



Burchard - Pharmacogenomics of Bronchodilator Response in Minority Children with Asthma (PGX_Asthma)

Updated 10/19/2017

<http://pharm.ucsf.edu/burchard> [1]

[Introductory slides from the June 4, 2015 Steering Committee/EAP meeting \(requires log-in\)](#) [2].

Our goal is to understand the genetic basis of racial/ethnic differences in response to asthma therapies among children. Albuterol is the most commonly prescribed asthma medication in the world and is the mainstay of acute asthma management across all racial/ethnic groups. We have demonstrated that there are striking differences in the therapeutic response to albuterol between racial/ethnic groups: Puerto Rican and African American children with asthma are significantly less responsive to albuterol than Mexican children. Likewise, Puerto Rican and African American children suffer the greatest asthma morbidity, while Mexicans experience the lowest. These findings suggest that poor albuterol response contributes to disparities in asthma morbidity. Racial/ethnic differences in albuterol response are partially explained by genetic differences. We hypothesize that rare genetic variants contribute to racial/ethnic differences in albuterol response. We will use whole genome sequencing data to determine the genetic basis of differential drug response in minority children with asthma.

We have recruited the largest gene-environment study of asthma among ethnically diverse children in the US (n>10,000). Our study population for the current WGS proposal was created by combining 1,500 children from two independent but parallel studies of asthma: the **Genes-Environment & Admixture in Latino Americans Study (GALA II)** and the **Study of African Americans, Asthma, Genes and Environments (SAGE)**. The criterion for asthma case status was identical in both studies (physician diagnosed asthma or subject is currently taking asthma medication). For GALA II and SAGE, we have detailed measures of geocoded air pollution, tobacco exposure, and other environmental exposures, including socioeconomic status; these exposures were measured identically in both studies.

Source URL (modified on 10/19/2017 - 5:15pm):https://topmed.nhlbi.nih.gov/group/pgx_asthma
Links

[1] <http://pharm.ucsf.edu/burchard> [2]

https://topmed.nhlbi.nih.gov/system/files/meetings/Burchard%20NIH%20WGS%20Talk%206_4_15%201115%20hr_FINAL.pdf