

Associations of Tumor Necrosis Factor G-308A with
Childhood Asthma and Wheezing

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ONLINE DATA SUPPLEMENT

Table E1. Characteristics of CHS participants, with and without TNF genotyping results.

	With TNF genotyped		Without TNF genotyped	
	n	%	n	%
Total = 6259	3699	59.1%	2560	40.9%
Demographic information				
Gender				
Girls	1978	53.5%	1267	49.5%
Boys	1721	46.5%	1293	50.5%
Age at study entry				
8-9	1939	52.5%	966	37.7%
10-11	787	21.3%	561	21.9%
12-13	552	14.9%	449	17.5%
14-18	421	11.3%	584	22.8%
Ethnicity				
Non-Hispanic Whites	2182	59.0%	1243	48.6%
Hispanics	989	26.7%	784	30.6%
African Americans	156	4.2%	178	6.9%
Asians	157	4.2%	132	5.2%
Others	215	5.8%	223	8.7%
Gestational Age				
Full term	3189	86.2%	2191	85.6%
< 4 weeks early	254	6.9%	144	5.6%
≥ 4 weeks early	160	4.3%	79	3.1%
Missing	99	2.7%	146	5.7%
<i>In utero</i> exposure to maternal smoking				
Yes	603	16.9%	527	22.0%
Any lifetime SHS exposure				
Yes	1230	34.6%	1134	47.6%
Current SHS exposure				
Yes	650	18.1%	716	29.7%
Ozone exposure				
High (≥ 50 ppb)	2166	58.6%	1535	60.0%
Lifetime residence				
Yes	1271	34.4%	815	31.8%
Respiratory Outcomes				
Ever asthma	551	15.2%	319	13.1%
Ever wheezing	1222	34.8%	738	31.3%
Current wheezing*	704	23.6%	429	21.0%
Medication for wheezing*	401	14.9%	238	12.8%

SHS = second-hand smoke

* based on self-report for the past 12 months

Table E2. Primer and Probe Sequences for TNF, GSTM1 and GSTP1 A105G Variants

GENE		Sequences
<i>TNF</i>	Forward primer	5'-GAAATGGAGGCAATAGGTTTTGA-3'
	Reverse primer	5'-GTAGGACCCTGGAGGCTGAAC-3'
	Probe for G allele	5'-(6FAM)CCGTCCCCATGCC-3'
	Probe for A allele	5'-(VIC)-CCGTCCTCATGCC3'
<i>GSTM1</i>	Forward primer	5'-TGGAACCTCCATAACACGTGA-3'
	Reverse primer	5'-TGGAAACTTCTGCAAACCTCAGC-3'
	Probe	5'-(6FAM)AAGCGGCCATGGTTTGCAGG-3'
<i>GSTP1</i>	Forward primer	5'-CCTGGTGGACATGGTGAATG-3'
	Reverse primer	5'-TGCTCACATAGTTGGTGTAGATGA-3'
	Probe for A allele	5'-(6FAM)TGCAAATACATCTCCCT-3'
	Probe for G allele	5'-(VIC)CTGCAAATACGTCTCC-3'

Table E3. Associations of *TNF* G-308A with Asthma and Wheezing Outcomes in Children at CHS entry, odds ratio (OR) and 95% confidence interval (CI) in two cohorts of 4th graders

Outcomes	<i>TNF</i>	Cohort 1 entered in 1993		Cohort 2 entered in 1996	
		OR	95% CI	OR	95% CI
Ever asthma	GA/AA	1.0	-- --	1.0	-- --
	GG	0.8	(0.6, 1.0)	0.8	(0.6, 1.2)
Ever wheezing	GA/AA	1.0	-- --	1.0	-- --
	GG	0.8	(0.7, 1.0)	0.7	(0.6, 0.9)
Current wheezing	GA/AA	1.0	-- --	1.0	-- --
	GG	0.7	(0.6, 0.9)	0.7	(0.5, 0.9)
Medication for wheezing	GA/AA	1.0	-- --	1.0	-- --
	GG	0.7	(0.5, 0.9)	0.6	(0.3, 0.8)

Models are adjusted for age, sex, race/ethnicity, town, lifetime residence, grade, and smoking exposure (*in utero* and second-hand)

Table E4. The association of *TNF* G-308A with asthma and wheezing outcomes in 4th-grade CHS participants in lower and higher ozone communities *, odds ratio (OR) and 95% confidence interval (CI) in two cohorts of 4th graders

Outcomes	<i>TNF</i>	Cohort 1 entered in 1993					
		Low ozone			High ozone		
		OR	95% CI		OR	95% CI	
Ever asthma	GA/AA	1.0	--	--	1.0	--	--
	GG	0.8	(0.4, 1.5)		0.9	(0.6, 1.4)	
Ever wheezing	GA/AA	1.0	--	--	1.0	--	--
	GG	0.6	(0.4, 0.9)		1.0	(0.7, 1.5)	
Current wheezing	GA/AA	1.0	--	--	1.0	--	--
	GG	0.6	(0.4, 1.1)		0.9	(0.6, 1.4)	
Medication for wheezing	GA/AA	1.0	--	--	1.0	--	--
	GG	0.6	(0.3, 1.2)		0.8	(0.5, 1.4)	
Outcomes	<i>TNF</i>	Cohort 2 entered in 1996					
		Low ozone			High ozone		
		OR	95% CI		OR	95% CI	
Ever asthma	GA/AA	1.0	--	--	1.0	--	--
	GG	0.7	(0.4, 1.3)		0.9	(0.6, 1.5)	
Ever wheezing	GA/AA	1.0	--	--	1.0	--	--
	GG	0.5	(0.4, 0.8)		0.9	(0.7, 1.3)	
Current wheezing	GA/AA	1.0	--	--	1.0	--	--
	GG	0.5	(0.3, 0.8)		0.9	(0.6, 1.3)	
Medication for wheezing	GA/AA	1.0	--	--	1.0	--	--
	GG	0.3	(0.2, 0.6)		0.9	(0.5, 1.5)	

Models are adjusted for age, sex, race/ethnicity, town, lifetime residence, grade, and smoking exposure (*in utero* and second-hand)

Table E5. Associations of GSTM1 and GSTP1 with Wheezing Outcomes in 4th-grade CHS Children, odds ratio (OR) and 95% confidence interval (CI)

Outcomes	GSTM1 (ref=present)			GSTP1 (ref=Ile/Ile)		
	OR	95% CI		OR	95% CI	
Ever wheezing	1.0	--	--	1.0	--	--
	0.9	(0.8,	1.1)	1.0	(0.9,	1.2)
Current wheezing	1.0	--	--	1.0	--	--
	1.0	(0.8,	1.2)	1.1	(0.9,	1.3)
Medication for wheezing	1.0	--	--	1.0	--	--
	0.9	(0.7,	1.3)	1.1	(0.9,	1.5)

Models are adjusted for age, sex, race/ethnicity, town, lifetime residence, grade, and smoking exposure (*in utero* and second-hand)