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Supplemental Information

**Airways Expression of SARS-CoV-2 Receptor, ACE2,
and TMPRSS2 Is Lower in Children Than Adults and
Increases with Smoking and COPD**

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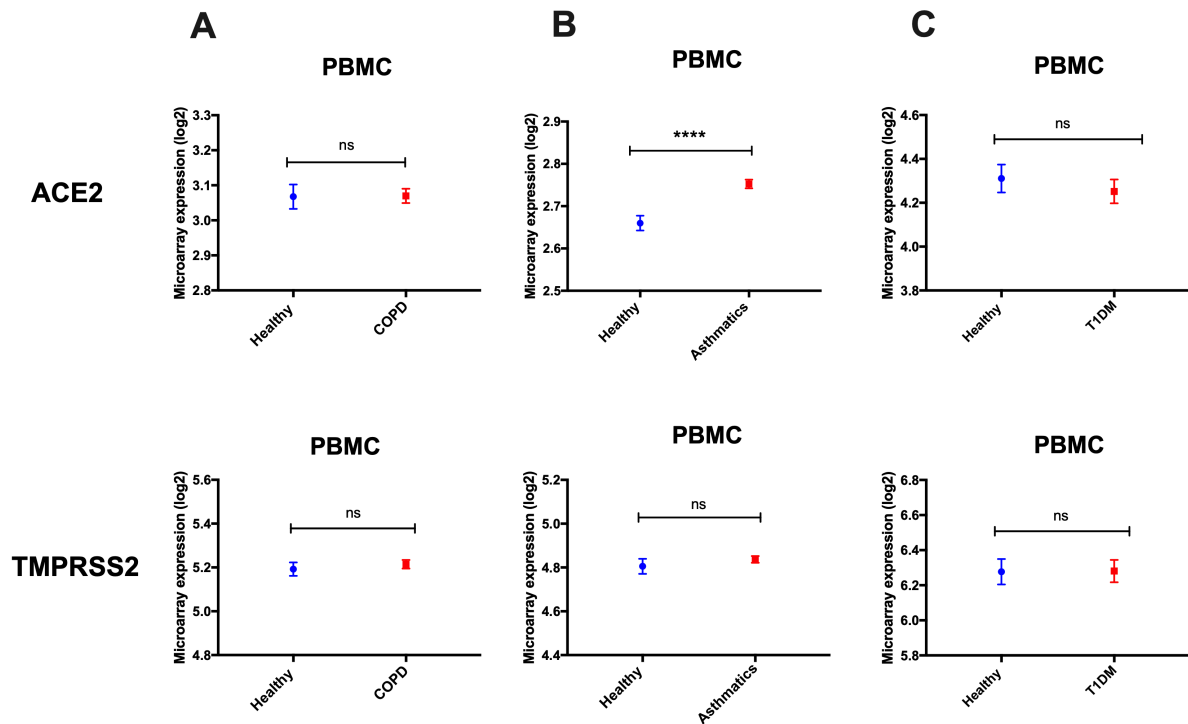


Figure S1. Normalized mRNA expression levels of ACE2 and TMPRSS2 genes in PBMCs of different diseases. (A) There was no significant difference in expression levels of ACE2 and TMPRSS2 in PBMCs of chronic obstructive pulmonary disease (COPD) compared to the healthy controls. (B) Comparisons of PBMCs of asthmatic versus control showed that while level of ACE2 was significantly higher in asthmatics there was no difference in PBMCs levels of TMPRSS2. (C) There was no difference in both the levels of ACE2 and TMPRSS2 in PBMCs of type 1 diabetes compared to healthy controls. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$, **** $P < 0.0001$.

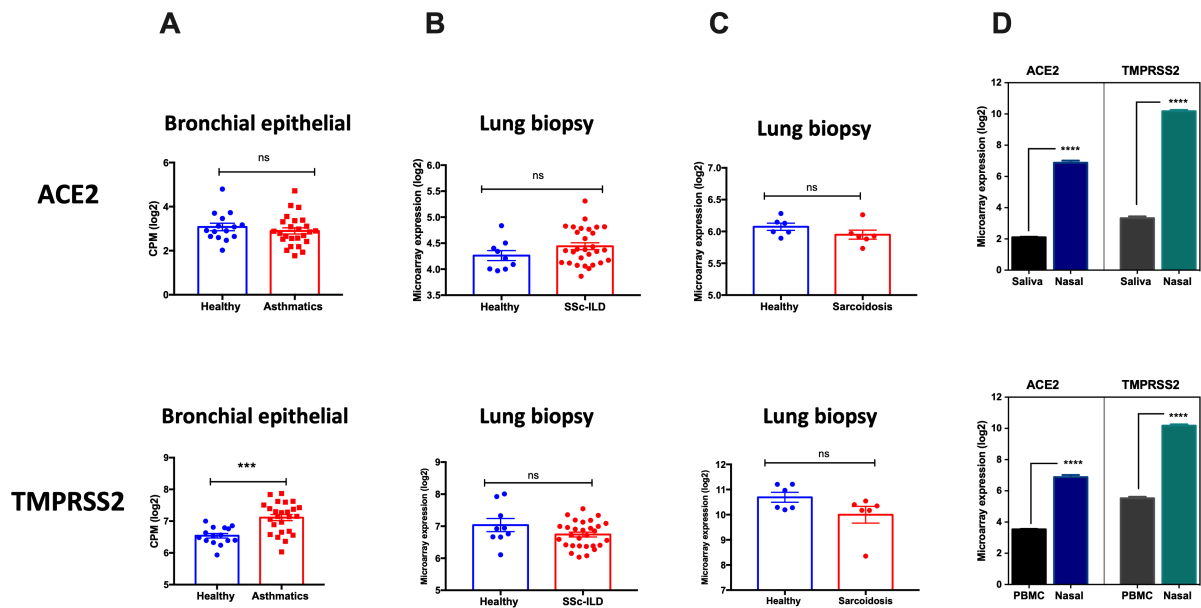


Figure S2. Normalized mRNA expression levels of ACE2 and TMPRSS2 genes in PBMCs and respiratory tissues. (A) Expression in counts per million (CPM) of ACE2 and TMPRSS2 genes in bronchial epithelial cells in healthy versus asthmatic children. There was no difference in expression levels of ACE2 between these two groups. (B and C) No difference was detected in levels of ACE2 and TMPRSS2 in biopsies of Scleroderma-associated Interstitial Lung Disease (SSc-ILD) versus healthy controls as well as in comparisons of gene levels in lung biopsies of sarcoidosis versus control. (D) We detected a significant difference in comparison of ACE2 and TMPRSS2 in nasal versus saliva as well as in comparison of nasal versus PBMCs. * $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$, **** $P < 0.0001$.

Table S1 Gene expression datasets used in this study.

Groups	GEO accession	Platform	Cell type	Condition 1	Condition 2
Children					
	GSE18965	GPL96	Bronchial epithelial cells	Healthy (n=7)	Asthmatic (n=9)
	GSE103166	GPL23961	Nasal swabs	Healthy (n=21)	Asthmatic (n=19)
	GSE118761	GPL11154	Bronchial epithelial cells	Healthy (n=22)	Asthmatic (n=32)
	GSE19743	GPL570	PBMCs	Healthy (n=34)	-
Adult					
	GSE56341	GPL6244	Small airway epithelial cells	Healthy (n=15)	-
	GSE41861	GPL570	Bronchial epithelial cells Nasal airway epithelium	Healthy Bronchial (n=29) Nasal (n=17)	Asthmatic Bronchial (n=52)
	GSE30063	GPL570	Small airway epithelial cells	Healthy (n=11)	-
	GSE16008	GPL5175	Bronchial epithelial cells Nasal airway epithelium	Healthy Bronchial (n=13) Nasal (n=21)	-
	E-MTAB-1690	GPL570	Bronchial biopsy	Healthy (n=14)	COPD (n=21) and Smokers (n=27)
	GSE16538	GPL570	Bronchial biopsy	Healthy (n=6)	Sarcoidosis (n=6)
	GSE24206	GPL570	Bronchial biopsy	Healthy (n=6)	Idiopathic Pulmonary Fibrosis Early IPH (n=8) and advanced IPH(n=9)
	GSE76808	GPL571	Bronchial biopsy	Healthy (n=4)	Systemic sclerosis (SSc)-related interstitial lung disease (ILD) (n=14)
	GSE81292	GPL18991	Bronchial biopsy	Healthy (n=5)	Systemic sclerosis (SSc)-related interstitial lung disease (ILD) (n=15)
	GSE64951	GPL570	Saliva	Healthy (n=63)	-
	GSE19743	GPL570	PBMCs	Healthy (n=29)	-
	GSE69683	GPL13158	PBMCs	Healthy (n=80)	Asthmatic (n=338)

	GSE70528	GPL570	PBMCs		Hypertension (n=8)
	GSE55098	GPL570	PBMCs	Healthy (n=10)	Type 1 diabetes (n=12)
	GSE42057	GPL570	PBMCs	Healthy (n=42)	COPD (n=94)
<i>In vitro</i>					
	GSE17400	GPL570	Human Bronchial Epithelial Cells (Calu-3)	Mock-infected Calu-3 12 hr (n=3), 24 hr (n=3), and 48 hr (n=3)	SARS-CoV-infected Calu-3 12 hr (n=3), 24 hr (n=3), and 48 hr (n=3)

COPD, Chronic obstructive pulmonary disease; PBMC, peripheral blood mononuclear cell; SARS-CoV, Severe acute respiratory syndrome coronavirus.