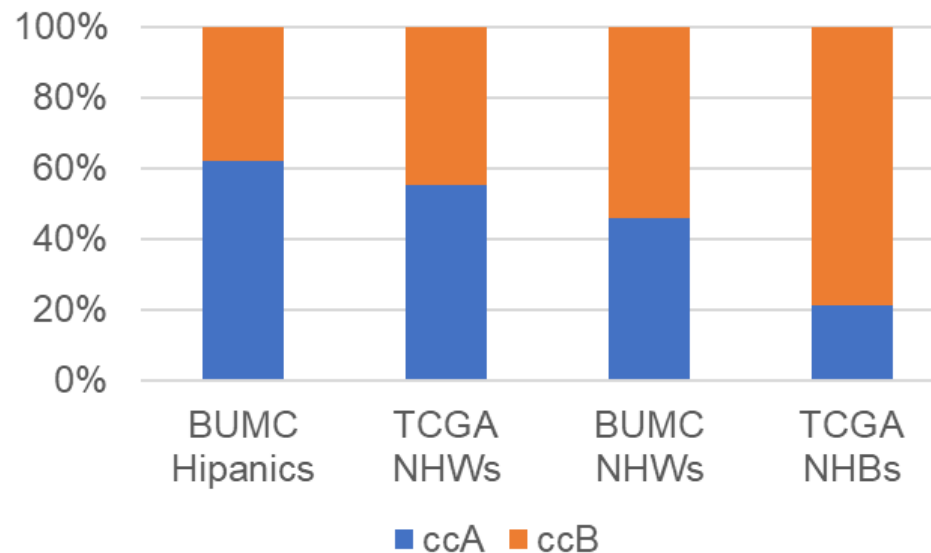
183.9 272.3
Mean VAT (cm²)



226.6 276.35
Mean VAT (cm²)

Clear cell RCC Molecular Subtype (ccA/ccB)

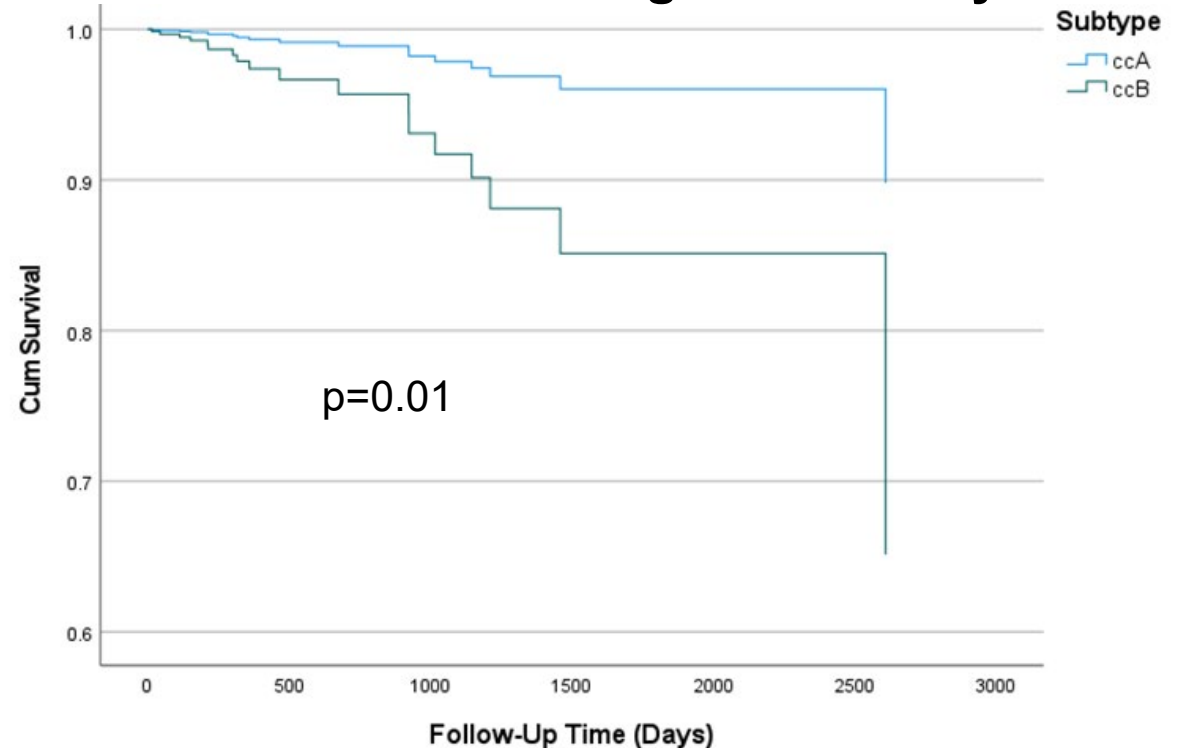
Higher Frequency of ccA in Hispanics



Odds of having ccA subtype (HAs vs. NHWs)

- OR 3.34 (95% CI: 1.17-9.52, p=0.02)
- Adjusting for age, sex, hypertension, diabetes, and BMI

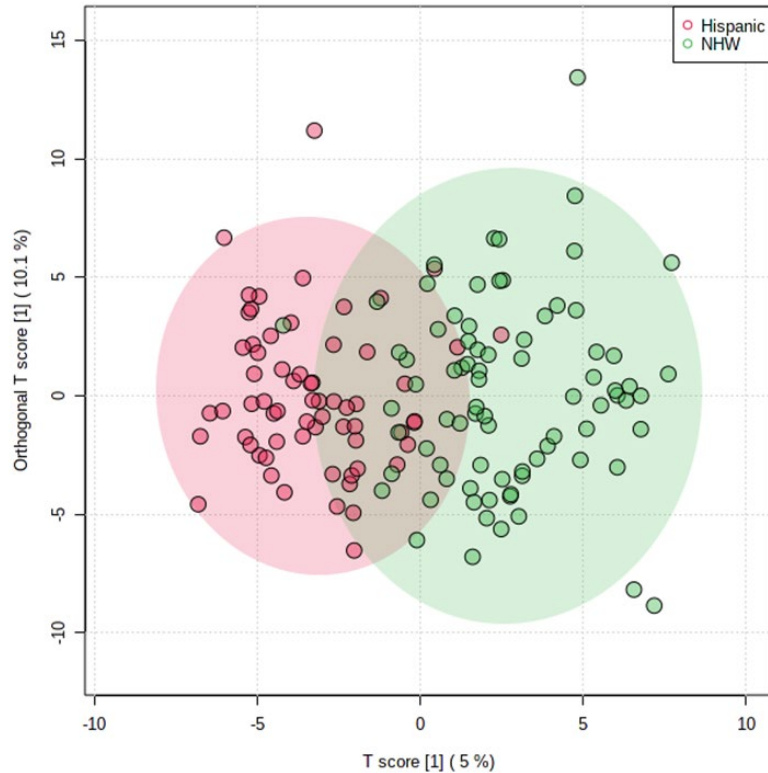
ccB associated with higher mortality



ccB vs. ccA - HR 4.87; 95% CI: 1.37-17.31
n=96

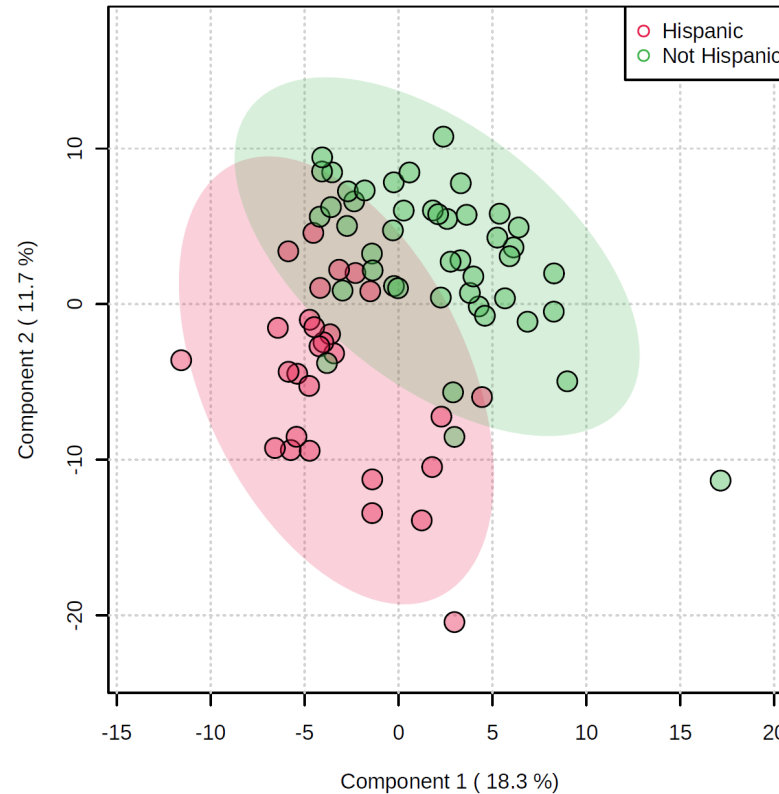
Urine and Plasma Metabolomic Differences between Hispanics and NHWs

Plasma – Lipids (n128)



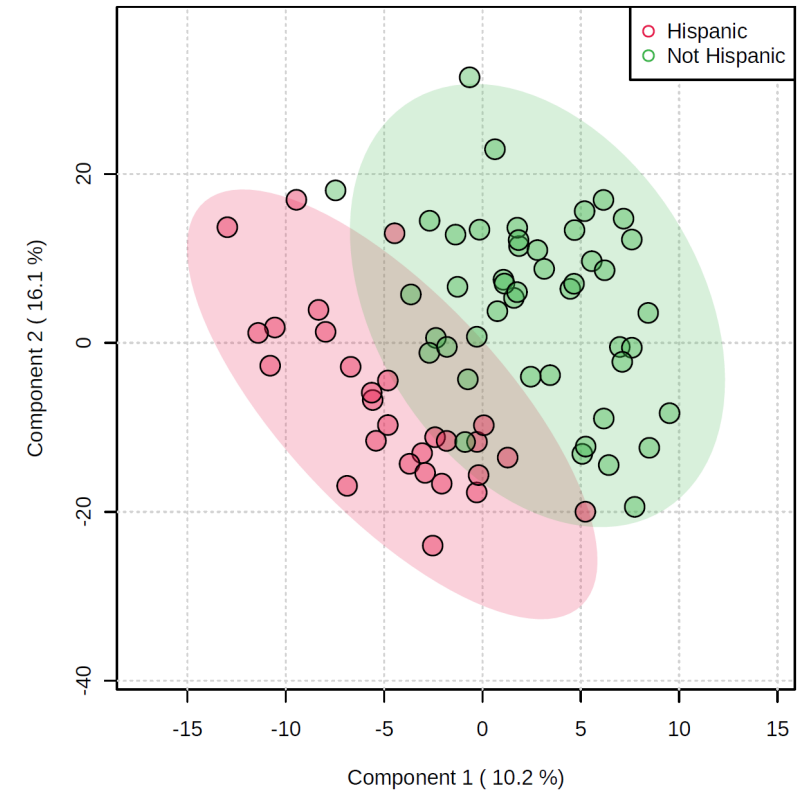
64 HAs and 64 NHWs

Urine - Hydrophilic interaction liquid chromatography (n=73)



28 HAs and 45 NHWs

Urine – Reverse phase liquid chromatography (n=73)



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