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Title: Genetic differences in COPD secondary to wood smoke and tobacco smoking

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Body: Background: COPD is a complex disease with different respiratory symptoms and lung damage, smoking is the main risk factor, however, exposure to smoke from burning biomass (wood smoke) is involved in the establishment of the disease, particularly in developing countries, the objective of this study is to assess whether there are genetic differences in susceptibility to COPD in relation to the risk factor in Mexican mestizo population. Methods: We included 83 patients with COPD secondary to wood smoke (WS) exposure and 198 secondary to tobacco smoking (TS). It was designed a microarray (Illumina, CA, USA) with 1536 single nucleotide polymorphisms (SNPs), 1285 related to the disease or a phenotype associated and 251 ancestry informative markers. Were employed the analysis software SPSS, STRUCTURE, PLINK and Haploview. Results: 4 SNPs in IL10, and EPHX1, SERPINE2 were significantly associated to COPD secondary WS exposure.

SNPs associated with COPD secondary to WS compared to TS

CHROM; GEN	SNP/minor allele	p	OR (IC 95%)
1; IL10	rs1800871 A	0.0093	0.477 (0.273-0.8335)
2; SERPINE2	rs10191694 A	0.0214	0.424 (0.2042-0.8807)
1; IL10	rs1518110 A	0.0258	0.5277 (0.3008-0.9257)
1; EPHX1	rs2234922 G	0.0326	2.308 (1.072-4.972)

19 haplotypes were associated in 6 genes: IL6, CYP2B6, SFTPD, SERPINE1, ADAM19 and SERPINE2.

Conclusions: There are genetic differences in COPD when compared TS to WS that may contribute to different forms of injury or severity in the lungs.