

# HLA-DRB1 Alleles are Associated With COPD in a Latin American Admixed Population

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## Abstract

**Introduction:** While the molecular mechanisms of COPD pathogenesis remain obscure, there is mounting evidence supporting a key role for autoimmunity. Although human leukocyte antigens (HLA) alleles have been repeatedly associated with autoimmune processes, the relation between HLA and COPD remains largely unexplored, especially in Latin American (LA) populations. Consequently, this study aimed to investigate the presence of HLA class I and II alleles in COPD patients and healthy controls in a LA population with admixed ancestry. **Methods:** COPD patients (n = 214) and age-matched controls (n = 193) were genotyped using the Illumina Infinium Global Screening Array. The classic HLA alleles were imputed using HLA Genotype Imputation with Attribute Bagging (HIBAG) and the Hispanic reference panel. Finally, the distribution of HLA-DRB1 alleles was reexamined in 510 randomly recruited unrelated volunteers. **Results:** COPD patients showed a higher HLA-DRB1\*01:02 allele frequency (6.54%) than healthy controls (3.27%, p = 0.04, OR = 2.07). HLA-DRB1\*01:02 was also significantly associated with FEV<sub>1</sub> (p = 0.04) and oxygen saturation (p = 0.02), and the FEV<sub>1</sub>/FVC ratio was higher in HLA-DRB1\*15:01-positive patients (p = 9 × 10<sup>-3</sup>). **Conclusion:** We report an association among HLA-DRB1 alleles, COPD risk and pulmonary function parameters for the first time in Latin Americans. Since HLA-DRB1 genetic variability relates to the individual autoimmune response, these results support a role of autoimmunity in the pathogenesis of COPD.

## Author keywords

Admixture  
Autoimmunity  
Genetics  
HLA  
SNP